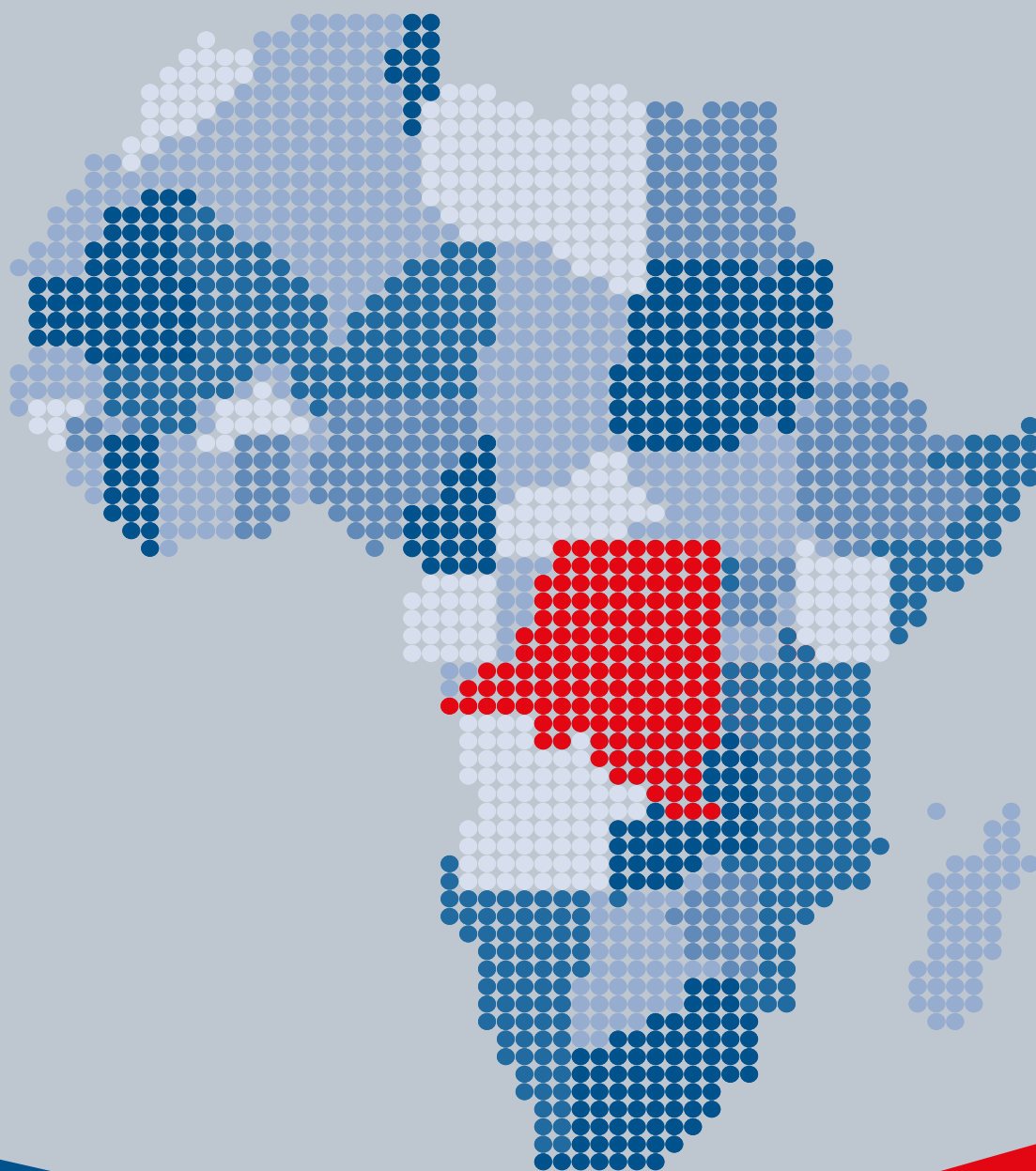




Reforming mobile sector taxation in the Democratic Republic of the Congo:

Enabling economic growth through a supportive
tax system





The GSMA represents the interests of mobile operators worldwide, uniting nearly 800 operators with more than 300 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and internet companies, as well as organisations in adjacent industry sectors. The GSMA also produces industry-leading events such as Mobile World Congress, Mobile World Congress Shanghai, 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 in the developing world. Mobile penetration and affordability enhance digital connectivity by expanding internet and broadband access, which in turn facilitate 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.

Supportive regulatory conditions should seek to offer the mobile industry the support it needs in order to thrive and maximise the opportunities available to consumers, businesses and governments. Within this, taxation is an important factor, with the need to achieve an appropriate balance between revenue maximisation, economic growth and social development.

In order to assess the potential benefits of a more efficient tax structure in the mobile sector, one which focuses on increasing mobile affordability and unlocking digital inclusion, the GSMA¹ has commissioned EY to undertake a study of the economic impact of potential tax reforms on the mobile sector in the Democratic Republic of the Congo (DRC).

This report analyses developments in the mobile sector and its tax treatment in the DRC, 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 the DRC has expanded rapidly, but a significant share of the population remain unconnected to mobile services due to limited network coverage and challenges around affordability.

In the DRC, the mobile industry is playing an increasingly important role in driving economic growth and digital inclusion across the country. The number of mobile subscribers has grown substantially from 4.9 million in 2007 to 29.3 million in 2017, at an annual average growth rate of 20%, increasing unique subscriber penetration from 8.2% to 35.5% over the same period. Total mobile sector revenues were \$1.1 billion in 2017;² equivalent to over 3.1% of the country's GDP.³

There remains significant scope to grow the mobile sector in the coming years. There is room to increase network coverage for both 2G (49%) and 3G services (41%),⁴ suggesting that the country could benefit from further investment in the sector, particularly in rural and low-income areas.⁵

Nonetheless, the rapid growth in mobile penetration has been impressive, especially given the practical and economic challenges of providing mobile services in the DRC. Initiatives to improve the DRC's infrastructure, such as the Electricity Access & Services Expansion (EASE) project,⁶ support the further development of the sector and the wider economy, but a number of challenges persist which act as barriers to further mobile sector growth:

- The DRC has a large and dispersed population, with low levels of education. This creates a challenging outlook for expanding network coverage and supporting the adoption of mobile service;

1. GSMA, <https://www.gsma.com/mea/>

2. GSMA Intelligence database

3. While market revenues have increased from \$1.0 billion in 2014 to \$1.1 billion in 2017, revenues have declined as a share of GDP from 4.9% in 2014 to 3.1% in 2017. This is primarily because of the strong economic growth experienced in the DRC over the period.

4. GSMA Intelligence database

5. *ibid.*

6. The World Bank, 2017, DRC Electricity Access & Services Expansion (EASE)

- Limitations in the DRC's transport and energy infrastructure affect both operators and consumers. Frequent power interruptions or lack of infrastructure contribute to high network roll-out costs, consumers receive limited network quality in some areas; and
- The complex regulatory environment facing mobile operators increases the cost of doing business. Operators are subject to both national and regional regulation, and are required to make payments to multiple revenue authorities.

In addition, the lack of affordability for mobile ownership in the DRC is a significant barrier. For example, the cost of the lowest consumption basket available in the market (100MB of data) is equivalent to 23% of the monthly income for individuals in the lowest two quintiles of the income distribution. This increases to 33% for the poorest 20% of the population. While low affordability is primarily driven by low per capita income, it also reflects relatively high taxation on usage (26% of tariff costs) and devices (44% of device costs) when compared to regional peers.⁷

Taxes on the mobile sector are disproportionately high compared to levels in other African countries.

The mobile sector contributes approximately 20% of total tax revenue, despite accounting for just 3.6% of GDP.⁸ This means the total tax contribution of the mobile sector is almost six times the size of the sector.

In 2016, the total tax contribution of the sector was estimated at \$358 million, accounting for 31% of the mobile sector's total market revenue. This tax burden is the highest among a sample of African countries, including Nigeria (9%), South Africa (20%), Rwanda (21%) and Senegal (22%). Mobile-specific taxes, including the excise duty on telecommunication services, represent a fifth of this tax burden.

Through policy reform, the Government of the Democratic Republic of the Congo has the opportunity to simplify and rebalance mobile sector taxation, supporting its national development objectives.

The DRC economy has been growing rapidly, with the economy expanding at an average rate of 6% per annum between 2012 and 2017. This is among the fastest growth rates in Africa, and is significantly above the average rate for the entire African continent (3.4%).

However, the DRC remains reliant on the mining sector as its engine of economic growth, with the sector's share of GDP increasing from 6% in 2002 to 19% in 2014.⁹ This leaves it vulnerable to volatility in global commodity markets. For example, falling global commodity prices in 2017 led to a decline in the value of the Congolese franc, which in turn led to higher inflation.¹⁰ The Government therefore needs to target greater economic diversification in the medium term, as highlighted by the International Monetary Fund (IMF) in 2015.¹¹ Further, the economy will require significant structural reform and investment in infrastructure development to generate sustainable growth.

The national development strategy, *Plan National Stratégique de Développement 2017-2021* (PNSD), has set out ambitious targets for the DRC in the medium term, including a goal to achieve middle-income status by 2021.¹² It also aims to reduce the infrastructure deficit, improve access to energy, diversify the economy, enhance the business climate and improve the competitiveness of the private sector. The mobile sector can play an important role in achieving these aims, by improving access to information, developing human capital and enhancing opportunities for trade. In addition, increased levels of 3G penetration will provide the DRC's population with improved access to the internet, as just 6.2% of individuals reported using the internet in 2016.¹³ To unlock significant socio-economic benefits, the Government can make steps to enhance the business environment for mobile operators, which include the exploration of tax reforms that can lead to a greater affordability of mobile technology for consumers.

7. GSMA Intelligence database, Tarifica

8. Based on EY analysis of operator's data

9. *ibid.*

10. Oxford Economics database

11. International Monetary Fund, 2015, "Democratic Republic of the Congo: Selected Issues".

12. République Démocratique du Congo, Plan National Stratégique de Développement 2017-2021 (PNSD) – http://www.budget.gouv.cd/2012/budget2017/sob2016/1_sob_2017_apercu_sur_pnsd_2017_2021.pdf

13. World Bank Databank

Tax reform in the sector is forecast to lead to considerable growth in mobile penetration and usage, particularly among low-income groups. This growth is also forecast to increase GDP and taxation revenue for the Government in the medium term.

- **Reducing excise duty on mobile services:** The reduction of excise duty on mobile services, from 10% to 3%, would make mobile services more affordable, and hence increase service consumption. This will reduce a distortive sector-specific tax, which previously acted as a barrier to the positive externalities associated with mobile consumption, such as connectivity, digital and financial inclusion. Specifically, the reduction in excise duty would have the following benefits:
 - Mobile penetration would increase by 2.8 million unique subscribers (2.8%) by 2023, equivalent to 3.6 million new connections, and mobile data usage would grow by 11.6%. This would increase sector revenues by \$62 million (5.2%).
 - GDP would grow by \$276 million (0.8%) by 2023, and annual tax receipts would increase by approximately \$21 million (0.2%), a cumulative fiscal gain of over \$31 million over five years.
- **Reducing the numbering tax payable by operators:** The reduction of the numbering tax from \$0.45 per number to \$0.225 per number, would decrease the costs of assigning customers with a telephone number, and hence reduce the barriers to accessing mobile services. The reduction of this tax will decrease the distortions associated with sector-specific taxes and fees, and will lessen the barriers to new subscribers in the DRC. Furthermore, the reform would increase the incentive to expand network coverage by reducing the marginal cost of connections. This would have the following benefits:
 - Mobile penetration would increase by 0.8 million unique subscribers (0.8%) by 2023, equivalent to 1 million new connections, and mobile data usage would grow by 3.2%. This would increase sector revenues by \$18 million (1.5%).
 - GDP would grow by \$79 million (0.2%) by 2023, and annual tax receipts would increase

by approximately \$6 million (0.1%), a cumulative fiscal gain of over \$12 million over five years.

- **Eliminating the tax on mobile money turnover:** The DRC Government removed the tax on mobile money turnover in the 2018 Finance Bill.¹⁴ This tax reform will improve the affordability of transferring money via mobile phones, and will thereby benefit Congolese people that have been historically excluded from financial services and products (e.g. those in rural communities). Increasing the accessibility of the mobile money service will lead to increased financial inclusion and increase the size of the formal economy for other measures, such as income tax purposes. The benefits of this tax reform have been modelled in order to demonstrate the positive impacts that the Government's decision can be expected to have, and to inform future policy in this area:
 - An additional 122,000 individuals per annum will subscribe to mobile money services in 2023, reflecting a 0.5% cumulative increase against the baseline. By 2023, there would be 628,000 additional mobile money transactions in the DRC per annum, equating to an additional \$16 million of value transferred. This would increase sector revenues by \$0.2 million (0.02%).
 - GDP would grow by \$15 million (0.04%) by 2023, and annual tax receipts would increase by over \$2.7 million (0.03%), a cumulative fiscal gain of over \$8.5 million over five years.

The growth in the sector, under all scenarios, can be expected to lead to wider societal benefits, through increasing access to mobile data and broadband, particularly among lower income rural communities, as more than 70% of new subscribers come from low-income groups in all scenarios. The boost to mobile penetration is also forecast to lead to growth in productivity across the economy, and hence an increase in GDP, household incomes, employment and investment.

Moreover, all reforms are expected to be self-financing in terms of their impact on government revenues in the medium term, as the expansion of the sector and wider economy increases government revenues beyond Year 2 (2020).

14. Government of the Democratic Republic of the Congo, 2017, "2018 Finance Bill", <http://www.budget.gouv.cd/budget-2018/circulaires-2018/>

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

1.1 Macroeconomic overview

The DRC economy has strong growth potential, but significant structural reforms are required.

The Democratic Republic of the Congo (DRC) economy has been growing rapidly in recent years, with the economy expanding at an average rate of 6.0% per annum between 2012 and 2017. This is among the fastest growth rates in Africa, and is significantly above the average rate for the entire African continent (3.4%). Gross domestic product (GDP) was estimated to be \$33.9 billion in 2017, the 20th highest in Africa.

On the back of this economic growth, the poverty rate in the DRC¹⁵ has decreased from 69.3% in 2004 to 63.9% in 2012.¹⁶ Reducing poverty levels were supported by disinflation over the same period, as inflation dropped from 21.3% in 2005 to 1.4% in 2015.¹⁷

However, despite the economic developments made in recent years, the DRC remains a low-income country, with GDP per capita among the lowest in the world, at \$444 in 2017. As shown in Figure 1, this is significantly below the Sub-Sahara African (SSA) average.



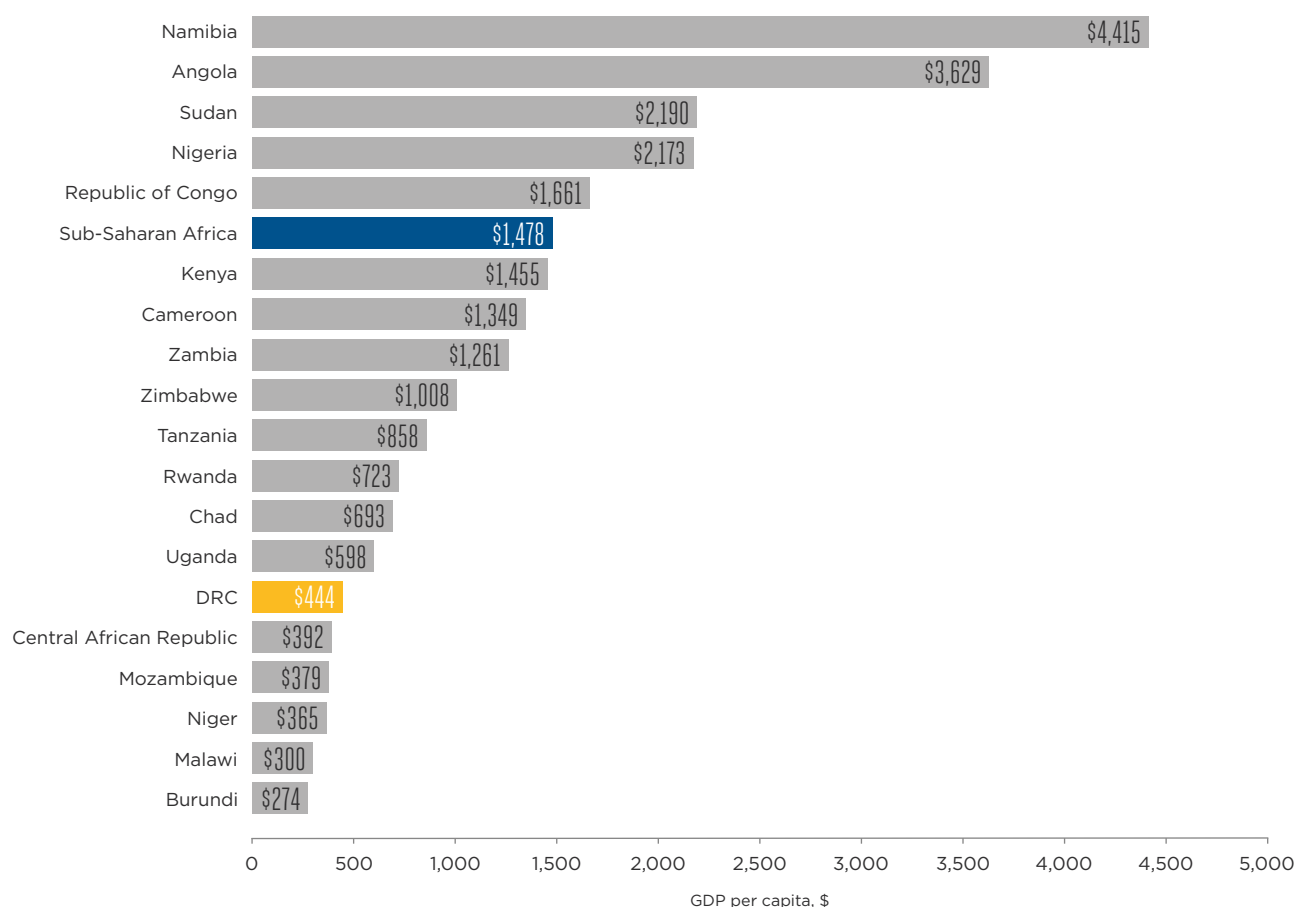
15. According to national poverty lines, which in 2012 was at CDF 869.210 (\$0.95) in urban areas and CDF 579.248 (\$0.63) in rural areas.

16. World Bank Databank

17. Oxford Economics database

Figure 1

GDP per capita in selected African countries, 2016



Source: Oxford Economics database

The DRC economy faces a range of risks in the short term, as sustaining high levels of growth has become increasingly challenging. Limited diversification in the DRC economy exposes the country to significant external market risks. For example, high exposure to falling prices and weakening demand for copper and cobalt products (which make up approximately 89% of exports by value)¹⁸ contributed to a 43% devaluation of the Congolese franc against the dollar in 2017, and a sharp increase in inflation (35%).¹⁹

As shown in Figure 2, mineral rents represented 14% of GDP in 2015, a ratio which is significantly higher than the Sub-Saharan Africa average. The need for greater economic diversification was highlighted as a priority for structural reform by the International Monetary Fund (IMF) in 2015,²⁰ which noted that economic diversification is associated with higher levels of income per capita.²¹

18. UN Comtrade database

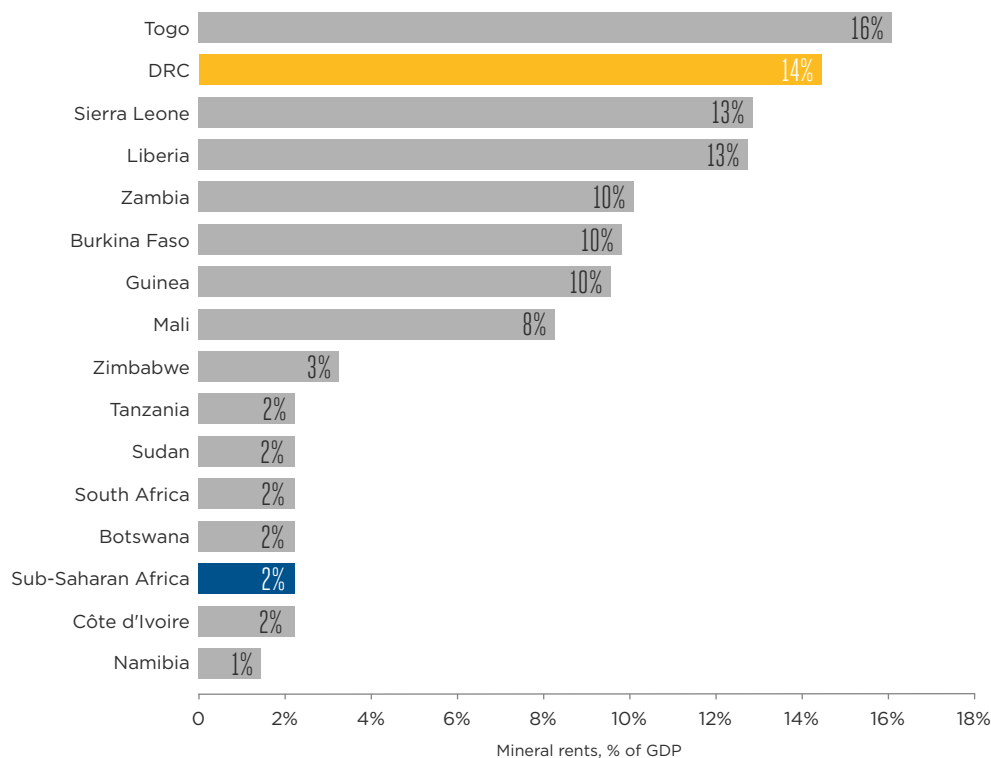
19. Oxford Economics database

20. International Monetary Fund, 2015, "Democratic Republic of Congo: Selected Issues".

21. Imbs, J., Montenegro, C. and Wacziarg, R., 2012, "Economic integration and structural change".

Figure 2

Mineral rents (% of GDP), for selected African countries, 2015



Source: World Bank Databank

The national development strategy for the DRC, the *Plan National Stratégique de Développement 2017-2021* (PNSD), targets middle-income status by 2021.²² The PNSD sets out ambitious objectives, which include reducing the infrastructure deficit, improving access to energy, diversifying the economy, enhancing the business climate and improving the competitiveness of the private sector. The mobile sector can play an

important role in achieving these aims, by improving access to information, developing human capital and enhancing opportunities for trade. The creation of a more efficient tax structure will improve the business climate facing mobile operators, and will unlock significant socio-economic gains for the wider economy.

22. République Démocratique du Congo, Plan National Stratégique de Développement 2017-2021 (PNSD) – http://www.budget.gouv.cd/2012/budget2017/sob2016/1_sob_2017_apercu_sur_pnsd_2017_2021.pdf

1.2 Fiscal overview

The DRC has benefitted from prudent fiscal policy in recent periods, but remains vulnerable to shocks.

