Rethinking mobile taxation to improve connectivity

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	SUB-SAHARAN AFRICA	MIDDLE EAST & NORTH AFRICA
Average tax payments as a percentage of revenue (2017)	GENERAL 15% + SECTOR-SPECIFIC 10% = TOTAL 26%	GENERAL 14% + SECTOR-SPECIFIC 10% = TOTAL 24%
Percentage of countries with sector-specific tax (2017)	63%	56%
Number of sector-specific increases or introductions 2011 to 2017	^ 41	^ 24
1 GB of data as a proportion of income, all earners (2017)	37% vs UN AFFORDABILITY TARGET 2025 2%	5% vs UN AFFORDABILITY TARGET 2025 2%
Taxes as a proportion of income, 20% lowest earners (2017)	27% vs TCMO UN AFFORDABILITY TARGET 2025 2%	3% vs TCMO UN AFFORDABILITY TARGET 2025 2%

ASIA PACIFIC

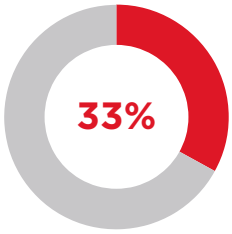
LATIN AMERICA

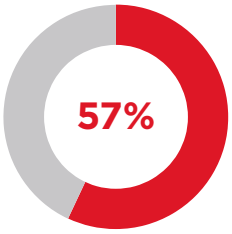
EUROPE

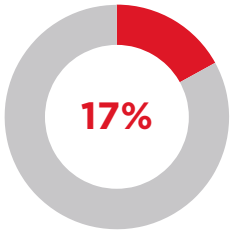
Average tax payments as a percentage of revenue (2017)

GENERAL	SECTOR-SPECIFIC	TOTAL
14%	10%	24%
14%	4%	18%
17%	4%	21%

Percentage of countries with sector-specific tax (2017)



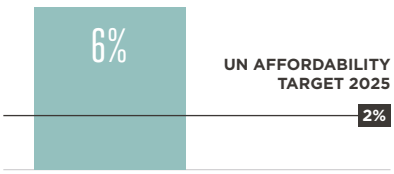


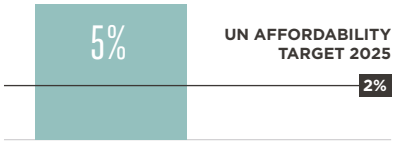


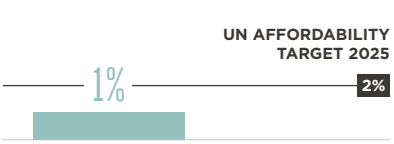
Number of sector-specific increases or introductions 2011 to 2017

^ 24	^ 15	^ 15

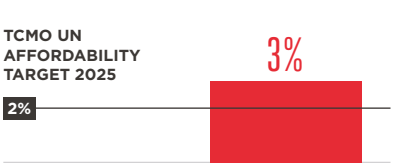
1 GB of data as a proportion of income, all earners (2017)

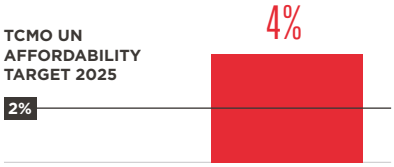


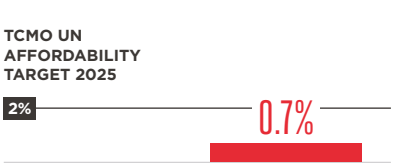




Taxes as a proportion of income, 20% lowest earners (2017)







Summary

Mobile is the main gateway to the internet for consumers in many parts of the world today, particularly in developing countries. Despite this, governments in many of these countries are increasingly imposing – in addition to general taxes – sector-specific taxes on consumers of mobile services and devices and on mobile operators. This poses a significant risk to the growth of the services among citizens, limiting the widely acknowledged social and economic benefits associated with mobile technology.

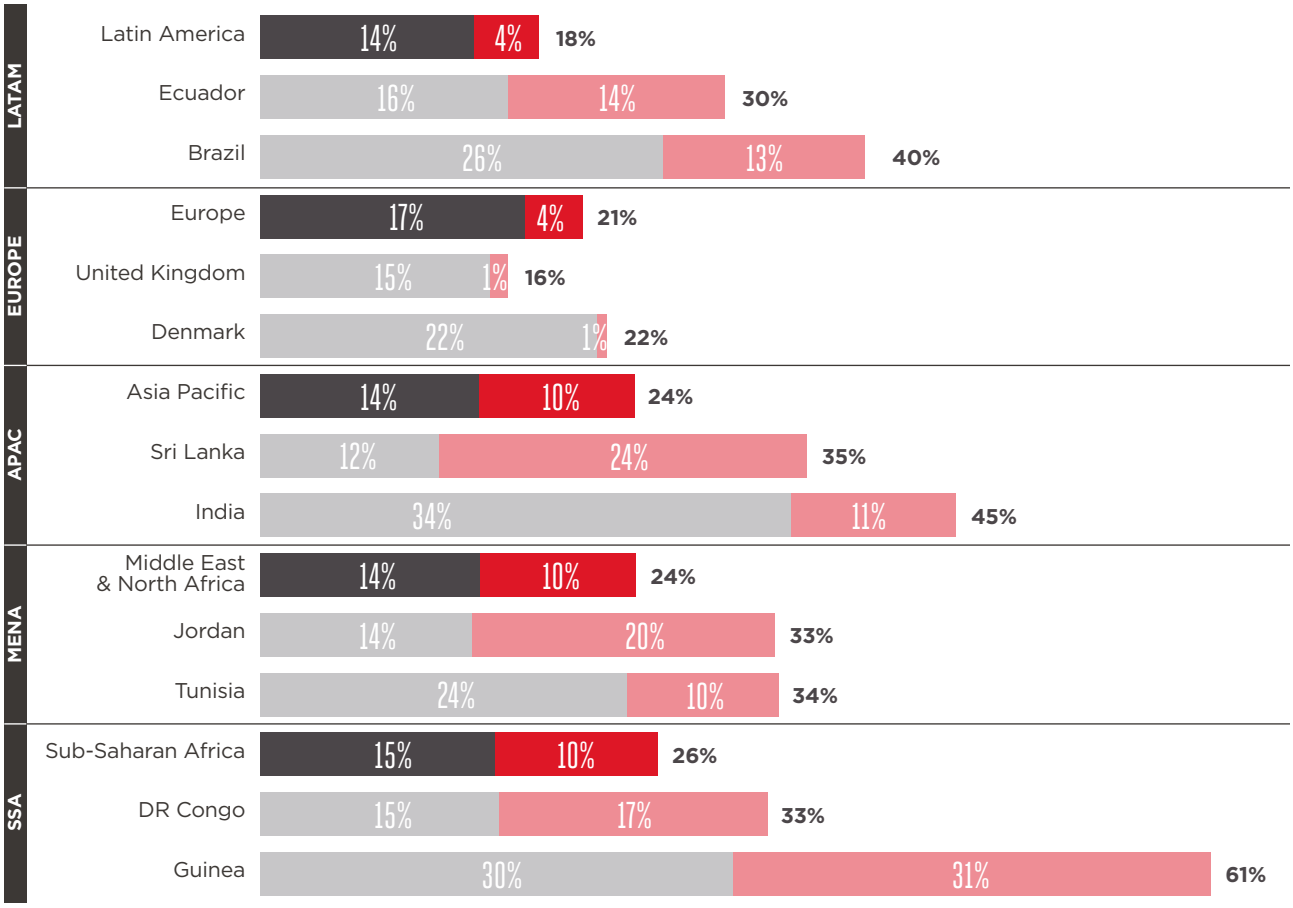
Mobile consumers and operators are subject to a substantial tax burden, increasingly driven by sector-specific taxes

In 2017, mobile taxes on consumers and industry accounted for, on average, 22% of market revenue.[1] Almost a third of these payments are taxes specific to the mobile sector, which are levied on mobile operators and consumers in addition to other, economy-wide, general taxes.

Figure 1

Consumers and operators are paying taxes in excess of 30% of market revenue in many countries

General and sector-specific taxes and fees as a proportion of market revenue (2017)



Source: GSMA Intelligence

1 Based on our survey of mobile operators in 86 countries worldwide.

This varies significantly across regions: markets in Sub-Saharan Africa are subject to some of the highest overall tax burdens, with markets there paying on average 10% of revenue as sector-specific taxes; this can, however, be as high as 31% in Guinea.

In 2017, almost 1.5 billion consumers in 60 countries were subject to sector-specific taxes when buying mobile services or devices, with a third of these in Africa and the Middle East.

- The number of countries where consumers pay sector-specific levies almost doubled between 2011 and 2017. There have been around 120 sector-specific tax-rate rises or new levies introduced during this period.
- Half of the 120 sector-specific tax increases were sector-specific taxes on usage, concentrated in Africa and the Middle East.

Sector-specific taxes reduce affordability and investment

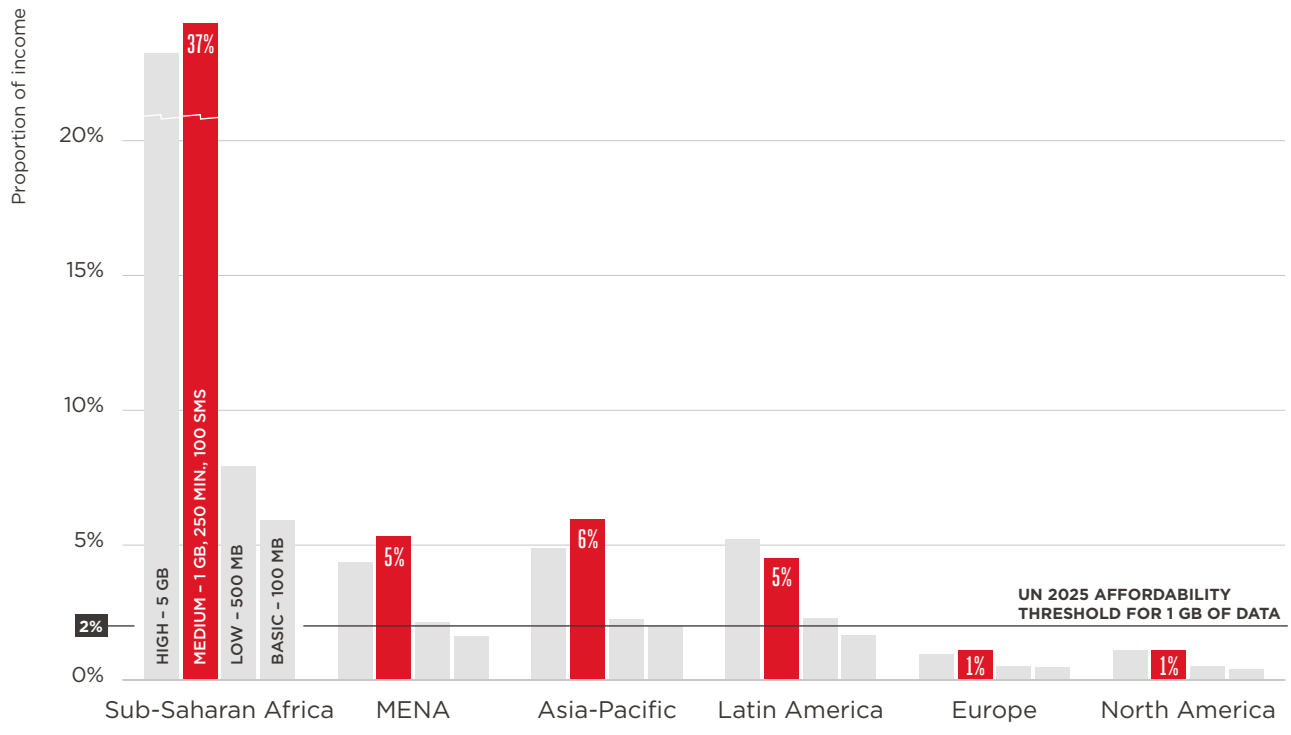
Affordable mobile internet access is important for consumers and society, given its power to transform societies and modernise economies. Mobile internet improves communication and access to information, boosts productivity and makes markets more efficient. Keeping mobile internet affordable allows more people to start realising these benefits, and allows existing users to consume more data – with more advanced, data-intensive technologies delivering even greater benefits.

The UN's Broadband Commission recently established the "1 for 2" affordability target. This requires that 1 GB of data should cost less than 2% of monthly income per capita, to ensure that, by 2025, the remaining 55% of the global population that is offline becomes connected. Many countries will struggle to accomplish this target: the purchase of 1 GB of data currently represents 5–37% of income in Sub-Saharan Africa, MENA, Asia-Pacific and Latin America – clearly unaffordable levels that are between 2× and 18× the threshold that the UN aims to achieve by 2025.

Figure 2

Mobile internet remains unaffordable for many users across the world

Total cost of mobile ownership as a proportion of income, all earners (2017)



Source: GSMA Intelligence

These affordability problems are in part explained by consumers bearing an increasing tax burden. Consumer taxes were 19% of the total cost of mobile ownership (TCMO) in 2017, which represents an increase since 2011 – partly driven by the numerous sector-specific tax increases. In several markets (for example, Turkey, Congo and Argentina) taxes account for more than a third of TCMO for consumers. All of them have sector-specific taxes in place.

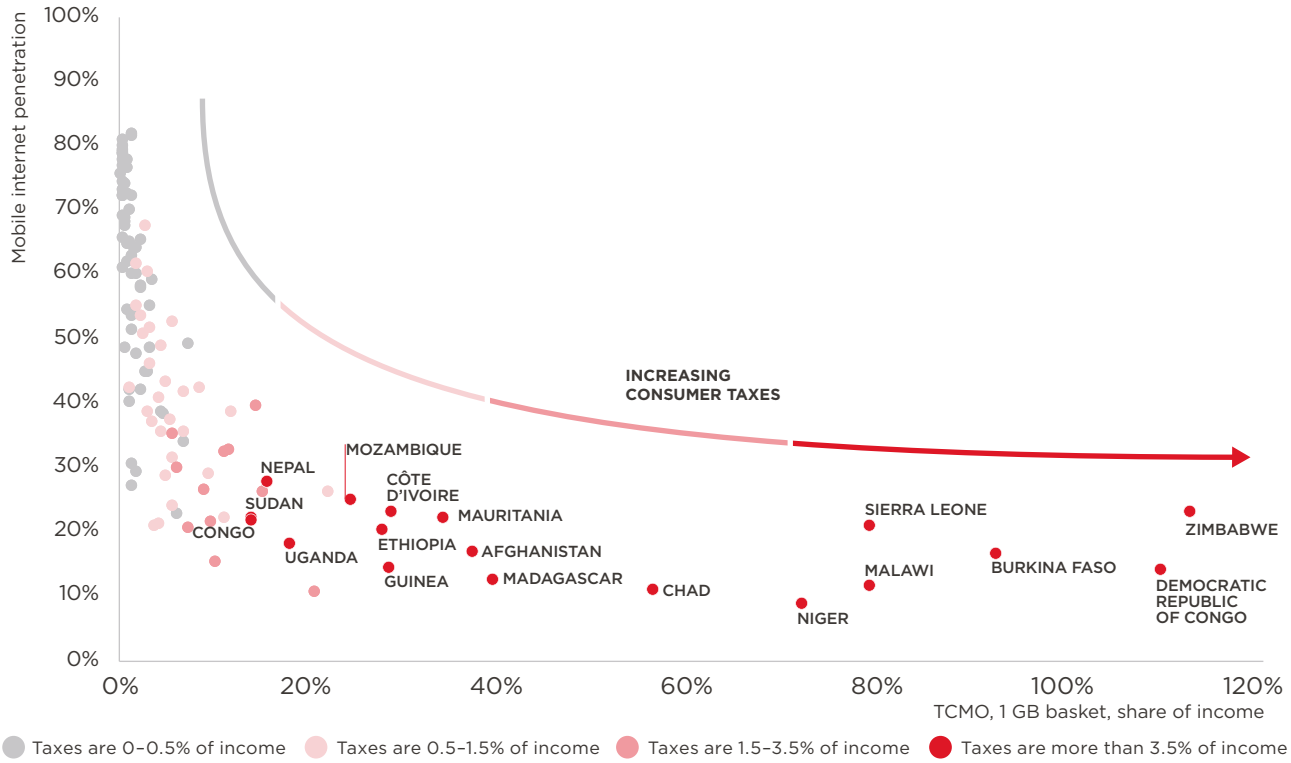
Affordability can be improved by alleviating the tax burden faced by consumers. In Africa, Latin America, the Middle East and Asia-Pacific, consumer taxes alone (at over 2% of income) already make services unaffordable for the 1.2 billion people that represent the bottom 20% of the income pyramid – this is before even taking into account the actual price of the service and devices.

Reducing the cost of mobile ownership is important for governments, as lower consumer costs are associated with higher levels of mobile connectivity. In particular, where the burden of tax is lower for consumers, the cost of mobile ownership is lower. For countries where taxes account for more than 3.5% of consumers' incomes, reducing taxes could be an important strategy to improve mobile connectivity.

Figure 3

How consumer taxes increase the cost of mobile ownership and restrict mobile internet penetration

Total cost of mobile ownership for 1 GB (as a proportion of income) and mobile internet penetration (2017)



Source: GSMA Intelligence

Investment is also hindered by sector-specific taxation as operators' cash flows are reduced, making them more reliant on capital markets to invest. High tax burdens on the mobile sector affect the case for investment as consumers reduce their use of mobile in high-tax markets.

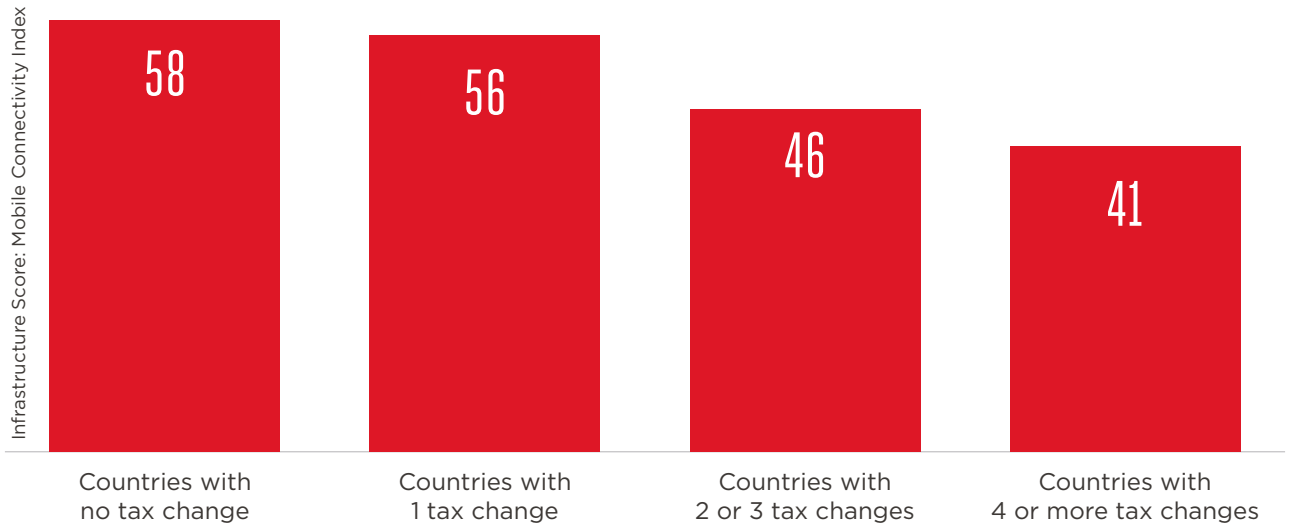
There is also a relationship between consumer tax volatility, which creates uncertainty, and the state of mobile infrastructure. Markets where consumer taxes were changed four times or more over the period 2011–2017 (for instance, Bangladesh, Brazil and Egypt) have an infrastructure rating[2] that is on average 17 points lower than markets where consumer taxes were not changed. High tax levels and uncertainty can create poor environments for operators considering investments in the deployment of new technologies and networks, including 4G and 5G.

2 As measured in the GSMA Mobile Connectivity Index 2017. The infrastructure enabler score measures the availability of high-performance mobile internet coverage.

Figure 4

Markets with higher tax uncertainty score lower on infrastructure provision

2017 Infrastructure score from the GSMA Mobile Connectivity Index according to number of consumer tax changes (2011–2017)



Source: GSMA Intelligence

Rebalancing sector-specific taxes and regulatory fees can promote connectivity, economic growth, investment and fiscal stability

Sector-specific taxes do not take into account the wider economic benefits of mobile. A strategy of tax revenue maximisation will result in countries missing out on the benefits of mobile to consumers and the global economy. In addition, since mobile enables e-government services, it has a large part to play in helping tax administrations become more efficient.

Reductions in sector-specific taxes can increase the affordability of mobile services and boost demand, which adds value to the economy through the knock-on impact on other industries and the increased productivity of workers with mobile connections. The wider mobile industry is able to support more jobs and increase investment in infrastructure, which has a further positive impact on the economy. GSMA studies find that demand can be stimulated to the point that government tax revenues also increase in the medium term.

Table 1

Modelled impact of selected tax reforms after five years

	ARGENTINA Eliminating excise duty on mobile services (4.2%)	**SRI LANKA** Removal of telecoms levy on voice and SMS (25%)	**TUNISIA** Eliminating customs duties on network equipment
GDP impact	+ $1,830 million	+ $878 million	+ $161 million
Tax revenue impact	+ $980 million	+ $165 million	+ $42 million

Source: Reforming mobile sector taxation in Argentina, GSMA, EY, 2017; Reforming mobile sector taxation in Tunisia, GSMA, EY, 2018; Reforming mobile sector taxation in Sri Lanka, GSMA, EY, 2018.

Governments across the world have recognised the importance of policies that support the ICT sector, resulting in digital agendas that set ambitious connectivity objectives, often relying on mobile networks to fulfil them. A number of principles for reforming sector-specific taxation and fees should be considered by governments, to align mobile taxation with that applied to other sectors and with the best practices recommended by international organisations such as the World Bank and IMF.

Table 2

Best-practice principles of taxation applied to the mobile sector

Taxes should be as broad based as possible	Taxes and fees on the sector beyond general taxes distort markets and affect levels of prices and investment. Reducing these sector-specific taxes leads to increases in the adoption and use of mobile services. By extending the user and tax base, reductions in taxation have a positive impact on government revenues in the medium to long term. Phased reductions of sector-specific taxes and fees represent an effective way for governments to signal their support for the digital connectivity agenda and to benefit from economic growth resulting from the reductions, while limiting significant negative impact on public finances in the short term.
Tax systems should be simple and certain	Uncertainty over future taxation reduces investment as the risk of future tax rises is priced into investment decisions. In addition, numerous sector-specific fees levied on different tax bases raise compliance costs for mobile operators and the tax administration. Governments should seek to limit unpredictable tax and fee changes, and streamline their levies of taxes and fees.
Taxes should not undermine affordability and access to services	One of the surest ways to lower the take-up of mobile services is to tax access to the market. Removing these taxes has the potential to increase the taxable base for the government. • Luxury taxes on handsets and SIM cards, and other activation or connection charges create a direct barrier for consumers to connect and access mobile broadband, especially in developing markets and for the poorest. To enable more users to gain access to the mobile market, governments should choose to address affordability barriers caused by taxes on devices and connections. • Like any other tax that targets access, import duties applied to handsets restrict access to mobile services. Governments should align their tax policies with the WTO´s Information Technology Agreement, aimed at eliminating import duties on technology products.
Taxes should not undermine investment	Taxes on revenues are particularly distortive as they continue at the same level regardless of whether the operator makes a profit or loss, or whether it is investing in new innovative networks. Moreover, when used to set up or replenish universal service funds (USFs), the frequent delays or lack of disbursement of collected levies wastes operators' financial resources.
Spectrum should be effectively priced to facilitate better quality and more affordable services	The approach to awarding spectrum needs to balance *ex-ante* and *ex-post* fees in a transparent way to ensure operators do not pay twice for access to the same resource as this would discourage investment. By adopting a long-term perspective, setting modest reserve prices and prioritising spectrum allocation, governments and regulators can support operators in the delivery of high-quality and affordable mobile services to consumers.

Source: GSMA

1 Taxation in mobile markets

Consumers and operators are subject to mobile sector-specific taxes

Many countries impose sector-specific taxes on mobile services and devices, which consumers and operators pay on top of general taxes. Higher taxes are typically imposed to discourage economic activities with a negative impact on society, such as pollution. However, the mobile industry induces positive economic and social benefits, such as the well-acknowledged productivity and economic growth that arises from the use of mobile technology.[3] The introduction of these additional taxes may represent a constraint to many countries in achieving the full benefits of mobile technology.

Governments in both developed and developing markets have resorted to creating sector-specific taxes on mobile services and devices as a means to obtain additional revenue. In developing and emerging markets, this is particularly related to the high incidence of activity in the informal economy, which makes it difficult to tax consumption of goods and services, personal income and the activity of small firms. Meanwhile, the use of mobile services and mobile operators' businesses are characterised by transparent billing systems that make the industry's economic activity easier to target with taxes and fees.

Consumers of mobile services are taxed when buying a mobile device, activating a service and using their mobile phones.

- **Devices** are subject to general taxes such as value-added tax (VAT) and customs duties. Some markets have also introduced additional sector-specific taxes such as excise taxes on the handset value or higher VAT rates for more expensive handsets considered luxury goods.
- In some countries, on **activation** of their mobile services, consumers also pay general taxes such as VAT on the sale of a SIM card, and sector-specific taxes such as activation fees on SIM cards or connection charges.
- Finally, the **usage** of mobile services is subject to general taxes, such as VAT and a General Service Tax (GST), and in some countries sector-specific taxes, excise taxes or higher VAT rates.

