



Mobile taxation in Ukraine

Proposals for
reform to unlock
economic value

2020

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GSMA

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Executive summary

Mobile telephone services are playing an increasingly important role in supporting economic growth and social inclusion globally. Growth in mobile penetration can enhance digital connectivity by expanding internet and broadband access, which in turn facilitates the reduction of barriers to trade, commerce, communication, service delivery, and human development. These benefits can be delivered by, for example, expansion in financial inclusion via the use of mobile money, digitally enabled local entrepreneurship, innovative digital health and education delivery systems, and growing numbers of e-government initiatives.

A conducive regulatory environment provides the support the mobile industry needs to thrive and maximise the opportunities available to consumers, business and governments. The regulatory and tax frameworks are important elements of this, and there is a need to achieve the right balance between revenue maximisation for the government, and incentivising investment for the industry to unlock economic growth.

In this context, the GSMA¹ has commissioned EY to undertake a study of the economic impact of potential regulatory and tax reforms on the Ukrainian mobile sector. This report analyses developments in the mobile sector and its tax treatment in Ukraine, sets out potential options for tax policy reform, and estimates the impacts of these policy options on the mobile sector, the wider economy and the Government's fiscal position.



The mobile sector contributes significant economic value to the Ukrainian economy

Mobile operators in Ukraine make a significant contribution both to the economy and wider society. Total mobile sector revenues were \$1.4 billion in 2018,^{2,3} generating \$0.8 billion of direct economic value, representing over 0.6% of Ukraine's gross domestic product (GDP).

The industry has also invested heavily, most recently in the roll-out of 4G networks, with coverage reaching 77% of the population in 2019.⁴

Through increasing connectivity and productivity, 4G technology can generate sizeable economic benefits. For example, in the United States, it was estimated that rolling out 4G would generate between \$73 billion and \$151 billion of additional GDP in the period 2012-2016, creating between 371,000 and 771,000 jobs.⁵

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

2 GSMA Intelligence database

3 References to dollars throughout the report are to USD.

4 GSMA Intelligence database

5 The Impact of 4G on the U.S. Economy, Part 1, The Wall Street Journal <https://deloitte.wsj.com/cio/2012/10/01/the-impact-of-4g-technology-on-the-u-s-economy-part-1/>



Mobile technology can play an important role in Ukraine's digital government agenda

The Ukrainian Government, via The Ministry of Digital Transformation, is seeking to develop its digital economy and address technological exclusion to boost economic growth. This includes the delivery of electronic government services and initiatives to build digital skills among citizens in Ukraine.⁶ A key item on the digital agenda is to increase the transparency of government services, while at the same time improving quality and efficiency. The mobile sector can be a key enabler of this agenda through, for example, the introduction of improved mobile identification software,⁷ which feeds into the integrated national identification system, combining with electronic digital signatures and online banking.⁸



Despite being a driver of economic growth, the Ukrainian mobile sector is more heavily taxed than in other European markets

In 2018, the total tax and regulatory payments made by the Ukrainian mobile sector were estimated at \$503 million. This represents 35% of total market revenue, which is significantly above the average tax burden seen in Europe (21% of market revenue). Furthermore, Ukraine's mobile-specific taxes were equivalent to 14% of total mobile sector revenue; this is significantly above the European average (4%). The mobile-specific burden is driven by the accumulation of regulatory fees and the special pension fund.

This high tax burden could make the Ukrainian tax system less conducive to investment, which risks the delivery of the wider benefits of increased mobile connectivity, productivity and digital inclusion across the whole economy.



The regulatory fee and tax system may restrict mobile operators' ability to invest in network infrastructure

Enacting policies to reduce sector-specific regulatory fees and taxation could encourage operators to increase investment in infrastructure. This would improve the quality of the network and reduce the coverage gap which, at 10%, is over double the average of European Union countries.⁹

6 Government endorses the Regulation on the Ministry of Digital Transformation (18 September 2019), <https://www.kmu.gov.ua/en/news/uryad-zatverdiv-polozhennya-pro-ministerstvo-cifrovoyi-transformaciyi>

7 Fedorov's plan to digitize Ukraine, slay corruption (30 August 2019), <https://www.kyivpost.com/technology/fedorovs-plan-to-digitize-ukraine-slay-corruption.html>

8 Digital Government Factsheet 2019 – Ukraine, https://www.ospi.es/export/sites/ospi/documents/documentos/Administracion-Digital/Digital_Government_Factsheets_Ukraine_2019.pdf

9 The coverage gap is defined as the percentage of the population that live in areas not covered by the mobile broadband network.



Tax and regulatory fee reform would align Ukraine more closely with the rest of Europe, supporting sector and economic growth, and delivering government revenues

Three tax reform scenarios have been developed collaboratively by EY, the GSMA and its Ukrainian members as part of this study:

1

Removal of Radio Frequency Rent inflation indexation and elimination of Radio Frequency Monitoring Fees: This scenario models the removal of inflation indexing from Radio Frequency Rent (RFR), as well as the elimination of Radio Frequency Monitoring Fees (RFMF), from 2021 onwards.

2

50% reduction in RFR during 4G network rollout: This scenario models a 50% reduction in the RFR rate for entities involved in spectrum re-farming¹⁰ between 2021 and 2025.

3

Introduction of a VAT credit on export of mobile services: This scenario models the effect of allowing for recoverability of VAT credit on the export of mobile services from 2021. The applicable services are those provided to foreign mobile operators by Ukrainian mobile operators, including roaming, international traffic, transit and termination.

The mobile sector and wider economic benefits that would be expected to arise from these three scenarios are summarised in Table 1.

Table 1

Summary of socio-economic benefits of the proposed reforms (by 2025 unless otherwise stated)

Source: GSMA Intelligence, EY analysis

Indicator	1. Removal of RFR inflation indexation; elimination of RFMF	2. 50% reduction in RFR during the network rollout period	3. Introduction of VAT credit on export of mobile services
Annual gain in tax revenue	+\$134m	+\$180m	+\$34m
Wider Investment	+\$462m	+\$579m	+\$103m
New unique subscribers	1,270,000	1,191,000	217,000
Sector revenue	+\$35m	+\$36m	+\$7m
GDP	+\$499m	+\$629m	+\$117m

¹⁰ Spectrum re-farming is the process governing the repurposing of frequency bands to more efficient technologies and/or new services.

The mobile sector plays a key role in Ukraine's economic and social development

\$765m

direct economic contribution of the mobile sector in 2018

\$503m

tax contribution; 35% of market revenue in 2018

Mobile delivers social impacts:



Mobile Identification



Improved Financial Inclusion



Connected Health Services



Transparent Government

The mobile sector faces opportunities and challenges



70% of Ukrainians are still unconnected to 4G



39% of Ukrainians are still unconnected to mobile broadband

Regulatory and tax reform in Ukraine's mobile sector would unlock socio-economic benefits

\$34m-\$180m*

annual gains in tax revenue under regulatory reform, by 2025

\$103m-\$579m

annual investment increase under regulatory reform, by 2025

217k-1.3m

increase in unique subscribers under regulatory reform, by 2025

\$117m-\$629m

annual GDP increase under regulatory reform, by 2025

*The ranges of annual changes in tax revenue, investment, unique subscribers and GDP comprise the smallest and the largest modelled outputs of the two regulatory reform scenarios. They do not represent lower or upper bounds of the modelling outputs, nor do they aggregate any impacts across the scenarios.

