



# Reforming mobile sector taxation in Tunisia:

Maximising the economic and social benefits  
of the mobile sector through a more efficient  
tax system





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

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# Executive summary

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

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

In order to assess the potential benefits of a more efficient tax structure in the mobile sector, one which focuses on facilitating investment and unlocking digital inclusion, the GSMA<sup>1</sup> has commissioned EY to undertake a study of the economic impact of potential tax reforms on the Tunisian mobile sector.

This report analyses recent developments in the mobile sector and its tax treatment in Tunisia, 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 Tunisian mobile market has expanded rapidly, but there is scope for further growth in mobile broadband penetration***

In Tunisia, 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 from 4.7 million in 2008 to 8.8 million in 2018, reaching 75% unique subscriber penetration. Total mobile sector revenues were \$889 million in 2017,<sup>2</sup> equivalent to 2.2% of Tunisian GDP,<sup>3</sup> while the sector contributed approximately \$440 million of direct economic value to Tunisia in 2017 (1.1% of GDP).<sup>4</sup> The sector also supports a much wider mobile ecosystem that includes mobile content developers, mobile distribution providers and retail companies.

This rapid growth has been facilitated by investment in the sector by Tunisia's mobile operators, with full 2G population coverage, and high levels of 3G (99%) and 4G coverage (75%).<sup>5</sup> However, while coverage levels are high, there is still considerable room for increasing the penetration of new technologies in the sector; approximately half (50%) of Tunisian mobile subscribers are not connected to mobile broadband services, while 4G penetration was just 6.5% in Q1 2018.<sup>6</sup>

Given the low level of fixed broadband penetration in Tunisia (5.6% in 2016),<sup>7</sup> increasing access to internet-enabled mobile services should become a policy priority for Government. Facilitating the growth of the mobile sector aligns with the Government's broader digitalisation objectives for the Tunisian economy, which are set out in *Digital Tunisia 2020*.<sup>8</sup> This includes increasing the incentives to widen internet access, and the creation of digital jobs.

In 2017, the Government set ambitious objectives for improving the quality of Tunisia's mobile network infrastructure. This included targets to increase average 4G download speeds to 30 megabytes per second (Mbps) beyond 2021.<sup>9</sup> Analysis by Ookla® of average mobile speed data in Speedtest Intelligence® demonstrates that average download speeds in Tunisia currently lag behind a number of its regional peers, and are significantly slower than those observed in more advanced economies in Europe.

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

2. GSMA Intelligence database

3. Tunisian gross domestic product (GDP) was \$40.2 billion in 2017 - Oxford Economics

4. EY analysis of GSMA Intelligence database, Q1 2018

5. GSMA Intelligence database, Q1 2018

6. *ibid.*

7. World Bank databank - this is calculated as the total number of fixed telephone lines divided by the population

8. Ministère des Technologies de la Communication et de l'Economie Numérique. *Plan National Stratégique Tunisie Digitale 2020*, <https://www.mtcen.gov.tn/index.php?id=14>

9. Instance Nationale des Télécommunications (2017) - <http://www.intt.tn/fr/index.php?actu=730&typeactu=89>



Significant investment will be required from mobile operators to improve network quality and expand access to mobile broadband services. However, mobile operators are constrained by the current taxation environment, which imposes customs duties on network equipment, and limits the funds available for reinvestment. Reforming this taxation regime will facilitate investment into the sector, which will in turn improve the speed and reliability of data services, and thereby reduce the effective cost per MB of data in Tunisia.

As it currently stands, for a medium consumption basket (1GB of data), the poorest 20% of the population in Tunisia spend approximately 13.1% of their monthly income on mobile ownership.<sup>10</sup> This is high compared to less data-intensive consumption baskets, and suggests improvements are required to achieve the United Nation's "1 for 2" (1GB of data costing less than 2% of monthly income) affordability target set for 2025.<sup>11</sup>

### ***Taxes on the mobile sector are high compared to levels in other countries within the MENA region***

The mobile sector makes a large contribution in taxes and fees relative to its economic footprint. In 2017, the total tax contribution was estimated at \$300m. This represents 34% of the total market revenue. This is higher than in other countries in the Middle East and North Africa (MENA) region, including Jordan (31%), Egypt (23%) and Morocco (11%), as well European countries, such as Italy (24%), Spain (23%).

While the mobile market revenue accounted for 2.2% of Tunisia's GDP, the sector's tax and fee payments accounted for around 3.4% of government total tax revenue.<sup>12</sup> This means that the mobile tax contribution is 1.5 times greater than its size in the economy.

### ***The tax system exacerbates the competitive pressures on the industry, thereby limiting the growth potential of the mobile sector in Tunisia***

VAT is the largest source of tax payments (20%), followed by both regulatory and spectrum fees (18% and 13%, respectively). Tunisia has the highest

proportion of regulatory fees in a sample including MENA countries, such as Jordan (16%), Egypt (16%) and Algeria (11%), as well as European countries like Spain (13%) and Italy (1%).

Consumers pay 43% of the total taxes, while operators pay the remaining 57%. Furthermore, Tunisia's mobile-specific taxes represent 10% of the total market revenue. This is above the proportion seen in other MENA countries, including Egypt (8%), Algeria (6%) and Morocco (2%), as well as in European countries like Italy (4%) and Spain (3%).

The above results in a high tax burden on mobile operators, discouraging further investment in the sector and limiting the opportunities for further development.

### ***Through policy reform, the Government of Tunisia has the opportunity to facilitate private sector investment, supporting job creation and a better business climate***

GDP growth in Tunisia has been slow in recent years, averaging approximately 1.4% per annum between 2014 and 2017.<sup>13</sup> To curb high inflation (6.3% in 2017) and relieve pressures on public and private finances, the International Monetary Fund (IMF) stated in its 2017 Article IV Consultation that Tunisia must change its pattern of growth towards private sector driven investment and exports in order to realistically raise living standards.<sup>14</sup>

The IMF also highlight that structural reforms are required to improve Tunisia's business climate and labour market.<sup>15</sup> Tunisia is ranked 88th out of 188 countries in the World Bank's Doing Business report, slipping from 42nd in 2012.<sup>16</sup> Tunisia's labour market constraints are evidenced by the high national unemployment rate (15.2%), which is even higher among females (21.5%), young people and graduates (both above 30%).<sup>17</sup>

In response to these challenges, the Government's *Five-Year Development Plan*,<sup>18</sup> approved by Parliament in April 2017, proposes that Tunisia will rely on the private sector to lead economic growth and job

10. GSMA Intelligence database, Tarifica

11. Alliance for Affordable Internet (2017), *2017 Affordability Report* – [http://a4ai.org/affordability-report/report/2015/#redefine\\_%E2%80%9Caffordability%E2%80%9D\\_with\\_income\\_and\\_gender\\_inequalities\\_in\\_mind](http://a4ai.org/affordability-report/report/2015/#redefine_%E2%80%9Caffordability%E2%80%9D_with_income_and_gender_inequalities_in_mind)

12. The total tax revenue was estimated at TND 21,187m in 2017. Source: Ministry of Finance of the Tunisian Republic. [http://www.finances.gov.tn/index.php?option=com\\_content&view=article&id=121&Itemid=302&lang=fr](http://www.finances.gov.tn/index.php?option=com_content&view=article&id=121&Itemid=302&lang=fr) This is approximately \$8,750m (at an average exchange rate of TND 2.42 per dollar)

13. Oxford Economics database

14. International Monetary Fund, 2018, *Tunisia: 2017 Article IV Consultation and Second Review Under the Extended Fund Facility, and Request for Waivers of Nonobservance of Performance Criteria, and Rephasing of Access* – <http://www.imf.org/en/Publications/CR/Issues/2018/06/12/Tunisia-2017-Article-IV-Consultation-and-Second-Review-Under-the-Extended-Fund-Facility-and-45877>

15. International Monetary Fund, 2018

16. World Bank, *Doing Business 2018* – <http://russian.doingbusiness.org/-/media/WBG/DoingBusiness/Documents/Annual-Reports/English/DB2018-Full-Report.pdf>

17. International Monetary Fund, 2018

18. Government of Tunisia, Ministry of Development and International Cooperation, *Development Plan 2016-2020* – [http://www.tunisie.gov.tn/uploads/Document/02/978\\_445\\_Plan-developpement\\_2016\\_2020.pptx](http://www.tunisie.gov.tn/uploads/Document/02/978_445_Plan-developpement_2016_2020.pptx)

19. World Bank, 2018, Republic of Tunisia – Business Environment and entrepreneurship development policy loan – <http://documents.worldbank.org/curated/en/526351497578447276/pdf/Tunisia-Business-Env-Entrepreneurship-DPF-PD-106348-TN-05192017.pdf>

creation.<sup>19</sup> Promoting greater investment in the mobile industry aligns with this strategy, and can be used as a vehicle to achieve the underlying objectives of modernising productive industries, facilitating foreign investment and improving Tunisia's infrastructure.

***Tax reform in the sector would unlock investment in Tunisia's mobile network, promoting greater adoption of mobile broadband. The growth in the sector would also generate higher GDP and taxation revenue for Government in the medium-term***

Three options for tax reform have been identified to continue to promote growth in the sector and the wider economy. These reforms are forecast to lead to increased penetration, an acceleration in the rate of technology migration to smartphones and 3G/4G connections, and generate higher GDP and taxation revenue in the medium term:<sup>20</sup>

- **Reinstating mobile operators' exemptions from customs duties on network equipment:** The reinstatement of the exemptions from customs duties on network equipment, which were applicable until March 2017, will reduce the cost of investing in network infrastructure. This will allow operators to improve the quality of data services across Tunisia, and to increase mobile broadband penetration. The expected impacts of this tax reform on the mobile sector and wider economy<sup>21</sup> are as follows:
  - Mobile broadband penetration (unique subscribers) would increase by 3.6% by 2023, and mobile data usage per connection would grow by 9.4%. Sector revenues would be \$20 million higher per annum (2.7%); and
  - Annual tax receipts would be \$42 million higher per annum by 2023, a cumulative fiscal gain of \$135 million over five years, and GDP would grow by \$161 million (0.4%).
- **Eliminating VAT on international incoming calls:** The elimination of VAT, currently charged at 19%, on international incoming calls will result in lower prices and hence lead to increased volumes of international call traffic. It will also reduce the significant costs and resources which are devoted to the policing of illegal gateways. This reform is forecast to have the following impacts:
  - Mobile broadband penetration (unique

subscribers) would increase by 2.7% by 2023, and mobile data usage per connection would grow by 8.1%. Sector revenues would be \$38 million higher per annum (2.9%); and

- Annual tax receipts would be \$16 million higher per annum by 2023, a cumulative fiscal gain of \$24 million over five years, and GDP would grow by \$119 million (0.3%).
- **Adapting the taxable base of the telecommunication industry fee:** The adaptation of the taxable base of the telecommunication industry fee, in order to exclude non-recurring revenue, revenue from interconnection (national and international) and taxes will generate a tax saving for operators, a portion of which will be passed through to subscribers in the form of lower prices,<sup>22</sup> and it will also incentivise additional investment in the sector. This reform is forecast to have the following impacts:
  - Mobile broadband penetration (unique subscribers) would increase by 2.1% by 2023, and mobile data usage per connection would grow by 4.1%. Sector revenues would be \$15 million higher per annum (2.1%); and
  - Annual tax receipts would be \$16 million higher per annum by 2023, a cumulative fiscal gain of \$38 million over five years, and GDP would grow by \$96 million (0.24%).

The growth in the sector, under all scenarios, would also lead to wider societal benefits, through increased access to mobile data and broadband services, particularly among lower income communities, as more than 70% of new subscribers come from low-income groups in all scenarios. The boost to mobile broadband penetration would lead to growth in productivity across the economy, and hence an increase in GDP, household incomes, employment and investment. Both scenarios would aid the Tunisian Government in meeting the goals of the *Five-Year Development Plan* and *Digital Tunisia 2020*.

Moreover, all reforms are shown to be self-financing in terms of their impact on government revenues in the medium-term, and will generate significant tax revenues by 2023.

20. The forecasts provided in this report estimate the isolated impacts of tax reform on the Tunisian mobile industry relative to a baseline forecast for the development of the sector sourced from GSM4i. They do not capture other market developments and/or external market shocks, and as such should not be seen as comprehensive forecasts for the sector

21. A model of the Tunisian mobile sector has been developed in order to calculate the changes in the mobile sector resulting from each of the tax policy scenarios, while the wider economic impacts of each scenario are assessed via a 'Computable General Equilibrium' (CGE) model, namely the standard version of the Global Trade Analysis Project (GTAP) model and its associated dataset

22. Lower prices may be observed in nominal terms, or through more generous consumption bundles e.g. additional free minutes







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

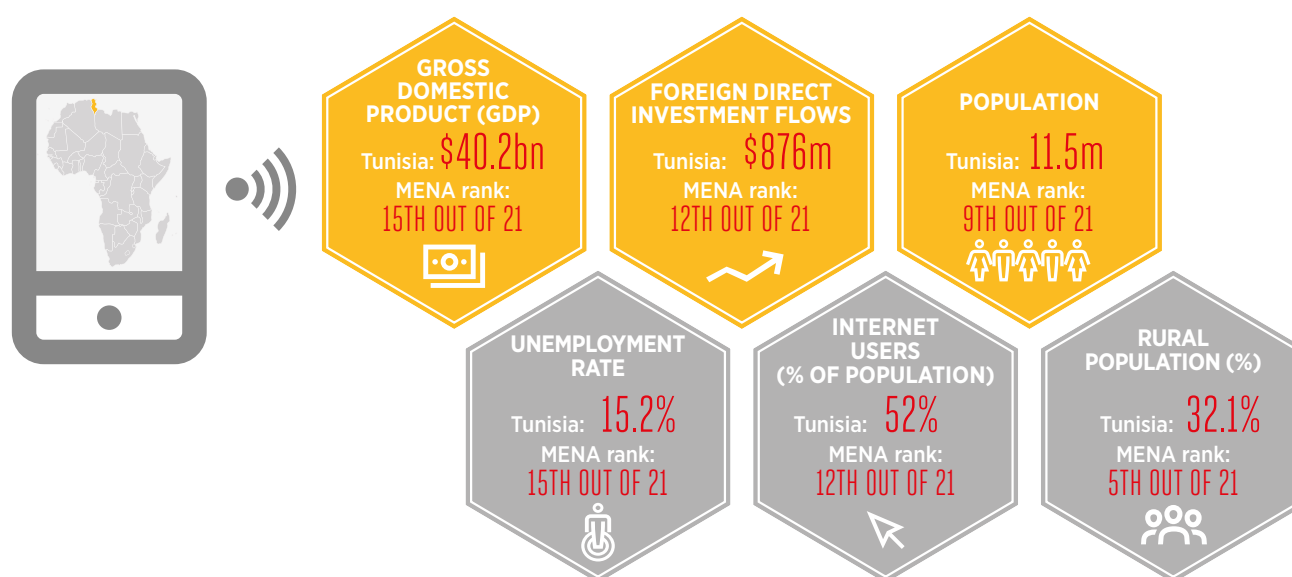
## 1.1 Country overview

Figure 1 provides an overview of key economic and demographic statistics for Tunisia. The Tunisian economy is the 15th largest in the MENA region, with an estimated gross domestic product (GDP) of

\$40.2 billion in 2017.<sup>23</sup> Of the 11.5 million individuals in Tunisia, just over half are regular users of the internet.<sup>24</sup>

Figure 1

### Country overview



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

23. Oxford Economics database

24. 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

### 1.1.1 The Tunisian economy

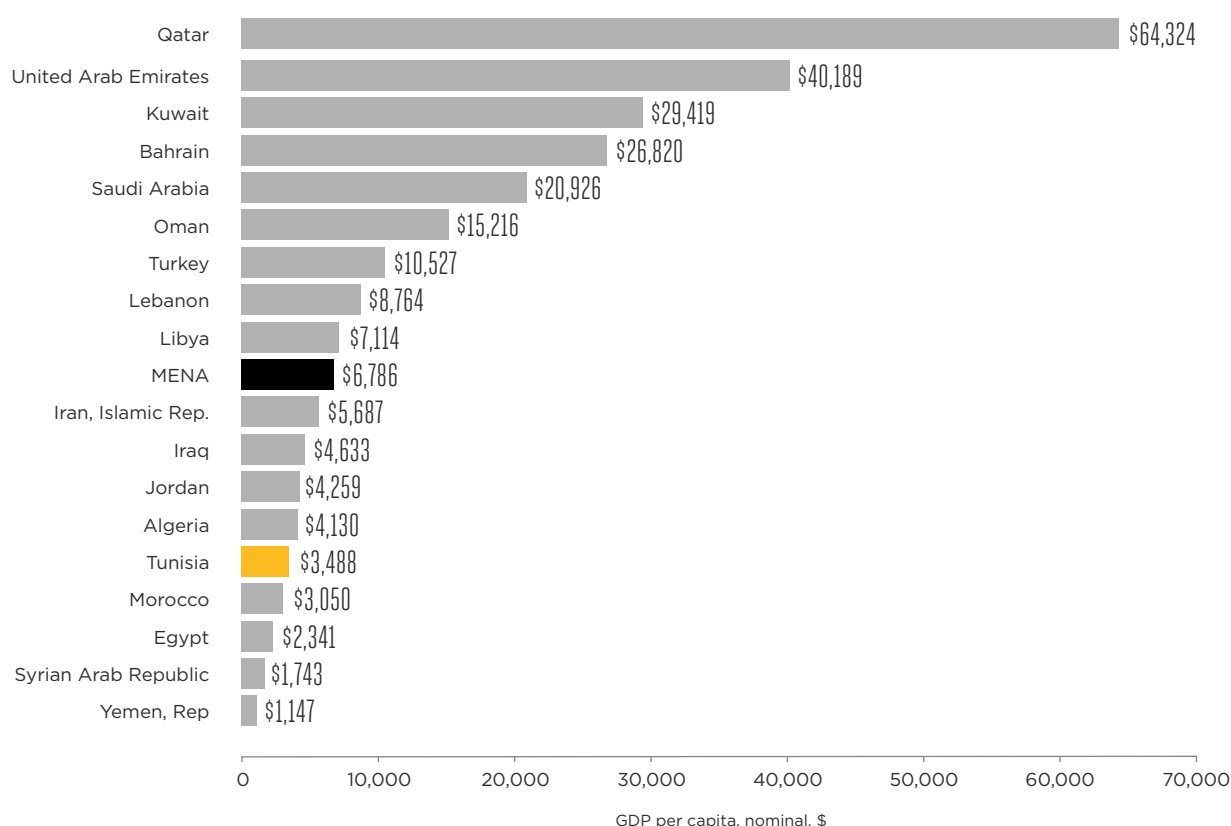
*The Tunisian economy is experiencing a period of slow growth, and structural reforms are required to support investment and job creation*

average for the region, at approximately \$3,488 in 2017. The economy expanded at an average rate of 1.4% between 2014 and 2017, which was not sufficient to raise living standards – average household disposable personal incomes decreased by 2.6% over the same period.<sup>25</sup>

As shown in Figure 2, GDP per capita is below the

Figure 2

## GDP per capita (nominal \$) in countries within the MENA region, 2017



Source: Oxford Economics database

While GDP growth is expected to increase to 2.0% for 2018,<sup>26</sup> the International Monetary Fund (IMF) stated in its 2017 Article IV Consultation that Tunisia must change its pattern of growth in order to realistically raise living standards.<sup>27</sup> To date, economic growth has relied on private and public consumption, which represented an estimated 72.5% and 23.2% share of GDP respectively in 2017.<sup>28</sup> This has contributed to accelerated inflation (6.3% in 2017) and large fiscal deficits,

putting pressure on private and public finances respectively.

In order to drive inclusive growth, which raises living standards and creates jobs, the IMF note that Tunisia's growth pattern will need to shift towards private-sector driven investment and exports. In order to achieve this, structural reforms will be required which seek improvements in Tunisia's business climate and labour market.<sup>29</sup>

25. Oxford Economics database.

26. *ibid.*

27. International Monetary Fund, 2018, *Tunisia: 2017 Article IV Consultation and Second Review Under the Extended Fund Facility, and Request for Waivers of Nonobservance of Performance Criteria, and Rephasing of Access* – <http://www.imf.org/en/Publications/CR/Issues/2018/06/12/Tunisia-2017-Article-IV-Consultation-and-Second-Review-Under-the-Extended-Fund-Facility-and-45877>

28. Oxford Economics database

29. International Monetary Fund, 2018

The World Bank's Doing Business report, which assesses the business climate of countries across the world, ranks Tunisia 88th out of 188 countries.<sup>30</sup> While this is the 8th highest ranking in the MENA region, it reflects a deterioration from previous years, as Tunisia was ranked as high as 42nd in 2012. Tunisia's labour market constraints are evidenced by the high unemployment rate and low labour market participation. The International Labour Organisation (ILO) estimated Tunisia's national unemployment rate at 15.2% for 2017, which is the 15th highest rate in the MENA region.<sup>31</sup> Unemployment rates are particularly high among females (21.5%), young people and graduates (both above 30%).<sup>32</sup>

In response to these challenges, the Tunisian Government's *Five-Year Development Plan*, approved by Parliament in April 2017, proposes that Tunisia will rely on the private sector to lead economic growth and job creation.<sup>33</sup> *The Five-Year Development Plan* emphasizes three axes of economic reform:

- **Axis 1 – Better economic governance:** This includes actions to facilitate access to information, and investing in digital open government platforms;
- **Axis 2 – Business climate and promotion of private investment:** This component of the Plan includes modernising productive sectors, promulgating the new Investment Code and encouraging FDI, promoting large projects, and improving Tunisia's infrastructure; and
- **Axis 3 – Financing of the economy:** The final axis includes a reduction of the tax burden on businesses and individuals, implementing tax and customs reform, enforcing tax collection and integrating the informal economy.<sup>34</sup>

The *Five-Year Development Plan* is further supported and complemented by the *Digital Tunisia 2020 National Strategic Plan*.<sup>35</sup> The project comprises the establishment of the main ministerial information systems and e-government initiatives. Through this the Government seeks to provide greater access to online services, increased social, economic and financial

inclusion and improved administrative services across the country.<sup>36</sup> Targets include 100% access to online government services, and the creation of 25,000 digital technology jobs per year by 2021.

Tunisia's mobile industry can be an enabler and a vehicle for pursuing the objectives set out in the Government's *Five-Year Development Plan*. Specifically, the expansion of the sector aligns with the Government's aim of modernising productive sectors, and improving Tunisia's infrastructure. Furthermore, the sector can also be an enabler for implementing better governance, improving the efficiency of tax collection and integrating the informal economy within Tunisia.

### 1.1.2 Fiscal outlook

***The Tunisian Government targets a modest fiscal consolidation in the medium term, further emphasising the importance of private sector investment to support spending on infrastructure***

Over the past decade, limited revenue growth and increasing levels of public debt have put pressure on the Tunisian Government's finances. The Government's primary balance has fallen from a surplus of 0.6% of GDP in 2007, to a deficit of 3.3% in 2017, while gross government debt has risen from 46% to 70% over the same period.<sup>37</sup>

In the medium term, the Tunisian Government's *Five-Year Development Plan* seeks to finance the economy through improvements in tax collection, integrating the informal sector, and by implementing tax and customs reforms. However, the Government also seeks to reduce the tax burden on businesses and individuals.<sup>38</sup> Achieving this aim, while also adopting the IMF's recommendation of a modest fiscal consolidation over the medium term, will require a considered fiscal approach that offsets reductions in public expenditure with investment elsewhere in the economy. Specifically, the high fiscal deficit and growing levels of public debt suggest greater emphasis on promoting private sector investment in Tunisia. To this aim, fiscal policy should promote productive sectors such as mobile communications, which support job growth and enable technological advancements in the economy.