Operators also face various taxes on the provision of mobile services. Aside from general taxes, such as corporation tax, operators contribute to public funding through a number of sector-specific taxes and fees. They typically pay one-off and recurring licence and spectrum fees, as well as additional taxes on revenue or profits in some countries. One-off spectrum fees, in particular, can amount to hundreds of millions of dollars per year for operators across the world. Many operators also contribute to universal service funds from their gross revenues, via annual taxes or fees.

3 The Mobile Economy 2018, GSMA, 2018; *The Impact of Broadband on the Economy: Research to Date and Policy Issues*, ITU, 2012

Table 3

Overview of taxes and fees

	Consumers								
TAX BASE	Activation		Usage			Handset			
TAX TYPE	VAT	SIM, connection, numbering taxes	VAT	Usage excise tax	Usage higher VAT	VAT	Handset excise tax	Handset higher VAT	Customs duties

	Operators								
TAX BASE	General taxes				Regulatory fees and other payments				
	Profits	Revenue		Network equipment	Revenue	Fixed amount			
TAX TYPE	Corporation tax	Turnover tax	Other revenue taxes	Customs duties	Universal service obligations	Variable licence fee	Variable spectrum fee	One-off licence fee	One-off spectrum fee

☐ General ■ Mobile sector-specific

Source: GSMA Intelligence

Sector-specific taxes are not aligned with best practices in taxation, and can hinder development of the sector

Sector-specific taxes on mobile services and devices are not consistent with established principles to achieve efficient, equitable and simple taxation – as identified by international organisations such as the World Bank,[4] International Monetary Fund (IMF),[5] International Telecommunications Union (ITU)[6] and Organisation for Economic Cooperation and Development (OECD).[7] Imposing sector-specific taxes generates five problems, shown in Table 4. As a result, these taxes may reduce the affordability of mobile services, reduce operators' investment, and limit the impact of mobile use on the wider economy.

Table 4

Issues generated by sector-specific taxation

	Problem	Best-practice principle
	Sector-specific taxes on mobile services and devices raise prices for consumers and costs for firms, which reduces the consumption and supply of mobile services and devices.	An efficient tax system should rely on low rates and wide bases to minimise the impact on consumption and production levels.
EFFICIENCY	By reducing consumption of mobile services, **sector-specific taxes constrain well-acknowledged positive social and economic impacts of mobile technology.**	Taxes should account for product and sector externalities, encouraging the consumption and supply of goods and services with positive broader economic impacts via lower specific tax rates.
	Sector-specific taxes discriminate against the mobile industry compared to other sectors, which can divert investments, and more generally have a distortive impact.	Taxation should be broad-based across sectors. Adopting the same tax rates across sectors and limiting the use of tax exemptions allow for fewer distortions on the economy. This minimises changes in relative prices and investment returns of telecoms markets compared to the other markets.
EQUITY	**Sector-specific taxes can be regressive, i.e. fall disproportionately on poorest households,** where they raise the price of mobile services across the population without regard for capacity to pay.	Taxes should take into account income, i.e. they should be designed so that they do not have a regressive impact. Taxes that are fixed or that apply to necessity goods are particularly likely to have regressive effects.
SIMPLICITY	**Sector-specific taxation adds to the complexity and opacity of tax policy,** increasing mobile operators' compliance costs and disincentivising investment – as well as meaning more costly enforcement for governments.	A simple and transparent tax system involves a reduced number of taxes for firms to comply with. A stable, predictable tax design generates less cost for businesses and creates more certainty for investment.

Source: GSMA Intelligence

Chapters 2 and 3 in this report describe trends in sector-specific taxes worldwide, resulting from the largest operator survey and review of taxes carried out by the GSMA. The analysis finds evidence of an increasing global trend in sector-specific taxes.

Chapter 4 of the report shows how these sector-specific taxes create inefficiency, inequity and complexity in the sector, having three major impacts for consumers: on affordability, investment and the wider economy.

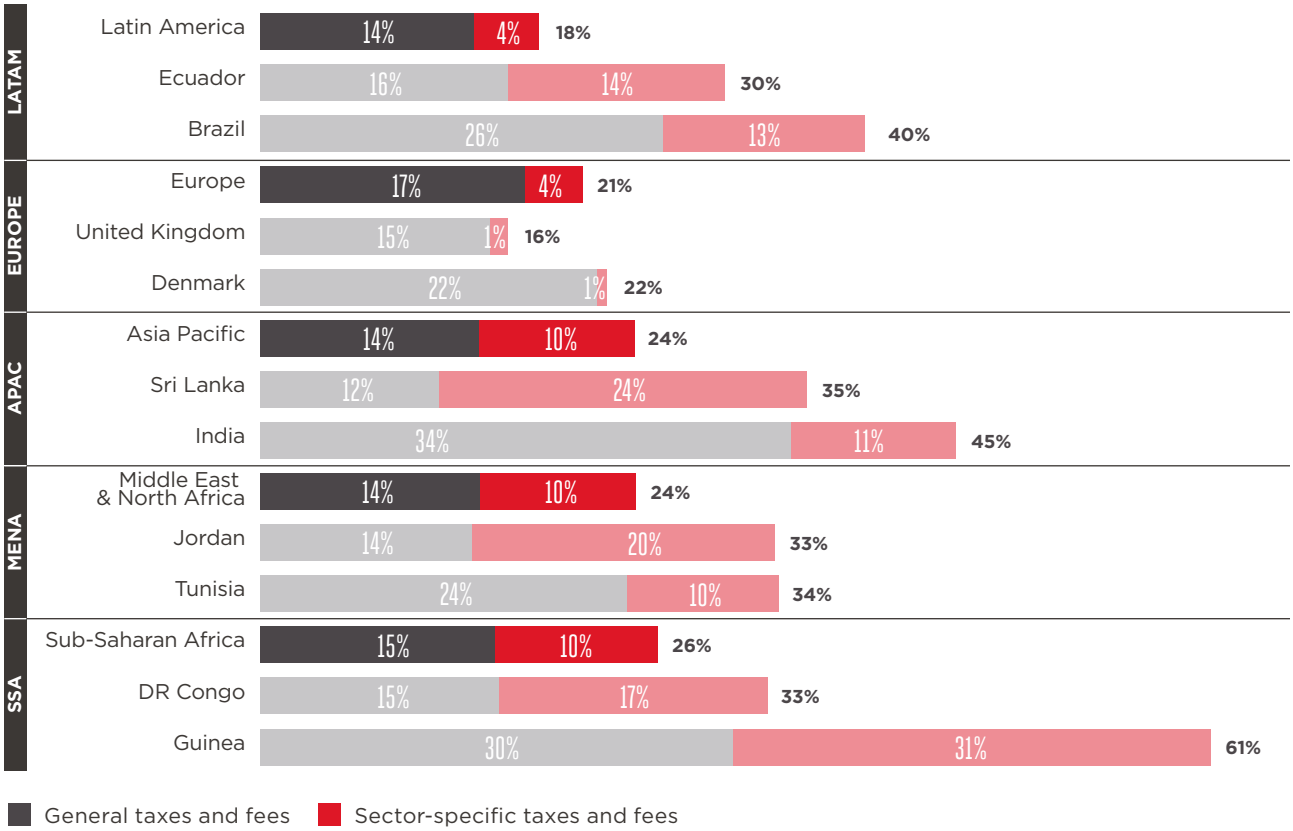
4 *Introduction to Tax Policy Design & Development*, Bird and Zolt, 2003
5 *Taxing Principles*, IMF, 2014
6 *Taxing Telecommunication/ICT services: an overview*, ITU, 2013
7 *Fundamental principles of taxation in addressing the tax challenges of the digital economy*, OECD, 2014

2 Tax payments made by mobile operators and consumers

Firms all over the world are subject to some form of taxation. Taxes are both directly incurred by operators and collected by operators on behalf of consumers. The GSMA collected data on both types of tax paid by mobile users and service providers in 2017. The results presented in this section are based on responses from more than 150 local mobile operators, spanning 34 operator groups operating in 86 countries.[8]

Figure 5

General and sector-specific taxes and fees as a proportion of market revenue (2017)



Source: GSMA Intelligence

8 Country-level results are only shown for a smaller subset of countries where at least two operators in that country responded to the survey. This is to maintain confidentiality and to ensure a representative sample of operators in that country.

In 2017, tax and fee payments represented approximately 22% of average country market revenue across our sample of operators. The mobile market in Guinea was subject to the highest level of taxation in our sample: 61% of market revenue.

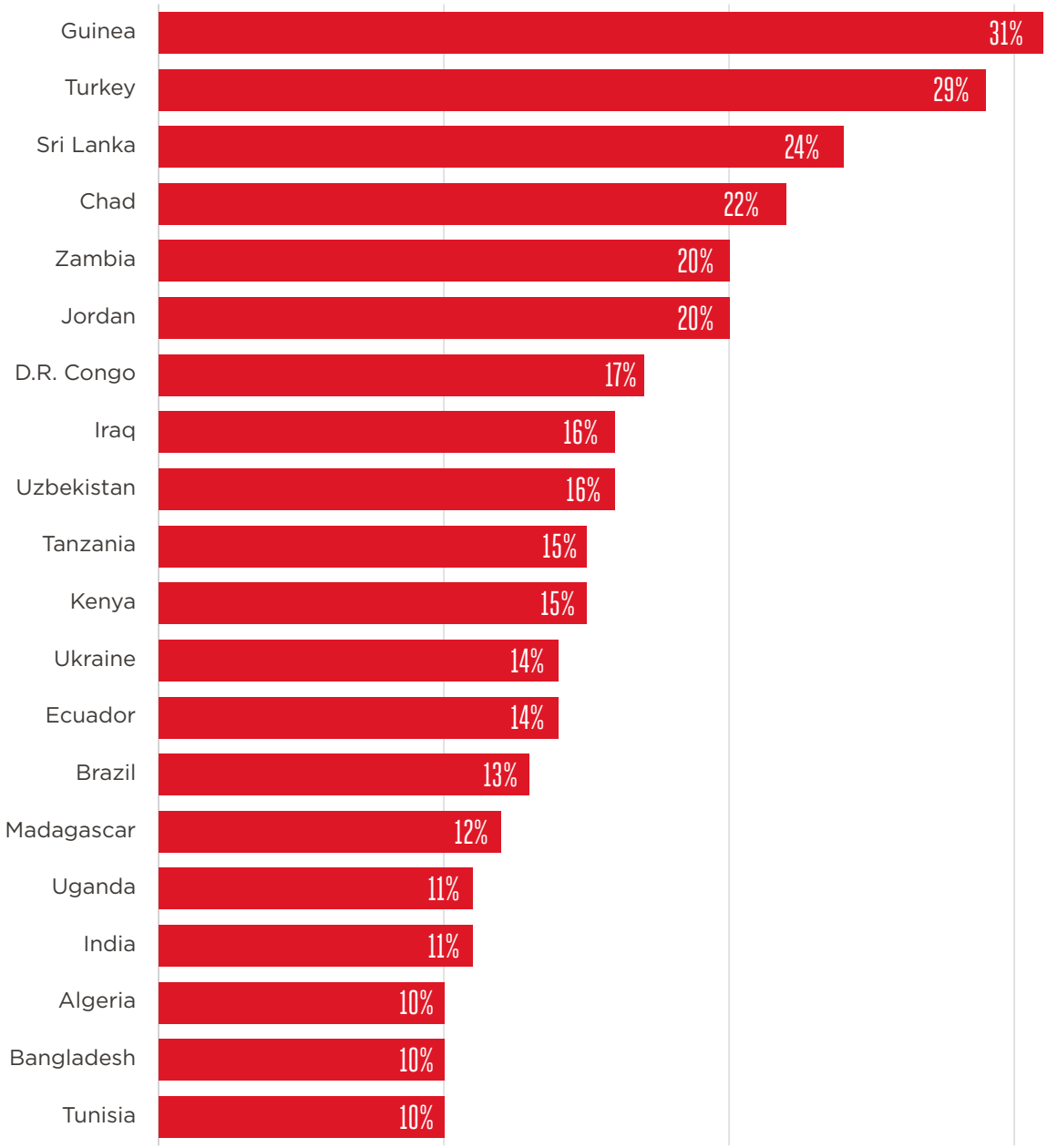
Operators in other developing markets in Sub-Saharan Africa are also heavily taxed – including in Chad (37%), Zambia (35%) and the Democratic Republic of Congo (33%). This contrasts with the more developed economies of Nigeria (7%) and South Africa (12%).

Conversely, in South America, operators in its largest economy, Brazil (40%), are taxed significantly more than those in other countries in the region. As a result, Brazil is one of 20 countries where sector-specific taxation as a percentage of market revenue is at its highest.

Overall, mobile sector-specific taxes are a key contributor to total tax payments. On average, sector-specific taxes represent approximately 30% of tax payments, or approximately 7% of total market revenue.

Figure 6

Sector-specific taxes and fee payments as a proportion of market revenue – top 20 countries with the highest payments (2017)

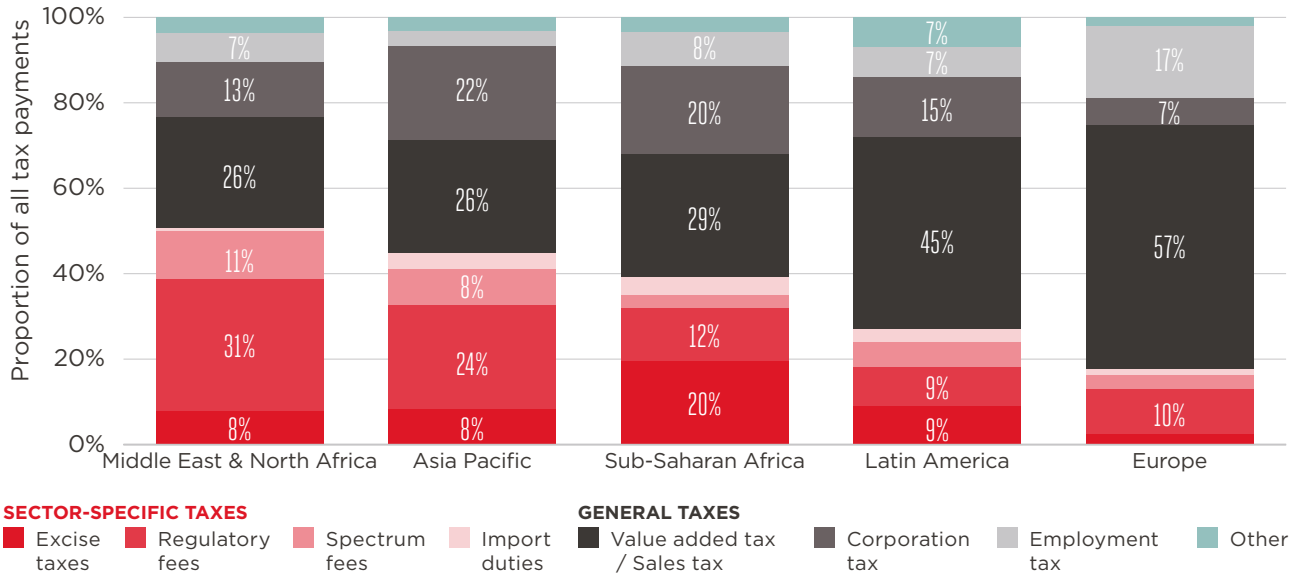


Source: GSMA Intelligence analysis and GSMA Country Reports completed in 2018.
Sector-specific taxes include the categories shown in the breakdown in Figure 7.

The source of sector-specific taxes varies by region. In MENA and Asia Pacific, the majority of sector-specific taxes are regulatory fees, paid directly by the operator as a percentage of revenue. [9]

Figure 7

Tax payments split by type of tax (2017)[10]



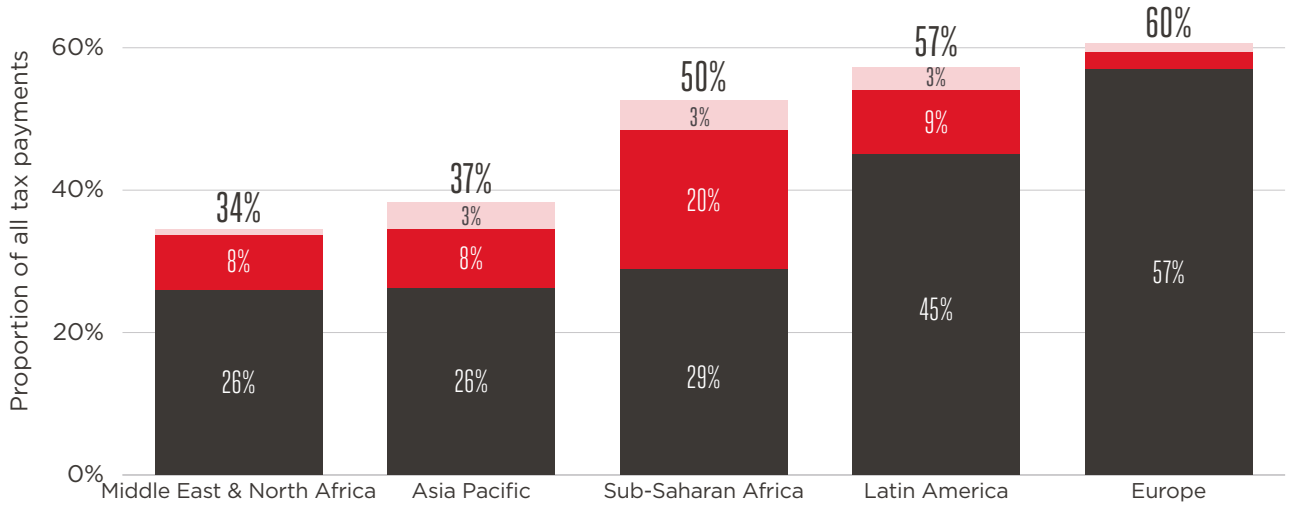
Source: GSMA Intelligence

The tax splits have an impact on whether taxes are directly paid by consumers, or whether the burden falls on operators. Across Asia Pacific and the Middle East, operators take on the larger burden of the sector's tax payments. In all other regions, taxation falls mainly on consumers.

In Latin America, excise taxes paid by consumers account for 9% of mobile sector tax payments on average. This is only higher in Sub-Saharan Africa, where consumers pay the most in sector-specific excise duties, which are equal to 20% of all tax payments on average in the region.

Figure 8

Consumer tax payments as a proportion of total tax payments (2017)



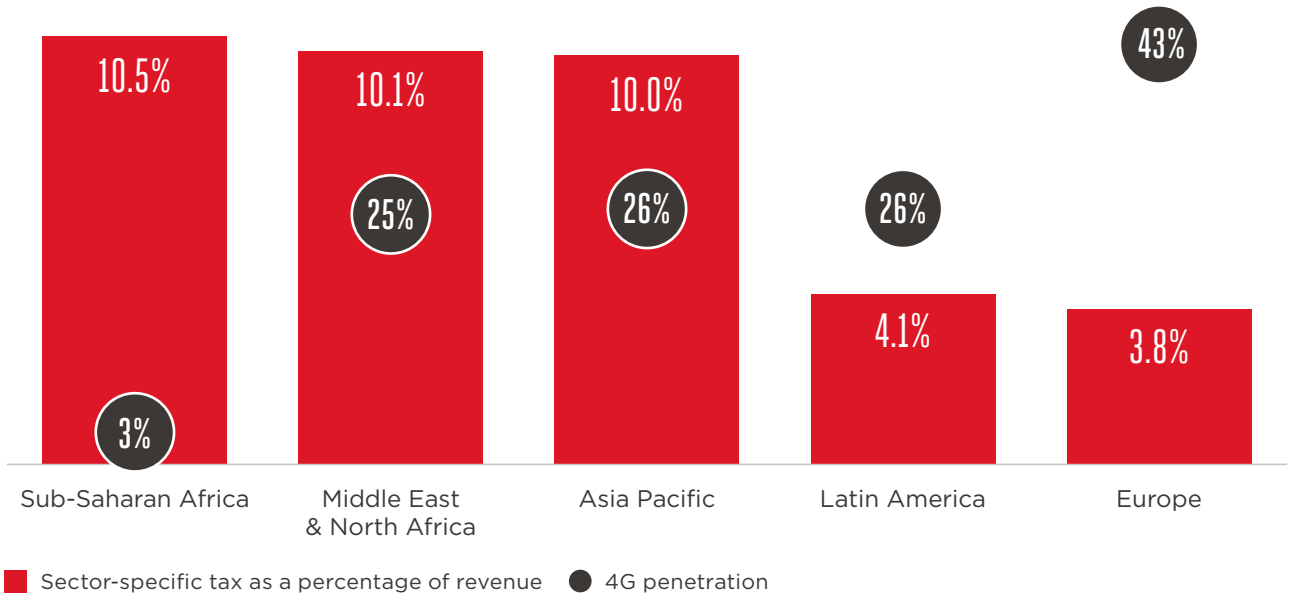
Source: GSMA Intelligence Note: totals may not add up due to rounding.

9 Examples of these regulatory fees are set out in more detail in Chapter 4.
10 The "other" category varies by region: notable examples include municipal taxes in Latin America; Zakat in Middle East & North Africa; non-telecoms development funds in Sub-Saharan Africa and Asia Pacific. The description of each category is available in the Appendix.

Consumers in Europe also contribute significantly to the sector's tax burden, but through general economy-wide value-added taxes (VAT) and sales taxes (57% of average tax payments). These economy-wide taxes are less distortionary than the mobile-specific taxes seen in Africa, the Middle East and Latin America, as general taxes do not change relative prices and investment returns (of telecoms markets compared to other sectors). Where taxes are less distortionary in Europe, there is significantly higher take-up and consumption of 4G mobile services (see Figure 9).

Figure 9

Sector-specific taxation and 4G mobile services (2017)



Source: GSMA Intelligence Note: average of countries surveyed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3 Trends in consumer tax rates

We reviewed tax regimes in 143 markets (representing 98% of the global population), analysing the sector-specific taxes that consumers pay when using mobile services and purchasing mobile devices in 2017. The review covered five categories of sector-specific tax, grouped under activation, usage and handset taxes (see Table 5). VAT and customs duties on devices were also reviewed though not considered as a sector-specific tax. To analyse trends, a consistent sample of 110 countries was studied from 2011 to 2017.

Table 5

Consumer taxes in review

	Consumers								
TAX BASE	Activation			Usage			Handset		
TAX TYPE	VAT	SIM, connection, numbering taxes	VAT	Usage excise tax	Usage higher VAT	VAT	Handset excise tax	Handset higher VAT	Customs duties

General Mobile sector-specific

Source: GSMA Intelligence

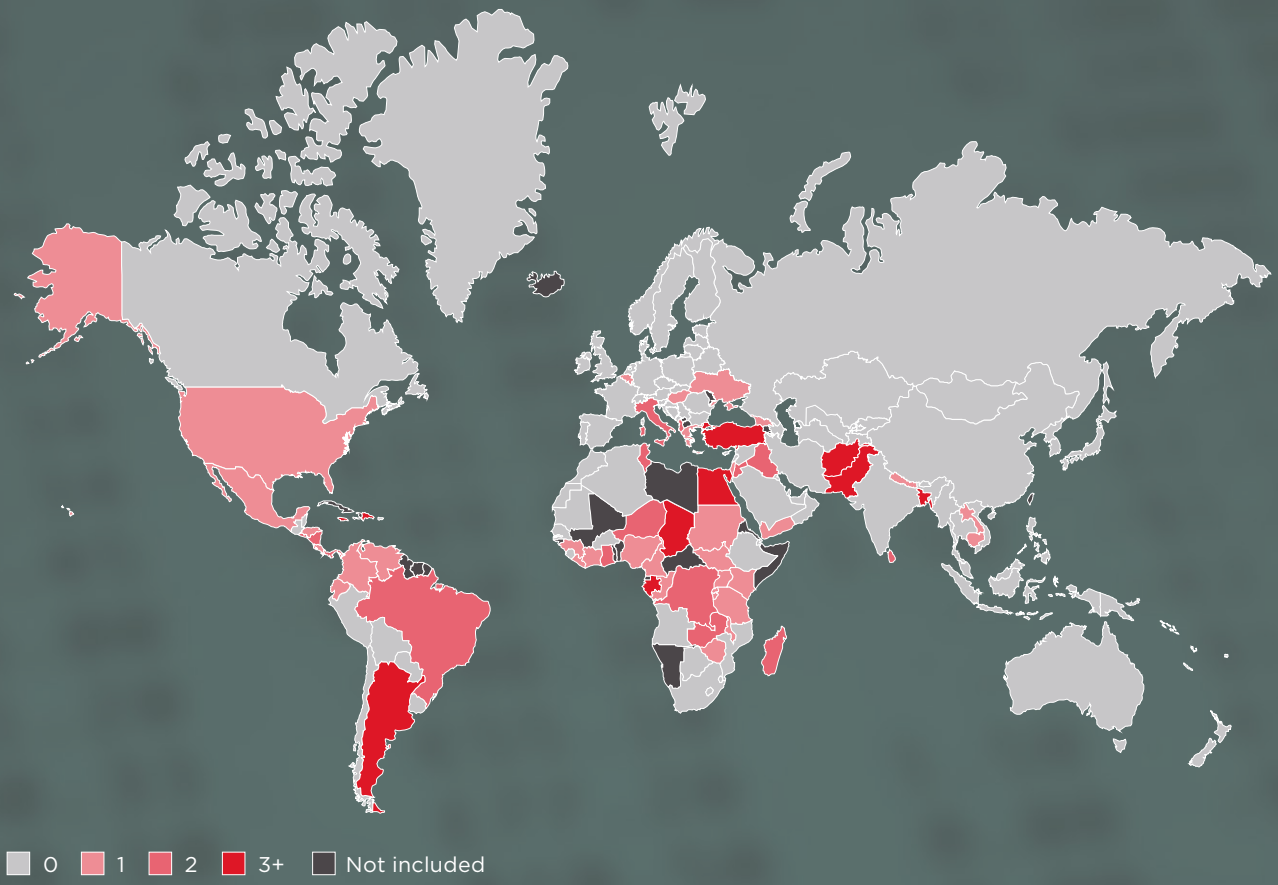
1.5 billion consumers across 60 countries pay one or more sector-specific tax on mobile services or devices

In 60 countries consumers pay sector-specific taxes when using mobile services or purchasing devices; these apply on top of general tax rates. This represents almost 1.5 billion unique mobile subscribers.

