

Reforming mobile sector taxation in Pakistan:

Unlocking economic and social benefits through tax reform in the mobile sector





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The GSMA represents the interests of mobile operators worldwide, uniting more than 750 operators with over 350 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and internet companies, as well as organisations in adjacent industry sectors. The GSMA also produces industry-leading events such as Mobile World Congress, Mobile World Congress Shanghai, Mobile World Congress Americas and the Mobile 360 Series of conferences.

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Executive summary

Mobile telephone services are playing an increasingly important role in supporting economic growth and social inclusion across the world. Mobile penetration, and specifically 3G and 4G penetration, enhances digital connectivity by expanding internet and broadband access, which in turn facilitates the reduction of barriers for trade, commerce, communication, service delivery, and human development. Examples of these benefits are seen in the form of financial inclusion via mobile payment platforms, digitally enabled local entrepreneurship, innovative health and education delivery systems, and growing numbers of e-government initiatives.

Conducive regulatory conditions offer the mobile industry the support it needs to thrive and maximise the opportunities available to consumers, businesses and governments. Within this, taxation is an important factor, and there is a need to achieve the right balance between tax revenue maximisation, and incentivising investment and economic growth.

In order to assess the potential benefits of a more efficient tax structure in the mobile sector, one which focuses on facilitating investment and unlocking digital inclusion, the GSMA¹ has commissioned EY to undertake a study of the impacts of potential tax reforms on the Pakistani mobile sector and the wider economy.

This report analyses recent developments and the tax structure in Pakistan's mobile market, sets out potential options for tax policy reform, and estimates the impacts of these policy options on the mobile sector, the wider economy and the Government's fiscal position.

The mobile market in Pakistan has demonstrated significant growth over the past decade, however a significant share of the population remains unconnected to mobile services

The mobile market in Pakistan has expanded rapidly over the past decade, with the number of unique subscribers increasing by 37.4 million (85.1%) between 2008 and 2018.² Mobile sector expansion in Pakistan has been driven by significant capital expenditure by mobile operators, who, on average, have made annual capital investments equivalent to around 25% of their revenue during the last decade.³

Total mobile sector revenues were \$3.4 billion in 2017,⁴ equivalent to 1.1% of Pakistani gross domestic product (GDP), while the sector contributed approximately \$1.8 billion of direct economic value to Pakistan in 2017 (0.6% of GDP).⁵ This contribution to GDP is relatively low compared to international benchmarks, suggesting considerable scope for expansion.

The majority of the population (59.7% of the population, or 120 million people) is still unconnected to a mobile network. Unique subscriber mobile penetration in Pakistan stood at 40.3% in Q3 2018, which is the lowest level in South Asia.

Further significant investment is required to drive the expansion of the mobile market, and to improve the affordability of services for consumers. In particular, a focus on expanding network coverage, and investments in the quality of data services, could accelerate the growth of the sector in Pakistan.

Facilitating the growth of the mobile sector aligns with the new Government's economic objectives, which are set out in the PTI Manifesto and the PTI Digital Policy 2018.⁸ These include achieving inclusive economic growth, creating new jobs, and transforming Pakistan into a knowledge economy.

In this context, incentivising further investment to improve the availability and quality of mobile networks, as well as improving the affordability of mobile services, should become a policy priority for the Government, particularly given the low level of unique mobile subscriber penetration, and a very low level of fixed broadband penetration in Pakistan (9 subscriptions per 1,000 people in 2017).9

9. World Bank databank.

GSMA, https://www.gsma.com/asia-pacific/. 1

GSMA Intelligence database. 2.

ibid. 3. 4. *ibid*.

^{5.} ibid.

There is an important difference between the number of mobile connections - the metric traditionally used by the industry to measure market size and penetration - and the term 'unique mobile subscribers'. The latter refers to a single individual that has subscribed to a mobile service and that person can hold multiple mobile connections (i.e. SIM cards). 7 Pakistan Tehreek-e-Inshaf (PTI), 2018, PTI Manifesto 2018, https://www.scribd.com/document/383487528/PTI-Manifesto-Final-2018#from_embed#.

PTI, 2018, PTI Digital Policy 2018, http://insaf.pk/public/insafpk/sites/default/files/PTI%20Digital%20Policy.pdf. 8.

Further improvements in affordability of mobile services and devices would contribute to mobile market expansion and development of the digital economy in Pakistan

For the bottom 20% and 40% income groups of the Pakistani population, the total cost of mobile ownership (for both low and medium consumption baskets) is above the "1 for 2" United Nations (UN) affordability target (1 GB of data costing less than 2% of monthly income). ^{10,11} Moreover, an upfront cost of a handset represents an affordability challenge for those lower-income Pakistanis who do not have access to finance, which would enable them to pay the cost of a mobile phone in instalments.

Furthermore, the affordability of handsets in Pakistan may be impacted in the near future by upcoming regulatory and tax changes. For example, a proposed increase in taxation of handsets in the Supplementary Bill 2019 would increase the price of mobile phones in Pakistan. In addition, the "Device Identification Registration and Blocking System" (DIRBS) recently launched by the Pakistan Telecommunication Authority (PTA) could increase the average price of a mobile phone on the Pakistani market, as legal handsets are generally more expensive than counterfeit and illegal devices, unless it is mitigated by government measures, aimed at improving the affordability of handsets.

To deliver the Government's objectives, Pakistan should make more effort to improve the affordability of mobile ownership, especially for the lower-income population. This would boost digitisation in Pakistan and generate substantial socio-economic benefits.

The tax burden on the mobile sector is high; this could limit the growth potential of the mobile sector in Pakistan

In 2017, the total tax contribution was estimated at \$638 million. This represents 19% of the total market revenue.¹² The mobile sector makes a large contribution in taxes and fees relative to its economic footprint: while the mobile market revenue accounted for 1.1% of Pakistan's GDP, ¹³ the sector's tax and fee payments accounted for around 1.7% of government total tax revenue.¹⁴ This means that the mobile tax contribution is 1.5 times its size in the economy. In a sample of South Asian countries, Pakistan (40%) has the second highest proportion of sales or value added taxes as a percentage of overall tax revenues (only below India at 47%). Pakistan has the highest proportion of corporate income tax (32%). In addition to the high tax burden, the large number of different taxes that apply to the mobile sector increases the complexity and costs of tax administration and compliance.

Through policy reform, the Government of Pakistan has the opportunity to simplify and rebalance the taxation of the mobile sector, supporting job creation and a better business climate

The Pakistani economy has performed well in recent years, growing at 5.5% in 2016, and 5.7% in 2017. However, a widening of external and fiscal imbalances threatens to put the medium-term economic outlook at risk. This challenging macroeconomic environment is weighing on the Pakistani economy and the growth is forecast to slow down to 4.1% in 2019 and 3.6% in 2020.¹⁵

The new Government recognises the need for key economic and structural reforms to meet its goals of driving inclusive growth, creating nearly 10 million new jobs, and transforming Pakistan into a knowledge economy.

Promoting greater investment in the mobile industry, and improving the affordability of mobile services align with this strategy and, due to the links between the telecoms sector and the wider economy, can be used as a vehicle to achieve the underlying objectives of modernising key economic sectors, increasing investment in the mobile sector and improving Pakistan's telecommunications infrastructure.

Tax reform in the sector would unlock investment in Pakistan's mobile networks and improve affordability, promoting greater adoption of mobile services. The growth in the sector would also generate higher GDP and taxation revenue for the Government in the medium term

Three options for tax reform in Pakistan have been identified, in line with the best practice principles of taxation,¹⁶ which would simplify the tax system, make it more equitable and realise positive externalities¹⁷ from the wider proliferation of mobile services. These reforms would aim to improve the affordability of

^{10.} Low consumption basket includes 500MB of data, the medium basket – 1,000 MB of data, 250 voice minutes and 100 SMS. For more detail on the methodology of calculation of the total cost of mobile ownership (TCMO) please see Appendix A. Sources: GSMA Intelligence database, Tarifica.

Broadband Commission for Sustainable Development, 2018, 2025 Targets: "Connecting the Other Half", <u>https://broadbandcommission.org/Documents/publications/wef2018.pdf</u>.
 This estimation does not take into account the withholding tax due on mobile services, which in 2015 was estimated at \$352 million. If this were taken into account, the tax contribution of the mobile sector could be of 29%. Source: GSMA, *Country overview: Pakistan. A digital future, 2016*, <u>https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/12/Country-Overview_Pakistan_Digital-Future.pdf</u>.

Pakistan's GDP was of \$303 billion in 2017. Source: Oxford Economics.

The total tax revenue was estimated at \$37,801 million in 2017. Source: Federal Budget 2017-18, Budget in Brief, Government of Pakistan, Finance Division. <u>www.finance.gov.pk/budget/budget/budget/2017-18, Pdf, Federal Budget 2018-19, Budget in Brief, Government of Pakistan, www.finance.gov.pk/budget/Budget_in Brief_2018_19,pdf.
</u>

United Nations, 2019, World Economic Situation and Prospects 2019, <u>https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/WESP2019_BOOK-web.pdf</u>.

For a more detailed discussion of principles of taxation of the mobile sector please see Section 3.1.

^{17.} A positive externality arises when consumption of a good or services benefits a third party, not directly involved in the transaction. In relation to this study, consumption of mobile services creates wider socio-economic benefits, as described in Section 1.3.

mobile services for consumers; this is particularly important in the current tax and regulatory context.

The following reforms are forecast to lead to increased penetration, and an acceleration in the rate of technology migration to smartphones and 3G/4G connections, as well as supporting GDP growth and taxation revenue more widely in the medium-term:

- Harmonisation of sales tax on mobile services to 17%.¹⁸ The rate of sales tax differs across provinces in Pakistan, and between different goods and services. For example, the sales tax on mobile services is levied at a 17% rate in Islamabad but 19.5% in the other provinces, and is also higher than the rate applied to most other services (charged at rates ranging from 13% to 16%). This scenario models the harmonisation of the rate of sales tax on mobile services at 17%. This would lower the tax burden on mobile subscribers, and hence increase demand and take-up, and incentivise network investments. The expected impacts of this tax reform on the mobile sector and wider economy are forecast as follows:19
 - Unique subscriber penetration would increase by 0.5% (1.1 million unique subscribers) by 2023, while mobile broadband (MBB) penetration would grow by 0.7% (1.5 million unique MBB subscribers), driving growth in mobile data usage per connection of 1.3%. Mobile sector revenues would be \$34 million higher per annum (1.0%) by 2023; and
 - GDP would grow by \$360 million (0.12%), and annual tax receipts would be \$55 million higher per annum by 2023, a cumulative fiscal gain of \$144 million over five years.
- Harmonisation and reduction in sales tax on mobile services to 16%. This scenario combines harmonisation of sales tax on mobile services with a reduction of the harmonised rate to 16%.²⁰ Compared to scenario 1, this reform would generate higher benefits in the form of additional increases in penetration and investment, generating further gains in the wider economy. This reform is forecast to have the following impacts:
 - Unique subscriber penetration would increase by 0.7% (1.5 million unique subscribers) by 2023, while mobile broadband penetration would grow by 1.0% (2.1 million unique MBB subscribers), driving growth in mobile data usage per connection of 1.7%. Mobile sector revenues would be \$46 million higher per annum (1.4%) by 2023; and

- GDP would grow by \$497 million (0.16%), and annual tax receipts would be \$76 million higher per annum by 2023, a cumulative fiscal gain of \$198 million over five years.
- Elimination of the 8% minimum withholding tax on income from mobile services. A minimum tax of 8% is payable in Pakistan on service income from corporate subscribers. Elimination of the minimum tax would reduce the tax burden on operators, leading to lower prices of mobile services and greater investment into mobile networks. This reform is forecast to have the following impacts:
 - Unique subscriber penetration would increase by 0.3% (0.7 million unique subscribers) by 2023, while mobile broadband penetration would grow by 0.4% (0.9 million unique MBB subscribers), driving growth in mobile data usage per connection of 0.8%. Mobile sector revenues would be \$21 million higher per annum (0.6%) by 2023; and
 - GDP would grow by \$225 million (0.07%), and annual tax receipts would be \$36 million higher per annum by 2023, a cumulative fiscal gain of \$100 million over five years.

The growth in the sector should also lead to wider societal benefits, through increased mobile ownership and access to mobile data and broadband services, particularly among low-income communities, as over 60% of new subscribers would come from low-income groups. The boost to mobile penetration should lead to growth in productivity and hence an increase in GDP, household incomes, employment and investment across the economy. All scenarios should aid the Government of Pakistan in meeting its development goals, due to the positive impact that the mobile sector has on the wider economy.

Moreover, the reforms are shown to be self-financing in terms of their impact on government revenues in the medium-term, and should generate increased tax revenues by 2023. In addition, a more conducive tax system for the investment and development of the mobile sector should enable further modernisation of tax administration and make tax collection more efficient. This would help to broaden the tax base and raise additional revenue for the Government, due to innovative solutions such as mobile money person-to-government (P2G) payments and e-government initiatives.

^{18.} The forecasts provided in this report estimate the isolated impacts of tax reform on the Pakistani mobile industry relative to a baseline forecast for the development of the sector sourced from GSMAi. They do not capture other market developments and/or external market shocks, and as such should not be seen as comprehensive forecasts for the sector. 19. A model of the Pakistani mobile sector has been developed to calculate the changes in the mobile sector resulting from each of the tax policy scenarios, while the wider economic

impacts of each scenario are assessed via a 'Computable General Equilibrium' (CGE) model, namely the standard version of the Global Trade Analysis Project (GTAP) model and its associated dataset 20. Both scenarios 1 and 2 use the current level of effective sales tax rates as the baseline.



1. The Pakistani economy, the role of the mobile sector and opportunities for growth

1.1 Country overview

Figure 1 provides an overview of key economic and demographic statistics for Pakistan. The Pakistani economy is the 2nd largest in South Asia with a gross domestic product (GDP) of \$303 billion in 2017.²¹ Of the 197 million people in Pakistan, 63.6% reside in rural areas.²² Compared to its regional peers, Pakistan performs favourably in terms of foreign direct investment. However, the fixed broadband penetration is limited in Pakistan, with only 9 subscriptions per 1,000 people in 2017.²³

Figure 1

Country overview²⁴



Source: Oxford Economics database, World Bank databank, UN Conference on Trade and Development (UNCTAD), GSMA Intelligence database, EY analysis

- 21. Oxford Economics database
- 22. Oxford Economics database, World Bank databank. 23. *ibid*.
- 24. This figure compares Pakistan to other South Asian countries, including Sri Lanka, Bhutan, India, Bangladesh, Myanmar, Nepal and Afghanistan.