The DRC Government has adopted a prudent fiscal policy in recent periods, significantly reducing expenditure in an attempt to contain the growing fiscal deficit. The Government's fiscal balance deteriorated from 3.5% of GDP in 2013 to an estimated -0.3% in 2017,²³ driven primarily by external factors, which led to decreased export revenues from the mining sector.²⁴

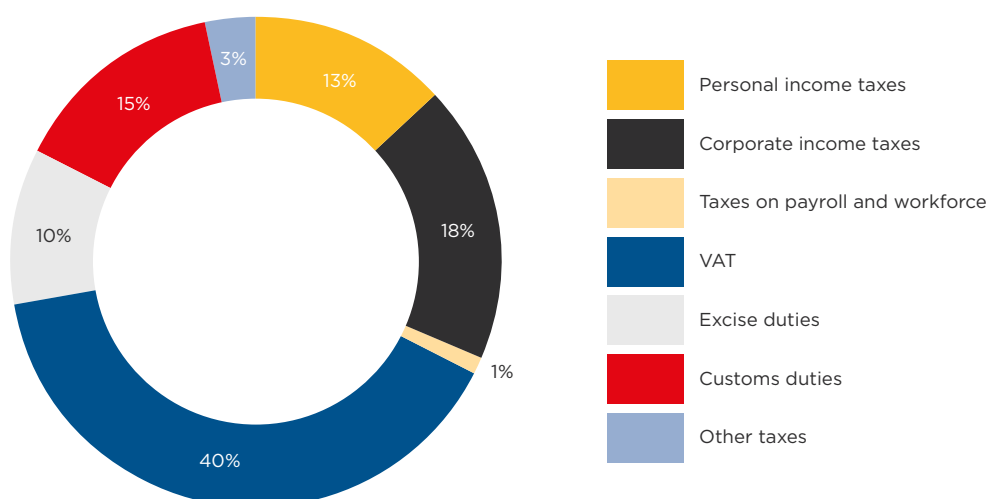
Total tax revenue collected by the DRC Government represented approximately 11.5% of GDP in 2015.²⁵ In 2016 the mobile sector contributed approximately

20.2% of total tax revenue, despite accounting for just 3% of GDP.²⁶ This is disproportionately high compared to other sectors, for example, the mining sector, which accounts for a much higher proportion of GDP (approximately 20%) and contributes 25% of total tax revenue.²⁷

A full breakdown of tax revenue in 2015 is provided in Figure 3, and shows that VAT accounted for approximately 40% of total tax revenue for government during the year. Corporate income taxes accounted for 18% of tax revenue, while customs duties and excise duties represented 15% and 10% respectively.

Figure 3

Composition of tax revenue, DRC, 2015



Source: OECD

In response to the growing fiscal deficit, the DRC Government has reduced expenditure, as a percentage of GDP, from 18.3% in 2014 to an estimated 13.3% in 2017.²⁸ The prudent fiscal policy adopted by the DRC Government has also led to decreasing gross government debt levels over the past decade, falling from 86.9% in 2007 to 20.5% in 2017.²⁹ As a result of this improvement, the World Bank and IMF have upgraded the DRC to a moderate risk of debt distress,³⁰ from a previously high risk of debt distress in 2012.

The DRC Government should consider its fiscal policy in the context of the broader development aims set out in the PNSD. This includes directing government expenditure to the most productive sectors to enable the development of a more diversified and ICT-enabled economy. As such, tax policy should take into account the distortive impacts of taxation on certain sectors (e.g. mobile), which have the potential in the short-to-medium term to generate significant additional economic activity and tax revenues.

23. Oxford Economics database

24. World Bank, 2017, Democratic Republic of Congo

25. OECD and Oxford Economics database

26. Based on EY analysis of operator's data

27. The Extractive Industries Transparency Initiative, 2015, <https://eiti.org/DR Congo#contribution-of-the-extractive-industry-to-the-economy>

28. Oxford Economics database

29. *ibid.*

30. IMF, 2015, "Democratic Republic of the Congo: Debt Sustainability Analysis", IMF Country Report No. 15/280. <https://www.imf.org/external/pubs/ft/dsa/pdf/2015/dsacri5280.pdf>

1.3 Demographic overview

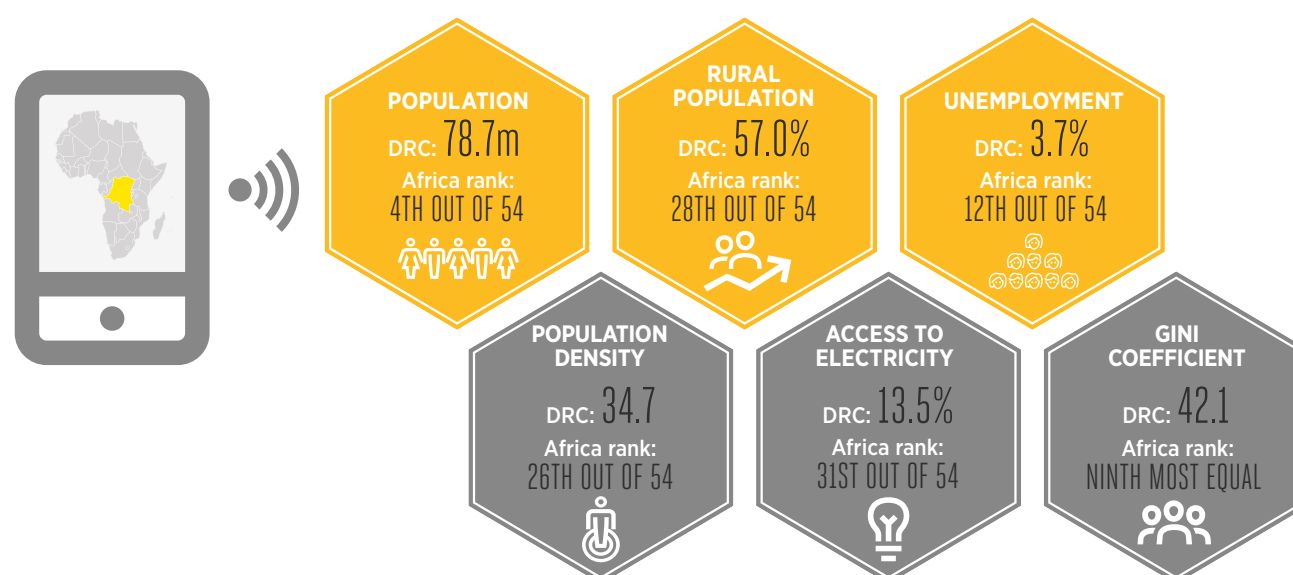
Rapid population growth and increasing rates of urbanisation pose a challenge to infrastructure and services in the DRC.

Figure 4 provides a demographic overview of the DRC. The DRC has the fourth largest population in Africa (78.7 million in 2016), 57% of which live in rural areas.³¹ The population has grown rapidly over

the past 20 years, expanding at an average rate of 3.0% between 1997 and 2017.³² This has been largely driven by an improvement in life expectancy, which has risen from 50 years in 2000 to over 59 years in 2015.³³ Unemployment, according to the International Labour Organization's (ILO) harmonised definition,³⁴ is relatively low at 3.7% in 2017.³⁵

Figure 4

Overview of demographics in the DRC



Source: Oxford Economics database, World Bank Databank, EY analysis

As shown in Figure 5, the proportion of the population living in rural areas has declined steadily from approximately 78% in the 1960's, to around 57% in 2016.

31. World Bank Databank

32. *Ibid.*

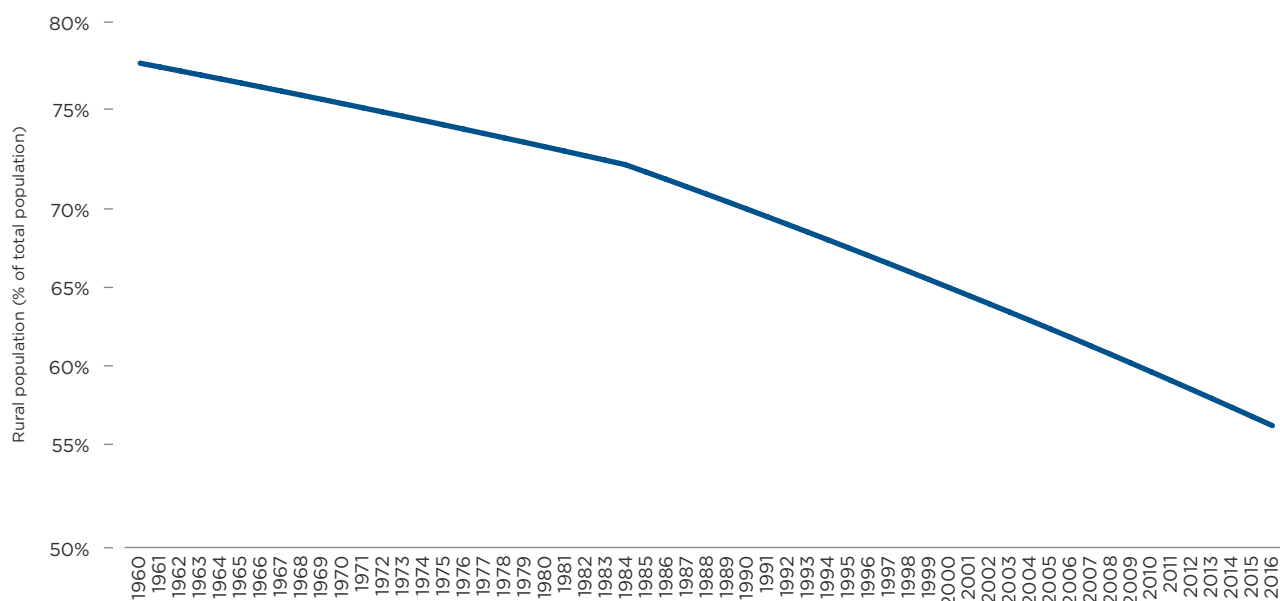
33. *Ibid.*

34. As defined by the International Labour Organization, "unemployed workers" are those who are currently not working but are willing and able to work for pay, currently available to work, and have actively searched for work.

35. ILOSTAT

Figure 5

Rural population (% of total population), 1960–2016



Source: World Development Indicators, World Bank Databank

The increasing rate of population growth and urbanisation poses a challenge to government to ensure that the appropriate investment is made in infrastructure to support this growing urban population, particularly in respect of transport and energy infrastructure. There are a number of factors which complicate the development of infrastructure networks in the DRC, including the terrain and climate of the Congo Basin, the country's low population density, extensive forests and large distances between villages and cities. The average

electrification rate in the DRC is 13.5%,^{36,37} however, it is significantly lower for rural areas; in 2014, just 0.4% of the DRC's rural population had access to electricity, compared to 42% of those in urban areas.³⁸

In addition to limited access to electricity, the percentage of the population who are internet users³⁹ is relatively low in the DRC when compared to regional peers, at 6.2%. As shown in Figure 6, this is roughly 14 percentage points lower than the regional average.

36. World Bank Databank

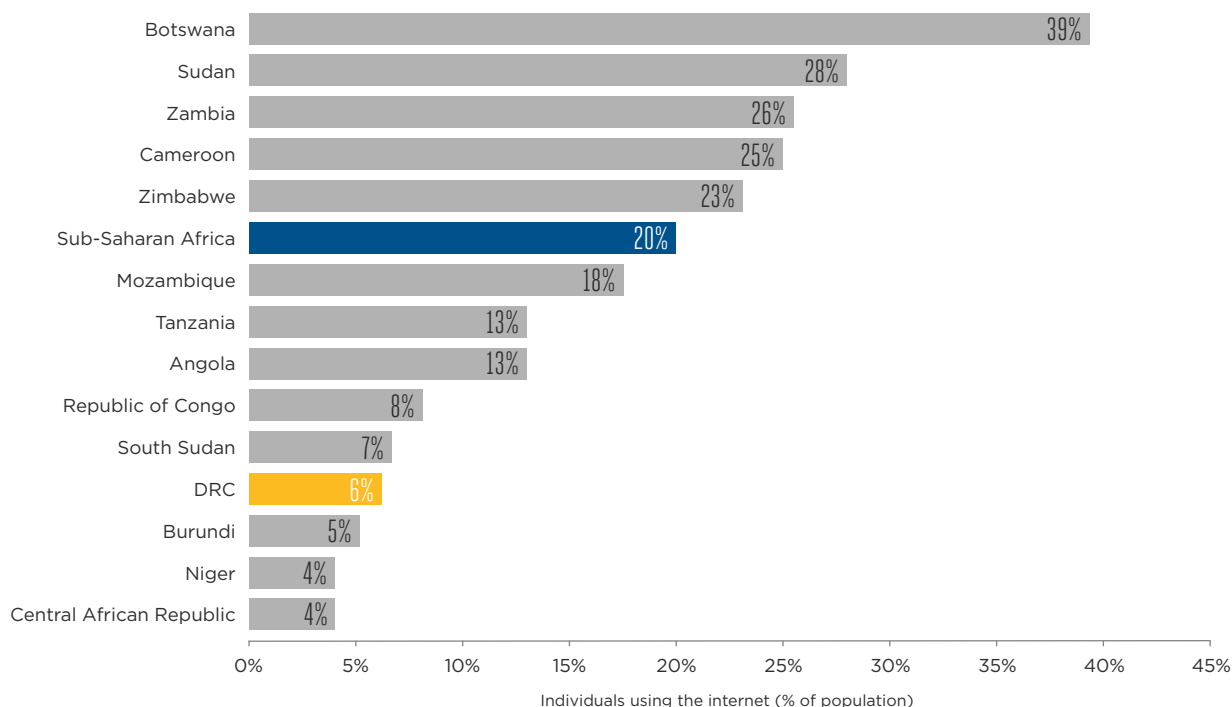
37. The electrification rate is defined as the proportion of the total population with access to electricity

38. World Bank Databank

39. Internet users are individuals who have used the Internet (from any location, and through any technology, i.e. fixed or mobile) in the last three months

Figure 6

Individuals using the internet (% of population) in selected African countries, 2016



Source: World Development Indicators, World Bank Databank

Increasing access to electricity and internet services are considered as policy priorities for the DRC Government. The Government plans to stimulate access in these areas through the Electricity Access & Service Expansion Project (EASE). EASE aims to expand access through both public and private sector funding, and will provide debt and grant support to implement qualifying access sub-projects.⁴⁰

The Government's commitment to developing infrastructure in the DRC, and specifically to promote conditions for a digital economy, represents an opportunity to increase mobile connectivity. By providing a tax environment which is conducive to private and foreign investment, the mobile sector can play an important role in expanding access to electricity and internet services in the DRC.

1.4 Mobile market in the DRC

The mobile market in the DRC is rapidly expanding, yet almost two-thirds of the population remain unconnected to mobile services in 2017.

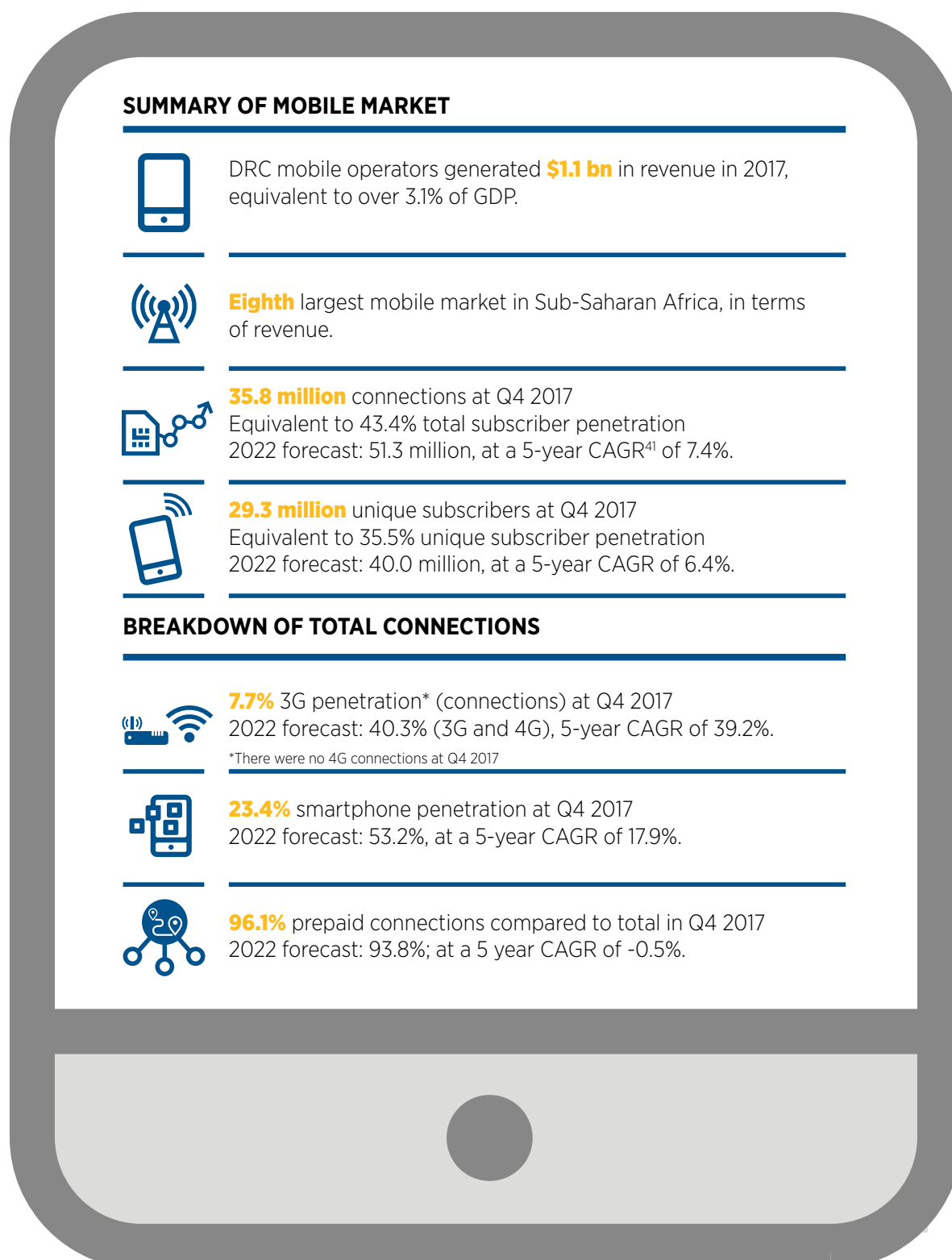
The mobile market in the DRC has grown rapidly over the past decade, with the number of unique subscribers increasing by 24.4 million between 2007

and 2017, an average annual growth rate of 20%. However, as demonstrated in Figure 7, which provides an overview of the mobile market in the DRC, there is still significant space to further expand the sector, with low penetration levels for 3G and smartphone usage.

40. The World Bank, 2017, "DRC Electricity Access & Services Expansion (EASE)".

Figure 7

The DRC's mobile market in figures



Source: GSMA Intelligence, EY analysis

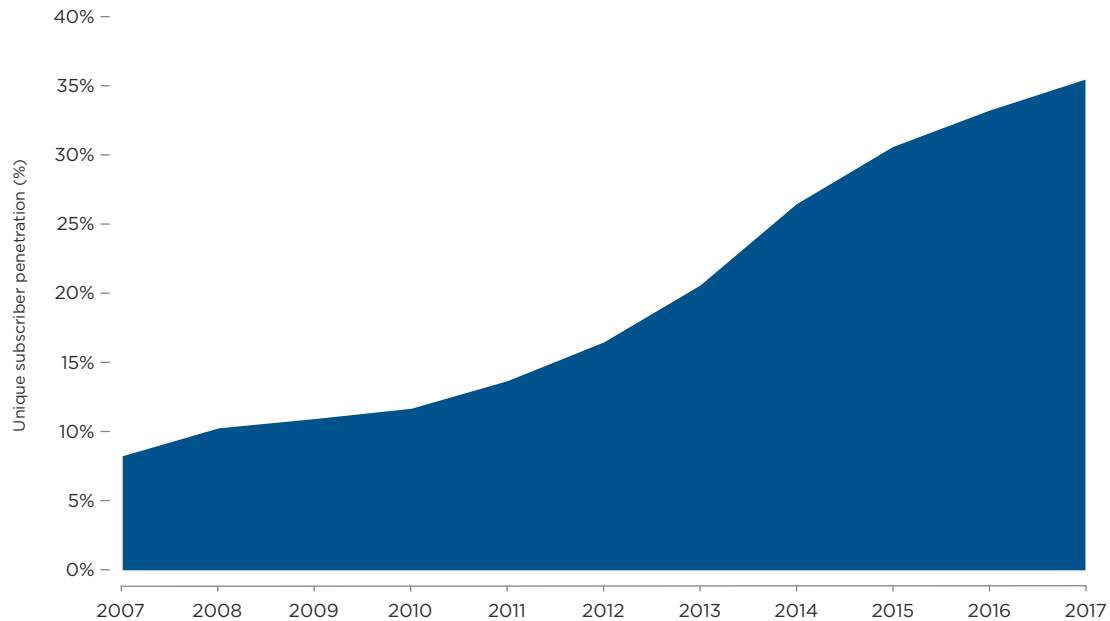
41. Compound annual growth rate (CAGR) is the mean annual growth rate for the period.

As demonstrated in Figure 8, unique subscriber penetration has grown rapidly over the past decade, with

35.5% of the population connected at the end of 2017 (equivalent to 43.4% penetration in total connections).

Figure 8

Unique mobile subscriber penetration in the DRC, 2007-2017



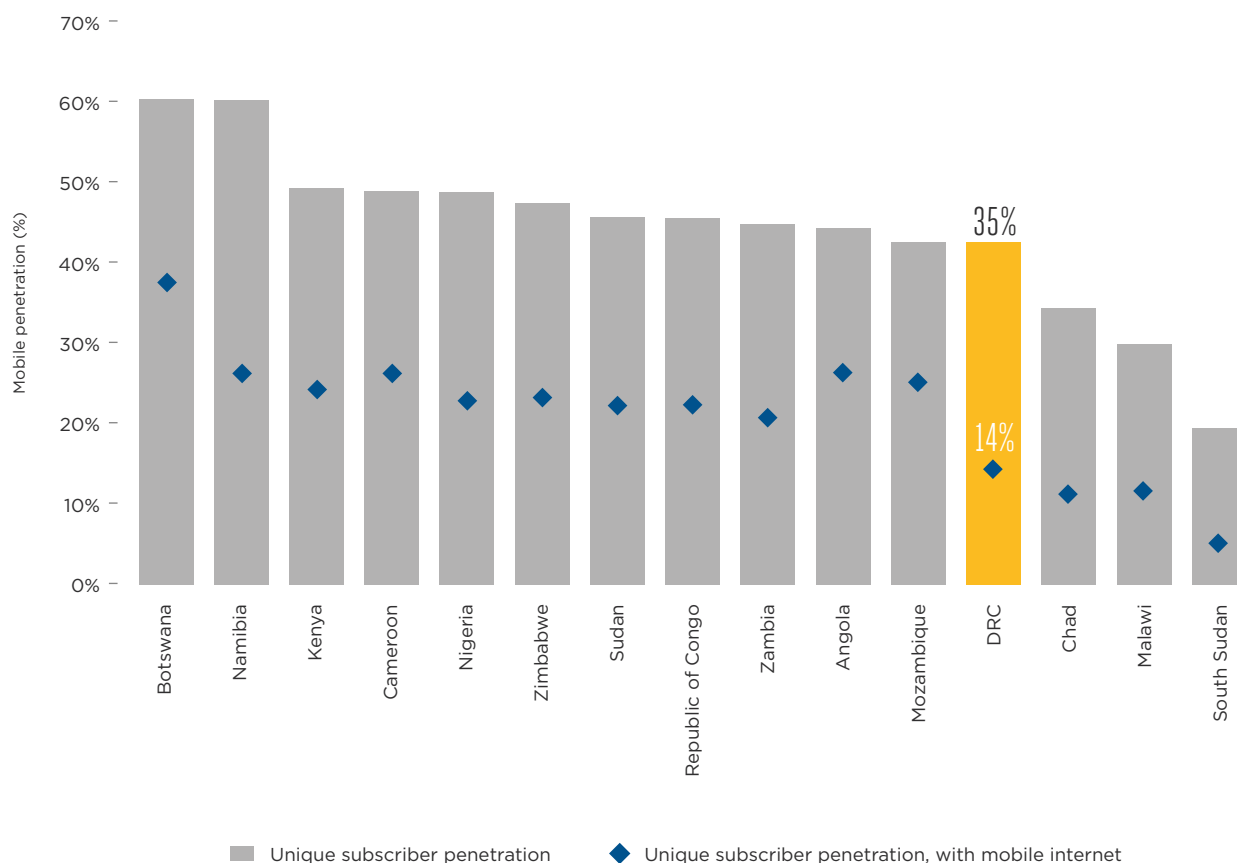
Source: GSMA Intelligence database

While growth in mobile penetration has been impressive, there is still considerable room for expansion, as almost two-thirds of the population remain unconnected to mobile services and a large proportion of the population are not covered by 2G networks. As shown in Figure 9, the DRC ranks below a number of regional peers when it comes to

unique subscriber penetration. Access to mobile data services is similarly low, with just 14.2% of individuals having access to mobile internet. This relatively low penetration reflects both limited 3G network coverage (41%) and the lack of affordability for more advanced mobile technologies (smartphones and 3G services).