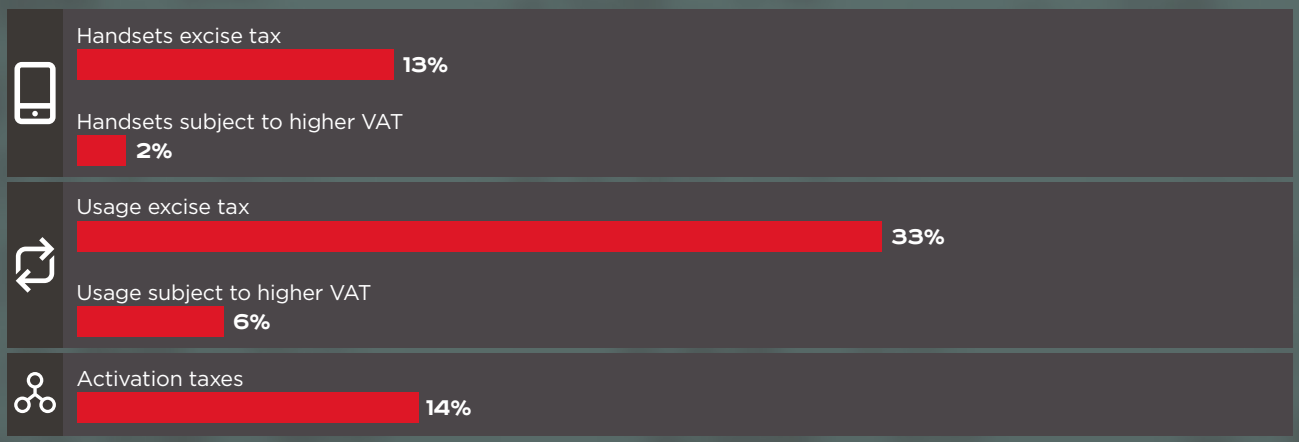
- Sub-Saharan Africa and MENA account for most of these countries (31), followed by Latin America (13). In these three regions, more than half the markets have at least one sector-specific levy on mobile services or handsets.
- Usage excise taxes, applied on top of VAT, are the most frequently used type of consumer tax (present in approximately 30% of the markets studied). This is followed by handset excise taxes and activation taxes (in 15% of markets). Additionally, customs duties on handsets still apply to almost half the markets reviewed.
- Among the countries where consumers pay sector-specific taxes, half have two or more levies on mobile usage or mobile devices. In some markets, consumers pay sector-specific taxes in three or four of the categories analysed. These include Afghanistan, Argentina, Bangladesh, Chad, Dominican Republic, Egypt, Gabon, Jamaica, Pakistan, Turkey and Tunisia.

Figure 10

Number of consumer sector-specific tax types active per country (2017)



Percentage of countries with at least one levy, by tax category (2017)



Source: GSMA Intelligence

Consumer sector-specific taxes on activation, usage and handsets are particularly problematic in terms of efficiency and equity.

- Sector-specific taxes are not efficient as they increase prices and costs. This decreases the amount of services and devices that would otherwise be consumed and produced, and constrains the positive social and economic externalities that arise from mobile connectivity.
- Sector-specific consumer taxes are also problematic in terms of equity, since they represent a higher income share for consumers at the bottom of the income pyramid (that is, at similar levels of consumption of mobile services and devices, the taxes are regressive).

Sector-specific taxation on consumers is on the rise: now present in 41% of countries

An increasing number of governments have introduced levies specific to mobile consumption and devices in recent years. Globally, there have been 120 introductions or increases of sector-specific levies, over the 2011–2017 period.

- Most of these increases or introductions have taken place in Sub-Saharan Africa. Asia-Pacific was the only region where consumers saw more tax reductions than increases, but this did not lead to a reduction in the number of countries where consumers pay sector-specific taxes.
- Excise taxes on usage were the most increased duty over the period, while customs duties were the only tax analysed to have experienced a substantial net decrease. This suggests that, while governments move towards improving the affordability of devices by reducing barriers to trade, consumers are facing increased domestic tax pressure on their use of mobile services.

As a result, between 2011 and 2017 the percentage of countries globally that have at least one sector-specific levy increased from 26% to 41%.[11]

Table 6

Percentage of countries with consumer sector-specific taxes

	Global	Sub-Saharan Africa	MENA	Latin America	Asia-Pacific	Europe
2011	26%	43%	33%	36%	24%	9%
2017	41%	63%	56%	57%	33%	17%

Source: GSMA Intelligence Note: Based on a consistent sample of 110 countries, between 2011 and 2017.

The penetration of sector-specific taxation is particularly high in Sub-Saharan Africa, MENA and Latin America (see Table 6). Consumers in the majority of these markets now have sector-specific levies after new levies were introduced during 2011–2017. In Europe, the percentage of countries with these taxes has doubled following the introduction of levies in Albania, Hungary, Ukraine and Malta.

11 This is based on tracking a consistent sample of 110 countries, between 2011 and 2017. Note the sample of countries included in this analysis is a subset of the 143 countries for which 2017 consumer tax rates are reported.

CASE STUDY 1
Global trends by region (2011–2017)

The 2011–2017 period saw a net increase in tax pressure on mobile consumers: there were 120 sector-specific tax introductions or increases, a third of which were in Sub-Saharan Africa.

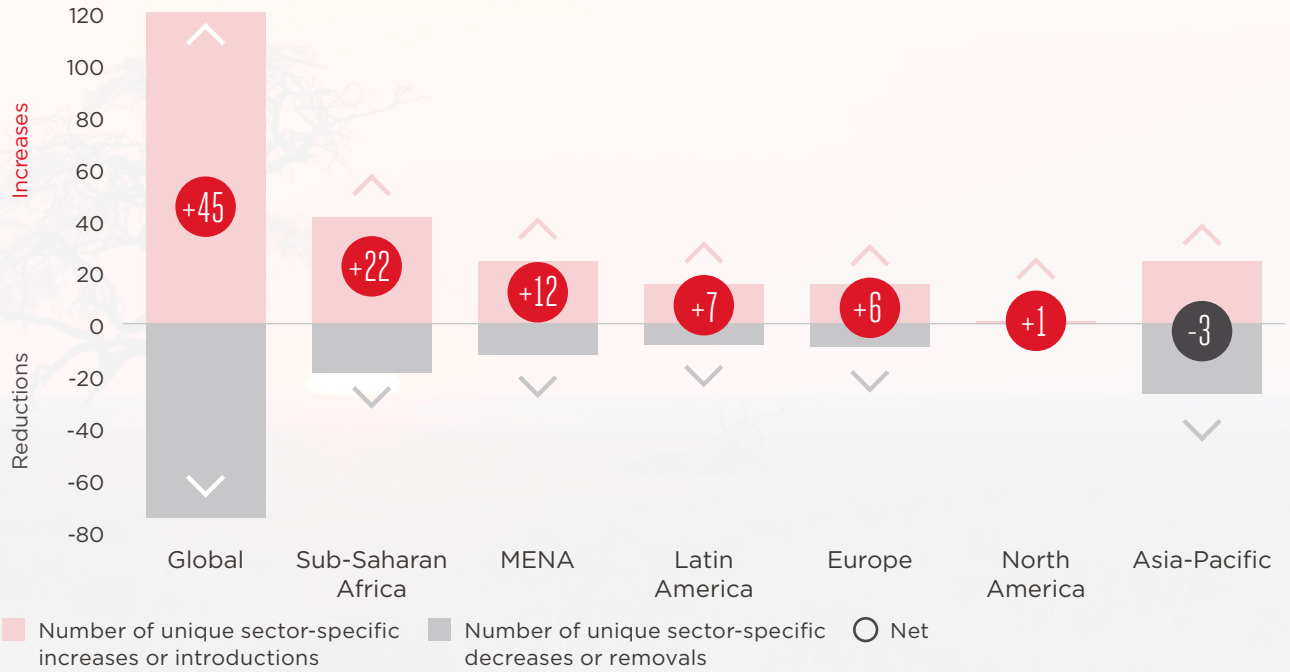
Some countries introduced or raised existing sector-specific levies, while others removed or reduced them. Overall, there were more tax introductions or increases of existing levies.

Sub-Saharan Africa drove a substantial part of the global net increase in tax pressure on consumers. Consumers saw the introduction of new sector-specific levies on usage in countries including Cameroon, the Democratic Republic of Congo, Guinea, Malawi and Zimbabwe (ranging from 2% to 10%). Consumers in other countries were subject to increases in existing levies – for example, Madagascar, Rwanda, Tanzania, Uganda and Zambia.

Asia Pacific was the only region to experience more decreases than increases. Some countries reduced existing levies, including Pakistan (14% to 12.5% additional tax on usage) and Afghanistan (10% to 5% additional tax on usage); others completely removed sector-specific levies on usage, including India (10% additional tax on usage) and Malaysia (6% additional tax on prepaid usage). However, overall, this did not lead to a decrease in the percentage of countries with sector-specific levies in the region; consumers are still subject to an additional (but decreasing) tax burden.

Figure 11

Net changes in consumer sector-specific tax rates (2011–2017)



Source: GSMA Intelligence Note: Based on a consistent sample of 110 countries, between 2011 and 2017

3.1 Mobile-specific taxation on usage

The use of voice, SMS and data services is typically subject to general taxes (e.g. VAT or sales tax), on top of which consumers in some countries also pay sector-specific levies such as excise duties or higher VAT rates. Taking into account the regressive nature of the taxes, the additional taxes may have resulted in slower growth and adoption of mobile and mobile internet services, particularly among lower income groups.

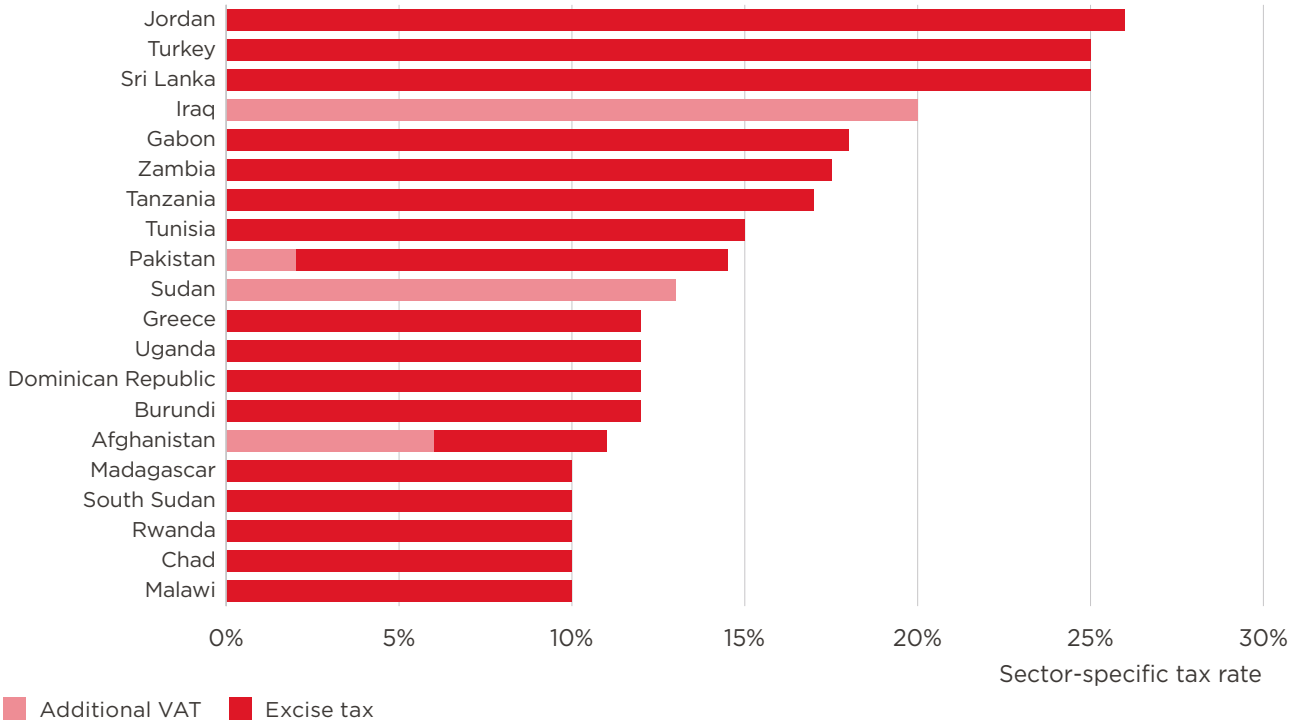
- Consumers are subject to additional taxes on usage in 50 markets. Mobile-specific taxation on usage consists of excise duties in most countries; only eight countries have higher VAT rates.
- Sector-specific tax rates on usage are on average 9% in these markets. This does not take into account additional sector-specific tax rates on usage which are not applied as a proportion of usage (ad valorem) but as fixed fees.
- Almost half the markets where consumers pay mobile-specific taxes on usage are in Sub-Saharan Africa (21). However, the four countries with the highest rates are in MENA and Asia Pacific: Jordan, Turkey, Sri Lanka and Iraq. In these countries, consumers face sector-specific levies of 20% or above (see Figure 12) – although in 2018 Turkey reduced its 25% levy to 7.5%.[12]

Due to the magnitude of sector-specific levies, consumers in these countries bear a higher overall tax burden. After accounting for general taxes (such as VAT and sales taxes), consumers in the sample of countries with sector-specific levies bear an average tax burden of 25%, which is well above the global overall average of 18%. In most of these markets, removal of sector-specific levies would bring overall tax pressure below the current global average, improving the affordability of mobile services.

Some governments have introduced fiscal policies aimed at reducing the tax burden on consumers of mobile services, and with a view to encourage the positive effects of mobile technology on the economy and society. For instance, mobile services are subject to reduced rates of VAT or VAT exemptions in Angola, China, Fiji, Hungary, Lesotho, Mauritania, Senegal and Vietnam.

Figure 12

Consumer sector-specific taxes on mobile usage – top 20 countries (2017)



Source: GSMA Intelligence Fixed tax rates apply in: Chad: XAF10 per day of usage and XAF1 per call. Burundi: BIF52 per minute of voice.

12 Until 2017, consumers in Turkey paid an excise tax of 25% on voice and SMS, and 5% on data. In 2018 the government introduced reform consolidating these taxes to 7.5%.

CASE STUDY 2
Global trends by type of tax (2011–2017)

Excise duties on usage, which apply on top of VAT, were the most frequently increased consumer tax rate over the 2011–2017 period. Meanwhile, customs duties experienced an important net reduction globally.

Most tax rate increases in recent years have concerned mobile usage, where consumers have seen a substantial net increase in tax burden.

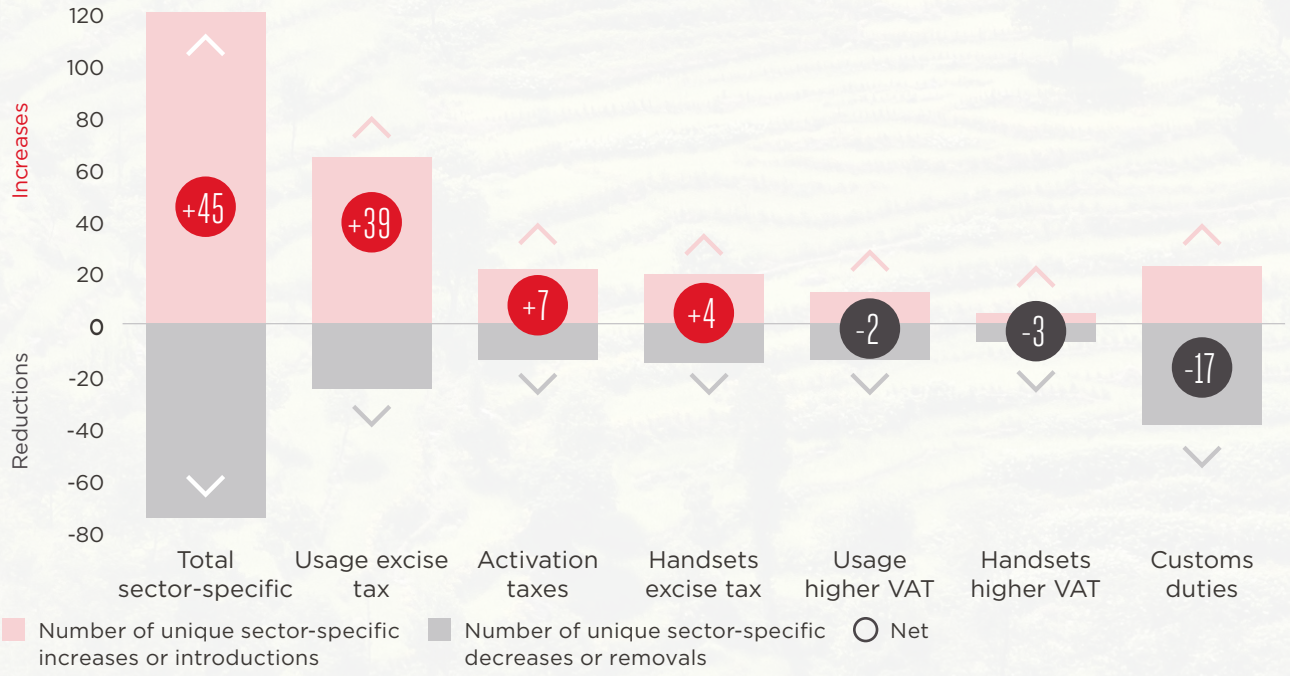
- Some countries have introduced new sector-specific tax rates on usage, with the highest new rates being in Sri Lanka and Turkey (25%);[13] Pakistan (14%); DRC (10%); and Albania, El Salvador, Guinea and Tunisia (5%).
- Other countries have increased existing tax rates on mobile usage. Some of the more substantial changes have occurred in Jordan, Nepal and Tunisia, where excise duties have tripled (8% to 26%, 5% to 15% and 5% to 15%, respectively).

Sector-specific rates have approximately doubled in Zimbabwe, Tanzania, Bangladesh and Senegal (5% to 10%, 10% to 17%, 3% to 6% and 2% to 5%, respectively).

Contrary to this net increase in tax pressure on mobile usage, consumers globally have seen improvements with regards to taxation on mobile devices and handsets. Analysis of customs duties between 2011 and 2017 shows a substantial net reduction in the rates applied to imports of mobile devices. This is consistent with broader policies to reduce tariff and non-tariff barriers to trade designed to encourage international flows of goods and services. Consumers in many Latin American and Asia-Pacific countries have particularly benefited from reductions in customs duties.[14]

Figure 13

Net changes in consumer sector-specific tax rates (2011–2017)



Source: GSMA Intelligence Note: Based on a consistent sample of 110 countries, between 2011 and 2017

13 The tax rate in Turkey decreased to 7.5% as of January 2018.
14 For instance, 10 countries in Asia-Pacific reduced or removed customs duties (including Bangladesh, Cambodia, Indonesia, Malaysia and Pakistan), with eight in Latin America (Brazil, Ecuador and Guatemala, among others).

3.2 Mobile-specific taxation on devices

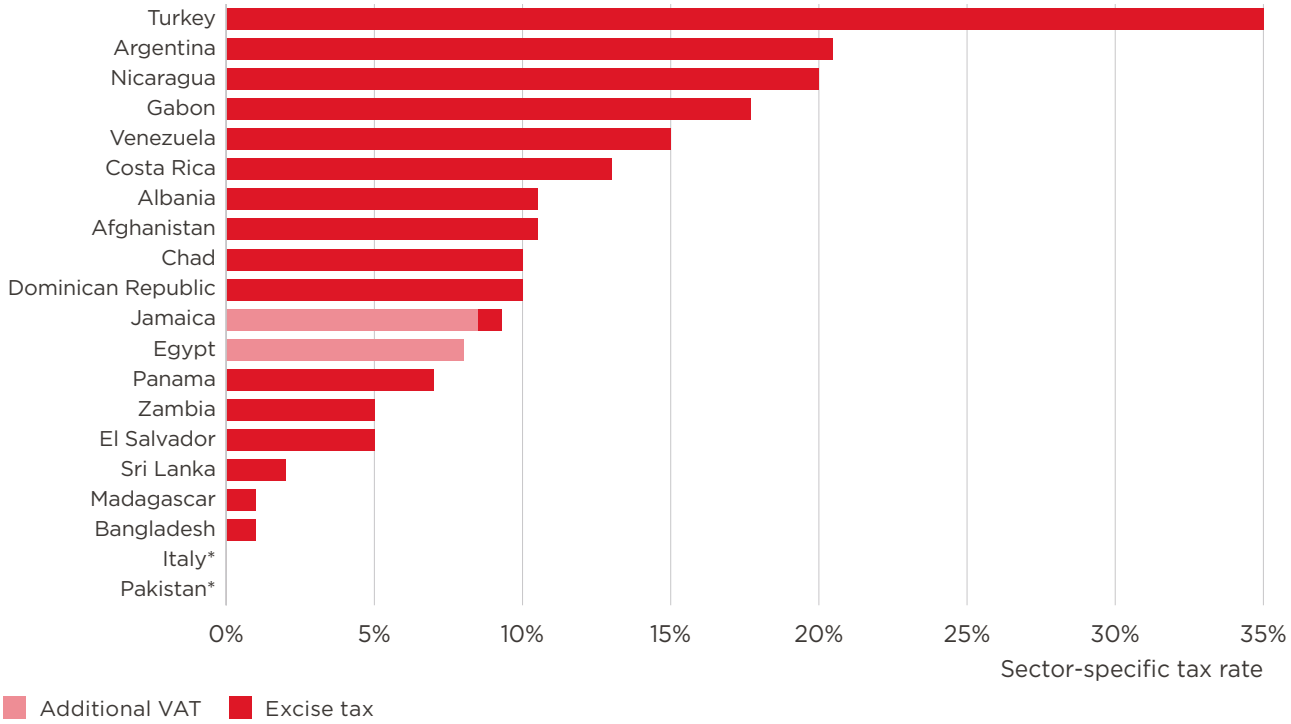
Consumers purchasing mobile devices may face additional sector-specific levies and customs duties, aside from VAT or sales tax. Due to the combination of these taxes, the total tax burden supported by consumers on the purchase of the device is even higher than that of mobile service use. This may raise the price of access to mobile services that consumers face.

This review finds that at least 21 countries have sector-specific taxes on devices. Such taxes are relatively common in Latin America, where eight countries have them; most of the remaining cases are in Sub-Saharan Africa and Asia-Pacific. In Europe, Italy and Albania stand out as the only markets with sector-specific levies on devices.

Consumers in Turkey pay the highest levy (35%), followed by Argentina and Nicaragua (20%). Latin American countries account for half of the top 10 highest levies. Pakistan also stands out with a fixed levy of PKR650 ($4.9); the impact of this on retail prices may be as strong as the highest sector-specific tax rates (particularly when this PKR650 fee is charged on cheaper devices).

Figure 14

Consumer sector-specific taxes on devices – top 20 countries (2017)



Source: GSMA Intelligence *Fixed tax rates apply in: Pakistan: Fixed fee of PKR 650 ($4.9) per handset. Italy: Fixed fee of €0.9 ($1) per handset.

Although many countries reduced or removed customs duties between 2011 and 2017, particularly in Asia-Pacific and Latin America (see Case study 3), they still exist in many markets. As of 2017, approximately six in ten countries in MENA, Sub-Saharan Africa and Latin American still had import taxes on mobiles. These vary considerably (from 2% to 35%), although their application depends on whether countries are importing from a country with which they have free trade agreements.

Governments sometimes put customs duties in place as a policy to protect and stimulate the domestic production of devices, typically where the handset manufacturing industry is relatively small. For instance, Argentina and India impose customs duties of 35% and 10%, respectively, with a view to increase high-value smartphone manufacturing. When local manufacturing is limited and not competitive, these policies may lead to consumers being worse off. Consumers either buy imported handsets with higher taxes added, or purchase domestic handsets with higher prices and lower specifications.