1.1.1 The Pakistani economy

Figure 2

Strong economic recovery continues in Pakistan, but structural reforms are required in order to stabilise the economy and achieve Government's development objectives Political instability, security concerns and structural impediments have held the Pakistan economy back in recent years. As shown in Figure 2, the level of GDP per capita in Pakistan is below the average for the region, at \$1,548 in 2017.²⁵

GDP per capita (nominal \$) in comparator countries, 2017



Source: Oxford Economics database

The Pakistani economy has performed well in recent years, growing at 5.5% in 2016 and 5.7% in 2017. This growth has been driven by improved energy infrastructure, strong consumption growth, investment related to the China-Pakistan Economic Corridor and a recovery in the agricultural sector.²⁶

However, despite this positive economic performance, there has been a widening of external and fiscal imbalances that threaten to put the medium-term economic outlook at risk. Pakistan remains vulnerable to external shocks and is in danger of running low on foreign exchange reserves due to a large current account deficit caused by strong domestic demand and an overvalued exchange rate.²⁷ This challenging macroeconomic environment weighs on the Pakistani economy and the growth is forecast to slow down to 4.1% in 2019 and 3.6% in 2020.²⁸

The relatively young Pakistani population represents an opportunity for economic development, but also represents a challenge, as rapid economic growth is required to provide sufficient employment opportunities for the growing population. In order to maintain its current rate of progress Pakistan needs to support private sector-led inclusive growth, stabilise the fiscal environment, and preserve macroeconomic stability.

- United Nations, 2019, World Economic Situation and Prospects 2019, <u>https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/WESP2019_BOOK-web.pdf</u>.
 IMF, 2018, Pakistan: First Post-Program Monitoring Discussions, <u>https://www.imf.org/en/Publications/CR/Issues/2018/03/14/Pakistan-First-Post-Program-Monitoring-Discussions-</u>
- Press-Release-Staff-Report-and-Statement-45724.
- 28. United Nations, 2019, World Economic Situation and Prospects 2019, https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/WESP2019_BOOK-web.pdf.

^{25.} Oxford Economics database.

Continued economic growth will also need to be supported by improvements in infrastructure and the business environment. Pakistan currently ranks 136th out of 190 in the 2019 Doing Business index of the World Bank²⁹ and 107th out of 140 in the Global Competitiveness index 2018, performing particularly poorly in respect to mobile phone subscriptions where it ranked 126th out of 140.³⁰

The election manifesto of Pakistan's new Government recognises the need for key economic and structural reforms to meet the goals of driving inclusive growth and creating nearly 10 million new jobs. Included in the *PTI Manifesto* are commitments to make Pakistan business friendly, to develop the IT sector and to enhance access to finance for citizens and industry alike.³¹

In its Country Partnership Strategy the World Bank suggests a range of goals for the Government including transforming the energy sector to address energy shortages and improve its financial sustainability, supporting private sector development, reaching out to the underserved, neglected and poor, and accelerating improvements in service delivery.³²

The new Government's *Digital Policy 2018* paper sets out a vision for transforming Pakistan into a knowledge-based economy making IT the top contributor to Pakistan's exports and job creation.³³ The Government proposes to support the private sector through enabling business friendly policies such as creating public-private partnership models, opening government data and pursuing tax policies to favour greater affordability of smartphones and mobile data/ digital services.

As identified in this paper, reforming tax policy on the mobile industry will contribute to the vision of Pakistan as a knowledge based economy. Further development of the mobile industry can lead to an improved business climate, increased productivity, improved access to government services and increased investment in infrastructure, all of which will support economic and social development.

1.1.2 Fiscal outlook

The Government of Pakistan faces big fiscal challenges whilst trying to enact reforms to boost economic development

The budget deficit in Pakistan in 2017 reached 5.8% of GDP, an increase from a deficit of 4.6% in 2016, creating significant pressure to stabilise the fiscal position to ensure macroeconomic stability.³⁴

The increase in fiscal deficit was driven by an overshooting of government expenditure, further worsened by a shortfall in tax revenue. In particular, the pressure on government finances comes from continued loss-making by public sector enterprises, such as steel mills and the national airline.³⁵ Improved fiscal discipline and structural reforms will be required in coming years in order to stabilise and improve the fiscal position.

In its *Manifesto*, the new Government stated its objectives to increase the tax base through a range of measures including simplifying tax assessments for businesses, prioritising direct taxation over indirect taxation and promoting sustainable initiatives to reduce taxes on businesses.³⁶

Promoting the development of the mobile sector would support the Pakistani Government in achieving its objectives to increase the tax base, by driving productivity growth in the economy and enabling the use of innovative solutions in the area of digital tax administration.

31. Pakistan Tehreek-e-Inshaf (PTI), 2018, PTI Manifesto 2018, https://www.scribd.com/document/383487528/PTI-Manifesto-Final-2018#from_embed#.

^{29.} World Bank, 2019, Doing Business 2019, http://www.worldbank.org/content/dam/doingBusiness/media/Annual-Reports/English/DB2019-report_web-version.pdf.

^{30.} World Economic Forum, 2018, The Global Competitiveness Report 2018, http://www3.weforum.org/docs/GCR2018/05FullReport/TheGlobalCompetitivenessReport2018.pdf.

World Bank, 2014, Country Partnership Strategy for the Islamic Republic of Pakistan for the Period FY2015-19, http://documents.worldbank.org/curated/en/886791468083329310/ pdf/846450CAS0P146090Box385177B000U0090.pdf.

^{33.} PTI, 2018, PTI Digital Policy 2018, http://insaf.pk/public/insafpk/sites/default/files/PTI%20Digital%20Policy.pdf.

^{34.} Oxford Economics database

IMF, 2018, Pakistan: First Post-Program Monitoring Discussions, <u>https://www.imf.org/en/Publications/CR/Issues/2018/03/14/Pakistan-First-Post-Program-Monitoring-Discussions-Press-Release-Staff-Report-and-Statement-45724</u>.

^{36.} PTI, 2018, PTI Manifesto 2018, https://www.scribd.com/document/383487528/PTI-Manifesto-Final-2018#from_embed#.

1.2 Market overview

The mobile market in Pakistan has expanded rapidly over the past decade, with the number of unique subscribers increasing by 37.4 million (85.1%) between 2008 and 2018. However, as demonstrated in Figure 3, which provides an overview of the Pakistani mobile market, a significant opportunity exists to further develop the sector by increasing total penetration and smartphone usage.



Figure 3

Pakistani mobile market in figures³⁷



Source: GSMA Intelligence database, EY analysis

37. Compound annual growth rate (CAGR) is the mean annual growth rate for the period.

1.2.1 Market penetration and technology migration

The mobile market is expanding in Pakistan, and there is an opportunity to accelerate the growth in penetration and migration to 3G and 4G technologies

As shown in Figure 4, unique subscriber penetration in Pakistan increased considerably during the last 15 years. Unique subscriber penetration³⁸ increased from 1.9% in Q3 2003 to 40.3% by Q3 2018 (equivalent to 76.3% penetration in total connections). About 58% of unique subscribers had access to mobile broadband in Q3 2018. However, there is still considerable room for expansion as 120 million people (59.7% of the population) are not connected to a mobile network, and more than 150 million people (76.5% of the population) don't have access to the mobile internet.³⁹

Figure 4



Unique mobile subscriber penetration in Pakistan, 2008-2018

Source: GSMA Intelligence database

As shown in Figure 5, Pakistan lags behind both its immediate South Asian neighbours and a number of Southeast Asian countries in terms of unique subscriber penetration. Further, with only 23.5% of people having access to mobile broadband, Pakistan also underperforms in respect to mobile internet unique subscriber penetration. This demonstrates a considerable scope for mobile market expansion in Pakistan by increasing penetration and promoting migration to mobile broadband enabled technologies.

There is an important difference between the number of mobile connections - the metric traditionally used by the industry to measure market size and penetration - and the term 'unique mobile subscribers'. The latter refers to a single individual that has subscribed to a mobile service and that person can hold multiple mobile connections (i.e. SIM cards).
 GSMA Intelligence database.

GGMA

Figure 5



Mobile penetration (unique subscribers – all and with mobile internet) in selected comparator countries, 2018

Source: GSMA Intelligence database

As shown in Figure 6, the dominant technology in the Pakistani mobile market is 2G, with a penetration rate (total connections) of 44.3% in Q3 2018. However, market penetration is expanding for 3G and 4G services, with 4G projected to become the dominant technology by 2023. This is supported by a significant expansion of the network coverage for mobile broadband-enabled services in Pakistan, with 3G and 4G population coverage reaching 87% and 64% respectively in Q3 2018.⁴⁰

40. GSMA Intelligence database.

Figure 6



Market penetration rate (total connections), by technology

Source: GSMA Intelligence database

Given a very low level of fixed broadband subscriptions in Pakistan (9 per 1,000 people in 2017),⁴¹ the expansion of mobile broadband enabled (3G and 4G) technologies will be vital for increasing access to online services and supporting the growth of the digital economy. The tax policy reform agenda should be targeted at stimulating growth in connectivity, and the use of mobile broadband in Pakistan, both of which would contribute towards achieving the Government's economic and social goals.

^{41.} World Bank databank.

1.2.2 Affordability of mobile services and handsets in Pakistan

Meeting the United Nations affordability target would contribute to mobile market expansion and development of the digital economy in Pakistan

Lack of affordability can represent a significant connectivity barrier, particularly so for the lowincome population. Analysis conducted by the GSMA highlights that countries with a high cost of mobile ownership (including both device and airtime/data) as a share of income per capita⁴² typically have lower penetration rates.⁴³ A lack of affordability has been cited by up to 80% of people in developing countries as the main barrier to mobile access and usage.⁴⁴

A basic measure of affordability of mobile services is the proportion of monthly income which is spent on mobile services and devices. To identify the affordability challenges associated with mobile services and devices, the GSMA estimates the total cost of mobile ownership (TCMO) for a range of countries, income groups and consumption baskets.⁴⁵

Figure 7 below shows the TCMO as a proportion of monthly income for the two lowest income quintiles in Pakistan, compared to the entire population. Neither medium, nor low consumption basket is below the "1 for 2" United Nations (UN) affordability target (1 GB of data costing less than 2% of monthly income) for the bottom 20% and 40% income groups.⁴⁶

To deliver the objectives as set out by the Government in the *PTI Manifesto*⁴⁷ and the *PTI Digital Policy 2018*,⁴⁸ Pakistan should make more effort to improve the affordability of mobile ownership, especially for the lower-income population. This would boost digitisation in Pakistan and generate substantial socio-economic benefits.

Figure 7

TCMO as a proportion of monthly income in Pakistan, 2017



Source: GSMA Intelligence database, Tarifica

44. GSMA, 2015, Connected Women 2015 – Bridging the Gender Gap: Mobile Access and Usage in Low- and Middle-Income Countries, https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/02/GSM0001_03232015_GSMAReport_NEWGRAYS-Web.pdf.

^{42.} Defined as Gross National Income (GNI) per capita

^{43.} GSMA, 2016, Digital Inclusion and Mobile Sector Taxation, https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/07/Digital-Inclusion-and-Mobile-Sector-Taxation-2016.pdf.

^{45.} For more detail on the methodology of calculation of the total cost of mobile ownership (TCMO) please see Appendix A. Sources: GSMA Intelligence database, Tarifica.

^{46.} Broadband Commission for Sustainable Development, 2018, 2025 Targets: "Connecting the Other Half", https://broadbandcommission.org/Documents/publications/wef2018.pdf.

^{47.} PTI, 2018, PTI Manifesto 2018, https://www.scribd.com/document/383487528/PTI-Manifesto-Final-2018#from_embed#.

^{48.} PTI, 2018, PTI Digital Policy 2018, <u>http://insaf.pk/public/insafpk/sites/default/files/PTI%20Digital%20Policy.pdf</u>.

Cost of a handset, if paid in instalments over 36 months, represents over a third of the total cost of mobile ownership (equivalent to 1.3% of monthly income) for the bottom 20% income distribution.⁴⁹ However, the upfront cost of a mobile phone represents a significant affordability challenge for those lower-income Pakistanis who do not have access to finance (46.7% of monthly income for the bottom 20% income distribution). A survey showed that 57% of phone owners in Pakistan who do not use the mobile internet state handset costs as a key reason.⁵⁰

The affordability of handsets in Pakistan may be impacted in the near future by upcoming regulatory and tax changes. For example, a proposed increase in taxation of handsets (as described in Section 2) would increase the price of mobile phones in Pakistan, and hence reduce the affordability of mobile ownership, particularly for Pakistanis from lower income backgrounds. There is also a risk that this measure could incentivise the grey market. If approved, this measure has the potential to become a barrier in achieving the new Government's goals of building the knowledge-based economy and promoting greater connectivity in Pakistan.⁵¹

In 2018 the Pakistan Telecommunication Authority (PTA has launched a new technology-based platform called "Device Identification Registration and Blocking" System" (DIRBS).⁵² The new system enables the automatic identification of counterfeit and illegally imported handsets, using a unique International Mobile Equipment Identity (IMEI) number.⁵³ Once implemented, the DIRBS will block the use of new non-compliant devices in the mobile network.⁵⁴ It is expected that this will result in a range of benefits, including curbing of illegal imports and the grey market,⁵⁵ increased tax collection for the Government, improvement in security and a better quality of mobile services. However, in the short run, these impacts are likely to be limited, because devices which are already registered in the network, will not be subject to restrictions, and will continue to be used in the secondary market.

The implementation of DIRBS could also increase the average price of a mobile phone on the Pakistani market, as legal handsets are generally more expensive than counterfeit and illegal devices. It is difficult to quantify the potential impacts of this initiative on market developments. However, in the short run, it is likely to lead to a reduction in the number of new subscribers joining the network, unless the increase in the price of new handsets is mitigated by government measures, aimed at improving the affordability of handsets.

1.2.3 Investment environment and opportunities for development

Capital expenditure by mobile operators has been equivalent to an average of 25% of revenue per annum over the past ten years. However further investment is required to improve both network coverage and the quality of mobile data services

The availability and quality of mobile broadband play a crucial role in enabling greater online access and digital inclusion within Pakistan, as penetration of fixed internet is very low at 9 subscriptions per 1,000 people.⁵⁶

Driven by significant investment by Pakistan's mobile operators, network coverage for mobile broadbandenabled services in Pakistan has expanded significantly during the past decade, with 3G and 4G population coverage reaching 87% and 64% respectively in Q3 2018.⁵⁷

Analysis of Speedtest Intelligence® data from Ookla® (see Figure 8) demonstrates that, at 11.2Mb per second, the average download speed across all technologies in Pakistan is above the average for South Asian countries (9.2Mb per second), while it lags behind the level observed in many Southeast Asian countries.