30. World Bank, Doing Business 2018 – <http://russian.doingbusiness.org/-/media/WBG/DoingBusiness/Documents/Annual-Reports/English/DB2018-Full-Report.pdf>

31. Oxford Economics database, World Bank databank

32. International Monetary Fund, 2018

33. World Bank, 2018, Republic of Tunisia – Business Environment and entrepreneurship development policy loan – <http://documents.worldbank.org/curated/en/526351497578447276/pdf/Tunisia-Business-Env-Entrepreneurship-DPF-PD-106348-TN-05192017.pdf>

34. Government of Tunisia, Ministry of Development and International Cooperation, Development Plan 2016–2020 – [http://www.tunisie.gov.tn/uploads/Document/02/978\\_445\\_Plan-developpement\\_2016\\_2020.pptx](http://www.tunisie.gov.tn/uploads/Document/02/978_445_Plan-developpement_2016_2020.pptx)

35. Ministère des Technologies de la Communication et de l'Economie Numérique. *Plan National Stratégique Tunisie Digitale 2020*, <https://www.mtcen.gov.tn/index.php?id=14>

36. African Development Bank – [https://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Tunisia\\_-\\_Support\\_Project\\_for\\_the\\_Implementation\\_of\\_the\\_%E2%80%99CDigital\\_Tunisia\\_2020%E2%80%99D\\_National\\_Strategic\\_Plan.pdf](https://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Tunisia_-_Support_Project_for_the_Implementation_of_the_%E2%80%99CDigital_Tunisia_2020%E2%80%99D_National_Strategic_Plan.pdf)

37. Oxford Economics database

38. World Bank, 2018, Republic of Tunisia – Business Environment and entrepreneurship development policy loan – <http://documents.worldbank.org/curated/en/526351497578447276/pdf/Tunisia-Business-Env-Entrepreneurship-DPF-PD-106348-TN-05192017.pdf>



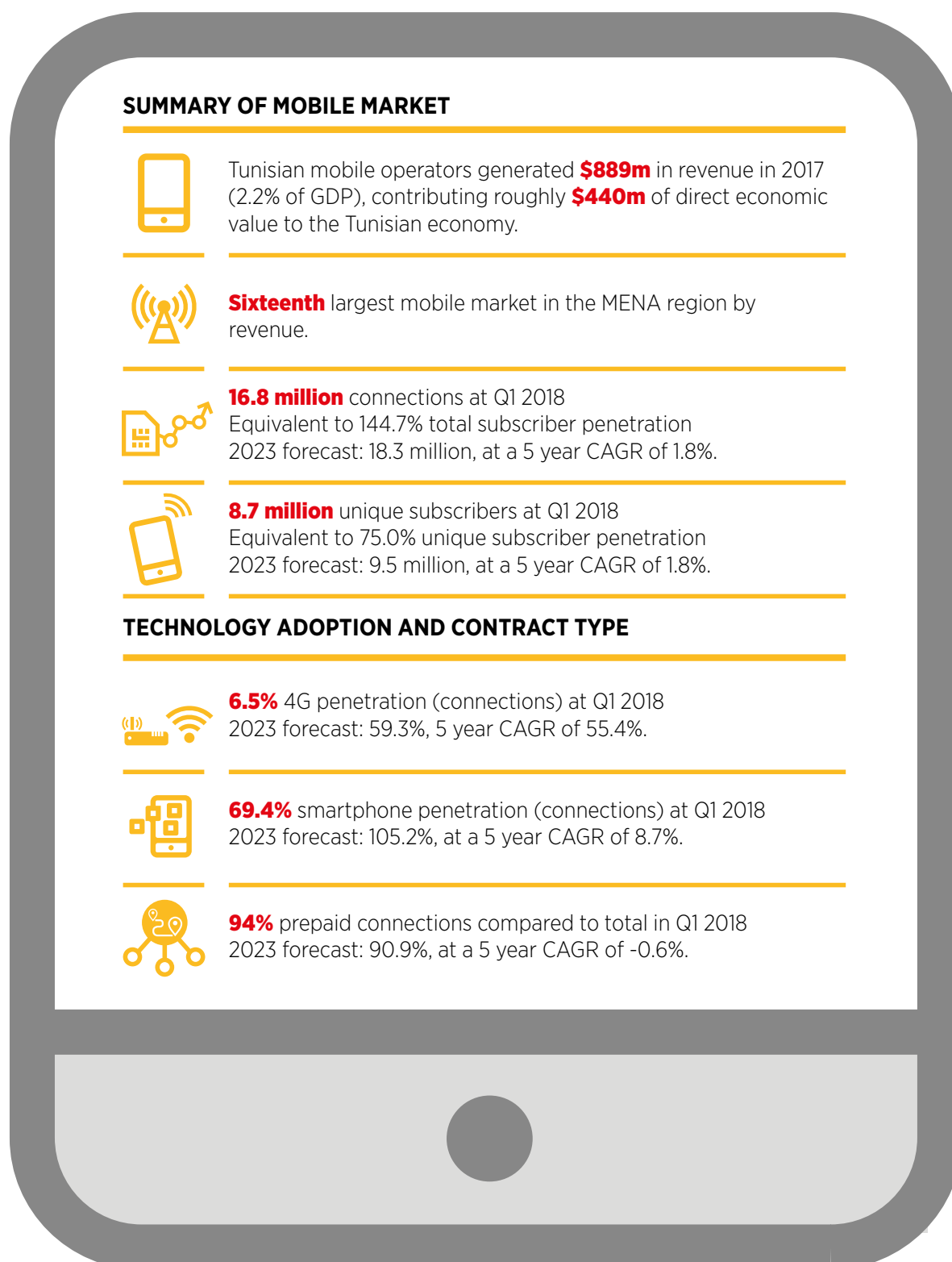
## 1.2 Market overview

The mobile market in Tunisia has expanded rapidly over the past decade, with unique subscriber penetration increasing from 43% in 2008 to 75% in 2018. However, as demonstrated in Figure 3, which provides an overview of the Tunisian mobile market,

new opportunities exist to further develop the sector (e.g. to increase the level of 4G penetration and smartphone usage) and to contribute towards the goals set out in the *Five-Year Development Plan* and *Digital Tunisia 2020*.



Figure 3

Tunisian mobile market in figures<sup>39</sup>

Source: GSMA Intelligence database, EY analysis

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

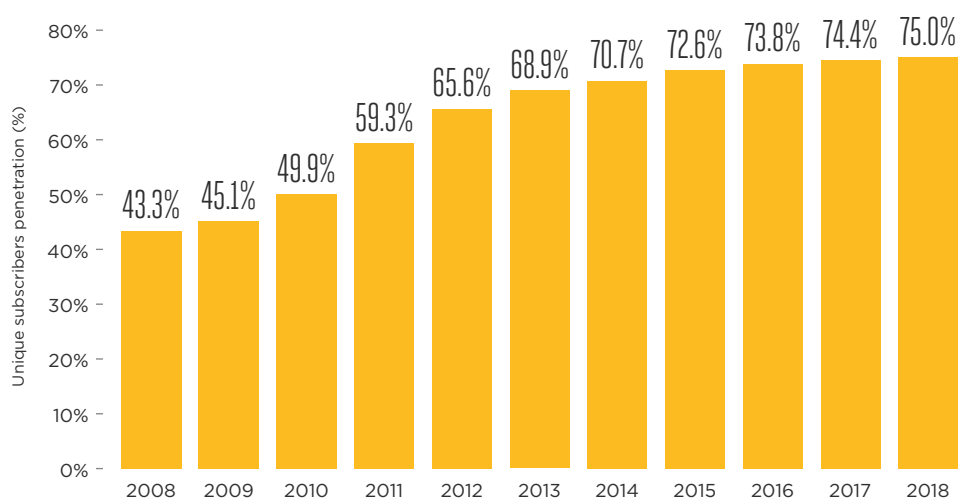
### 1.2.1 Market penetration and technology migration

*The mobile market has expanded rapidly in the past decade, and an opportunity exists to migrate customers to modern mobile technologies*

As shown in Figure 4, unique subscriber penetration has expanded considerably since the start of 2008, standing at 75% of the population by Q1 2018 (equivalent to 144.7% penetration in total connections).

Figure 4

#### Unique mobile subscriber penetration in Tunisia, 2008-2018



Source: GSMA Intelligence database

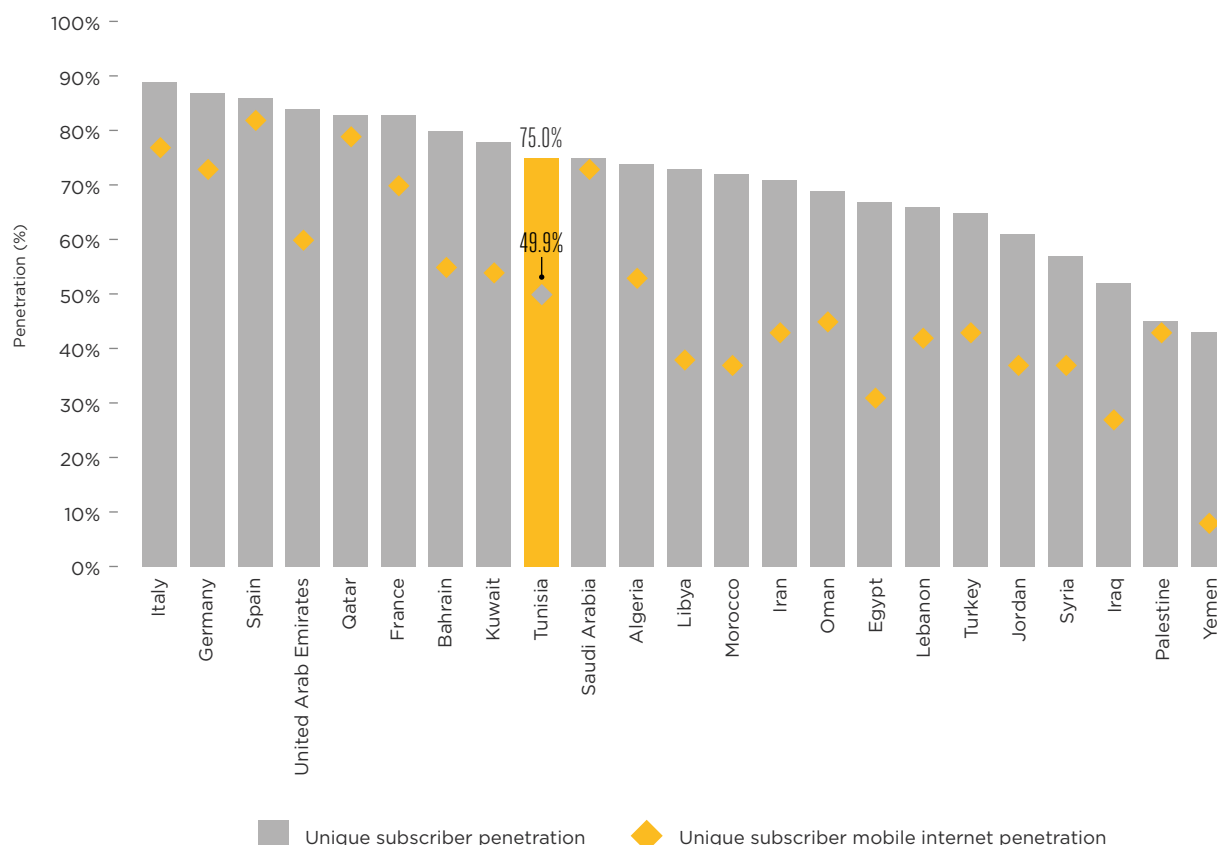
While there remains further scope to increase unique subscriber penetration, Tunisia ranked 5th in the MENA region in Q1 2018, reflecting the relatively high level of maturity in the Tunisian mobile market. However, as shown in Figure 5, mobile

internet penetration is relatively less developed, at approximately 49.9%. This places Tunisia 7th in the MENA region, and considerably behind European nations such as Italy, Germany and Spain.



Figure 5

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



Source: GSMA Intelligence database

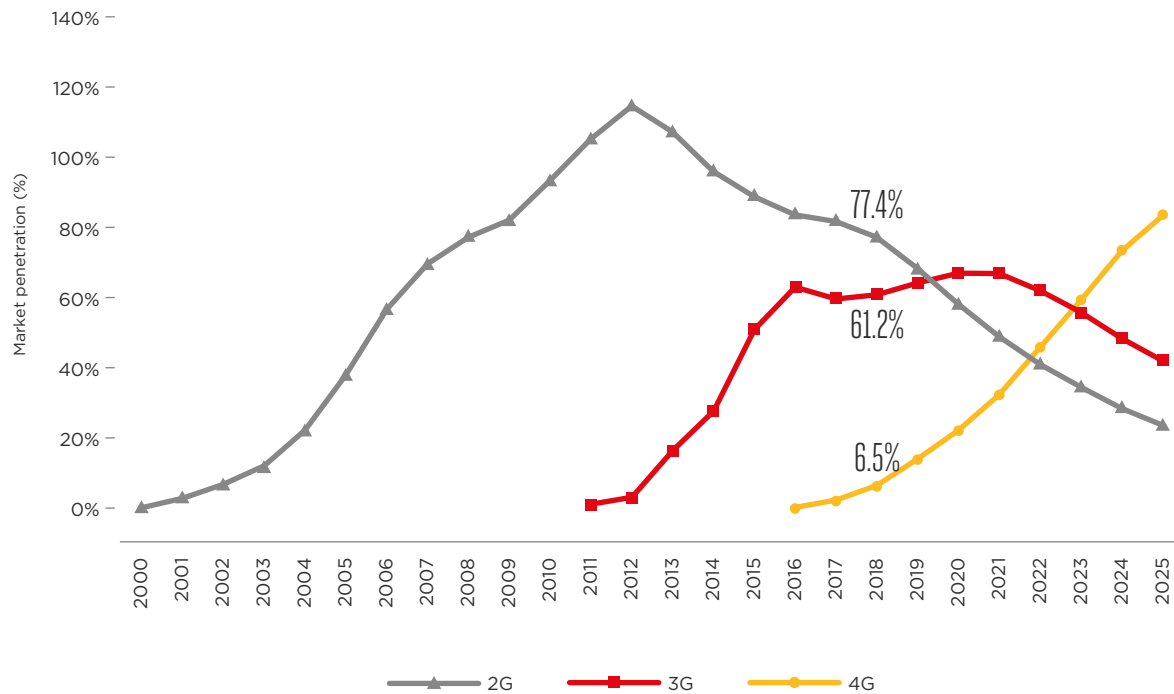
Given the Government's aims set out in *Digital Tunisia 2020*, and the increasing prominence of data services seen worldwide, it is important that mobile internet penetration increases over the medium term, converging with the levels observed currently in Europe. This will require migration of customers from 2G to available internet-enabled technologies. As

shown in Figure 6, 2G is still the dominant technology in the Tunisian mobile market, with a penetration rate (total connections) of 77.4% in 2018.<sup>40</sup> However, market penetration is rapidly expanding for 3G and 4G services, with 3G penetration expected to overtake 2G in 2020, and 4G projected to become the dominant technology by 2023.

40. GSMA Intelligence database

Figure 6

## Market penetration rate (total connections), by technology



Source: GSMA Intelligence database

Given the relatively low level of fixed broadband subscriptions in Tunisia (5.6% in 2016),<sup>41</sup> the expansion of mobile broadband enabled (3G and 4G) technologies in Tunisia will be vital for increasing access to online services and supporting the growth of the digital economy. However, given

the limited fiscal space for public investment as discussed in the previous section, such expansion would require significant investment from Tunisian mobile operators. This, in turn, would allow for the creation of digital jobs and access to e-government initiatives as outlined in *Digital Tunisia 2020*.

41. World Bank databank

### 1.2.2 Affordability of smartphones and mobile services in Tunisia

*The total cost of mobile ownership is relatively low in Tunisia, as low prices have enabled broad access to mobile services. However, given the Digital Tunisia 2020 objectives, the focus now should be to improve the effective price of more data-intensive consumption packages*

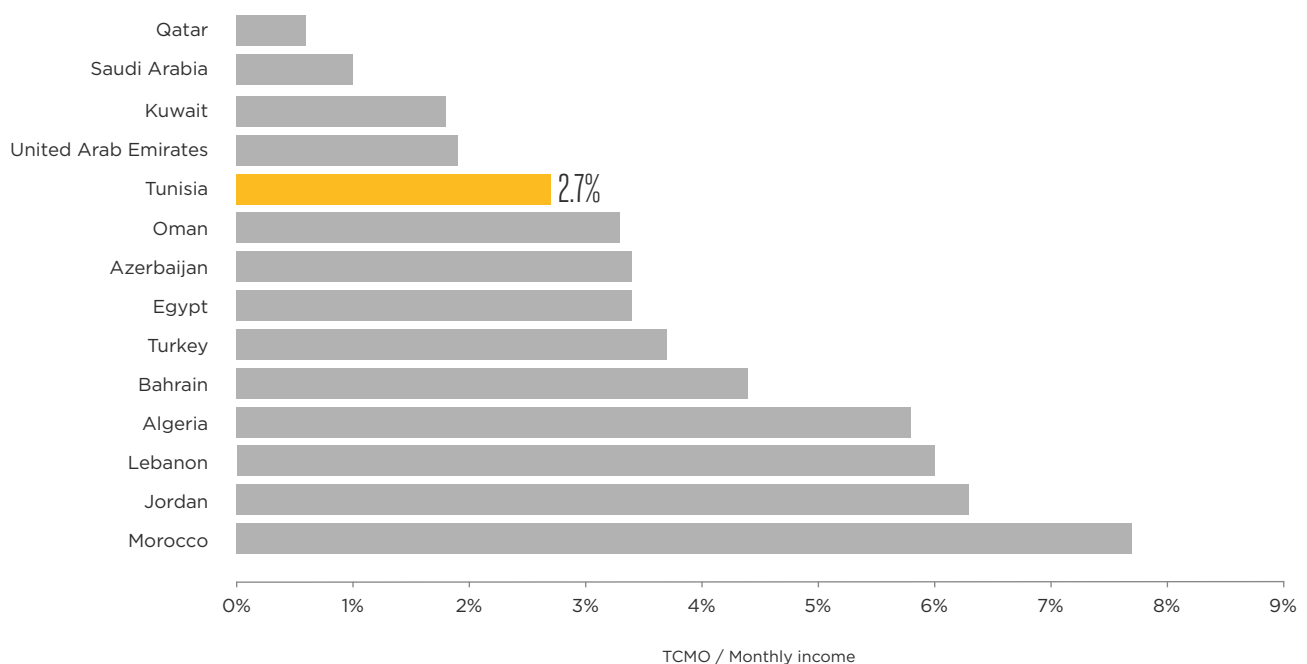
A basic measure of affordability of mobile services is the proportion of monthly income which is spent on mobile services and devices. To identify the affordability challenges associated with mobile

services and devices, the GSMA estimates the total cost of mobile ownership (TCMO) for a range of countries, income groups and consumption baskets.<sup>42</sup>

Figure 7 illustrates the relatively affordable cost of basic (500MB basket mobile ownership in Tunisia, which represents 2.7% of monthly earnings for those at the bottom of the economic pyramid. This is low in Tunisia compared to other countries in the MENA region, and is under the 5% affordability threshold adopted by the United Nations Broadband Commission.<sup>43</sup>

Figure 7

TCMO as a proportion of monthly income for the bottom 20% of income distribution (500MB consumption package), 2017



Source: GSMA Intelligence database, Tarifica

42. 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

43. 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](http://broadbandcommission.org/Documents/ITU_discussion-paper_Davos2017.pdf)

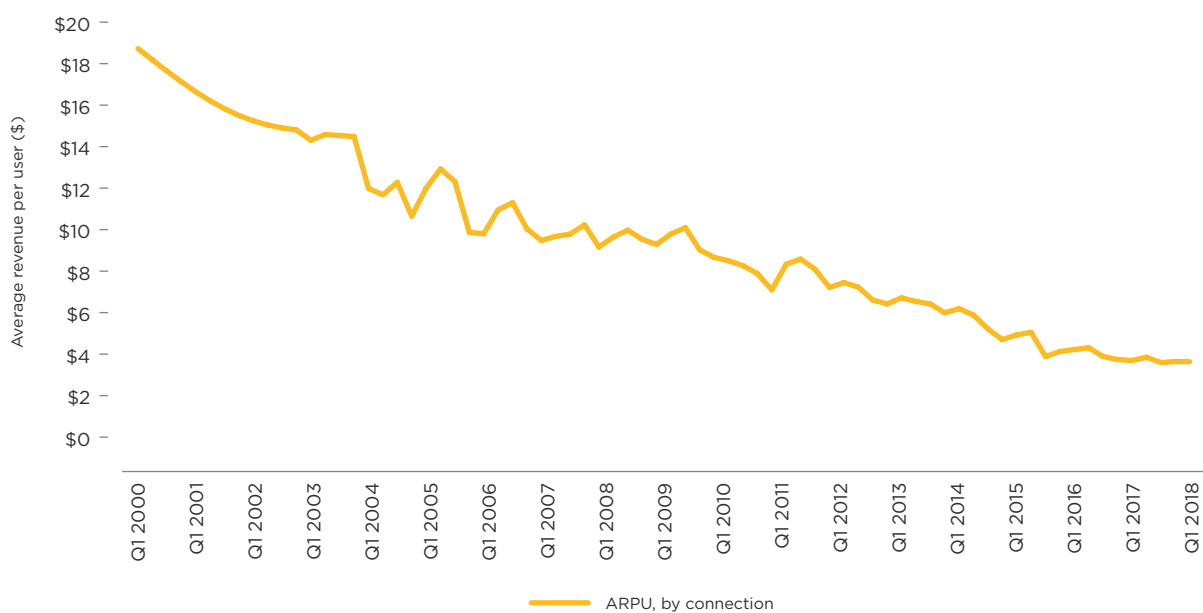


The relative affordability of mobile ownership in Tunisia is the result of decreasing prices for mobile services and devices during the past two decades. The effective price per minute of calls in Tunisia decreased

by over 58% between 2010 and 2018.<sup>44</sup> As shown in Figure 8, decreasing prices and increasing penetration have resulted in declining average revenue per user (ARPU) over the past two decades.