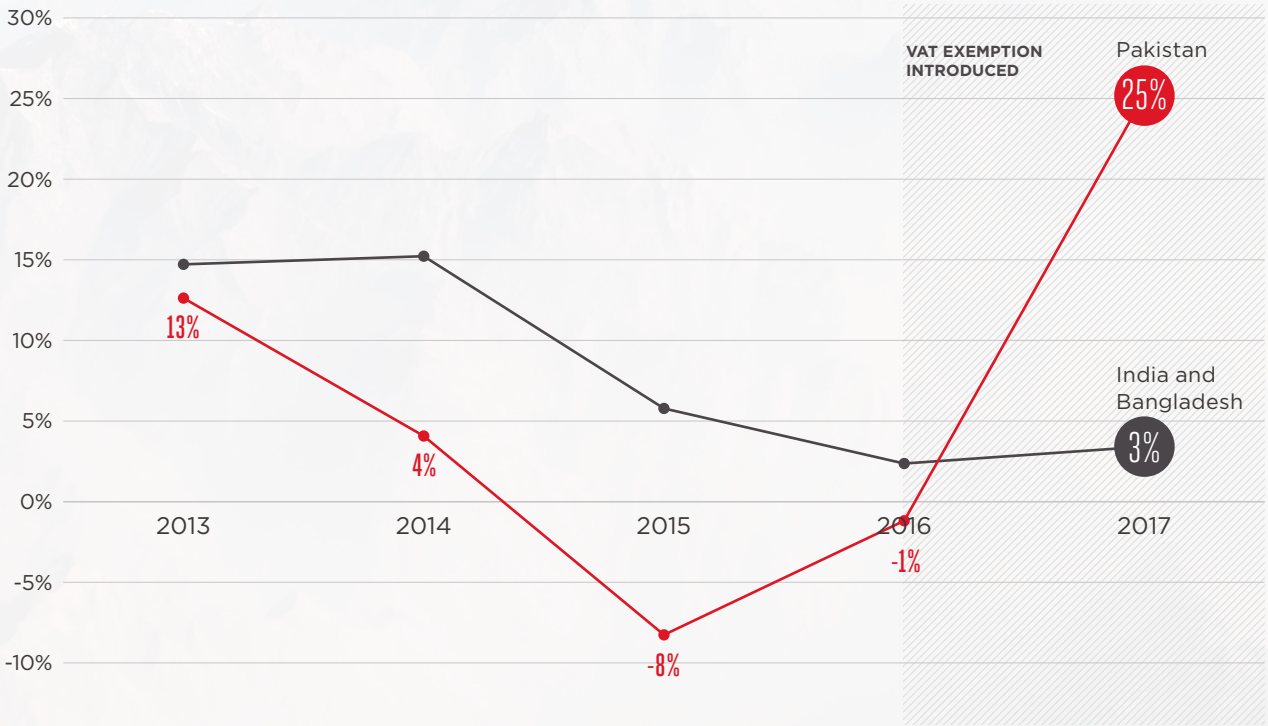
CASE STUDY 3
Handset VAT exemptions in Pakistan

Cost of access is widely recognised as a key barrier to the adoption of mobile technology, particularly in developing markets. With a view to reduce the tax burden on consumers and improve the affordability of devices, some governments have introduced VAT exemptions. As of 2017, these countries included Colombia, Côte d'Ivoire, Fiji, Kenya, Pakistan, Rwanda and Senegal (and, more recently, Ghana since March 2018).

Pakistan removed the 16% VAT rate on mobile handsets in 2016. Market data suggests the VAT exemption contributed to a significant boost in handset sales thereafter. In the period from 2013 to 2016, Pakistan saw declining growth in handset sales, aligned with a broader stagnation of sales experienced in India and Bangladesh, with similar development levels. Following the introduction of the VAT exemption, Pakistan saw handset sales increase by 25%, compared to 3% on average in India and Bangladesh.

Figure 15

Growth in handset unit sales in Pakistan



Source: GSMA Intelligence analysis based on Strategy Analytics data

3.3 Mobile-specific taxation on activation

Taxation on the activation of mobile services consists of levies that consumers bear when purchasing a SIM card, or when registering or maintaining their number or connection. Aside from general taxes (such as VAT or sales tax), some countries have introduced additional sector-specific activation, numbering and connection fees. These can be one-off or recurring, annual payments.

- Activation, SIM or numbering taxes are relatively popular in countries in Sub-Saharan Africa and MENA. In these markets, the levies were mostly brought in during the early development of the mobile industry – and have been maintained or raised over time. Few countries in Latin America, Asia-Pacific and Europe have introduced them.
- The highest taxes are those in Turkey, Brazil and Italy, where consumers pay activation taxes equal to or above $6.

Table 7

Sector-specific taxes and fees on activation of mobile services, selected examples (2017)

Country	Activation, SIM or numbering taxes
Bahrain	BHD0.10 ($0.27) annual numbering fee
Bangladesh	35% connection fee
Brazil	BRL26.83 ($7.04) per connection (BRL5.68, or $1.49, if M2M) on activation and BRL13.42 ($3.52) per SIM (BRL1.89, or $0.50, if M2M) per year (incl. year of activation)
Chad	XAF165 ($0.29) annual numbering fee and $1.74 per SIM
Congo, D.R.	$0.45 annual numbering fee
Dominican Republic	10% connection fee
Egypt	EGP6.10 ($0.34) per connection per year
Gabon	18% connection fee
Ghana	$0.50 annual numbering fee
Honduras	$0.03 numbering fee
Italy	€5.16–12.91 ($5.89–14.73) annual connection fee
Jordan	JOD2.6 ($3.66) numbering fee
Nicaragua	$1.38 numbering fee
Niger	XOF100 ($0.17) numbering fee and XOF250 ($0.44) per SIM
Pakistan	PKR250 ($1.86) per SIM
Turkey	TRL65 ($12.29) activation fee and TRL18.95 ($3.58) annual fee

Source: GSMA Intelligence Note: local currencies converted into US dollars using 2018 Q4 exchange rates, sourced from Oanda

CASE STUDY 4
Rising activation taxes halt price reductions in Turkey

The rollout of 3G and 4G has progressively reduced the cost of the provision of mobile services in MENA. This partly explains why average tariffs have halved in the region, from approximately $16 to $8. This decrease in prices has occurred in spite of the widespread consumer sector-specific taxation in the region, affecting half the countries.

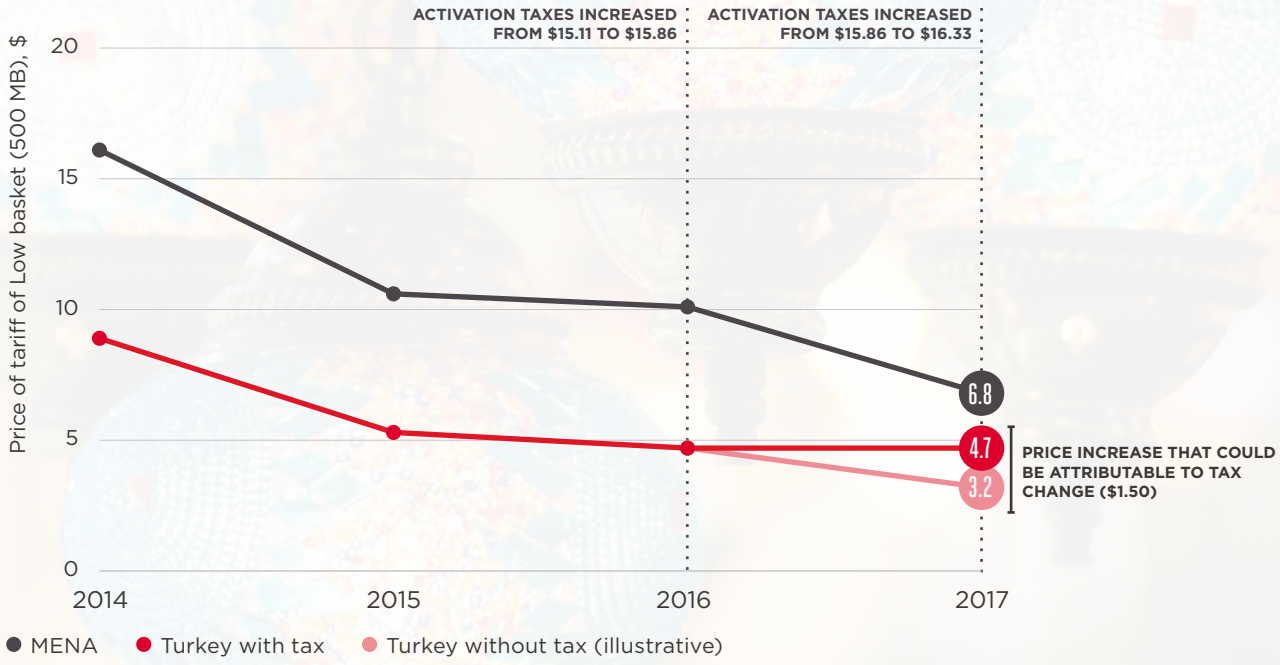
When sector-specific taxes are raised, it is equivalent to an increase in the costs of providing mobile services. Part of this increase in costs may be absorbed by consumers in the form of higher prices. This depends on a number of factors, including the type of tax, the mode of competition between firms and the sensitivity of demand to price changes (price elasticity of demand).

Mobile activation in Turkey is subject to three sector-specific taxes: two one-off taxes (the special communication tax and wireless licence fee) and one annual fee (the wireless usage fee). These three charges already totalled $15.10 (TRL79.90) in 2015, but have been further increased to $15.86 (TRL83.90) in 2016, to $16.33 (TRL86.36) in 2017, and $18.53 (TRL98.04) in 2018.[15] The activation taxes apply on top of mobile-specific taxes on usage, making it one of the most complex tax systems reviewed for this study.[16]

The increase in activation taxes in 2016 and 2017 may have had an immediate impact on prices faced by consumers in Turkey. Analysis of tariffs with 500 MB of data shows that, while Turkey followed a similar price decline trend to MENA until 2016, between 2016 and 2017 prices stagnated, while they kept falling in MENA (see Figure 16). Had Turkey followed the same trend as MENA, prices could have been approximately $1 below the current level.

Figure 16

Tariff prices for the Low basket (500 MB) in Turkey and MENA



Source: GSMA Intelligence Note: the "Turkey without tax (illustrative)" line represents the price trend of Turkey had it followed the same trend observed in MENA countries on average, for the 2016 to 2017 period.

15 Local currency converted to US dollars using 2018 Q4 exchange rate.
16 Until 2017, consumers also faced a sector-specific tax of 25% on voice and SMS, and a 5% rate on data. In 2018, this was consolidated into a single 7.5% tax.

4 Trends in operator tax rates

As well as paying corporate taxes on profits, mobile operators are subject to industry-specific fees. Governments impose recurring spectrum, regulatory and licence fees to recover the cost of providing operators with a certain service, such as spectrum management. However, governments often set these fees above cost or levy them without providing a service in return. Mobile operators must also contribute as much as 7% of annual revenues to universal service funds (USFs), created to develop telecommunications infrastructure in rural and uneconomical areas. However, some governments tend to administer and disburse the collected funds ineffectively.

4.1 Mobile-specific taxation on activation

Mobile operators typically gain access to radio spectrum by paying one-off fees at the end of an auction. However, on top of these, some countries have introduced recurring spectrum fees, which governments often justify as a recovery of the costs of managing spectrum. Recurring fees on spectrum can be inefficient if they lead to double taxation of the same spectrum resource. To avoid this, regulators need to carefully calibrate spectrum auction prices and recurring fees. Spectrum fees raised unexpectedly after spectrum has been awarded create an uncertain market environment, which can limit investment and participation in future auctions.

Table 8

Regulatory and spectrum fees in selected markets (2017)

Country	Recurring regulatory and licence fees	Recurring spectrum fees
Argentina	• Annual contribution to universal service fund: 1% of revenue • Annual control and verification recurring fee: 0.5% of revenue • Annual multi-digit fee: various rates according to number of stations and subscribers • Tax on telecommunications structures: various rates (municipal level) • Emission control tax: various rates	• Annual spectrum fees: various rates depending on number of subscribers
Guinea	• Annual control fee on telecommunications stations: GNF100,000 ($11) to GNF1.8m ($196) per station • Annual licence fees: AMRC (GNF100m, or $10,967), WiMAX (GNF300m, or $32,901) and VSAT (GNF50m, or $5,484) • Annual numeration fees, at various rates • Annual tax on access to telecommunications network – TARTEL: 3% of net revenue • Annual contribution to universal service fund and research and development funds: 2.5% of net revenue	• Annual spectrum fees for GSM 900 and DCS mobile phone networks, at GNF70m ($7,677) per duplex channel • Annual backhaul fees: per number of Mbps, varies between GNF14m ($1,535) and GNF84m ($9,212)
Sri Lanka	• Annual national interconnection fees: LKR0.38 ($0.002) to LKR1.50 ($0.008) per minute.	• Annual spectrum fees: various rates, depends on bandwidth and MHz, effectively 2.5% of revenue. • Annual backhaul fees: base station fees at LKR100,000 ($550) to LKR300,000 ($1,649) per base station.
Tunisia	• Annual telecoms industry fee: 5% of revenue • Annual numbering fee: TND4,000 ($1,358) to TND5,000 ($1,698), per block of 10,000 numbers	• Annual spectrum fees: TND225,000 ($76,419) to TND337,500 ($114,629) per MHz for each pair of frequencies, depending on frequency. • Annual backhaul fees: TND600 ($203) to TND900 ($306) per each piece of equipment; TND90 ($30) per each piece of non-terminal equipment.

Source: GSMA Intelligence Note: local currencies converted into US dollars using 2018 Q4 exchange rates, sourced from Oanda.

Separately, governments impose licence fees and regulatory fees for a variety of reasons. Mobile operators can be required to pay licence fees to operate in the mobile market or specific mobile markets (e.g. licence to operate 3G networks). Other regulatory fees include revenue taxes that fund the national regulatory authority. These taxes may raise entry barriers and increase costs for operators, eventually reducing the supply of mobile services.

Typically, almost all regulatory fees are charged as a percentage of revenue. This can be problematic as taxes on revenues do not change – even when operators record a financial loss rather than profit for the year.

CASE STUDY 5
Digital taxation: current trends

Economic activity is becoming increasingly digitised and global, with the borders between digital and more traditional business models becoming blurry in many respects. As a result, policymakers are striving to ensure that international tax frameworks are fit for purpose, ensuring both that a tax liability is generated where value is added and that taxing rights are appropriately distributed across countries. The OECD has been leading global efforts to tackle base erosion and profit shifting. A fundamental part of this is to better understand the implications of increasing digitisation on tax policy.

On issues of indirect taxation, the proposal is to follow the OECD's International VAT/GST guidelines published in 2017[17] which specify that countries should determine where cross-border supplies are taxed based on the destination principle.[18] The issue of direct taxation revolves around which jurisdictions have the right to tax profits, and the subsequent profit allocation across those jurisdictions.

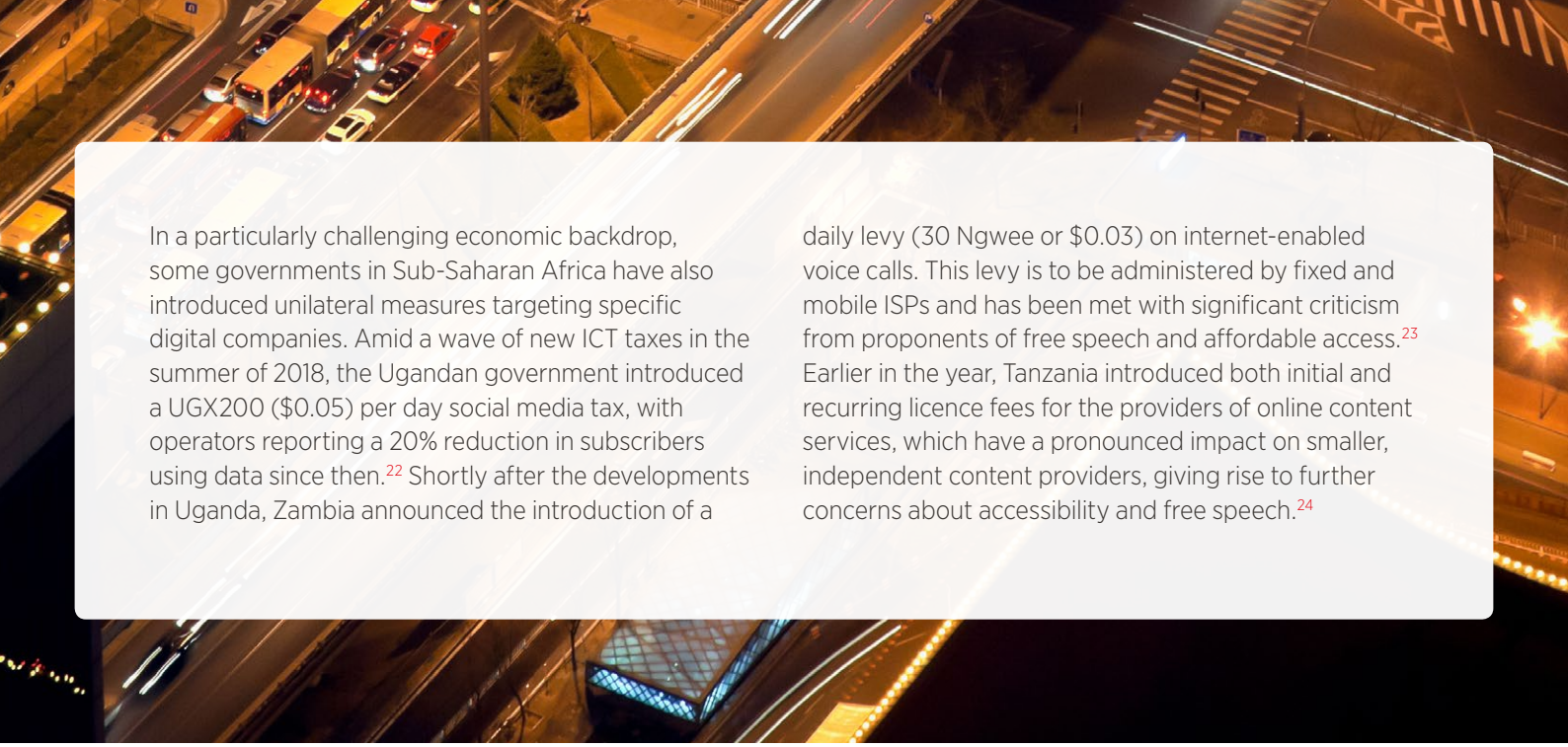
As this is an issue of international taxation rights, the focus has currently shifted onto the work that the OECD is doing to obtain consensus among its members. This is part of wider work on tackling base erosion and profit shifting (BEPS) and minimising the incidence of strategies looking to artificially minimise tax payments. OECD's BEPS framework comprises more than 100 countries, including several non-OECD members, who are currently collaborating to implement measures to tackle BEPS. The first action is to obtain a better understanding of the digital economy, which the OECD has attempted to provide through two reports.[19] This work has most recently materialised in an attempt to obtain a consensus-based approach on taxation in the digital era. This is a complicated, cross-jurisdictional effort, which might require substantial restructuring of international taxation rules.

With the OECD efforts taking time to complete, several jurisdictions have contemplated unilateral actions. The European Union has put forward proposals for the design of a digital services tax (DST). The DST is an interim 3% turnover tax that targets online advertising, sale of user data and platforms facilitating digital interactions between users, and would only apply to companies of a certain global and regional footprint (revenues more than €750 million globally and €50 million in the EU). EU Member States disagree over this measure, with several indicating that they would not support it. In designing such a tax it will be crucial to resolve three key issues: firstly, who exactly will fall within the scope of the tax; secondly, what will define the end of the interim period (sunset clause); and lastly, how to isolate the revenues that will be liable for taxation.

The proposed scope of the DST has created further complexities as it is mostly large multinationals, most of which are US-based, that fall within its scope, raising concerns around the tax's motivation and competitive implications. Moreover, the reforms to the US tax system coming into effect at the beginning of 2018 have alleviated a principal concern around global taxation – namely, that some companies' profits from foreign subsidiaries were remaining entirely untaxed. This shifts the discussion around the issue of profit allocation, as opposed to ensuring that income is taxed at least once in a jurisdiction that does not apply very low rates.

While the EU is pursuing a way forward with its proposed interim measure, some of its Member States have already designed taxes that follow the spirit of the DST. The latest UK budget introduced a 2% digital service sales tax targeting social media, online marketplaces and search engines with global revenues of more than £500 million.[20] Along the same lines, Spain introduced its version of a DST with a Spanish revenue threshold of €3 million,[21] while Italy will introduce a tax on some digital business-to-business transactions. Hungary applies a more targeted version of a levy on the turnover of both resident and non-resident entities that supply online advertisements displayed primarily in Hungarian.

17 *International VAT/GST Guidelines*, OECD, 2017
18 The destination principle prescribes that countries where the product is sold should be the final collectors of value added taxes.
19 *Addressing the tax challenges of the digital economy, Action 1 – 2015 Final report*, OECD, 2015; *Tax Challenges arising from digitalisation – Interim report*, OECD, 2018,
20 "Budget 2018: Tech giants face digital services tax", BBC, October 2018
21 "Spain To Press Ahead With Digital Tax", Tax News, October 2018



In a particularly challenging economic backdrop, some governments in Sub-Saharan Africa have also introduced unilateral measures targeting specific digital companies. Amid a wave of new ICT taxes in the summer of 2018, the Ugandan government introduced a UGX200 ($0.05) per day social media tax, with operators reporting a 20% reduction in subscribers using data since then.[22] Shortly after the developments in Uganda, Zambia announced the introduction of a daily levy (30 Ngwee or $0.03) on internet-enabled voice calls. This levy is to be administered by fixed and mobile ISPs and has been met with significant criticism from proponents of free speech and affordable access.[23] Earlier in the year, Tanzania introduced both initial and recurring licence fees for the providers of online content services, which have a pronounced impact on smaller, independent content providers, giving rise to further concerns about accessibility and free speech.[24]

4.2 Universal service fund contributions

Despite operators' efforts to extend coverage worldwide, certain areas are unprofitable, remote or scarcely populated, making it uneconomical for operators to roll out infrastructure. Governments use universal service funds (USFs) to extend connectivity via rural infrastructure to these areas.

Some funds are financed through public spending, but most take some form of tax from operators' gross revenues. Rates analysed range between 1% and 7% of operators' revenue, with the highest taxes associated to the USFs of the US and Malaysia (6%), and those of Thailand and Niger (4%). See Appendix 4 for a review of USF rates worldwide.

There is evidence suggesting that many USFs are not administered effectively and are underutilised. For instance:

- in Latin America, where USFs are particularly common, the GSMA[25] found that, in five of the seven countries where data is available, contributions made by operators to USFs between the late 1990s and early 2000s had not been invested as of 2009
- the GSMA[26] found India's USF to be largely underutilised. Between 2003 and 2017, the fund only spent 44% of all funds collected
- broader global analyses show consistent results. For instance, the ITU[27] and GSMA[28] found that, across the world, more than half of the sums collected were never utilised and over a third of the USFs were never used at all.

The underutilisation of USFs suggested in these studies is problematic as these are funds that represent potential investment taken out of the sector.

22 *Unleash not squeeze the ICT sector in Uganda*, Research ICT Solutions, 2018
23 "Zambia Introduces Daily Tax on Internet Voice Calls", CIPSEA, August, 2018
24 "Tanzania Issues Regressive Online Content Regulations", CIPEA, 2018
25 Taxing mobile connectivity in Latin America, GSMA, 2017
26 Taxing mobile connectivity in Asia Pacific, GSMA, 2018
27 Universal Service Fund and Digital Inclusion, ITU 2013
28 Are Universal Service Funds an effective way to achieve universal access?, GSMA 2016

5 The impacts of sector-specific taxation

Sector-specific taxation does not follow the best-practice principles of taxing the economy. As a result, the use of such taxes has negative impacts on various aspects, all of which lead to poorer outcomes for the digital development of countries. The impacts can be grouped into three areas: affordability, investment and the wider economy.

5.1 The impact of sector-specific taxation on affordability

5.1.1 Lack of affordability of mobile services is a connectivity barrier

Markets where owning and using a mobile phone is more expensive have lower mobile connectivity

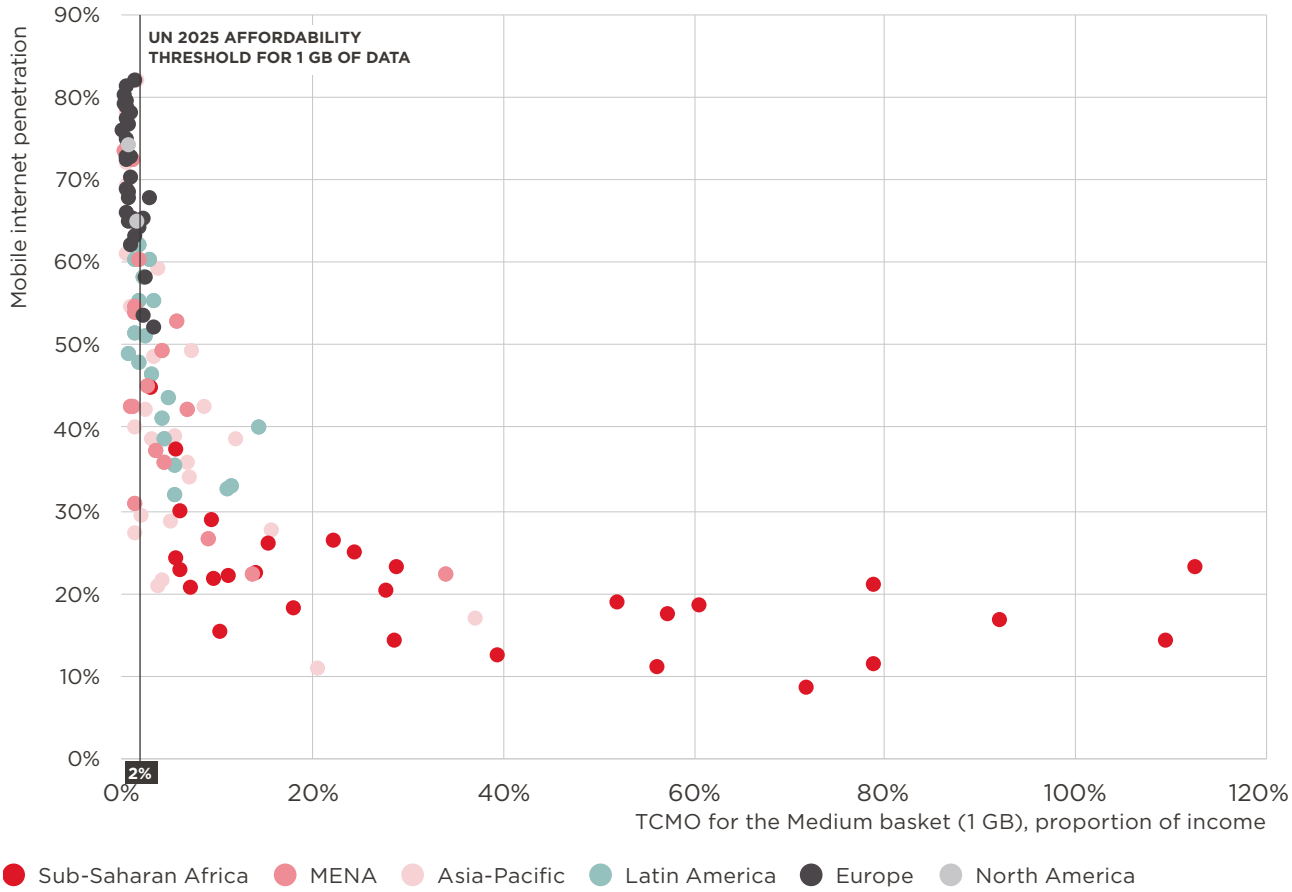
Affordability of mobile services and devices is a key determinant of mobile service adoption. Globally, there is a negative relationship between the total cost of mobile ownership (TCMO) and mobile connectivity, as measured by mobile internet penetration.[29] Lower prices can particularly increase adoption among those with lower incomes, or lower willingness to pay, while also allowing existing users to increase their usage.