Figure 9

Mobile penetration (unique subscribers, all and with mobile internet) in selected African countries, 2017



Source: GSMA Intelligence database

As shown in Figure 10, the mobile market in the DRC is dominated by 2G services, with penetration of 3G relatively low at just 8% (total connections) at the end of 2017, ranking 44th out of the 54 countries in Africa. However, penetration (total connections) for 3G is expected to surpass 2G by 2020, reaching approximately 24% in Q4 2020.

The relatively slow roll out and adoption of 3G and 4G technologies is reflective of the low affordability of internet-enabled mobile services and handsets in the DRC, and the challenging economics of providing networks in rural areas. Furthermore, the deployment of 4G infrastructure is heavily dependent on spectrum allocation policies which can facilitate investment.

Deficiencies in the DRC's transport and energy infrastructure also increase the potential costs of

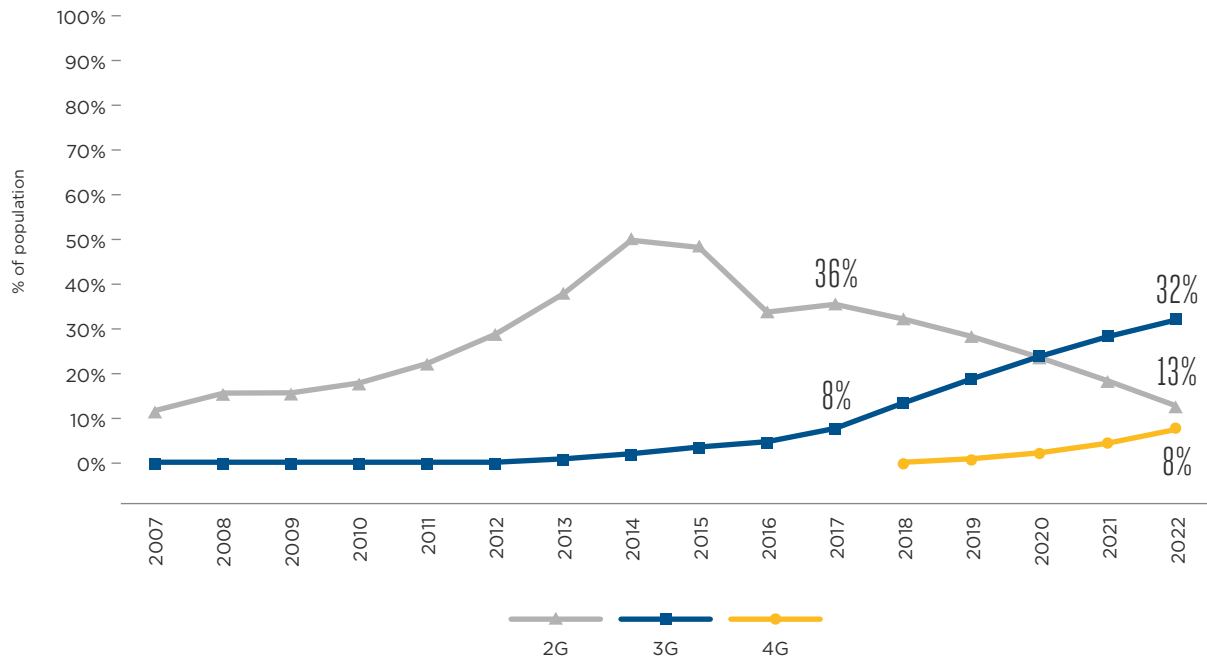
network roll-out, while limited electricity access also acts as a barrier to smartphone adoption, as these devices typically have shorter battery life. While these structural challenges act as a barrier to connectivity, they can be overcome by government initiatives which align telecommunications policy with broader infrastructure initiatives, such as rural electrification programmes.

While combined penetration of 3G and 4G services is expected to grow to over 40% of the population by the end of 2022, this still leaves over half of the population without access to modern mobile technologies. Increasing the penetration of 3G and 4G will be important for the DRC in the medium term, as current access to internet services is limited and expensive.⁴²

42. Telecom Market Research, March 2016

Figure 10

Market penetration rate (total connections), by technology



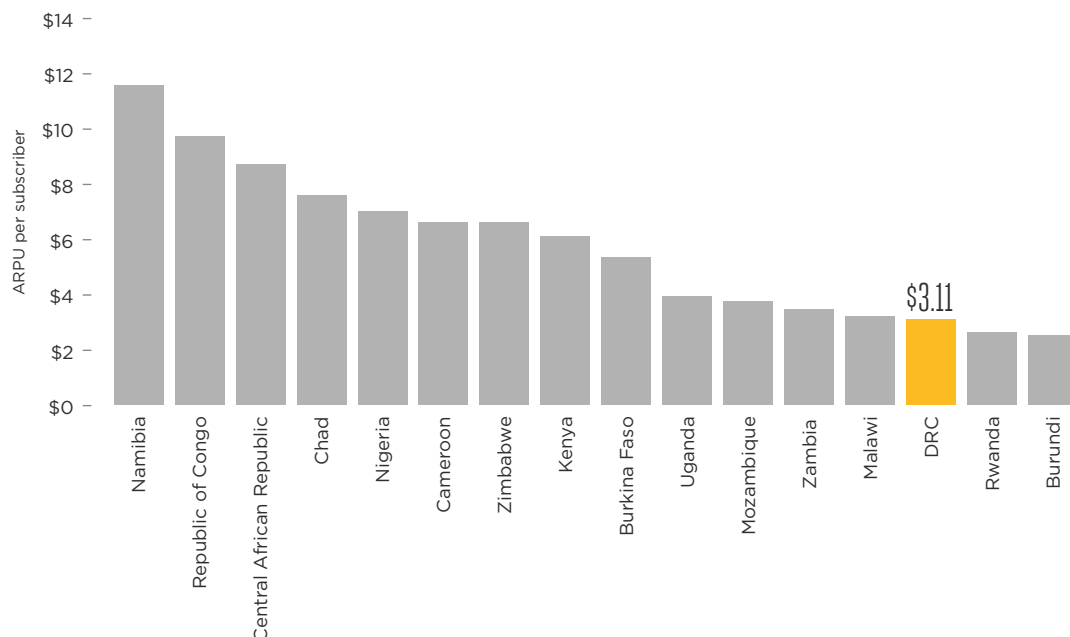
Source: GSMA Intelligence database

Monthly average revenue per user (ARPU) is relatively low in the DRC, compared to other mobile markets in Sub-Saharan Africa (see Figure 11), at an estimated

\$3.11 in Q4 2017. This low ARPU is largely driven by the DRC's low income levels and limited penetration of 3G services.

Figure 11

Average revenue per user (unique subscribers), 2017



Source: GSMA Intelligence database

1.5 Affordability of smartphones and mobile services in the DRC

The lack of affordability of mobile services and handsets is a key barrier to mobile connectivity in the DRC, and limits the benefits that the sector can bring.

Lack of affordability can represent a significant barrier to connectivity, particularly for those at the bottom of the economic pyramid. GSMA analysis highlights that countries with a relatively high cost of mobile ownership (including both device and airtime/data) as a share of income per capita⁴³ typically have lower penetration rates.⁴⁴ A lack of affordability has been cited by up to 80% of people in developing countries as the primary barrier to mobile access and usage.⁴⁵

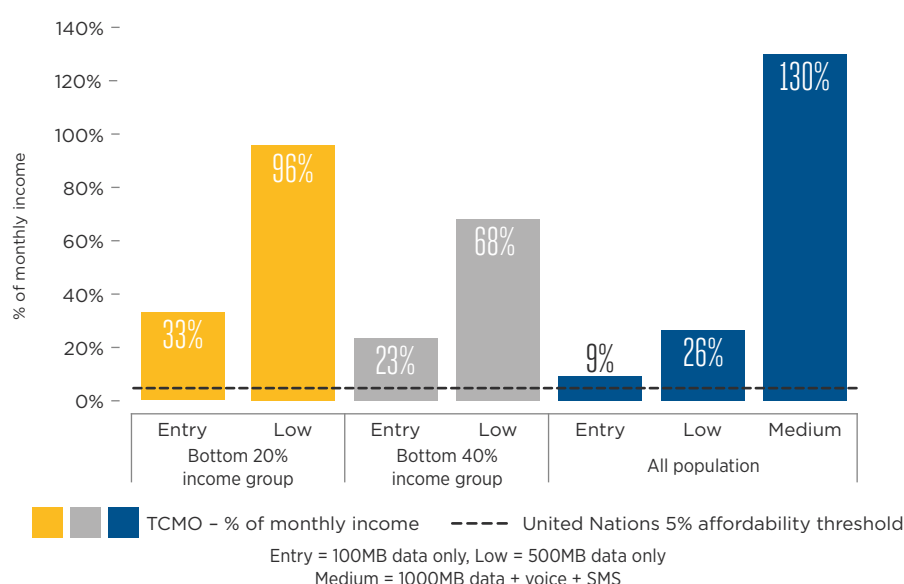
A basic measure of affordability of mobile services is the proportion of monthly income which is spent on mobile services and devices. For a range of countries, income groups and consumption baskets, the GSMA estimates the total cost of mobile ownership (TCMO), which assists in identifying the elements affecting the affordability of mobile services and devices.⁴⁶ In the DRC, in addition to usage and device costs, low access to electricity, particularly in rural areas (0.4%), can mean that subscribers incur additional time and cash costs for charging phones.

Figure 12 shows the TCMO as a proportion of monthly income for the two lowest income quintiles in the DRC, compared to the entire population. For the lowest consumption basket available (100MB), those in the lowest two quintiles spend approximately 23.4% of their monthly income on mobile ownership, which increases to 33.0% for those in the lowest quintile. The cost of a low consumption basket (500MB) represents approximately 95.7% of the average monthly income level for those individuals in the bottom 20% of the income distribution. This is significantly above the 5% affordability threshold outlined by the United Nation's Broadband Commission.⁴⁷ More data-intensive consumption baskets (e.g. 1GB and 5GB) represent a cost which is more than three times the income levels for those individuals in the poorest 40% of the population, with a 1GB basket priced above the average income level for the country (1.3 times).

Given the increased importance of data in both economic and social settings, the lack of affordability of mobile ownership in the DRC represents a significant barrier to mobile connectivity, and could prevent wider uptake of data services.

Figure 12

TCMO as a proportion of monthly income in the DRC, 2016



Source: GSMA Intelligence database, Tarifica

43. Defined as Gross National Income (GNI) per capita

44. GSMA, 2016, "Digital Inclusion and Mobile Sector Taxation".

45. GSMA Connected Women, 2015, "Bridging the gender gap: mobile access and usage in low- and middle-income countries".

46. TCMO consists of the cost of a handset, activation and usage costs. It is typically calculated as a cost per month, and assumes a life expectancy of a device of 36 months for medium and low-income countries, and 24 months for high and very high-income countries.

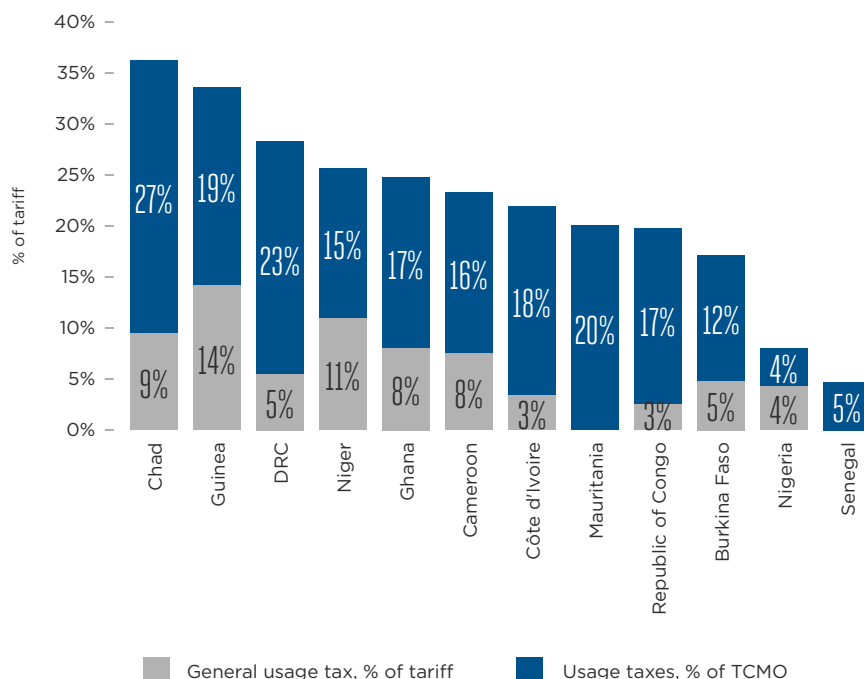
47. UN Broadband Commission (2017). ICT expenditure reflects mobile broadband prices, prepaid handset-based 500 MB. For further information: http://broadbandcommission.org/Documents/ITU_discussion-paper_Davos2017.pdf

The lack of affordability of mobile services in the DRC is exacerbated by the high levels of taxation on usage and devices. As shown in Figure 13, taxes represent a relatively high share of mobile ownership costs (28%) compared to other countries in Sub-Saharan Africa. Device taxes account for

approximately 5% of mobile ownership costs in the DRC (44% of device costs), acting as an initial barrier to mobile ownership. Usage taxes represent 23% of TCMO (26% of tariff costs), which limits the affordability of mobile consumption.

Figure 13

Taxes as a proportion of TCMO (500MB data basket), 2016



Source: GSMA Intelligence database, Tarifica

1.6 The socio-economic contribution of the mobile sector

Mobile operators directly contribute to the DRC economy, with total revenues of \$1.1 billion in 2017.

Total mobile sector revenues in the DRC were \$1.1 billion in 2017⁴⁸ equivalent to over 3.1% of GDP.⁴⁹ However, the benefits to the economy go beyond this direct impact: mobile operators support a much wider mobile ecosystem, including mobile applications and mobile content developers, mobile infrastructure providers, mobile distribution and retail companies and mobile device manufacturers. These companies create further economic activity in the DRC by buying products and services from the 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. The effects of mobile connectivity on an economy are largely delivered through its impact on productivity. Improvements in mobile connectivity can improve communication and trade within an economy, while also making a country more attractive for foreign investment. In addition, added connectivity can boost tourism and allow firms to access a broader pool of labour.⁵⁰

The benefits of mobile connectivity—and how it translates to the wider economy—have been widely studied. For example, a literature review by the International Telecommunication Union (ITU) finds that a 10% increase in mobile broadband penetration leads to a 0.25% to 1.38% increase in GDP.⁵¹ Further, 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%.⁵²

CASE STUDY

Mogribu⁵³

In the DRC, Mogribu is a web and SMS mobile application that helps farmers decide when and how to plant crops, how to select the best crops for a given location using climate and weather data and connects them to the available market. It helps connect farmers to buyers, helps them to obtain necessary information (e.g. weather, crop pricing) and acts as useful source for guidance on farming techniques and skill development (e.g. how to plant crops, how to use fertilisers).

Mobile networks promote digital inclusion and can bridge the digital divide.

Where fixed broadband coverage is low (as is the case in the DRC, where less than 1.4 in 100,000 individuals have fixed broadband subscriptions⁵⁴), mobile networks are central to promoting digital inclusion due to the lower cost of network roll out. Mobile services can enhance digital inclusion in the economy by ensuring equal opportunity and access to information. For example, the large rural communities in the DRC, representing 57% of the population, can gain greater access to the knowledge and digital economy.

Mobile technology also removes other barriers to accessing broadband services, including the need of a permanent address, affordability of ownership of a PC or laptop and access to a bank account. As of 2016, just 6.2% of households in the DRC were internet users.⁵⁵ Increased roll-out of mobile broadband services will therefore be key to addressing the low level of access to internet services, particularly because the fixed broadband network is limited.

48. GSMA Intelligence database

49. While market revenues have increased from \$1.0 billion in 2014 to \$1.1 billion in 2017, revenues have declined as a share of GDP from 4.9% in 2014 to 3.1% in 2017. This is primarily because of the strong economic growth experienced in the DRC over the period.

50. Oxford Economics, 2013, "The Economic Value of International Connectivity".

51. ITU, 2012, "The Impact of Broadband on the Economy: Research to Date and Policy Issues".

52. LECG, 2009, "Exploring the Relationship Between Broadband and Economic Growth", and Waverman et al., 2009, "Economic Impact of Broadband: An Empirical Study".

53. Venture Capital for Africa, available at: <https://vc4africa.biz/ventures/mobile-agribusiness-mogribu/>.

54. World Development Indicators, World Bank Databank

55. *ibid.*

Mobile phones have proven to be a significant transformational technology, allowing access to innovative mobile applications and services.

Mobile technology has the ability to enable more efficient delivery of public services and to improve access to healthcare and education services for underserved and remote populations. Its portability, traceability and affordable computing power means mobile technology is well positioned to deliver wide ranging and highly customisable services to large numbers of people.

Mobile money can expand access to financial services, providing low-income individuals 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 without access to traditional financial services.

The gains for public finances from working with providers to digitise payments are potentially significant. Electronic payments can increase the transparency of transactions, and hence reduce the level of uncollected taxes from the shadow economy, benefiting the Government's fiscal position.⁵⁶ A recent report by the GSMA on person-to-government payments in Kenya demonstrated how government support for mobile money can enlarge the tax base. By digitising payments due to it from motorists, the Kenya National Transportation Safety Authority saw an increase in monthly revenue from \$1.1 million in July 2015 to \$2 million in October 2016.⁵⁷

In 2014, just 12% of adults in the DRC reported having a bank account. This rate was lower for low-income individuals (8%),⁵⁸ individuals in rural areas (5%) and farmers (4%).⁵⁹ There is therefore a strong opportunity to promote financial inclusion in the DRC through the use of mobile money services.

Following the granting of mobile money licences to mobile operators, approximately 2.8 million customers were registered with accounts between February 2012 and December 2013, representing an activation rate of 13.3%. Over this period, the service facilitated 1.2 million transactions, worth more than \$30.7 million.⁶⁰

The Government's priorities for enhancing financial inclusion in the DRC are set out in the *DRC Financial Inclusion Roadmap 2016–2021*, and contains the overarching policy goal of increasing access to at least one form of financial service from 32% in 2015 to 46% in 2021.⁶¹ As part of the roadmap, mobile operators will play a key role in extending the footprint and usage of financial services through mobile money.

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.⁶² In a number of countries, including the DRC, mobile healthcare has already been shown to be effective for triaging rural patients who cannot reach urban tertiary care centres, and for enabling video-based consultations using mobile broadband, thereby making healthcare accessible to this underserved population.⁶³

m-Health services also have the potential to support continued improvements in health outcomes in the DRC. Maternal mortality has decreased from 879 deaths per 100,000 live births in 1990 to 693 in 2015, while mortality rates among the under-fives have decreased from 184 per 1,000 live births in 1990 to 94 in 2016.⁶⁴

56. EY (2016) Reducing the Shadow Economy through Electronic Payments.

57. GSMA, 2017, "Rethinking mobile money taxation", <https://www.gsma.com/mobilefordevelopment/programme/mobile-money/rethinking-mobile-money-taxation>

58. "Low income" is defined by UNCDF as individuals earning below \$100 per annum.

59. UNCDF, 2016, "Making Access Possible: Democratic Republic of the Congo", http://www.cenfri.org/documents/MAP/2017/DRC%20MAP%20Stakeholder%20presentation_English_final.pdf

60. GSMA, 2014, "Enabling Mobile Money Policies in the Democratic Republic of Congo: Leadership, pragmatism, and participatory approach to creating a competitive market".

61. Cenfri, Finmark Trust and UNCDF, 2016, "Democratic Republic of the Congo: Pushing the Financial Services Access Frontier in the Democratic Republic of the Congo, Financial Inclusion Roadmap 2016–2021", http://www.cenfri.org/documents/MAP/2017/DRC%20Roadmap_English_27%20Jan%202017.pdf

62. University of Cambridge, 2011, "Mobile Communications for Medical Care".

63. PWC, "Emerging mHealth: Paths for Growth".

64. World Development Indicators, World Bank Databank

CASE STUDY

Hang-up and Track⁶⁵

To address malaria prevention in the DRC, IMA World Health has developed a 'Hang-up and Track' campaign, in which community health workers not only distributed and installed long-lasting insecticidal nets across the country, but recorded household registration data using smartphones to ensure accountability and accuracy.

Under the initiative, each net hung is captured using Android cell phones which are equipped with a data collection program called Open Data Kit. The phones are used to track every net hung in every household by capturing GPS coordinates, demographic information and the number of nets installed.

This has enabled an increased level of transparency and accountability to net distributions in the DRC, and had been rolled out to close to 500,000 households as of March 2017.

from 66% to 85% between 2007 and 2016, and adult literacy rising from 61% to 77% over the same period.

Sustaining this growth in literacy rates will be a key enabler for the DRC's national development strategy, particularly in relation to enhanced human capital and economic diversification. Mobile phone technology can play an important role in this transformation, and has been shown as a potential enabler of higher literacy in emerging economies, by teaching individuals to read and providing access to reading materials.⁶⁹

CASE STUDY

Allô École!⁷⁰

Allô École! ('Hello, school!' in French) is a mobile social accountability platform, which allows teachers and parents to provide feedback, concerns and suggestions to the Ministry of Education and its local administrative bodies. The platform was developed in 2017 by the World Bank in response to the growing problem of absenteeism and a lack of citizen engagement with education projects in the country.