Mobile internet in Pakistan outperforms fixed internet in terms of download speed. Furthermore, only 2% of Pakistanis aged 15-65 own a desktop computer or a laptop.⁵⁸ This highlights the potential of mobile broadband to enable greater online access and digital inclusion in Pakistan.

- 50. GSMA, 2016, Country overview: Pakistan, https://www.gsmaintelligence.com/research/?file=f33c20f8cb4ed3f9834c2fe038c8c204&download,
- 51. PTI, 2018, PTI Digital Policy 2018, http://insaf.pk/public/insafpk/sites/default/files/PTI%20Digital%20Policy.pdf.

53. IMEI is a unique identifier for each mobile device connecting to GSM mobile network.

^{49.} The average lifetime of a mobile handset is assumed to be 36 months. For more detail on the methodology of calculation of the total cost of mobile ownership (TCMO) please see Appendix A. Sources: GSMA Intelligence database, Tarifica.

PTA, 2018, Device Identification Registration and Blocking System (DIRBS) Launched at PTA, https://www.pta.gov.pk/en/media-center/single-media/device-identification-registrationand-blocking-system-dirbs-launched-at-pta-100518.

^{54.} This compliance requirement will not be extended to the handsets, which will have been registered in the mobile network before the date of the implementation of DIRBS.

^{55.} It is estimated that about 40% of mobile handsets are imported into Pakistan via grey channels. Source: Pakistan Today, January 2019, https://www.pakistantoday.com.pk/2019/01/16/ senate-body-recommends-extension-in-registration-of-new-phones/.

^{56.} World Bank databank.

^{57.} GSMA Intelligence database

^{58.} LIRNEasia, 2018, ICT Access and Use in Pakistan and the Global South, https://lirneasia.net/2018/11/afteraccess-ict-access-and-use-in-pakistan-and-the-global-south-presentation/.

GEIMA

Figure 8



Download speed (Mb per second) – Pakistan and comparator countries, 2017

Source: Speedtest Intelligence* data from Ookla*

In order for Government to meet its development objectives and achieve its vision as set out in the *PTI Digital Policy 2018*,⁵⁹ further significant investment into mobile network infrastructure is required in Pakistan. Tax reforms that would make the Pakistani mobile sector more attractive for investment would contribute towards the achievement of these plans and the development of the digital economy in Pakistan to the benefit of consumers.

1.3 The socio-economic contribution of the mobile sector

Mobile operators contributed \$1.8 billion in direct value added to the economy in 2017

Total mobile sector revenues were \$3.4 billion in 2017,⁶⁰ equivalent to 1.1% of Pakistani GDP. Mobile operators contributed approximately \$1.8 billion of direct economic value to Pakistan in 2017 (0.6% of GDP).⁶¹

The mobile sector also supports a much wider mobile ecosystem, including mobile distribution providers and retail companies. These companies create further economic activity in Pakistan by buying products and services from firms in their supply chain (indirect effects) and by generating employee income which leads to increased consumer spending, generating demand in consumer goods markets (induced effects).

Mobile connectivity promotes productivity improvements in the economy

Greater access to mobile services has transformed economies, accelerating economic growth and development in countries worldwide. Improvements in mobile connectivity can improve communication and trade within an economy, while also making a country more attractive for foreign investment. Improved connectivity can also boost tourism, and allow firms to access a broader pool of labour.⁶²

The effects of mobile connectivity on an economy are largely delivered through its impact on productivity. A number of studies have shown a strong relationship between mobile penetration and productivity; these show that a 10% increase in mobile penetration increases productivity by between 1.0% and 1.3% on average.⁶³ Further, a literature review by the International Telecommunication Union (ITU) finds that a 10% increase in mobile broadband penetration leads to an increase in GDP of between 0.25% and 1.38%.⁶⁴

Another ITU study has demonstrated that mobile broadband has on average larger economic impacts than fixed broadband. It further concludes that countries having a lower level of development enjoy a higher economic impact of mobile broadband than more developed countries.⁶⁵ This evidence further stresses the importance of the mobile in the development of emerging and developing economies.

Mobile networks promote digital inclusion and can bridge the digital divide

Where fixed broadband coverage is low, mobile networks are central to promoting digital inclusion, due to the lower cost of network roll-out. Mobile technology also removes other barriers to access broadband services including the affordability of PC or laptop ownership and access to a bank account. This is particularly true for Pakistan's large rural population, which represents 63.6% of the total population, as it will need to rely on mobile services to gain improved access to the knowledge and digital economy.

Mobile money can expand access to financial services, providing low-income citizens with a secure, accessible and convenient method to manage their finances

Mobile money services have the power to transform financial systems and promote a move away from cash based economies. They provide affordable financial services to low-income subscribers and enable safety, security and convenience for financial transactions for those who do not have access to traditional financial services. Furthermore, the digitalisation of person-to-government (P2G) and business-to-government (B2G) payments can generate significant efficiencies, while encouraging greater financial inclusion within the economy.⁶⁶

Pakistan has the second highest proportion of adults with a mobile money account (6.9% in 2017) in South Asia, behind only Bangladesh (21.2%).⁶⁷ However, only 18.0% of adults in Pakistan had an account with a financial institution in 2017.⁶⁸ This highlights a significant potential to increase the role of electronic payments in Pakistani economy, by further promoting mobile payment platforms.

68. ibid.

^{60.} GSMA Intelligence database.

^{61.} *ibid.*

^{62.} Oxford Economics, 2013, The Economic Value of International Connectivity.

ITU, 2012, The Impact of Broadband on the Economy: Research to Date and Policy Issues, https://www.itu.int/ITU-D/treg/broadband/ITU-BB-Reports_Impact-of-Broadband-on-the-Economy.pdf and LECG, 2009, Economic Impact of Broadband: An Empirical Study, https://www.itu.int/net/wsis/stocktaking/docs/activities/1286203195/Report_BroadbandStudy_LECG_March6%5B1%5D.pdf.

^{64.} ITU, 2012, The Impact of Broadband on the Economy: Research to Date and Policy Issues, https://www.itu.int/ITU-D/treg/broadband/ITU-BB-Reports_Impact-of-Broadband-on-the-Economy.pdf.

^{65.} ITU, 2018, The Economic Contribution of Broadband, Digitization and ICT Regulation, https://www.itu.int/en/ITU-D/Regulatory-Market/Documents/FINAL_1d_18-00513_Broadbandand-Digital-Transformation-E.pdf.

See examples of digitalisation of P2G and B2G payments in Better than Cash Alliance, 2016, Person-to-Government Payments: Lessons from Tanzania's Digitization Efforts; GSMA, 2017, Person-to-Government (P2G) Payment Digitisation: Lessons from Kenya; GSMA, 2018, P2G Payments via Mobile Money: Unlocking Opportunity for Consumers, Governments and Providers.
 World Bank, Global Findex database.

Mobile health

Mobile health (m-Health) applications can improve health systems through reducing the cost of service delivery, providing distribution channels for public health information, streamlining health administration and data management, and even aiding real-time supply chain management.⁶⁹ Furthermore, mobile services can be used to overcome traditional barriers to accessing essential information and services, such as geographic isolation, gender disparities and social stigmas.⁷⁰

Mobile learning

Mobile learning (m-Learning) has the ability to reduce inequalities in educational systems by widening access to learning materials, improving literacy and reducing drop-out rates. Mobile phone technology has been shown as a potential enabler of higher literacy in emerging economies, by teaching individuals to read and providing access to reading materials.⁷²

CASE STUDY Connected Agriculture platform for Punjab⁷¹

In 2018, Telenor Pakistan, the country's second largest mobile operator, and Tameer Bank joined the Government of Punjab to initiate the Connected Agriculture Punjab Package (CAPP) for farmers. The CAPP includes a range of initiatives and services to farmers, such as interest free loans, subsidies and access to consultancy and advisory services regarding crops and fertilizers.

These services are all accessed through a comprehensive digital mobile platform. During the initiation phase 110,000 smartphones were distributed to farmers to allow them to access the platform and there were 500 on-ground training sessions that trained 25,000 farmers.

The objectives of the programme are to create an efficient way for farmers to access the resources and information they need to make confident decisions about what to sow, when and where to sell. By spreading the right information through digital means the programme aims to replace the slow inefficient flow of information that was resulting in hasty, ill-informed decisions and financial losses.

CASE STUDY BIMA Sehat⁷³

In November 2018, Pakistan's largest mobile operator Jazz, in partnership with BIMA Pakistan, a provider of health products, launched a 24-hour doctor and insurance package for its prepaid subscribers called BIMA Sehat.

BIMA Sehat gives subscribers unlimited teleconsultations with a doctor for themselves and their families, consultation summaries via SMS and home medicine deliveries. The subscribers also enjoy cover for every night they need to stay at hospital that can be claimed by texting BIMA.

Already this service has resulted in over 50,000 people receiving telephone consultations with BIMA doctors.

University of Cambridge, 2011, Mobile Communications for Medical Care, <u>http://www.csap.cam.ac.uk/media/uploads/files/1/mobile-communications-for-medical-care.pdf.</u>
 N. McKee et al., 2004, "Strategic Communication in the HIV/AIDS Epidemic"; T. A. Gurman et al., 2012, "Effectiveness of mHealth Behavior Change Communication Interventions in

Developing Countries: A Systematic Review of the Literature"; J.G. Khan et al., 2010, "Mobile' Health Needs and Opportunities in Developing Countries". 71. Pakistan Observer, 2018, *CAPP: Connected Agriculture Platform to be inaugurated today*, <u>https://pakobserver.net/capp-connected-agriculture-platform-inaugurated-today/</u>.

^{72.} World Bank, 2014, "What we are learning about reading on mobile phones and devices in developing countries", <u>https://blogs.worldbank.org/edutech/governance/reading-mobile-</u>

^{73.} BIMA mobile, 2018, Jazz launches exclusive BIMA Sehat service in Pakistan, http://www.bimamobile.com/news-and-media/news/jazz-launches-exclusive-bima-sehat-service-inpakistan.

Gender equality

Mobile technologies can empower women in developing countries, making them more connected, safer and better able to access information. Mobile connectivity also provides women with access to services and life-enhancing opportunities, such as health information and guidance, financial services and employment opportunities.⁷⁴

Pakistan ranks 148th out of 149 countries in the Gender gap index by the World Economic Forum.⁷⁵ Greater accessibility and improved affordability of mobile services would contribute towards achieving greater gender equality and empowerment of women in Pakistan.

CASE STUDY The Jazz Smart School Programme⁷⁶

The Jazz Foundation launched the Jazz Smart School Programme in 2018 with the objective of using digital and technology to increase student learning outcomes and improve teaching methodology at female high schools in Islamabad.

The programme allows teachers to use a digital platform to access preloaded digital content which can be accessed through, activities and assessments in class. Teachers can use the content to fill gaps in their knowledge, to help structure their classes and to build on the content with their own knowledge. Teachers can access the platform flexibly through computers or mobile phones.

The programme has so far been used by over 500 teachers and has improved the learning of over 20,000 students at 75 female high schools.

^{74.} GSMA, 2015, Connected Women 2015 – Bridging the Gender Gap: Mobile Access and Usage in Low- and Middle-Income Countries, <u>https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/03/GSM0001_03232015_GSMAReport_Executive-Summary_NEWGRAYS-web.pdf</u>.

^{75.} World Economic Forum, 2018, The Global Gender Gap Report 2018, http://www3.weforum.org/docs/WEF_GGGR_2018.pdf.

^{76.} Jazz Foundation, 2018, The Jazz Smart School Programme, http://www.jazzfoundation.com.pk/our-program/education/.

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Pakistan through tax payments. This section covers

contribution to the tax revenue of Pakistan.

the tax regime applicable to the mobile sector and its

2. Tax contribution of the mobile sector in Pakistan

As set out in Section 1, the mobile sector plays a key role in the economy of Pakistan. In addition to its socio-economic impact, the mobile sector makes an important contribution to the public finances of

2.1 Taxes on mobile consumers

Table 1 below outlines the different taxes on mobile whose incidence falls on consumers.

Table 1

Key taxes paid by mobile consumers, 2018

Sales tax on mobile handsetsPKR 300 - PKR 1,000Sales tax on SIM cardsPKR 250
Sales tax on SIM cards PKR 250
Customs duties on handsets and SIM cards PKR 250 per mobile handset 3% per SIM card
Withholding tax on mobile services12.5%
Mobile handset levyUp to PKR 5,000

Source: EY 2018 Worldwide VAT, GST and Sales Tax Guide and Pakistan's legislation

 Sales tax. Mobile consumers pay sales tax on the value of mobile services. The rate varies according to the province. Telecommunication services are taxed at 17% in Islamabad (under the Federal Excise Duty regime) and at 19.5% in provinces (under the Sales Tax regime).⁷⁷ Furthermore, a sales tax of PKR 250 is also levied on SIM cards payable at the time of supply by mobile operators.

A sales tax also applies on mobile handsets. The rates vary according to the category of the mobile

^{77.} Currently the Supreme Court has suspended the charge of sales tax on mobile services. The next hearing regarding suspension of taxes on telecommunications sector is adjourned until April 2019.

phone. Low and medium priced mobile phones are taxed at PKR 300. Smartphones incur a tax of PKR 1,000.⁷⁸ The sales tax is due both at the time of import and at the time of registration by the mobile operator to obtain the IMEI number.

As mentioned above, currently, the sales tax on mobile phones is levied on the basis of their specifications. However, the Finance Supplementary (Second Amendment) Bill, 2019 ("the Supplementary Bill 2019") proposes to levy sales tax on the basis of import value and the rate would vary between PKR 150 and 10,300. However, currently, these amendments are only in draft form and will be applicable once enacted by the Parliament, or as modified.

 Customs duties on handsets. Mobile consumers pay customs duties on imported mobile phones at a rate of PKR 250 per set. Imported SIM cards are also levied by a custom duty of 3%. An additional regulatory duty of 5% may also be applicable on import of SIM cards. Additionally, the Supplementary Bill 2019 has proposed that the advance income tax be collected on the value of import of mobile phone by any person. The rate will vary between PKR 70 and PKR 5,200. This would be a final tax for the importer.