The UN's Broadband Commission recently adopted a target for affordable internet of 2% of income per capita for 1 GB of data, to be reached by 2025.[30] This replaced the previous target, of 5% of income per capita for 500 MB of data, to be reached by 2015. All Sub-Saharan African countries are well above this threshold, along with some Latin American, MENA and Asia-Pacific markets (see Figure 17). Note that the Medium basket used in this analysis includes 1 GB of data, 250 minutes of voice and 100 SMS – and the UN's affordability threshold is for a package of 1 GB of data only.

29 Total mobile internet subscribers in 2017, expressed as a percentage of total market population.
30 See "UN Broadband Commission Adopts A4AI "1 for 2" Affordability Target", A4AI, January 2018

Figure 17

TCMO for the Medium basket (1 GB) and mobile internet penetration (2017)



Source: GSMA Intelligence

CASE STUDY 6
Measuring affordability of mobile services and devices

Affordability is measured in this analysis through TCMO, or the total cost to a consumer of owning and using a mobile phone, expressed in monthly terms and as a share of income. TCMO sums three cost categories: the handset price; the activation and connection price; and the price related to the use of voice, SMS and/or data (see Appendix for detailed methodology).

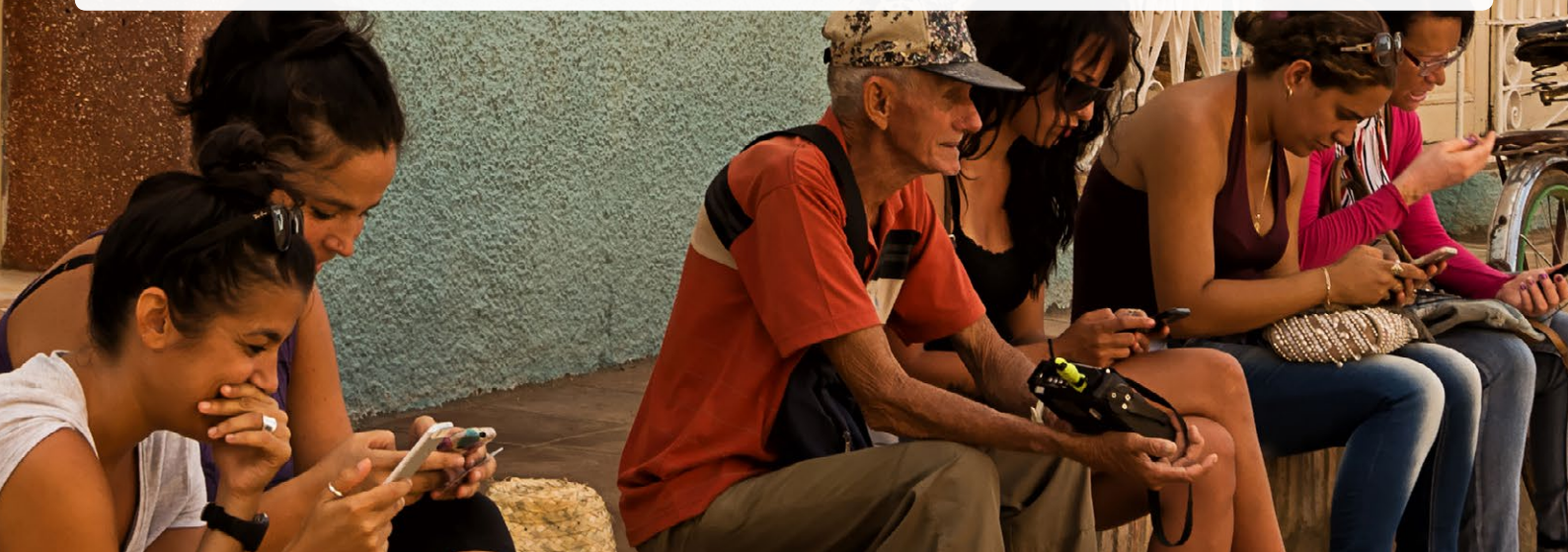
Estimates from GSMA Intelligence indicate that global average data usage was 1.3 GB in 2017. This varies across regions: Sub-Saharan Africa consumes 700 MB on average; Latin America is at approximately 1 GB; while Asia-Pacific, MENA, Europe and North America are above the global average of 1.3 GB. We predominantly focus on the Medium basket, with an allowance close to the typical usage (and the UN's threshold). We also inspect the Basic and Low baskets, which typically represent segments with lower incomes, as well as the High basket, since the rollout of new mobile networks is increasingly driving more intensive usage.

Table 9

Monthly usage basket profiles used for the calculation of TCMO

	Basic	Low	Medium	High
Usage allowance	100 MB data	500 MB data	250 voice minutes 100 SMS 1000 MB data	5000 MB data
Tariff	Prepaid	Prepaid or post-paid	Prepaid or post-paid	Prepaid or post-paid
Technology	2G, 3G or 4G	3G or 4G	3G or 4G	3G or 4G

Source: GSMA Intelligence



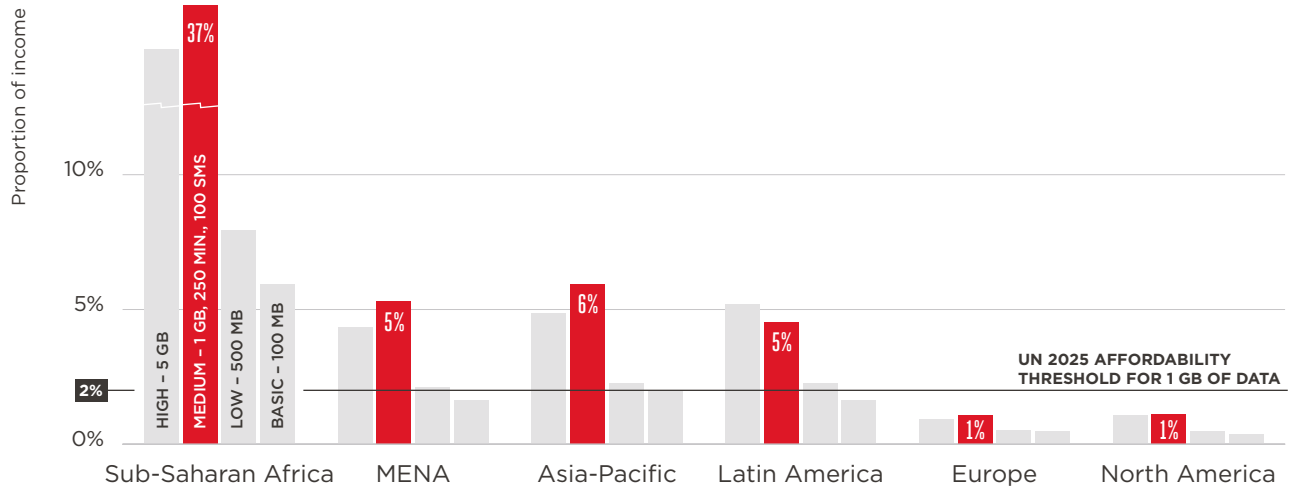
In most developing markets, the cost of 1 GB of data is at least double the UN's 2% income threshold

Analysis shows that both the Medium and High baskets are unaffordable for the average consumer in Sub-Saharan Africa, MENA, Asia-Pacific and Latin America. In these regions the cost of the baskets is at least double the UN's 2025 affordability threshold of 2% of income per capita. Countries in these regions are still behind the UN's former affordability target of 5% by 2015.

Sub-Saharan Africa particularly stands out, since it is the only region with affordability levels well above the 2% threshold across all the baskets studied. No single basket is affordable for the average consumer.

Figure 18

TCMO as a proportion of income, for all earners (2017)

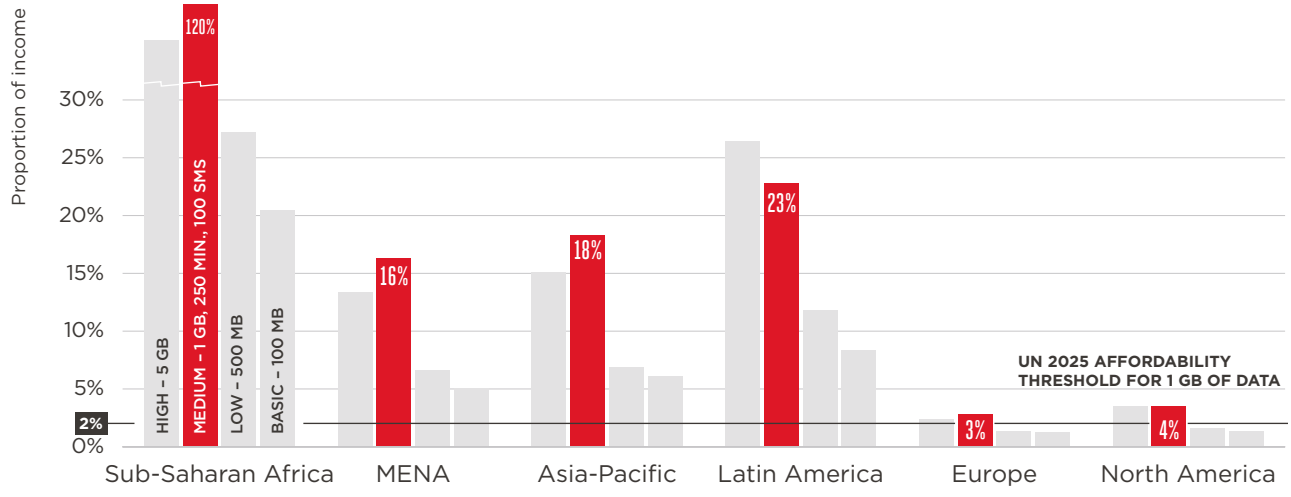


Source: GSMA Intelligence

Focusing on the bottom 20% of the income pyramid, no region meets the UN's 2025 2% target for the Medium basket. For the poorest 20%, the Medium basket represents 15–25% of income for the bottom 20% of earners in MENA, Asia-Pacific and Latin America. Meanwhile, this is above 100% for Sub-Saharan Africa. Europe and North America, while recording a much more affordable TCMO, still have Medium and High baskets slightly above the UN's 2025 2% affordability target.

Figure 19

TCMO as a proportion of income, for bottom 20% of earners (2017)



Source: GSMA Intelligence

Globally, consumer taxes represent 19% of the total cost of mobile ownership in 2017

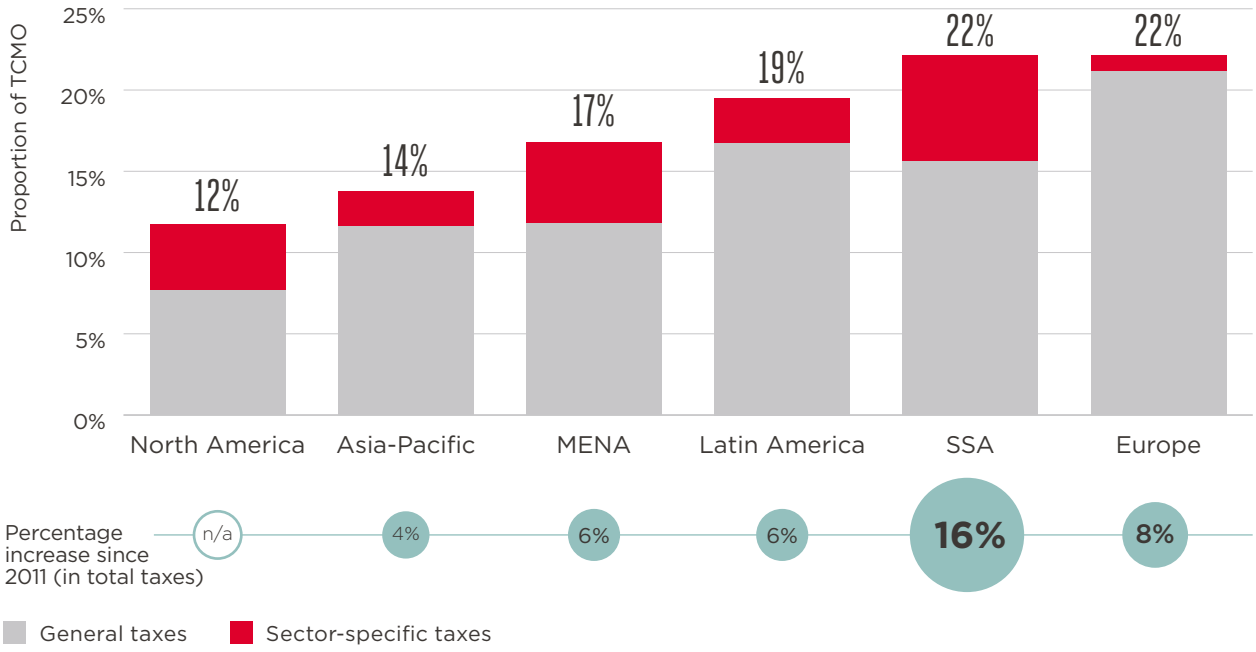
Taking into account both general and sector-specific levies on consumption, taxes represent 19% of TCMO. This excludes taxes and fees imposed on operators, which may in part be passed on to consumers, depending on a number of factors, meaning the tax burden that consumers bear is likely to be higher.[31]

Consumer taxes represent the highest proportion of TCMO in Europe and Sub-Saharan Africa (see Figure 20). However, Europe's taxes are predominantly general taxation – applying to most goods and services in the economy. These do not have such a distortive impact on the economy. Sector-specific taxation has the strongest incidence in Sub-Saharan Africa, MENA and North America. However, taking income differences into account, this has a greater impact in Sub-Saharan Africa, MENA and Asia-Pacific.

Since 2011, taxes as a proportion of TCMO have increased by almost 10% globally. This has been driven by both a net increase in consumer sector-specific tax rates, as well by increases in general taxation (particularly VAT). Sub-Saharan Africa has seen the sharpest increase in tax as a percentage of TCMO.

Figure 20

Consumer taxes as a proportion of the TCMO for Medium basket (1 GB), all earners (2017)



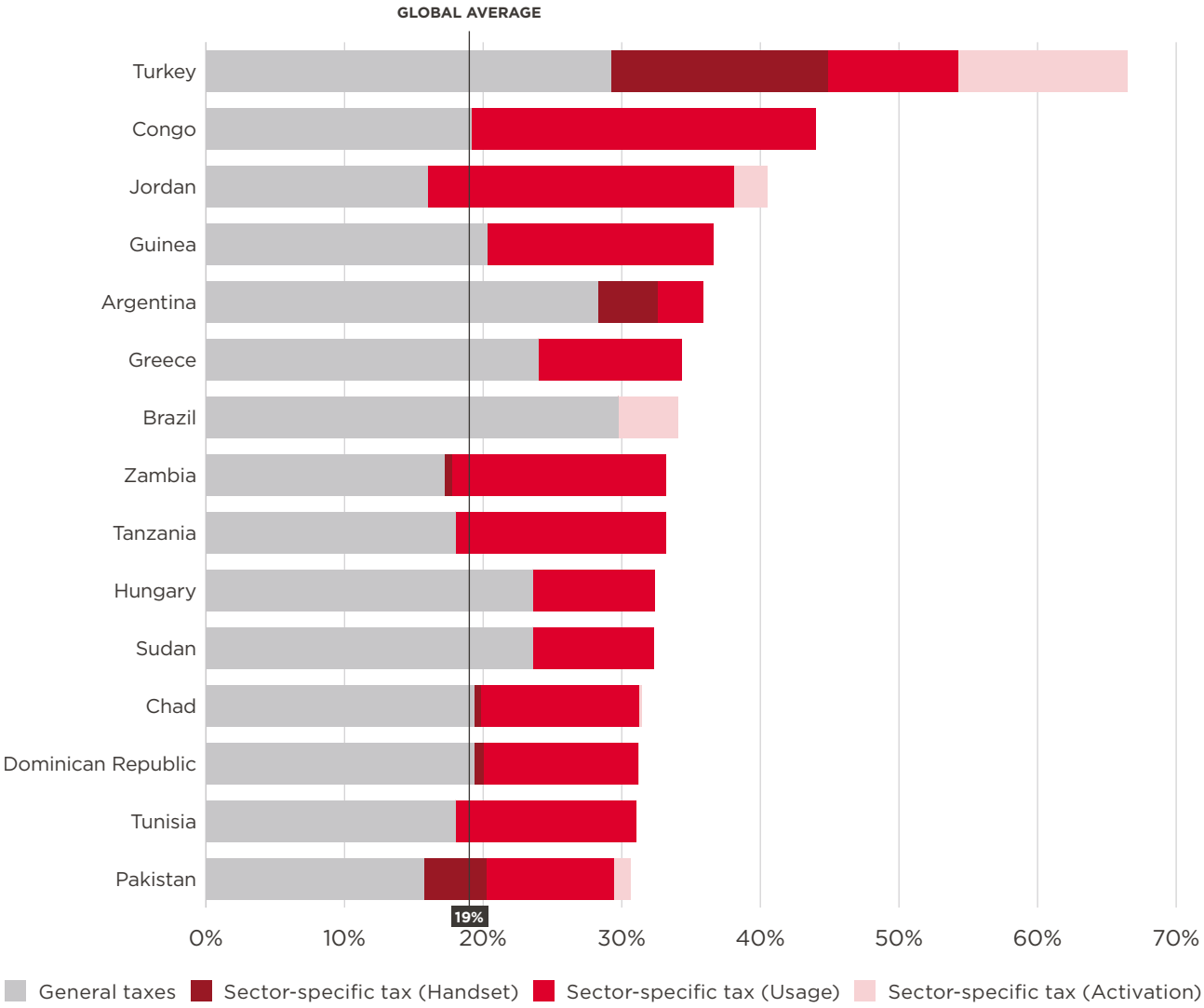
Source: GSMA Intelligence Note: North America includes only the US

There are 15 countries where the sum of general and sector-specific taxes accounts for more than a third of TCMO. Other than Greece, countries with the highest taxation are all emerging or developing markets. Notably, these all have sector-specific taxes in place (with Turkey standing out as having the highest combined sector-specific levies). Note that in Turkey, Congo, Jordan and Guinea, of all the taxes paid by consumers, more than a third are mobile sector-specific. Had there been no mobile-specific taxation on these top 15 countries, the tax burden for consumers would be halved on average. This would bring total taxes more in line with the global average.

31 Factors that are likely to impact the extent to which operator taxes and fees are passed on to consumers include type of tax, type of competition in the market and price elasticity of demand.

Figure 21

Consumer taxes as a proportion of TCMO for Medium basket (1 GB) – top 15 countries (2017)



Source: GSMA Intelligence

Affordability has improved in most regions due to widespread price cuts, despite rises in consumer sector-specific taxes

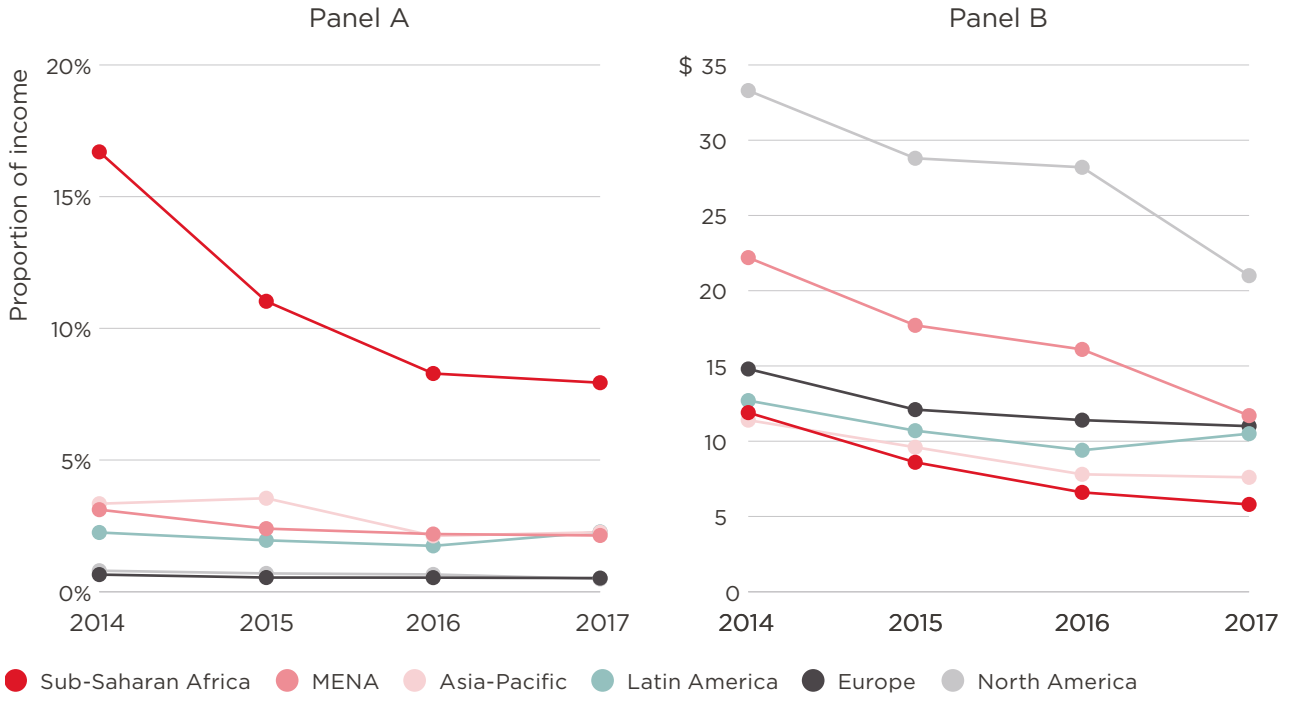
Despite tax as a percentage of TCMO increasing 10% over the 2011–2017 period, most regions have seen an improvement in affordability – as suggested by the TCMO of the 500 MB basket (Panel A in Figure 22). Improvements in affordability have been primarily driven by price cuts in mobile tariffs and devices (Panel B in Figure 22), and to a lesser degree by improvements in income.

- Sub-Saharan Africa has seen the greatest improvement in affordability, with the TCMO of the Low basket halving both in US dollar terms (Panel B) and as a proportion of income per capita (Panel A).
- The remaining regions have all seen decreases in prices of mobile tariffs and devices too (Panel B), which have translated into improvements in affordability – prices as a proportion of income have decreased between 20% and 40% (Panel A). This is true with the exception of Latin America, whose TCMO as a proportion of income remained stagnant (income remained stagnant or decreased in a number of markets).[32]

32 In Latin America, prices decreased in US dollar terms over the period, but income per capita did not improve substantially (and in some countries remained stagnant or decreased slightly).