The platform gathers feedback on each school, making either a voice call to a database of phone numbers or sending users an SMS from a toll-free short code '1-7-8'. Voice call users can choose from among four languages—French, Lingala, Tshiluba and Swahili—and can answer questions by pressing buttons or leaving voicemail-style open-ended responses. This closes the feedback and accountability loop between citizens and government, putting the educational needs of children first.

As of November 2017, close to 100,000 users have tried the system, and Allô École! is now available to 100 schools in N'Sele in Kinshasa East, and is expected to be available in more provinces in 2018.

Mobile connectivity can form part of the solution to achieving further gains in the healthcare sector, and can be used in health education, disease prevention, disease treatment, health care and health support applications. Mobile services can also be used to overcome traditional barriers⁶⁶ to accessing essential information and services, such as geographic isolation, gender disparities⁶⁷ and social stigmas.⁶⁸

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. The DRC has made significant improvements in providing access to education in recent years, with enrolment in primary education increasing from 5.5 million children in 2002 to 13.5 million in 2015. Literacy rates have also improved substantially, with youth literacy increasing

65. IMA World Health – <https://imaworldhealth.org/wp-content/uploads/2017/07/hut-strategy.pdf>

66. N. McKee, J.T. Bertrand and A. Becker-Benton, 2004, *Strategic communication in the HIV/AIDS epidemic*, in Sage Publications (New Delhi ; Thousand Oaks, Calif)

67. T.A. Gurman, S.E. Rubin and A.A. Roes, 2012, "Effectiveness of mHealth Behavior Change Communication Interventions in Developing Countries: A Systematic Review of the Literature", in *Journal of Health Communication: International Perspectives*, 17 (1)

68. J.G. Khan, J.S. Yang and J.S. Khan, 2010, "Mobile' health needs and opportunities in developing countries", US National Library of Medicine National Institutes of Health, in *Health Affairs*, (2), pp. 254-261

69. World Bank, 2014, "What we are learning about reading on mobile phones and devices in developing countries".

70. World Bank, 2017, "Allô École! Using mobile technologies to connect government, teachers, and parents".



2. Mobile sector taxation in the DRC

The DRC's tax and regulatory system is complex, and the tax burden of the mobile market is high in comparison to other countries and sectors.

2.1 Overview of mobile taxation in the DRC⁷¹

Table 1 below outlines the different taxes that apply to consumers of mobile products.

Table 1

Key taxes on mobile consumers, 2017

Consumer taxes ⁷²	
Customs duty	5%–20%
Value-added tax (VAT)	16%
Excise duty on telecommunication services	10%

Customs duty

Customs duty is due on handsets and SIM (subscriber's identity module) cards at 20%. Furthermore, base stations and network equipment are subject to custom duties at 10%.⁷³

Value-added tax

Telecommunication services, such as the provision of data and telephone calls, are subject to the standard rate of value-added tax (VAT) in the DRC of 16%, as are handsets, SIM cards and scratch cards.

Excise duty on telecommunications

An excise duty is due on telecommunications services. For voice services, it is charged on the duration of the calls (either paid or free time). For internet and the transmission of data, it is levied on the volume of bytes (either paid or free data)⁷⁴ at a rate of 10%.

71. This section is based on IBFD's information, EY 2017 Worldwide Corporate Tax Guide, the DRC Ministry of Finance and operator data.

72. Customs and excise duties are collected by the General Directorate of Customs and Excises (DGDA). VAT is collected by the General Directorate of Taxes (DGI).

73. The effective rate on handsets is 39.2%, while on network equipment it is between 21.8% and 39.2% including VAT. Source: operator data.

74. Finance Act 2017.

2.1.2 Taxes and regulatory fees paid by mobile operators

Table 2 below outlines the different taxes and regulatory fees that apply to operators providing telecommunication services.

Table 2

Key taxes and regulatory fees paid by mobile operators, 2017

Taxes paid by operators ⁷⁵	
Corporation tax	35%
Contribution to the National Institute of Professional Preparation (<i>Institut National de Préparation Professionnelle-INPP</i>) for staff training	1% – 3%
Contribution to the National Labour Office (<i>Office National de l'Emploi-ONEM</i>)	0.2%
Social security	9%
Expatriate tax	25%
Regulatory fees ⁷⁶	
Annual license fee	3% of net annual revenue for mobile (2G and 3G) and internet 2% of net annual revenue for optical fibre
Licence fee (one-off spectrum payment)	\$15,000,000 minimum (3G license) \$15, 000,000 minimum – \$65,000,000 maximum (2G license) \$150,000 (internet) \$500,000 (optical fibre FTTX) \$150,000 (metro ring optical fibre per zone) \$150,000 (VSAT)
Annual spectrum fee	\$50,000 per MHz for GSM frequencies (2G and 3G) \$6,000 per MHz for microwave frequencies (<i>faisceaux hertziens-FH</i>) \$3,000 per MHz for internet frequencies
Licence fee of base stations (VSAT)	\$50 per station
Annual fee on the exploitation of base stations (VSAT)	10% of the title cost per station
Fees on amendments to telecommunication licences	25% of the title cost (value of the last licence sold in the market)
Homologation fee of network equipment	5% of the production cost or the CIF (cost, insurance and freight) value
Numbering tax	\$0.45 per number
Local interconnection tax	15% of the mobile termination rates on outgoing calls
International incoming traffic tax (SIIT)	\$0.08 per minute on incoming international calls (minimum)

75. With the exception of social security contributions, which are paid to the National Institute of Social Security (INSS), these taxes are collected by the DGI.

76. With the exception of the local interconnection tax, which is paid to the Post and Telecommunications Regulatory Authority (ARPTC), regulatory fees are collected by the General Directorate of Administrative Revenue (DGRAD).

Taxes paid by operators

- **Corporation tax.** Resident companies are subject to taxation on income derived from the DRC. The corporation tax rate in the DRC is 35%, which is reduced to 30% for companies that hold a mining licence. Regardless of a company's taxable profit, the tax payable may not be less than 1% of its declared revenue.
- **Contribution to the National Professional Preparation Institute.** All companies must pay a professional preparation contribution, which is based on the total remuneration paid to their employees. The rate ranges from 3% to 1% depending on the size of the company, with small companies (with less than 50 employees) paying 3% and those with over 300 employees paying 1%.
- **Social security.** Social security contributions are calculated based on the amount of remuneration paid to their employees. The employer contribution rate is 9% (including 1.5% for professional risks, 4% for family welfare, 3.5% for retirement pension). The employee contribution is 3.5%.
- **Expatriate tax.** Expatriate tax is levied on the employer and is due at a rate of 25% on the value of the remuneration of expatriates. There is a reduced rate of 10% for employers operating in the mining industry.
- **Mobile money turnover tax.** An additional tax at a rate of 3% has been charged on mobile money turnover. However, from 2018, this tax is no longer applied.⁷⁷

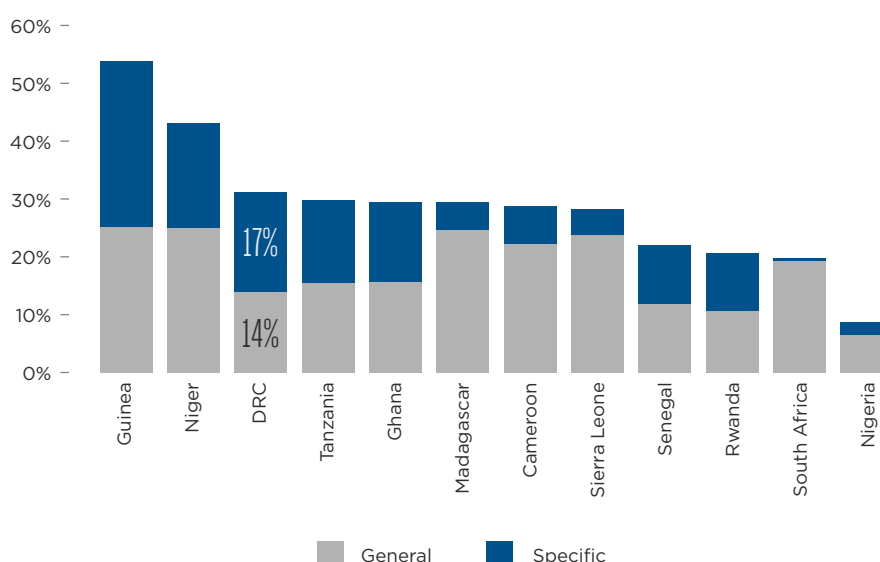
2.2 Tax contribution of the mobile sector

General taxes are equivalent to around 14% of total mobile sector revenue. This is higher than the share in Nigeria (6%), Rwanda (11%) and Senegal (12%), as shown in Figure 14. Mobile-specific taxes similarly

represent a large share of mobile sector revenues compared to other African countries at 17%, higher than South Africa (1%), Nigeria (2%), Sierra Leone (5%), Madagascar (5%) and Cameroon (6%).

Figure 14

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



Source: GSMA Intelligence, EY Analysis and operator data

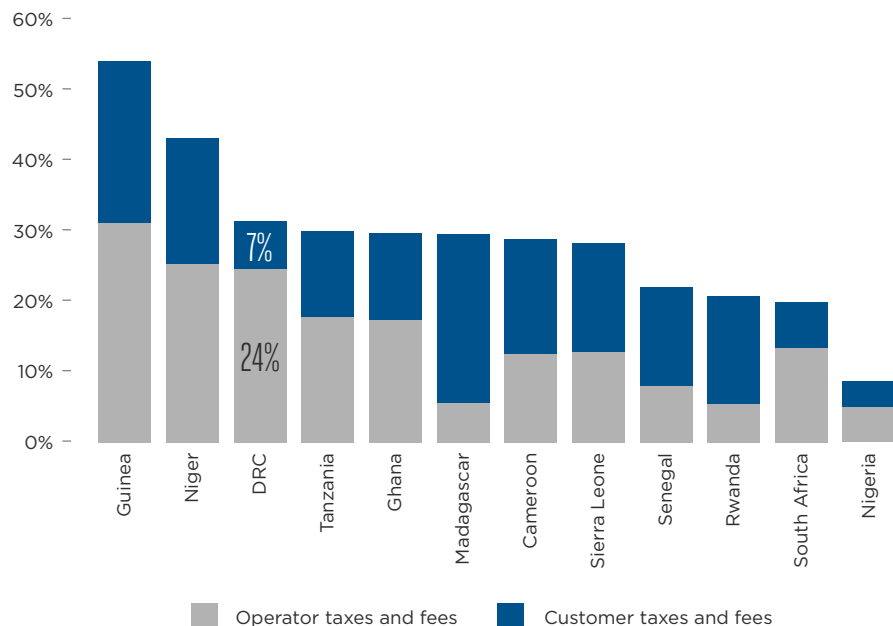
77. Finance Act 2018. Article 30.

The total tax contribution of the mobile sector is equivalent to 31% of the mobile sector's total market revenue. In 2016, the total tax contribution is estimated at \$358 million,⁷⁸ accounting for 20.2% of the total tax revenues of the DRC.⁷⁹ Operators pay 78% of the

total taxes, while consumers pay the remaining 22%. As shown in Figure 15, this tax burden as a percentage of mobile revenue is the highest among a sample of African countries, including Nigeria (9%), South Africa (20%), Rwanda (21%) and Senegal (22%).

Figure 15

Operator versus consumer taxes (as a share of total mobile revenue)



Source: GSMA Intelligence, EY Analysis and operator data

The mobile sector made a large contribution in taxes and fees relative to its economic footprint in 2016. The total market revenue is equivalent to 3.6% of the GDP. Tax revenues from the mobile sector were 20.2% of the DRC total tax revenue.⁸⁰ This is 5.6 times the size of mobile operator revenue as a percentage of GDP.⁸¹

Figure 16 shows the different taxes paid by mobile operators as a proportion of overall total tax payments made by operators in the DRC in comparison to other African countries. In the DRC, VAT payments are the largest source of tax payments (24%), followed by consumer-specific taxes (22%) and regulatory fees (17%). Annual spectrum fees are the next largest (6%) followed by import duties (3%) and corporation tax (3%), with other taxes⁸² (26%) making up the rest.

VAT in the DRC (24%) makes up a greater portion of the tax revenue than in Ghana (17%) and Guinea

(18%). The DRC has one of the highest proportion of revenues made up by regulatory fees (17%), which is higher than in many other African countries, such as South Africa (2%), Guinea (5%), Tanzania (6%) and Ghana (7%). Consumer-specific taxes also contribute more to total tax revenues than in many African countries (22%), more than in Niger (6%), Madagascar (6%) and Senegal (13%).

In the DRC, spectrum fees contribute more to tax revenues (6%) than in Tanzania (1%), Niger (1%), Rwanda (2%), Ghana (2%), Cameroon (3%) and Sierra Leone (3%). Import duties contribute more to total tax (3%) than in Tanzania (1%) and Rwanda (2%).

Other taxes also contribute a significant amount to overall tax revenues, more than in many African countries, including Senegal (1%), Rwanda (6%), Nigeria (11%) and Cameroon (16%).

78. Source: EY Analysis and operator data.

79. The net tax revenue of calendar year 2017 was CDF 4,634,768 million (\$3,188 million). Source: DRC, Ministry of Budget.

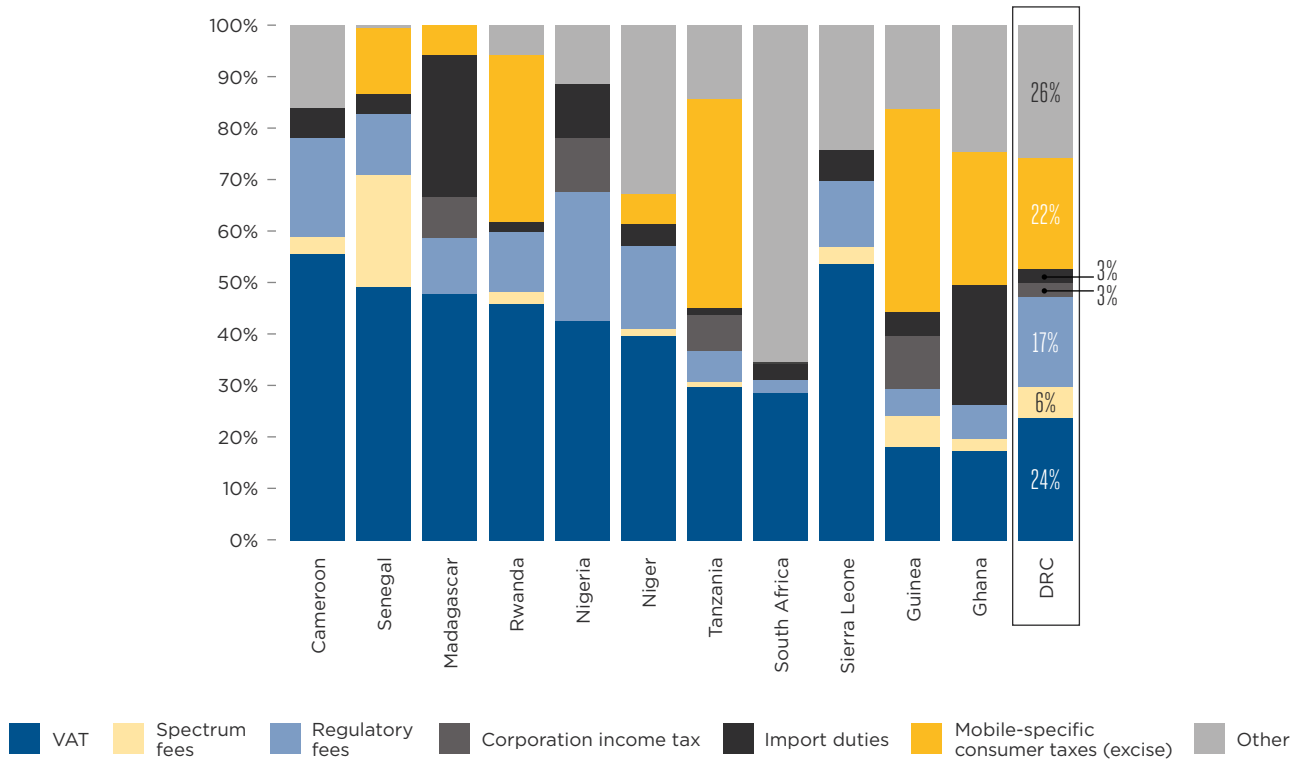
80. EY Analysis based on operator data for 2016

81. The GDP of the DRC in 2016 was \$32 billion, World Bank

82. This includes all other tax payments made by operators in the DRC in 2016 which are not covered by a specific category (e.g. personal income tax, social security contributions, personal tax)

Figure 16

Total tax breakdown



Source: GSMA Intelligence, EY Analysis and operator data

2.3 Tax burden in comparison to other sectors

Consumption taxes in the DRC's mobile sector consist of VAT and excise duty on telecommunications. Not all goods bear the same tax burden. Mobile telecommunication services are subject to VAT at the standard rate of 16%, while other goods, including

educational services and some food products, are exempt from VAT.

Table 3 summarises the VAT rates, customs duties and other consumption taxes applying to different sectors.

Table 3

Key tax rates in the DRC, 2016

VAT (standard rate)	16%
VAT (exempt)	<ul style="list-style-type: none">• Sales of boats and nets used for fishing activities• Sales of mosquito nets• Sales of bread• Imports of agricultural inputs• Rentals of non-furnished immovable property for housing purposes• Sales of journals, books and magazines
Excise taxes	<ul style="list-style-type: none">• Telecommunications – 10%• Fruit juice – 10%• Alcohol – 60%• Tobacco – 20% to 40%• Toiletries and cosmetics – 10% to 20%

Source: 2017 EY Worldwide Corporate Tax Guide, IBFD, the DRC Ministry of Finance, World Bank Doing Business

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

Governments have to raise tax revenues to fund the provision of public goods and services. However, if the tax system is not designed properly, this could 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, it is important to follow certain principles of tax policy design which have been consistently 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.⁸³ These principles include:

- Taxation should be as broad-based as possible;
- Specific taxes should be limited and be based on a clear rationale of externalities;
- The tax system should be equitable;
- The tax system should not discourage investment;
- The tax system should be simple; and
- Taxes should be easy to collect.

3.1 Tax policy considerations and principles of taxation applying to the mobile sector

As laid out in Figure 17 below, the tax system is likely to have wider impacts in terms of:

- **Price.** Tax rises can lead to price changes and therefore to changes in demand for mobile services.
- **Tax revenue.** A change in the design or rate of tax will have an impact on tax revenues, which may be positive or negative depending on the precise change and how it is implemented.

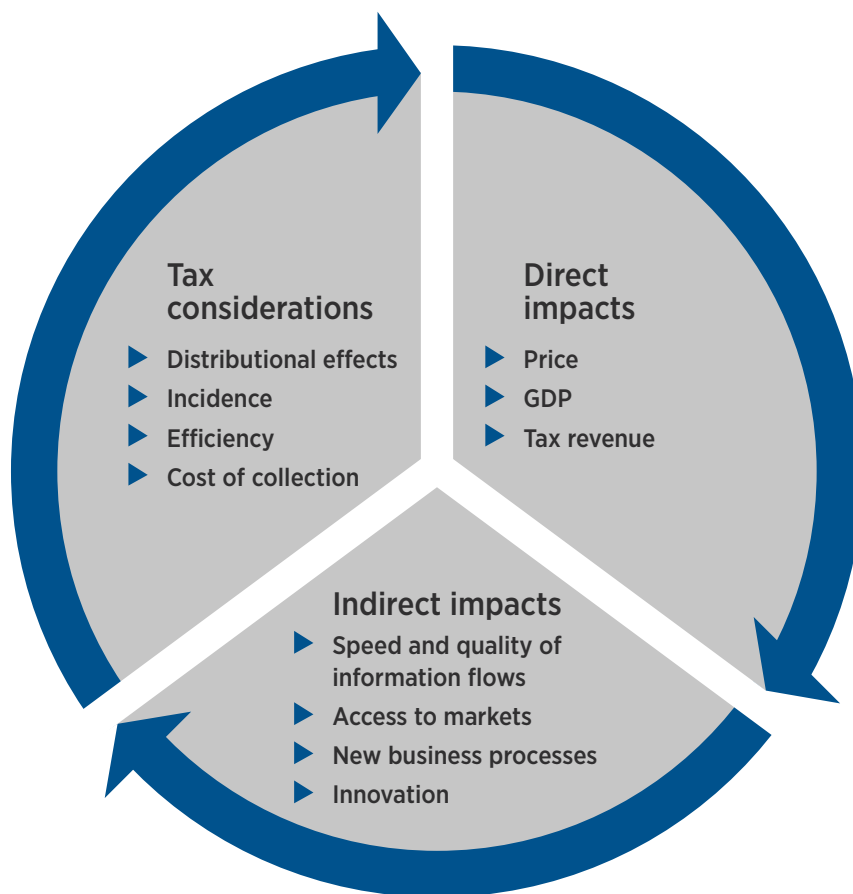
- **Productivity.** To the extent that tax changes broaden or narrow access to mobile technologies, they deliver or impede productivity gains across the economy.

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.

83. IMF, OECD, UN and World Bank, 2011, "Supporting the Development of More Effective Tax Systems. A Report to the G-20 Development Working Group".

Figure 17

Factors shaping tax policy choices



In order to make sure these impacts are positive, there are key factors which generally need to be taken into account by any tax policy.⁸⁴ These include:

- **Distributional characteristics.** The design of a tax can impact different cohorts of taxpayers in different ways, such as those in different income deciles.
- **Economic incidence.** Who bears the tax depends on the market structure, the demand elasticity and the scope for tax cuts to be absorbed in prices. This incidence will, in turn, determine where in the economy and at what stages in the supply chain the impact of the tax is felt.
- **Efficiency.** Taxes have the capacity to distort decision making by increasing costs of production and distribution. The efficiency of a tax can be

assessed against the extent to which unwarranted and unintended distortions are avoided.

- **Cost of collection.** The complexity of a tax and its conformity with existing models and procedures have a direct impact on the cost of collection (administrative burden) and the costs of compliance to the taxpayers.

These key tax considerations should be appropriately balanced by applying the following principles:

- Broad-based taxes with single and low rates, minimising the use of exemptions, should be favoured over specific taxes. This should allow the maximisation of revenue with minimal distortions to the consumption and provision of mobile services.

84. There are a number of theoretical studies around the taxation of mobile services, including: ITU, June 2013, "Taxing Telecommunication/ICT services: an overview".

- Specific taxes must be highly selective, narrowly targeting a few goods mainly on the grounds that their consumption entails negative externalities on society. Therefore, mobile phones and services should not be included in a list of goods and services singled out for exceptionally harsh tax treatment.⁸⁵
- Mobile operators and consumers should be treated equally to other people in equal circumstances in an equal way (“horizontal equity”). In addition, the tax system should also preserve “vertical equity”⁸⁶ by avoiding the imposition of regressive taxes which affect more heavily 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
- A stable and transparent tax system in line with international standards is a strategy that would deliver sustained investment.⁸⁹
- Tax rules should be clear and no more complex than needed to achieve the policy aim, facilitating mobile businesses and consumers to make optimal decisions and respond to intended policy incentives.⁹⁰
- The collection of taxes should be as efficient as possible, i.e. low tax administration costs and minimal evasion and avoidance costs.⁹¹

3.2 Outlook for the tax environment in the DRC

In general, the DRC is not regarded as a business-friendly environment. The World Bank ease of doing business report⁹² ranks the DRC 182 out of 190 countries and 44 out of 48 Sub-Saharan Africa countries.