1. The impact of the mobile sector on the economy and social progress in Ukraine

1.1 Socio-economic contribution of the mobile sector to the economy

1.1.1 Mobile contribution to economic growth

• Mobile operators directly contributed \$0.8 billion in economic value added to the economy in 2018

The mobile sector in Ukraine makes a significant and valuable contribution to the economy and to society. Total mobile sector revenues were \$1.4 billion in 2018,¹¹ generating \$0.8 billion of direct economic value; over 0.6% of Ukraine's GDP.

However, the benefits to the economy go beyond this direct impact: the mobile operators support a much wider mobile ecosystem, including mobile applications and mobile content developers, mobile infrastructure providers, mobile distribution and retail companies and mobile device manufacturers. These companies create further economic activity in Ukraine by buying products and services from the firms in their supply chain (indirect effects), and by generating employee income which leads to increased consumer spending (induced effects).

• Mobile connectivity promotes productivity improvements in the economy

The effects of mobile connectivity on an economy are largely delivered through its impact on productivity. Several studies have shown a strong relationship between mobile penetration and productivity; these show that a 10% increase in mobile penetration increases productivity by between 1.0% and 1.3% on average.¹²

4G technology came to Ukraine relatively late, as prior to 2018 (when licenses were issued) the frequencies suitable for 4G had been used for alternative purposes, and reallocation of frequencies required negotiations with several parties, including the military. However, following significant investment from mobile operators, coverage expanded rapidly to 77% of the population by the end of 2019.¹³

¹¹ GSMA Intelligence database

¹² 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.

¹³ GSMA Intelligence database

¹⁴ Government endorses the Regulation on the Ministry of Digital Transformation (18 September 2019),

¹⁵ Cabinet endorses Concept for digital economy development until 2020 (17 January 2018), 112 Ukraine <https://112.international/finance/cabinet-endorses-concept-for-digital-economy-development-until-2020-24687.html>

¹⁶ Fedorov's plan to digitize Ukraine, slay corruption (30 August 2019)

¹⁷ Digital Government Factsheet 2019 – Ukraine

¹⁸ UN Sustainable Development Goals <https://pardee.du.edu/sites/default/files/UKRAINEReportPardeeCenter%20%281%29.pdf>

²⁰ This holds if income is controlled for; the relationship between SDG progress and mobile connectivity is not just explained by a country's level of income. This is consistent with academic and empirical evidence which shows that the adoption of mobile technology drives higher economic growth, poverty reduction, improved social outcomes (for example, in health and education) and environmental sustainability.

¹⁹ 2018 Mobile Industry Impact Report: Sustainable Development Goals, <https://www.gsmainelligence.com/research/?file=ecf0a523bfb1c9841147a335cac9f6a7&download>

1.1.2 Role of mobile in Ukraine's digital government agenda and contribution to Sustainable Development Goals

The Ukrainian Government established the Ministry of Digital Transformation in September 2019.¹⁴ The Ministry is responsible for national electronic information resources and interoperability, electronic government services and building digital skills among citizens. Ukraine's digital agenda — the Concept of the Development of the Digital Economy and Society of Ukraine for 2018-2020 — although initially developed by the previous administration, has been incorporated into the current Government's activity programme. The primary aim is to grow the digital economy to comprise 5% of GDP by 2021. Addressing technological exclusion will be a key element of this. For example, as of January 2018, a third of Ukraine's rural population, 53% of schools and 99% of healthcare institution had no broadband access to the internet. Increasing mobile connectivity could therefore deliver educational and health benefits to Ukraine.¹⁵

The Ministry of Digital Transformation has also been tasked with increasing the transparency of government services, while improving quality and efficiency. An ongoing initiative is the introduction of improved mobile identification software.¹⁶ This is underway in Ukraine, with the three largest mobile operators having already launched "mobile ID", which feeds into the integrated national identification system, combining with electronic digital signatures and online banking.¹⁷ The mobile sector can support global sustainable development by adopting practices that contribute to the delivery of the Sustainable Development Goals (SDGs) of the 2030 Agenda of the United Nations (UN).¹⁸ For example, the GSMA measures the impact on the SDGs of the mobile sector across countries and has found that countries with high levels of mobile connectivity have made the most progress in meeting their SDG commitments.^{19,20}

The Institute for Social and Economic Research, in its assessment of the implementation of the SDGs in Ukraine, recommended an advancement of the digitisation of administrative services, and the introduction of digital technology in sectors such as construction.²¹ The Ukraine 2030 Doctrine of Sustainable Development²² highlights the importance of informatisation, utilising mobile communication and cloud technologies, in delivering the SDGs by 2030.

The following examples illustrate the mobile sector's contribution to SDGs in Ukraine.

Mobile contribution to SDGs



Digital identities

Mobile enables digital identities, which contributes to SDG 10 (reduce inequality). Digital identity services bring several benefits. These include enabling the delivery of social services and safety nets, improving access to financial services, improving the protection of legal rights (including access to ownership of land) and enabling protection against exploitation.



Transparency of government services

The mobile sector provides connectivity and access to information, as well as developing apps making public services more accessible. This contributes to SDG 16 (promote peaceful and inclusive societies, access to justice for all and build effective, accountable and inclusive institutions at all levels). In particular, promoting connectivity has a direct impact on SDG target 16.4: "Develop effective, accountable and transparent institutions at all levels".

²¹ Implementing the 2030 Sustainable Development Goals in Ukraine: analysis of government strategies and public policy (2017), Institute for Social and Economic Research https://www.ua.undp.org/content/dam/ukraine/docs/SDGreports/%D0%A0%D0%B5%D0%B7%D1%8E%D0%BC%D0%B5%20RIA_eng_270917.pdf

²² Ukraine 2030 – The Doctrine of Sustainable Development (2018), Analytical Platform of Strategic Communications

1.2 Market analysis



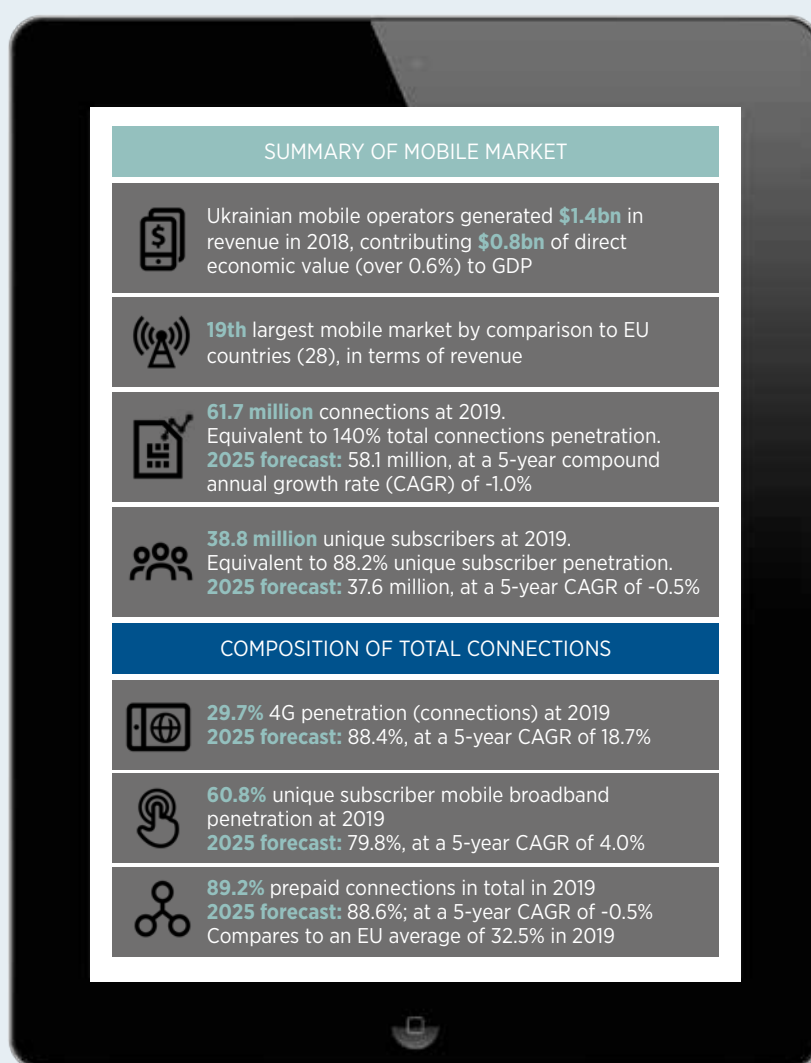
1.2.1 Market overview

The mobile market in Ukraine has grown rapidly from 33 million unique subscribers to 39 million between 2010 and 2019 at a CAGR of 2%. Figure 1 provides an overview of the Ukrainian mobile market, and highlights that there is significant scope for expansion of 4G mobile penetration.²³