Figure 22

TCMO for Low basket (500 MB) as a proportion of income and in US dollars (2017)



Source: GSMA Intelligence

5.1.2 Reducing sector-specific taxes can drive more connectivity

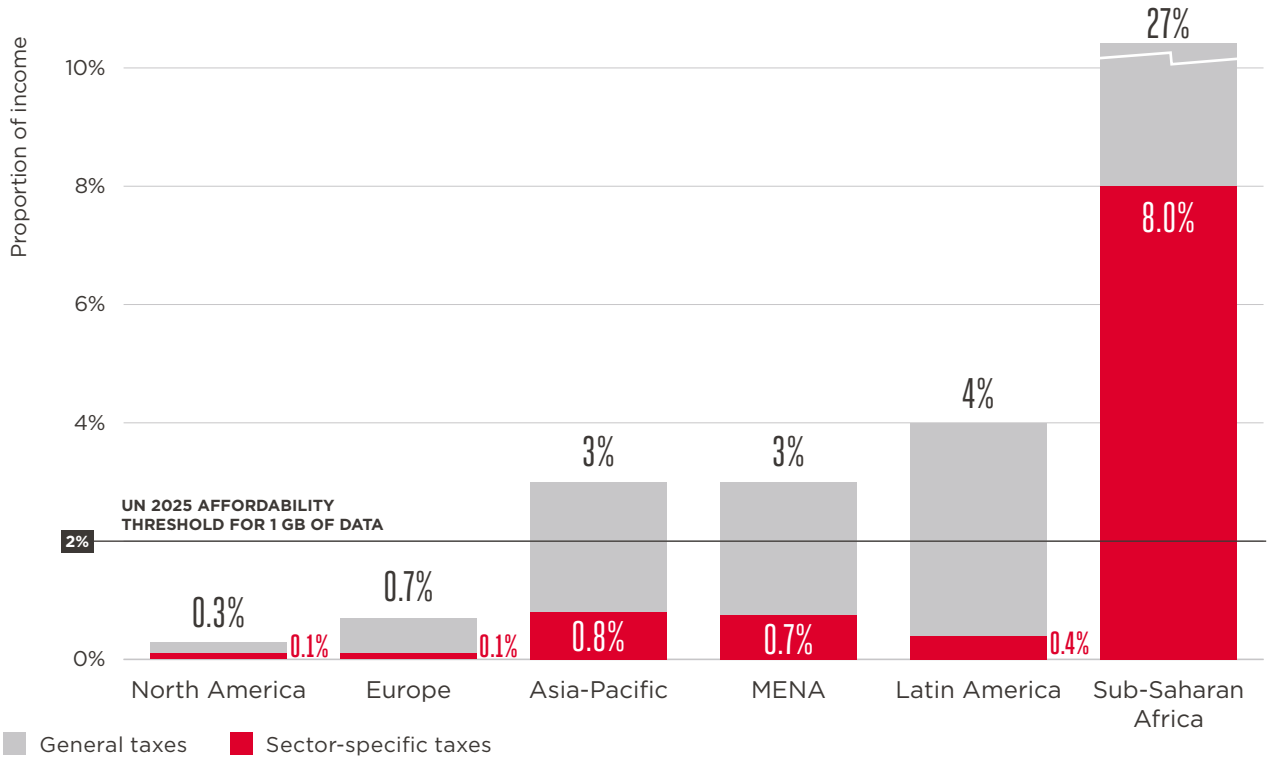
Taxes alone already account for more than the UN's 2% threshold for the bottom 20% of earners in SSA, Latin America, MENA and Asia-Pacific

Taxes represent 27% of income for the bottom 20% of earners in Sub-Saharan Africa. Sector-specific taxation is particularly stringent in this region, where consumers in the bottom 20% pay 8% of their income in mobile-specific taxes. This is four times the UN's 2% threshold for 2025. Had there been no sector-specific taxes, the total burden supported by these consumers would be reduced by almost a third.

In Asia-Pacific, MENA and Latin America, the sum of taxes represents 3–4% of income for the bottom 20% of earners. For these regions, the removal of sector-specific taxes would reduce the total tax supported by consumers, bringing it more in line with that seen in Europe and North America.

Figure 23

Consumer taxes as a proportion of income, based on TCMO for Medium basket (1 GB), bottom 20% of earners (2017)

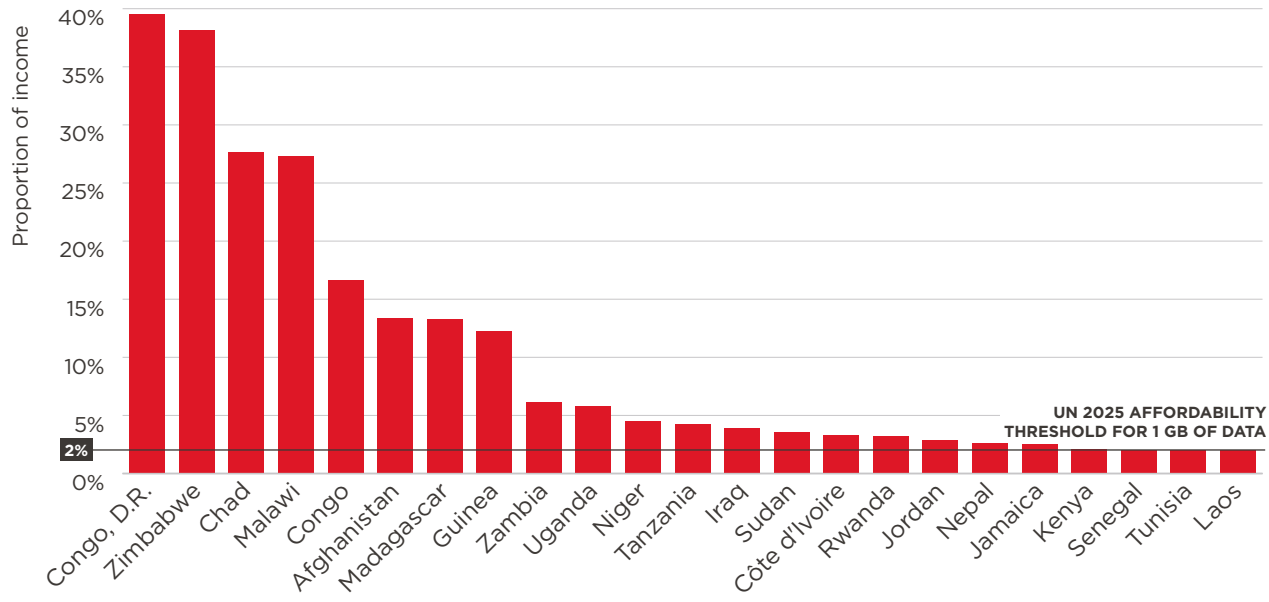


Source: GSMA Intelligence Note: North America only includes the US

In 23 markets sector-specific taxes alone represent more than 2% of income for the bottom 20% of earners (see Figure 24). These are predominantly located in Sub-Saharan Africa and MENA. Given the strong incidence of sector-specific taxes in these markets, their removal would particularly benefit consumers.

Figure 24

Consumer sector-specific taxes as a proportion of income, based on TCMO for Medium basket (1 GB), bottom 20% of earners (2017)



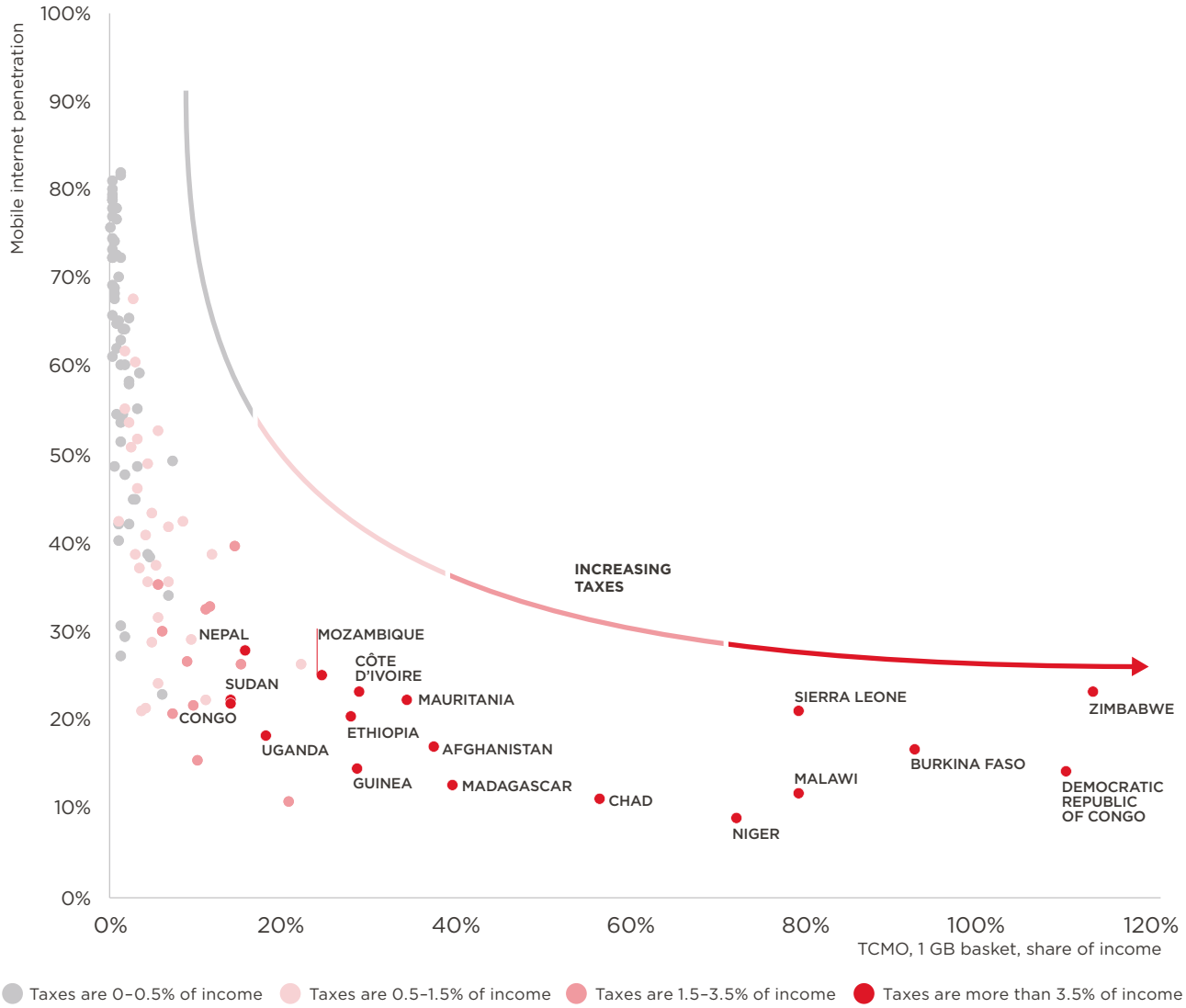
Source: GSMA Intelligence

Lower taxation levels result in more affordable mobile services and better mobile connectivity performance

As Figure 25 shows, there is a strong association between higher taxes, higher cost of mobile ownership, and lower connectivity levels, as measured by mobile internet penetration. Notably, most advanced digital countries are found in the upper-left corner of Figure 25 where the taxes are low, as well as prices, as measured by TCMO. Towards the bottom right area of the chart, countries where overall tax incidence is high show lower connectivity levels.

Figure 25

TCMO for Medium basket (1 GB) and mobile internet penetration[33]



Source: GSMA Intelligence

There is also a strong positive relationship between both overall and sector-specific taxation and TCMO. Altogether, this suggests that reduction of taxation – through the removal of sector-specific levies – could drive lower consumer prices and higher take-up.

33 Total mobile internet subscribers in 2017, expressed as a percentage share of the total market population.

5.2 The impact of sector-specific taxation on investment

5.2.1 Investment improves outcomes for mobile customers

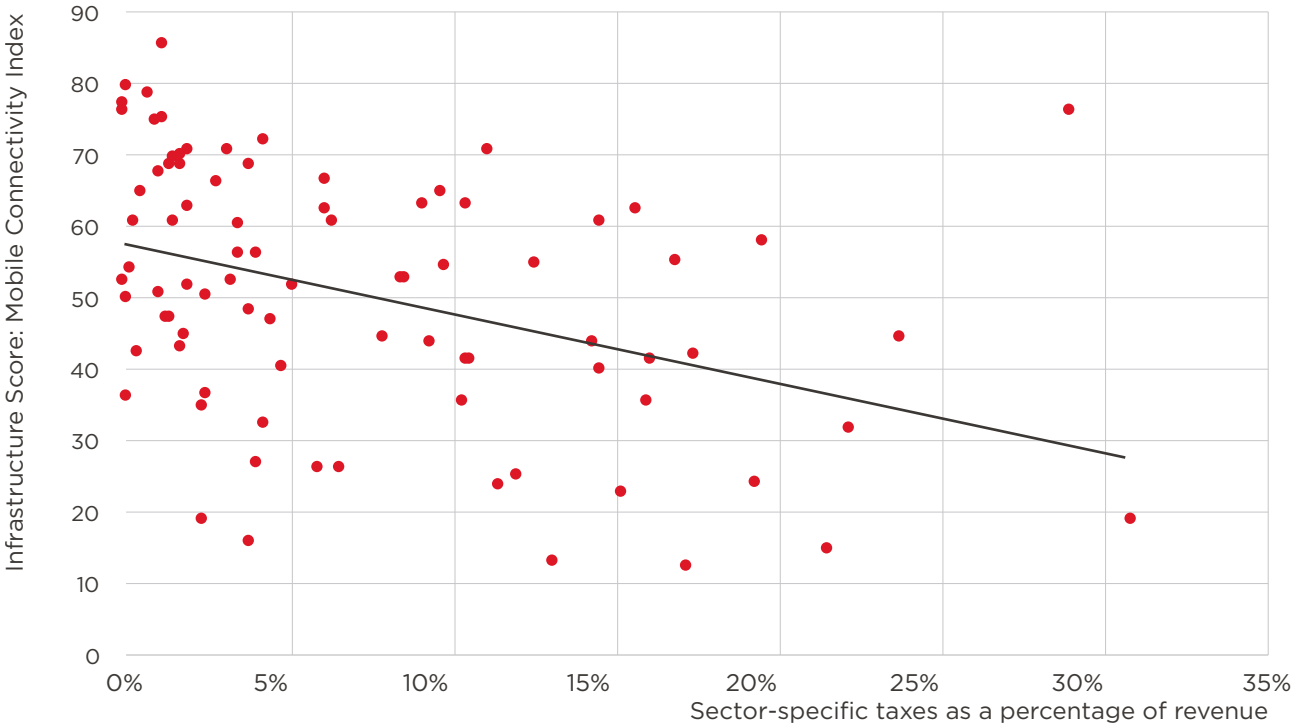
Mobile services are delivered and improved on by companies in the mobile ecosystem that undertake large amounts of upfront investment.

Mobile operators invested more than $1.2 trillion over the period 2011 to 2017 and more than $170 billion in 2017 alone. This has enabled almost 250 3G networks and over 1,000 4G networks to be launched over the period, increasing mobile broadband coverage for several countries around the world. Investment will need to increase significantly again, as 5G networks are due to be rolled out over the coming years, as well as continued investment in 4G in emerging markets.

To deliver this sizable investment, operators require a stable environment to put together business plans for the medium- and long-term future. Sustainable positive cash flow is the cheapest – and in some territories only – form of financing for flexible investments in mobile networks. Tax payments reduce this cash flow, restricting the amount that operators can further invest in infrastructure. Infrastructure availability is one of the enablers of the GSMA Mobile Connectivity Index. Figure 26 shows that good infrastructure availability tends to be lower where operators have made higher tax payments.

Figure 26

Sector-specific tax payments as a proportion of revenue and infrastructure enabler score from the GSMA Mobile Connectivity Index (2017)

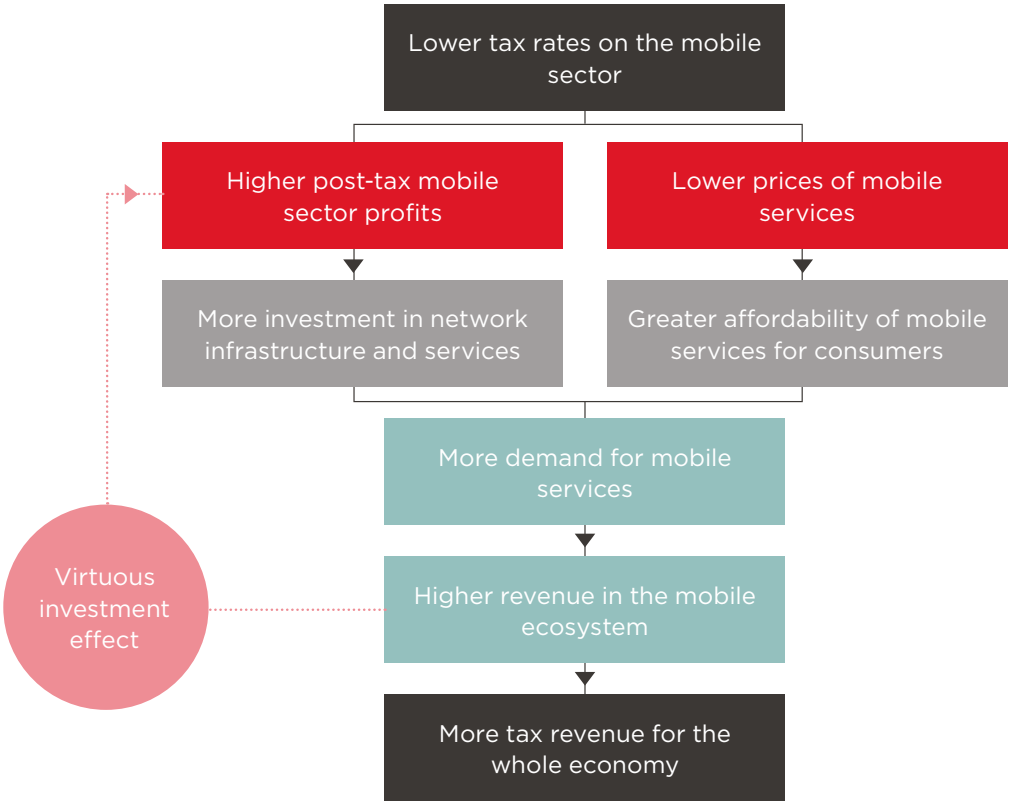


Source: GSMA Intelligence

If infrastructure availability is better, more consumers are more likely to be engaged in mobile services, which means that the size of the mobile market and its revenues are larger. As a result, with higher revenues in the mobile ecosystem, not only is there a larger taxable base for governments and therefore higher tax revenues; increased revenues also lead to more investment, by virtue of higher post-tax profits that are recycled into developing and maintaining networks. This virtuous effect is shown in Figure 27.

Figure 27

Virtuous effects of lower tax rates on mobile sector development and government finances



Source: GSMA Intelligence

Investment is reduced by frequent changes in sector tax rates

A stable tax regime that supports investment is important to ensure that mobile infrastructure develops at a rate that serves a region's population. Tax uncertainty in particular can disincentivise investors from committing to investments in a particular market.

The more frequently tax changes are implemented, the more wary investors are of increasing funding to a market. The World Bank's Global Investment Competitiveness report[34] highlights the following:

- Transparency and predictability in the conduct of public agencies is the most important factor for investment, with 82% of investors identifying it as critically important or important.
- A sudden change in the laws and regulations that has a negative impact on a company has been experienced by 49% of investors, with almost half these investors significantly delaying investment, cancelling planned investment or completely withdrawing existing investments.

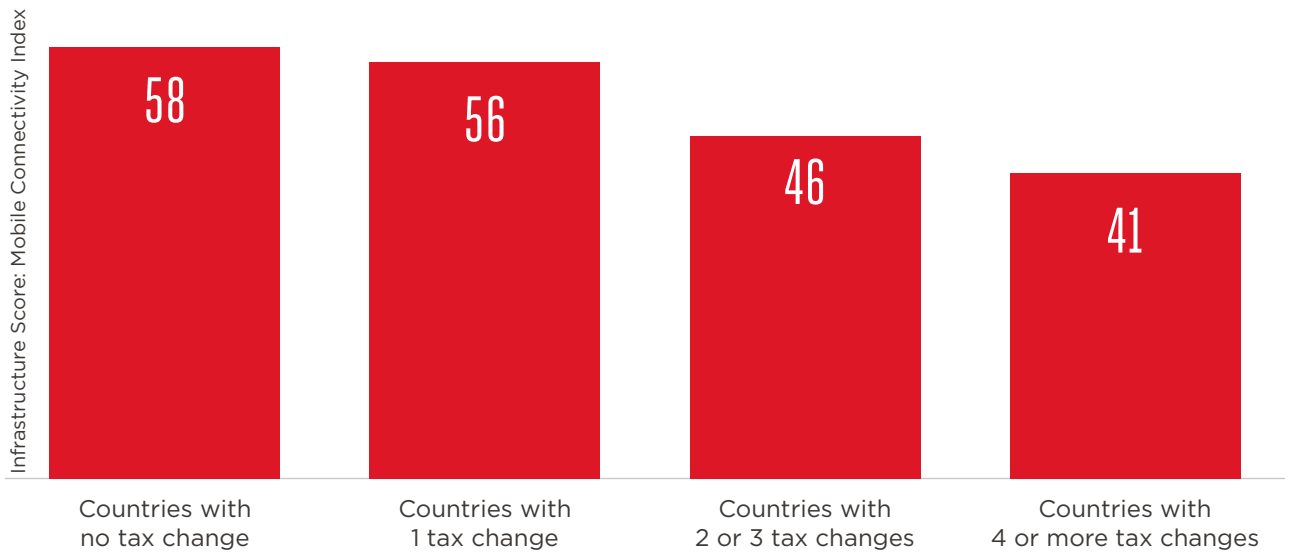
Academic studies have found a negative relationship between tax uncertainty and investment.[35] Gulen and Ion (2016) found a strong negative relationship between capital investment and overall policy uncertainty, of which tax-related uncertainty was an important part. Edmiston (2004) also found that volatility in effective tax rates has a negative impact on investment.

There is some evidence that consumer tax uncertainty affects investment in the mobile sector. Figure 28 shows the data for 140 countries.

34 *Global Investment Competitiveness Report 2017/18*, World Bank, 2018
35 *Policy Uncertainty and Corporate Investment*, Huseyin Gulen and Mihai Ion, 2016; *Tax Uncertainty and Investment: A Cross-Country Empirical Examination*, Kelly D. Edmiston, 2004

Figure 28

2017 Infrastructure score from GSMA Mobile Connectivity Index, according to the number of consumer tax changes (2011–2017)



Source: GSMA Intelligence

The number of consumer tax changes appears to be associated with a difference in the current state of mobile infrastructure in a country. The average infrastructure score, as measured by the Mobile Connectivity Index, was 58 for countries with no consumer tax changes between 2011 and 2017. This result did not change significantly for markets where one tax change was implemented. However, for those with four or more tax changes over the period, the 2017 infrastructure score, which we interpret as the investment outcome of that period, was significantly lower than the no-change group – by 17 points.

Complexity and uncertainty have a particularly troubling effect on foreign direct investment (FDI). FDI is important to many countries, but particularly developing markets that lack adequate domestic sources for infrastructure financing. Large companies that invest in companies do not necessarily commit indefinitely.

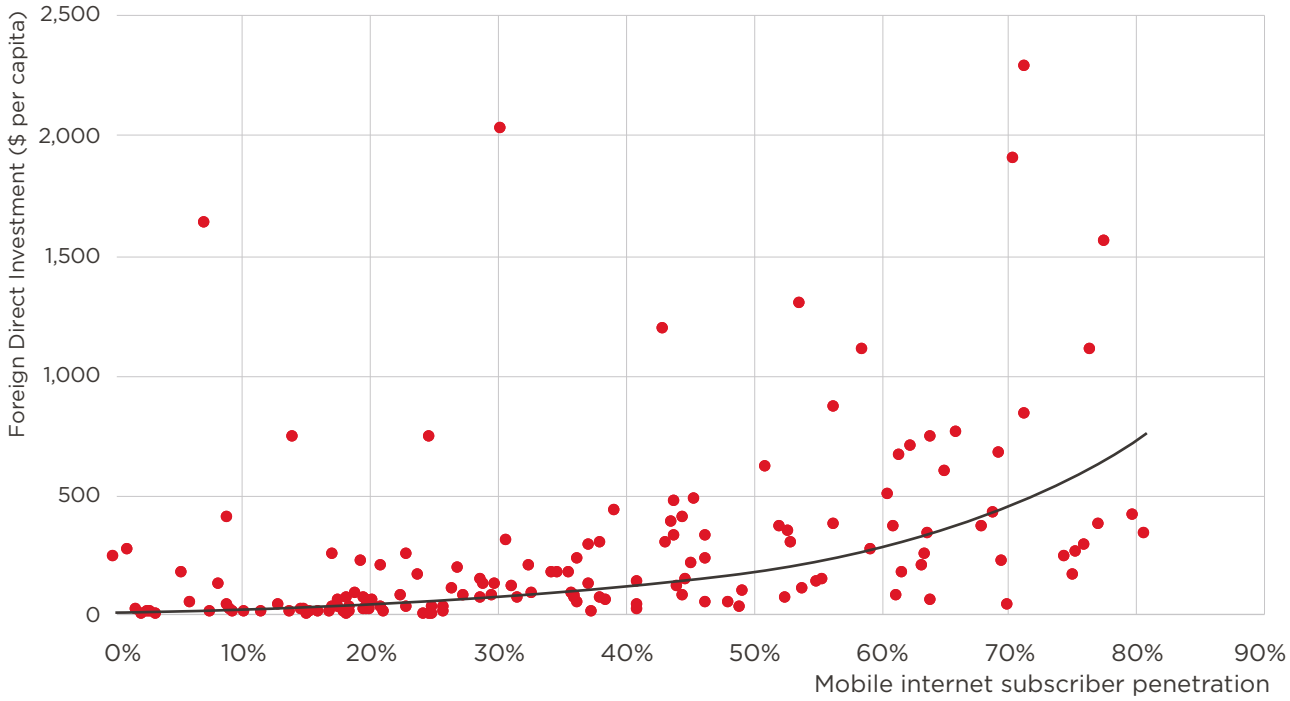
Companies seek to invest where doing business, including paying taxes, is uncomplicated. In turn, as investing in mobile infrastructure improves connectivity and digital inclusion, foreign investors

become more attracted to countries where the provision of mobile services is developed and where there is a digitally engaged consumer market.

A study of FDI patterns in the early 2000s[36] found that FDI is greater in countries that have better telecoms networks. Figure 29 shows that relationship.