- Withholding tax on mobile services. This is an advance income tax of 12.5% that mobile operators are required to collect from their customers. It can later be claimed as an advance tax paid by the customer and adjusted against their tax liability for the year. Alternatively, it can be claimed as a refund in case the customer does not have any income or tax payable for the year.⁷⁹
- Mobile handset levy. Imported smartphones pay an additional levy. The rates vary depending on the import value (including duties and taxes) as follows:

Table 2

Mobile handset levy rates, 2018

From (import value, PKR)	To (import value, PKR)	Levy (PKR)
0	10,000	Exempt
10,000	40,000	1,000
40,000	80,000	3,000
80,000	-	5,000

Source: Pakistan's legislation

The Supplementary Bill 2019 has also sought to revise the rates of mobile levy, with the highest rate proposed to be increased to PKR 7,000 and these changes will come into force once enacted by the Parliament, or as modified.

^{78.} There are three categories of mobile phones for purposes of sales taxation as follows:

Category A. Low priced mobile phones with the following features: All cameras: 2.0 mega-pixels or less: screen size: 2.6 inches or less, and key pad.

Category B. Medium priced cellular mobile phones with the following features:

Category B. Medium priced cellular mobile phones with the following features:

One or two cameras: between 2.1 to 10 mega-pixels; screen size: between 2.6 inches and 4.2 inches; and micro-processor: less than 2 GHZ

 $[\]label{eq:category C. Smartphones with the following features:$

One or two cameras: 10 mega-pixels and above; touch screen: size 4.2 inches and above; 4GB or higher basic memory; operating system of the type IOS, Android V2.3, Android Gingerbread or higher, Windows 8 or Blackberry RIM; micro-processor: 2GHZ or higher, dual core or quad core

Categories A and B are taxed at PKR 300. Category C is taxed at PKR 1,000.

^{79.} However, it has been argued this does not necessarily occur in reality, since mobile subscribers on low incomes fall below the threshold to qualify for a tax refund. Source: Pakistan Telecommunication Authority, 2017, Annual Report, <u>https://www.pta.gov.pk/assets/media/ann_rep_2017.pdf</u>. The Supreme Court has issued a stay order against the collection of the withholding tax of 12.5% on mobile services. The next hearing regarding suspension of taxes on telecommunications sector is adjourned until April 2019.

2.2 Taxes and regulatory fees on mobile operators

Table 3 below outlines the different taxes paid by mobile operators.

Table 3

Key taxes paid by mobile operators, 2018

Corporate income tax	30%
Minimum tax	1.25% or 8%
Alternative corporate tax	17%
Personal income tax	up to 25%
Social security contributions	5%
Workers welfare fund contributions	2%
Capital value tax	Various rates
Withholding tax on imports of goods	5.5%
Stamp duty	Various
Customs duties on equipment	Various (1% - 21%)
Super tax	3%

Source: EY 2018 Worldwide Corporate Tax Guide, IBFD. Pakistan's legislation and operators' data

- Corporate income tax. Companies incorporated in Pakistan are subject to tax on their worldwide income. Foreign companies are subject to tax on income derived from activities within Pakistan. The standard rate of corporate income tax in 2018 was 30%, with a planned reduction of 1% each year to 25% in 2023.
- **Minimum tax.** Companies resident in Pakistan are subject to a minimum tax of 1.25% of declared turnover. For service income liable to withholding tax, a minimum tax of 8% is payable.
- Alternative corporate tax. The alternative corporate tax is effectively another minimum tax base. The tax is calculated at a rate of 17% of accounting income.

- Personal income tax. Income tax is a tax on individuals. The relevant aspect for mobile operators is its application to employment income. Salaries are subject to a withholding tax. The top rate of tax in 2018 was 25%.
- Social security contributions. Social security contributions are not required from individuals. Employers are required to make contributions at the rate of 5% of minimum wages monthly to insure employees under the national social security scheme.
- Workers welfare fund contributions. Every industrial establishment with annual total income of PKR 500,000 or more is required to pay 2% of its taxable total income to the fund.

- **Capital value tax**. This tax applies to companies which acquire an asset by purchase or a right to use for more than 20 years. The rate varies depending on the type of asset.
- Withholding tax on imports of goods. Mobile companies pay a withholding tax on the import value of imported goods. The rate of withholding tax is 5.5%.
- **Stamp duty**. Financial transactions, including the transfer of financial instruments, are subject to stamp duty. Stamp duty is also imposed on the sale of SIMs. The applicable rates vary.
- **Customs duty on equipment**. Customs duties are levied on the import of a range of goods, including

base stations and network equipment imported by the mobile sector. Duties are generally ad valorem and vary depending on the equipment.

• Super tax. The super tax is payable as a percentage of turnover where the taxpayer's income is at least PKR 500 million. The rates are being progressively reduced. In 2018, the rate was 3%, whereas in tax year 2019 the rate was reduced to 2% for persons other than a banking company having income equal to or exceeding PKR 500 million.

In addition to the taxes applying to mobile operators, there are also different licences and fees required in order to be able to supply telecommunication services. The details of these licences and the applicable fees can be seen in Table 4 below.

Table 4

Key regulatory fees paid by mobile operators, 2018

Initial licence fee	Auction through open bidding	
Annual licence fee	0.5% of annual gross revenue minus inter-operator payments and PTA/FAB (Frequency Allocation Board) mandated payments	
Annual spectrum fees	Various amounts set by the regulator	
Universal Service Fund	1.5% of annual gross revenue minus inter-operator payments and PTA/FAB mandated payments	
R&D fund	0.5% of annual gross revenue minus inter-operator payments and PTA/FAB mandated payments	
Numbering fee	PKR 0.5 per number	

Source: Pakistan Telecommunication Authority (PTA) and operators' data

2.3 Tax contribution of the mobile sector

In 2017, the total tax contribution was estimated at \$638 million. This represents 19% of the total market revenue.⁸⁰

The mobile sector makes a large contribution in taxes and fees relative to its economic footprint. While the mobile market revenue accounted for 1.1% of Pakistan's GDP,⁸¹ the sector's tax and fee payments accounted for around 1.7% of government total tax revenue.⁸² This means that the mobile tax contribution is 1.5 times its size in the economy.

Figure 9

Tax and economic contribution of the mobile sector in Pakistan in 2017



^{80.} This estimation does not take into account the withholding tax due on mobile services, which in 2015 was estimated at \$352 million. If this were taken into account, the tax contribution of the mobile sector could be of 29%. Source: GSMA, Country overview: Pakistan. A digital future, 2016, https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/12/Country-Overview_Pakistan_Digital-Future.pdf

^{81.} Pakistan's GDP was of \$303 billion in 2017. Source: Oxford Economics.

The total tax revenue was estimated at \$37,801 million in 2017. Source: EY analysis based on *Federal Budget 2017-18, Budget in Brief*, Government of Pakistan, Finance Division. www.finance.gov.pk/budget/budget%20in%20brief%202017-18.pdf; *Federal Budget 2018-19, Budget in Brief*, Government of Pakistan, www.finance.gov.pk/budget/Budget_in_ Brief_2018_19.pdf.

As shown in Figure 10, in Pakistan, sales tax is the largest source of tax revenue generated by the mobile sector, responsible for 40% of the overall tax revenues, followed by corporate income tax (17%) and the alternative corporate tax (11%). Pakistan also has a large number of different taxes that apply to the mobile sector. This increases the complexity and costs of tax administration and compliance.

Figure 10

Different taxes as a percentage of overall tax revenues in the mobile sector in Pakistan



A sample of regional countries in Figure 11 below shows a wide regional variation in the composition of different taxes as a percentage of overall tax revenues in the mobile sector. Pakistan (40%) and India (47%) both have the highest proportion of sales tax/VAT as a percentage of overall tax revenues. Pakistan has the highest proportion of corporate income tax (32%).

Figure 11





As shown in Figure 12, general taxes are equivalent to around 16% of total mobile sector revenue in Pakistan, while mobile-specific taxes are equivalent to 2%. However, if the withholding tax on mobile services were taken into account, the mobile-specific tax burden would be higher and the total tax burden could be close to 29%.

Figure 12

General taxes and fees vs mobile sector-specific taxes and fees (as percentage of mobile sector revenue)



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3. Designing a more efficient tax policy framework for the mobile sector in Pakistan

Governments raise tax revenues to fund the provision of public goods and services. However, if the tax system is not designed properly, this can lead to unintended consequences for both the government and the taxpayers in terms of the incidence of the tax burden, distributional effects, efficiency and costs of collection.

In order to prevent such unintended consequences, certain principles of tax policy design have been

developed by international organisations such as the International Monetary Fund (IMF), the Organisation for Economic Cooperation and Development (OECD), the United Nations (UN) and the World Bank (WB).⁸³

By applying these principles, this section identifies three policy options that could enhance the tax environment in Pakistan.



IMF, OECD, UN and WBG, 2011, Supporting the Development of More Effective Tax Systems. A Report to the G-20 Development Working Group by the IMF, OECD, UN, and World Bank, https://www.oecd.org/ctp/48993634.pdf.

3.1 Principles of taxation applying to the mobile sector

As laid out in Figure 13 below, the tax system on the mobile sector is likely to have wider impacts in terms of prices, tax revenue and productivity. Indirectly, the taxation of the mobile sector will also impact

information flows, access to markets, business processes and innovation. This will ultimately affect the economic growth and development of a country.

Figure 13

Factors shaping tax policy choices



In order to make sure these impacts are positive, the principles of taxation identified below should be appropriately balanced.

Principles of taxation applying to the mobile sector

- Taxes should not discourage investment. A stable and transparent tax system in line with international standards is a strategy that would deliver sustained investment.⁸⁴
- Taxation should be as broad based as possible. Broad-based taxes with single and low rates should be favoured over specific-taxes. This should allow the maximisation of revenue with minimal distortions to the consumption and provision of mobile services.
- Specific taxes should be limited and be based on a clear rationale of externalities. Specific taxes should be narrowly targeting a few goods mainly on the grounds that their consumption entails negative externalities on society. Given positive externalities, mobile phones and services would not generally be included in a list of goods and services singled out for exceptionally harsh tax treatment.⁸⁵
- The tax system should be equitable. Mobile operators and consumers should be treated equally to others in equal circumstances

("horizontal equity"). In addition, the tax system should also preserve "vertical equity"⁸⁶ by avoiding the imposition of regressive taxes which has a larger impact on consumers of mobile services in the lower income groups.⁸⁷

- Taxes should not undermine the affordability of mobile services, as excessive taxation can increase the cost of handsets and mobile services.⁸⁸ Furthermore, the tax collection should be allocated to improve mobile infrastructure, thereby increasing the coverage and digital inclusion, especially in rural zones.
- The tax system should be simple. Tax rules should be clear and no more complex than necessary to achieve the policy aim, facilitating mobile businesses and consumers to make optimal decisions and respond to intended policy incentives.⁸⁹
- Taxes should be easy to collect. The collection of taxes should be as efficient as possible, i.e. low tax administration costs and minimisation of evasion and avoidance costs.⁹⁰

3.2 An assessment of the mobile sector taxation in Pakistan

An assessment of the current mobile tax regime in Pakistan against the principles identified in section 3.1 identifies the following characteristics:

 The current tax system has an impact on the mobile sector. As shown in section 2.3, the tax burden in Pakistan comes to 19% of the total market revenue. This is mainly due to the cascade of taxes on the consumption of mobile handsets and mobile services, as well as the high level of corporate taxation. As mentioned in section 2.3, Pakistan has one of the highest proportions of consumption and corporation taxation – of which the minimum withholding tax is part – when looking at different taxes as a percentage of overall tax revenues in a sample of regional countries. This tax burden can undermine the affordability of mobile services and make the Pakistan system less conducive to investment.

86. *ibid.*

- http://www.oecd.org/ctp/enhancing-the-effectiveness-of-external-support-in-building-tax-capacity-in-developing-countries.pdf.
- 90. IMF, 2011, Revenue Mobilization in Developing Countries, <u>https://www.imf.org/external/np/pp/eng/2011/030811.pdf</u>.

^{84.} ibid.

^{85.} ITU, 2013, Taxing Telecommunication/ICT services: an overview. https://www.itu.int/en/ITU-D/Regulatory-Market/Documents/Taxation%20Study-final-en.pdf.

^{87.} R.M. Bird and E.M Zolt, 2003, Introduction to Tax Policy Design and Development, https://www.internationalbudget.org/wp-content/uploads/Introduction-to-Tax-Policy-Design-and-Development.pdf.

V. Tanzi and H. Zee, 2001, Tax Policy for Developing Countries, https://www.imf.org/external/pubs/ft/issues/issues27/.
 IMF, OECD, UN, and WBG, 2016, Enhancing the Effectiveness of External Support in Building Tax Capacity in Developing Countries. Prepared for Submission to G20 Finance Ministers,
- The tax burden limits the positive externalities generated by the industry. The mobile sector is pivotal for the growth of the wider economy. A simpler and more equitable tax system should encourage the expansion of the sector and the digital inclusion of the most disadvantaged people. This would also support the Government of Pakistan in achieving the objective set out in *PTI Digital Policy 2018* "to transform Pakistan into knowledge economy and uplift society".⁹¹
- There is scope to improve the tax system. Under the category measuring the ease of paying taxes, the World Bank Doing Business 2019 report places Pakistan 173 out of 190 countries. This indicates a significant opportunity to improve the tax system.

As shown in Table 5, compared to other countries in the South Asian region, Pakistan's tax system is below the average in three out of four categories (tax payments, time, and in the post filing index category).

Table 5

Pakistan tax index, 2019

Indicator	Pakistan	South Asia	OECD high income	Overall best performer
Tax payments (number per year)	47	27.6	11.2	3 (Hong Kong SAR, China)
Time (hours per year)	293.5	274.8	159.4	49 (Singapore)
Total tax and contribution (% of profit)	34.0%	43.5%	39.8%	26.1% (32 economies)
Post filing index (0-100)	10.49	41.78	84.41	None in relevant period

Source: World Bank, Doing Business 201992

A narrow tax base due to tax concessions and exemptions for some sectors has been identified as one of the key challenges for Pakistan's tax system. High levels of informality in the economy constrain further the tax compliance and enforcement, especially given the problems in gathering and sharing tax information across all layers of government.⁹³

Hence, there is an opportunity to improve the tax system to increase Pakistan's competitiveness in the region. The leading best performers worldwide, like Singapore (ranked 8th) or New Zealand (ranked 10th), also offer a model for Pakistan to emulate. A broader tax base and a simplified regime of both corporate and consumption taxation would be easier to administer. At the same time, a less complex tax system across all layers of government would help Pakistan to improve its global competitiveness.

^{91.} PTI, 2018, PTI Digital Policy 2018, http://insaf.pk/public/insafpk/sites/default/files/PTI%20Digital%20Policy.pdf.