Figure 1

Ukrainian mobile market in figures^{24,25}

Source: GSMA Intelligence, EY analysis



²³ All figures in this report for years from 2019 onwards relate to Q3, as the latest non-forecast data available at the time of writing is as at Q3 2019.

²⁴ Compound annual growth rate (CAGR) is the mean annual growth rate for the period.

²⁵ Throughout this report, 27 European Union countries are used for comparison purposes. This excludes Cyprus due to data availability and includes the United Kingdom as all data relates to periods prior to its exit from the European Union in 2020.

Key challenges facing the mobile market in Ukraine include relatively low uptake of mobile broadband, and low download speeds. Additionally, there is a large proportion of connections that are prepaid — and therefore have unidentifiable end-users — in Ukraine (89.2%) compared to the EU average (32.5%). This has made it more difficult to introduce new mobile services and associated government initiatives; just 10% of prepaid SIMs in Ukraine are registered.

1.2.2 Increasing connectivity in Ukraine to European levels

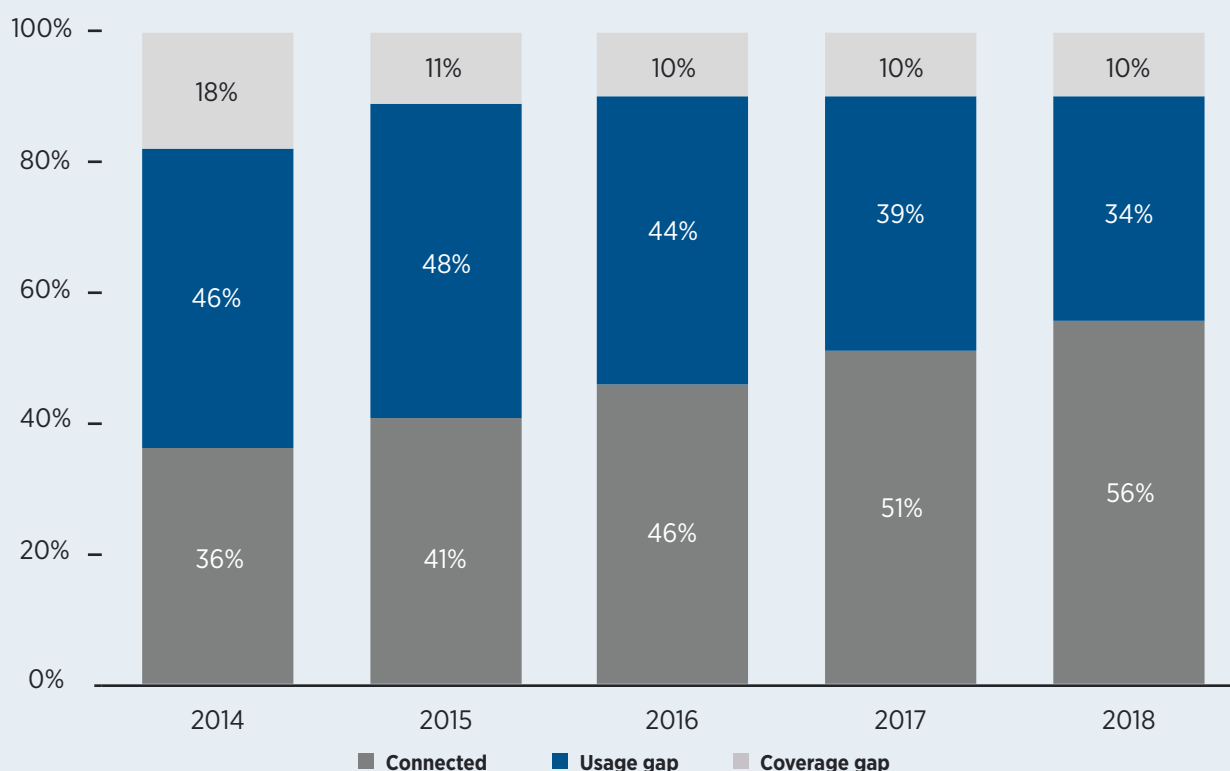
Closing the mobile broadband usage gap can boost technological inclusion to levels seen across Europe

Figure 2 demonstrates that Ukraine's mobile broadband usage gap (the difference between network coverage and penetration) closed from 46% to 34% between 2014 and 2018, as the proportion of connected people significantly increased.²⁶ However, this still leaves 34% of the population that potentially have access to but do not use the mobile internet. The usage gap in Ukraine is above the average for Europe and Central Asia (28%),²⁷ representing a real opportunity for continued expansion.

Figure 2

Mobile broadband usage gap in Ukraine, 2014-2018

Source: GSMA Intelligence database



²⁶ The State of Mobile Internet Connectivity 2019, GSMA <https://www.gsma.com/mobilefordevelopment/resources/the-state-of-mobile-internet-connectivity-report-2019/>

²⁷ Europe and Central Asia is the region in which Ukraine sits that was used for the usage gap analysis conducted by the GSMA in 2019. The region comprises all 28 EU countries (as of 2019), Ukraine, and 18 other countries: Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Georgia, Iceland, Kazakhstan, Kyrgyzstan, Moldova, Montenegro, North Macedonia, Norway, Russia, Serbia, Switzerland, Tajikistan and Uzbekistan.



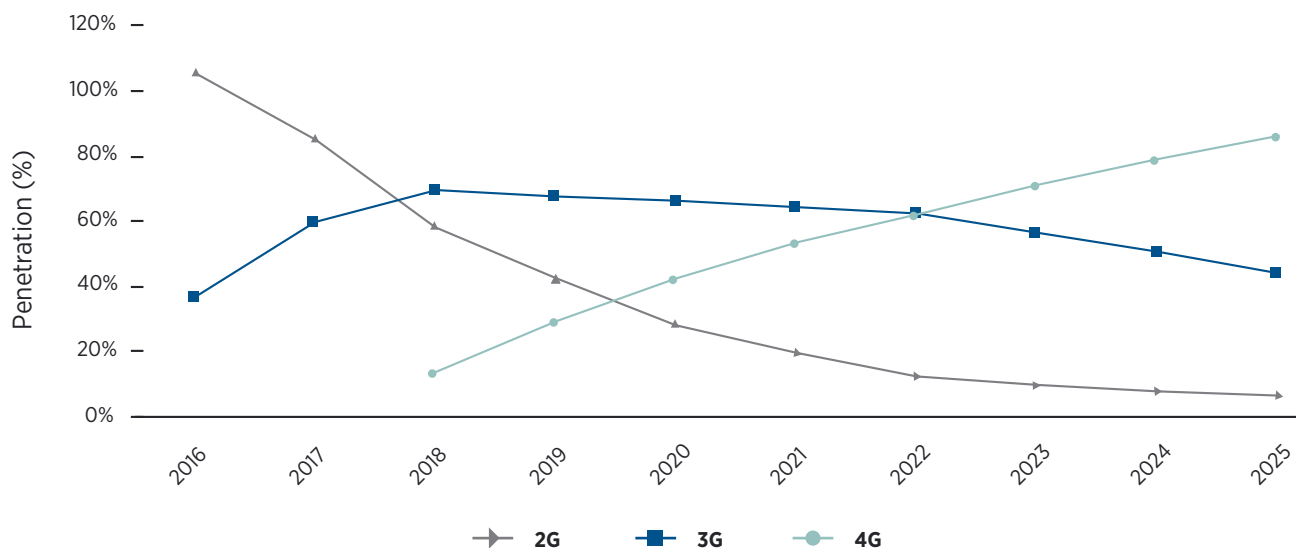
1.2.3 Continued investment is required to roll out 4G and improve network quality