Figure 29

Total economy-wide foreign direct investment per capita (2017) and mobile internet subscriber penetration (2016)[37]



Source: GSMA Intelligence, UNCTAD

Tax regimes that burden foreign investors and complicate the process of doing business reduce foreign investment in the sector. If the development of the sector is further restricted, this in turn can make the economy less attractive and have further negative impacts on FDI.

5.2.2 Other tax factors can reduce investment levels

Shifting the taxation regime to target operators can have a stifling effect on investment.

Revenue taxation: fees and taxes levied on a company's revenue discourage investment and innovation as operators pay the same amount of tax regardless of whether they make a profit or loss, repatriate profits, pay them out as dividends, or re-invest the earnings into new infrastructure and services.

Revenue growth is slowing for operators, but operators have continued to invest large amounts in networks. With flattening revenues and reduced operating margins, operators face a challenging commercial environment for investment. Higher taxes on revenue, regardless of profit or losses, are likely to restrict the ability of mobile operators to continue investing in high-quality mobile networks.

Duty taxation: duties levied on the import of telecommunications equipment increase the costs of investing in new infrastructure and services, which reduces the attractiveness of potential investment. These types of customs duties are prevalent in Latin America as well as the Middle East, where rates on the value of network equipment can be as high as 30%, such as in Iraq and Jordan.

In addition, taxes levied by municipalities and other local authorities on the rental of sites for mobile infrastructure increase the cost of investment and therefore reduce the attractiveness of investing.

36 *Communications Networks and Foreign Direct Investment in Developing Countries*, R. Lydon and M. Williams, 2005
37 In line with UNCTAD's practice of country averages, Caribbean financial centres have been removed from this analysis.

Revenue-maximising spectrum auctions and fees: when operators pay too much for spectrum in the auction and via ongoing fees, there can be a negative impact on their investment in infrastructure and services. A GSMA report on spectrum pricing in developing countries found that high spectrum prices are associated with higher costs for consumers as operators seek to recoup the cost of spectrum.

This is a particular problem for digital inclusion as the report found that final spectrum prices in developing countries are on average more than three times those of developed countries when income is factored in. This was driven by governments' approaches to spectrum policies. In particular, reserve prices in developing countries were found to be five times higher than those in developed markets, again when income was factored in. The study found a negative correlation between spectrum prices and investment outcomes such as coverage and network quality.[38]

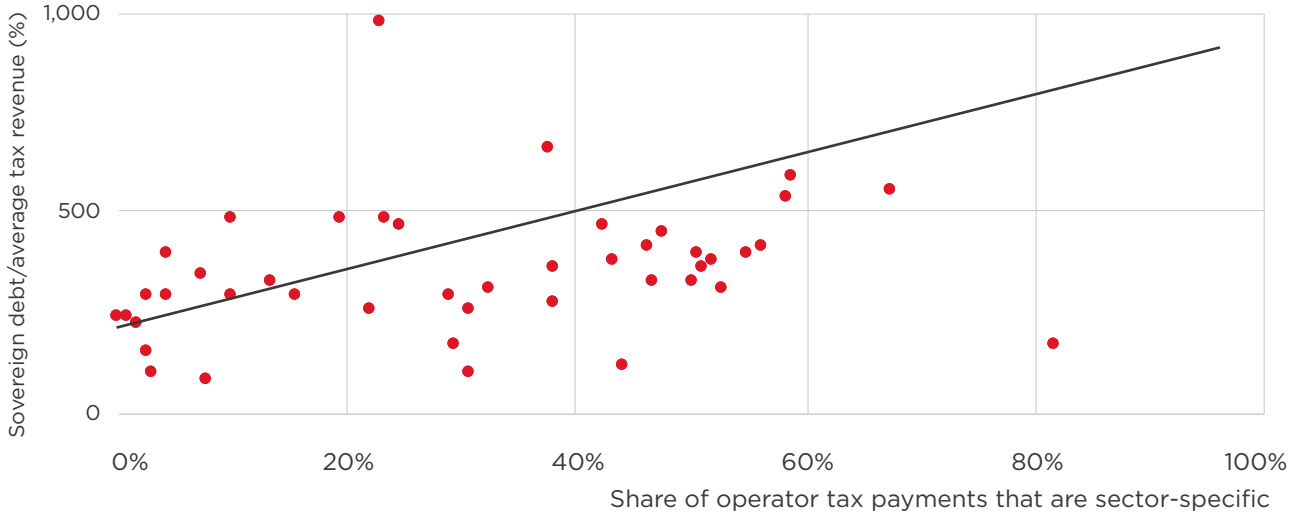
5.3 The impact of sector-specific taxation on the wider economy

Governments need to balance the needs of their own finances, the mobile market and the wider economy. Tax revenues can be spent on wider fiscal measures, which are used to stimulate the economy. The relationship between government financing, mobile market development and wider economic growth is positive in the long term. All too often, however, short-term needs are prioritised to focus on government finances.

We find that governments with a large sovereign debt to tax ratio are more likely to resort to gaining revenue from operators through sector-specific taxation.

Figure 30

Sovereign debt as a percentage of average tax revenue and share of tax payments that are sector specific (2017)



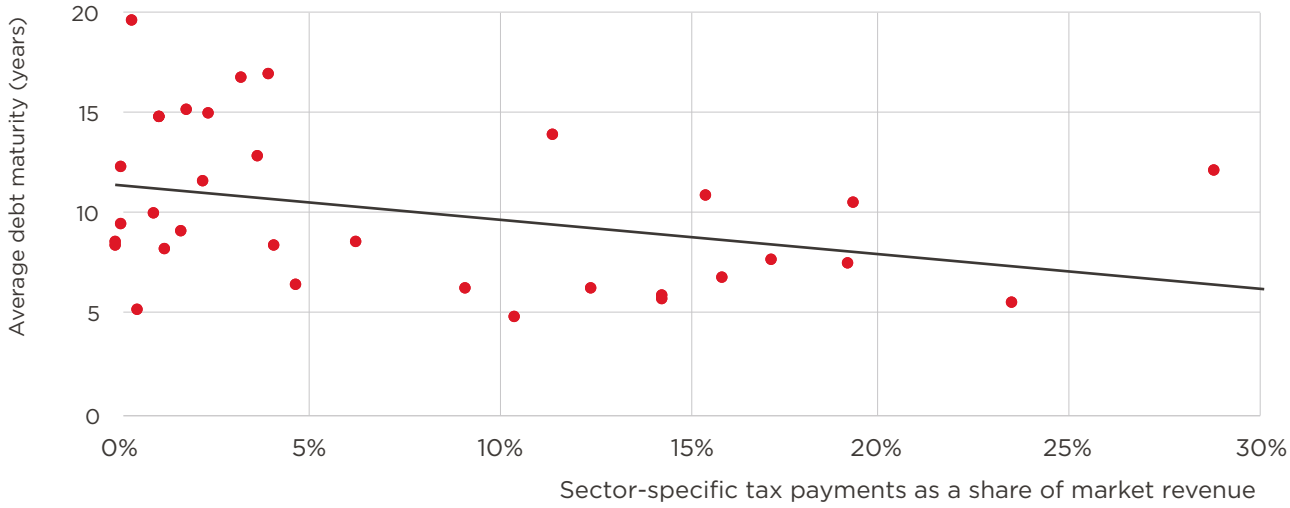
Source: GSMA Intelligence, IMF Note: four outliers with sovereign debt/average tax revenue above 1,000% excluded

Countries with higher sector-specific taxation also have high levels of shorter-term debt. This suggests that governments with short-term budget needs are more likely to target the formal mobile sector for funds.

38 Spectrum pricing in developing countries: evidence to support better and more affordable mobile services, GSMA, 2018

Figure 31

Average debt maturity and sector-specific tax payments (2017)

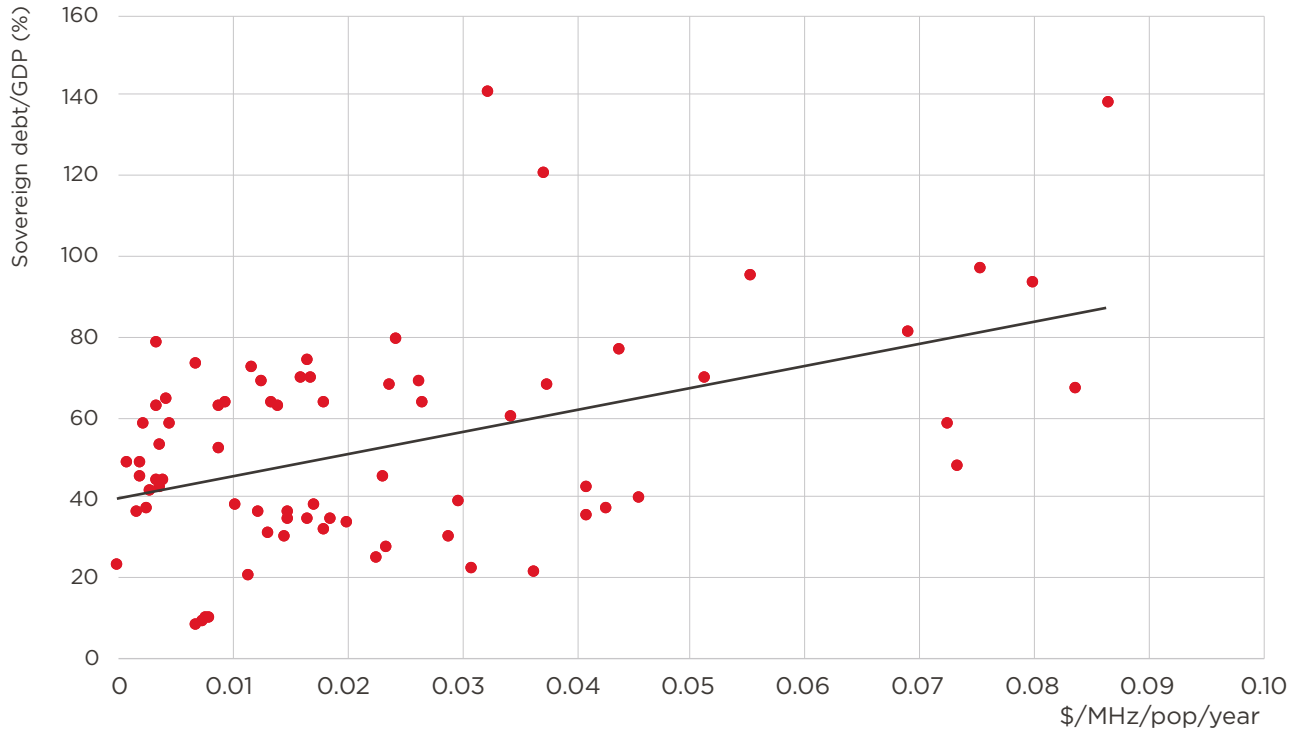


Source: GSMA Intelligence, IMF

The relationships do not just apply to the sector-specific taxes. One-off spectrum auctions are also used by governments to finance their short-term budgetary needs, as shown in the same GSMA report on spectrum pricing (see Figure 32).[39]

Figure 32

Spectrum prices and sovereign debt/GDP ratio



Source: GSMA Intelligence, IMF

Governments' efforts to raise revenues by increasing and imposing sector-specific taxes are, however, unlikely to achieve the desired outcome even in the short to medium term. Case study 7 shows how increases in mobile services excise duty in Jordan over the last eight years have led to a decrease in the taxable base.

39 Spectrum pricing in developing countries: evidence to support better and more affordable mobile services, GSMA, 2018

CASE STUDY 7

Jordan's declining government revenue following increases in excise usage tax

Reducing sector-specific taxes is not only aligned with achieving more efficient and equitable mobile markets; it can also directly help governments achieve fiscal goals.

This is because, in order to maximise government revenue, economic theory suggests taxation should not be excessive. At high levels of taxation, buyers may substitute away from a given good or service, which eventually leads to a reduced tax base on which governments collect revenue. At a high level of taxation, it may therefore be optimal to reduce taxes to increase tax revenue. This principle is widely known as the "Laffer curve".

Consumers in Jordan are subject to the highest sector-specific tax rate of mobile usage worldwide. The government of Jordan initially introduced a 4% mobile tax in 2003, and has progressively increased it four times, to 26% currently. The increased and substantial tax pressure on consumers has led to a narrower tax base for the government, as shown by the negative growth rates in the tax base that have followed since 2011, after the substantial increases of 4% to 12%, and 12% to 24% on excise duty.

This illustrates how governments may actually see lower tax revenue after increasing tax rates on consumers of mobile services, due to the latter diminishing economic activity in mobile markets.

Figure 33

Excise tax base growth in Jordan

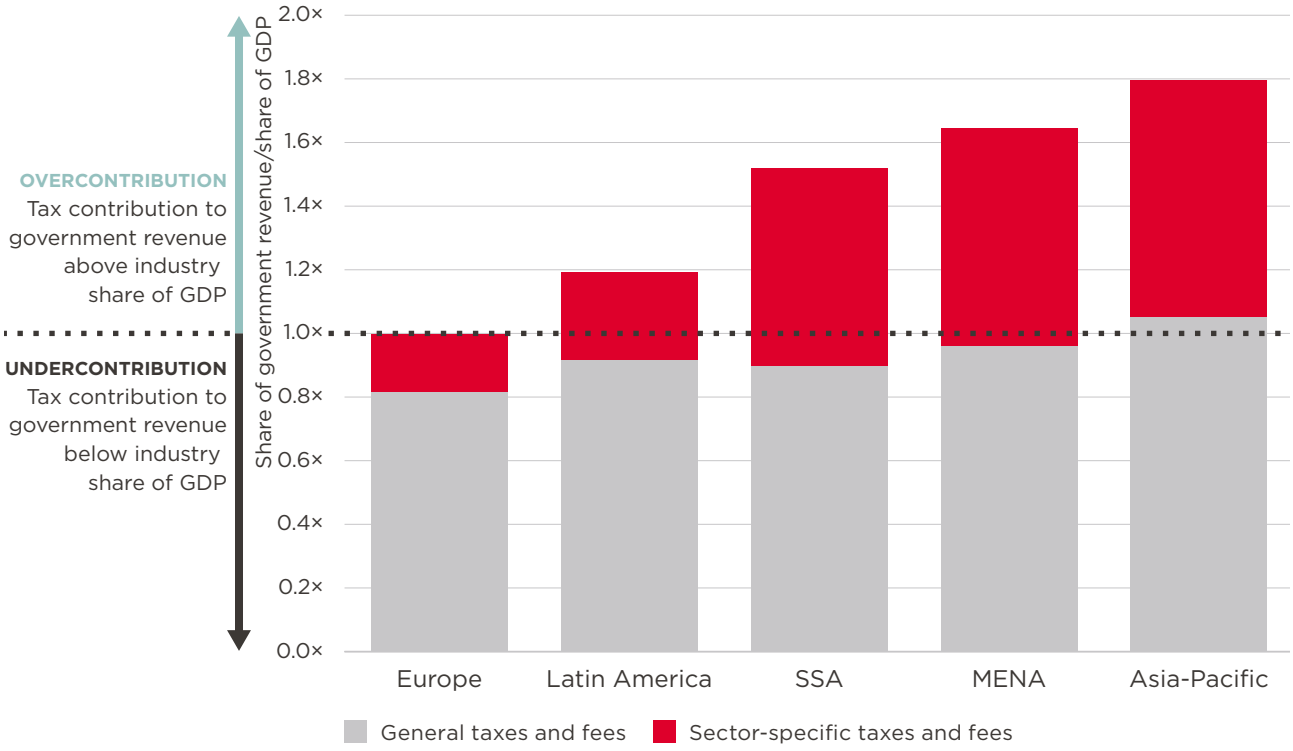
Source: GSMA Intelligence

The result of the short-term financing approach is that the mobile sector becomes taxed beyond a fair amount compared to other sectors in the economy. One way to assess this is to compare the contribution of the mobile sector to government revenue, relative to its economic size. This can be approached by comparing the share of mobile sector taxes on government revenue, with respect to the share that represents mobile sector revenue in GDP (see Figure 34).

As a result of sector-specific taxation, the mobile sector over-contributes to tax revenues relative to its economic size. Across Sub-Saharan Africa, for example, the contribution to government tax revenue was estimated to be almost 1.6 times the industry's share of GDP on average. In Asia Pacific, the contribution was 1.8 times the industry's share of GDP on average.

Figure 34

Mobile sector tax contribution to government revenue relative to economic size of mobile sector [40]



Source: GSMA Intelligence, IMF/World Bank

In almost all cases, if sector-specific taxation were eliminated, the mobile sector would be paying taxes more in line with the contributions made by the rest of the economy. The only exception is Europe, possibly because there are other sectors with higher profits (such as financial services), which correspondingly contribute a significant proportion of tax revenue.

Reform to sector's tax regimes should take into account mobile's wider economic benefits

There is a case to be made beyond bringing tax rates in the mobile sector down to the economy average. Mobile technology brings wider economic benefits to societies across the world. It is a large contributor to the global economy, contributing more than $3.6 trillion in 2017, equivalent to 4.5% of GDP.[41] These types of economic benefits, with a positive impact on third parties beyond the initial users of services, are typically encouraged through subsidies for the goods and services that generate them. However, mobile services are subject to sector-specific taxation, which could stifle the significant productivity benefits associated with the sector.

Reductions in sector-specific taxes boost demand for mobile services, which add value to the economy through the knock-on impact on other industries and the increased productivity of workers with

40 Appendix 2 describes the sector-specific taxes included in the analysis.
41 The Mobile Economy 2018, GSMA, 2018

mobile connections. The wider mobile industry is able to support more jobs and increase investment in infrastructure, which has a further positive impact on the economy. Depending on how much demand is stimulated, tax revenues can also increase over the medium term.

According to studies undertaken for the GSMA on the impact of changing specific tax rules and rates in economies across the world, the removal and reduction of mobile-specific tax rates can stimulate the economy through greater mobile demand, investment and tax revenues.

Examples of how tax reform can bring economic benefits

Argentina

By **eliminating the 4.2% excise duty** on mobile services, mobile penetration would increase by 1 million unique subscribers, an **increase of 2.1% in unique subscriber penetration**. As a result, GDP would grow by $1.83 billion, with tax receipts increasing by over $980 million annually after five years. The tax reform would in turn bring a cumulative fiscal gain of more than $3.3 billion over five years (1.7%).[42]

Democratic Republic of Congo

The **reduction in excise duty on mobile services from 10% to 3%** would drive a **GDP increase of $276 million (0.8%)**. The reform would raise annual tax receipts by $21 million (0.2%) after five years, resulting in a cumulative fiscal gain of $31 million over five years.[43]

Guinea

A **reduction of annual backhaul spectrum fees by 80% would increase GDP by $22 million** (0.3%) and annual tax receipts by $2 million after five years (0.1%). This would result in a cumulative fiscal gain of $5 million over five years.[44]

Sri Lanka

The **elimination of the 25% Telecommunications Levy** on voice and SMS would **increase unique subscribers by 1.6 million by 2023**, stimulating GDP growth by $878 million (or 1.1% of GDP), and driving a cumulative fiscal gain of $475 million over five years.

Tunisia

Eliminating network equipment customs duties would mean annual **tax receipts would be $42 million higher per annum by 2023**. This would result in a cumulative fiscal gain of $135 million over five years, while the tax reform would boost GDP growth by $161 million (0.4%).[45]

42 *Reforming mobile sector taxation in Argentina*, GSMA, EY, 2017
43 *Reforming mobile sector taxation in the Democratic Republic of the Congo*, GSMA, EY, 2018
44 *Reforming mobile sector taxation in Guinea*, GSMA, EY, 2018
45 *Reforming mobile sector taxation in Tunisia*, GSMA, EY, 2018

CASE STUDY 8
Digital government: mobile money P2G payments

A growing number of governments are prioritising the digitisation of public services, including tax administration, as part of ambitious e-government programmes with the objective to improve the quality and efficiency of public sector service delivery. Mobile innovations such as mobile money are playing a crucial role in government digitisation.

In 90 markets across Africa, Asia and Latin America, mobile money providers digitise payment streams between governments, individuals and businesses.[46] By doing so, they strengthen the ability of governments to mobilise domestic resources and reduce costs for businesses and citizens to make payments. Person-to-government (P2G) payments via mobile money are used for tax collection but also for a wider range of services such as school fees, health payments or official document fee payments. The number of P2G services has increased over the last few years; they are now available in more than 30 markets.

Table 10

Examples of P2G payments using mobile money

Statutory payments	• Taxes (e.g. income, property, vehicle) • Fines (e.g. traffic offences) • Penalties (e.g. court-ordered)
Government services	• Education (school or university fees) • Official documents (visa, passport, driving licence) • Other permits or registrations
Government benefits	• Health and life insurance • Pensions • Public provident funds • Contributions towards disaster response

Source: GSMA

The benefits of using P2G payments with mobile money are multiple for the government and taxpayer. Case studies in Kenya and Côte d'Ivoire have shown that digital payments can increase government revenues through improved visibility of transactions, improved financial management and better accessibility, among other factors.[47]

In Kenya, a GSMA study found that mobile money can reduce a citizen's costs by more than 75%. Following the digitisation of payments, the Kenyan National Transportation Safety Authority (NTSA) doubled its revenue collection between July 2015 and October 2016, from an average $1.1 million to $2 million per month. Furthermore, the NTSA saved $18.2 million on compliance costs between August 2014 and May 2016.[48]

46 *2017 State of the Industry Report on Mobile Money*, GSMA, 2017
47 *Person-to-government (P2G) payment digitisation: lessons from Kenya*, GSMA, 2017; *Paying school fees with mobile money in Cote d'Ivoire*, GSMA, 2015
48 *Person-to-government (P2G) payment digitisation: lessons from Kenya*, GSMA, 2017

Table 11

Benefits of mobile money P2G payments

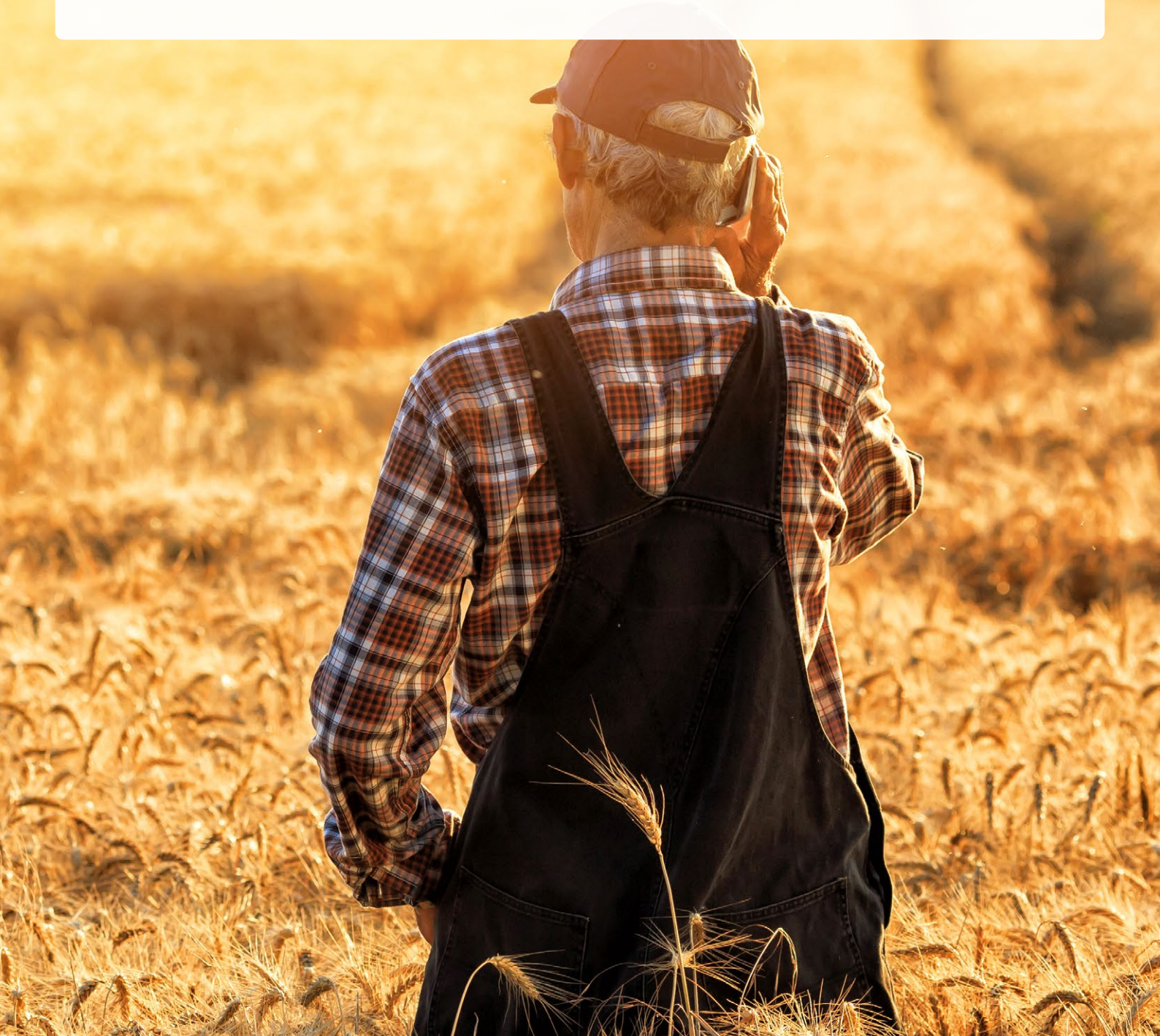
Benefits for the government

- Expansion of the tax base
- Increased transparency and accountability
- Higher traceability of funds
- Minimisation of fraud
- Daily reconciliation between services rendered, amount paid and amount banked
- Improve financial planning

Benefits for businesses and citizens

- Convenient and transparent payment
- Avoid long travel times
- Avoid long queues
- Avoid corruption

Source: GSMA



Appendix 1
Countries included in analysis

Table 12

Countries included in tax survey and in total cost of mobile ownership survey

Country	Operator survey	TCMO
Asia-Pacific		
Afghanistan		■
Australia		■
Azerbaijan		■
Bangladesh	■	■
Cambodia	■	■
China		■
Hong Kong	■	■
India	■	■
Indonesia		■
Japan		■
Kazakhstan	■	■
Korea, South		■
Kyrgyzstan	■	■
Laos		■
Malaysia	■	■
Mongolia		■
Myanmar	■	■
Nepal	■	■
New Zealand		■
Pakistan		■
Papua New Guinea		■
Philippines		■
Singapore		■
Sri Lanka	■	■
Thailand	■	■
Uzbekistan	■	■
Vietnam		■

Country	Operator survey	TCMO
Europe		
Albania	■	
Austria	■	■
Belgium		■
Bulgaria	■	■
Croatia	■	■
Czech Republic	■	■
Denmark	■	■
Estonia		■
Finland		■
France		■
Germany	■	■
Greece	■	■
Hungary	■	■
Ireland	■	■
Italy	■	■
Latvia		■
Lithuania		■
Luxembourg		■
Malta	■	
Netherlands	■	■
Norway	■	■
Poland		■
Portugal	■	■
Romania	■	■
Russian Federation	■	
Serbia	■	■
Slovakia		■
Slovenia		■

Country	Operator survey	TCMO
Spain	■	■
Sweden	■	■
Switzerland		■
Ukraine	■	■
United Kingdom	■	■
Latin America		
Argentina	■	■
Bolivia	■	■
Brazil	■	■
Chile	■	■
Colombia	■	■
Costa Rica	■	■
Dominican Republic	■	■
Ecuador	■	■
El Salvador	■	■
Guatemala	■	■
Honduras	■	■
Jamaica		■
Mexico	■	■
Nicaragua	■	■
Panama	■	■
Paraguay	■	■
Peru	■	■
Uruguay	■	■
Venezuela		■
Middle East and North Africa		
Algeria	■	■
Armenia	■	
Bahrain	■	■
Egypt	■	■
Georgia	■	
Iran		■
Iraq	■	■
Israel		■
Jordan	■	■
Kuwait	■	■
Lebanon		■
Mauritania		■
Morocco	■	■
Oman		■
Qatar	■	■
Saudi Arabia	■	■
Sudan	■	■
Tunisia	■	■
Turkey	■	■
UAE	■	■
North America		
USA		■
Sub-Saharan Africa		
Angola		■
Botswana	■	■
Burkina Faso	■	■
Cameroon	■	■
Chad	■	■
Congo	■	■
Congo, D. R.	■	■
Côte d'Ivoire	■	■
Ethiopia		■
Ghana	■	■
Guinea	■	■
Kenya	■	■
Lesotho	■	
Madagascar	■	■
Malawi		■
Mozambique	■	■
Niger	■	■
Nigeria	■	■
Rwanda		■
Senegal		■
Sierra Leone		■
South Africa	■	■
Swaziland	■	■
Tanzania	■	■
Uganda	■	■
Zambia	■	■
Zimbabwe		■

Source: GSMA

Appendix 2
Estimation of total mobile tax and fee payments

We calculated the tax payment metrics, as reported in Chapter 2, using data collected from a survey of mobile operators. We surveyed over 30 mobile operator groups and individual operator entities to collect a sample of data from more than 150 local mobile operators.