^{92.} Doing Business presents quantitative indicators on business regulations and the protection of property rights that can be compared across 190 economies and over time.

Source: World Bank, Doing Business 2019: Reforming to Create Jobs, http://www.doingbusiness.org/en/reports/global-reports/doing-business-2019.

^{93.} S. Cevik, 2016, IMF Working Paper. Unlocking Pakistan's Revenue Potential. WP/16/182.

3.3 Options for tax reform in the mobile sector to develop the digital economy in Pakistan

Based on the preceding assessment, this report identifies three options to reform and improve the current tax system:

- Option 1 Harmonisation of sales tax on mobile services to 17%;
- Option 2 Harmonisation and reduction in sales tax on mobile services to 16%; and
- **Option 3** Elimination of the 8% minimum withholding tax on income from mobile services.

As the *PTI Manifesto* noted, Pakistan has a "disproportionately higher share of indirect taxes in tax revenue, which adds to income inequality."⁹⁴ The three options for reform should help alleviate the tax burden and complexity on the mobile sector. This should lead to an increased tax collection in the medium term. Furthermore, the increasing use of mobile technologies, favoured by a more conducive tax system, can also help to modernise the tax administration in the long term and reduce the digital divide.

These reform options should also help the Government of Pakistan in its progress towards the vision set out by Pakistan's Prime Minister and articulated in the *PTI Manifesto*, and the *PTI Digital Policy* document.⁹⁵ This vision is to "transform Pakistan into a knowledge economy making IT the top contributor to Pakistan's exports and job creation."⁹⁶ These goals and objectives include:

- Tax policies to favour greater affordability of smartphones and mobile data/digital services;
- Mobile broadband internet penetration to be doubled;
- Mass scale initiatives to create infrastructure and internet adoption; and
- Mobile payments adoption through government patronage.

Furthermore, as mentioned in section 1.2.2., the mobile market in Pakistan may be impacted in the near future by the implementation of a new technology-based platform called "Device Identification Registration and Blocking System" (DIRBS), which has been launched by the Pakistan Telecommunication Authority (PTA) in 2018.⁹⁷ It is expected that this will result in a range of benefits, including curbing of illegal imports and the grey market, increased tax collection for the Government, improvement in security and a better quality of mobile services. Furthermore, as detailed in section 2, the Supplementary Bill 2019 intends to increase a number of taxes on mobile handsets.

In the short-term, however, these measures could reduce the affordability of mobile handsets for lowincome Pakistanis. While it is difficult to quantify the potential impacts of this initiative on market developments, it is likely to lead to a reduction in the number of new subscribers joining the network, unless the increase in the price of new handsets is mitigated by government measures, aimed at improving the affordability. The three tax policy options presented above could be an effective instrument for this and improve the affordability of mobile services.

3.3.1 Harmonisation of sales tax on mobile services to 17%

Mobile consumers pay a sales tax on mobiles services. The rate varies according to the province. Telecommunication services are taxed at 17% in Islamabad and at 19.5% in provinces. In order to increase the affordability of mobile services and improve the business environment of Pakistan, one option for reform would be to harmonise this tax to 17% across all provinces in Pakistan.

The rationale for change

 By harmonising this tax, Pakistan could improve the affordability of mobile services, thereby encouraging the access and adoption of communication services, especially of those on lower incomes. The *PTI Digital Policy 2018* in fact proposes in the context of digital companies that "sales tax on services will be reduced to 5% to encourage adoption."⁹⁸

98. PTI, 2018, PTI Digital Policy 2018, http://insaf.pk/public/insafpk/sites/default/files/PTI%20Digital%20Policy.pdf.

^{94.} Pakistan Tehreek-e-Insaf, 2018, The Road to Naya Pakistan, PTI Manifesto 2018, http://pmo.gov.pk/documents/manifesto-pti.pdf.

^{95.} PTI, 2018, PTI Digital Policy 2018, http://insaf.pk/public/insafpk/sites/default/files/PTI%20Digital%20Policy.pdf.

^{96.} ibid.

^{97.} PTA, 2018, Device Identification Registration and Blocking System (DIRBS) Launched at PTA, https://www.pta.gov.pk/en/media-center/single-media/device-identification-registration-and-blocking-system-dirbs-launched-at-pta-100518.

- A high tax burden can negatively impact on investment and market development. As explained in section 2.3, sales tax is the highest source of tax burden for the mobile sector. A reduction in this tax should help businesses to maximise the potential of mobile services to improve efficiency and customer service. This should lead to increased productivity across the economy leading to GDP growth.
- A greater penetration and usage of mobile services should in turn have further economic and socio-economic benefits for Pakistan:
 - There should be increased revenue for mobile operators, leading to greater levels of investment in infrastructure for the future;
 - There should be increased tax receipts in the medium term resulting from an increase in the use of mobile services; and
 - There should be increased productivity across the economy leading to increases in GDP.
 - The harmonisation of the sales tax would also be consistent with the *PTI Digital Policy 2018*, which notes that that the Government's Digital Transformation Initiative will have as one of its priority objectives a reduction in the compliance burden on businesses,⁹⁹ which can be increased by the use of subnational taxes.¹⁰⁰

3.3.2 Harmonisation and reduction in sales tax on mobile services to 16%

As mentioned above, a sales tax is paid on mobile services. In order to increase further the affordability of mobile services and improve the business environment of Pakistan, an alternative option for reform would be not only to harmonise this tax across all Pakistan, but also to reduce it to 16%.

The rationale for change

 By harmonising this tax, Pakistan could improve the affordability of mobile services, thereby encouraging the access and adoption of communication services, especially of those on lower incomes.

- A reduction in this tax should help businesses to maximise the potential of mobile services to improve efficiency and customer service. This should lead to increased productivity across the economy leading to GDP growth.
- A greater penetration and usage of mobile services should have wider socio-economic benefits for Pakistan.
- This would also be consistent with the *PTI Digital Policy 2018*.

3.3.3 Elimination of the 8% minimum withholding tax on income from mobile services

There are two different regimes of corporate taxation depending on the type of income of mobile companies:

- Mobile services income subject to withholding, i.e. income coming from corporate consumers as they are also withholding agents. In this case, mobile operators pay the higher of the following taxes:
 - Corporation tax of 30% (29% for tax year 2019);
 - A minimum tax of 8%;
 - A minimum tax of 1.25%; and
 - An alternative corporate tax of 17%.
- Mobile services income non-subject to withholding, i.e. income coming from individuals as they are not withholding agents. In this case, mobile operators pay the higher of the following taxes:
 - Corporation tax of 30%; (29% for tax year 2019);
 - A minimum tax of 1.25%; and
 - An alternative corporate tax of 17%.

One option for reform would be the elimination of the minimum withholding tax of 8% on income from mobile services. So, mobile operators would only pay the higher of the following taxes on mobile services income coming from corporate consumers:

99. ibid.

^{100.} For example, from an operational perspective, it is technologically difficult to implement different sales tax rates. It is also complicated to comply with different tax rules implemented at provincial level. There is evidence that the use of subnational taxes increases compliance costs. A study of the Canadian (predecessor of the Canadian Goods and Services Tax, GST) federal sales tax (Brown and Vaillancourt 1986) reports that an increase in the number of tax rates faced by a taxpayer increases compliance costs. A study of Canadian taxes (CFIB 2005) reports that compliance costs increases with the number of provinces in which the federal and provincial corporate taxes (CFIB 2005) reports that differences among provincial rules increases compliance costs. Edwards (2004) argues for the repeal of U.S. state corporate income taxes, noting that they are twice as costly to collect as the federal corporate income taxes. Source: The World Bank Group, 2009, *A Handbook for Tax Simplification*.

- Corporation tax of 30%; (29% for tax year 2019);
- A minimum tax of 1.25%; and
- An alternative corporate tax of 17%.

The corporate tax regime of mobile services income coming from individuals would not be subject to any change under this scenario.¹⁰¹

The rationale for change

- A high level of corporate taxation on the mobile sector reduces the sector's ability to invest in mobile infrastructure, and weakens the attractiveness of the sector for foreign investment.
- A reduction in the corporate tax burden should encourage greater investment in the telecommunications sector. It should boost incentives to expand mobile networks and translate into a greater coverage and better connectivity, especially in rural zones.
- The elimination of this withholding tax would help to reduce the complexity of the Pakistani tax system. This would improve Pakistan's business

environment, as Pakistan currently ranks 162 out of 190 countries overall in the Doing Business index of the World Bank.

- A reduced tax burden would create an improved investment environment for mobile operators, allowing for:
 - Increased 3G and 4G coverage, enhancing digital inclusion;
 - Improved coverage would allow greater mobile penetration, particularly for mobile broadband enabled technologies;
 - Increased economic activity, driving improved tax receipts for the Government in the medium term.
- This reform would also be consistent with the *PTI Digital Policy 2018*, which specifically recommended as part of proposed changes to the current taxes and regulatory regime that "withholding and minimum tax regime will be removed from the knowledge economy companies".¹⁰²

3.4 Digital opportunities in the field of taxation

The three options for reform identified above should be self-sustaining in the medium term for Pakistan and should lead to revenue gains for the Government. Section 4 will present detailed economic modelling to show the likely impacts delivered by these three options.

In addition, a more conducive tax system for the investment and development of the mobile sector should enable further modernisation of tax administration and make tax collection more efficient. This should help to broaden the tax base and raise additional revenue for the Government, offsetting any potential loss of revenue in the short-term, thanks to innovative solutions, such as person to government (P2G) payments and e-government initiatives.

As the OECD notes in its latest interim report on tax digitalisation,¹⁰³ the increasing use of digital or platforms facilitates integration into the formal

economy. Previously unreported transactions are now carried out through those platforms, delivering an enhanced electronic audit trail and greater reporting of income.

In this way, digital platforms can drive growth and increase revenues, by providing new opportunities for economic activity and encouraging movement into the formal economy. This information can be integrated into data matching analysis to enhance tax compliance.¹⁰⁴

Technology is expanding the capabilities of tax administrations in a wide range of ways, to enhance the effectiveness of compliance activities, improve taxpayer services and reduce compliance burdens.¹⁰⁵ Some examples of experiences on how digitalisation and the use of technology could open up further opportunities for the tax administration are identified below:

103. OECD, 2018, Tax Challenges Arising from Digitalisation – Interim Report 2018. Inclusive Framework on BEPS, https://doi.org/10.1787/9789264293083-en. 104. ibid.

105. *ibid.*

^{101.} An alternative option could be allowing the adjustment of this minimum tax against future year tax liability, which is currently not allowed.

^{102.} PTI, 2018, PTI Digital Policy 2018, http://insaf.pk/public/insafpk/sites/default/files/PTI%20Digital%20Policy.pdf.

Successful experiences in the field of digital tax administration

- In Hungary, the introduction of electronic cash registers saw an increase of VAT revenue by 15% in the targeted sectors, exceeding the costs of introducing the new system.¹⁰⁶
- In Rwanda, in the two years since the introduction of electronic cash registers in March 2013, VAT collected on sales increased by 20%.¹⁰⁷
- In Mexico, an additional 4.2 million microbusinesses were brought into the formal economy after Mexico introduced mandatory electronic invoicing.¹⁰⁸
- Peru's tax administration (SUNAT) launched its first mobile app in February 2015. This provides constant tablet and mobile phone access to a range of services, including tax registration, invoices, a virtual tax guide and the ability to report tax evaders.¹⁰⁹
- The Australian Tax Office has incorporated a tool in its mobile app allowing to record tax deductions on the go. Using the camera on their device, taxpayers can capture receipts and use location services to record work-related car trips for vehicle deductions, eliminating the need for paper records.¹⁰
- Countries including Brazil, Côte d'Ivoire, Guinea, Kenya, Mauritius, Rwanda, Tanzania, and Uganda have done well in driving digital P2G payments. Of these, Kenya stands out in terms

Some of the successful experiences identified above could be replicated in Pakistan. The recent *PTI Manifesto* articulated a key goal of the new Government to be to "institutionalise e-Governance practices in public administration". The aim is to "transform public administration with e-Governance initiatives to facilitate citizens' access to justice, rights and other public services."¹¹⁴ It would also be consistent with the *PTI Digital Policy 2018*, which notes that that the Government's Digital Transformation Initiative will include the following objectives: of the number of P2G use cases. The central e-government platform (eCitizen) reports that over 90% of digital payments are made via mobile money, while 85% of Nairobi City County payment wallet re-loads (eJijiPay) are made via mobile money.¹¹¹

- Ghana has an existing e-Government portal that offers services by government ministries, departments and agencies (MDAs) and an e-Payments portal that accepts digital payments through payment processing partners such as mobile money (through MTN, Vodafone and Airtel-Tigo), card payments (via Visa and MasterCard), payment switch (eTranzact) and bank transfers (through banks such as Zenith Bank and Ghana Commercial Bank).¹¹²
- In Côte d'Ivoire 99% of secondary school students (1.5 million) pay their annual school registration fee payment via mobile money which has resulted in driving cost efficiencies, increased operational efficiency, and transparency for all the beneficiaries - students and their parents, secondary schools, and the government (Ministry of National and Technical Education - MENET). Prior to this initiative, schools and local government departments reported that a significant proportion of school fee payments were lost, and that armed robberies at payment locations were commonplace. Mobile money has helped to reduce both cash handling costs and the associated risks.¹¹³
- · Reduce compliance burden on businesses;
- Improve revenue by increasing tax net;
- Reduce corruption; and
- Make citizen services more efficient.¹¹⁵

Public innovative digital solutions, such as personto-government (P2G) initiatives, can help to achieve these goals.

114. Pakistan Tehreek-e-Insaf, 2018, The Road to Naya Pakistan, PTI Manifesto 2018, http://pmo.gov.pk/documents/manifesto-pti.pdf.

^{106.} *ibid.*

^{107.} *ibid*.

^{108.} *ibid*. 109. *ibid*.

^{110.} *ibid*.

GSMA, 2017, Person-to-government (P2G) payment digitisation: Lessons from Kenya, <u>https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2017/09/P2G_Report_Final.pdf.</u>
 GSMA, 2018, The opportunity for mobile money person-to-government payments in Ghana, <u>https://www.gsma.com/mobilefordevelopment/tag/p2g-payments/</u>.
 GSMA, 2015, Paying school fees with mobile money in Côte d'Ivoire: A public-private partnership to achieve greater efficiency, <u>https://www.gsma.com/mobilefordevelopment/wp-</u>

content/uploads/2015/10/2015_GSMA_Paying-school-fees-with-mobile-money-in-Cote-divoire.pdf.