Figure 8

## Average monthly revenue per user (by connection) in Tunisia, Q1 2000 - Q1 2018



Source: GSMA Intelligence database

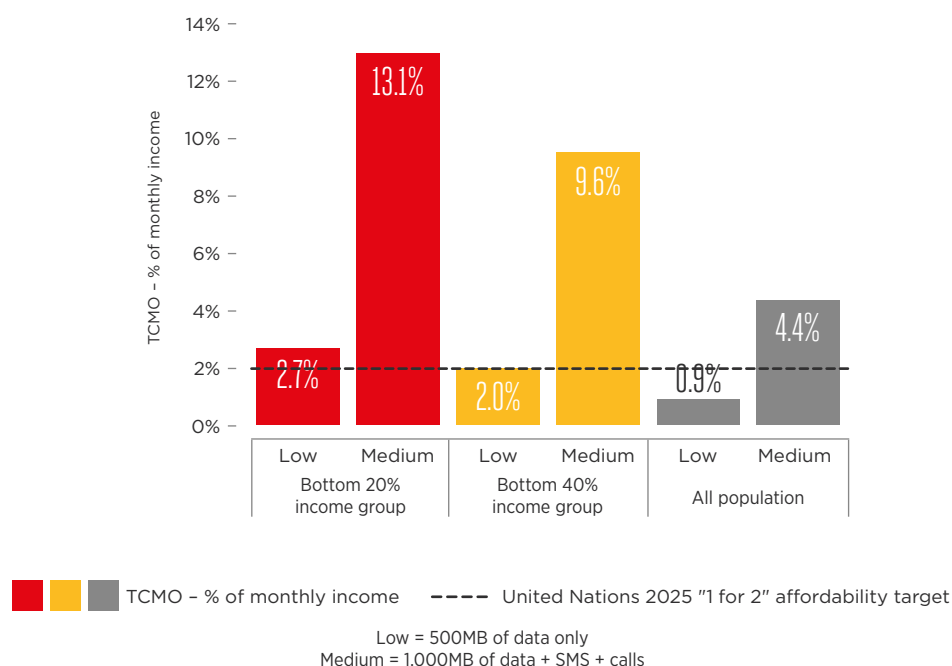
44. GSMA Intelligence database

However, as shown in Figure 9, more data-intensive consumption packages (1GB) may present a greater affordability challenge for low-income individuals, as the poorest 20% of the population in Tunisia would spend approximately 13.1% of their monthly income on

mobile ownership. In the context of the *Digital Tunisia 2020* ambitions (which include a goal to expand digital inclusion), and the United Nations 2025 “1 for 2” affordability target, expanding access to data services is an important next step for the Tunisian mobile industry.<sup>45</sup>

Figure 9

## TCMO as a proportion of monthly income in Tunisia, 2017



Source: GSMA Intelligence database, Tarifica

Given the low prices for mobile services in Tunisia, efforts to increase access to mobile broadband services should be focused on expanding coverage and speed of mobile broadband services. Such investment would provide access to more reliable and faster data, reducing the average cost of data and thereby encouraging technology migration and increased data usage. The investment required to enable this improvement is discussed in the following section.

### 1.2.3 Investment environment and opportunities for development

***Growth to date in the Tunisian mobile market has been facilitated by significant investment by mobile operators, however further investment is required to support the transition towards modern technologies***

In order to improve the availability and quality of mobile services, significant levels of capital expenditure are required to finance investment in network infrastructure, operational costs and one-off licence fees. Without such investment, technological advances in the mobile industry cannot be made available to the population, often impacting those in rural areas and low-income individuals.

As shown in Figure 10, capital expenditure by Tunisian mobile operators has fuelled the rapid expansion of mobile network coverage across the country, with 3G and 4G population coverage reaching 99% and 75% respectively in 2017.<sup>46</sup> As a share of revenue, capital expenditure has averaged 21.1% between 2013 and 2018.<sup>47</sup>

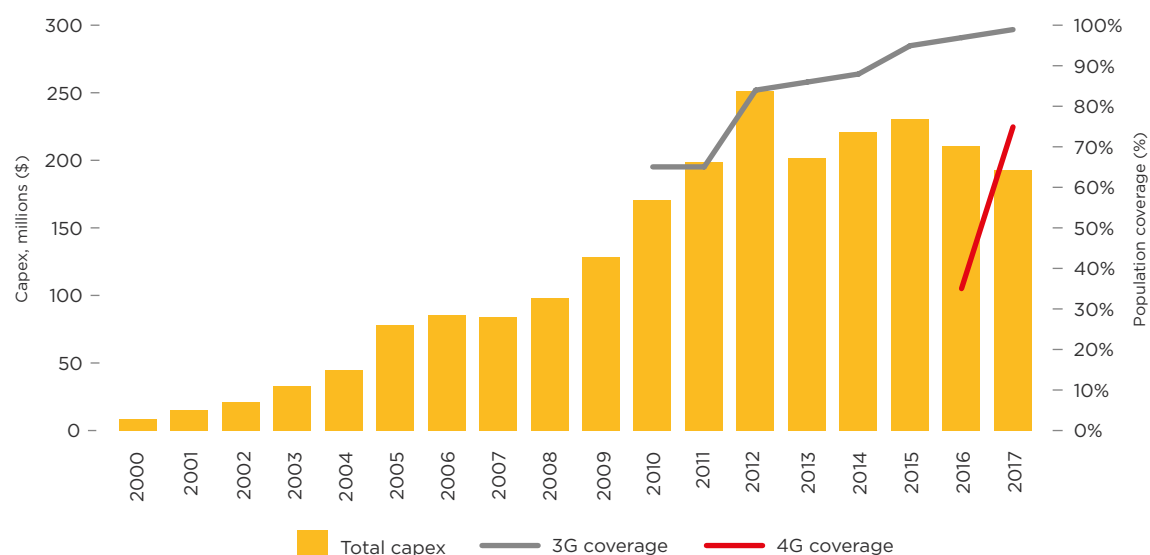
45. “1 for 2” refers to 1GB of data costing less than 2% of monthly income.

46. GSMA Intelligence database.

47. *ibid.*

Figure 10

## Capital expenditure (\$ million) by Tunisian mobile operators, and 3G/4G coverage (% of population)



Source: GSMA Intelligence database

The investment made by Tunisian mobile operators to improve the availability of 3G and 4G services is an important enabler of the Government's ambitions set out in *Digital Tunisia 2020*, particularly given the low subscriber penetration of fixed broadband in Tunisia (5.6% in 2016).<sup>48</sup>

However, beyond increasing the availability of 3G and 4G services in Tunisia, further improvements in network quality are required to improve the reliability

and speed of data services, thereby improving the effective price of data-intensive consumption packages. In 2017, the Government set ambitious objectives for improving the quality of Tunisia's mobile network infrastructure. This included targets to increase average 4G download speeds to 30 megabytes per second (Mbps) beyond 2021.<sup>49</sup>

48. World Bank databank

49. Instance Nationale des Télécommunications (2017) - <http://www.intt.tn/fr/index.php?actu=730&typeactu=89>



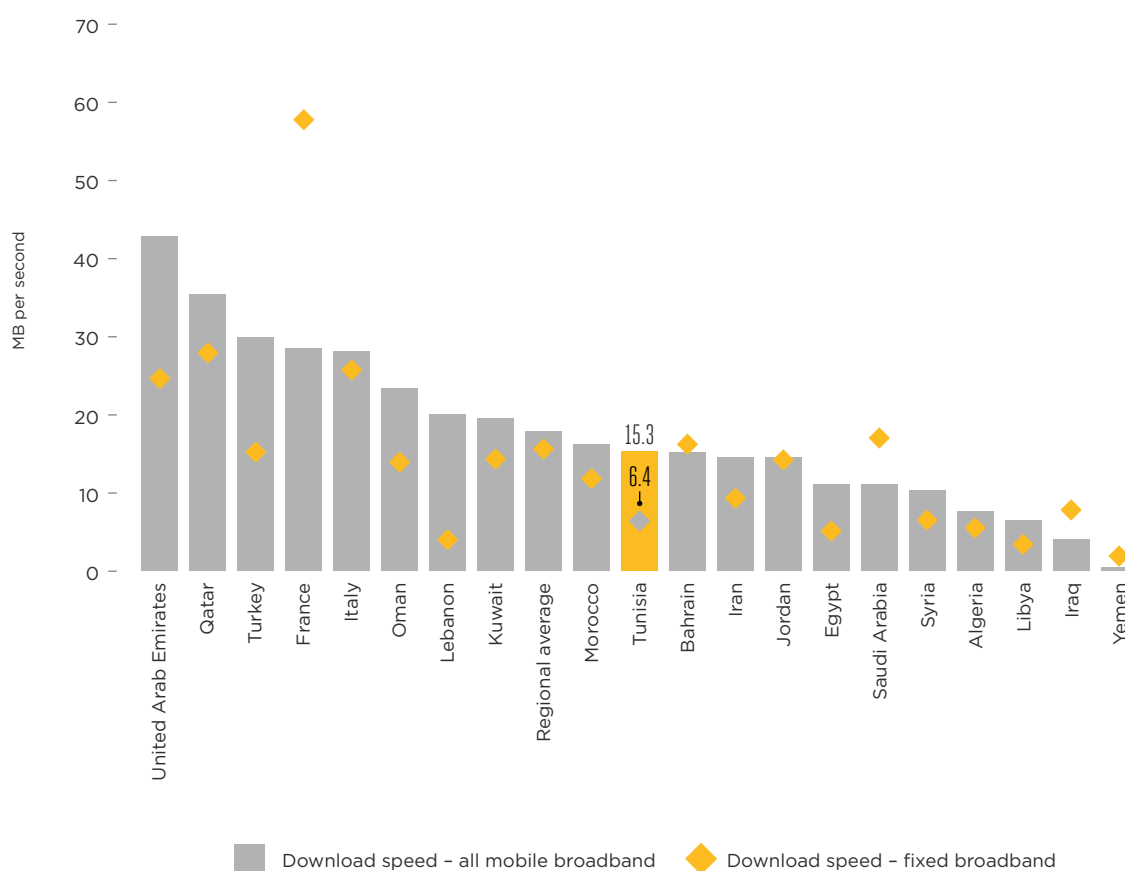


As shown in Figure 11, Tunisia lags behind a number of neighbouring countries when it comes to mobile download speeds. Analysis by Ookla® of average mobile speed data in Speedtest Intelligence® demonstrates that, at approximately 15.3MB per second, average download speeds across 3G and 4G technologies in Tunisia are below regional averages. However, despite this, mobile broadband download

speeds considerably outperform fixed broadband, further highlighting the potential of mobile broadband to enable greater online access and digital inclusion within Tunisia. Faster download speeds unlock access to more value-add services, enabling users to increase productivity and access a range of services, from health information to e-government services.

Figure 11

## Download speed (MB per second) – Tunisia and comparator countries, 2017



Source: Ookla

Given the fiscal pressures constraining public investment in Tunisia, there is a greater reliance on the private sector to fund improvements in Tunisia's digital economy. Tax reforms which allow the mobile

sector to compete via network quality improvements will enable this transformation, ultimately to the benefit of consumers.



### 1.3 The socio-economic contribution of the mobile sector

Beyond the services provided by the mobile operators to households and businesses, the mobile sector generates a range of economic and social benefits to the wider population. The socio-economic contribution of the sector is realised through an array of channels, including productivity gains, job creation, healthcare provision, education solutions and e-government initiatives. By improving the taxation environment facing the mobile sector, more of these wider benefits can be realised.

#### **Mobile operators directly contributed \$440 million in direct value added to the economy in 2017**

Total mobile sector revenues were \$889 million in 2017,<sup>50</sup> equivalent to 2.2% of Tunisian GDP.<sup>51</sup> Mobile operators contributed approximately \$440 million of direct economic value to Tunisia in 2017 (1.1% of GDP),<sup>52</sup> while also supporting a much wider mobile ecosystem, including mobile distribution providers and retail companies. These companies create further economic activity in Tunisia by buying products and services from firms in their supply chain (indirect effects) and by generating employee income which leads to increased consumer spending, generating demand in consumer goods markets (induced effects).

#### **Mobile connectivity promotes productivity improvements in the economy**

Greater access to mobile services has transformed economies, accelerating economic growth and development in countries worldwide. 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. Added connectivity can also boost tourism, and allow firms to access a broader pool of labour.<sup>53</sup> 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.<sup>54</sup> 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%.<sup>55</sup>

#### **CASE STUDY**

##### **Case study – Developers Programme<sup>56</sup>**

Orange Tunisia's Developers Programme was launched in 2013 and is a programme aimed at stimulating the mobile ecosystem in Tunisia by providing tools to create mobile applications. The aim of the programme is to develop new forms of entrepreneurship in Tunisia, specifically linked to the digital economy.

Accessible for everyone and completely free, the Orange Tunisia's Developers Programme is deployed in more than 15 regions in Tunisia and offers a range of additional services to help young talent to create their own mobile application. The programme is open to everyone and since its inception, 6,500 people have received training in coding, 50 apps have been produced with about 20,000 downloads on apps markets. Furthermore, the programme has directly stimulated employment, with over 150 developers being placed in Tunisian and global companies.

#### **Mobile networks promote digital inclusion and can bridge the digital divide**

Where fixed broadband coverage is low (as is the case in Tunisia, where just 5.6% of the population have fixed subscriptions),<sup>57</sup> mobile networks are central to promoting digital inclusion, due to the lower cost of network rollout. This is particularly true for Tunisia's rural population (32% of the population), and will require greater access to the knowledge and digital economy in order to achieve the objectives set out in the *Five-Year Development Plan* and *Digital Tunisia 2020*.

Mobile technology also removes other barriers to access to broadband services including the affordability of ownership of a PC or laptop, and access to a bank account. As of 2016, just 52% of Tunisian individuals were internet users (fixed and mobile internet), and hence increased rollout of mobile broadband services will be key to addressing relatively low levels of access to internet services.

50. GSMA Intelligence database

51. Tunisian GDP was \$40.2 billion in 2017 - Oxford Economics

52. *ibid.*

53. Oxford Economics (2013): The Economic Value of International Connectivity

54. ITU (2012) The Impact of Broadband on the Economy: Research to Date and Policy Issues

55. ITU, 2012, *The Impact of Broadband on the Economy: Research to Date and Policy Issues*, [https://www.itu.int/ITU-D/treg/broadband/ITU-BB-Reports\\_Impact-of-Broadband-on-the-Economy.pdf](https://www.itu.int/ITU-D/treg/broadband/ITU-BB-Reports_Impact-of-Broadband-on-the-Economy.pdf) and LECG, 2009, *Economic Impact of Broadband: An Empirical Study*, [http://www.itu.int/net/wsis/stocktaking/docs/activities/1286203195/Report\\_BroadbandStudy\\_LECG\\_March6%5B1%5D.pdf](http://www.itu.int/net/wsis/stocktaking/docs/activities/1286203195/Report_BroadbandStudy_LECG_March6%5B1%5D.pdf)

56. Orange (2013) Corporate Social Responsibility

57. World Development Indicators, World Bank databank



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

Mobile money services have the power to transform financial systems and promote a move away from cash based economies. They provide affordable financial services to low-income subscribers and enable safety, security and convenience for financial transactions for those who do not have access to traditional financial services.

## CASE STUDY

### Case study – Mdinar<sup>58</sup>

Mdinar is a free-of-charge m-wallet application, the first of its kind in Tunisia, which allows users to send and receive money, view account transactions and conduct loan management services. Any individual aged 18 and above who owns a mobile phone can open an Mdinar account, regardless of whether he or she has a bank account.

According to the World Bank's Global Findex database on financial inclusion, just 37% of the Tunisian population aged 15 or above had bank accounts in 2017.<sup>59</sup> While this represents a ten percentage point increase from 2014 levels, it nonetheless implies that 63% of the population are excluded from the traditional financial system. Mobile money services such as Mdinar are therefore an important mechanism for increasing financial inclusion in Tunisia.

Furthermore, the digitalisation of person-to-government (P2G) and business-to-government (B2G) payments can generate significant efficiencies, while encouraging greater financial inclusion within the economy. Research from Tanzania has shown that shifting to digital P2G and B2G payments in certain cash-heavy industries can reduce leakage by up to 40%, and increase annual tax revenue by \$477 million per annum.<sup>61</sup> In Kenya, public sector digitalisation saved the Government an estimated \$290 million over four years, as P2G payments improved the efficiency of public services.<sup>62</sup>

## 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.<sup>63</sup>

Mobile connectivity can form part of the solution for improving Tunisia's healthcare sector. M-Health can be used in education, disease prevention, disease treatment, health care, and health support applications. Furthermore, mobile services can be used to overcome traditional barriers<sup>64</sup> to accessing essential information and services, such as geographic isolation, gender disparities<sup>65</sup> and social stigmas.<sup>66</sup>

## 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.

There are several advantages to electronic payments when compared to cash payments, including contributing to higher transparency of transactions. Cash transactions are often unregistered which allows for the development of a shadow economy, and the evasion of tax payments. The promotion of electronic payments, including mobile money transactions, could also reduce the budgetary cost of the shadow economy to the Tunisian Government, a key objective of the *Five-Year Development Plan*.<sup>60</sup>

58. Mdinar website – <http://www.mdinar.com/decouvrir-mdinar/>

59. World Bank (2017) Global Findex database

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

61. Better than Cash Alliance (2016) Person-to-Government payments: Lessons from Tanzania's digitization efforts

62. GSMA (2017) Person-to-government (P2G) payment digitisation: Lessons from Kenya

63. University of Cambridge (2011) Mobile Communications for Medical Care

64. McKee, N., Bertrand, J.T. and Becker, B.L., (2004), 'Strategic communication in the HIV/AIDS epidemic', in Sage Publications (New Delhi ; Thousand Oaks, Calif)

65. Gurman, T. A., Rubin, S.E., Roess, A.A., (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)

66. Khan, J.G., Yang, J.S. and Khan, J.S., (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

## CASE STUDY

### Case study – Solerni<sup>67</sup>

In 2014, Orange Group launched Solerni, an education platform which provides Massive Open Online Courses (MOOCs) for both businesses and individuals. The platform allows companies and start-ups to design MOOCs and collaborate online. Firms using Solerni are therefore able to train their employees in a fun, effective and interactive way.

One aim of Solerni is to bridge the gap between a range of industries and individuals, allowing users to increase their knowledge on a wide selection of subjects. The system acts as social network platform, encouraging input from the community of users from a wide array of industries.

The MOOCs are designed to be compatible with iPads and mobiles and are free of charge.

## Gender equality

Mobile can empower women in developing countries, making them more connected, safer and better able to access information. Mobile connectivity also provides women with access to services and life-enhancing opportunities, such as health information and guidance, financial services and employment opportunities.<sup>68</sup>

Tunisia was ranked 99th in the world for gender equality according to the 2017 Global Gender Gap Report,<sup>69</sup> and therefore there is much potential to improve opportunities to Tunisian women in terms of employment opportunities, educational attainment, and political empowerment.



67. Solerni Website (2018) – <https://digital.solerni.com/static/a-propos.html>

68. Bridging the gender gap: Mobile access and usage in low- and middle-income countries, GSMA, 2015

69. World Economic Forum, Global Gender Gap Index





## 2. Tax contribution of the mobile sector in Tunisia

As explained in Section 1, the mobile sector plays a key role in the Tunisian economy. In addition to its socio-economic impact, the mobile sector makes an important contribution to the public finances of Tunisia through tax payments. This section covers the tax regime applicable to the mobile sector and its contribution to the tax revenue of Tunisia.

### 2.1 Taxes on mobile consumers

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

Table 1

#### Key taxes paid by mobile consumers, 2018

Value Added Tax (VAT)	19%
Tax on games by SMS or calls	30%
Stamp duty	TND 0.140 <sup>70</sup>

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

- **VAT.** The supply of mobile goods and services is taxed at the general rate of 19% on their value.<sup>71</sup>
- **Tax on games by SMS and phone.** Mobile subscribers participating in games are taxed at 30% on the price of participation by SMS or the price per minute of the call. The operators charge the tax on the subscriber's bill.
- **Stamp duty.** It is charged at the rate of TND 0.140 on each dinar or fraction of dinar invoiced or paid (all duties and taxes included) on any pre-paid and post-paid phone services (fixed and mobile). From 2018, the duty also applies on internet services, except those provided to individuals for a non-professional use. Operators withhold the duty from the consumers.

70. This is on top of the standard duty of TND 0.600 which is generally applied on any invoice.

71. This rate was increased from 18% to 19% as of 1 January 2018



## 2.2 Taxes and regulatory fees on mobile operators

Table 2 below outlines the different taxes paid by mobile operators.

Table 2

### Key taxes paid by mobile operators, 2018<sup>72</sup>

Corporate income tax	35%
Customs duties	30%
Social solidarity contribution	1%
Local tax on industrial, commercial and professional establishments	0.2%
Professional training tax	2%
Employee housing fund contribution (FOPROLOS)	1%
Social security contributions (employer)	16.57%

Source: EY 2018 Worldwide Corporate Tax Guide

- **Corporate income tax.** Companies are subject to tax on profits derived from establishments located in Tunisia and on profits that are deemed to be derived in Tunisia under double tax treaties. The standard rate of corporate income tax is 25%. However, telecommunication companies are taxed at a rate of 35%.<sup>73</sup>
- **Custom duties.** Operators pay custom duties on scratch cards, base stations, network equipment and parts at 30% on their customs value.
- **Social solidarity contribution.** The 2018 Finance Act introduced a new social solidarity contribution of 1% on the taxable income and profits realised on or after 1 January 2018.
- **Local tax on industrial, commercial and professional establishments.** A tax of 0.2% of annual local turnover, inclusive of all taxes.
- **Professional training tax.** A tax of 2% is charged on salaries, allowances and fringe benefits paid by the operators as employers.
- **Employee housing fund contribution (FOPROLOS).** Operators pay a housing fund contribution of 1% on salaries, allowances and fringe benefits paid to employees.
- **Social security contributions.** Operators pay a social security contribution of 16.57% on the annual salary of employees.

72. This table lists the taxes applicable in 2018. However, it is worth mentioning that the 2017 Finance Act introduced an exceptional contribution only for the 2017 fiscal year, at a rate of 7.5% on taxable profits

73. This rate of 35% is also applied to oil service companies, banks, financial institutions, telecommunication companies, car dealers, large commercial enterprises and franchisees of foreign brands

On top of the taxes applying to mobile operators, there are also a number of different licences and fees required in order to be able to supply

telecommunication services. The details of these licences and the applicable fees can be seen in Table 3 below.

Table 3

## Key regulatory fees paid by mobile operators, 2018

Telecommunications industry fee	5%
Numbering fee	<ul style="list-style-type: none"> <li>• 5,000 TND per block of 10,000 numbers with the codes “2”, “3”, “4”, “5”, “7” and “9”; and</li> <li>• 4,000 TND per number with the sub-code “85” for SMS services.</li> </ul>
Licence fees	Different fees set at the time of obtaining the licence (this is a one-off payment).
Spectrum fees	<ul style="list-style-type: none"> <li>• 337,500 TND per MHz for each couple of frequencies below 1 GHz;</li> <li>• 225,000 TND per MHz for each couple of frequencies between 1 GHz and 3 GHz;</li> <li>• 90 TND per MHz for each non-terminal equipment;</li> <li>• 600 TND per each equipment with antenna for mobile services via satellite; and</li> <li>• 900 TND per each equipment without antenna for mobile services via satellite.</li> </ul>

Source: Instance Nationale des Télécommunications, local legislation and operator data

- **Telecommunications fee for the FDC.** A fee of 5% is charged on:
  - The total gross revenues made by mobile operators (including any other tax).
  - 5% of the turnover corresponding to international transit services (including any other tax).
- **Numbering fee.** Operators pay an annual fee on registered mobile numbers as per the table above.
- **Licence fees.** Operators pay a one-off fee in order to obtain a telecommunication licence. The amount is set by the regulator at the time of granting the licence.<sup>74</sup>
- **Spectrum fees.** Operators pay an annual fee for the use of the spectrum.<sup>75</sup>

74. Annual licence fees are not required

75. One-off spectrum fees are not required

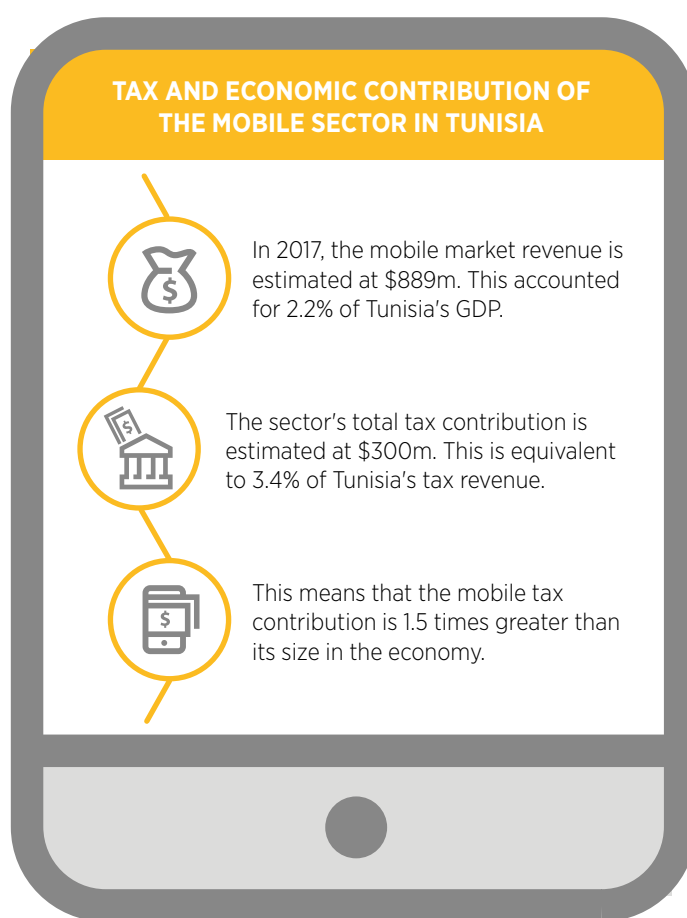
## 2.3 Tax contribution of the mobile sector

The mobile sector makes a large contribution in taxes and fees relative to its economic footprint. In 2017, the total tax contribution was estimated at \$300m. This represents 34% of the total market revenue.