Furthermore, the tax regime in the DRC is regarded as particularly difficult for businesses. The World Bank ease of doing business report places the DRC 181 out of 190 global countries, and 42 out of 48 Sub-Saharan Africa countries when it comes to the ease of paying taxes. The number of tax payments, the time spent to prepare, file and pay taxes, the total tax and contribution rate, and the post-filing time, makes the DRC’s system extremely complex and represents a large administrative burden for companies, acting as a barrier to future investment.

This suggests that a more friendly business environment is necessary to attract more investment. The mobile sector in the DRC has a lot of scope for growth given it is ranked 33 out of 38 African countries in the ITU’s ICT Development Index and 171 out of 176 countries globally.⁹³ Improving the business environment is key to taking advantage of this potential growth.

85. ITU, June 2015, “Taxing Telecommunication/ICT services: an overview”.

86. ITU, June 2015, “Taxing Telecommunication/ICT services: an overview”.

87. Richard M. Bird and Eric M. Zolt, 2003, “Introduction to Tax Policy Design and Development” in World Bank, *Practical Issues of Tax Policy in Developing Countries*.

88. V. Tanzi and H. Zee, March 2001.

89. V. Tanzi and H. Zee, March 2001.

90. IMF, OECD, UN and World Bank, 2016, “Enhancing the Effectiveness of External Support in Building Tax Capacity in Developing Countries”. Prepared for Submission to G20 Finance Ministers.

91. “Revenue Mobilization in Developing Countries”, March 2011. Prepared by the Fiscal Affairs Department. Approved by Carlo Cottarelli, IMF.

92. World Bank. 2017. Doing business, Measuring business regulations

93. ICT Development Index, 2017, <http://www.itu.int/net4/ITU-D/idi/2017/#idi2017economytab&COD>



3.3 An assessment of mobile sector taxation in the DRC

An assessment of the current mobile tax regime in the DRC against the four tax considerations and principles elaborated in section 3.2 identifies the following characteristics:

- **The current tax system has a high incidence on both the mobile sector and consumers.**

Despite the positive externalities of the sector, mobile services are subject to a high level of specific taxation. Tax revenue raised from specific tax on the mobile sector equates to 17% of total telecommunications operator revenues. An example of these specific taxes is the SIIT imposed in the DRC. As a result of this tax, making calls to the DRC is more expensive than it could be and hence the amount of calls made to the DRC is likely lower than it would be if there were no SIIT. An OECD report⁹⁴ notes that as result of the introduction of the surcharge in a number of African countries, there has been a significant decline in international incoming traffic.⁹⁵ Mobile services have positive impacts for the wider economy in terms of increasing connectivity and digital inclusion. Therefore, it is not clear why they should be penalised with specific taxes alongside products with negative externalities (such as alcohol and tobacco).

- **The tax system is not efficient and discourages investment. It could be made more efficient by broadening the base.** Mobile companies are more heavily taxed than other sectors in the DRC. For example, despite the positive externalities generated by the industry, mobile operators are subject to extra taxes on mobile services. The resulting reduced profits send signals to the market that the provision of mobile services and production of mobile technology is not a profitable investment, and this is likely to stifle investment in the industry.

Furthermore, taxes on consumption, such as VAT with its many exemptions, is distortive. In theory, the base of VAT should be broad, covering as many goods and services as possible and the point of impact of the tax should be as close to the consumer as possible, so as to tax the whole of the “value added” involved in getting

a product or service to the final consumer.

- **The tax and regulatory system for mobile is not simple and increases the cost of collecting taxes.** As shown in Table 4 below, in the DRC the number of tax payments required to be made is above the average for Sub-Saharan Africa, 52 and 37.2 respectively. The time taken to calculate and pay those taxes in the DRC is also much higher for companies than in the rest of Sub-Saharan Africa, 346 hours and 281 hours respectively. Furthermore, the effective tax rate is also higher than in the rest of Sub-Saharan Africa at 54.6% compared to 46.8%. The DRC also falls far behind the rest of Sub-Saharan Africa when it comes to complying with post-filing procedures.

Designing a simpler tax system with more efficient procedures for tax collection would greatly reduce the burden of tax compliance on mobile operators. This would reduce costs and ultimately increase profits available for reinvestment. However, it is also important that companies can be certain that the tax system will not undergo major tax increases, if they are to make large investments. If taxes are constantly increasing, it is difficult for businesses to calculate whether their investments are likely to be profitable, as the costs associated with taxation are more uncertain. Therefore, a simple and certain tax system is important to create an environment which encourages greater investment.

94. Ibid., p. 14

95. Ibid., p. 30

Table 4

The DRC tax index, 2017

Indicator	The DRC	Sub-Saharan Africa	OECD high-income countries	Overall best performer
Tax payments (number per year)	52	37.2	10.9	3 (Hong Kong SAR, China)
Time (hours per year)	346	280.8	160.7	55 (Luxembourg)
Total tax and contribution (% of profit)	54.6	46.8	40.1	18.47 (32 economies)
Post-filing index (0-100)	27.08	54.39	83.45	99.38 (Estonia)

Source: World Bank, Doing Business 2017

3.4 Options for tax policy reform on the mobile sector in the DRC

The high tax burden and the complexity of the tax system in the DRC is preventing further investment in the mobile sector and greater affordability of mobile services. This is ultimately restricting the digital

connectivity and productivity of the DRC. To make the business environment friendlier, in particular for the mobile market, the DRC should embrace the principles outlined above, which should result in:

- **Greater affordability of mobile technology;**
- **A simpler, fairer and more competitive tax system (both in terms of structure and administration) encouraging more investment in the mobile market in the DRC.**

Based on this analysis, we have identified three options for reform in line with these principles of taxation:

- **Option 1** – Reduction in the excise duty on mobile services from 10% to 3%
- **Option 2** – Reduction in the numbering tax from \$0.45 per number to \$0.225 per number
- **Option 3** – Elimination of the mobile money turnover tax

As mentioned above, the PNSD 2017–2021 for the DRC aims to enhance the business climate and improve the competitiveness of the private sector. Recent changes, such as the removal of the tax on mobile money turnover, will indeed contribute to

this end. If this policy remains stable in the near future, the mobile sector and the wider economy will see further gains in terms of productivity, tax revenue and financial inclusion.

However, there is further scope for improvement. The proposals identified in this report will reduce the tax burden on consumers and operators, increasing the affordability of mobile services and the profitability of operators in the DRC. Subsequently, there will be increased demand for these services and the products associated with them, such as mobile phones and greater investment in the network operators run. As a result, the productivity of the DRC is expected to increase, thanks to better connectivity, leading to greater digital inclusion.

3.4.1 Reduction in the excise duty on mobile services

A reduction in excise duty on mobile services from 10% to 3% would increase the affordability of mobile services.

The rationale for change

- Generally, excise taxes are imposed to reduce the consumption of goods whose consumption has negative costs associated with it, such as alcohol and tobacco products. The consumption of mobile services, however, does not have negative costs associated with it. Instead, the effects of consumption, such as connecting people more easily, are likely to have positive impacts.
- Reducing the excise duty from 10% to 3% on mobile services would make mobile services more affordable, and hence increase the consumption of them. Subsequently, this would increase the benefits associated with mobile consumption, such as connectivity, digital and financial inclusion.

This reduction could be staged over a number of years depending on the budgetary needs of the government. However, from the modelling results in section 4, it can be seen that the impact of this reduction on revenues will be positive after two years of being implemented. Furthermore, a full elimination could also be an option that is likely to lead to greater positive impacts in the wider economy.

In addition to a rate reduction, there are further aspects which could be improved in the design of this tax. For example, it is not clear the rationale for the taxation of free mobile services when no consideration is paid for them, and the tax base is uncertain. The cost of providing free packages, which are gifted to consumers by operators as a thank you for customer loyalty, are entirely borne by operators. The taxation of these calls effectively increases the cost of supplying them and reduces businesses incentives to do so.

3.4.2 Reduction in the numbering tax

The DRC imposes a fee of \$0.45 per number. A reduction to \$0.225 per number would increase the affordability of mobile service and would also drive further investment in the sector.

The rationale for change

- This tax increases the costs of assigning customers with a telephone number. As mentioned above, mobile services have positive externalities for an economy, and hence should not be subject to an extra cost.
- This tax has the effect of reducing the profits that can be made by telecommunications operators. This reduction in profits reduces the money available to be spent investing in improving the provision of telecommunications services, reducing the potential benefits that come with it.

In addition to reducing the fee, it could also be designed in a more efficient way. For example, charging the numbering fee on a package of numbers (e.g. 10 million), such as in other jurisdictions (e.g. Nigeria), would at least reduce the complexity of the tax system, thereby reducing the administrative burden for both the operators and the government.

3.4.3 Eliminating the mobile money tax

From 2016 to 2017, the DRC imposed an additional tax on top of any corporate tax already due: a mobile money turnover tax at a rate of 3%. However, this tax is no longer applied as of 2018.⁹⁶

The elimination of this tax will have a positive impact on the mobile sector. In the short term, this will translate into increased affordability and use of mobile money services. In the medium term, the increasing use of mobile money will lead to greater financial inclusion. This is likely to generate revenue gains in the longer term, as more people would have a digital footprint of their economic activity, making it easier for the tax authorities to identify non-compliance with the tax system.

96 Finance Act 2018. Article 30.

Policy rationale

- This tax was distortive for the mobile sector. Levying specific taxes on telecommunications operators will either reduce profits of the operators, or lead to the tax burden being passed on to consumers as price increases, reducing consumption of telecommunications. Either of these results will result in reduced investment.
- Eliminating this tax will improve the affordability of transferring money via mobile phones. Given the early stage of development of mobile money transfers, imposing a tax on them risks stopping

the development of the service altogether. To take advantage of the potential benefits of mobile money transfers, the tax system needs to facilitate future investment in the service. As a result, fewer people in the DRC would be financially excluded.

- This greater financial inclusion has many benefits, such as broadening the tax base. By making the mobile money transfers more accessible, it would be easier to bring more people into the formal economy, and thereby increase tax collection. In addition, mobile money could also be applied in e-government initiatives, for example, to enable electronic tax payments.

Section 4 presents detailed economic modelling to show the impacts delivered by these options.⁹⁷

However, this should not be seen in anyway as an exhaustive set of policy options. For instance, there is evidence suggesting the removal of taxes on

international incoming calls or a VAT reduction could also bring benefits into the mobile sector and the wider economy, as shown in the boxes below. Hence, there are alternative policy options that could also be explored in the DRC.



97. While a combination of these tax reforms can increase the economic benefits for the DRC, the economic assessment will consider the options as separate 'scenarios' where each tax is reformed and compared to a status quo scenario with no change in taxation.

CASE STUDY

The potential effects of eliminating the SIIT in Guinea

Current situation

Guinea imposes a surtax of \$0.12 per minute on calls that are received from overseas. The SIIT is imposed as a fixed price that operators must charge for international inbound termination. This discourages people from making phone calls to Guinea and further disincentives connectivity with the rest of the world.

The rationale for change

- International calls should not be subject to special taxes. Generally, excise taxes are imposed to reduce the consumption of goods with negative costs associated with it. The consumption of telecommunications services, such as international phone calls, however, does not have negative costs associated with it. Instead the effects of consumption, such as connecting people from different countries to Guinea more easily, are likely to have positive impacts and could, for example, facilitate foreign direct investment, as well as regional and international business opportunities.
- Removing the SIIT would increase the amount of time spent by callers from abroad calling into Guinea. Hence, greater connectivity would also benefit Guinea's population, who ultimately see themselves affected by receiving fewer international calls, for example, from family and friends working or studying abroad.

- The SIIT leads to high monitoring costs to detect fraud. GSM gateways or SIM boxes can be used to bypass international termination rates. Mobile network operators and authorities actively search for anomalous behaviour in calling patterns to find illegal gateways. The removal of SIIT would alleviate the significant costs and resources devoted by both operators and authorities to the policing of these illegal gateways.⁹⁸ These resources could instead be spent, for example, on improving the telecommunications infrastructure or promoting universal broadband access.

Potential impacts⁹⁹

- The elimination of SIIT should lead to an increase in the volume of international incoming calls to Guinea, enhancing connectivity for both businesses and consumers.
- International incoming traffic would increase by 263 million minutes in 2023. This would increase sector revenues by \$114 million (17.7%), allowing for significant reinvestment in the sector, totalling approximately \$6 million per annum.
- Mobile penetration would increase by 927,000 unique subscribers (6.0%) by 2023, equivalent to 1.8 million new connections.
- GDP would grow by \$89 million (1.4%) and annual tax receipts by over \$8 million (0.3%), a cumulative fiscal gain of over \$16 million over five years.

Cost of handsets: Lessons learned from Kenya

In 2009, mobile handsets were exempted from the general VAT rate (16%) in Kenya.¹⁰⁰ In the three following years, the sale of handsets increased by 200%, outpacing growth elsewhere in Africa. This led to an increase in penetration from 50% to 70%, seven percentage points above the average across African countries. Over the same period,

the contribution of the mobile sector to the Kenyan economy grew by nearly 250%, while mobile-related employment increased by 67%.

A reduction in the tax burden could lead to similar results in other countries (such as the DRC), where the high prices of handsets, and particularly of smartphones, are a major barrier to the digital inclusion of the majority of the population.

98. OECD, 2015, "Working party on communication infrastructures and services policy", in *International Traffic Termination*, p. 16.

99. Source: EY Analysis

100. Source: GSMA/Deloitte (2015). *Digital inclusion and mobile sector taxation 2015*

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

4.1 Recommended options for tax reform

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

1. A reduction in excise duty on mobile services from 10% to 3%. This will result in lower prices and will encourage increased usage levels among consumers.
2. A reduction in the numbering tax payable by mobile operators, from \$0.45 per number to \$0.225 per number. This will reduce the tax burden on the mobile sector, enabling operators to pass-through higher revenues in the form of increased investment or lower prices.

3. The elimination of the tax on mobile money turnover, which was implemented by the DRC Government in the 2018 Finance Bill.¹⁰¹ This tax was previously levied at 3%, and its removal will promote additional usage of mobile money services, and will reduce the composite price of broader mobile services, encouraging increased adoption of mobile services among consumers.

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 we analyse the implications of these tax scenario reforms, we note that alternative scenarios and combinations of these reforms are also possible.¹⁰²

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

The potential quantitative impacts of each of the tax reform options have been analysed using a set of modelling tools representing both the DRC mobile sector and the DRC economy as a whole. While we recognise that a combination of these tax reforms can have beneficial economic impacts for the DRC, 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.

A model of the mobile sector in the DRC 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.

The wider economic impacts of each tax policy scenario are assessed via a 'Computable General

101. Government of the Democratic Republic of the Congo, 2017, 2018 Finance Bill, <http://www.budget.gouv.cd/budget-2018/circulaires-2018/>

102. 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 various taxes.

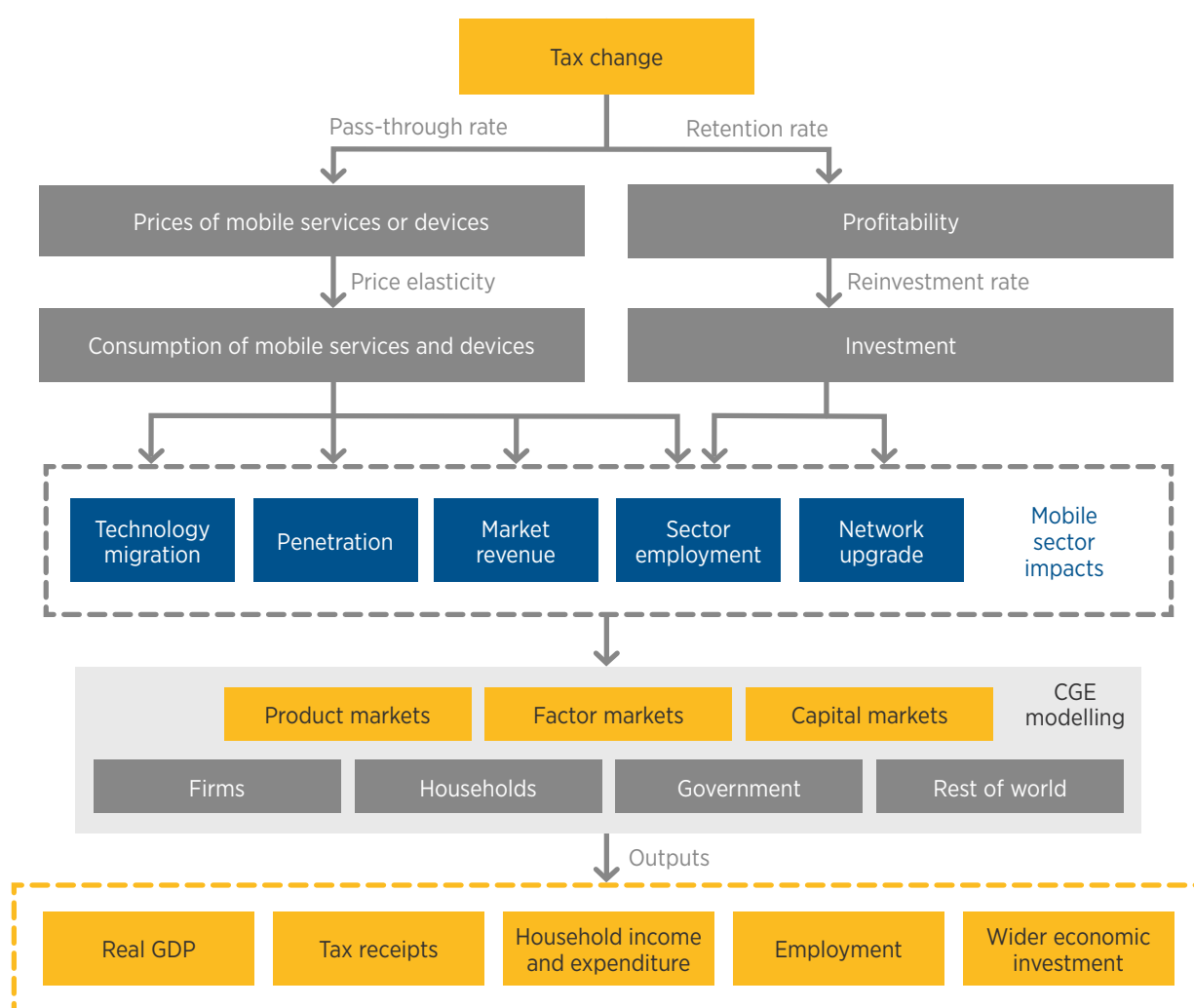
Equilibrium' (CGE) model, namely, the standard version of the Global Trade Analysis Project (GTAP) model and its associated dataset.¹⁰³ The GTAP model contributes to, and widely used by government agencies, international institutions, the private sector and academia, to model policy changes within countries 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, the Organisation for Economic Co-operation and Development (OECD) and the United Nations Economic Commission for Africa.¹⁰⁴

A schematic of the modelling approach used in this study is shown in Figure 18 below.¹⁰⁵

Figure 18

Overview of the modelling approach



Source: EY analysis

103. Global Trade Analysis Project (<https://www.gtap.agecon.purdue.edu/>)

104. GTAP Consortium (<https://www.gtap.agecon.purdue.edu/about/consortium.asp>)

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

4.3 Reducing excise duty on mobile services

The reduction of excise duty on mobile services from 10% to 3% would reduce consumer prices and therefore improve the affordability of mobile ownership in the DRC. The proposed reduction of the excise duty would translate into an effective reduction in the price of all mobile services of 5.1%, the majority of which would be passed through to subscribers.¹⁰⁶

In general, the extent to which taxes ultimately fall on mobile operators or consumers depends on the type of tax and market conditions. Some taxes and regulatory fees may be absorbed by operators in the form of lower profits, while others may be passed through to consumers through higher prices, or there may be a combination of the two.

This price decrease would benefit both households and business subscribers. For household subscribers, the tax reform would lead to an increase in real disposable incomes, and will improve the affordability of mobile services. As shown in Section 1.5, this is particularly relevant for the DRC, as the cost of mobile ownership represents a significant share of monthly income, particularly for those at the bottom of the income pyramid. For business subscribers, the reduction in excise duty would reduce input costs for all sectors that use mobile, increasing demand and freeing up resources which can be invested elsewhere.

This tax scenario is forecast to have the following impacts compared to a “baseline” scenario¹⁰⁷ of no change in current levels of taxation:

- **New connections:** an additional 2.8 million unique subscribers, or 3.6 million mobile connections by 2023. This is equivalent to an increase of around 2.8% in unique subscriber penetration (3.6% in total connections). Of these new connections, 94% would be prepay and approximately 73% would be classified as low-income.
- **Mobile market revenue:** total mobile sector revenue would increase by \$62 million (5.2%) by 2023. This would be driven by additional revenues from the increased number of connections, and higher overall usage, which offset the reduction in pricing from the tax reform.
- **Usage:** the reduction in the price of mobile services would lead to an 11.6% increase in total data usage compared to the baseline, while usage of voice

and message services would increase by 10.5% and 11.6% respectively. Among low-income customers, data usage per connection would increase by an estimated 43MB per month.