^{115.} PTI, 2018, PTI Digital Policy 2018, <u>http://insaf.pk/public/insafpk/sites/default/files/PTI%20Digital%20Policy.pdf</u>.



4. Economic impacts of tax reform on the mobile sector in Pakistan

4.1 Options for further tax reform to increase digital inclusion

Based on the framework and analysis outlined in the previous section, the following three options for further tax reform have been assessed quantitatively by modelling their impacts on the mobile sector and the wider economy:

- Harmonisation of sales tax on mobile services to 17%. The rate of sales tax differs across provinces in Pakistan, and between different goods and services. For example, the sales tax on mobile services is levied at a rate of 17% in Islamabad but 19.5% in the other provinces, and is also higher than the rate applied to most other services (charged at rates ranging from 13% to 16%). This scenario models the harmonisation of the rate of sales tax on mobile services at 17%. This would lower the tax burden on mobile subscribers, and hence increase demand and take-up, and incentivise network investments;
- Harmonisation and reduction in sales tax on mobile services to 16%. This scenario combines

harmonisation of sales tax on mobile services with a reduction of the harmonised rate to 16%.¹¹⁶ Compared to scenario 1, this reform would generate higher benefits in the form of additional increases in penetration and investment, generating further gains in the wider economy; and

 Elimination of the 8% minimum withholding tax on income from mobile services. A minimum tax of 8% is payable in Pakistan on service income from corporate subscribers. Elimination of the minimum tax would reduce the tax burden on operators, leading to lower prices of mobile services and greater investment into mobile networks.¹¹⁷

These options for tax reform have been modelled separately in order to isolate the effects of each option on the mobile sector and the wider economy. While the implications of these specific further tax reforms have been modelled, alternative scenarios and combinations of these reforms are also possible.¹¹⁸

4.2 Approach to assessing the quantitative impacts of further tax reform on the mobile market and the wider economy

The potential quantitative impacts of each of the tax options have been analysed using a set of modelling tools representing both the Pakistani mobile sector and the Pakistani economy as a whole. While a combination of these tax reforms would be likely to lead to beneficial economic impacts for Pakistan, the assessment considers the options as separate 'scenarios', where each tax is reformed and compared to a status quo scenario with no change in taxation (the baseline scenario).

^{116.} Both scenarios 1 and 2 use the current level of effective sales tax rates as the baseline.

^{117.} Tax saving in scenario 3 has been calculated based on the effective rate of this minimum tax paid at the whole market level in 2017.

^{118.} The economic impacts of each option for tax reform have been modelled separately, and therefore cannot be simply aggregated to determine the benefits of combined reductions in

A model of the Pakistani mobile sector has been created to calculate the impact on the sector from each of the tax policy scenarios. This includes the change in subscribers, usage, technology, revenues, profits, reinvestment and increased network capacity in the sector.

The wider economic impacts of each tax policy scenario are assessed via a 'Computable General Equilibrium' (CGE) model, namely the standard version of the Global Trade Analysis Project (GTAP) model and its associated dataset.¹¹⁹ The GTAP model is contributed to, and widely used, by government agencies, international institutions, the private sector and academia to model policy changes within countries and cross-border effects of trade policies. Some examples include the World Bank, the World Trade Organization (WTO), the Directorate General for Trade of the European Commission, the Asian Development Bank and the Organisation for Economic Co-operation and Development (OECD).¹²⁰

A schematic of the modelling approach used in this study is shown in Figure 15 below.¹²¹

Figure 14

Overview of the modelling approach



Source: EY analysis

120. GTAP Consortium, https://www.gtap.agecon.purdue.edu/about/consortium.asp.

^{119.} Global Trade Analysis Project, https://www.gtap.agecon.purdue.edu/.

^{121.} Please see Appendix A for more detail on the methodology approach used in this study to construct the scenario forecasts.

4.3 Harmonisation of sales tax on mobile services to 17%

As shown in Section 2, the rate of sales tax differs across provinces in Pakistan, and between different goods and services. For example, the sales tax on mobile services is levied at a rate of 17% in Islamabad but 19.5% in the other provinces. The rates of sales tax on mobile services are higher than on most other services, charged at rates ranging from 13% to 16%.

Harmonisation of the tax rate at 17% in all provinces would simplify the tax system and make mobile services more affordable for Pakistanis. The subsequent improvement in affordability of mobile services would incentivise the take-up and increase the usage of mobile services in Pakistan. This tax reform would also reduce the gap between the rates of the sales tax levied on mobile services and other services, improving tax fairness and making mobile sector more attractive for investment.

CASE STUDY Harmonisation of sales tax in India¹²²

India implemented sales tax harmonisation in 2017. The reform replaced a complicated system of value-added, sales and excise taxes, levied by 29 states and the federal government, by a single goods and services tax (GST). The tax reform was not limited to the mobile sector covering the majority of goods and services.

The Indian Government has reported that, since the start of the reform implementation, the number of registered indirect taxpayers has increased by almost 50%, which is expected to generate additional tax revenue of 1.0-1.5% of GDP over time. Although it is too early to assess the full economic impact of the reform, it is also expected to boost trade between provinces and make India more attractive for investment, which would ultimately lead to benefits for the wider economy and generate higher economic activity. This tax scenario is forecast to have the following impacts compared to the baseline scenario:¹²³

- Mobile market revenue: total mobile sector revenue would increase by \$34 million (1.0%) by 2023. This would be driven by additional revenues from an increased number of connections, and higher overall usage, which offset the reduction in pricing from the tax reform;
- Investment by operators: as a result of the tax saving, Pakistani mobile operators would increase investment by a total of around \$4 million per annum. This will enable them to further expand their networks and will support the migration to 3G and 4G technologies by upgrading the existing network infrastructure;
- New connections: there would be an additional

 1.1 million unique subscribers, or 1.9 million mobile
 connections by 2023. This is equivalent to an
 increase of around 0.5% in unique subscriber
 penetration (0.9% in total connections). Of these
 new connections, 63% would be classified as low income users. As a result of network investment and
 lower effective prices, unique mobile broadband
 penetration would increase by 0.7% (1.5 million
 unique MBB subscribers);
- Usage: the reduction in the effective price of mobile services would lead to a 2.3% increase in total data usage, driven by an increase in the number of connections and a 1.3% increase in average data usage per connection compared to the baseline;
- Productivity gain: the increase in unique subscriber penetration of 0.5% would lead to a 0.11% gain in productivity across the economy, leading in turn to further increases in output, incomes and expenditure;
- GDP increase: total GDP would increase by \$360 million (0.12%) compared to the baseline, as the price and productivity effects lead to a chain reaction of expansion across the economy;

^{122.} IMF, "A Market, Unified. Arvind Subramanian explains the advantages of a new tax for India's economy and budget", Finance & Development, June 2018, Vol. 55, No. 2, https://www.imf.org/external/pubs/ft/fandd/2018/06/impact-of-indias-new-GST-tax-on-the-economy/trenches.htm.

^{123.} Please see Appendix A for more detail on the modelling assumptions used in this study and see Appendix B for detailed estimated impacts.

- Employment increase: as a result of the increased economic activity, employment would increase by approximately 7,000 jobs;
- Wider investment in the economy: as a result of lower prices for mobile services and increased productivity, additional resources are made available for investment across the economy. By 2023, this scenario would lead to an annual gain in investment of \$120 million (0.3%); and
- **Tax revenue impact**: this scenario would have an initial net cost to the Government of \$30 million in 2019. However, the subsequent expansion of the mobile sector, and significant growth in the wider economy, mean that, by 2021, the annual impact becomes positive. The gain in tax revenue is potentially about \$55 million per annum by 2023.

The summary of the sector-specific and economic impacts in 2023 is shown in Figure 15. $^{124}\,$

Figure 15

Annual impacts of the harmonisation of sales tax on mobile services to 17%, 2023¹²⁵



Source: EY analysis

125. Please see Appendix B for further detail on the results of this analysis, including annual impacts between 2019 and 2023

^{124.} All figures represent the annual variance between the baseline scenario and the tax reform scenario at 2023.

4.4 Harmonisation and reduction in sales tax on mobile services to 16%

In this scenario, harmonisation of the sales tax on mobile services is combined with a reduction of the harmonised rate to 16%.¹²⁶ This reform would accentuate the benefits of Scenario 1, generating higher positive economic impacts and further incentivising the investment into the sector. A more significant improvement in affordability of mobile services would lead to bigger gains in mobile penetration and usage.

This tax scenario is forecast to have the following impacts compared to a "baseline" scenario of no change in current levels of taxation:

- Mobile market revenue: total mobile sector revenue would increase by \$46 million (1.4%) by 2023. This would be driven by additional revenues from an increased number of connections, and higher overall usage, which offset the reduction in pricing from the tax reform;
- Investment by operators: as a result of the tax saving, Pakistani mobile operators would increase investment by a total of around \$5 million per annum. This will enable them to further expand their networks and will support the migration to 3G and 4G technologies by upgrading the existing network infrastructure;
- New connections: there would be an additional 1.5 million unique subscribers, or 2.6 million mobile connections by 2023. This is equivalent to an increase of around 0.7% in unique subscriber penetration (1.2% in total connections). Of these new connections, 63% would be classified as lowincome users. As a result of network investment and lower effective prices, unique mobile broadband penetration would increase by 1.0% (2.1 million unique MBB subscribers);
- Usage: the reduction in the effective price of mobile services would lead to a 3.2% increase in total data usage, driven by an increase in the number of connections and a 1.7% increase in average data usage per connection compared to the baseline;

- **Productivity gain**: the increase in unique subscriber penetration of 0.7% would lead to a 0.15% gain in productivity across the economy, leading in turn to further increases in output, incomes and expenditure;
- GDP increase: total GDP would increase by \$497 million (0.16%) compared to the baseline, as the price and productivity effects lead to a chain reaction of expansion across the economy;
- Employment increase: as a result of the increased economic activity, employment would increase by approximately 9,700 jobs;
- Wider investment in the economy: as a result of lower prices for mobile services and increased productivity, additional resources are made available for investment across the economy. By 2023, this scenario would lead to an annual gain in investment of \$167 million (0.4%); and
- **Tax revenue impact**: this scenario would have an initial net cost to the Government of \$41 million in 2019. However, the subsequent expansion of the mobile sector, and significant growth in the wider economy, mean that, by 2021, the annual impact becomes positive. The gain in tax revenue is potentially about \$76 million per annum by 2023.

The summary of the sector-specific and economic impacts in 2023 is shown in Figure 16.

126. Both scenarios 1 and 2 use the current level of effective sales tax rates as the baseline.

Figure 16

Annual impacts of harmonisation and reduction in sales tax on mobile services to 16% (compared to the current level of effective sales tax rates), 2023



4.5 Elimination of the 8% minimum withholding tax on income from mobile services

In Pakistan, receipts from mobile services provided to business subscribers are subject to a minimum withholding tax, charged at a rate of 8%.¹²⁷ As shown in Section 2, it is one of several minimum taxes to be paid by operators in Pakistan.

Elimination of the minimum withholding tax would decrease the tax burden of operators and simplify the tax administration. The resulting tax savings would allow operators to reduce the effective price of mobile services in a competitive environment, incentivising increased take-up and usage. This reform would also enable operators to retain a share of the tax saving to make additional investment into networks. This tax scenario is forecast to have the following impacts compared to a "baseline" scenario of no change in current levels of taxation:

This tax scenario is forecast to have the following impacts compared to a "baseline" scenario of no change in current levels of taxation:

- Mobile market revenue: total mobile sector revenue would increase by \$21 million (0.6%) by 2023. This would be driven by additional revenues from new subscribers and higher usage per connection;
- Investment by operators: as a result of the tax saving, Pakistani mobile operators would increase investment by a total of around \$2 million per annum. This will enable them to further expand their networks and will support the migration to 3G and 4G technologies by upgrading the existing network infrastructure;
- New connections: there would be an additional 0.7 million unique subscribers, or 1.2 million mobile connections by 2023. This is equivalent to an increase of around 0.3% in unique subscriber penetration (0.5% in total connections). Of these new connections, 63% would be classified as lowincome users. As a result of network investment and lower effective prices, unique mobile broadband penetration would increase by 0.4% (0.9 million unique MBB subscribers);

- **Usage:** the reduction in the effective price of mobile services would lead to a 1.5% increase in total data usage, driven by an increase in the number of connections and a 0.8% increase in average data usage per connection compared to the baseline;
- **Productivity gain**: the increase in unique subscriber penetration of 0.3% would lead to a 0.07% gain in productivity across the economy, leading in turn to further increases in output, incomes and expenditure;
- **GDP increase**: total GDP would increase by \$225 million (0.07%) by 2023 as the price and productivity effects lead to a chain reaction of expansion across the economy;
- Employment increase: as a result of the increased economic activity, employment would increase by approximately 4,400 jobs by 2023;
- Wider investment in the economy: as a result of lower prices for mobile services and increased productivity, additional resources are made available for investment across the economy. By 2023, this scenario would lead to an annual gain in investment of \$75 million (0.2%); and
- **Tax revenue impact**: this scenario would have an initial net cost to the Government of \$17 million in 2019. However, the subsequent expansion of the mobile sector, and significant growth in the wider economy, mean that, by 2020, both the annual and cumulative impacts are positive. The gain in tax revenue is potentially approximately \$36 million per annum by 2023.

The summary of the sector-specific and economic impacts in 2023 is shown in Figure 17

^{127.} Given the nature of the minimum tax, there is no direct link between this tax and the pricing of mobile services provided to businesses. Therefore this reform is modelled to generate benefits to all individual and business subscribers.

Figure 17

Annual impacts of elimination of the 8% minimum withholding tax on income from mobile services, 2023





5. Conclusion: Reforming mobile sector taxation in Pakistan

The mobile industry has the potential to play an increasingly important role in achieving Pakistan's development objectives, specifically by modernising network infrastructure, improving access to modern technologies by households and businesses, encouraging investment and driving productivity improvements across the economy. The mobile market in Pakistan has expanded rapidly over the past decade, with the number of unique subscribers increasing by 37.4 million between 2008 and 2018. The sector now generates \$3.4 billion in revenue, equivalent to 1.1% of GDP.

There exist significant opportunities to further develop the sector (as 59.7% of the population remain unconnected to mobile services), specifically

through increased penetration and incentivising customer migration to 3G and 4G technologies. Accelerating progress in these areas requires improvements in the affordability of mobile services for lower income segments of the population, as well as further investment by operators to increase network coverage and network quality.