While the mobile market revenue accounted for 2.2% of Tunisia's GDP,<sup>76</sup> the sector's tax and fee payments accounted for around 3.4% of government total tax revenue.<sup>77</sup> This means that the mobile tax contribution is 1.5 times greater than its size in the economy.

Figure 12

### Tax and economic contribution of the mobile sector in Tunisia in 2017



Source: GSMA Intelligence database, EY analysis and operator data

76. Tunisia's GDP was of \$40,206m in 2017. Source: Oxford Economics

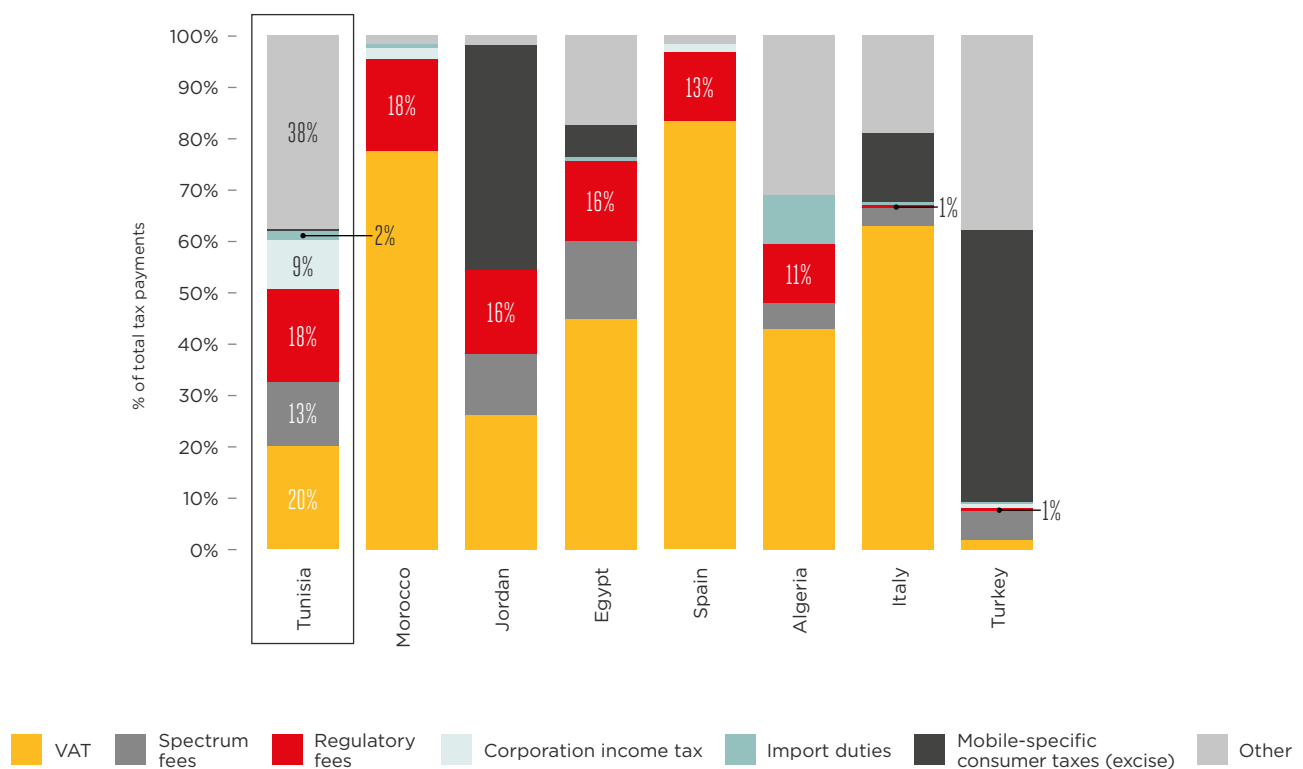
77. The total tax revenue was estimated at TND 21,287m in 2017. Source: Ministry of Finance of the Tunisian Republic. [http://www.finances.gov.tn/index.php?option=com\\_content&view=article&id=121&Itemid=302&lang=fr](http://www.finances.gov.tn/index.php?option=com_content&view=article&id=121&Itemid=302&lang=fr)

In Tunisia, VAT is the largest source of tax payments (20%), followed by both regulatory and spectrum fees (18% and 13%, respectively). As Figure 13 shows, Tunisia and Morocco have the highest proportion of regulatory fees (both at 18%) in the sample. In Tunisia this percentage is made up of two fees: the telecommunication industry fee represents 94% of this burden, while numbering fees constitute the remaining 6%.

In addition, custom duties represent 2% of the total tax payments made in 2017 by the mobile operators. However, this is likely to increase from 2018, given the increased tariffs applicable on network equipment.<sup>78</sup>

Figure 13

## Different taxes as a percentage of overall tax revenues in the mobile sector<sup>79</sup>



Source: GSMA Intelligence database, EY analysis and operator data

78. We estimate import duties could increase from 2% to 4% of the total tax payments in 2018

79. Other taxes include personal income tax, social security contributions, business training tax, employee housing fund contribution, local business tax and stamp duty

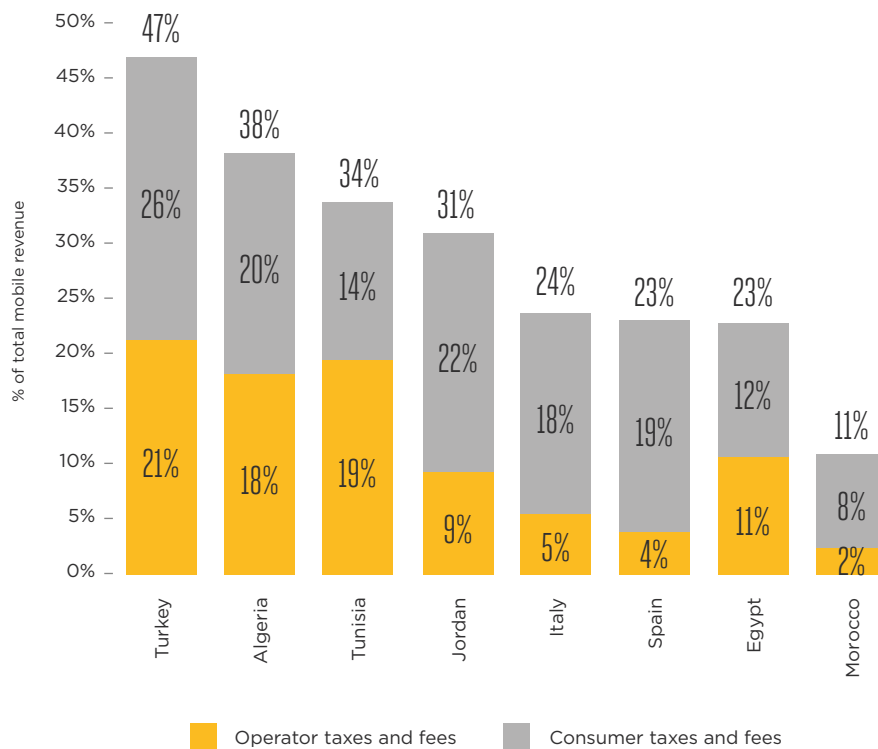


As shown in Figure 14, the tax burden of Tunisia is the third highest in the sample. Consumers pay 43% of the total taxes, while operators pay the remaining 57%. Tunisia has the second largest proportion of operator's

payments in the sample (19% of the total market revenue). This high tax burden disincentives further investments in the sector.

Figure 14

## Operator vs consumer taxes (as a share of total mobile revenue)<sup>80</sup>



Source: GSMA Intelligence database, EY analysis and operator data

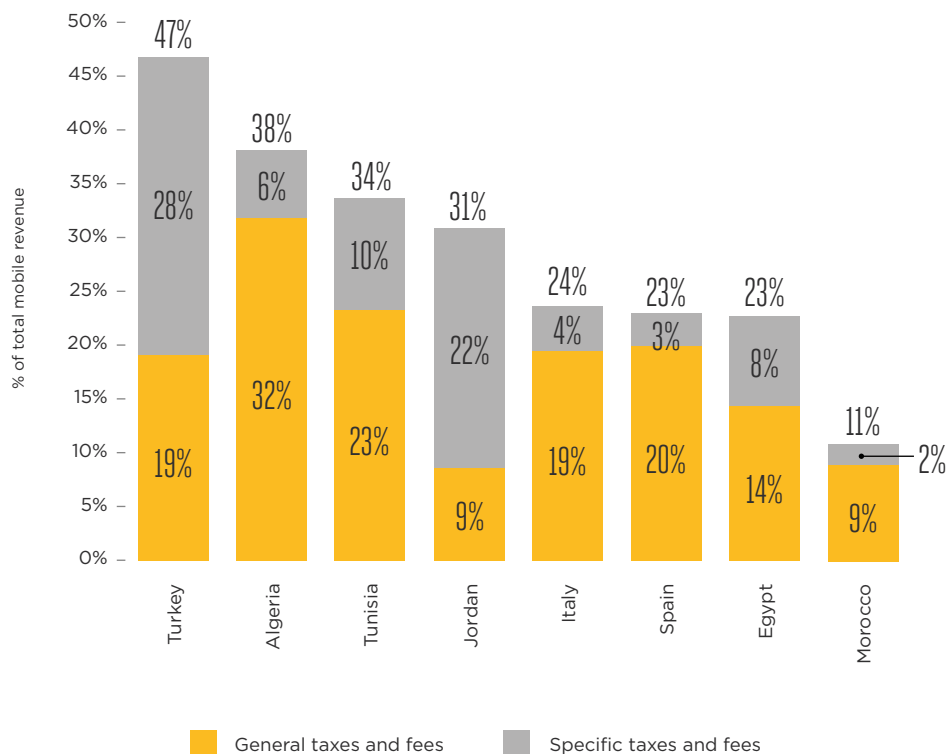
80. The total tax burden of Turkey does not include one-off spectrum fees. If these were included, the total tax burden would be of 62%

General taxes are equivalent to around 23% of total mobile sector revenue in Tunisia. As shown in Figure 15, this is a higher share than in any other country in the sample, except Algeria (32%). Furthermore, Tunisia's mobile-specific taxes (10%) represent one of the

largest shares of mobile sector revenues in the sample. This is above the levels seen in other MENA countries, including Egypt (8%), Algeria (6%) and Morocco (2%), as well as in European countries like Italy (4%) and Spain (3%).<sup>81</sup>

Figure 15

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



Source: GSMA Intelligence, EY Analysis and operator data

81. This mobile-specific burden includes annual spectrum fees, the telecommunications industry fee, the numbering fee and the tax on games by SMS. Although a higher corporation tax rate applies on telecommunication companies, this is not considered as a mobile-specific tax since the same rate applies on oil service companies, banks, financial institutions, car dealers, large commercial enterprises and franchisees of foreign brands

## 2.4 Mobile sector taxation compared to other sectors

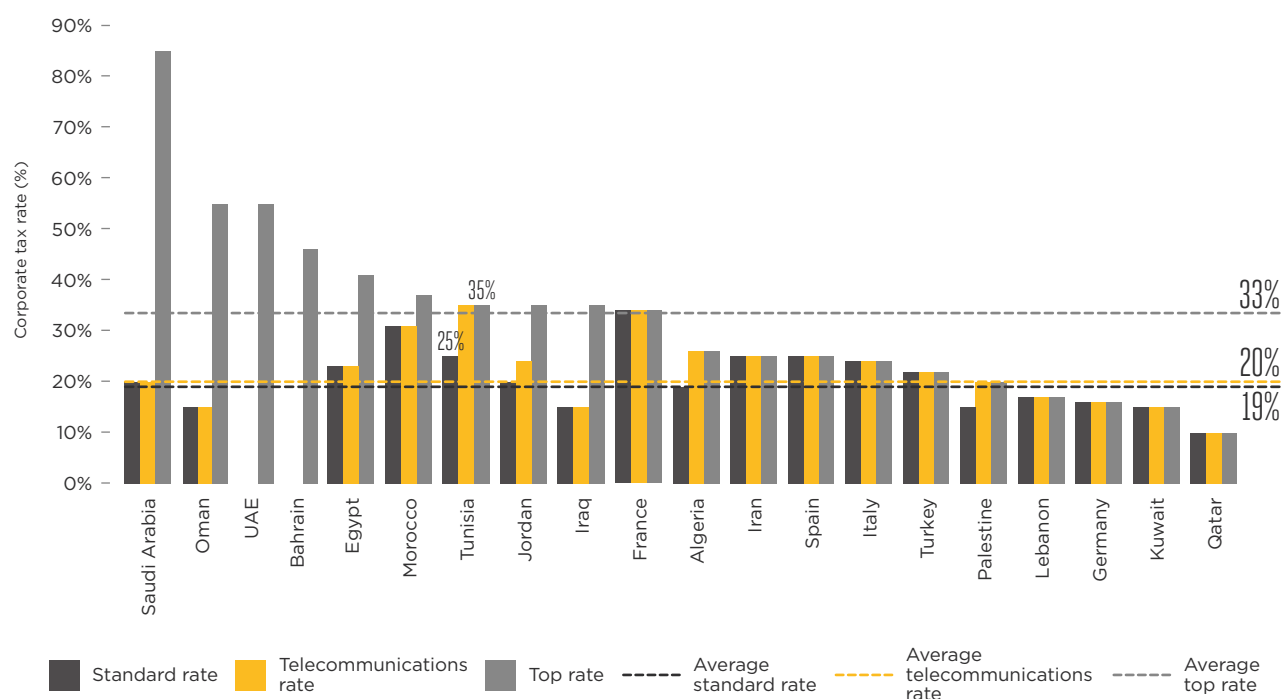
Despite the positive multiplier effect that the mobile sector has on GDP, mobile operators are subject to a higher corporate tax burden than other sectors in Tunisia. The rate of 35% is applied to oil service companies, banks, financial institutions, telecommunication companies, car dealers, large commercial enterprises and franchisees of foreign brands. The remaining companies are subject to the standard rate of 25%, or even to a reduced rate (20%

for small and medium enterprises and 15% for newly listed companies limited to a 5-year period).

As shown in Figure 16, in comparison to other countries, the corporate tax rate applying to mobile operators in Tunisia (35%) not only exceeds the average rate for telecommunication companies in other countries (20%), but also the average top rate (33%).<sup>82</sup>

Figure 16

### Corporate tax rates across relevant countries



Source: EY 2018 Worldwide Corporate Tax Guide

Under VAT, mobile products and services are subject to the standard rate of 19%. In contrast, some goods and services are subject to reduced rates and other goods

are exempt altogether. Table 4 summarises some of the key tax rates applying to different sectors.

82. This is the maximum corporation tax rate applied across all the sectors of the economy

Table 4

## VAT tax rates applicable in Tunisia, 2018

<b>19%</b>	Standard rate
<b>13%<sup>83</sup></b>	<ul style="list-style-type: none"> <li>• Sales of low-voltage electricity for domestic consumption and the sale of medium and low-voltage electricity for agricultural irrigation;</li> <li>• Sales of buildings constructed for the exclusive use of housing; and</li> <li>• Professional services (lawyers, tax advisers and other experts).</li> </ul>
<b>7%<sup>84</sup></b>	<ul style="list-style-type: none"> <li>• Transport of agricultural products and domestic transport of passengers;</li> <li>• Activities carried out by doctors and medical laboratories;</li> <li>• Materials and supplies for pharmaceutical products;</li> <li>• Tourism activities; and</li> <li>• Fertilisers, gas, animal feed and local crafts.</li> </ul>
<b>Exemptions</b>	<ul style="list-style-type: none"> <li>• Banking interest;</li> <li>• Maritime and air transport; and</li> <li>• Food products.</li> </ul>

Source: EY 2018 Worldwide VAT, GST and Sales Tax Guide



83. This rate was increased from 12% to 13% as of 1 January 2018

84. This rate was increased from 6% to 7% as of 1 January 2018





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

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 (WB)<sup>85</sup>, including:

- 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 undermine affordability nor discourage investment;
- The tax system should be simple; and
- Taxes should be easy to collect.

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

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

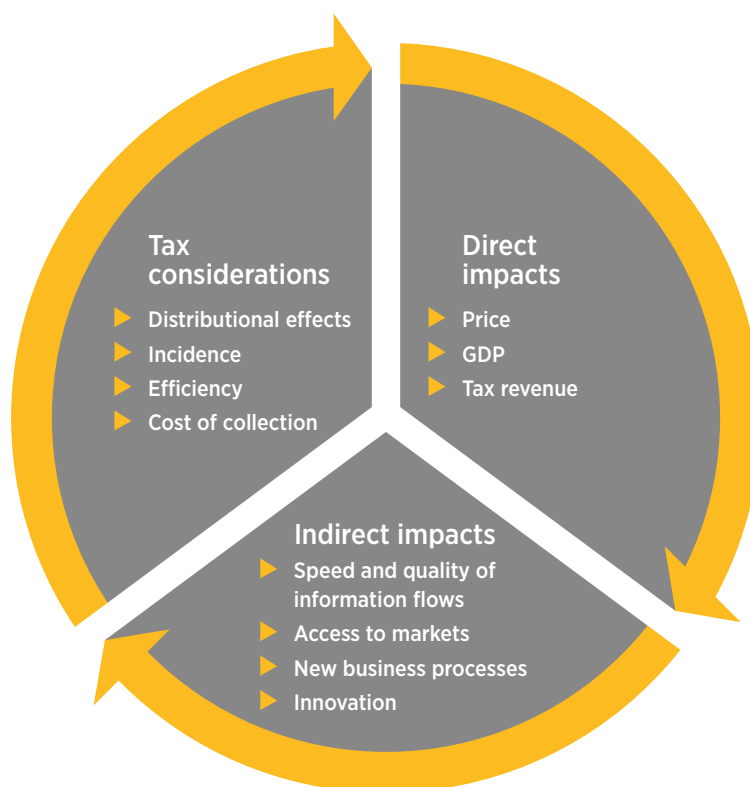
### 3.1 Principles of taxation applying to the mobile sector

As laid out in Figure 17 below, the tax system on the mobile sector is likely to have wider impacts in terms of prices, tax revenue and productivity. Indirectly, the taxation of the mobile sector will also impact

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

Figure 17

#### Factors shaping tax policy choices



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

## Principles of taxation applying to the mobile sector

- **Taxes should not discourage investment.** A stable and transparent tax system in line with international standards is a strategy that would deliver sustained investment.<sup>86</sup>
- **Taxation should be as broad based as possible.** Broad-based taxes with single and low rates should be favoured over specific-taxes. This should allow the maximisation of revenue with minimal distortions to the consumption and provision of mobile services.
- **Specific taxes should be limited and be based on a clear rationale of externalities.** Specific taxes should be narrowly targeting a few goods mainly on the grounds that their consumption entails negative externalities on society. Given positive externalities, mobile phones and services would not generally be included in a list of goods and services singled out for exceptionally harsh tax treatment.<sup>87</sup>
- **The tax system should be equitable.** Mobile operators and consumers should be treated equally to others in equal circumstances (“horizontal equity”). In addition, the tax system should also preserve “vertical equity”<sup>88</sup> by avoiding the imposition of regressive taxes which has a larger impact on consumers of mobile services in the lower income groups.<sup>89</sup>
- **Taxes should not undermine the affordability** of mobile services, as excessive taxation can increase the cost of handsets and mobile services.<sup>90</sup>
- **The tax system should be simple.** Tax rules should be clear and no more complex than necessary to achieve the policy aim, facilitating mobile businesses and consumers to make optimal decisions and respond to intended policy incentives.<sup>91</sup>
- **Taxes should be easy to collect.** The collection of taxes should be as efficient as possible, i.e. low tax administration costs and minimisation of evasion and avoidance costs.<sup>92</sup>

86. *ibid*

87. ITU, 2013, *Taxing Telecommunication/ICT services: an overview*, <https://www.itu.int/en/ITU-D/Regulatory-Market/Documents/Taxation%20Study-final-en.pdf>

88. *ibid*

89. R.M. Bird and E.M Zolt, 2003, *Introduction to Tax Policy Design and Development*, <https://www.internationalbudget.org/wp-content/uploads/Introduction-to-Tax-Policy-Design-and-Development.pdf>

90. V. Tanzi and H. Zee, 2001, *Tax Policy for Developing Countries*, <https://www.imf.org/external/pubs/ft/issues/issues27/>

91. IMF, OECD, UN, and WBG, 2016, *Enhancing the Effectiveness of External Support in Building Tax Capacity in Developing Countries*. Prepared for Submission to G20 Finance Ministers, <http://www.oecd.org/ctp/enhancing-the-effectiveness-of-external-support-in-building-tax-capacity-in-developing-countries.pdf>

92. IMF, 2011, *Revenue Mobilization in Developing Countries*, <https://www.imf.org/external/np/pp/eng/2011/030811.pdf>



## 3.2 An assessment of the mobile sector taxation in Tunisia

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

- **The tax system of Tunisia is broad-based, but some mobile-specific taxes remain in place.**

Although there is still scope for improvement, Tunisia has a broad-based tax system. However, there is still a number of mobile-specific taxes. Mobile consumers are subject to a tax on games by SMS and to an additional rate of stamp duty on mobile services invoices. On the other hand, mobile operators are also subject to different mobile-specific fees: the telecommunication industry fee, annual spectrum fees and numbering fees. The use of specific taxes should be limited, as excessive levels of taxation could impact the development of the sector and lower income groups in particular.

- **The current tax system has a high incidence on the mobile sector.** As shown in section 2.3, the tax burden is particularly high in Tunisia at 34% of the total market revenue. Consumers pay 43% of this tax burden in the form of stamp duty and VAT. Operators pay the remaining 57% of the total tax burden; the telecommunication industry fee, spectrum fees and corporation tax are the most significant taxes borne by the operators. This high tax burden can undermine the affordability of mobile services and make the Tunisian system less conducive to investment.