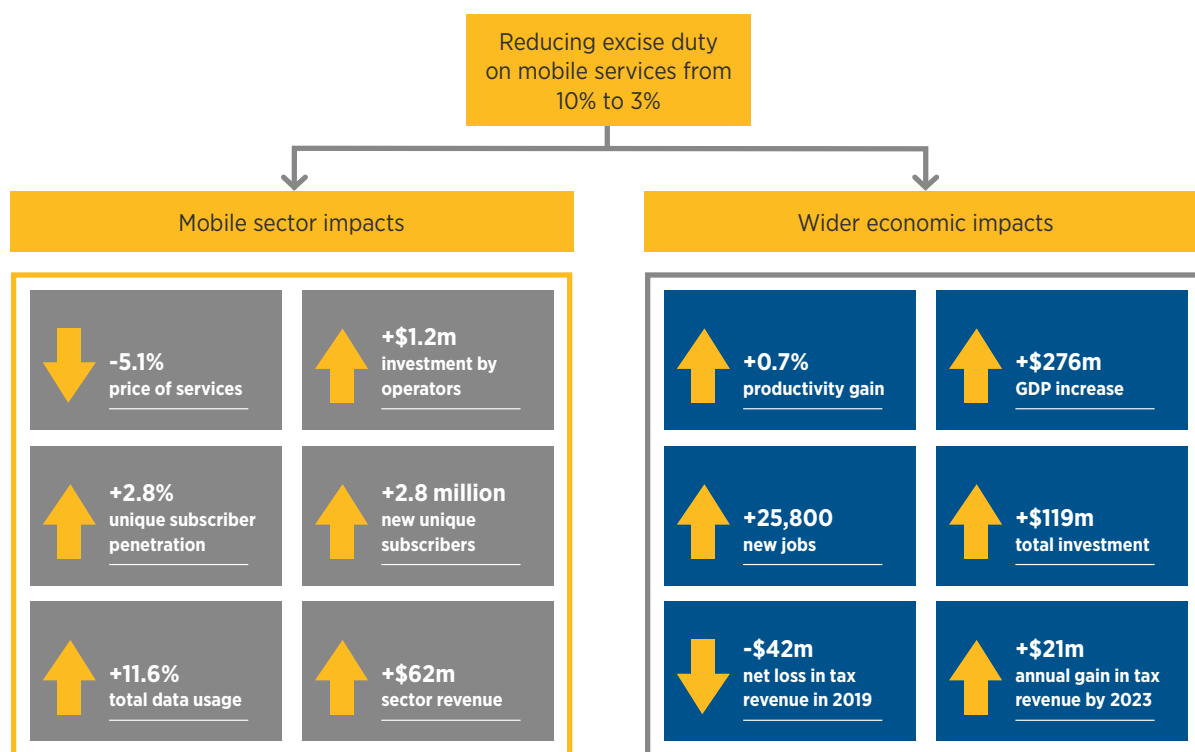
- **Additional investment by operators:** there would be additional annual investment of over \$1.2 million per annum as a result of the increased revenue from the tax reform (equivalent to 12 new 2G base stations per year).
- **Productivity gain:** the increase in unique subscriber penetration of 2.8% would lead to a 0.7% gain in productivity across the economy, leading in turn to further increases in output, incomes and expenditure.
- **GDP increase:** total GDP would increase by \$276 million (0.8%) by 2023 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 in the economy, employment would increase by approximately 25,800 jobs (0.1%).
- **Wider investment in the economy:** as a result of the decrease in intermediate costs for businesses that use mobile, additional resources would be made available for investment across the economy. By 2023, this scenario would lead to an annual increase in investment of \$119 million.
- **Benefits to other sectors:** as a result of the increased level of economic activity, all of the sectors within the economy will increase their level of output. Output in the communications sector rises the most (4.0%), while trade (1.8%), and electronics (1.6%) also make relatively strong gains.
- **Tax revenue impact:** this scenario would have an initial net cost to the DRC Exchequer of \$42 million in 2019. However, the subsequent expansion of the mobile sector, and significant growth in the wider economy, mean that, by year 4, both the annual impact and cumulative impact are positive. The gain in tax revenue is approximately \$21 million per annum by 2023.

The summary of the sector-specific and economic impacts in 2023 is shown in Figure 19.

106. The pass-through rate is endogenously generated from the GTAP model, and reflects the visibility of the tax and the level of price competition in the communications sector in the DRC.
107. Please see Appendix A for more detail on the modelling assumptions used in this study and see Appendix B for detailed estimated impacts.

Figure 19

Annual impacts of reducing excise duty on mobile services, 2023



Source: EY analysis

4.4 Reducing the numbering tax payable by mobile operators

In this scenario, the numbering tax is reduced from \$0.45 per number to \$0.225 per number, reducing the tax burden on the mobile sector. The reduction in the numbering tax will lead to a direct saving for operators, a portion of which is passed through to subscribers in the form of a 1.5% price reduction.¹⁰⁸ The remainder of the tax saving to mobile operators is either reinvested in the sector in order to upgrade and/or build new base stations,¹⁰⁹ or retained as additional profit.

This tax scenario is forecast to have the following impacts compared to a baseline scenario¹¹⁰ of no change in current levels of taxation:

- **New connections:** an additional 0.8 million unique subscribers, or 1.0 million mobile connections by 2023. This is equivalent to an increase of around 0.8% in unique subscriber penetration (1.0% in total connections). Of these new connections, 94% would be prepay and approximately 73% would be classified as lowincome.
- **Mobile market revenue:** total mobile sector revenue would increase by \$18 million (1.5%) by 2023. This would be driven by the increased number of connections and higher overall usage, which offset the reduction in pricing from the tax reform.
- **Usage:** the reduction in the price of mobile services would lead to a 3.2% increase in total data usage compared to the baseline, while usage of voice and message services would also increase by approximately 2.9% and 3.2% respectively. Among low-income customers, data usage per connection would increase by an estimated 42MB per month.
- **Additional investment by operators:** there would be additional annual investment of over \$0.4 million as a result of the increased revenue from the tax reform (equivalent to four new 2G base stations per year).
- **Productivity gain:** the increase in unique subscriber penetration of 0.8% would lead to a 0.2% gain in productivity across the economy, leading in turn to further increases in output, incomes and expenditure.
- **GDP increase:** total GDP would increase by \$79 million (0.2%) 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 in the economy, employment would increase by approximately 7,500 (0.03%) by 2023.
- **Wider investment in the economy:** as a result of the increased level of output in the mobile sector, additional resources are made available for investment across the economy. By 2023, this scenario would lead to an annual gain in investment of \$34 million.
- **Benefits to other sectors:** as a result of the increased level of economic activity, output in all sectors of the economy will grow. Output in the communications sector increases the most (1.1%), while trade (0.5%) and electronics (0.4%) also make relatively strong gains.
- **Tax revenue impact:** this scenario would have an initial net cost to the DRC Exchequer of \$9 million in 2019. However, the subsequent expansion of the mobile sector, and significant growth in the wider economy, mean that, by year 3, both the annual impact and cumulative impact are positive. The gain in tax revenue is approximately \$6 million per annum by 2023.

The summary of the sector-specific and economic impacts in 2023 is shown in Figure 20.

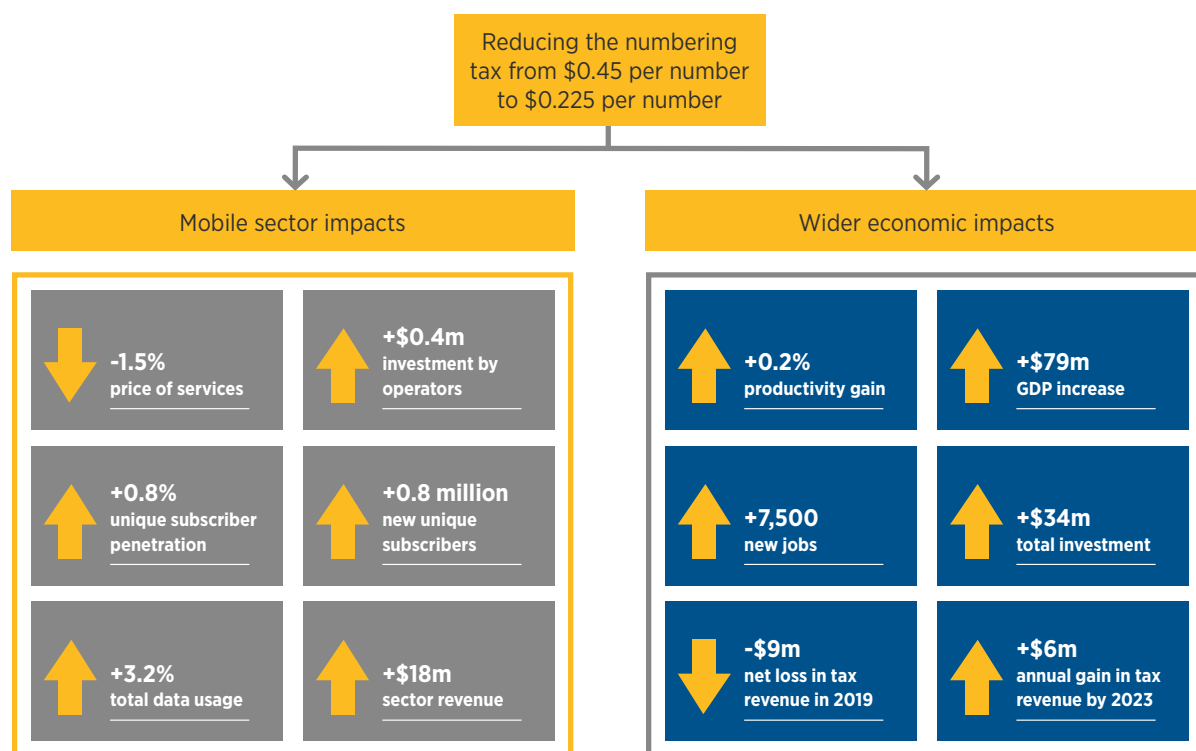
108. A pass-through rate of 97.7% is derived from the GTAP model in this scenario. The remaining 2.3% of the tax saving is therefore available for reinvestment.

109. A "base station", as defined by the International Telecommunication Union (ITU), is a land station in the land mobile service.

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

Figure 20

Annual impacts of reducing the numbering tax, 2023



Source: EY analysis

4.5 Eliminating the tax on mobile money turnover

This scenario models the likely impacts of the government's decision to eliminate the tax on mobile money turnover, which improves the affordability of mobile money services, and can be expected to lead to increased financial inclusion and mobile connectivity for consumers. This scenario, which is modelled against a baseline of the previous 3% rate, is also expected to increase adoption of mobile money services by both existing and new mobile subscribers. The reduction in the tax on mobile money turnover translates into an effective reduction in the price of all mobile services of 0.1%, the majority of which is likely to be passed through to subscribers.

The elimination of the tax will benefit both households and business subscribers. For households, the tax reform will lead to an increase in real incomes, improving the affordability of mobile services, and specifically mobile money. For business subscribers, the elimination of the tax on mobile money turnover would reduce both input costs and the cost of business transactions, increasing demand and freeing up resources which can be invested elsewhere.

This scenario is forecast to have the following impacts compared to the baseline scenario:¹¹¹

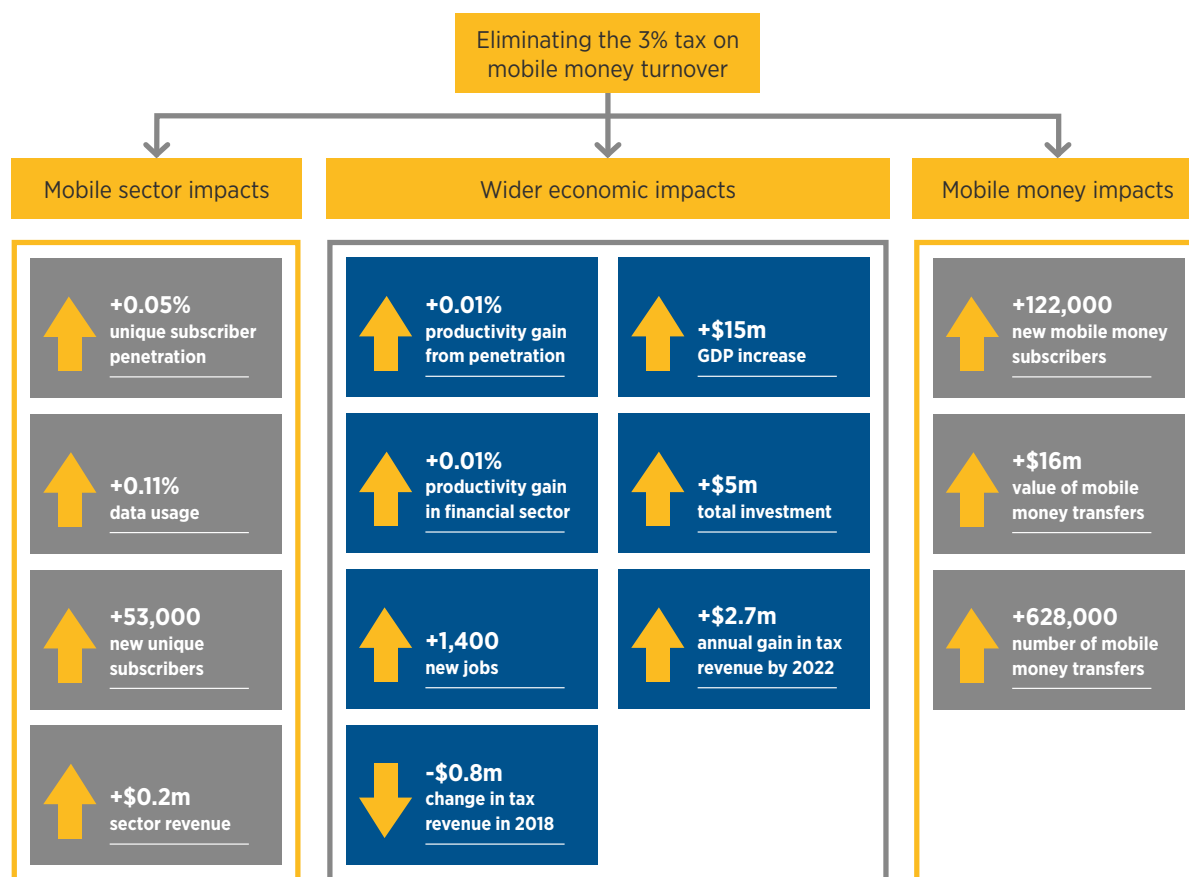
- **New mobile money subscribers:** as a result of the price reduction for mobile money services, there would be an increase of around 122,000 mobile money subscribers by 2023, representing a 0.5% cumulative increase against the baseline.
- **Mobile Money transfers:** the elimination of the tax on Mobile Money turnover will incentivise additional roll out of the service, leading to an increase in the volume and value of transfers. By 2023, there would be 628,000 additional Mobile Money transactions in the DRC per annum, equating to an additional \$16 million of value transferred.
- **New connections:** the reduction in the price of mobile money transfers represents a decrease in the composite price of mobile services, and will therefore also lead to an increase in mobile penetration. By 2023, there would be an additional 53,000 unique subscribers, or 68,000 mobile connections. This is equivalent to an increase of around 0.05% in unique subscriber penetration (0.07% in total connections). Of these new connections, 94% would be prepay and approximately 73% would be classified as low-income.
- **Mobile market revenue:** total mobile sector revenue would increase by \$0.2 million per annum (0.02%) by 2023. This would be driven by additional revenues from the increased number of connections and the higher usage of mobile money and other services, which offset the reduction in the price of transfers from the tax reform.
- **Usage:** the reduction in the price of mobile services would lead to a 0.1% increase in total data usage compared to the baseline, while total usage of voice and message services would both increase by approximately 0.1%. Among low-income customers, data usage would increase by an estimated 41MB per month.
- **Productivity gain (mobile connectivity):** as a result of enhanced mobile connectivity, the increase in unique subscriber penetration of 0.05% would lead to a 0.01% gain in productivity across the economy, leading in turn to further increases in output, incomes and expenditure.
- **Productivity gain (financial inclusion):** as a result of the tax reform, an additional 122,000 individuals per year would gain access to mobile money services. This transition to digital finance in the DRC would increase the productivity of the financial sector by 0.01%.
- **GDP increase:** total GDP would increase by \$15 million (0.04%) 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 in the economy, employment would increase by approximately 1,400 jobs (0.01%).
- **Wider investment in the economy:** as a result of the decrease in intermediate costs for businesses that use mobile, additional resources are made available for investment across the economy. By 2023, this scenario would lead to an annual gain in investment of \$5 million.
- **Benefits to other sectors:** as a result of the increased level of economic activity, all of the sectors within the economy will increase their level of output. Output in the trade sector rises the most (0.07%), while communications (0.05%) and electronics (0.05%) also make relatively strong gains.
- **Tax revenue impact:** this scenario would have an initial net cost to the DRC Exchequer of \$0.8 million in 2019. However, the subsequent expansion of the mobile sector, and significant growth in the wider economy, mean that by year 2 both the annual impact and cumulative impact are positive. The gain in tax revenue is about \$2.7 million per annum by 2023.

The summary of the sector-specific and economic impacts in 2023 is shown in Figure 21.

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

Figure 21

Annual impacts of eliminating the tax on mobile money turnover



Source: EY analysis



5. Conclusion: Reforming mobile sector taxation in the DRC

The mobile industry has the potential to play an increasingly important role in achieving the objectives set out in the DRC Government's national development strategy, by improving access to information, developing human capital and enhancing opportunities for trade.

The sector has grown rapidly over the past decade, with over 24.4 million new individuals becoming connected to mobile services between 2007 and 2017. However, with unique subscriber penetration of 35.5%, there is still significant scope to further develop the sector. A lack of affordability for basic consumption baskets in the DRC limits the potential growth in mobile adoption, particularly among rural and low-income individuals. Furthermore, the significant

affordability challenges associated with 3G and 4G technologies act as barriers to internet access and usage in the DRC, which is low compared to regional peers.

By promoting investment, reducing the cost of mobile ownership and incentivising usage, the tax reforms outlined in this paper will help to connect individuals, particularly those in low-income groups, to mobile services. Reforming taxation applied on the mobile sector towards a more balanced and efficient structure has the potential to provide significant economic benefits and would support the Government's national development strategy 2017–2021 (PNSD).

A summary of the impacts is provided in Table 5.

Table 5

Summary of socio-economic benefits of the proposed tax reforms, by 2023

Indicator	Reducing excise duty on mobile services from 10% to 3%	Reducing the numbering tax from \$0.45 per number to \$0.225 per number	Eliminating the 3% tax on mobile money turnover
New unique subscribers	+2.8m	+0.8m	+53,000
Sector Revenue	+\$62m	+\$18m	+\$0.2m
GDP Increase	+\$276m	+\$79m	+\$15m
Wider Investment	+\$119m	+\$34m	+\$5m
Annual gain in tax revenue	+\$21m	+\$6m	+\$2.7m

The policy options for reform outlined in this report achieve a number of key objectives for the mobile sector and wider DRC economy, namely, increasing the affordability of mobile products and services, reducing the tax burden on operators and consumers and, as a result, increasing the productivity of the country. 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:

- Reducing the level of specific taxation;
- 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.¹¹²

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



112. An externality is a consequence of an economic activity experienced by unrelated third parties; it can be either positive or negative.

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 DRC's 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

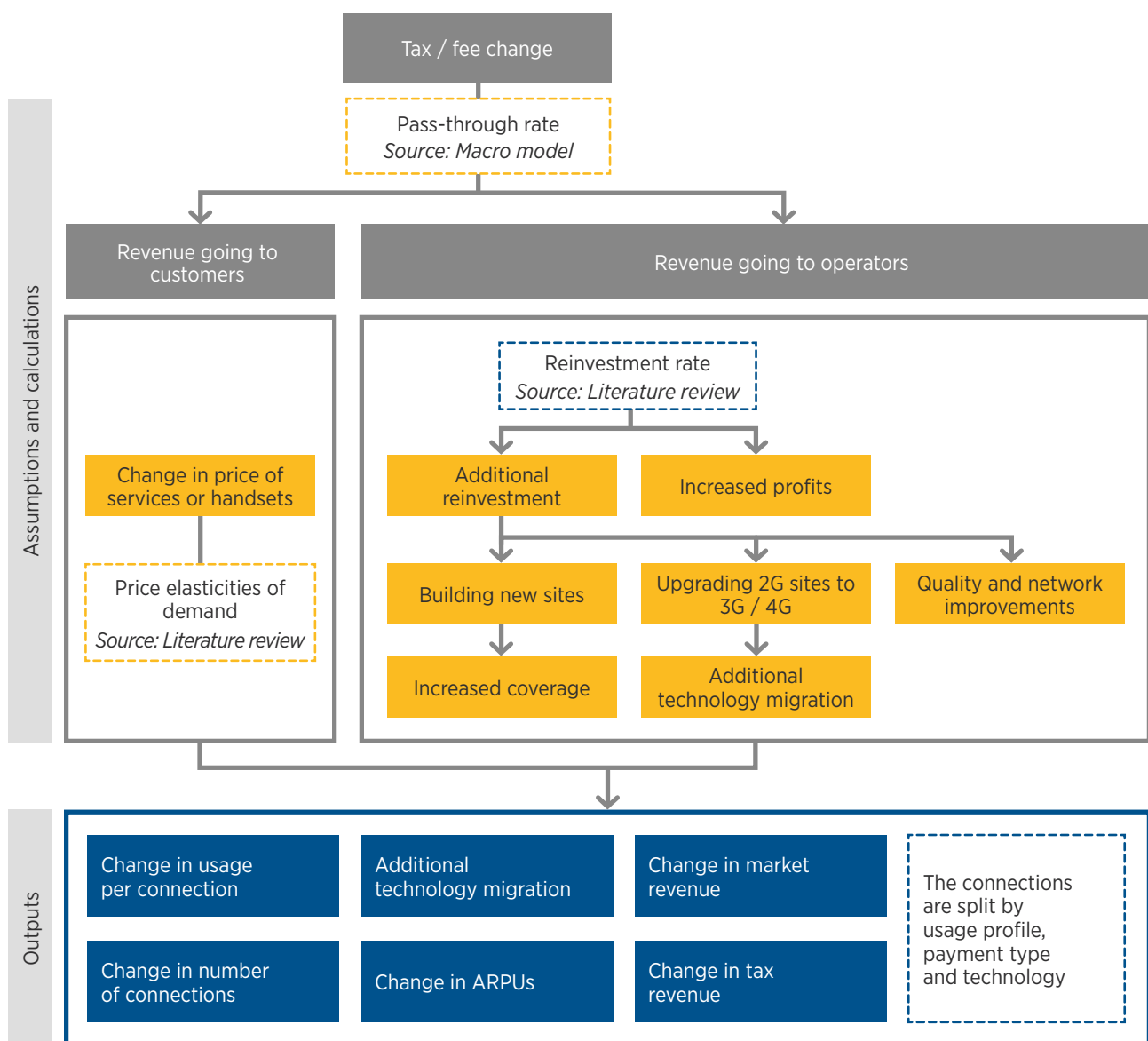
The telecoms market model covers the period 2017–2023, and uses data from local mobile operators and the GSMA Intelligence database. For modelling the scenarios, it has been assumed that the first phase of tax changes becomes

effective in 2019. 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.¹¹³

A schematic of this model is presented in Figure 22 below.

Figure 22

Overview of mobile sector modelling approach



Source: EY analysis

113. The baseline forecast is the counterfactual scenario for which results are compared against. It is based on operators forecasts of the market over the period 2017–2023.

As illustrated in Figure 22, 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 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".¹¹⁴ 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.¹¹⁵ 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; and
- 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.

Key outputs

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

- 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 has been run for a total of 18 categories of subscribers.

Macroeconomic modelling

Macroeconomic modelling approach

The macroeconomic 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 macroeconomic 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.