By promoting investment, reducing the cost of mobile services and incentivising usage, the tax reforms outlined in this report would help to connect individuals to mobile services. A more balanced and efficient taxation structure would generate considerable socio-economic benefits in the country. A summary of the impacts is provided in Table 6.

Table 6

Summary of socio-economic benefits of the proposed tax reforms, by 2023¹²⁸

Indicator	Harmonisation of sales tax on mobile services to 17%	Harmonisation and reduction in sales tax on mobile services to 16%	Elimination of the 8% minimum withholding tax on income from mobile services	
New unique subscribers	1.1m (0.5%)	1.5m (0.7%)	0.7m (0.3%)	
Sector revenue	\$34m (1.0%)	\$46m (1.4%)	\$21m (0.6%)	
GDP increase	\$360m (0.12%)	\$497m (0.16%)	\$225m (0.07%)	
Wider investment	\$120m (0.3%)	\$167m (0.4%)	\$75m (0.2%)	
Annual gain in tax revenue	\$55m	\$76m	\$36m	

Source: EY analysis

128. Both scenarios 1 and 2 use the current level of effective sales tax rates as the baseline

The policy options for reform outlined in this report would contribute to achieving a number of key objectives for the mobile sector and wider Pakistani economy. This includes supporting the objectives as set out by the new Government in the *PTI Manifesto* and the *PTI Digital Policy 2018*, namely achieving sustainable and inclusive economic growth, increasing tax revenue collection, creating new jobs and transforming Pakistan into a knowledge economy. Furthermore, these tax reforms will be aligned with the principles of taxation which have been developed by the IMF, World Bank, OECD and UN, by:

- Simplifying the tax system;
- Favouring the use of broad-based forms of taxation, such as VAT; and
- Making the tax system more equitable, recognising the positive externalities of mobile services.

These reforms would be self-sustainable in terms of revenue, and, at the same time, will make the tax regime more attractive for investment in the mobile sector.





Appendix A Methodology

This Appendix sets out the methodology applied in this study to calculate the potential economic impacts of tax policy scenarios. As described in Section 4, the economic modelling is undertaken in two stages, using two models:

- A model of the Pakistani mobile sector, the 'telecoms market model' has been created to calculate changes in the mobile sector resulting from each of the tax policy scenarios. This includes the change in subscribers, usage, technology, revenues, profits, reinvestment and expanded capacity in the sector; and
- The wider economic impacts of each tax policy scenario are assessed via a Computable General Equilibrium (CGE) model, namely the standard version of the Global Trade Analysis Project (GTAP) model and its associated dataset.

Mobile sector modelling

Design of the telecoms market model

The telecoms market model covers the period 2017–2023, and uses data from local mobile operators and the GSMA Intelligence database. For modelling the scenarios, it has been assumed that the tax changes become effective in 2019.

Figure 18

The telecoms market model then calculates separate forecasts for each tax policy scenario. The difference between the scenario forecasts and the baseline is effectively the additional impact resulting from the tax policy reform.¹²⁹

A schematic of this model is presented in Figure 18 below.

Overview of mobile sector modelling approach



Source: EY analysis

129. The baseline forecast is the counterfactual scenario for which results are compared against. It is based on market forecasts by operators and GSMAi over the period 2018-2023.

As illustrated in Figure 18, the telecoms market model captures the impact on consumer demand and operators' profits and investment as a consequence of a mobile taxation reform. The model allows for the estimation of the additional connections, technology migration and mobile penetration generated across different usage profiles (categorised by low, medium and high-income groups), and across 2G, 3G and 4G services.

Mobile market impacts

For consumers, a reduction in the tax rate leads to a decrease in the effective price of mobile services or handsets. The relationship between the size of the tax reduction and the related decrease in prices is dependent on the level of "pass-through".¹³⁰ The resulting reduction in the effective price of mobile services is modelled to have the following impacts:

- An increase in usage per connection, as lower prices lead to increased demand for services;
- An increase in the number of connections, as lower prices reduce the relative cost of mobile ownership which attracts new subscribers; and
- Additional technology migration, as lower prices for smartphones and / or cheaper data services accelerates the migration of existing subscribers from 2G services to 3G / 4G services.

For operators, the proportion of the tax reduction that is not passed through in the form of lower prices would either be retained as increased profit or reinvested. The decision between these two options depends on an assumption made on the reinvestment rate.¹³¹ The following effects of additional investment are estimated using the telecoms market model:

- An increase in the number of subscribers, as the investment enables the building of new mobile sites and, hence, increased network coverage;
- Additional technology migration, as the investment enables upgrade of 2G sites to 3G / 4G and, therefore, existing subscribers have the opportunity to upgrade from 2G to 3G / 4G services; and
- A decrease in the effective price of data driven by investment made by operators to improve the capacity of existing mobile sites. As this improves the quality and speed of mobile broadband connections, subscribers are able to download more content. This further incentivises 2G customers to migrate to 3G and 4G technologies.

Key outputs

The key outputs of the telecoms market model include changes to the baseline forecast (based on the GSMA Intelligence forecast) with regards to:

- the number of connections;
- the number of unique subscribers;
- mobile market penetration;
- total market revenue; and
- sector taxation receipts.

For connections and subscribers the model specifies market segments by usage profile (high, medium and low), technology (2G, 3G and 4G) and payment type (prepay and postpay). Therefore the telecoms market model is run for a total of 18 categories of subscribers.

Macro-economic modelling

Macro-economic modelling approach

The macro-economic model builds upon the mobile sector analysis to estimate how lower taxes and prices feed through to the wider economy. This takes into account forward and backward linkages in the supply chain (i.e. supply chain for mobile service providers, and where mobile services are used in other sectors of the economy), the interaction between expanding businesses and a rise in household incomes and employment, and an assumed productivity gain across the economy as mobile penetration rises. This model gives an estimate of the dynamic impact on total tax receipts, allowing for all these indirect effects to work through the economy.

The macro-economic impacts are modelled in two stages:

- The impact of the tax change on the sector itself and the interaction with the wider economy; and
- A boost to economy-wide productivity resulting from the increase in penetration.

^{130.} The percentage of the tax / fee change which is passed through to subscribers in the form of lower prices. This is calculated based on the relative slope of the supply and demand curves for mobile services.

^{131.} The percentage of the tax / fee change not passed through to subscribers which is reinvested by operators.

The impact of the mobile sector on the wider economy starts from its supply chain linkages. In particular, telecommunications is an important input to businesses right across the Pakistani economy. As lower taxes and consequent lower prices are passed on, many businesses will benefit and be able to expand their own outputs. Businesses that supply the mobile sector will also benefit from its expansion (see Figure 19).

Figure 19



Source: EY analysis

The wider interactions in the economy lead to a virtuous circle of economic expansion:

- The forward and backward linkages from the mobile sector lead to expansion in related sectors, and this in turn creates more expenditure circulating in the economy;
- The mobile communications sector will see increased investment, as it is now relatively more profitable than in the baseline;
- Overall household incomes will expand, leading to more spending in the wider economy and an increase in aggregate savings to fund investment;
- Higher real wages attract more people into the workforce, expanding employment and in turn further boosting spending in the economy;

- A larger economy requires more investment to complement the expansion in employment and to support the larger capital stock, which will see growth in construction and in sectors making investment goods; and
- The economy is modelled to be constrained by available resources (workers, capital), so some sectors must contract to make way for the expanding sectors.

These linkage and interaction effects will be reinforced by an increase in productivity in the Pakistani economy, due to the rise in penetration of the mobile sector. This in turn leads to a further expansion in output, incomes and expenditure in the economy.

The CGE model

CGE models reproduce the structure of the whole economy by mapping all existing economic transactions among diverse economic agents (e.g. households, firms). They are large-scale numerical models that simulate the core economic interactions in the economy, and replicate the circular flow of the economy (see Figure 20). They are based on the economic theory of general equilibrium; i.e. that supply and demand for goods, services and factors of production in the economy must be balanced. Economic relationships in CGE models are based on theory and empirical evidence from the academic literature. The prices of goods, services and factors of production adjust until all markets clear that is, until they are simultaneously in equilibrium.

Figure 20



Source: Adapted from M. Burfisher, 2011, Introduction to Computable General Equilibrium Models

Central in CGE modelling is the choice of closure rules. This relates to the specification of endogenous (those determined by the model) and exogenous (those determined externally) variables. In the standard GTAP model prices, quantities of all nonendowment commodities (e.g. produced and traded commodities) and regional incomes are endogenous variables, while policy variables, technical change variables and population are exogenous to the model.¹³² This standard closure is amendable with a wide range of alternative options available depending on modelling assumptions adopted.

^{132.} T.W. Hertel, 1997, Global Trade Analysis: Modelling and Applications.

Scenario modelling

The CGE model is used to conduct a number of tax policy simulations and hence assess the impacts of detailed policy scenarios on the wider economy. The approach is as follows:

- First, the effective tax on Communication Services (which includes mobile services) is calculated;¹³³
- Second, GTAP model parameters (e.g. own-price and cross-price elasticities) and closure rules (e.g. related to employment

assumptions) are adjusted to ensure better alignment with the mobile telecoms market and broader characteristics of Pakistan;

- Third, simulation scenarios are run that account for the direct effect of taxes and tariffs on prices and a productivity improvement from any increase in mobile penetration (see Figure 21); and
- Finally, simulations are performed estimating the new equilibrium following the policy shocks introduced.

Figure 21

Overview of macro-economic modelling approach



^{133.} All taxes affecting the production and consumption of mobile services and mobile phones in Pakistan (e.g. turnover, excise, VAT) are combined to estimate the effective (compound) tax rates on final and intermediate consumption of goods and services.

The impact of changes in tax policy on pricing

Mobile taxation policy changes may be fully or partially passed through to consumer prices for mobile goods and services. The extent of pass-through depends on specific market factors (e.g. the extent of competition in the specific market) and is likely to vary by sector and country.

In this study, the extent to which tax changes are passed onto consumers, is derived from the macroeconomic modelling in GTAP and specifically for Pakistan. The GTAP model calculates the communication sector-specific short-to-medium-run change in relative prices of intermediate and final goods after a change in taxation. This calculation is based on relationships derived for Pakistan that are incorporated in the GTAP model, and which are based on input-output tables from national statistics and other empirical data on the Pakistani economy. In the GTAP model, tax reform scenarios are modelled as a percentage change in the overall taxation burden on consumption and/or production in the sector. Therefore, the change in price in any country is determined by the specific market conditions in the communications sector and the relationships in the wider economy of that country, as these are reflected in the underlying data (demand and supply flows) and parameters (elasticities and other estimated coefficients) of the economy under analysis. Specifically, the extent of pass-through is determined by the assumed elasticity of both demand and supply in the market. The elasticity of supply depends on the competitive environment and degree of market power within the industry, and reflects the profitability, input costs and usage of natural resources in production. The elasticity of demand is determined by consumer preferences, and varies depending on the underlying behavioural relationships in the Pakistani economy.

Table 7 provides the pass-through rates derived in the GTAP model for each scenario.

Table 7

Pass-through rates for each scenario

Indicator	Harmonisation of sales tax on mobile services to 17%	Harmonisation and reduction in sales tax on mobile services to 16%	Elimination of the 8% minimum withholding tax on income from mobile services	
Pass-through rate	81.4%	81.6%	84.7%	

Source: EY analysis

In scenarios 1 and 2, the derived pass-through rate for the sales tax is about 81%, which refers to the proportion of the tax savings passed on to subscribers through reduction in prices of mobile services. This relatively high level of pass-through rate is driven by competition in the Pakistani mobile market and the nature of the tax, in particular, that this is a consumption tax.¹³⁴ Therefore, mobile operators are able to retain a smaller share of the tax saving, which can be channelled into increased investment, or retained as higher profits. In scenario 3, the calculated pass-through rate for the minimum withholding tax on income from mobile services is 84.7%. This tax is levied on revenue and represents a direct cost to the operators when their profits are low, effectively working as a turnover tax. Evidence from the literature and previous GSMA taxation studies suggests that, much like consumption taxes, turnover taxes typically exhibit high passthrough rates.¹³⁵

134. Consumption taxes are more visible to end customers than some other business taxes, as they have a more direct and immediate impact on price.

135. See, for example, Smart and Bird, 2009, "The Economic Incidence of Replacing a Retail Sales Tax with a Value-Added Tax: Evidence from Canadian Experience".

Calculation of the total cost of mobile ownership (TCMO)

The concept of TCMO refers to the total cost of owning and using a mobile phone by a subscriber. The TCMO is calculated by the GSMA on a monthly basis using data from GSMA Intelligence and Tarifica, and includes the following three components:¹³⁶

- Handset cost, the calculation of which is based on the price of the cheapest handset with internet browsing capability offered by local mobile operators. The one-off cost of the handset is spread over its assumed lifetime. For developing countries, the average lifetime of a mobile handset is assumed to be 36 months;
- Connection charges, including the activation charge or any other fee to connect to the mobile network, where applicable. These usually take the form of a fee for the activation of a SIM card or a mobile phone number. They are also spread over 36 months in a similar manner to handsets; and
- Usage costs, including voice, data and messages services. Usage costs are based on the cheapest available mobile plan for each consumption basket across all operators in the market, which is selected to represent regular usage and consumption patterns.

In order to account for different usage profiles, the TCMO is presented in this report for the following consumption baskets:

- Low basket: includes 500MB of data; and
- Medium basket: includes 1,000 MB of data, 250 voice minutes and 100 SMS.

In order to reflect differences in income levels in various countries, the TCMO is expressed as a proportion of monthly income per capita across different income quintiles. Income data is taken from the World Bank databank.

Key assumptions for Pakistan

The assumptions underlying the mobile sector and macro-economic modelling for this study are based on an extensive literature review and are presented in more detail below.

Price elasticity of demand

The impact of price changes on the consumption of mobile services is captured via estimates of the price elasticity of demand (PED), which measures the change in quantity demanded following a change in price. For purposes of this study, we define three sets of PEDs:

- Mobile usage elasticities which relate to the change in usage per connection following a change in price;
- Mobile ownership elasticities which relate to the change in the number of connections following a change in the price of services and handsets; and
- Technology migration elasticities which relate to the migration from 2G to 3G / 4G services following a change in the price of data, and a change in the price of handsets.

All elasticities in this study are further varied by income groups of subscribers (low, middle and high).

A literature review has been conducted (covering 30 studies), as a basis for establishing a set of assumptions on the PED. To establish relevant price elasticities for Pakistan, we have used a set of studies pertaining to low-income countries (Pakistan is defined as a lower middle income economy by the World Bank).¹³⁷

The following price elasticities of demand have been assumed in this study:

- Usage elasticities: from -0.65 to -0.83 for voice and from -1.04 to -1.32 for data;
- Ownership elasticities: from -0.78 to -1.00 for mobile services; and
- Technology migration elasticities: from -0.25 to -0.32 for data.