As shown in Figure 3, penetration of 3G technology was 68% in 2019, significantly above the penetration rate of 4G, which stood at 30%. However, penetration of 4G services is increasing rapidly, and is expected to overtake 3G in 2022, growing at a compound annual growth rate (CAGR) of 19% to reach 86% by 2025.

Figure 3

Market penetration rate (total connections), by technology

Source: GSMA Intelligence database



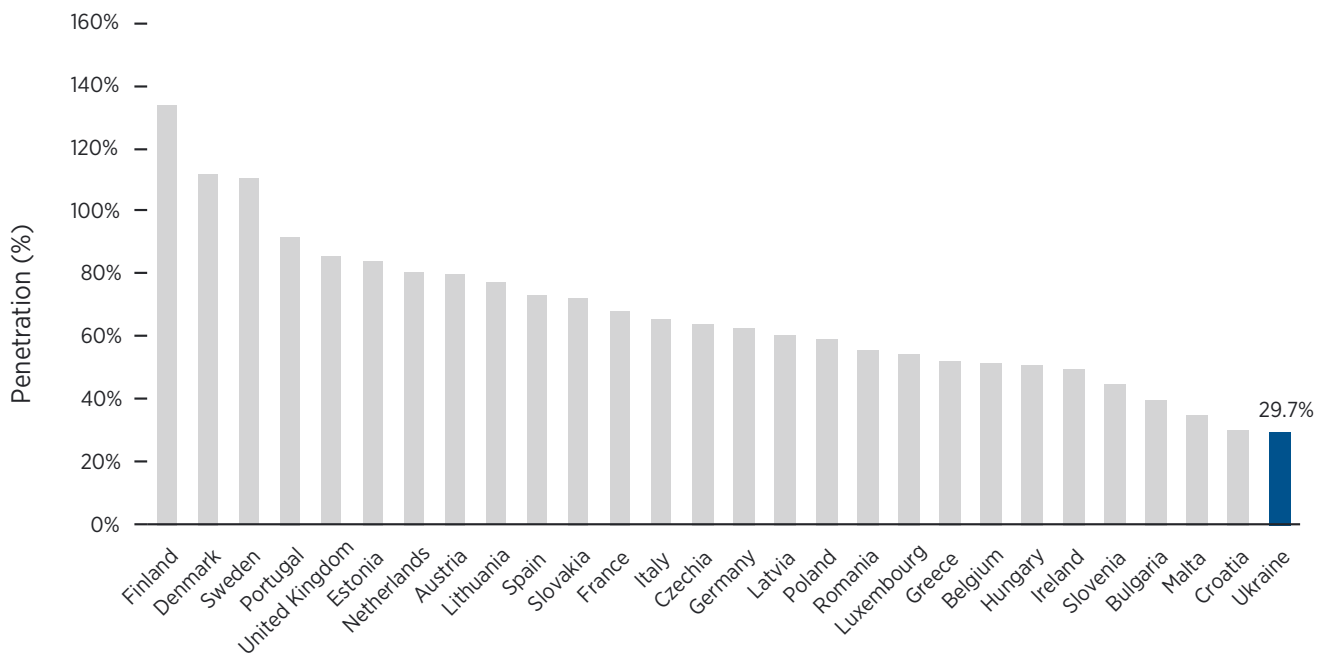


This rapid expansion will bring Ukraine more in line with comparable countries in terms of 4G penetration. Figure 4 illustrates that 4G penetration is currently below the levels seen across the European Union countries.

Figure 4

4G market penetration rate (total connections) in Ukraine and European Union countries, 2019

Source: GSMA Intelligence database

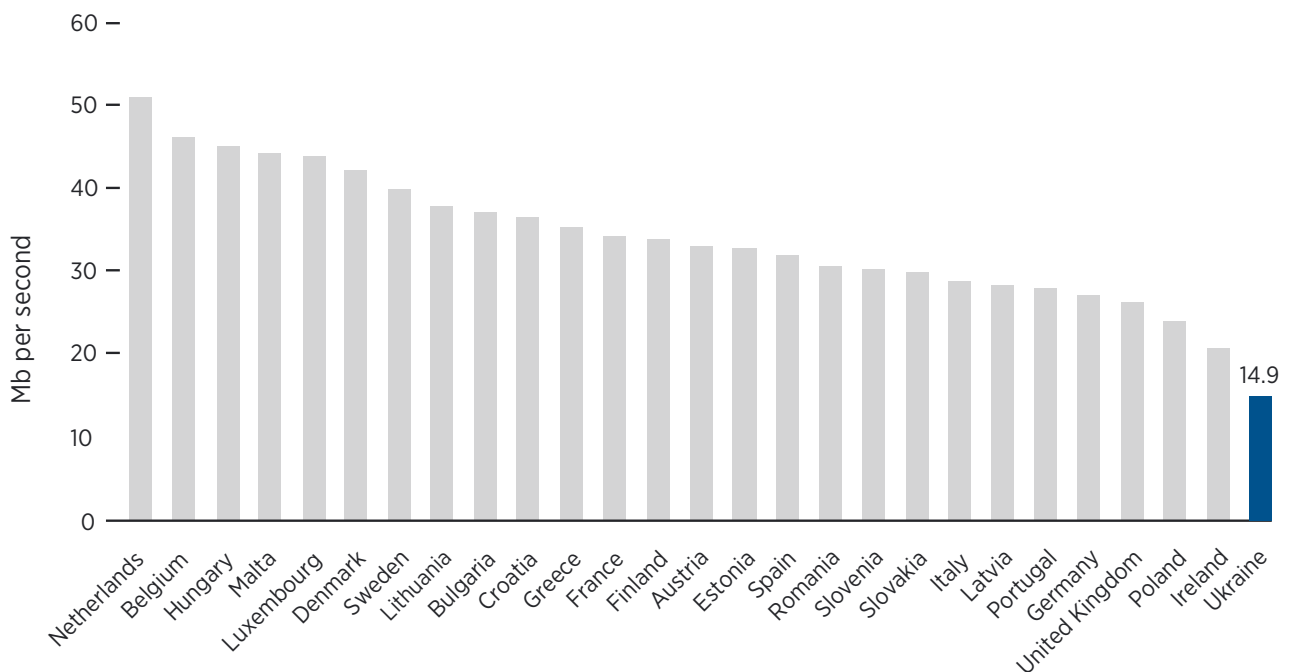


Analysis of Speedtest Intelligence® data from Ookla® (see Figure 5) demonstrates that, at 14.9 Mb per second, the average download speed across all technologies in Ukraine are also below the speeds seen in European Union countries.