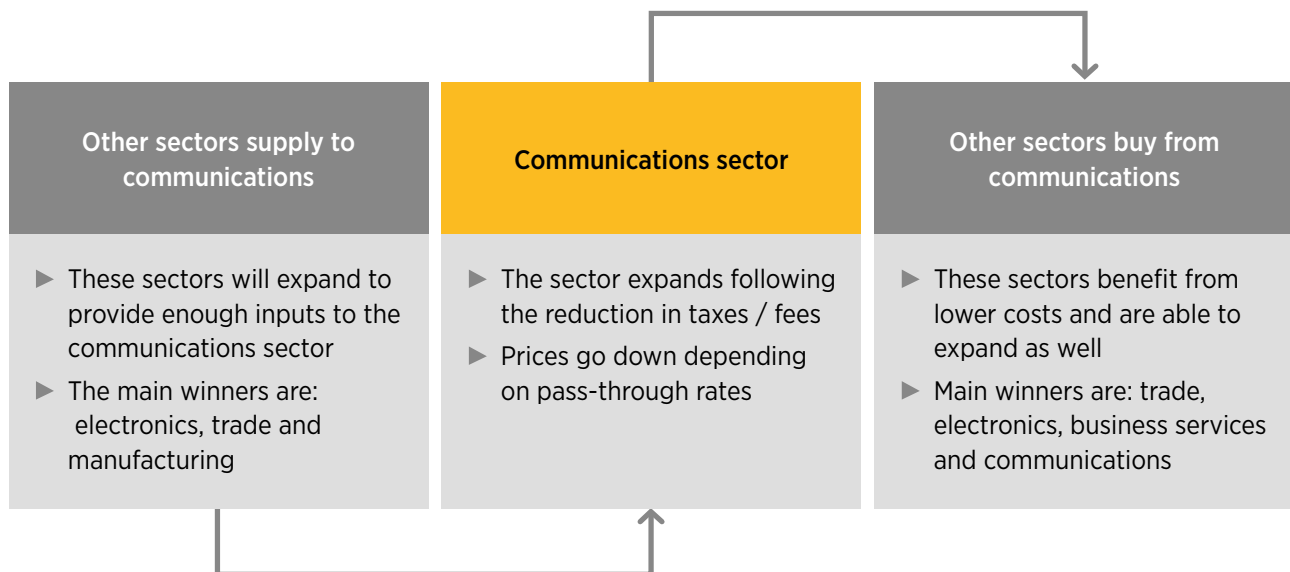
The impact of the mobile sector on the wider economy starts from its supply chain linkages. In particular, telecommunications is an important input to businesses right across the DRC's economy. As lower taxes and consequent lower prices are passed on, many businesses will benefit and be able to expand their own outputs. Businesses that supply the mobile sector will also benefit from its expansion (see Figure 23).

114. 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

115. The percentage of the tax/fee change not passed through to subscribers which is reinvested by operators.

Figure 23

Supply chain linkages



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 a number of 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 linkages and interaction effects will be reinforced by an increase in productivity in the DRC 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.

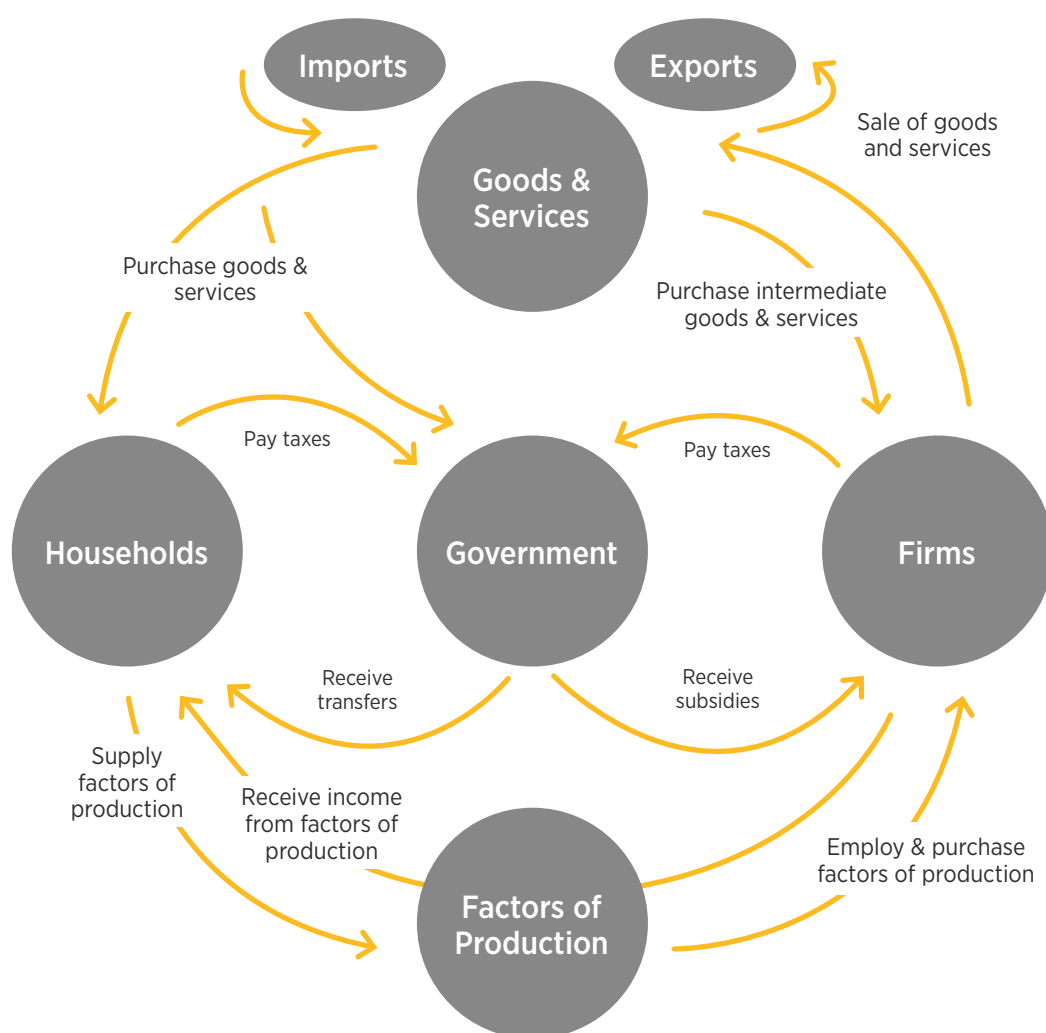
The CGE model

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 24). 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 24

Circular flow of the economy



Source: Adapted from Burfisher, Mary (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). In the standard GTAP model prices, quantities of all non-endowment 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.¹¹⁶ This standard closure is amendable with a wide range of alternative options available depending on modelling assumptions adopted.

116. T.W. Hertel, ed., 1997, *Global Trade Analysis: Modeling and Applications*, Cambridge University Press.



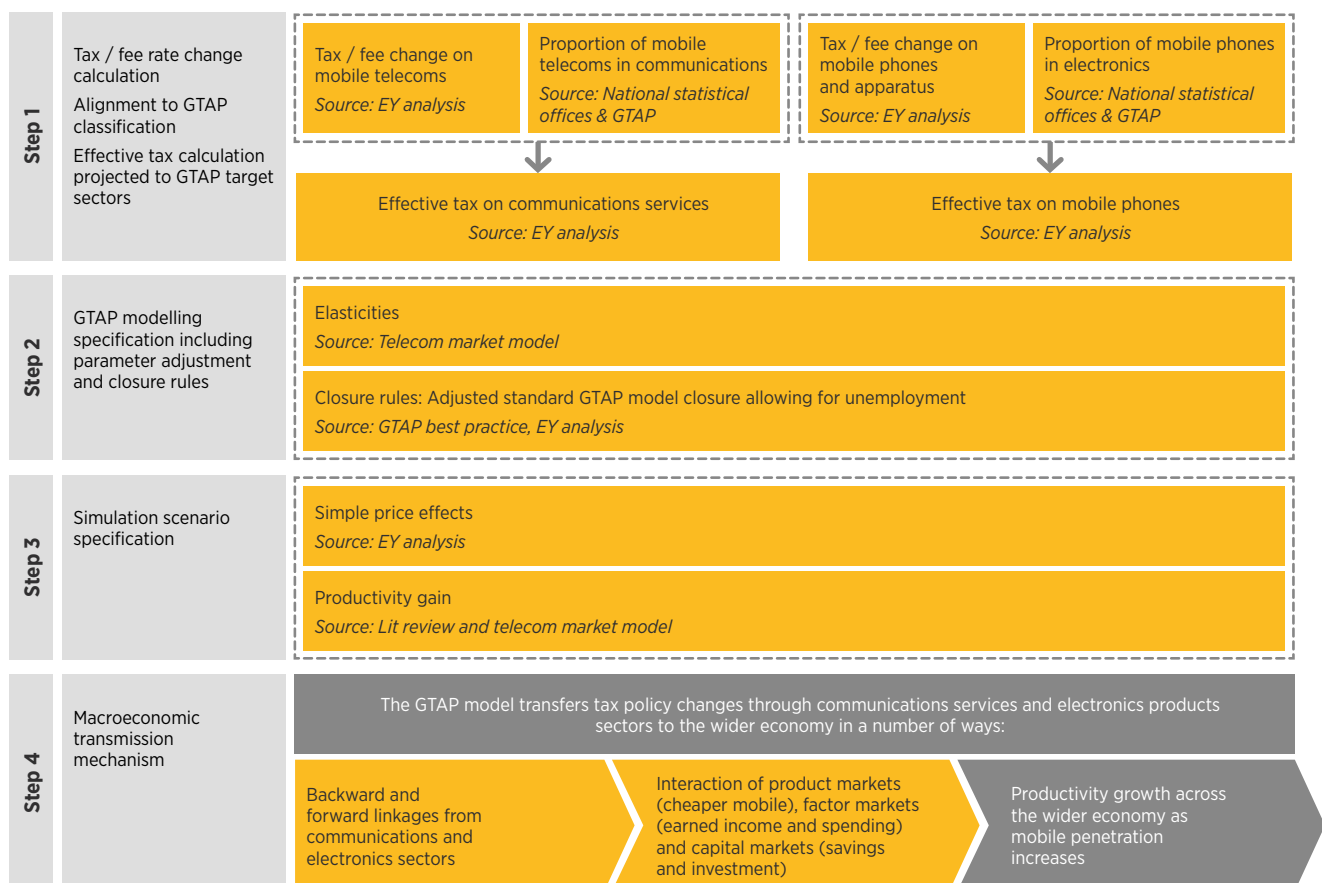
Scenario modelling

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;¹¹⁷
- 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 a specific economy;
- 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 25); and
- Finally, simulations are performed estimating the new equilibrium following the policy shocks introduced.

Figure 25

Overview of macroeconomic modelling approach



Source: EY analysis

117. All taxes affecting the production and consumption of mobile services and mobile phones in the DRC (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 macro-economic modelling in GTAP and specifically for the DRC. 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 the DRC that are incorporated in the GTAP model, and which are based on input-output tables from national statistics and other empirical data on the DRC 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.¹¹⁸ 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 will vary depending on the underlying behavioural relationships in the DRC economy.

Table 6 provides the pass-through rates derived in the GTAP model for each scenario.

Table 6

Pass-through rates of the proposed tax reforms

Indicator	Reducing excise on mobile services from 10% to 3%	Reducing the numbering tax from \$ 0.45 per number to \$ 0.225 per number	Eliminating the 3% tax on mobile money turnover
Pass-through rate	96.8%	97.7%	97.3%

In all scenarios, the mobile operators pass approximately 96 to 98% of the tax savings on to subscribers by reducing the prices of mobile services. The similar, but not identical pass-through rates generated in GTAP are reflective of the common nature of each tax reform, whereby each is treated as

a reduction in consumption tax within the sector. The level of the pass-through rate reflects the underlying market structure and is determined by the underlying price and income elasticities of supply and demand.

118. For instance, if we assume that supply is perfectly elastic, then consumers will absorb the full tax reduction in the form of lower prices.

Key assumptions for the DRC

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

Price elasticity of demand

A literature review has been conducted (covering 30 studies), as a basis for establishing a set of assumptions on the price elasticity of demand (PED).

For purposes of this study, we define four 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 number of connections following a change in the price of services and handsets;
- 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 price of handsets; and
- Mobile money elasticity, which relates to the change in the number of mobile money transfers made by existing subscribers following a change in the price of mobile money transactions.

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

To establish relevant price elasticities for the DRC, we have used a set of studies pertaining to low-income countries (the DRC is defined as a low-income economy by the World Bank).¹¹⁹ 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 from -1.11 to -1.41 for handsets;
- Technology migration elasticities: from -0.25 to -0.32 for data and from -0.36 to -0.45 for handsets; and

- Mobile money elasticity: -0.12. This is based on an empirical study by Economides and Jeziorski (2015)

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.¹²⁰

Of the reinvestment amount, it is assumed that 100% of operators' investment is directed towards building new 2G sites. This is because 2G coverage in the DRC remains low, at approximately 49% in 2017.¹²¹ To determine the level of capital expenditure required to update or build new sites following reinvestment, the following assumptions have been used:

- Capital expenditure required to build a new 2G site is \$97,353 (based on previous GSMA analysis);
- The coverage of a new 2G site is assumed to be 29,200 people (based on previous GSMA analysis);
- The average penetration in newly covered areas is assumed to be 91% of the DRC's national average penetration rate (based on evidence on the rural/urban divide from Financial Inclusion Insights); and
- It takes two years to reach the average level of penetration in the newly covered area.

Regional aggregation in GTAP

In the GTAP database, the DRC is not included as a separate country, but is instead incorporated with Angola as part of a South Central Africa region. This is due to limited data availability, specifically the lack of an input-output table for the country. Furthermore, the underlying Input-Output tables for the South Central Africa region are based on data from Namibia and Malawi, with scaling and behavioural adjustments applied by the database developers to reflect the underlying regional fundamentals.

119. World Bank (<https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups>)

120. See, for example, Gilchrist and Himmelberg, 1995, "Evidence on the role of cash flow for investment" and Katz, 2012, "Assessment of the economic impact of taxation on communications investment in the United States".

121. GSMA Intelligence database

In order to reflect the appropriate scale of the macroeconomic outputs for the DRC, the following approach has been used:

- Real GDP, employment, household income and expenditure, investment: percentage changes from GTAP have been applied to the absolute 2016 values of these indicators for the DRC; and
- Taxation impacts: tax receipts have been scaled down based on the share of the DRC's GDP in the total regional GDP.

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).¹²²

This study distinguishes between two separate productivity impacts, relating to an increase in mobile penetration and an increase in financial inclusion:¹²³

- Productivity and mobile penetration. We assume that a 1% increase in unique subscriber penetration leads to a 0.25% increase in total factor productivity. This value is based on a review of the literature,¹²⁴ and has been adjusted (upwards) from previous studies to account for limited fixed infrastructure and low mobile penetration in the DRC.¹²⁵
- Productivity and financial inclusion. Access to mobile money has the potential to deliver cost and time savings for businesses and households that use financial services. To capture this impact, we have assumed that a 1% increase in mobile money subscribers leads to a 0.25% increase in the use of financial services as an intermediate good for other sectors, and a 0.25% increase in the efficiency of producing financial services.¹²⁶

In this study, the shock to TFP is modelled as a change in the productivity of all primary factors (of equal proportions) in the DRC economy. This productivity change enters as a variable into the constant elasticity of substitution (CES) value-added production function.¹²⁷ The TFP shock works in the DRC 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 macroeconomic 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 five to 10 years with the annual impact on GDP increasing at a diminishing rate.¹²⁸

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 2019. The assumed path is illustrated in Figure 26.

122. TFP is a measure for how efficiently an economy uses inputs during its production process.

123. The latter effect applies only to the reduction in excise on mobile money transfers.

124. See, for example, LECG, 2009, "Exploring the Relationship Between Broadband and Economic Growth" and Waverman et al., 2009, "Economic Impact of Broadband: An Empirical Study".

125. Previous research by the GSMA is leveraged to calculate the TFP shock. This research estimates the relationship between penetration, infrastructure levels and the productivity potential of mobile connectivity.

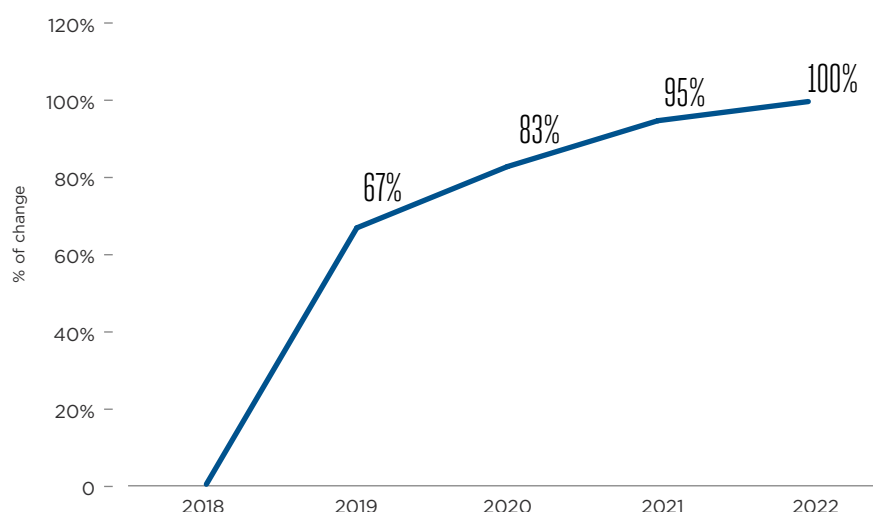
126. This impact has been calculated using a ratio of cost savings for businesses and financial services to total costs in the financial services sector. The cost savings for the financial sector accrued through the digitization of financial activities for six countries (Brazil, China, India, Mexico, Nigeria and Pakistan) were sourced from McKinsey. To understand the efficiency gain this represented, and therefore the added productivity in the sector, these savings were expressed as a proportion of the total costs incurred (total intermediate consumption plus compensation of employees) by the financial sector in each country in GTAP. Across the sample of countries, an average efficiency gain of 0.25% is estimated.

127. The factor substitution effect is zero, as the productivity of all factors changes in the same proportions.

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

Figure 26

Time path for the transition to the new equilibrium



Source: EY analysis

Closure rules in the macroeconomic model

In order to account for specific labour market conditions in the DRC, 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, in the DRC, it can be observed that there is some significant unemployment in the skilled workforce.

Data from the DRC's National Institute of Statistics demonstrates that the highest rate of unemployment in the country is among individuals with relatively higher levels of education. Therefore, the macroeconomic modelling in GTAP allows for unemployment in the "Technicians/Associate Professional" category. This means that an expansion of demand in the economy leads to both an increase in employment and an increase in wages for skilled workers.

Mobile sector weight in the telecommunications sector

As the GTAP macroeconomic model does not identify the mobile sector as a separate industry, an off-model share of the mobile sub-sector has been calculated based on the data from the DRC's National Institute of Statistics. The share has been estimated at 99%, with the remainder of the communications sector consisting of postal and courier services, fixed telephony and internet services.

Mobile money

The total impact on the usage of mobile money services (and hence financial inclusion) is modelled through two distinct channels:

1. **Existing mobile subscribers** – following the reduction in the price of mobile money services, existing mobile users who previously did not use mobile money services would be more likely to acquire mobile money accounts.
2. **New mobile subscribers** – reducing the composite price of services would make mobile services more affordable, and therefore increase the number of mobile connections compared to the baseline. A proportion of these new mobile connections would also be likely to acquire mobile money accounts.

To estimate the impact of the above, a number of assumptions are developed: on the number of mobile money subscribers, volume of mobile payments and the value of mobile transfers. These assumptions draw on previous research conducted by the GSMA,¹²⁹ and are as follows:

- On average, each user makes mobile payments equivalent to a value of \$25 per month; and
- In 2016, approximately 48% of total mobile connections had mobile money accounts.

129. GSMA, 2013, "Enabling Mobile Money Policies in the Democratic Republic of Congo", <https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2014/04/Enabling-Mobile-Money-Policies-in-the-Democratic-Republic-Of-Congo.pdf>

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: Reduction in excise duty on mobile services

This scenario models a reduction in the excise duty on mobile services from 10% to 3%.

Table 7

Annual impact of reducing excise duty on mobile services on selected variables

Indicator	2019	2020	2021	2022	2023
MOBILE SECTOR IMPACTS					
Change in price of services vs baseline	-5.1%				
Incremental connections (total)	1,179,000	2,552,000	2,886,000	3,224,000	3,569,000
Incremental unique subscribers (total)	947,000	2,023,000	2,270,000	2,520,000	2,774,000
Incremental connections (3G and 4G)	477,000	1,198,000	1,377,000	1,772,000	2,183,000
of which technology migration	116,000	164,000	0,000	0,000	0,000
Incremental connections by low-income subscribers	852,000	1,866,000	2,111,000	2,359,000	2,607,000
ARPU (total) vs baseline	-3.2%	-1.3%	-1.4%	-1.4%	-1.4%
Increase in mobile penetration (connections)	1.4%	2.9%	3.1%	3.4%	3.6%
Increase in mobile penetration (unique subscribers)	1.1%	2.3%	2.5%	2.6%	2.8%
Data usage vs baseline	5.3%	10.8%	11.1%	11.4%	11.6%
Increase in market revenue (total)	-\$5m	\$53m	\$57m	\$60m	\$62m
Increase in market revenue (total) vs baseline	-0.5%	4.4%	4.7%	5.0%	5.2%
Additional investment	\$1.2m	\$1.2m	\$1.2m	\$1.2m	\$1.2m
Static tax impact ¹³⁰	-\$61m	-\$63m	-\$64m	-\$63m	-\$63m
Impact on mobile sector taxation	-\$61m	-\$49m	-\$48m	-\$46m	-\$45m
WIDER ECONOMIC IMPACTS¹³¹					
Full impact on communications sector taxation ¹³²	-\$44m	-\$29m	-\$36m	-\$42m	-\$44m
Receipts from all other sectors	\$3m	\$43m	\$54m	\$62m	\$65m
Total tax receipts	-\$42m	\$14m	\$17m	\$20m	\$21m
Cumulative total receipts	-\$42m	-\$28m	-\$10m	\$10m	\$31m
Real GDP	\$12m	\$185m	\$229m	\$262m	\$276m (0.79%)
Employment		Impact estimated for 2023 only.			25,779 (0.09%)
Household income		Impact estimated for 2023 only.			\$212m (0.84%)
Household expenditure		Impact estimated for 2023 only.			\$208m (0.82%)
Investment		Impact estimated for 2023 only.			\$119m (2.22%)

Source: EY analysis

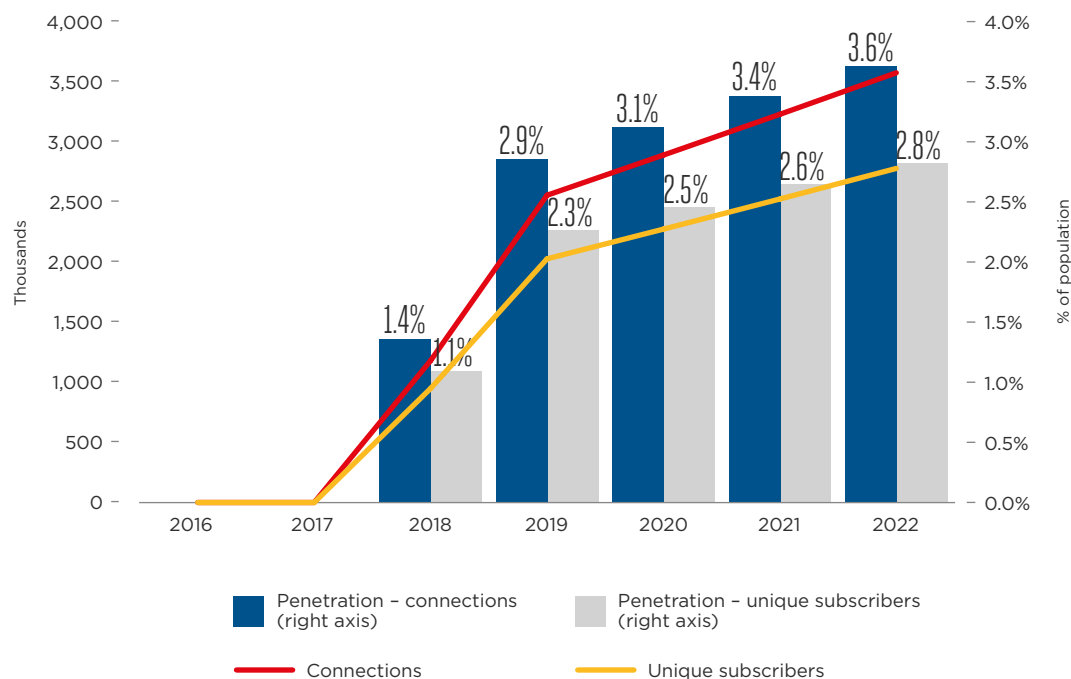
130. This is the initial direct cost to the Exchequer, before behavioural change in the sector and the economy; overstates the true cost.