Survey

We contacted survey respondents in June 2018 to provide data on the taxes they administered and paid to governments in the 2017 calendar year. Some respondents provided a full year of data based on their latest available financial year-end. In all cases, the data relates to 12 months of business operations predominantly in 2017.

Operators mainly provided data in local currency. In some cases other currencies (US dollar, euros) were used. We converted all payments in local currency to US dollar using the average exchange rate for 2017.[49]

Outputs

Our main metric is tax payments as a percentage of revenue. We used historical total mobile revenues[50] from the GSMA Intelligence database at an operator level to create this metric. Where data was not available, we either:

- used external sources or asked operators for 2017 revenue for each local operation
- estimated revenue for local operators based on their connections share of the local market.

Both GSMA Intelligence revenue and tax payments data provided by operators are either exclusively or predominantly related to mobile operations. In some cases, operators are unable to separate tax payments relating to fixed telecommunications services and television services from their totals. In these cases, it is likely that the GSMA Intelligence revenue does not separate these services from the total revenue. The net impact on the tax payments as a percentage of revenue metric is likely to be minimal.

As a result of operator participation, we were able to produce analysis for 86 countries across the world. These country-level results are based on the tax payments as a proportion of revenue for operators and weighted according to the market share of those operators who responded. For example, if we received data from Country A from Operator 1 and Operator 2, but not the final operator, Operator 3, then:

Tax payments as % of market revenue = [Operator 1 tax payments as % of operator 1 revenue x Operator 1 market share + Operator 2 tax payments as % of operator 2 revenue x Operator 2 market share] / [Operator 1 market share + Operator 2 market share]

Geographic breakdown

The results for all 86 countries are used to create regional averages, which are reported in Chapter 2. These are based on raw averages of the markets surveyed in that region.

We report data for individual markets only where

49 GSMA Intelligence
50 This includes both service revenues and non-recurring revenues such as handset revenues and connection fees. This correlates directly with the tax categories on which we sought information.

there have been more than two local operators successfully responding to the survey in that market. This is to ensure that we were able to benchmark any discrepancies, and also to protect the confidentiality of the single operator that reported in a market with only one respondent. As a result, 49 of the 86 markets are available to be reported at a country level.

Breakdown by tax type

We collected tax payment data by type of tax where possible. Across the world, there are numerous taxes and different tax systems. Our methodologies attempt to harmonise those systems by placing tax payments into groups of taxes and subsequently analysing which are sector-specific, and which are part of general taxes. The mapping for this process is shown below.

Table 13

Taxes considered in the tax payments analysis

Tax group	Description	Designation
Consumer taxes		
Value added tax (VAT) / General sales tax (GST)	GST and net VAT are included in this analysis. In some countries where VAT is not immediately recoverable, gross VAT has been used instead.	General tax (unless the rate is artificially higher than a single rate for most other sectors)
Excise taxes	Special taxes (i.e. not GST or VAT) on the usage of mobile services and the purchase of handsets, SIM cards, connections and other value-added services, as well as international incoming and outgoing traffic	Sector-specific tax
Import duties (consumer goods)	Customs duties on handsets and SIM cards	Sector-specific tax (only for the operator survey)

Tax group	Description	Designation
Operator taxes		
Corporation income tax	Income tax usually payable on profits, but commonly on revenue as a minimum alternative tax where profits are negative	General tax (except for one example where the rate is artificially higher than a single rate for most other sectors)
Employment taxes	Taxes paid by operators and on behalf of employees in relation to all employment activities including personal income tax, social security contributions and other employment taxes	General tax
Regulatory taxes and fees	Taxes and fees related to the telecoms sector in its use or destination such as annual fees on licences, treasury shares, universal service funds and numbering taxes; as well as taxes and fees specific to the telecoms sector	Sector-specific tax
Spectrum fees	Annual fees on spectrum usage, but specifically excluding auction payments whether one-off or administered in several multiple payments	Sector-specific tax
Import duties (network equipment)	Customs duties on imported network equipment	Sector-specific tax
Other general taxes	All other taxes that are not consumer taxes, nor specific to the mobile sector. Examples include Zakat in the Middle East, municipal taxes in Latin America, and environment levies, property taxes and contract-related taxes across the world	General tax

Source: GSMA

Specifically excluded from our analysis, in addition to the exclusions above, are withholding taxes. These are taxes collected by mobile operators on behalf of governments, usually because the sector that is interacting with mobile operators is formally hard to identify and tax. This typically includes local suppliers and local retail and reseller agents. While these are excluded from our analysis, it is important to note that mobile operators would incur an administrative burden in handling withholding taxes that we have not taken into account.

One-off spectrum payments are excluded from this analysis as they are, by their nature, infrequent but significant payments which would have a large impact on the headline metric – tax payments as a percentage of revenue – in any given year. Nevertheless, one-off spectrum fees do represent a large burden on operators and can be problematic for operators that already have a high ordinary tax burden in a normal year.

Appendix 3 TCMO analysis

A3.1 Data sources

A3.1.1 Pricing data

Pricing data for devices and tariffs was provided by Tarifica. Retail prices were captured as of the first quarter of 2017, including all relevant taxes. Based on GSMA Intelligence analysis, four baskets were defined with different levels of usage allowance, type of contract and technology. The following aspects were taken into account:

- Historic average trends in data consumption across countries, sourced from GSMA Intelligence, Ofcom,[51] Tefficient[52] and Opera.[53] Data requirements going forward (which are likely to increase) were also taken into account. The analysis of average values was carried out taking into account the skewness introduced by intensive users of mobile services.
- A selection of allowances currently offered by operators in developed and emerging markets, provided by Tarifica.
- Baskets used in existing benchmarking studies from OECD,[54] Ofcom,[55] EC[56] and Tarifica. These represent basket designs often used in the economics literature analysing pricing in the mobile industry.[57]

The baskets resulting from this analysis are shown in Table 14.

Table 14

Usage basket profiles

	Basic	Low	Medium	High
Usage allowance	100 MB data	500 MB data	250 voice minutes 100 SMS 1000 MB data	5000 MB data
Tariff	Prepaid	Prepaid or post-paid	Prepaid or post-paid	Prepaid or post-paid
Technology	2G, 3G or 4G	3G or 4G	3G or 4G	3G or 4G

Source: GSMA, Tarifica

51 *The Communications Market Report*, Ofcom, 2016
52 *Unlimited pushes data usage to new heights*, Tefficient, 2016
53 *State of the Mobile Web Africa 2016*, Opera, 2016
54 *Digital Economy Outlook 2015*, OECD, 2015
55 *The Communications Market Report, Ofcom, 2016*
56 *Mobile Broadband Prices in Europe 2016*, European Commission, 2016
57 For instance, OECD and Tarifica's benchmarking has been extensively used in studies such as: *Evaluating market consolidation in mobile communications*, CERRE, 2015; *Ex-post analysis of two mergers: T-Mobile/tele.ring in Austria and T-Mobile/Orange in the Netherlands*, DG Comp 2015; *The impact of competition on the price of wireless communications services*, Hogunbonon, G.V, 2015; *Supersonic: European telecoms mergers will boost capex, driving prices lower and speeds higher*, HSBC Global Research, 2015

To capture all costs consumers face when consuming mobile services (handset price, activation and connection fees and usage price), Tarifica collected two variables for each country: the retail price of a device and the tariff price, which included activation and connection fees as well as the price of the service.

Device prices were obtained from mobile operators' websites for the cheapest handset available in the market with internet-browsing capability – a smartphone[58] or feature phone.[59] Given that the performance for basic internet mobile applications (such as basic video or social networking) is only functional with 3G and 4G, this analysis excluded devices with 2G and WAP connectivity. Device prices from retailers other than mobile operators were analysed for the countries where mobile operators did not offer handsets, which means that in some markets there may be cheaper devices available.

Mobile tariffs for each country were measured by the cheapest available plan for each basket across all mobile operators in the market. The plans and prices available for each market were obtained from the websites of mobile operators. Tariffs from mobile virtual network operators were not taken into account.[60] A number of restrictions were applied to ensure prices are representative of regular usage and consumption patterns:

- Postpaid plans that required a commitment of more than 24 months were excluded.
- Prepaid plans lasting less than one month were included; where this applied, usage allowance and prices were scaled up to one month.
- When there are promotional offers, only those that appear to be permanent were taken into account.
- Plans targeted or restricted to certain profiles (e.g. youth, student, senior) were not included.

3.1.2 Consumer tax rates

Tax rates were sourced from mobile operators and the following public sources:

- VAT rates were obtained from PwC Tax Summaries,[61] KPMG[62] and OECD's Tax Database[63]
- Sector-specific consumer tax rates and fees were sourced from PwC Tax Summaries, IBFD[64] and from desktop research (e.g. government budget laws, mainstream media).
- Customs duties on handsets were collected from the World Trade Organisation (WTO) website. These refer to the Harmonised System HS code 851712: 'Telephones for cellular networks mobile telephones or for other wireless networks'.
- Previous Deloitte and GSMA global[65] and country reports.[66]

3.1.3 Macroeconomic data

Table 15

Sources of macroeconomic data

Variable	Time	Source
Nominal GDP	2017	IMF World Economic Outlook[67]
Population	2017	World Bank
Income distribution	2003–2013	World Bank[68]
Exchange rates	2014–2017	Oanda[69]

Source: GSMA

58 A smartphone is a device that has an open operating platform (where new applications can be developed and installed by the user).
59 A feature phone is a device with a closed platform, where non-native applications can be installed.
60 This could mean that in some markets cheaper alternatives could be available.
61 PwC Tax Summaries, 2016
62 Indirect tax rates studies, KPMG, 2017
63 OECD Tax Database
64 IBFD Database
65 *Digital inclusion and mobile sector taxation 2016*, GSMA and Deloitte, 2016; *Digital inclusion and mobile sector taxation 2015*, GSMA and Deloitte, 2015; *Global Mobile Tax Review 2011*, GSMA and Deloitte, 2011.
66 *Digital Inclusion and Mobile Sector Taxation in Brazil*, GSMA and Deloitte, 2016; *Digital Inclusion and Mobile Sector Taxation in Colombia*, GSMA and Deloitte, 2016; *Digital Inclusion and Mobile Sector Taxation in Mexico*, GSMA and Deloitte, 2015; *Digital Inclusion and Mobile Sector Taxation in Honduras*, GSMA and Deloitte, 2016; *Digital Inclusion and Mobile Sector Taxation in El Salvador*, GSMA and Deloitte, 2017.
67 See https://www.imf.org/external/pubs/ft/weo/2017/01/weodata/index.aspx
68 See http://data.worldbank.org/indicator/SI.DST.FRST.20
69 See https://www.oanda.com

A3.2 TCMO as a proportion of income

The total cost to a consumer of owning and using a mobile phone can be defined by using the concept of TCMO. TCMO is calculated in monthly terms, on the basis of three building blocks:

- The handset price, i.e. cost of the mobile device required for the use of mobile services. This represents a one-off cost that can be spread over the lifecycle of the device (after which it is assumed to be replaced). Handset prices were converted to a monthly price based on a handset lifecycle assumption of three years for developing markets and two years for developed markets, to take into account differences in usage patterns, disposable income and willingness to pay.[70]
- The activation and connection price or any other charges incurred to connect to the operator's network. For prepaid customers this usually consists of an initial charge for activating the SIM card. For postpaid customers there may be additional upfront costs, such as an initial charge for activating the number. Activation and connection prices were converted into monthly prices assuming they follow the lifetime of the device.
- The price related to use, comprising voice, SMS and data charges, which can be prepaid or postpaid. This price is already expressed in monthly terms.

To account for the fact that the handset, activation and connection and usage prices are different across consumption profiles, the TCMO was calculated for the baskets in Table 14. Since these two baskets have different usage characteristics (in usage allowance, type of contract and technology), they can have different prices in the usage block of the TCMO as well as in the activation and connection component. As far as the device component is concerned, the same device was used for both baskets, since it was assumed these two profiles use it with similar purposes and services[71] and hence require a similar technology.

The calculation of the TCMO for basket ***b*** of country ***i*** is as follows.

$$TCMO_{bi} = \frac{Handset\ price_i}{Handset\ lifecycle_i} + \frac{Activation\ and\ connection\ price_{bi}}{Handset\ lifecycle_i} + Usage\ price_{bi}$$

In order to account for income differences across countries, TCMO was expressed as a proportion of income per capita across different income quintiles,[72] using the most recent information on income distribution available from the World Bank.[73] The TCMO measure presented in this report was estimated for 2016 – i.e. using pricing and income data as of 2016. Since data collection of prices was carried out throughout the first quarter of 2017, for countries experiencing substantial inflation, adjustments have been made to allow for better estimates of 2016 mobile service prices. Prices were captured in local currencies and converted to US dollars using exchange rates from Oanda in 2017.

Besides the Latin American countries included in the analysis, calculations have also been carried out for European[74] and North American[75] samples, for benchmarking purposes.

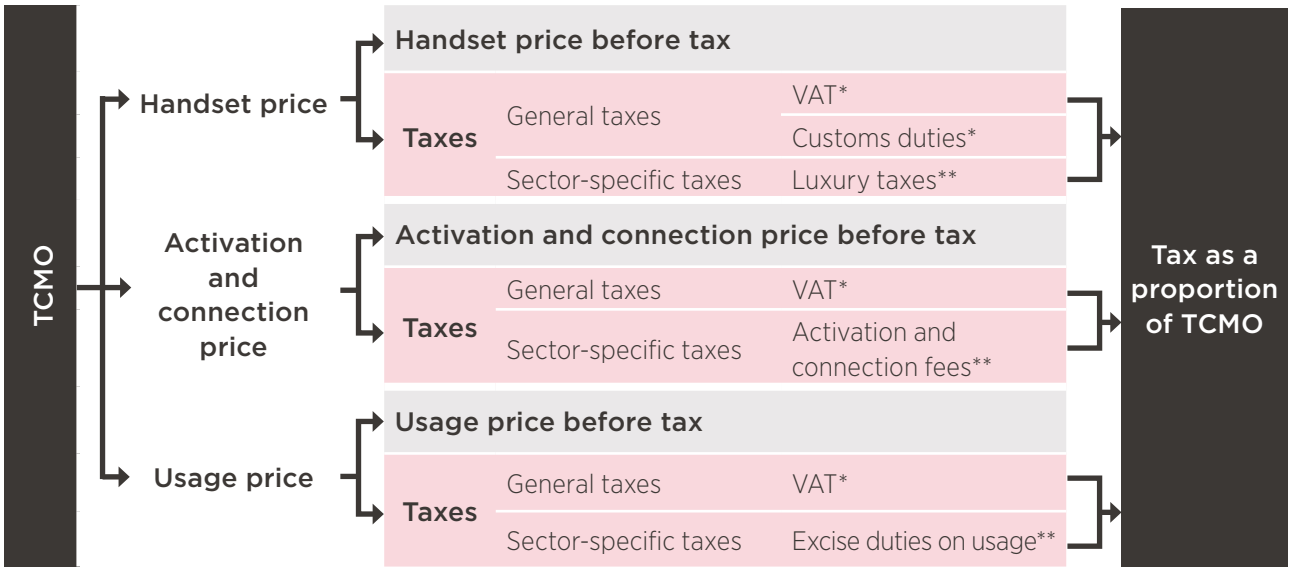
70 This assumption is based on *Global Mobile Tax Review*, GSMA and Deloitte, 2011.
71 This assumption is based on the fact that the data allowance is not substantially different, which should to a certain extent drive similar usage patterns.
72 This results from estimating the share of nominal GDP across different income deciles, to then distribute this between the number of individuals in each decile.
73 The most recent year being 2013 or from previous years up to 2003 for some countries where 2013 data was not available.
74 Western and Northern Europe includes: Austria, Belgium, Denmark, Estonia, Finland, France, Germany, Ireland, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Sweden, Switzerland and UK. Eastern and Southern Europe includes: Albania, Bulgaria, Croatia, Czech Republic, Greece, Hungary, Italy, Malta, Montenegro, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, Spain and Ukraine.
75 The North America region only includes the US.

A3.3 Taxes as a proportion of TCMO

The price of the three building blocks presented above can be further broken down into the price before tax (which covers costs and profits) and taxes. The latter can vary between general consumer taxes and sector-specific taxes. Table 16 presents the tax rates that have been considered for this analysis.[76] Note that this study only covers consumer taxes. Any potential pass-through of taxes levied on the operator to consumers was not considered due to the complexities involved in modelling the latter.[77] There is therefore likely to be an underestimation of tax as a proportion of TCMO presented here.

Table 16

Source of macroeconomic data



* Ad valorem tax rates

**Tax rates can either be ad valorem or fixed fees

Source: GSMA Intelligence

Taxes in the TCMO were calculated by applying tax rates to the appropriate tax base.

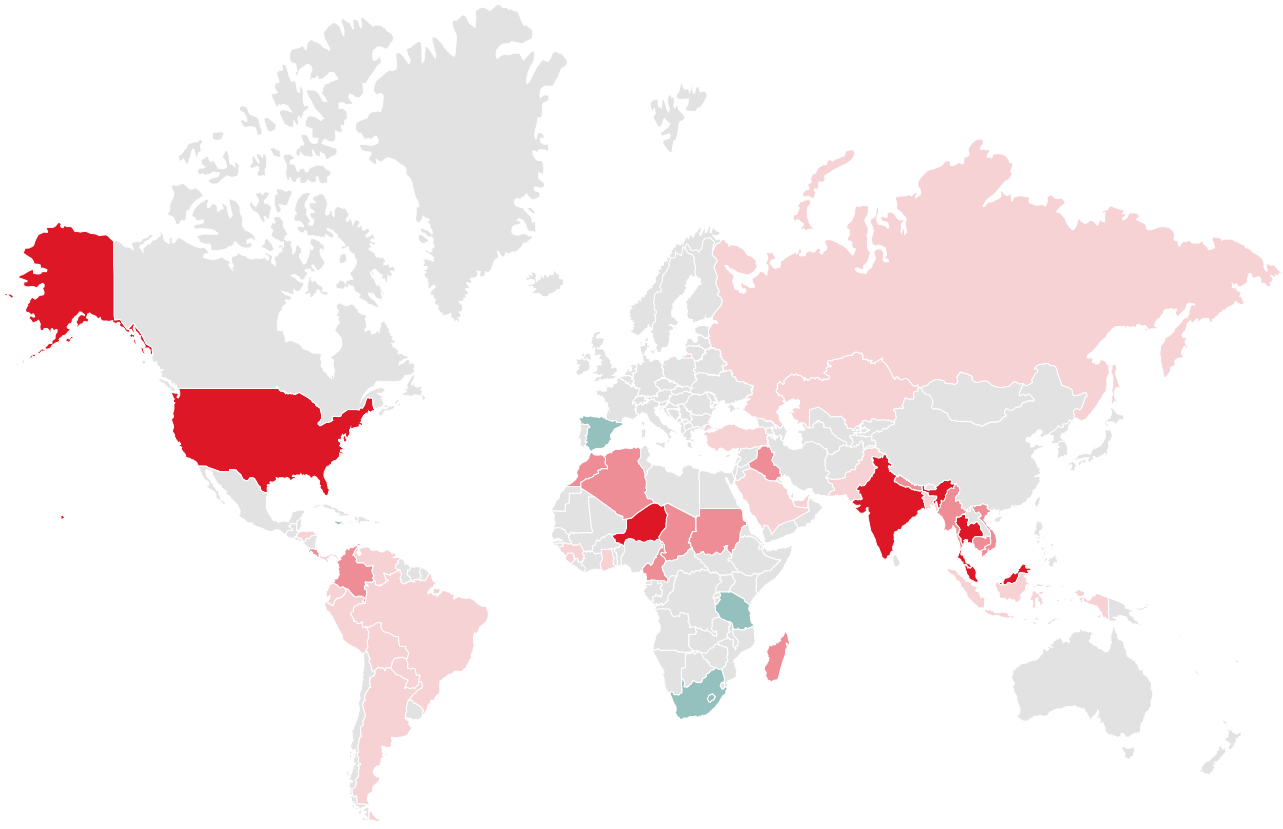
- In the case of ad valorem taxes (VAT and excise duties), the relevant tax base is the retail price of the relevant TCMO building block that was used.
- In the case of customs duties, the selected tax base was the retail price of the device building block in the TCMO. A more accurate calculation of customs duties would have involved using the price of goods at the import level as the tax base since retail prices incorporate a number of additional factors (such as transport costs or retailer costs and margins). No data is, however, available on import prices, hence our approach to use retail prices as a close proxy.[78]
- In the case of fixed amount taxes, a number of assumptions were made. For activation and connection fees applied on the value of the SIM card, it was assumed that the average retail price of the SIM is $1.2.[79] For general fixed fees, the tax payments were converted to a monthly level.[80] In rare cases where fixed-fees are applied per day of usage, it was assumed that the average consumer uses mobile services for 20 days in a month.[81]

76 Due to lack of data, the analysis of tax rates excludes rates on international traffic (hence, we assume no international calls) and additional tax rates related to importing devices such as processing fees.
77 Estimating the percentage of an operator tax or fee that is reflected in the retail price of mobile services depends on type of tax, prevailing market conditions of competition and price elasticity of demand across different groups of consumers, among other factors.
78 Note that the difference between retail and import prices is likely to be country-specific (i.e. due to differences in transport and logistic costs and/or different market structures at the retail level, for instance).
79 This is an illustrative assumption, based on $1 wholesale price plus illustrative costs and margins that add to retail. Wholesale prices retrieved from www.budgetelectronics.cat
80 Yearly fees were brought to monthly level by dividing by 12. One-off fees were brought to monthly level by dividing by the lifecycle of the device (consistent with the approach taken with regards to fixed fees when measuring the TCMO as such).
81 This is an illustrative assumption.

Appendix 4
USF rates

Figure 35

Universal service fund rates worldwide: selected examples



Source: GSMA Intelligence

Note: In Colombia, operators under a concession contract must contribute 2.2% of their income to the fund and 5% otherwise. Countries in grey were not included in the analysis.

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