- **The high tax burden limits the positive externalities generated by the industry.** The mobile sector is pivotal for the growth of the wider economy. A simpler and more equitable tax system would encourage the expansion of the sector and the digital inclusion of the most disadvantaged people.

- **Although the number of tax payments and the time to pay taxes is below the MENA average, there is still scope to simplify the tax system.**

Under the category measuring the ease of paying taxes, the World Bank Doing Business 2018 report places Tunisia 140 out of 190 countries. The number of tax payments and the time to pay taxes is below the average in OECD high income countries. However, as shown in Table 55 below, the number of payments, the time spent to prepare, file and pay taxes and the post filing index make Tunisia's system very complex in comparison to the best performers in the world.

The number of tax payments per year and the time to pay taxes are below the average in the MENA region. However, the post filing index is worse than the MENA's average. Overall Tunisia is placed 17 out of 20 MENA countries.

The above means that there is still scope to improve the ease of paying taxes. The removal of the administrative burden for companies would act as an incentive to future investment.

Table 5

### Tunisia tax index, 2018

Indicator	Tunisia	MENA	OECD high income	Overall best performer
Tax payments (number per year)	9	17.9	10.9	3 (Hong Kong SAR, China)
Time (hours per year)	145	203.4	160.7	50 (Estonia)
Total tax and contribution (% of profit)	64.1	32.6	40.1	18.47 (32 economies)
Post filing index (0-100)	22.91	50.56	83.45	99.38 (Estonia)

Source: World Bank, Doing Business 2018

### 3.3 Options for tax reform in the mobile sector in Tunisia

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

- **Option 1** – Reinstatement of the tariff regime on network equipment applicable until March 2017;
- **Option 2** – Elimination of VAT on international incoming calls; and
- **Option 3** – Improvement of the tax base of the telecommunication industry fee.

Adopting these tax reforms would also be in line with the priorities identified by the IMF in its latest review on Tunisia, namely:<sup>93</sup>

- Making the tax system simpler and fairer;
- A more dynamic tax collection; and
- Modernising the tax administration.

The above could be achieved by alleviating the tax burden and complexity on the sector. This would lead to an increased tax collection in the medium term. Furthermore, the increasing use of mobile technologies, favoured by a more conducive tax system, can also help to modernise the tax administration in the long term.

In addition, these reforms would also help Tunisia to achieve the objectives of the *Digital Tunisia 2020* agenda:

- Guaranteeing social inclusion and bridging the digital divide through better access to information and knowledge, the democratisation of access equipment, the widespread use of broadband access and the implementation of ultra-fast broadband;
- Strengthening digital culture by spreading the use of ICT in educational curricula and by digitising content;
- Contributing to the reduction of unemployment and job creation in the digital sector;
- Supporting the creation of added value, by supporting the sustainability of businesses and jobs, entrepreneurship and innovation;

- Improving the competitiveness of enterprises, across all sectors, through investment in ICT and the digital economy; and
- Ensure the transition of Tunisia to the digital economy via an adapted regulatory framework and governance, as well as a safe environment.<sup>94</sup>

#### 3.3.1 Reinstatement of the tariff regime on network equipment applicable until March 2017

Since 2017, the tariff regime applicable to the mobile sector has seen a number of changes, resulting in increased customs duties. On 10 April 2017, the Tunisian government issued the decree 2017-419, thereby excluding telecommunication network equipment from both a custom duties exemption and a reduced rate of VAT. This resulted in an increase of custom duties on network equipment items, from 0% to 20% and VAT, from 6% to the standard rate (18% in 2017 and 19% in 2018). However, the application of this decree was suspended until 31 December 2017.

Nevertheless, on 18 December 2017, Article 39 of the Finance Act 2018 further increased certain customs duty rates. In this way, the tariff increased from 0% to 15% for certain products and from 20% to 30% for others from 1 January 2018. As a result of the above, crucial imported network equipment<sup>95</sup> is subject to higher tariffs, thereby increasing the costs of network expansion and maintenance.

#### The rationale for change

The reinstatement of the tariff regime applicable until March 2017 would reduce the costs for the operators to expand and improve the network; ultimately, this would incentivise the development of the mobile sector.

- Increased tariffs impact Tunisian mobile operators relying on imports as intermediate inputs or capital goods, both of which can be crucial for productivity growth. Operators cannot substitute these imports with local production, since this equipment is not produced in Tunisia. Therefore, increased tariffs can undermine the productivity of the sector.

93. IMF, 2018, Third review under the extended fund facility, and request for waiver of applicability and modification of performance criteria, IMF Country Report No. 18/218

94. Ministère des Technologies de la Communication et de l'Economie Numérique. Plan National Stratégique Tunisie Digitale 2020, <https://www.mtcen.gov.tn/index.php?id=14>

95. This network equipment corresponds to the category 85 of the tariff code. Appendix C lists the network equipment items imported by mobile operators which have suffered an increase in the rate

- The reduction of tariffs would translate into reduced costs of network equipment. This would boost incentives to expand mobile networks and translate into a greater coverage and better connectivity, especially in rural zones.
- The reinstatement of the former tariff regime would increase the certainty to invest in the sector. Over the past months, mobile operators have been subject to uncertainty due to constant tariff increases. A more stable and less onerous tariff regime would allow mobile operators to execute their investment plans in Tunisia more confidently.

### 3.3.2 Elimination of VAT on international incoming calls (IIC)

Currently, the standard rate of VAT (19%) is charged on the fee charged by Tunisian operators to foreign operators for terminating international incoming calls (i.e. transmitting them to the subscriber in Tunisia). This increases the cost to the overseas operator (and hence caller) of calls to Tunisia, thereby further disincentivising the connectivity of Tunisia with the world.

#### The rationale for change

- Removing the VAT on IIC would increase the international connectivity of Tunisia. Reducing the costs of international inbound calls would ultimately increase the time spent by callers from abroad calling into Tunisia. Mobile international calls from abroad into Tunisia have dropped by 46% over the last two years, passing from 51.4 million of minutes in May 2016 to 23.7 million in May 2018.<sup>96</sup>
- Eliminating the VAT on IIC is likely to have positive impacts on the sector and the economy. This could for example, facilitate foreign direct investment, as well as regional and international business opportunities. Hence the benefits associated with its increased connectivity would also be greater for the domestic population of Tunisia who would ultimately see themselves benefited by an increased number of international calls.
- The elimination of VAT on IIC would be consistent with the IIC being an export and with the Dubai<sup>97</sup>

agreement (and its predecessor the Melbourne<sup>98</sup> agreement) signed by Tunisia. These agreements seek to avoid the double taxation on international telecommunication services by providing that international telecommunication services should only be taxed in the country of origin of these calls.<sup>99</sup> Article 6.3<sup>100</sup> of the Dubai Agreement establishes that “[w]here, in accordance with the national law of a country, a fiscal tax is levied on collection charges for international telecommunication services, this tax shall normally be collected only in respect of international services billed to customers in that country, unless other arrangements are made to meet special circumstances”.

### 3.3.3 Improvement of the tax base of the telecommunication industry fee

Mobile operators pay a telecommunication industry fee of 5% charged on:

- Gross revenues (including recurring<sup>101</sup> and non-recurring revenue<sup>102</sup>) made by operators (inclusive of VAT and any other tax); and
- 5% of the total turnover of international transit services (including VAT and any other tax).

This regulatory fee represents a high cost for mobile operators, discouraging the investment in the sector. Therefore, this report proposes a change in the base, in order to make it less distortive. The recommendation being that the fee would still be of 5%, but the taxable base would only include recurring revenue (data, text and voice services) excluding:

- Non-recurring revenue;
- Revenue on national and international interconnection; and
- VAT and any other tax.

#### The rationale for change

- The taxation of interconnection revenue translates into overlapping layers of taxation on telecommunication services. In regards to domestic interconnection, the revenue is taxed more than

96. Instance Nationale des Télécommunications (INT), 2018. *Tableau de Bord Téléphonie Mobile. Suivi des principaux indicateurs du marché de la téléphonie mobile en Tunisie – Mai 2018*. [http://www.intt.tn/upload/files/TB2\\_Tel-Mobile%20-%20Mai%202018.pdf](http://www.intt.tn/upload/files/TB2_Tel-Mobile%20-%20Mai%202018.pdf)

97. ITU, 2012. *International Telecommunication Regulations, Dubai, WCIT-12*. <https://www.itu.int/en/wcit-12/Documents/final-acts-wcit-12.pdf>

98. ITU, 1988. *International Telecommunication Regulations, Melbourne, WATTC-88*. [https://www.itu.int/dms\\_pub/itu-t/oth/3F/01/T3F010000010001PDFE.pdf](https://www.itu.int/dms_pub/itu-t/oth/3F/01/T3F010000010001PDFE.pdf)

99. These ITRs were adopted at the World Telegraph and Telephone Administrative Conference held in Melbourne in 1988. The International Telecommunications Union (“ITU”) convened the World Conference on International Telecommunications (WCIT) in Dubai, United Arab Emirates, from 3 to 14 December 2012 to review the ITRs.

100. This is former Article 6.1 of the Melbourne agreement

101. Recurring revenue includes revenue from the use of the network (voice, messaging, data, and VAS)

102. Non-recurring revenue includes ancillary revenue, such as the sale of handsets or equipment

once, since it is included in the taxable base of all the operators. On the other hand, the income of international calls is potentially taxed in more than two jurisdictions. As mentioned above, this could be in potential conflict with the international standards set by the ITRs.

- The tax base should only include recurring revenue. This regulatory fee is due to the provision of licensed telecommunication services. Therefore, only the revenue related to the telecommunications licence should be taxed, excluding non-recurring revenue. The current inclusion of non-recurring revenue inflates the base by taxing ancillary activities (e.g. the sale of products and equipment such as handsets, 3G and 4G keys) which are not the core of the telecommunication services licensed to the operators. Furthermore, this leaves mobile operators in a situation of unfair competition against companies in other sectors obtaining the same revenue but which are not subject to the industry fee of 5%.
- The inclusion of any other tax in the base also results in multiple levels of taxation. The base includes VAT and any other tax, inflating the tax

by including amounts which are not revenue, but taxes paid on top of the gross revenues made by the operators.

- Consequently, the current tax base means a high burden for the operators, hindering the investment in the sector. As mentioned in section 2.3, regulatory fees constitute the second source of tax payments for the operators in Tunisia, which has the highest proportion of regulatory fees compared to other relevant countries. In addition, the share of mobile-specific taxes (10% of the total market revenue) is also high. An improved tax base would be less distortive for the operators and hence, it would be more conducive to further investment in the sector.
- Finally, it should be noted that the judgment of a court of first instance (1091 of 24 November 2005) also supported the view that non-recurring revenue should not be taxed. The court ruled the telecommunication operators must not pay the fee on the turnover from the sale of laptops, as they act as merchants in the same way as other resellers. Therefore, the fee is only applicable on the revenue made in the quality of telecommunication operators.

### 3.4 Digital opportunities in the field of taxation

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

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

As the OECD notes in its latest interim report on tax digitalisation, the increasing use of multi-sided platforms<sup>103</sup> facilitates the integration into the formal economy. Previously unreported transactions are now carried out through those platforms, delivering an enhanced electronic audit trail and greater reporting of income.

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

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

103. Multisided platforms bring together distinct groups of users benefitting from the presence of the other.

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

105. *ibid.*



## Successful experiences in the field of digital tax administration

- In Hungary, the introduction of electronic cash registers saw an increase of VAT revenue by 15% in the targeted sectors, exceeding the costs of introducing the new system.<sup>106</sup>
- In Rwanda, in the two years since the introduction of electronic cash registers in March 2013, VAT collected on sales increased by 20%.<sup>107</sup>
- In Mexico, an additional 4.2 million micro-businesses were brought into the formal economy after Mexico introduced mandatory electronic invoicing.<sup>108</sup>
- Peru's tax administration (SUNAT) launched its first mobile app in February 2015. This provides constant tablet and mobile phone access to a range of services, including tax registration, invoices, a virtual tax guide and the ability to report tax evaders.<sup>109</sup>
- The Australian Tax Office has incorporated a tool in its mobile app allowing to record tax deductions on the go. Using the camera on their device, taxpayers can capture receipts and use location services to record work-related car trips for vehicle deductions, eliminating the need for paper records.<sup>110</sup>
- Countries including Brazil, Côte d'Ivoire, Guinea, Kenya, Mauritius, Pakistan, Rwanda, Tanzania, and Uganda have done well in driving digital P2G payments. Of these, Kenya stands out in terms of the number of P2G use cases. The central e-government platform (eCitizen) reports that over 90% of digital payments are made via mobile money, while 85% of Nairobi City County payment wallet re-loads (eJijiPay) are made via mobile money.<sup>111</sup>
- Ghana has an existing e-Government portal that offers services by government ministries, departments and agencies (MDAs) and an e-Payments portal that accepts digital payments through payment processing partners such as mobile money (through MTN, Vodafone and Airtel-Tigo), card payments (via Visa and MasterCard), payment switch (eTranzact) and bank transfers (through banks such as Zenith Bank and Ghana Commercial Bank).<sup>112</sup>
- In Côte d'Ivoire 99% secondary school students (1.5 million) pay their annual school registration fee payment via mobile money which has resulted in driving cost efficiencies, increased operational efficiency, and transparency for all the beneficiaries - students and their parents, secondary schools, and the government (Ministry of National and Technical Education - MENET). Prior to this initiative, schools and local government departments reported that a significant proportion of school fee payments were lost, and that armed robberies at payment locations were commonplace. Mobile money has helped to reduce both cash handling costs and the associated risks.<sup>113</sup>

Some of the successful experiences identified above could be replicated in Tunisia. In addition to the positive impact in terms of tax collection, this would also be in line with the objectives of

*Digital Tunisia 2020*. In particular, moving towards an e-administration which is fair, transparent, agile, effective, based on a zero-paper policy.<sup>114</sup>

106. *ibid.*

107. *ibid.*

108. *ibid.*

109. *ibid.*

110. *ibid.*

111. GSMA, 2017. *Person-to-government (P2G) payment digitisation: Lessons from Kenya*. [https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2017/09/P2G\\_Report\\_Final.pdf](https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2017/09/P2G_Report_Final.pdf)

112. GSMA, 2018. *The opportunity for mobile money person-to-government payments in Ghana*. <https://www.gsma.com/mobilefordevelopment/tag/p2g-payments/>

113. GSMA, 2015. *Paying school fees with mobile money in Côte d'Ivoire: A public-private partnership to achieve greater efficiency*. [https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/10/2015\\_GSMA\\_Paying-school-fees-with-mobile-money-in-Cote-dIvoire.pdf](https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/10/2015_GSMA_Paying-school-fees-with-mobile-money-in-Cote-dIvoire.pdf)

114. Ministère des Technologies de la Communication et de l'Economie Numérique. *Plan National Stratégique Tunisie Digitale 2020*, <https://www.mtcen.gov.tn/index.php?id=14>





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

### 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. The reinstatement of mobile operators' exemptions from customs duties on network equipment, which were applicable until March 2017. By reinstating these exemptions, the cost of investment in network infrastructure will be reduced, allowing mobile operators to improve the quality of data services across Tunisia;
2. The elimination of VAT on international incoming calls currently charged at 19%. This will result in lower prices for international calls, leading to increased volumes of international call traffic; and

3. The adaptation of the taxable base of the telecommunication industry fee, in order to exclude non-recurring revenue, revenue on national and international interconnection and VAT and other taxes. A significant proportion of the tax saving will be passed through to subscribers in the form of lower prices, and it will also incentivise additional investment in the sector.

These options for tax reform have been modelled separately in order to isolate the effects of each option on the mobile sector and the wider economy. While the implications of these specific tax reforms have been modelled, alternative scenarios and combinations of these reforms are also possible.<sup>115</sup>

### 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 options have been analysed using a set of modelling tools representing both the Tunisian mobile sector and the Tunisian economy as a whole. While a combination of these tax reforms would be likely to lead to beneficial economic impacts for Tunisia, the assessment considers the options as separate 'scenarios', where each tax is reformed

and compared to a status quo scenario with no change in taxation (the baseline scenario). A model of the Tunisian mobile sector 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.<sup>116</sup>

<sup>115</sup> 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

<sup>116</sup> Further detail about the mobile sector modelling methodology can be found in Appendix A

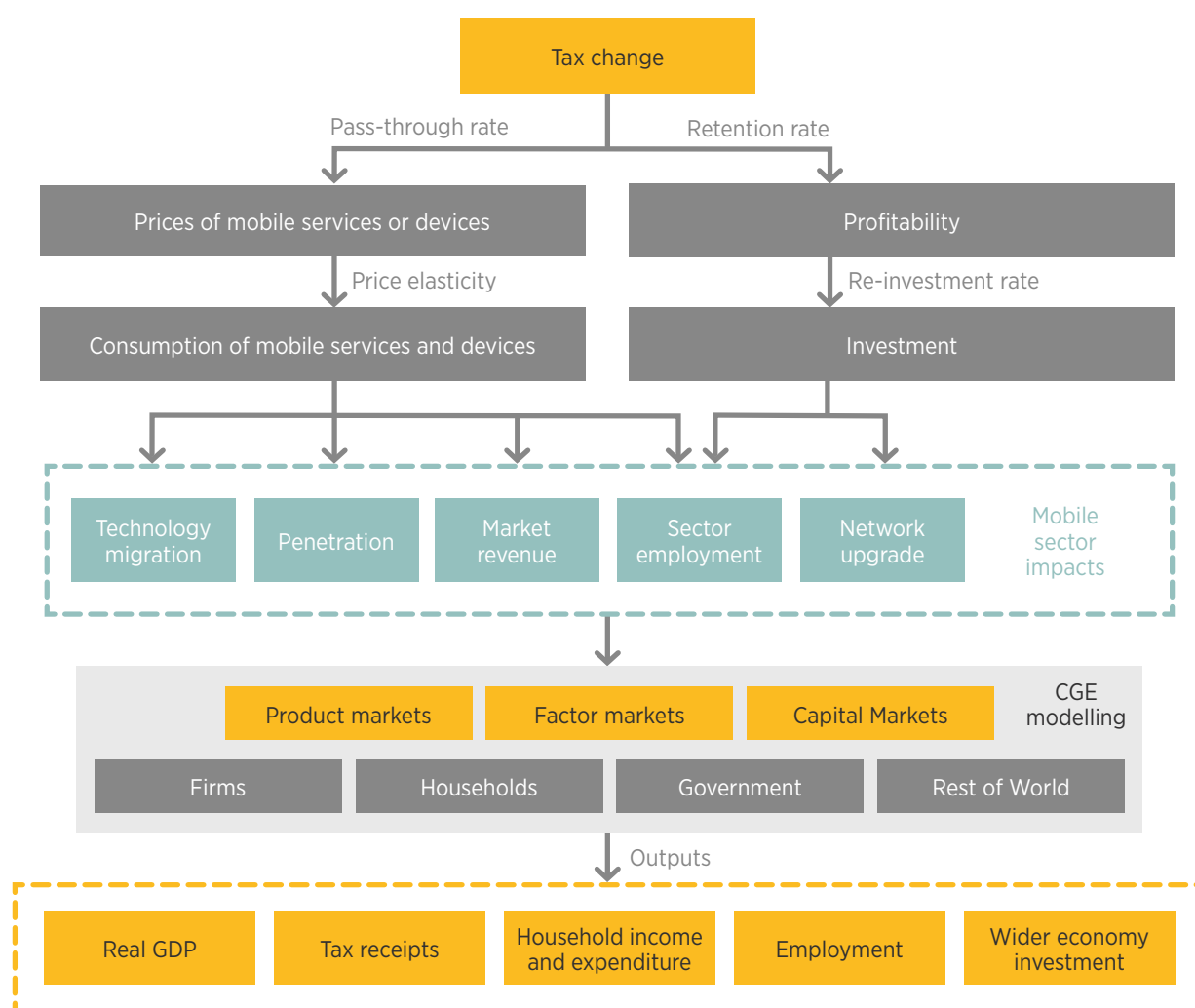
The wider economic impacts of each tax policy scenario are assessed via a 'Computable General Equilibrium' (CGE) model, namely the standard version of the Global Trade Analysis Project (GTAP) model and its associated dataset.<sup>117</sup> The GTAP model is contributed to, and widely used, by government agencies, international institutions, the private sector and academia to model policy changes within countries and cross-border effects of trade policies.

Some examples include the World Bank, the World Trade Organization (WTO), the Directorate General for Trade of the European Commission, the Asian Development Bank and the Organisation for Economic Co-operation and Development (OECD).<sup>118</sup>

A schematic of the modelling approach used in this study is shown in Figure 18 below.<sup>119</sup>

Figure 18

## Overview of the modelling approach



Source: EY analysis

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

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

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



## 4.3 The reinstatement of exemptions for mobile operators from customs duties on network equipment

The reinstatement of exemptions for mobile operators from customs duties on network equipment, which were in place until March 2017, will reduce the cost of investment in the industry. As of January 2018, the customs duty rates applicable on mobile network equipment are as high as 30%. This additional cost of investing in Tunisia's network infrastructure presents a barrier to improving the quality of data services in the country and achieving the aims set out in the *Five-Year Development Plan* and *Digital Tunisia 2020*.

As shown in Section 1, the download speed of mobile data in Tunisia is low relative to regional peers, and lags behind more advanced economies in Europe. By enabling further investment in the sector, the reinstatement of exemptions from customs duties will facilitate the provision of fast, reliable data to Tunisia's population. This in turn will drive down the effective price of data, as operators are able to increase the capacity of their networks and hence driving down the average cost of data. As discussed in Section 1.2.3, faster and more reliable data services also incentivises 2G customers to migrate to 3G and 4G technologies, creating greater digital inclusion.

This tax scenario is forecast to have the following impacts compared to the baseline scenario:<sup>120</sup>

- **Mobile market revenue:** total mobile sector revenue would increase by \$20 million (2.7%) 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;
- **Investment by operators:** as a result of the tax saving, Tunisian mobile operators would increase investment by a total of \$5 million per annum. This will improve the quality of the network infrastructure, resulting in faster and more reliable data services;
- **New connections:** an additional 232,000 unique subscribers, or 447,000 mobile connections by 2023. This is equivalent to an increase of around 1.9% in unique subscriber penetration (3.7% in total connections). As a result of investment in network coverage and lower effective prices, unique mobile broadband penetration would increase by 3.6%;
- **Usage:** the reduction in the effective price of mobile services would lead to a 9.4% increase in average data usage per connection compared to the baseline. Among low-income customers, data usage per connection would increase by an estimated 126MB per month (11.7%);
- **Productivity gain:** the increase in unique mobile broadband penetration of 3.6% would lead to a 0.4% gain in productivity across the economy, leading in turn to further increases in output, incomes and expenditure;
- **GDP increase:** total GDP would increase by \$161 million (0.4%) 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;
- **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 \$84 million; and
- **Tax revenue impact:** this scenario would have an initial net cost to the Tunisian Exchequer of \$7 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 \$42 million per annum by 2023.