Figure 5

Download speed (Mb per second) – Ukraine and European Union countries, 2018

Source: Speedtest Intelligence® data from Ookla®



The industry will need to continue to invest in mobile broadband to increase both penetration and data speeds, particularly as demand for data services increases. Regulatory fees and sector-specific taxation increase operators' costs, can add complexity to the system, and can be implemented in uncertain terms. They can thereby act as a barrier to increased investment and put pressure on the need for funds for investment purposes. Policy decisions on regulatory fees and mobile taxation should reflect the social benefits that the rollout of new technologies should bring, which would go beyond private benefits.



2. Mobile sector taxation in Ukraine: current framework and improvement areas



As set out in Section 1, the mobile industry plays a vital role in the Ukrainian economy. In addition to its socio-economic impact, the mobile industry makes an important contribution to the public finances of Ukraine through tax and regulatory payments.

This section covers the tax regime applicable to the mobile sector and its contribution to tax revenue. It also compares the Ukrainian tax system against 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.

2.1 Mobile sector taxation in Ukraine

2.1.1 Taxes on mobile consumers

Table 2 below outlines the different taxes on mobile whose incidence falls on consumers.

Table 2

Key taxes paid by mobile consumers, 2020

Source: EY 2019 Worldwide VAT, GST and Sales Tax Guide, and Ukraine's legislation

Value added tax (VAT)	20% on the value of mobile services, handsets, and SIM cards ²⁸
Special pension fund charge²⁹	7.5% on the value of mobile services

Under the current VAT system in Ukraine, the export of telecommunication services falls outside the scope of Ukrainian VAT and the corresponding input VAT is not recoverable. However, under its Association Agreement with the European Union (EU), Ukraine will need to implement several provisions of the VAT Directive by 1 September 2022. This would include allowing the deduction of input VAT incurred for supply of exports of telecommunication services.³⁰

In regard to the special pension fund, the rate applied to mobile services (7.5%) is higher than the rate applied to other products, for example, new cars (3-5%) or real estate (1%).³¹

²⁸ A VAT rate of 0% applies to the export of goods from Ukraine.

²⁹ For the purposes of this study, the special pension fund charge has been classified as an excise duty since it is a specific tax applied on the consumption of mobile services. However, this should not be confused with the separate charge applying on alcohol, tobacco, petrol or diesel, which is labelled as an "excise duty" by the local legislation.

³⁰ Currently, there is a bill submitted to the Ukrainian Parliament to amend the Tax Code of Ukraine (reg. no. 2041 of 3 September 2019) to change the VAT rules on exports and make it compatible with EU VAT rules. International telecommunication services, as well as international roaming services provided by Ukrainian operators to foreign operators would be deemed to be supplied where the service provider is established (i.e. Ukraine). These supplies would be subject to a rate of 0% VAT and hence, operators would be able to recover the input VAT.

³¹ PKF, Ukraine Tax Guide 2016/17, <https://www.pkf.com/media/10028488/ukraine-tax-guide-2016-17.pdf>.

2.1.2 Taxes and regulatory fees on mobile operators

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

Table 3

Key taxes paid by mobile consumers, 2020

Source: EY 2019 Worldwide Corporate Tax Guide, EY 2019 - 2020 Personal Tax and Immigration Guide and Ukraine's legislation

Corporate income tax	18% on taxable income
Employment taxes	
• Personal income tax (withheld)	18% on salary and similar compensation
• Unified social contribution (borne by the employer)	22% on salary and similar compensation ³²
• Military contribution (withheld)	1.5% on monthly salary and similar compensation
Custom duties	
• on network equipment ³³	0%-10% on customs value ³⁴
Regulatory fees	
• Radio frequency monitoring fees (RFMF)	Various rates
• Numbering fee	Various rates
• Technical network supervision	Various rates ³⁵
• Permissions	Various rates
Spectrum fees	
• Radio frequency rent (RFR)	UAH 3,000 per MHz per month on radio frequency bands of 2,300-2,400 MHz and 2,500-2,690 MHz UAH 23,085.25 per MHz per month on all other radio frequency bands ³⁶ (increases are indexed to inflation)
Other taxes	
• Real estate tax	Various local rates per square metre of the property (capped to 1.5% of the monthly salary as of 1 January of the reporting year)
• Land tax	0.1% - 12%
• Stamp duty	Various rates
• Parking duty	Various rates
One-off fees	
• Licence fees	Various rates

³² The monthly tax base is capped to 15 times the minimum salary, which is approximately UAH 70,845 as of 1 January 2020.

³³ For equipment falling under HS Chapter 85 "Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories thereof".

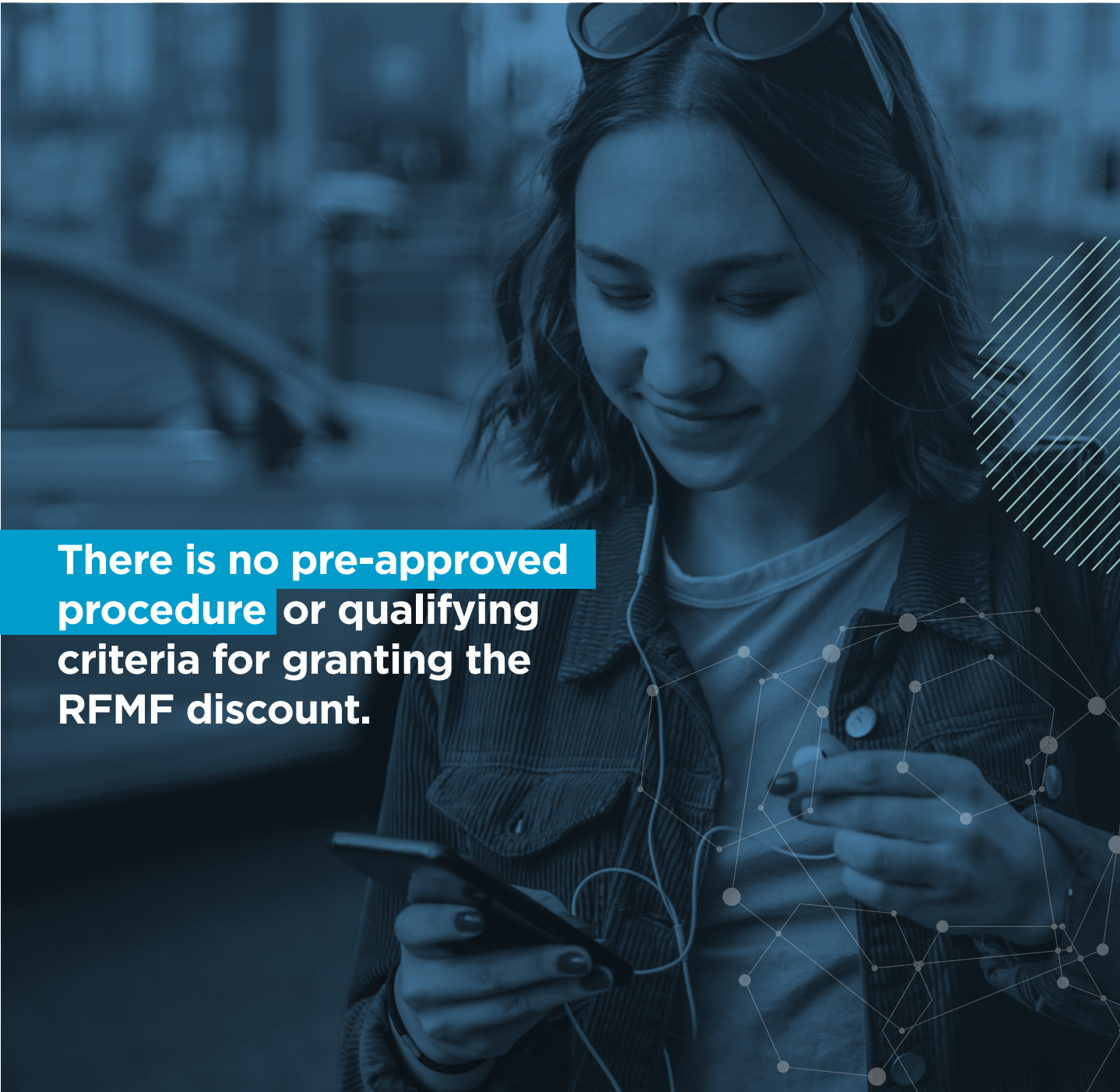
³⁴ Insurance and transportation charges are added to the invoice price, as well as some other costs (where applicable) as established by the Customs Code of Ukraine.