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

132. The productivity impact of the tax reform is assumed to take place in year 2, resulting in a marginal increase in tax revenue from the communications sector. In the following years, the impact of the productivity effects gradually decline, and hence the tax loss increases in absolute terms.

Figure 27

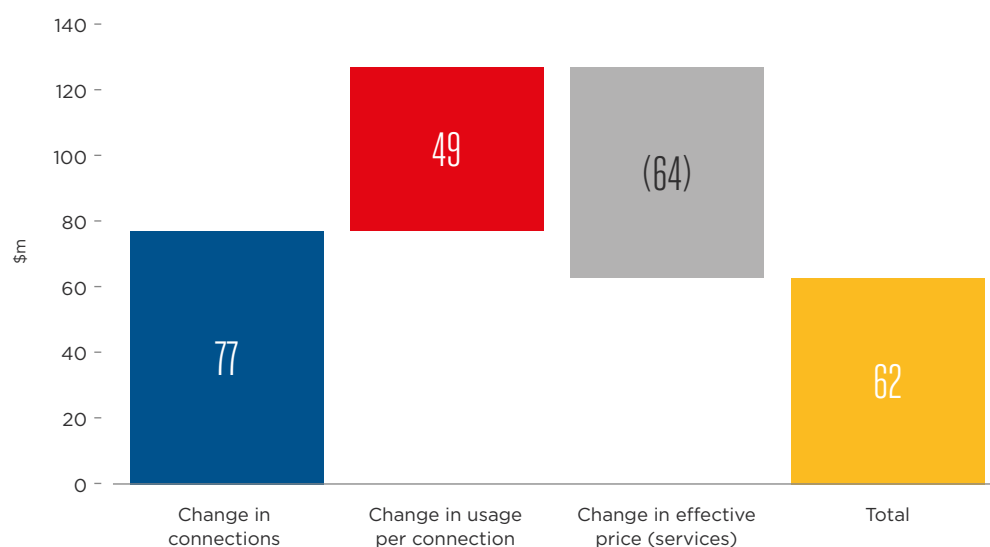
Connections and penetration impacts of reducing excise duty on mobile services



Source: EY analysis

Figure 28

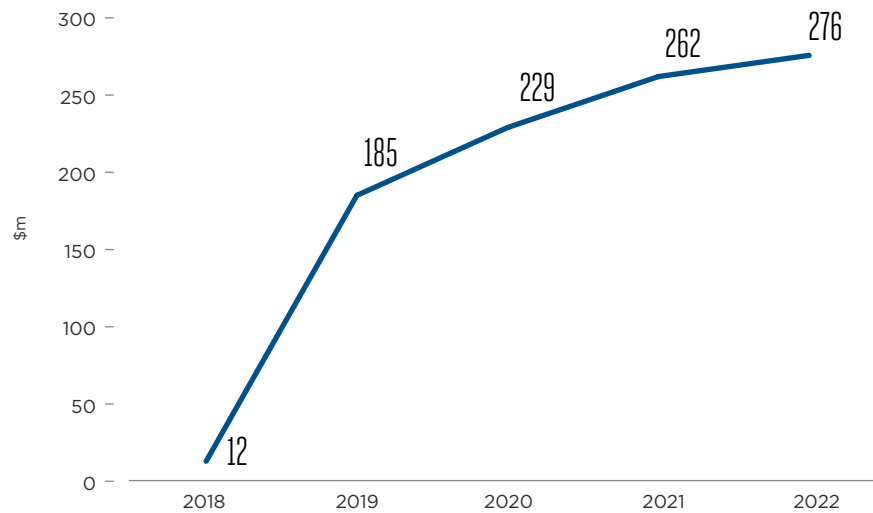
Main drivers of the market revenue change following a reduction in excise duty on mobile services



Source: EY analysis

Figure 29

Reducing excise duty on mobile services – annual GDP effects compared to baseline, \$m



Source: EY analysis

Scenario 2: Reduction in the numbering tax

This scenario models a reduction in the numbering tax from \$0.45 per number to \$0.225 per number.

Table 8

Annual impact of reducing the numbering tax on selected variables

Indicator	2019	2020	2021	2022	2023
MOBILE SECTOR IMPACTS					
Change in price of services vs baseline	-1.5%				
Incremental connections (total)	336,000	723,000	818,000	914,000	1,012,000
Incremental unique subscribers (total)	270,000	573,000	643,000	714,000	787,000
Incremental connections (3G and 4G)	136,000	340,000	390,000	502,000	618,000
<i>of which technology migration</i>	33,000	47,000	0,000	0,000	0,000
Incremental connections by low-income subscribers	243,000	529,000	598,000	669,000	739,000
ARPU (total) vs baseline	-0.9%	-0.3%	-0.4%	-0.4%	-0.4%
Increase in mobile penetration (connections)	0.4%	0.8%	0.9%	1.0%	1.0%
Increase in mobile penetration (unique subscribers)	0.3%	0.6%	0.7%	0.7%	0.8%
Data usage vs baseline	1.5%	3.0%	3.1%	3.2%	3.2%
Increase in market revenue (total)	-\$1m	\$15m	\$17m	\$17m	\$18m
Increase in market revenue (total) vs baseline	-0.1%	1.3%	1.4%	1.5%	1.5%
Additional investment	\$0.3m	\$0.4m	\$0.4m	\$0.4m	\$0.4m
Static tax impact	-\$18m	-\$19m	-\$20m	-\$21m	-\$23m
Impact on mobile sector taxation	-\$17m	-\$14m	-\$15m	-\$16m	-\$17m
WIDER ECONOMIC IMPACTS¹³³					
Full impact on communications sector taxation ¹³⁴	-\$10m	-\$8m	-\$10m	-\$12m	-\$12m
Receipts from all other sectors	\$1m	\$12m	\$15m	\$18m	\$19m
Total tax receipts	-\$9m	\$4m	\$5m	\$6m	\$6m
<i>Cumulative total receipts</i>	-\$9m	-\$5m	\$0m	\$6m	\$12m
Real GDP	\$3m	\$53m	\$66m	\$75m	\$79m (0.23%)
Employment		Impact estimated for 2023 only.			7,531 (0.03%)
Household income		Impact estimated for 2023 only.			\$61m (0.24%)
Household expenditure		Impact estimated for 2023 only.			\$59m (0.23%)
Investment		Impact estimated for 2023 only.			\$34m (0.64%)

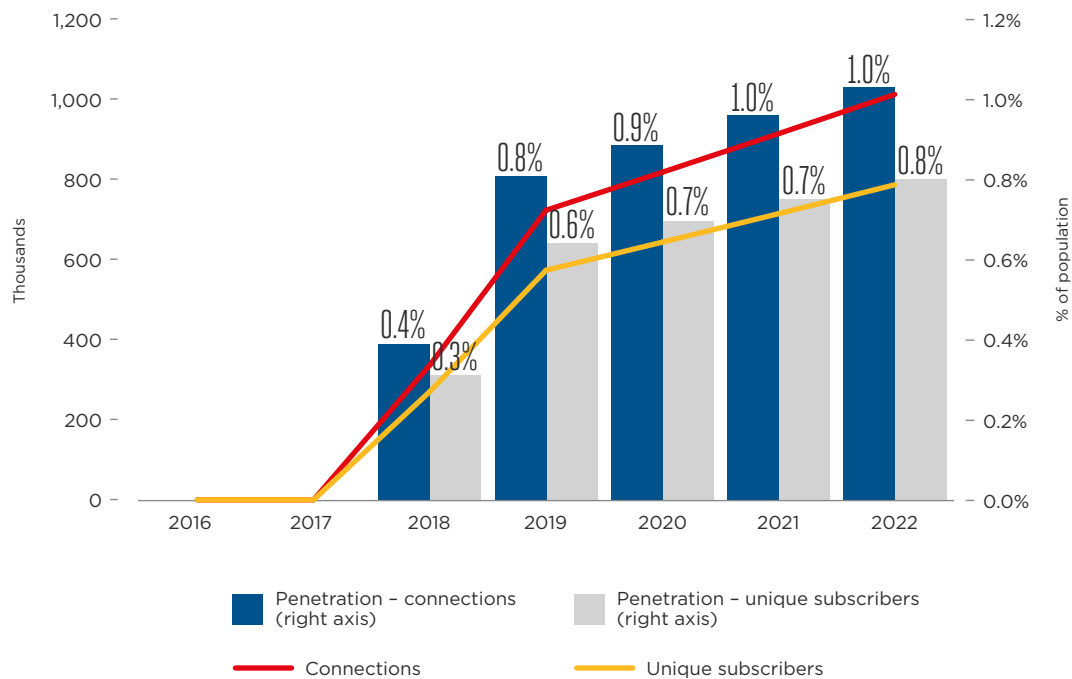
Source: EY analysis

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

134. The productivity impact of the tax reform is assumed to take place in year 2, resulting in a marginal increase in tax revenue from the communications sector. In the following years, the impact of the productivity effects gradually decline, and hence the tax loss increases in absolute terms.

Figure 30

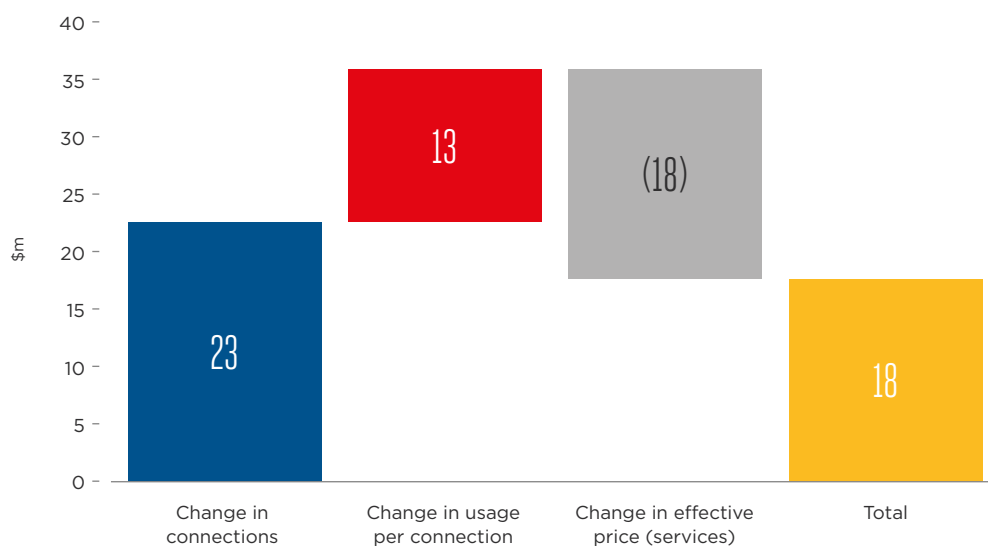
Connections and penetration impacts of the reduction in the numbering tax



Source: EY analysis

Figure 31

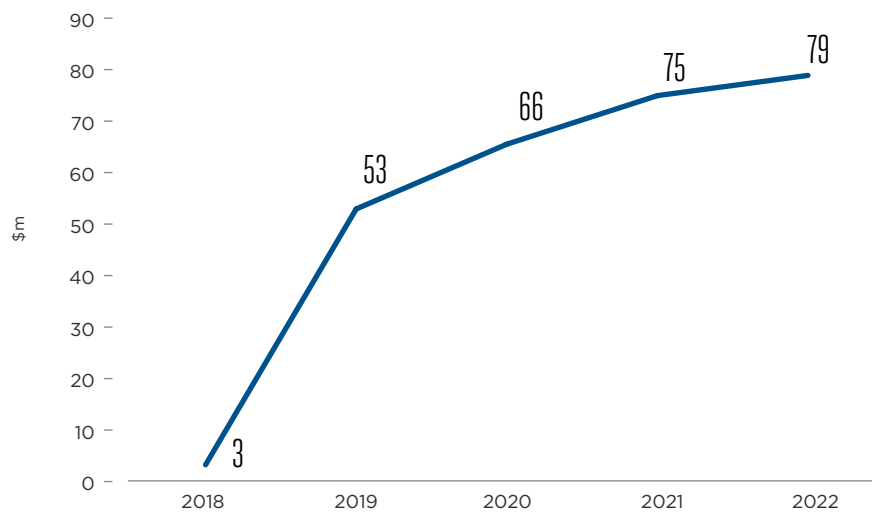
Main drivers of the market revenue change following a reduction in the numbering tax, \$m



Source: EY analysis

Figure 32

Reduction in the numbering tax - annual GDP effects of compared to baseline, \$m



Source: EY analysis

Scenario 3: Elimination of the tax on mobile money turnover

This scenario models the elimination of the 3% tax on mobile money turnover.¹³⁵

Table 9

Annual impact of eliminating the tax on mobile money turnover on selected variables

Indicator	2019	2020	2021	2022	2023
MOBILE SECTOR IMPACTS					
Change in price of services vs baseline	-0.1%				
Incremental connections (total)	23,000	49,000	55,000	62,000	68,000
Incremental unique subscribers (total)	18,000	39,000	43,000	48,000	53,000
Incremental connections (3G and 4G)	9,000	23,000	26,000	34,000	42,000
<i>of which technology migration</i>	2,000	3,000	0,000	0,000	0,000
Incremental connections by low-income subscribers	16,000	36,000	40,000	45,000	50,000
ARPU (total) vs baseline	-0.10%	-0.11%	-0.11%	-0.11%	-0.11%
Increase in mobile penetration (connections)	0.03%	0.05%	0.06%	0.06%	0.07%
Increase in mobile penetration (unique subscribers)	0.02%	0.04%	0.05%	0.05%	0.05%
Data usage vs baseline	0.05%	0.10%	0.10%	0.11%	0.11%
Increase in market revenue (total)	-\$0.6m	\$0.0m	\$0.1m	\$0.1m	\$0.2m
Increase in market revenue (total) vs baseline	-0.05%	0.00%	0.01%	0.01%	0.02%
Additional investment	\$0.02m	\$0.02m	\$0.02m	\$0.02m	\$0.02m
Static tax impact	-\$1.2m	-\$1.2m	-\$1.2m	-\$1.2m	-\$1.2m
Impact on mobile sector taxation	-\$1.3m	-\$1.1m	-\$1.1m	-\$1.1m	-\$1.1m
MOBILE MONEY IMPACTS					
Incremental mobile money subscribers (total)	80,259	98,040	106,013	114,023	122,183
Increase in mobile money subscribers	0.41%	0.08%	0.04%	0.03%	0.03%
Cumulative increase in mobile money subscribers	0.41%	0.46%	0.47%	0.47%	0.48%
Incremental mobile money transfers (value)	\$11m	\$13m	\$14m	\$15m	\$16m
Incremental mobile money transfers (volume)	412,759	504,205	545,208	586,402	628,369
WIDER ECONOMIC IMPACTS¹³⁶					
Full impact on communications sector taxation ¹³⁷	-\$1.0m	-\$0.6m	-\$0.7m	-\$0.8m	-\$0.9m
Receipts from all other sectors	\$0.1m	\$2.4m	\$3.0m	\$3.4m	\$3.6m
Total tax receipts	-\$0.8m	\$1.8m	\$2.3m	\$2.6m	\$2.7m
<i>Cumulative total receipts</i>	<i>-\$0.8m</i>	<i>\$1.0m</i>	<i>\$3.2m</i>	<i>\$5.8m</i>	<i>\$8.5m</i>
Real GDP	\$0.2m	\$10m	\$12m	\$14m	\$15m (0.04%)
Employment		Impact estimated for 2023 only.			1,390 (0.005%)
Household income		Impact estimated for 2023 only.			\$11m (0.04%)
Household expenditure		Impact estimated for 2023 only.			\$11m (0.04%)
Investment		Impact estimated for 2023 only.			\$5m (0.10%)

Source: EY analysis

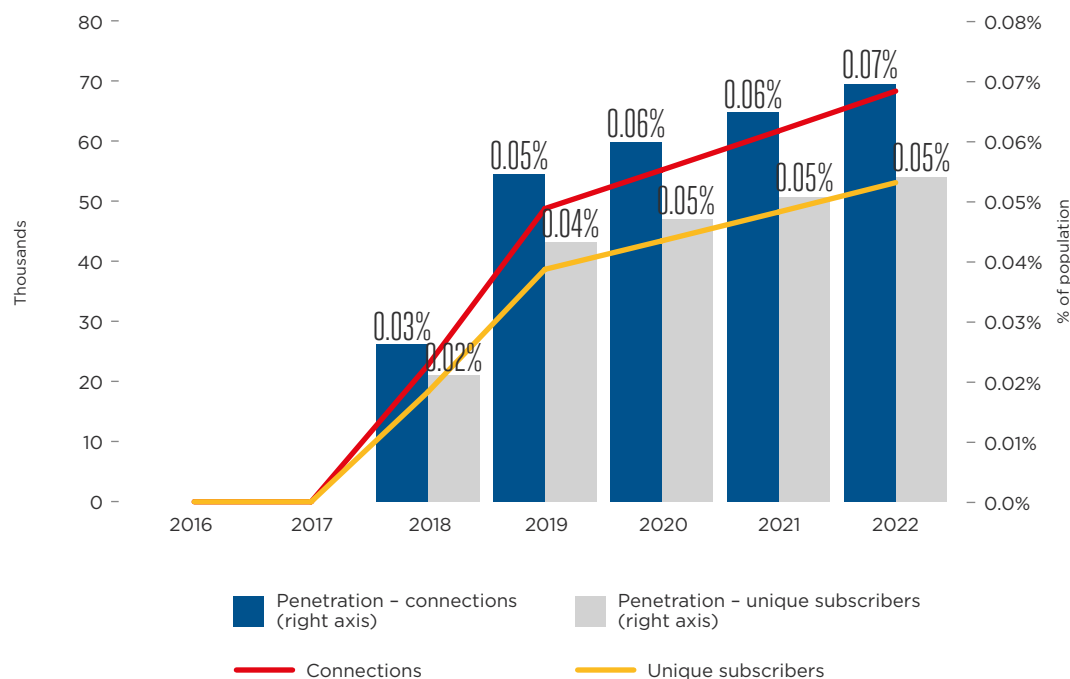
135. It is assumed that, contrary to the other scenarios, cheaper mobile money services will not impact the usage per connection of other services in the market.

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

137. The productivity impact of the tax reform is assumed to take place in year 2, resulting in a marginal increase in tax revenue from the communications sector. In the following years, the impact of the productivity effects gradually decline, and hence the tax loss increases in absolute terms.

Figure 33

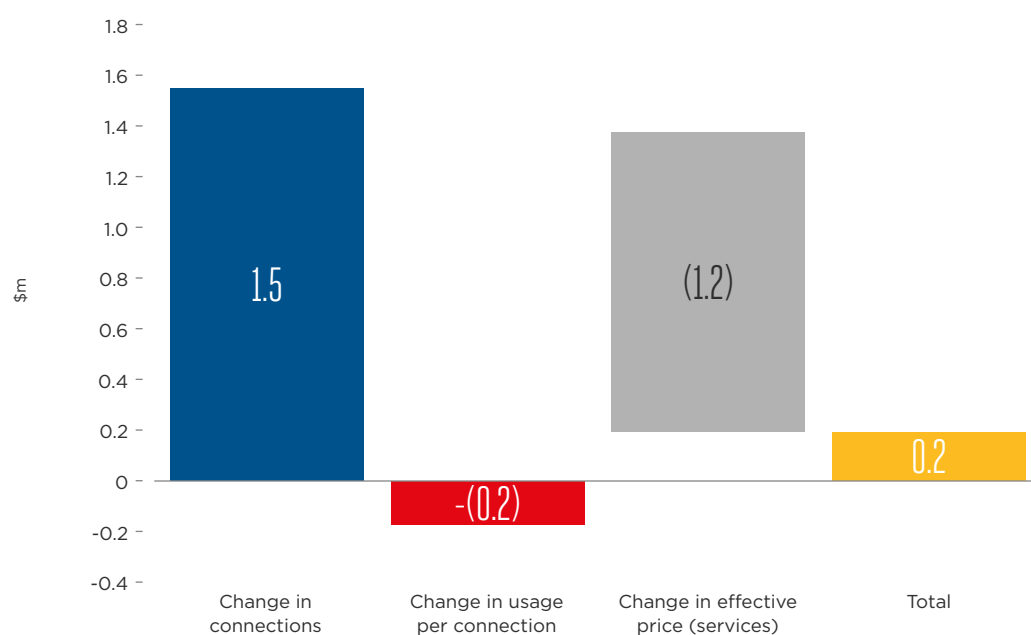
Connections and penetration impacts of elimination of the tax on mobile money turnover



Source: EY analysis

Figure 34

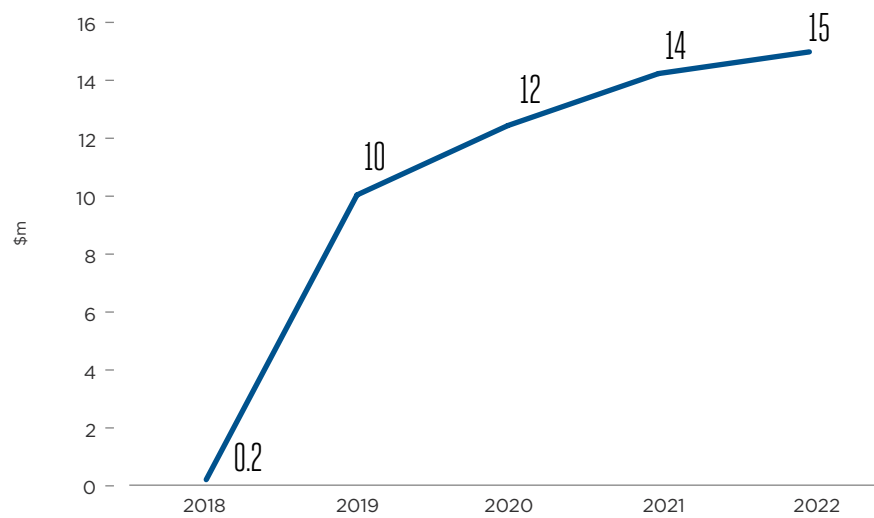
Main drivers of the market revenue change following elimination of tax on mobile money turnover



Source: EY analysis

Figure 35

Elimination of the tax on mobile money turnover – annual GDP effects of compared to baseline, \$m



Source: EY analysis



For full report please visit the GSMA website at
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