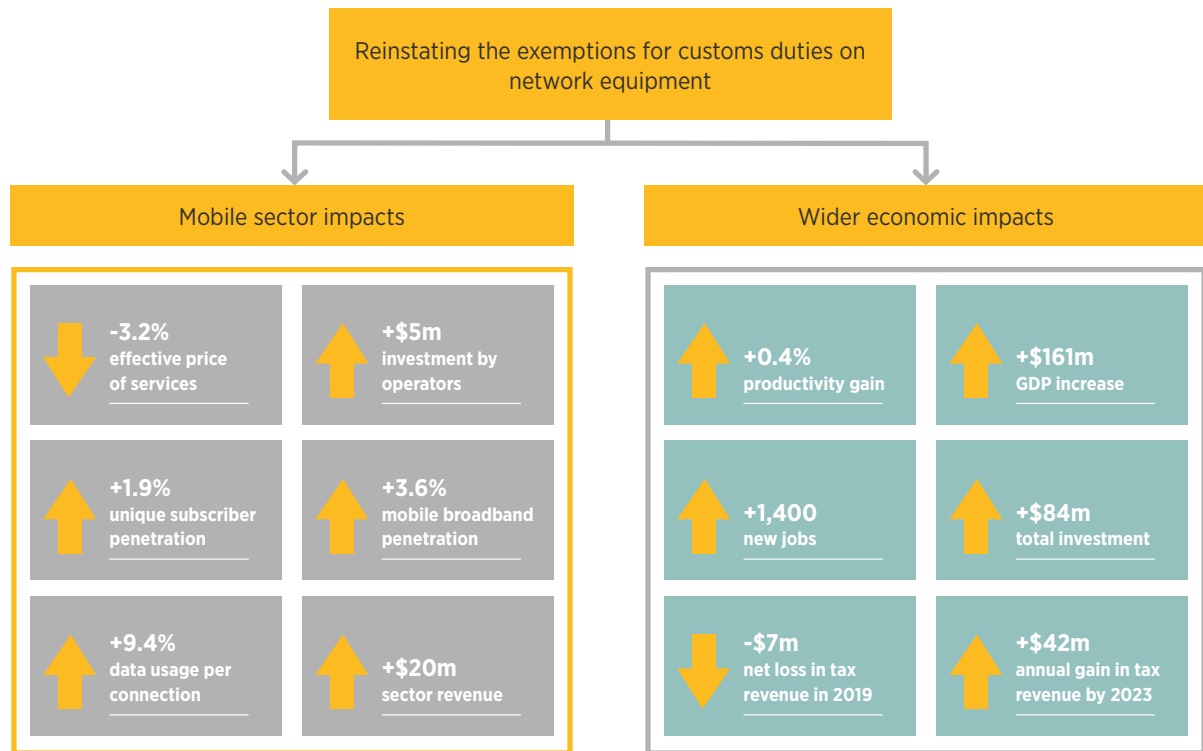
The summary of the sector-specific and economic impacts in 2023 is shown in Figure 19.<sup>121</sup>

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

121. All figures represent the annual variance between the baseline scenario and the tax reform scenario at 2023. These results are not cumulative

Figure 19

## Annual impacts of reinstating the tariff regime applicable on network equipment until March 2017, 2023



Source: EY analysis

## 4.4 The elimination of VAT on international incoming calls

The elimination of VAT on international incoming calls, currently levied at 19%, would stimulate an increase in the volume of international traffic. This would generate additional revenue for operators, which can be passed through to consumers in the form of lower prices, or invested in the Tunisian mobile market.

The elimination of these charges will help to improve Tunisia's business environment, as Tunisia currently ranks 91st out of 136 countries in the Enabling Trade Index.<sup>122</sup> For businesses trading with Tunisia, the cost of communication will be reduced, which may also improve the attractiveness of Tunisia as a destination for foreign direct investment.<sup>123</sup> This will improve Tunisia's business climate, a key objective of the *Five-Year Development Plan*.

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

- **International incoming traffic:** As a result of lower prices for non-domestic callers, international incoming traffic will increase by 53 million minutes by 2023 (20.9%);
- **Mobile market revenue:** total mobile sector revenue would increase by \$38 million (2.9%) by 2023. This would be driven by the significant growth in revenues from international traffic, and the incremental mobile penetration and usage levels generated from additional investment into the network;
- **Investment by operators:** as a result of the tax saving, Tunisian mobile operators would increase investment by a total of \$5 million per annum by 2023. This will improve the quality of the network infrastructure, resulting in faster and more reliable data services;
- **New connections:** an additional 185,000 unique subscribers, or 357,000 mobile connections by 2023. This is equivalent to an increase of around 1.5% in unique subscriber penetration (3.0% in total connections). As a result of investment in network coverage and lower effective prices, unique mobile broadband penetration would increase by 2.7%;
- **Usage:** the technology migration enabled by investment in the sector would lead to an 8.1% increase in average data usage per connection compared to the baseline. Among low-income customers, data usage per connection would increase by 107MB per month (9.9%);
- **Productivity gain:** the increase in unique mobile broadband penetration of 2.7% would lead to a 0.3% gain in productivity across the economy, leading in turn to further increases in output, incomes and expenditure;
- **GDP increase:** total GDP would increase by \$119 million (0.3%) 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 950 jobs 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 \$63 million; and
- **Tax revenue impact:** this scenario would have an initial net cost to the Tunisian Exchequer of \$21 million in 2019. However, the subsequent expansion of the mobile sector, and significant growth in the wider economy, mean that, by year 2, the annual impact is positive. The gain in tax revenue is approximately \$16 million per annum by 2023.

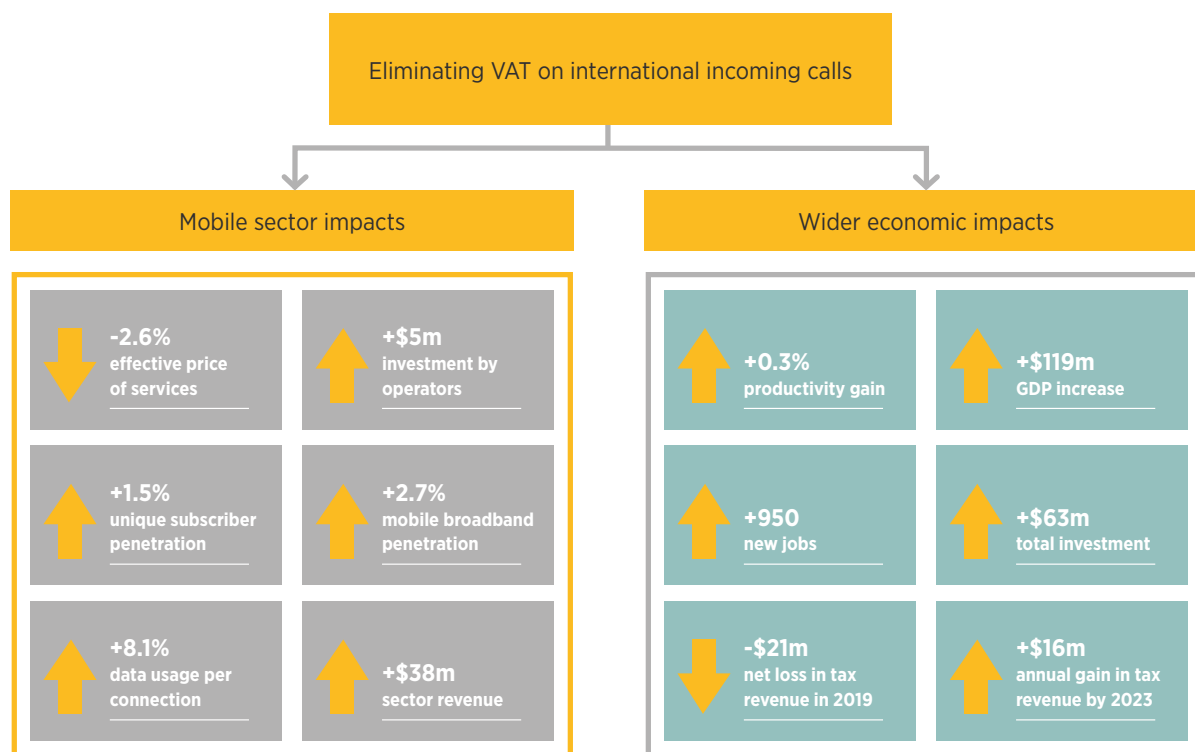
The summary of the sector-specific and economic impacts in 2023 is shown in Figure 20.

122. World Economic Forum, The Global Enabling Trade Report 2016 – [http://www3.weforum.org/docs/WEF\\_GETR\\_2016\\_report.pdf](http://www3.weforum.org/docs/WEF_GETR_2016_report.pdf)

123. The impact on foreign direct investment has not been specifically modelled under this scenario

Figure 20

## Annual impacts of eliminating VAT on international incoming calls, 2023<sup>124</sup>



Source: EY analysis

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



## 4.5 Adaptation of the taxable base of the telecommunication industry fee

The adaptation of the taxable base of the telecommunication industry fee, in order to exclude non-recurring revenue,<sup>125</sup> revenue from interconnection (national and international) and taxes will reduce the tax burden on Tunisia's mobile sector, promoting an enhanced business climate.

The proposed adaptation would reduce the base of the telecommunication industry fee by 37%, leading to a direct saving for operators. A significant portion of this saving is passed through to subscribers in the form of a price reduction. The remainder of the tax saving to mobile operators will be allocated to profits or reinvested in the sector in order to enhance network quality. This will facilitate significant technology migration, as consumers increasingly adopt new-generation services.

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

- **Mobile market revenue:** total mobile sector revenue would increase by \$15 million (2.1%) by 2023. This would be driven by the incremental mobile penetration and usage levels generated from reduced prices for domestic services;
- **Investment:** as a result of the tax saving, Tunisian mobile operators would increase investment by a total of \$1 million per annum. This will improve the quality of network infrastructure, resulting in faster and more reliable data services;
- **New connections:** an additional 190,000 unique subscribers, or 366,000 mobile connections by 2023. This is equivalent to an increase of around 1.6% in unique subscriber penetration (3.0% in total connections). As a result of investment in network coverage and lower effective prices, unique mobile broadband penetration would increase by 2.1%;
- **Usage:** the technology migration enabled by investment in the sector would lead to a 4.1% increase in average data usage per connection compared to the baseline. Among low-income customers, data usage per connection would increase by 57MB per month (5.3%);
- **Productivity gain:** the increase in unique mobile broadband penetration of 2.1% 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 \$96 million (0.24%) 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 1,050 jobs 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 \$54 million; and
- **Tax revenue impact:** this scenario would have an initial net cost to the Tunisian Exchequer of \$12 million in 2019. However, the subsequent expansion of the mobile sector, and significant growth in the wider economy, mean that, by year 3, the annual impact and cumulative impact are positive. The gain in tax revenue is approximately \$16 million per annum by 2023.

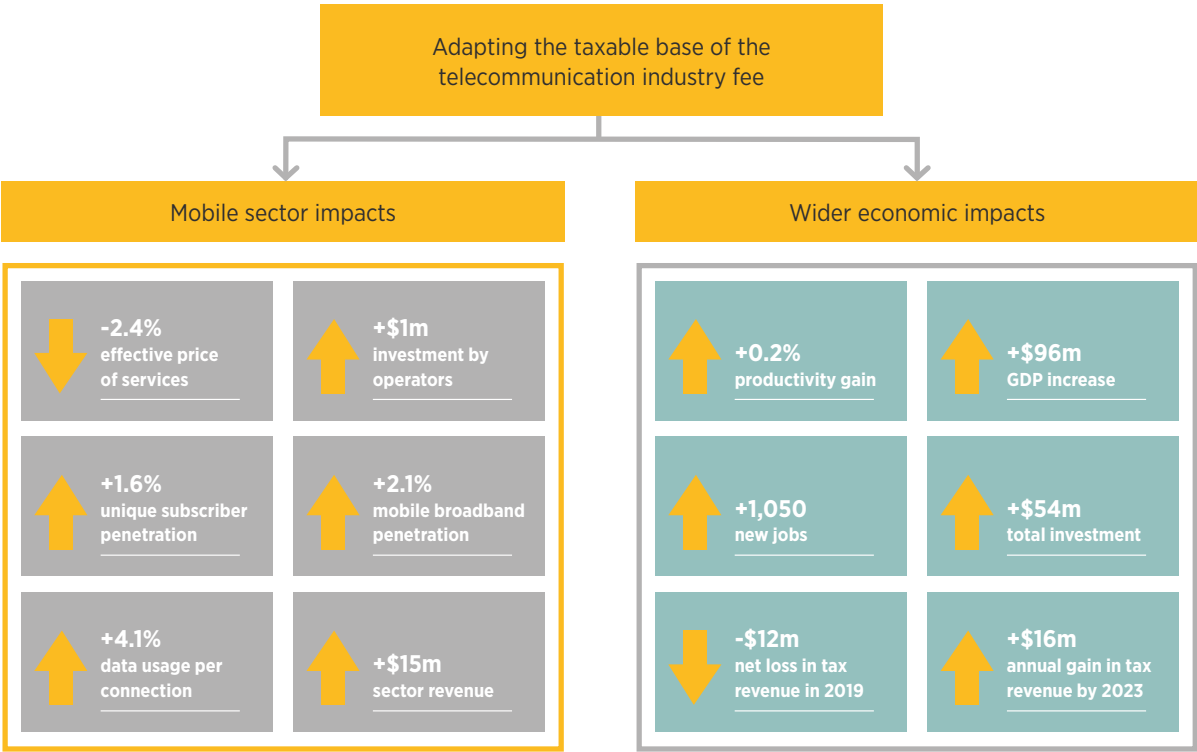
The summary of the sector-specific and economic impacts in 2023 is shown in Figure 21.

125. Non-recurring revenue generated includes revenue generated from sources other than mobile services (calls, SMS, data), such as handset or equipment sales and activation fees



Figure 21

Annual impacts of adapting the taxable base of the telecommunication industry fee, 2023<sup>126</sup>



Source: EY analysis

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

## 5. Conclusion: Reforming mobile sector taxation in Tunisia

The mobile industry has the potential to play an increasingly important role in achieving Tunisia's objectives set out in the *Five-Year Development Plan*, specifically by modernising productive sectors, encouraging FDI and improving Tunisia's infrastructure. The mobile market in Tunisia has expanded rapidly over the past decade, with unique subscriber penetration increasing from 43% in 2008 to 75% in 2018. The sector now generates approximately \$889 million of in revenue, equivalent to 2.2% of GDP.

There is still significant scope to further develop the sector, specifically through increased mobile broadband penetration and data usage. The Tunisian mobile sector can take advantage of high levels of 3G and 4G coverage, and seek to improve the existing network quality in order to deliver faster, more reliable data services. In 2017, the Government set ambitious objectives for improving the quality of Tunisia's mobile network infrastructure, including targets to increase download speeds beyond 2021.<sup>127</sup>

Tunisia currently lags behind a number of regional peers in terms of download speeds, and will require investment in order to improve network quality.

Given the limited fiscal space for public investment, improvements in network quality and access to mobile broadband services in Tunisia will instead require significant investment from mobile operators. However, operators are constrained by the current taxation environment, which imposes customs duties on network equipment and limits the funds available for reinvestment. By promoting investment, reducing the cost of data and incentivising usage, the tax reforms outlined in this paper will help to connect individuals to mobile services. A more balanced and efficient taxation structure, which addresses some of the most distortive taxes on the mobile economy in Tunisia would generate considerable socio-economic benefits in the country. A summary of the impacts is provided in Table 6.

127. Instance Nationale des Télécommunications (2017) – <http://www.intt.tn/fr/index.php?actu=730&typeactu=89>

Table 6

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

Indicator	Reinstating mobile operators' exemptions from customs duty on network equipment	Eliminating VAT on incoming international calls	Adapting the taxable base of the telecommunication industry fee
New Unique Subscribers	+232,000	+185,000	+190,000
Sector Revenue	+\$20m	+\$38m	+\$15m
Annual gain in tax revenue	+\$42m	+\$16m	+\$16m
GDP Increase	+\$161m	+\$119m	+\$96m
Wider Investment	+\$84m	+\$63m	+\$54m

The policy options for reform outlined in this report achieve a number of key objectives for the mobile sector, and wider Tunisian economy. This includes supporting the *Five-Year Development Plan* and *Digital Tunisia 2020* objectives of increasing the level of digitalisation in the Tunisian economy, and thereby stimulating private sector-led, inclusive growth in the medium-term. 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.

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





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# Appendix A

# Methodology

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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 Tunisian 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

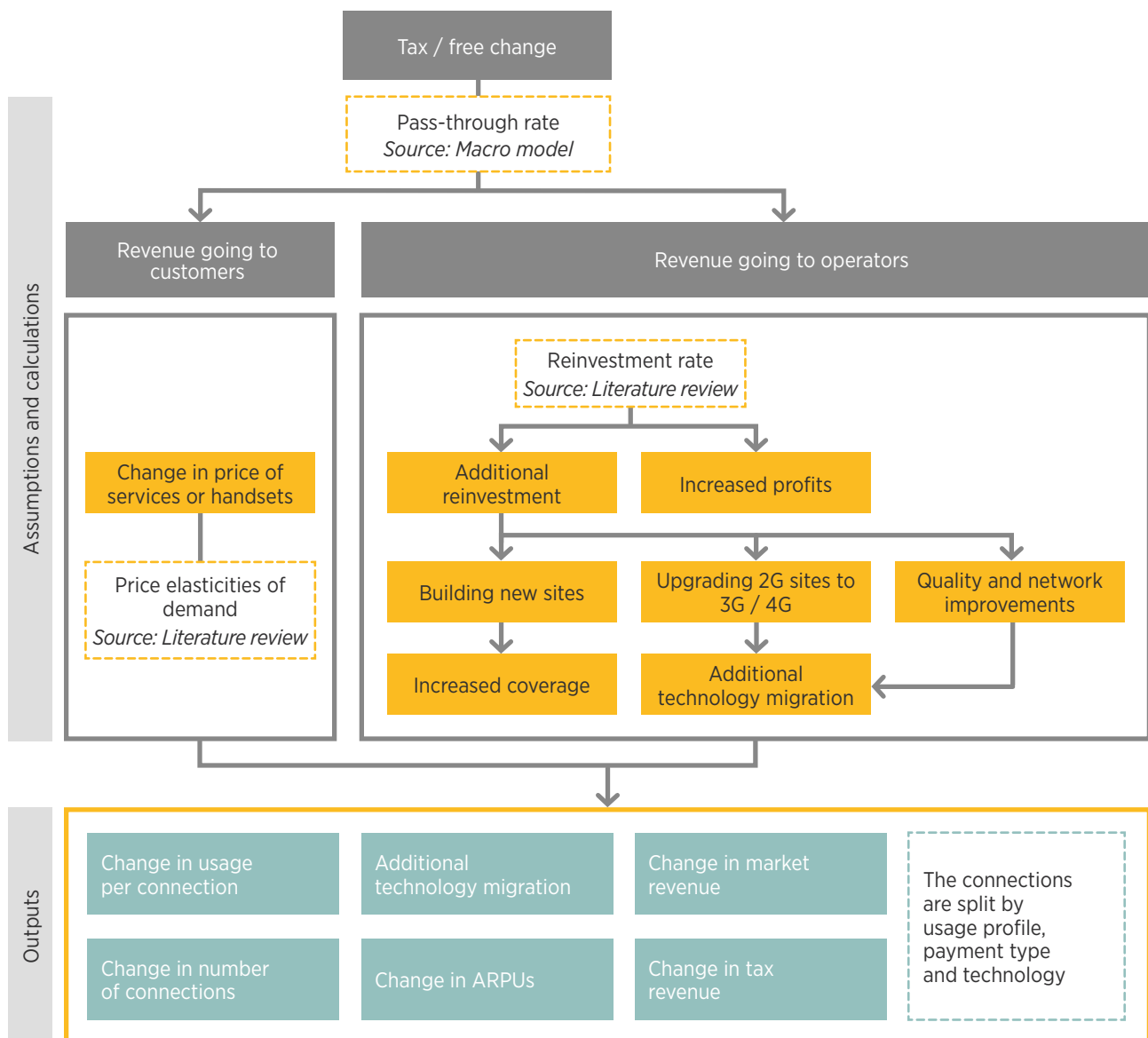
The telecoms market model covers the period 2017–2023, and uses data from local mobile operators and the GSMA Intelligence database. For modelling the scenarios, it has been assumed that the first phase of tax changes becomes

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.<sup>128</sup>

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

Figure 22

### Overview of mobile sector modelling approach



Source: EY analysis

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

As illustrated in Figure 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, technology migration and mobile penetration generated across different usage profiles (categorised by low, medium and high-income groups), and across 2G, 3G and 4G services.

### **Mobile market impacts**

For consumers, a reduction in the tax rate leads to a decrease in the effective price of mobile services or handsets. The relationship between the size of the tax reduction and the related decrease in prices is dependent on the level of "pass-through".<sup>129</sup> 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.<sup>130</sup> The following effects of additional investment are estimated using the telecoms market model:

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

### **Key outputs**

The key outputs of the telecoms market model include changes to the baseline forecast 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 is run for a total of 18 categories of subscribers.

## **Macro-economic modelling**

### **Macro-economic modelling approach**

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

The macro-economic impacts are modelled in two stages:

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

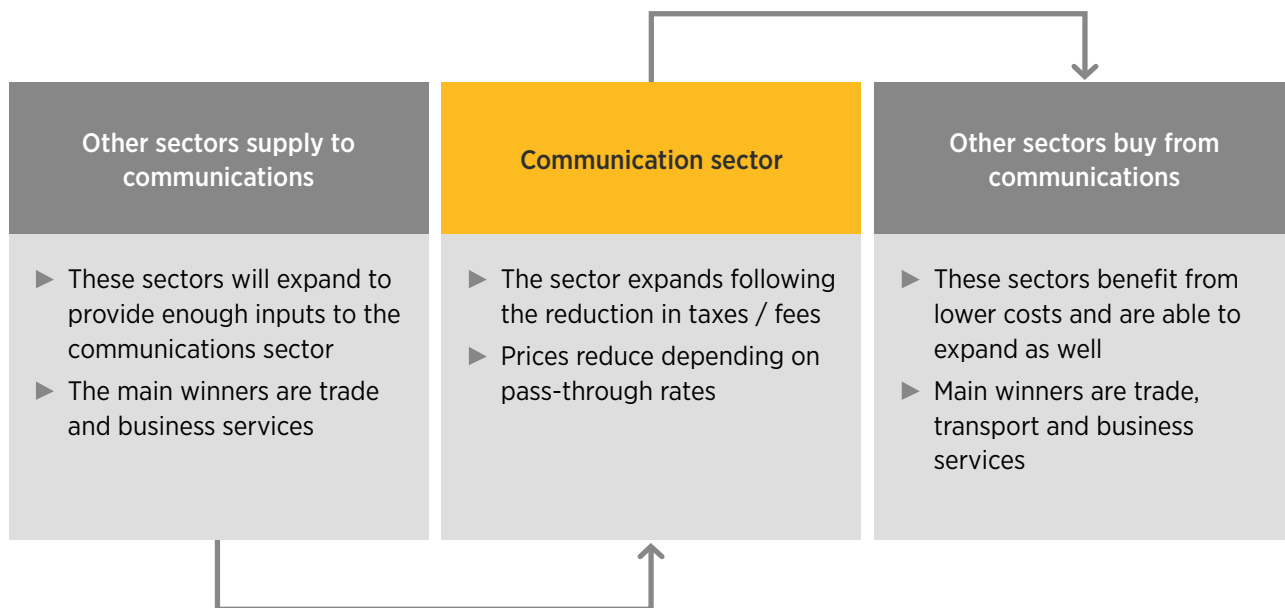
The impact of the mobile sector on the wider economy starts from its supply chain linkages. In particular, telecommunications is an important input to businesses right across the Tunisian economy. As lower taxes and consequent lower prices are passed on, many businesses will benefit and be able to expand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

129. 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

130. 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 linkage and interaction effects will be reinforced by an increase in productivity in the Tunisian 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.