³⁵ These are not separate fees, but they could be included in other statutory fees if operators do not perform the network's maintenance by themselves.

³⁶ Increasing and decreasing coefficients could apply. Further changes are expected to be introduced by the draft law No.1210 which is awaiting the President's signature.

In Ukraine, the State Centre of Radio Frequencies (“UCRF”), a state-owned enterprise, has the monopoly to perform radio frequency monitoring (“RFM”). Radio frequency users conclude agreements with the UCRF to pay the RFMF on a monthly basis. The RFMF tariffs are approved by the National Commission for the State Regulation of Communications and Informatisation (“NCCIR”) and are publicly available.

However, the UCRF is entitled to reduce the level of the approved tariffs by up to 40% (but the final charge should be not lower than the RFM costs). In practice such reduction is approved by the NCCIR and granted annually. The UCRF is also allowed to cancel the reduction, subject to NCCIR’s agreement.



There is no pre-approved procedure or qualifying criteria for granting the RFMF discount.

2.2 Tax contribution of the mobile sector

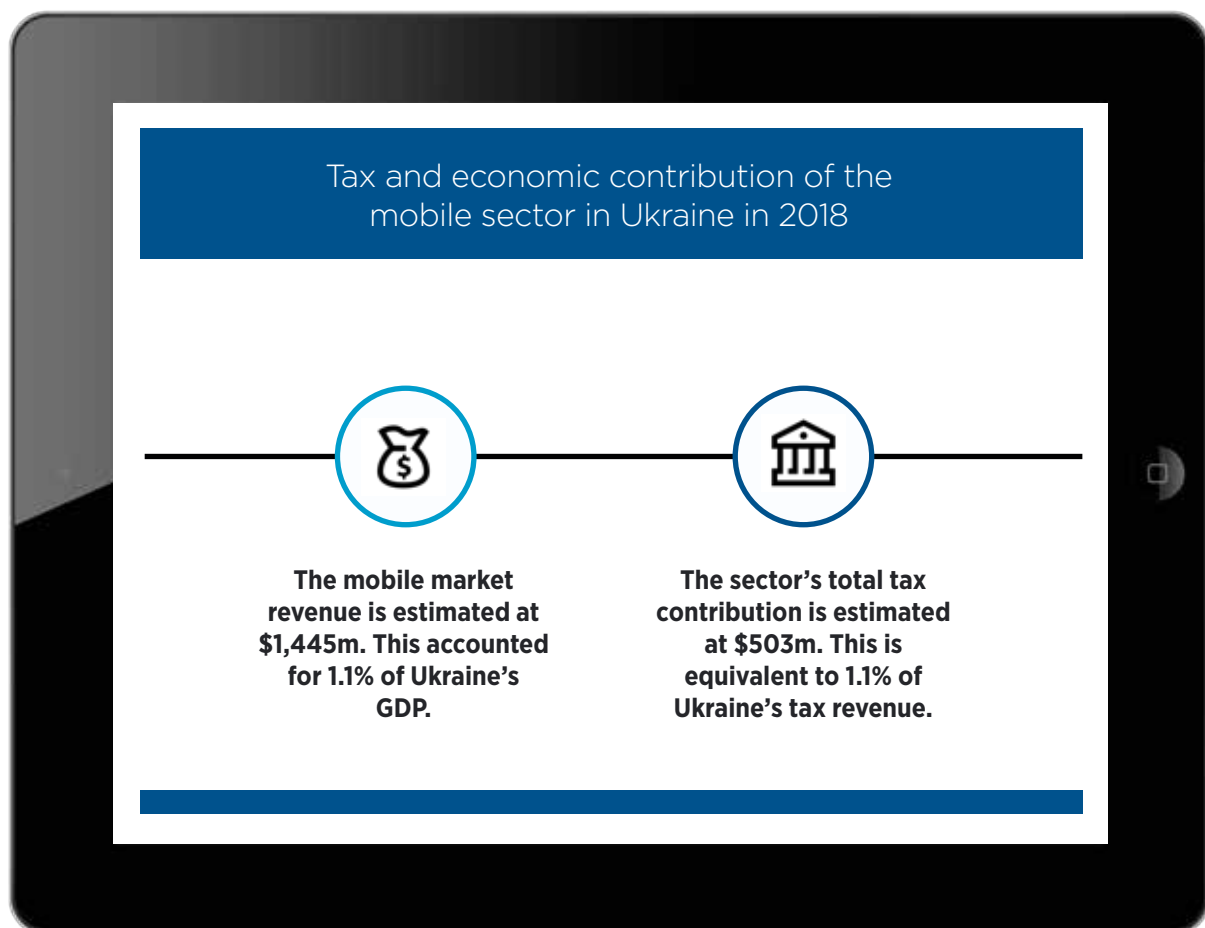


In 2018, the total tax contribution was estimated at \$503 million. This represents 35% of the total market revenue and 1.1% of Ukraine's tax revenue.