^{136.} GSMA, 2017, Taxing mobile connectivity in Sub-Saharan Africa: a review of mobile sector taxation and its impact on digital inclusion, https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2017/07/Taxing-mobile-connectivity-in-Sub-Saharan-Africa_July-2017.pdf.

^{137.} World Bank, https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups.

Reinvestment Rate

The exact reinvestment rate depends on a range of factors, including the cash flow of a specific company. In the modelling, it is assumed that operators reinvest 60% of the portion of the tax reduction that they retain (i.e. the proportion that is not passed onto subscribers). The remaining 40% is retained as increased profit. This assumption is based on a review of previous studies of the economic impacts of mobile taxation reforms.¹³⁸

GSMAi data suggests that 3G covered 87% of Pakistani people in Q3 2018.¹³⁹ Further investment is therefore required to extend the 3G network to full coverage. The modelling assumes that reinvestment will be allocated in equal proportions between building new 3G sites and upgrading 2G sites to 3G.

Total factor productivity impact

The benefits of mobile connectivity – and how they translate to the macro economy – have been widely studied in the literature. The effects of mobile connectivity on the economy are largely delivered through their impact on productivity, one of the main measures being total factor productivity (TFP).¹⁴⁰

It has been assumed that a 1% increase in unique subscriber penetration leads to a 0.21% increase in total factor productivity. This value is based on a review of the literature, and with reference to previous studies conducted by the GSMA.¹⁴¹ This relatively significant impact reflects low mobile penetration and limited fixed infrastructure in Pakistan.

In this study, the shock to TFP is modelled as a change in the productivity of all primary factors (of equal proportions) in the Pakistani economy. This productivity change enters as a variable into the constant elasticity of substitution (CES) value-added production function.¹⁴² The TFP shock works in the model as the sum of two effects:

- By reducing production costs which are passed on to consumers through lower prices, which in turn leads to higher demand and production levels (the output effect); and
- By reducing the demand for primary factors, for a given output level (productivity effect).

Timing of macro-economic impacts

The standard GTAP model seeks to calculate differences in key economic variables between different possible states of the economy – a baseline case and a policy scenario – at a fixed point in time. This means that the standard model is a comparative static model and does not model year-by-year changes to the new equilibrium.

The CGE literature on the dynamic impacts of tax policy on a country's GDP suggests that the transition to a new equilibrium takes on average 5-10 years with the annual impact on GDP increasing at a diminishing rate.¹⁴³

Using this evidence from the literature, we have formed assumptions on the transition path between the baseline case and the policy change. We assumed that 67% of the steady state impact is felt in 2020 (the next year following the policy is implemented), 83% in 2021, 95% in 2022 and 100% in 2023 (five years after the policy implementation). The productivity effects are assumed to come into effect from 2020. The assumed path is illustrated in Figure 22 below.

^{138.} See, for example, S. Gilchrist and C. Himmelberg, 1995, "Evidence on the role of cash flow for investment" and R. Katz, 2012, "Assessment of the economic impact of taxation on communications investment in the United States".

^{139.} GSMA Intelligence database.

^{140.} TFP is a measure for how efficiently an economy uses inputs during its production process.

^{141.} This calculation is based on previous GSMA analysis, which outlines the relationship between mobile penetration rates, infrastructure and productivity.

^{142.} The factor substitution effect is zero, as the productivity of all factors changes in the same proportions

^{143.} See, for example, HMRC, 2014, The Dynamic Effects of Fuel Duty Reductions; HMRC, 2013, The Dynamic Effects of Corporation Tax; and J. Giesecke and N. Nhi, 2009, "Modelling Value-Added Tax in the Presence of Multiproduction and Differentiated Exemptions".

Figure 22



Time path for the transition to the new equilibrium

Source: EY analysis

Closure rules in the macro-economic model

In order to account for labour market conditions in Pakistan, a specific closure rule has been applied in GTAP in relation to employment and wages.

The standard approach in CGE models is to assume that the supply of labour is fixed, and hence an increase in the demand for labour results in an increase in wages and prices, rather than employment. However, data from the International Labour Organization (ILO) demonstrates that there is a high level of unemployment in Pakistan among people with a high skill set.¹⁴⁴ Therefore the modelling in this study allows for elastic labour supply among technicians and associate professionals in GTAP, while the supply of the other categories of labour is assumed fixed at the baseline level.

Appendix B Scenario estimations

This Appendix sets out the detailed estimated mobile market and economic impacts of each of the tax scenarios, compared to a baseline case of no tax reform.

Scenario 1: Harmonisation of sales tax on mobile services to 17%

This scenario models the harmonization of the sales tax on mobile services in all provinces to the federal level of 17%.

Table 8

Annual impact of harmonisation of sales tax on mobile services to 17% on selected variables

Indicator	2019	2020	2021	2022	2023
MOBILE SECTOR IMPACTS					
Change in effective price of services ¹⁴⁵ vs baseline	-0.9%				
Incremental connections (total)	694,000	1,474,000	1,608,000	1,744,000	1,884,000
Incremental unique subscribers (total)	372,000	808,000	900,000	996,000	1,098,000
Incremental connections (3G and 4G)	499,000	1,333,000	1,733,000	2,165,000	2,624,000
of which technology migration	176,000	476,000	683,000	920,000	1,184,000
Incremental connections by low-income subscribers	422,000	901,000	988,000	1,085,000	1,191,000
ARPU (total) vs baseline	-0.5%	-0.1%	-0.1%	-0.04%	-0.03%
Increase in mobile penetration (connections)	0.3%	0.7%	0.8%	0.8%	0.9%
Increase in mobile penetration (unique subscribers)	0.2%	0.4%	0.4%	0.5%	0.5%
Increase in mobile penetration (unique MBB subscribers)	0.1%	0.4%	0.5%	0.6%	0.7%
Data usage vs baseline	1.0%	2.1%	2.2%	2.3%	2.3%
Data usage per connection vs baseline	0.6%	1.2%	1.2%	1.3%	1.3%
Increase in market revenue (total)	-\$1m	\$26m	\$28m	\$31m	\$34m
Increase in market revenue (total) vs baseline	-0.02%	0.8%	0.9%	1.0%	1.0%
Additional investment	\$4m	\$4m	\$4m	\$4m	\$4m
Static tax impact ¹⁴⁶	-\$33m	-\$32m	-\$33m	-\$33m	-\$34m
Impact on mobile sector taxation	-\$33m	-\$27m	-\$27m	-\$27m	-\$28m
WIDER ECONOMIC IMPACTS ¹⁴⁷					
Full impact on communications sector taxation ¹⁴⁸	-\$25m	-\$24m	-\$24m	-\$24m	-\$24m
Receipts from all other sectors	-\$5m	\$51m	\$64m	\$75m	\$79m
Total tax receipts	-\$30m	\$27m	\$41m	\$51m	\$55m
Cumulative total receipts	-\$30m	-\$3m	\$38m	\$89m	\$144m
Real GDP	\$1m	\$241m	\$298m	\$342m	\$360m (0.12%)
Employment		Impact estimated for 2023 only			7,003 (0.01%)
Household income		Impact estimate	ed for 2023 only		\$405m (0.13%)
Household expenditure		Impact estimated for 2023 only			\$332m (0.13%)
Investment		Impact estimate	ed for 2023 only		\$120m (0.27%)
Source: EY analysis					

145. The reported change in price refers to an effective price as opposed to a headline price. Therefore, any bonus airtime is treated as a decrease in effective price.

146. This is the initial direct cost to the Exchequer, before behavioural change in the sector and the economy; overstates the true cost.

147. For some of the variables included below, the impact has been calculated as at 2023.

^{148.} The productivity impact of the tax reform is assumed to take place in year 2 onwards, resulting in an increase in government tax receipts.

GGMA

Figure 23



Connections and penetration impacts of harmonisation of sales tax on mobile services to 17%

Source: EY analysis

Figure 24149

Main drivers of the market revenue change following harmonisation of sales tax on mobile services to 17%, \$m



Source: EY analysis

149. This figure demonstrates the factors driving the change in mobile market revenue compared to the baseline case on no reform.

Figure 25





Scenario 2: Harmonisation and reduction in sales tax on mobile services to 16%

This scenario combines harmonisation of sales tax on mobile services with a reduction of the harmonised rate to 16%¹⁵⁰

Table 9

Annual impact of harmonisation and reduction in sales tax on mobile services to 16% on selected variables

Indicator	2019	2020	2021	2022	2023
MOBILE SECTOR IMPACTS					
Change in effective price of services vs baseline	-1.2%				
Incremental connections (total)	955,000	2,031,000	2,213,000	2,399,000	2,589,000
Incremental unique subscribers (total)	513,000	1,113,000	1,239,000	1,371,000	1,510,000
Incremental connections (3G and 4G)	686,000	1,831,000	2,378,000	2,967,000	3,593,000
of which technology migration	240,000	651,000	932,000	1,253,000	1,612,000
Incremental connections by low-income users	581,000	1,240,000	1,360,000	1,492,000	1,636,000
ARPU (total) vs baseline	-0.6%	-0.1%	-0.1%	-0.1%	-0.04%
Increase in mobile penetration (connections)	0.5%	1.0%	1.0%	1.1%	1.2%
Increase in mobile penetration (unique subscribers)	0.3%	0.5%	0.6%	0.6%	0.7%
Increase in mobile penetration (unique MBB subscribers)	0.2%	0.5%	0.6%	0.8%	1.0%
Data usage vs baseline	1.4%	2.9%	3.1%	3.1%	3.2%
Data usage per connection vs baseline	0.8%	1.7%	1.7%	1.7%	1.7%
Increase in market revenue (total)	-\$1m	\$36m	\$39m	\$42m	\$46m
Increase in market revenue (total) vs baseline	-0.04%	1.2%	1.3%	1.3%	1.4%
Additional investment	\$5m	\$5m	\$5m	\$5m	\$5m
Static tax impact	-\$45m	-\$45m	-\$45m	-\$46m	-\$47m
Impact on mobile sector taxation	-\$46m	-\$38m	-\$38m	-\$38m	-\$38m
WIDER ECONOMIC IMPACTS					
Full impact on communications sector taxation	-\$34m	-\$33m	-\$33m	-\$33m	-\$33m
Receipts from all other sectors	-\$7m	\$71m	\$89m	\$103m	\$109m
Total tax receipts	-\$41m	\$37m	\$56m	\$70m	\$76m
Cumulative total receipts	-\$41m	-\$4m	\$52m	\$122m	\$198m
Real GDP	\$1m	\$333m	\$413m	\$472m	\$497m (0.16%)
Employment		Impact estimated for 2023 only			9,661 (0.02%)
Household income		Impact estimated for 2023 only \$560			
Household expenditure		Impact estimated for 2023 only \$459m (
Investment		Impact estimate	ed for 2023 only		\$167m (0.38%)
Source: EY analysis					

150. Both scenario 1 and scenario 2 use the current level of sales tax rates as a baseline.

Figure 26

Connections and penetration impacts of harmonisation and reduction in sales tax on mobile services to 16%



Source: EY analysis

Figure 27

Main drivers of the market revenue change following harmonisation and reduction in sales tax on mobile services to 16%, \$m



Figure 28



Harmonisation and reduction in sales tax on mobile services to 16% – annual impacts on tax receipts, \$m

Scenario 3: Elimination of the 8% minimum withholding tax on income from mobile services

This scenario would eliminate the 8% minimum withholding tax on income from mobile services.

Table 10

Annual impact of elimination of the 8% minimum withholding tax on income from mobile services on selected variables

Indicator	2019	2020	2021	2022	2023
MOBILE SECTOR IMPACTS					
Change in effective price of services vs baseline	-0.6%				
Incremental connections (total)	445,000	940,000	1,015,000	1,091,000	1,168,000
Incremental unique subscribers (total)	239,000	515,000	568,000	623,000	681,000
Incremental connections (3G and 4G)	312,000	825,000	1,052,000	1,293,000	1,547,000
of which technology migration	104,000	276,000	385,000	509,000	647,000
Incremental connections by low-income users	270,000	573,000	622,000	676,000	736,000
ARPU (total) vs baseline	-0.3%	-0.04%	-0.04%	-0.03%	-0.02%
Increase in mobile penetration (connections)	0.2%	0.5%	0.5%	0.5%	0.5%
Increase in mobile penetration (unique subscribers)	0.1%	0.2%	0.3%	0.3%	0.3%
Increase in mobile penetration (unique MBB subscribers)	0.1%	0.2%	0.3%	0.3%	0.4%
Data usage vs baseline	0.7%	1.3%	1.4%	1.4%	1.5%
Data usage per connection vs baseline	0.4%	0.8%	0.8%	0.8%	0.8%
Increase in market revenue (total)	-\$1m	\$17m	\$18m	\$19m	\$21m
Increase in market revenue (total) vs baseline	-0.02%	0.5%	0.6%	0.6%	0.6%
Additional investment	\$2m	\$2m	\$2m	\$2m	\$2m
Static tax impact	-\$21m	-\$21m	-\$21m	-\$21m	-\$21m
Impact on mobile sector taxation	-\$21m	-\$17m	-\$17m	-\$18m	-\$18m
WIDER ECONOMIC IMPACTS					
Full impact on communications sector taxation	-\$14m	-\$14m	-\$13m	-\$13m	-\$13m
Receipts from all other sectors	-\$3m	\$33m	\$41m	\$47m	\$50m
Total tax receipts	-\$17m	\$19m	\$27m	\$34m	\$36m
Cumulative total receipts	-\$17m	\$2m	\$30m	\$64m	\$100m
Real GDP	\$1m	\$151m	\$187m	\$214m	\$225m (0.07%)
Employment		Impact estimated for 2023 only			4,395 (0.01%)
Household income		Impact estimated for 2023 only			\$253m (0.08%)
Household expenditure		Impact estimated for 2023 only			\$207m (0.08%)
Investment		Impact estimate	\$75m (0.17%)		
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Figure 29

Connections and penetration impacts of elimination of the 8% minimum withholding tax on income from mobile services



Source: EY analysis

Figure 30

Main drivers of the market revenue change following elimination of the 8% minimum withholding tax on income from mobile services, \$m



Figure 31



Elimination of the 8% minimum withholding tax on income from mobile services – annual impacts on tax receipts, \$m

Source: EY analysis



For full report please visit the GSMA website at www.gsma.com

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