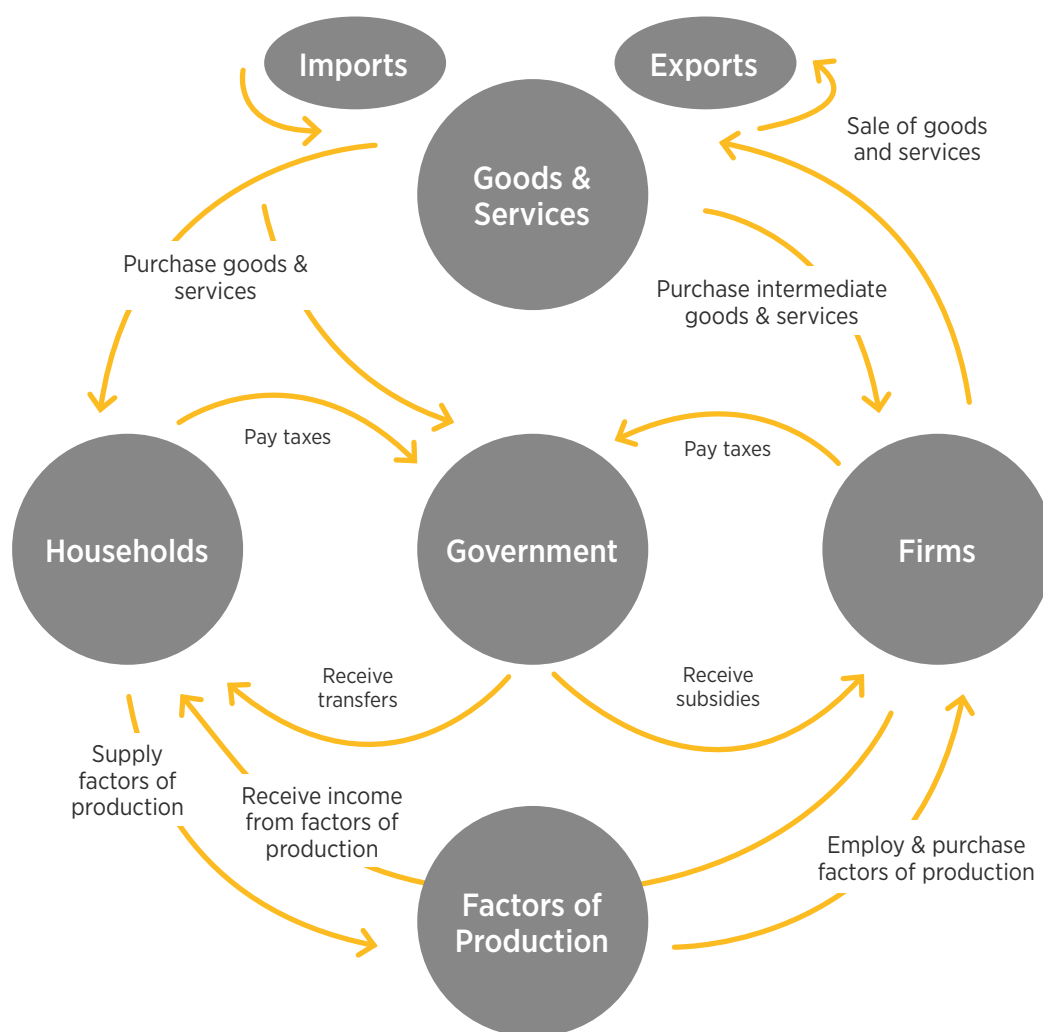
### The CGE model

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) variables. 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.<sup>131</sup> This standard closure is amendable with a wide range of alternative options available depending on modelling assumptions adopted.

131. Hertel, T.W. (ed.), (1997), Global Trade Analysis: Modelling 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:

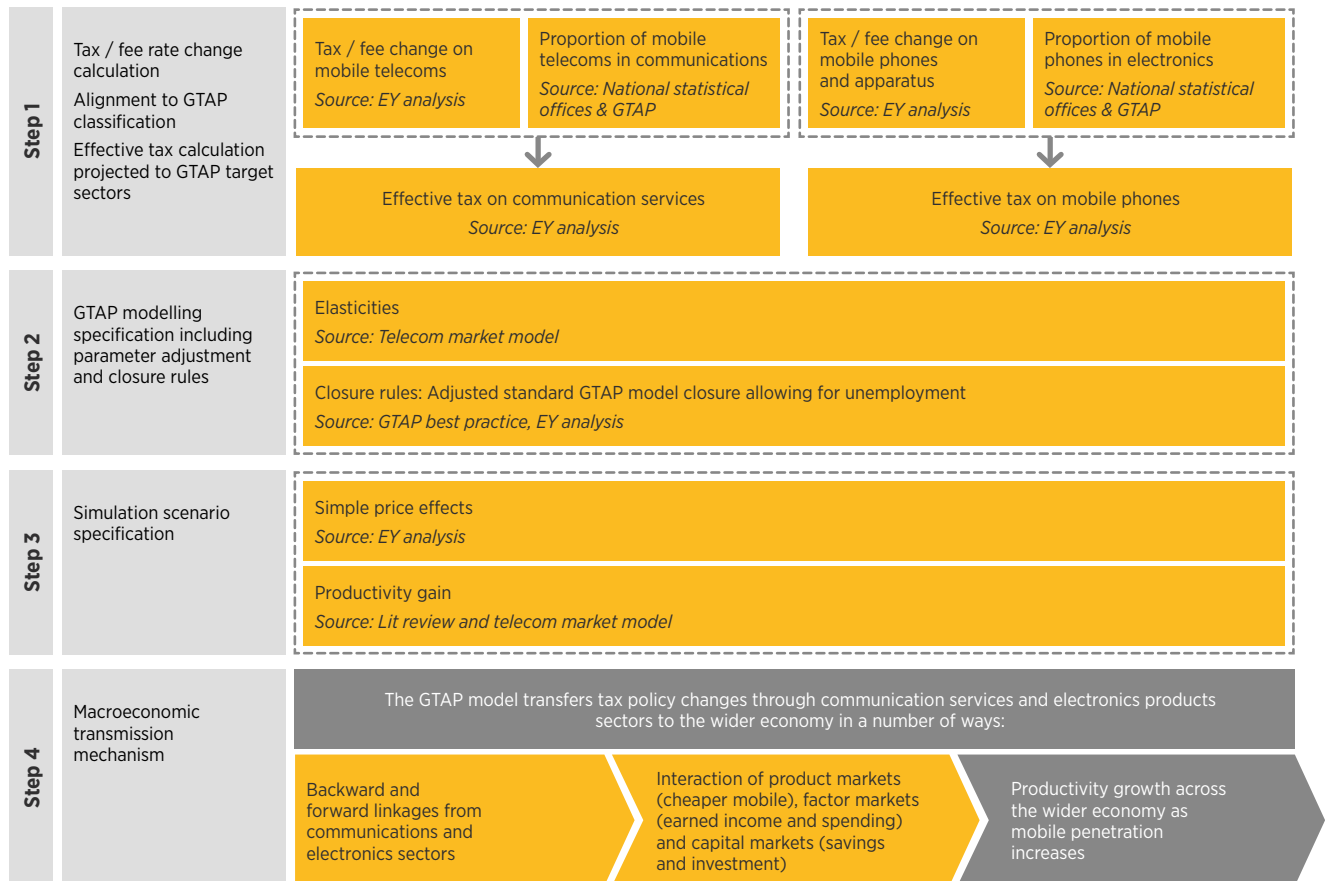
- First, the effective tax on Communication Services (which includes mobile services) is calculated;<sup>132</sup>
- Second, GTAP model parameters (e.g. own-price and cross-price elasticities) and closure rules (e.g. related to employment assumptions)

are adjusted to ensure better alignment with the mobile telecoms market and broader characteristics of the 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 macro-economic modelling approach



Source: EY analysis

132. All taxes affecting the production and consumption of mobile services and mobile phones in Tunisia (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 Tunisia. 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 Tunisia that are incorporated in the GTAP model, and which are based on input-output tables from national statistics and other empirical data on the Tunisia 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.<sup>133</sup> 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 Tunisian economy.

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

**Table 7**

### **Pass-through rates derived for each scenario**

<b>Indicator</b>	<b>Reinstating mobile operators' exemptions from customs duty on network equipment</b>	<b>Eliminating VAT on incoming international calls</b>	<b>Adapting the taxable base of the telecommunication industry fee</b>
Pass-through rate	28%	100%	93%

In scenario 1, the operators pass 28% of the tax reduction on to subscribers in the form of lower prices. As this is effectively a tax on investment, the pass-through rate is relatively low when compared to scenarios 2 and 3, which are taxes on consumption and revenue respectively. The reduction in prices observed in scenario 1 is indirect, as the change in the tax rates allows operators, all else equal, to buy the same quantity of equipment at a lower price, which will lead to lower prices due to the corresponding reduction in depreciation and capital charges. Alternatively, operators may increase investment, which should lead to economies of scale benefits – e.g. average costs of services fall if the network can be expanded.

In scenarios 2, the full tax saving is passed on to foreign subscribers by Tunisian and overseas mobile operators, leading to an increase in the volume of incoming international calls and therefore increased market revenue.

In scenario 3, the calculated pass-through rate for the telecommunications industry fee is 93%. This relatively high pass-through rate is driven by competitive market dynamics in Tunisia and the nature of the tax, which is levied on revenue. Revenue taxes can be treated as equivalent to consumption taxes, as they are a product of price and quantity, and are therefore more visible to end-customers than other business taxes, such as those on imports of network equipment.

133. 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 Tunisia

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

### Price elasticity of demand

The impact of price changes on the consumption of mobile services is captured via estimates of the price elasticity of demand (PED), which measures the change in quantity demanded following a change in price.

A literature review has been conducted (covering 30 studies), as a basis for establishing a set of assumptions on the 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 the 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 the price of handsets; and
- International traffic termination elasticity, which relates to the change in number of incoming minutes following a change in the price of international termination.

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

To establish relevant price elasticities for Tunisia, we have used a set of studies pertaining to low- and middle-income countries (Tunisia is defined as a lower middle income economy by the World Bank).<sup>134</sup>

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 -0.68 to -0.87 for mobile services;
- Technology migration elasticities: from -0.25 to -0.32 for data; and

### 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 re-invest 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.<sup>135</sup>

Of the reinvestment amount, it is assumed that a small proportion of the reinvestment available is directed towards upgrading 2G sites to 3G sites and 3G sites to 4G sites, while the major part is used to increase the capacity of existing 4G sites in already covered areas. These assumptions are based on operators' inputs and on analysis of GSMA Intelligence data, suggesting full 2G population coverage, 97% 3G coverage and 90% 4G coverage by the end of 2018 in the baseline.

We assume that investments which improve the capacity of existing mobile sites will increase the quality and speed of mobile broadband (MBB) connections. This allows subscribers to download more content and creates further incentives for 2G customers to migrate to 3G and 4G services.<sup>136</sup> To implement these impacts in modelling, it has been assumed that higher data usage per connection will lead to a decrease in an effective price of a MB, compared to the baseline.

### 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).<sup>137</sup>

It has been assumed that a 1% increase in unique MBB penetration leads to a 0.1% increase in total factor productivity.<sup>138</sup> A measure of unique MBB

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

135. 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"

136. Currently, the unique MBB subscriber penetration in Tunisia is just under 50% (GSMA Intelligence). At the end of 2017, there were 9.4 million 2G connections, which represent 56% of the total number of connections in Tunisia

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

138. LECG (2009): "Economic Impact of Broadband: An Empirical Study"

penetration has been selected for the Tunisian market instead of total unique subscriber penetration. This reflects a relatively mature state of mobile market development in Tunisia, where productivity benefits of mobile are driven by MBB expansion and increase in speeds of MBB connections, rather than the rollout of the mobile network to previously non-covered areas.

In this study, the shock to TFP is modelled as a change in the productivity of all primary factors (of equal proportions) in the Tunisian economy. This productivity change enters as a variable into the constant elasticity of substitution (CES) value-added production function.<sup>139</sup> The TFP shock works in the Tunisian model as the sum of two effects:

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

### Timing of macro-economic impacts

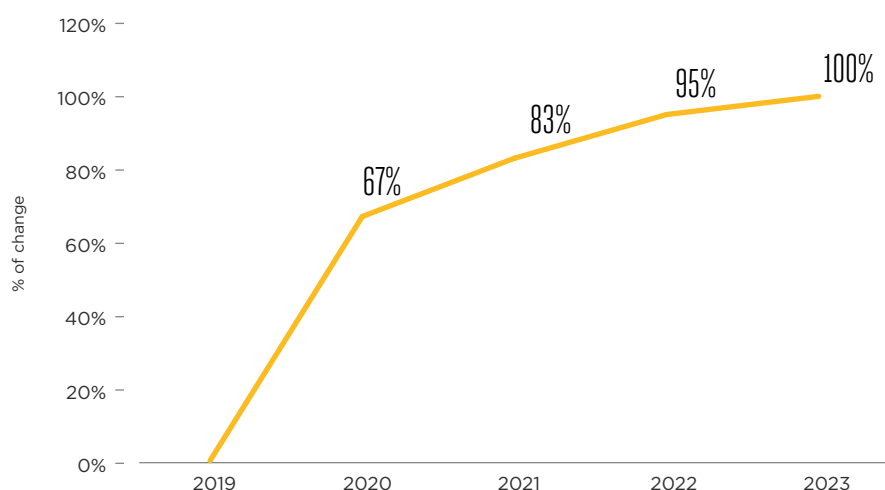
The standard GTAP model seeks to calculate differences in key economic variables between different possible states of the economy – a baseline case and a policy scenario – at a fixed point in time. This means that the standard model is a comparative static model and does not model year-by-year changes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

The CGE literature on the dynamic impacts of tax policy on a country's GDP suggests that the transition to a new equilibrium takes on average 5-10 years with the annual impact on GDP increasing at a diminishing rate.<sup>140</sup>

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 below.

Figure 26

## Time path for the transition to the new equilibrium



Source: EY analysis

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

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



### *Closure rules in the macro-economic model*

In order to account for specific labour market conditions in Tunisia, a specific closure rule has been applied in GTAP in relation to employment and wages. The standard approach in CGE models is to assume that the supply of labour is fixed, and hence an increase in the demand for labour results in an increase in wages and prices, rather than employment. However, data from the International Labour Organisation demonstrates that the highest rate of unemployment is among people with a high skillset.

Therefore, the modelling approach allows for employment to increase among skilled labour in Tunisia, specifically in the “Technicians/Associate Professional” category. This means that an expansion of demand leads to both an increase in employment and an increase in wages in the economy.





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# Appendix B

## Scenario estimations

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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: Reinstatement of exemptions from customs duties on network equipment

This scenario models economic impacts of restoring the pre-April 2017 tariff regime, where operators benefitted from exemptions from customs duties on network equipment (code 85).<sup>141</sup>

Table 8

## Annual impacts of reinstating exemptions from customs duties on network equipment

Indicator	2019	2020	2021	2022	2023
<b>MOBILE SECTOR IMPACTS</b>					
Change in effective price of services <sup>142</sup> vs baseline	-0.8%	1.3%	-1.9%	-2.6%	-3.2%
Incremental connections (total)	61,000	159,000	244,000	343,000	447,000
Incremental unique subscribers (total)	32,000	82,000	126,000	178,000	232,000
Incremental connections (3G and 4G)	144,000	439,000	629,000	726,000	829,000
<i>of which technology migration</i>	110,000	341,000	465,000	476,000	485,000
Incremental connections by low-income subscribers	43,000	113,000	176,000	251,000	325,000
ARPU (total) vs baseline	0.0%	1.0%	1.1%	0.7%	0.3%
Increase in mobile penetration (connections)	0.5%	1.3%	2.0%	2.9%	3.7%
Increase in mobile penetration (unique subscribers)	0.3%	0.7%	1.1%	1.5%	1.9%
Increase in mobile penetration (unique MBB subscribers)	0.6%	1.9%	2.7%	3.1%	3.6%
Data usage vs baseline	2.4%	6.6%	9.0%	10.6%	12.1%
Data usage per connection vs baseline	2.1%	5.6%	7.5%	8.6%	9.4%
Increase in market revenue (total)	\$ 3m	\$ 15m	\$ 19m	\$ 20m	\$ 20m
Increase in market revenue (total) vs baseline	0.4%	1.9%	2.4%	2.7%	2.7%
Additional investment	\$ 5m	\$ 5m	\$ 5m	\$ 5m	\$ 5m
Static tax impact <sup>143</sup>	-\$ 12m	-\$ 11m	-\$ 11m	-\$ 11m	-\$ 11m
Impact on mobile sector taxation	-\$ 10m	-\$ 6m	\$ 5m	-\$ 4m	-\$ 4m
<b>WIDER ECONOMIC IMPACTS<sup>144</sup></b>					
Full impact on communications sector taxation <sup>145</sup>	-\$ 9m	-\$ 8m	-\$ 8m	-\$ 8m	-\$ 8m
Receipts from all other sectors	\$ 2m	\$ 34m	\$ 42m	\$ 48m	\$ 50m
Total tax receipts	-\$ 7m	\$ 26m	\$ 34m	\$ 40m	\$ 42m
<i>Cumulative total receipts</i>	-\$ 7m	\$ 19m	\$ 53m	\$ 93m	\$ 135m
Real GDP	\$ 1m	\$ 108m	\$ 133m	\$ 153m	\$ 161m (0.40%)
Employment	Impact estimated for 2023 only				1,403 (0.04%)
Household income	Impact estimated for 2023 only				\$ 142m (0.45%)
Household expenditure	Impact estimated for 2023 only				\$ 121m (0.43%)
Investment	Impact estimated for 2023 only				\$ 84m (1.06%)

Source: EY analysis

141. In GTAP, the tax saving has been implemented via a reduction in the tax on capital in the communications sector. This approach has been preferred over a reduction in the tax on imports due to the small share of network equipment in total electronics imports. Implementing a reduction in the imports tax would therefore lead to underestimation of impact on the communications sector, as the effects would be channelled to all sectors using electronics

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

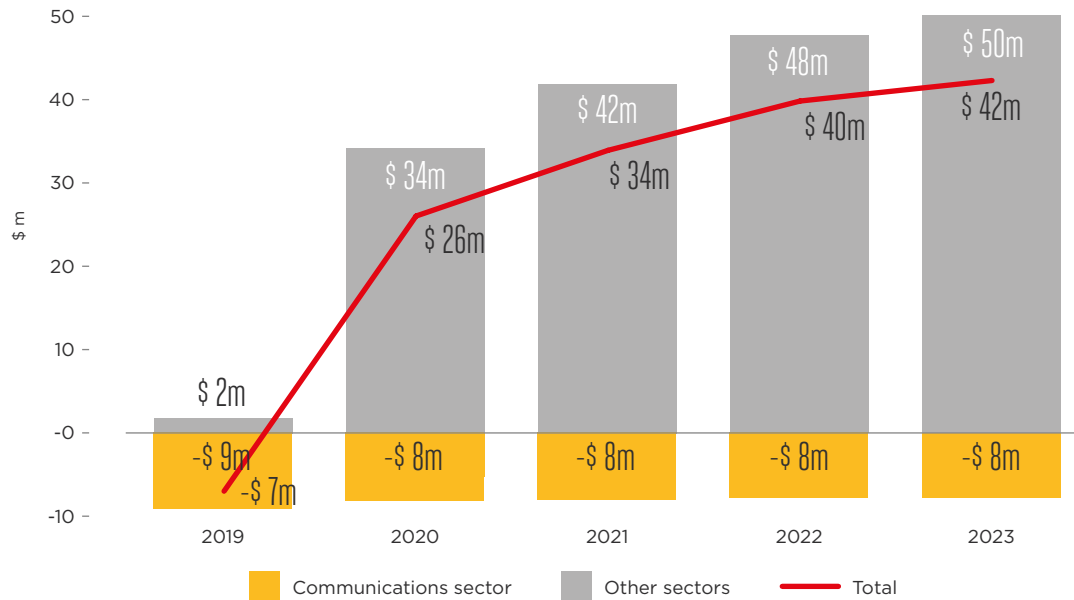
143. This is the initial direct cost to the Exchequer, before behavioural change in the sector and the economy; overstates the true cost

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

145. The productivity impact of the tax reform is assumed to take place in year 2, resulting in an increase in government tax receipts

Figure 27

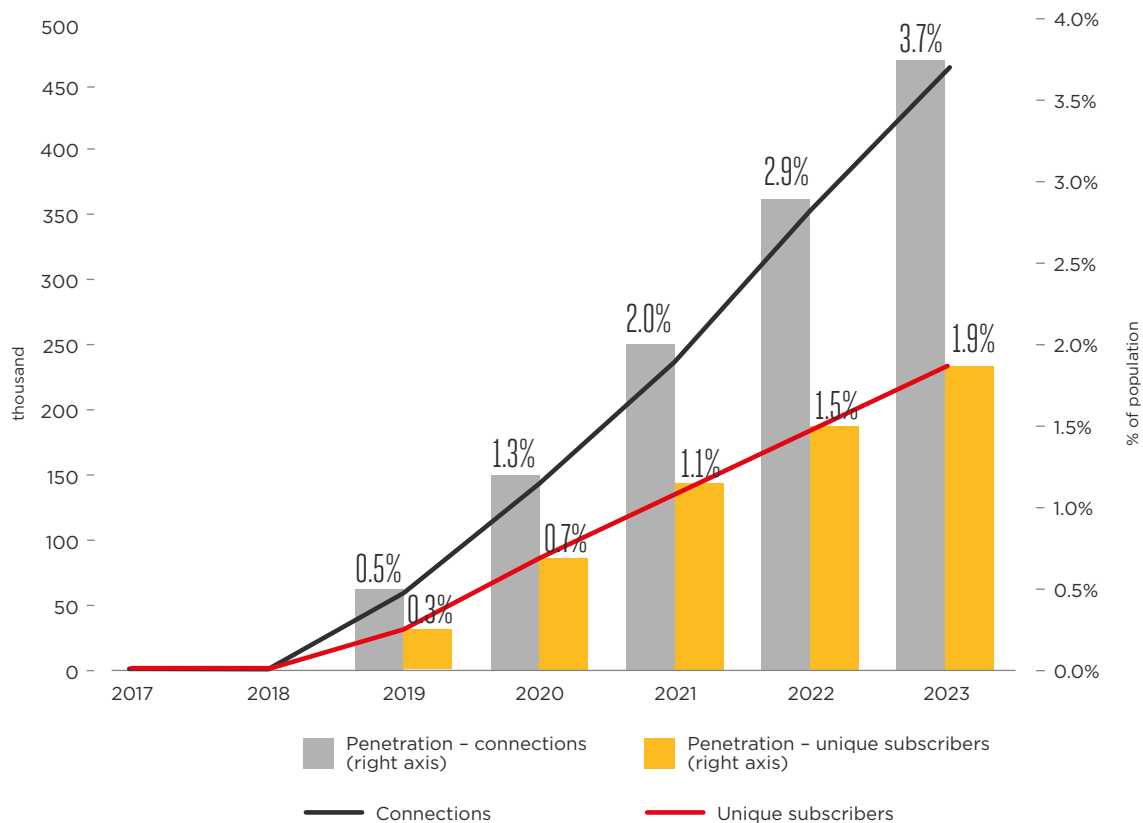
### Reinstatement of exemptions from customs duties on network equipment – annual impacts on tax receipts, \$m



Source: EY analysis

Figure 28

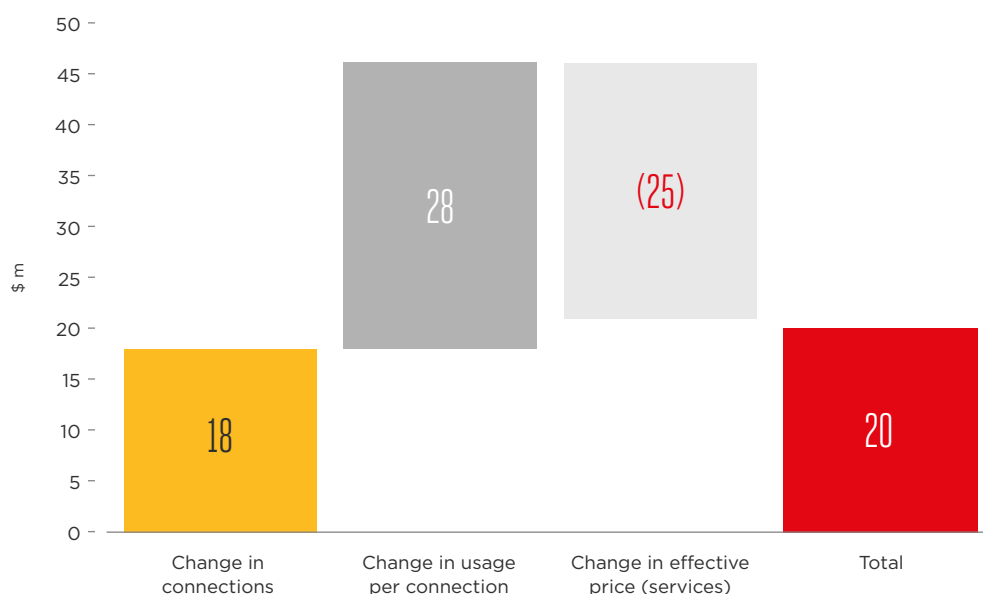
### Connections and penetration impacts of reinstating operators' exemptions from customs duties on network equipment



Source: EY analysis

Figure 29<sup>146</sup>

Main drivers of the market revenue change following the reinstatement of exemptions from customs duties on network equipment



Source: EY analysis



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



## Scenario 2: Elimination of VAT on international incoming calls

This scenario models an elimination of the VAT levied on incoming international calls at a rate of 19%.