Figure 6

Tax and economic contribution of the Ukrainian mobile sector in 2018³⁷

Source: GSMA Intelligence database, EY analysis, and operator's data



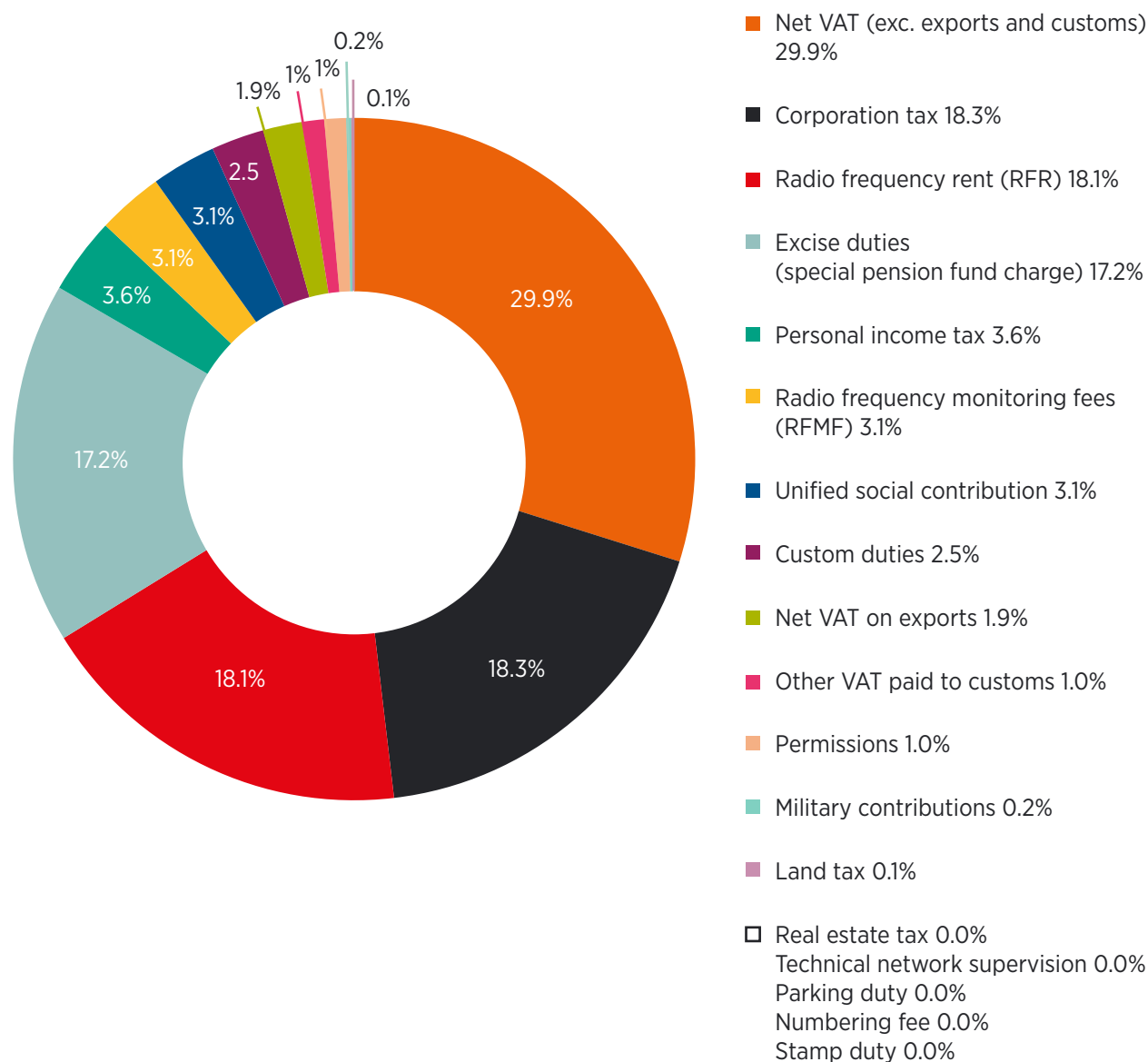
³⁷ In 2018, Ukraine's GDP was of \$130.8 billion and the country's total tax revenue amounted to \$44.6 billion.

As shown in Figure 7, the largest source of tax revenue from the mobile sector comes from VAT (33% of the total tax payments). This is followed behind by corporation tax (18%) and radio frequency rent (18%).

Figure 7

Different taxes as a percentage of overall tax revenues in the mobile sector in Ukraine in 2018

Source: GSMA Intelligence database, EY analysis and operator data

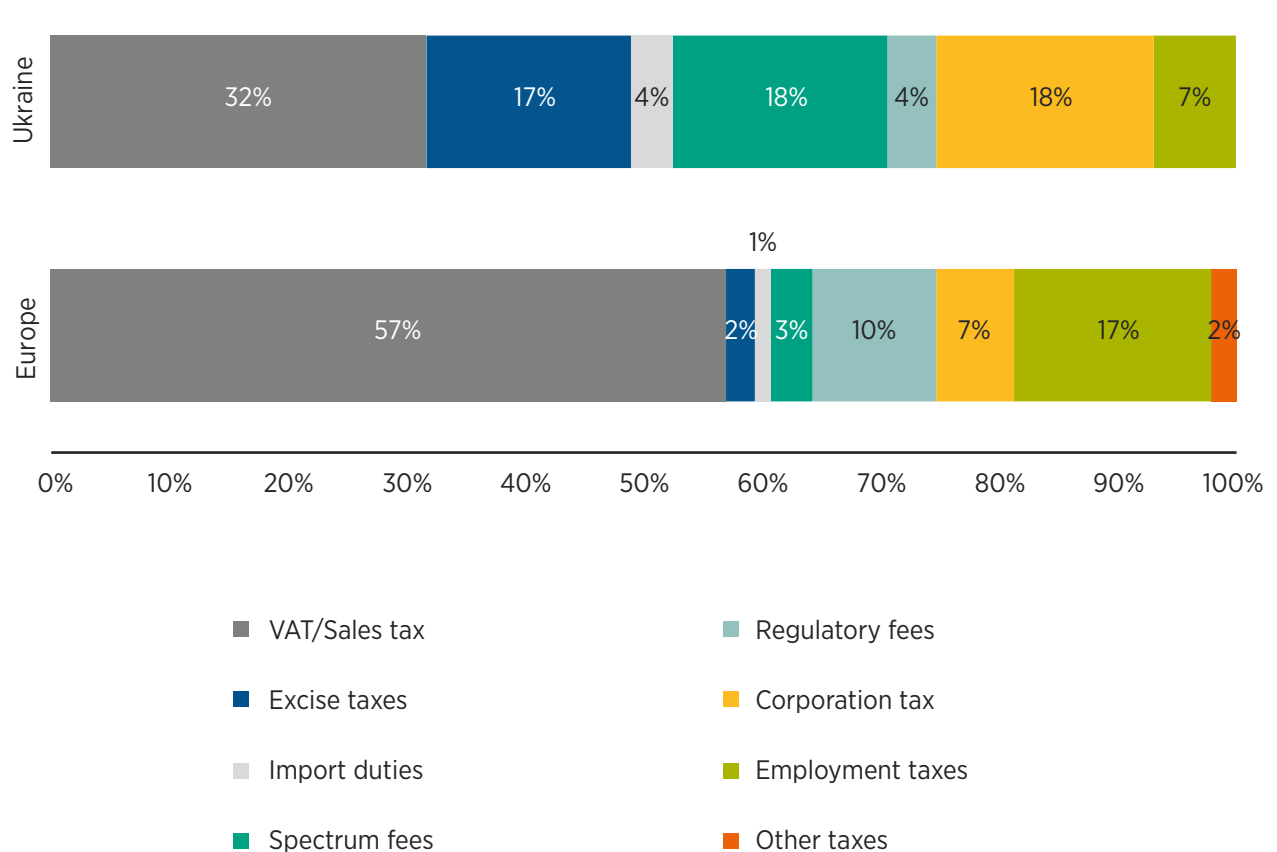


As Figure 8 shows, compared to the European average, Ukraine receives a higher proportion of tax payments from spectrum fees at 18% (3% being the European average), corporation tax at 18% (7%), excise duties at 17% (2%), and import duties at 4% (1%).

Figure 8

Different taxes and fees as a percentage of overall tax revenues in the mobile sector in Ukraine and Europe

Source: GSMA Intelligence database, EY analysis, and operator data³⁸



³⁸ The quoted values for Ukraine are for the year 2018, whereas Europe is 2017.