Table 9

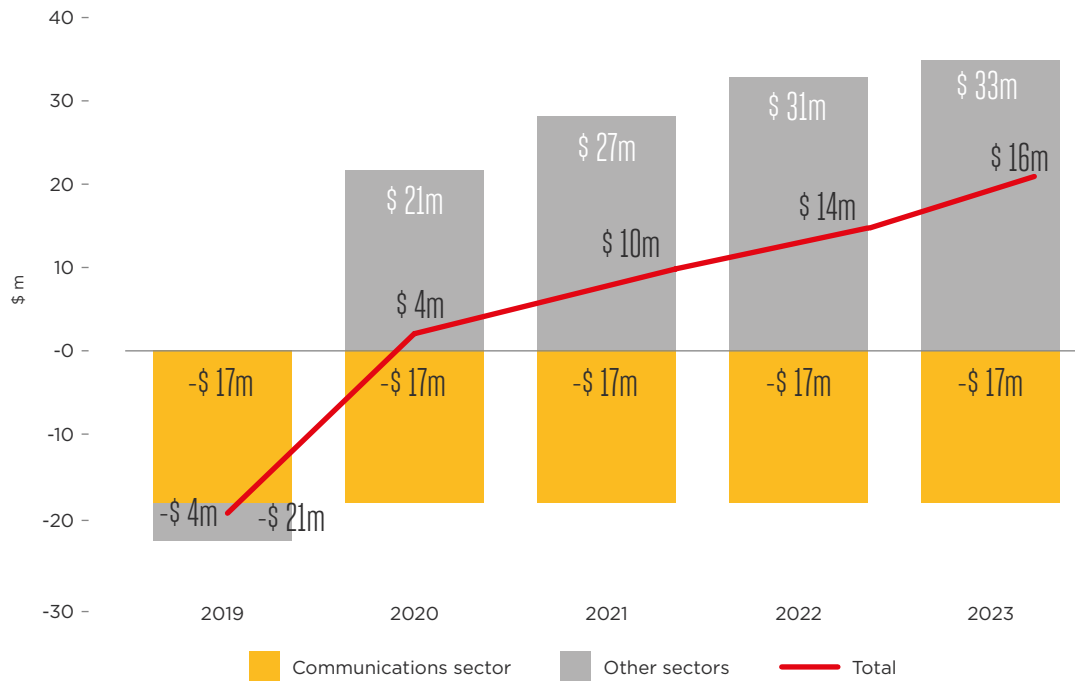
## Annual impacts of eliminating VAT on international incoming calls

Indicator	2019	2020	2021	2022	2023
<b>MOBILE SECTOR IMPACTS</b>					
Change in effective price of services vs baseline	-0.3%	-0.8%	-1.4%	-2.0%	-2.6%
Incremental connections (total)	19,000	77,000	161,000	255,000	357,000
Incremental unique subscribers (total)	10,000	40,000	83,000	132,000	185,000
Incremental connections (3G and 4G)	50,000	210,000	402,000	532,000	631,000
<i>of which technology migration</i>	39,000	162,000	293,000	346,000	356,000
Incremental connections by low-income users	14,000	55,000	116,000	186,000	260,000
ARPU (total) vs baseline	1.6%	3.3%	3.6%	3.5%	3.1%
Increase in mobile penetration (connections)	0.2%	0.7%	1.4%	2.1%	3.0%
Increase in mobile penetration (unique subscribers)	0.1%	0.3%	0.7%	1.1%	1.5%
Increase in mobile penetration (unique MBB subscribers)	0.2%	0.9%	1.7%	2.3%	2.7%
Data usage vs baseline	0.9%	3.4%	6.3%	8.6%	10.2%
Data usage per connection vs baseline	0.8%	2.9%	5.4%	7.1%	8.1%
Increase in market revenue (total)	\$ 13m	\$ 29m	\$ 35m	\$ 38m	\$ 38m
Increase in market revenue (total) vs baseline	1.5%	2.9%	2.9%	2.9%	2.9%
Additional investment	\$ 3m	\$ 5m	\$ 5m	\$ 5m	\$ 5m
Static tax impact	-\$ 23m	-\$ 23m	-\$ 22m	-\$ 22m	-\$ 22m
Impact on mobile sector taxation	-\$ 23m	-\$ 21m	-\$ 18m	-\$ 17m	-\$ 16m
Additional international incoming traffic (million minutes)	28	56	55	54	53
International incoming traffic vs baseline	10.4%	20.9%	20.9%	20.9%	20.9%
<b>WIDER ECONOMIC IMPACTS</b>					
Full impact on communications sector taxation	-\$ 17m	-\$ 17m	-\$ 17m	-\$ 17m	-\$ 17m
Receipts from all other sectors	-\$ 4m	\$ 21m	\$ 27m	\$ 31m	\$ 33m
Total tax receipts	-\$ 21m	\$ 4m	\$ 10m	\$ 14m	\$ 16m
<i>Cumulative total receipts</i>	-\$ 21m	-\$ 17m	-\$ 7m	\$ 8m	\$ 24m
Real GDP	\$ 0m	\$ 80m	\$ 99m	\$ 113m	\$ 119m (0.30%)
Employment	Impact estimated for 2023 only				944 (0.03%)
Household income	Impact estimated for 2023 only				\$ 89m (0.28%)
Household expenditure	Impact estimated for 2023 only				\$ 75m (0.27%)
Investment	Impact estimated for 2023 only				\$ 63m (0.79%)

Source: EY analysis

Figure 30

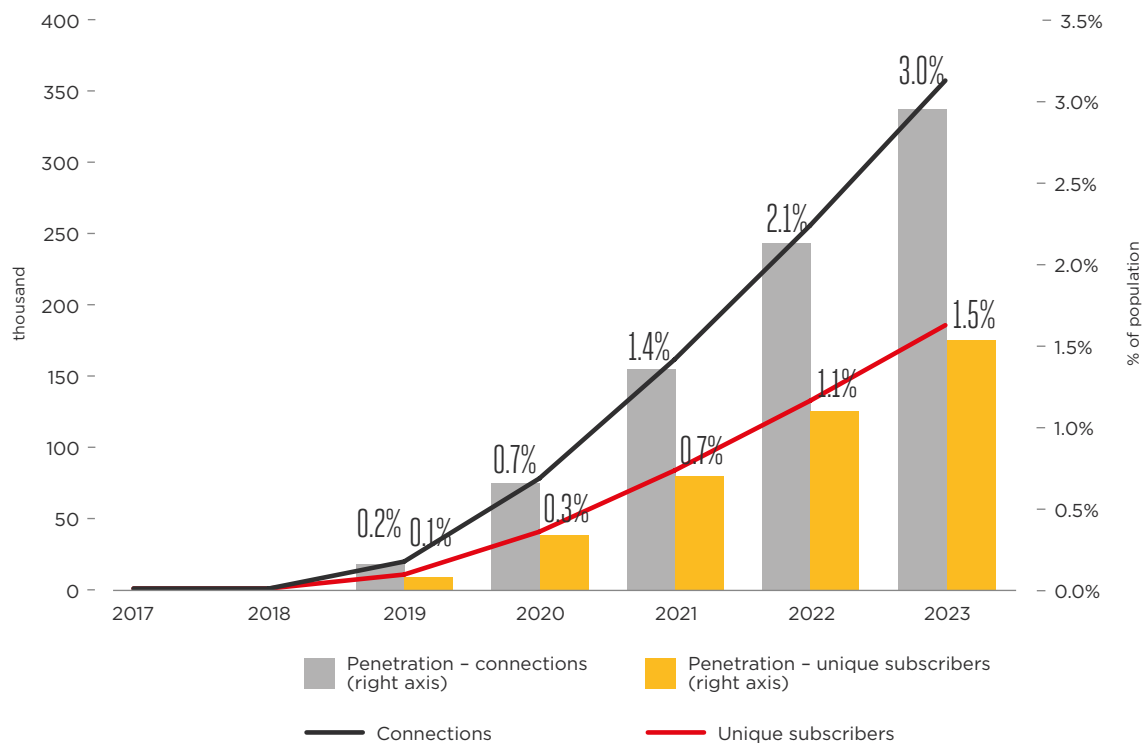
## Elimination of VAT on international incoming calls – annual impacts on tax receipts, \$m



Source: EY analysis

Figure 31

## Connections and penetration impacts of eliminating VAT on international incoming calls



Source: EY analysis

### Scenario 3: Adaptation of the taxable base of the telecommunication industry fee

This scenario models a reduction in the taxable base of the telecommunication industry fee to include recurring revenue only and exclude non-recurring revenue, revenue from national and international interconnection, VAT and other taxes. In the scenario, the tax base is reduced by 37% compared to the current level.

Table 10

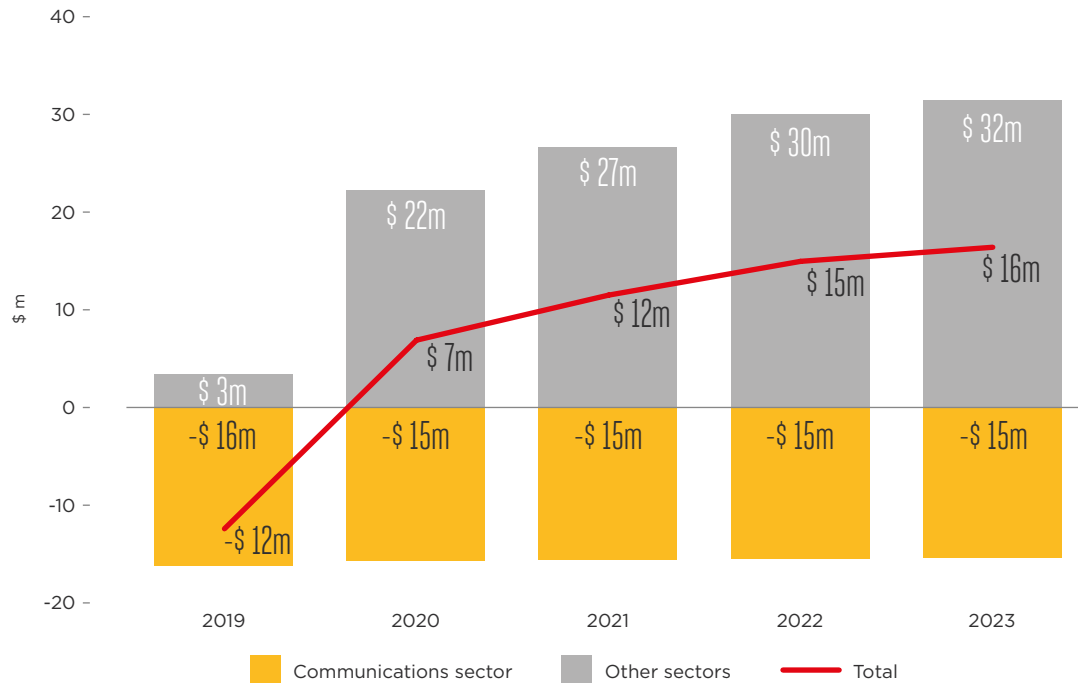
## Annual impacts of adapting the taxable base of the telecommunication industry fee

Indicator	2019	2020	2021	2022	2023
<b>MOBILE SECTOR IMPACTS</b>					
Change in effective price of services vs baseline	-2.2%	-2.2%	-2.2%	-2.3%	-2.4%
Incremental connections (total)	155,000	321,000	333,000	347,000	366,000
Incremental unique subscribers (total)	80,000	166,000	172,000	180,000	190,000
Incremental connections (3G and 4G)	123,000	304,000	394,000	461,000	492,000
<i>of which technology migration</i>	37,000	106,000	168,000	207,000	210,000
Incremental connections by low-income users	110,000	229,000	240,000	254,000	267,000
ARPU (total) vs baseline	-1.1%	0.0%	0.2%	0.3%	0.1%
Increase in mobile penetration (connections)	1.3%	2.7%	2.8%	2.9%	3.0%
Increase in mobile penetration (unique subscribers)	0.7%	1.4%	1.4%	1.5%	1.6%
Increase in mobile penetration (unique MBB subscribers)	0.5%	1.3%	1.7%	2.0%	2.1%
Data usage vs baseline	2.4%	5.1%	5.9%	6.3%	6.2%
Data usage per connection vs baseline	1.4%	3.2%	3.9%	4.3%	4.1%
Increase in market revenue (total)	-\$ 2m	\$ 14m	\$ 16m	\$ 17m	\$ 15m
Increase in market revenue (total) vs baseline	-0.2%	1.8%	2.1%	2.2%	2.1%
Additional investment	\$ 1m	\$ 1m	\$ 1m	\$ 1m	\$ 1m
Static tax impact	-\$ 18m	-\$ 18m	-\$ 18m	-\$ 17m	-\$ 17m
Impact on mobile sector taxation	-\$ 19m	-\$ 13m	-\$ 12m	-\$ 12m	-\$ 12m
<b>WIDER ECONOMIC IMPACTS</b>					
Full impact on communications sector taxation	-\$ 16m	-\$ 15m	-\$ 15m	-\$ 15m	-\$ 15m
Receipts from all other sectors	\$ 3m	\$ 22m	\$ 27m	\$ 30m	\$ 32m
Total tax receipts	-\$ 12m	\$ 7m	\$ 12m	\$ 15m	\$ 16m
<i>Cumulative total receipts</i>	-\$ 12m	-\$ 5m	\$ 6m	\$ 21m	\$ 38m
Real GDP	\$ 0m	\$ 65m	\$ 80m	\$ 92m	\$ 96m (0.24%)
Employment		Impact estimated for 2023 only			1,042 (0.03%)
Household income		Impact estimated for 2023 only			\$ 86m (0.27%)
Household expenditure		Impact estimated for 2023 only			\$ 74m (0.27%)
Investment		Impact estimated for 2023 only			\$ 54m (0.68%)

Source: EY analysis

Figure 32

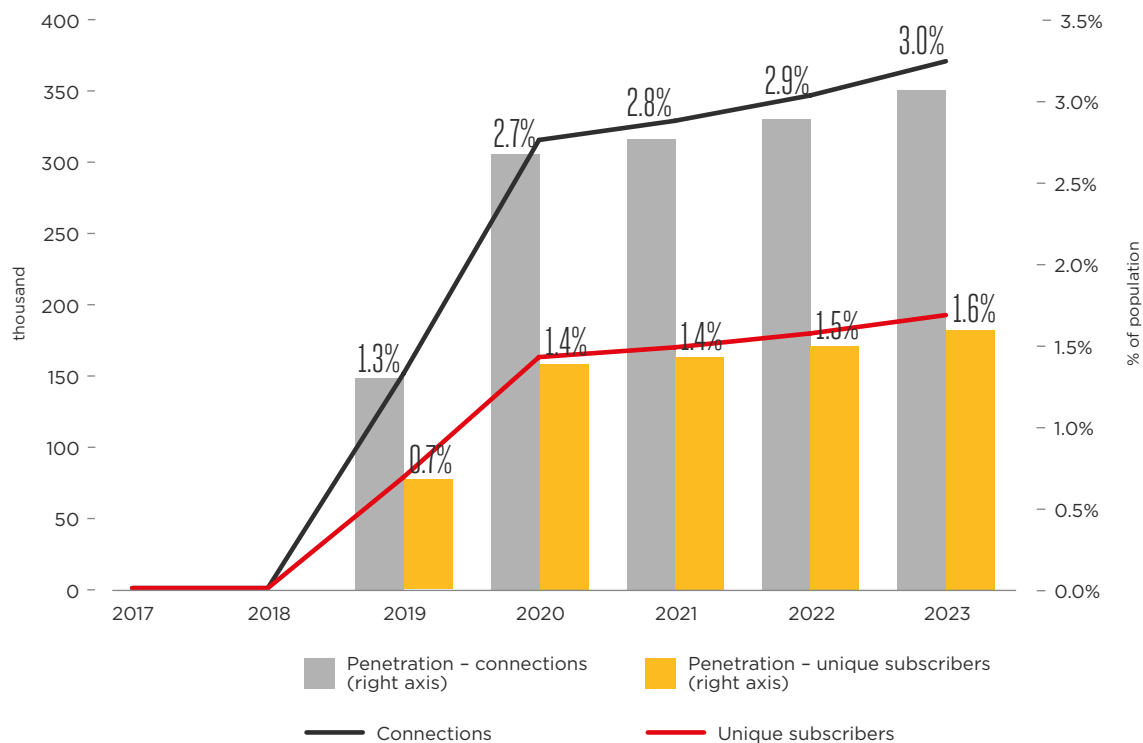
## Adaptation of the taxable base of the telecommunication industry fee – annual impacts on tax receipts, \$m



Source: EY analysis

Figure 33

## Connections and penetration impacts of adapting the taxable base of the telecommunication industry fee

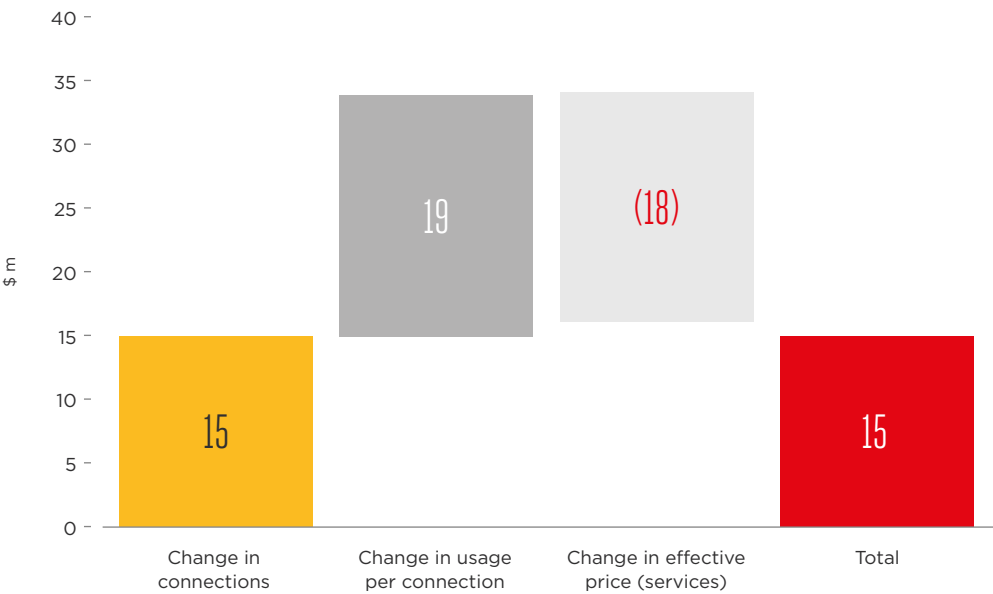


Source: EY analysis



Figure 34

Main drivers of the market revenue change following the adaptation of the taxable base of the telecommunication industry fee



Source: EY analysis





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# Appendix C

## Tariff regime on network equipment

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Table 11

## Tariff on selected items imported by mobile operators, 2017-2018<sup>147</sup>

Item	Tariff code	Pre-April 2017	April-December 2017	2018
Rectifiers, inverters	850,440	20%	20%	30%
Other leaded electric accumulators	850,720	20%	20%	30%
Base stations of apparatus for the transmission or reception of voice, images or other data	851,761	0%	0%	30%
Machines for the reception, conversion and transmission or regeneration of voice, images or other data, incl. switching and routing apparatus (excl. telephone sets, telephones for cellular networks or for other wireless networks)	851,762	0%	0%	30%
Apparatus for the transmission or reception of voice, images or other data, incl. devices for communication in a wired or wireless network (excl. telephone sets, telephones for cellular networks or for other wireless networks, base stations, apparatus for the reception, conversion and transmission or regeneration of voice, images or other data and transmission or reception apparatus of heading 8443, 8525, 8527 or 8528)	851,769	0%	0%	30%
Parts of telephone sets, telephones for cellular networks or for other wireless networks and other apparatus for the transmission or reception of voice, images or other data, n.e.s.	851,770	20%	20%	30%
Other radio apparatus	852,692	0%	0%	15%
Aerials and aerial reflectors of all kinds; parts suitable for use therewith, n.e.s.	852,910	20%	20%	30%
Electrical warning	853,110	0%	0%	15%
Other electrical apparatus for acoustic or visual signaling	853,180	0%	0%	15%
Circuit breakers, other circuit breakers, other circuit breakers	853,620	20%	20%	30%
Other apparatus for the protection of electric circuits	853,630	20%	20%	30%
Other cards and power outlets,	853,669	0%	0%	30%
Connectors	853,670	0%	0%	15%
Connectors, junction boxes, other appliances of heading 85.36	853,670	20%	20%	30%
Boards, brackets and other supports for electrical control - voltage <1000v	853,710	20%	20%	30%
Electronic assemblies	853,890	0%	0%	30%
Other lamps and incandescent tubes of an inferior power	853,929	20%	20%	30%
IP telephony platforms	854,370	0%	0%	15%
Coaxial cables	854,420	20%	20%	30%
Other electric cables, other electrical conductors	854,442	20%	20%	30%
Electrical conductors	854,449	20%	20%	30%
Optical fiber cables	854,470	0%	0%	15%

Source: Operators, Ministry of Finance, Direction Générale des Douanes (DGD)

147. The applicable tariff will ultimately depend on the country of origin. Imported equipment from the European Union (EU) is generally subject to a preferential tariff regime of 0%. Other preferential regimes may also apply.





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