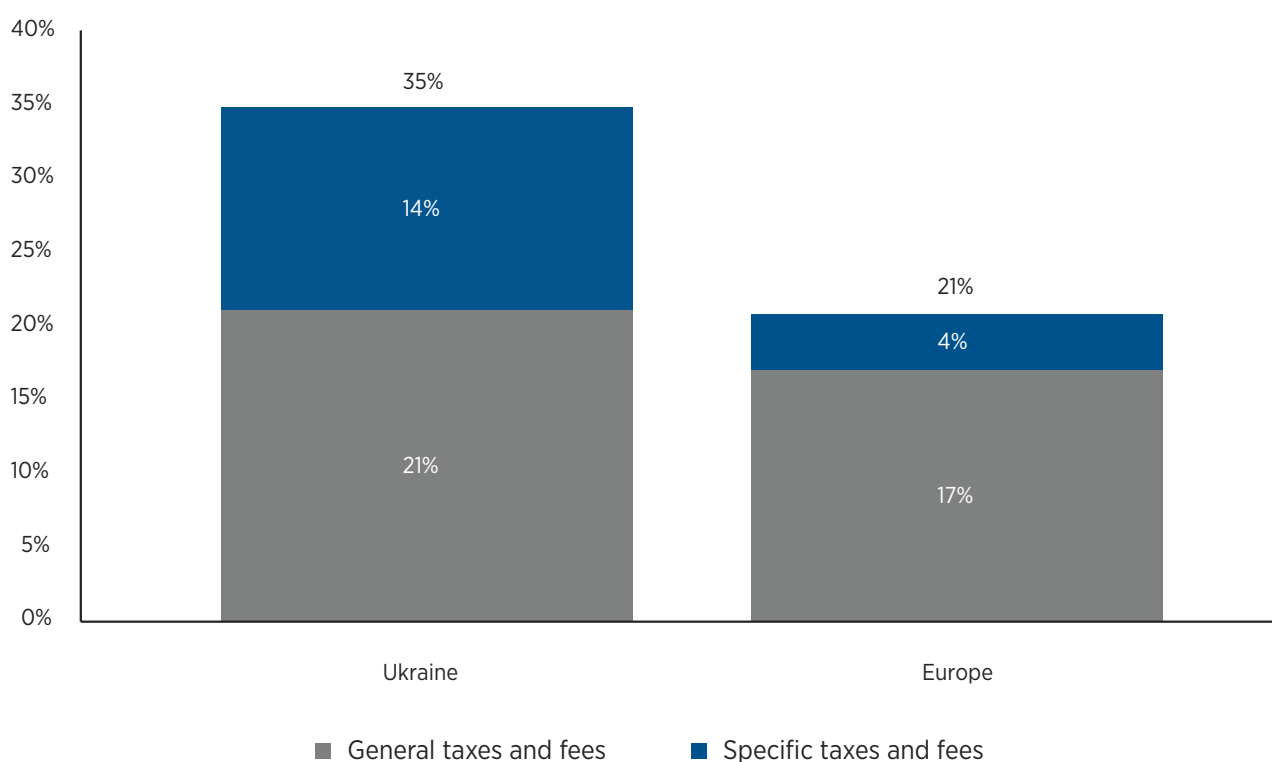
As shown in Figure 9, the tax burden of Ukraine (35% of the total market revenue) is higher than the average of other European economies (21%). Ukraine's mobile-specific taxes were equivalent to 14% of total mobile sector revenue; this is significantly above the European average (4%). The mobile-specific burden is driven by the accumulation of regulatory fees and the special pension fund.

General taxes are equivalent to 21% of total mobile sector revenue in Ukraine. This is also above the European average (17%).

Figure 9

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

Source: GSMA Intelligence database, EY analysis, and operator data³⁹

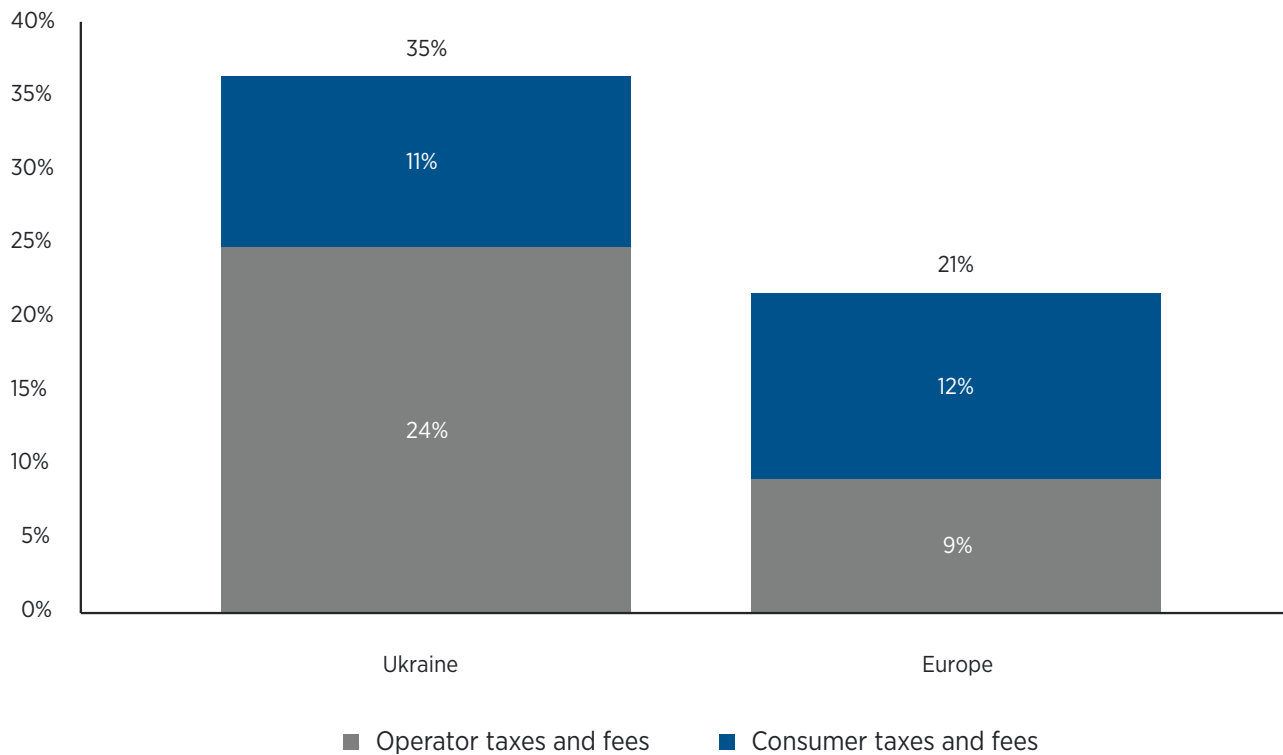


³⁹ The quoted values for Ukraine are for the year 2018, whereas Europe is 2017.

As shown in Figure 10, the tax burden on Ukrainian mobile operators (24% of the total market revenue) is also higher than the European average (9%).

Figure 10
Operator taxes and fees vs. consumer taxes and fees (as a percentage of mobile sector revenue)

Source: GSMA Intelligence database, EY analysis, and operator data⁴⁰



⁴⁰ The quoted values for Ukraine are for the year 2018, whereas Europe is 2017.



2.3 An assessment of the mobile sector taxation in Ukraine



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

To prevent such unintended consequences, it is advantageous to follow certain principles of tax policy design, such as those which have been consistently developed by international organisations such as the IMF, the OECD, the UN, and the World Bank.⁴¹

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.⁴²
- **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.⁴³
- **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”⁴⁴ by avoiding the imposition of regressive taxes which has a larger impact on consumers of mobile services in the lower income groups.⁴⁵
- **Taxes should not undermine the affordability of mobile services,** as excessive taxation can increase the cost of handsets and mobile services.⁴⁶ Furthermore, the tax collection should be allocated to improve mobile infrastructure, thereby increasing the coverage and digital inclusion, especially in rural zones.
- **Regulatory and spectrum fees should be set on a cost-recovery basis.** Since these fees could distort production and increase prices, regulatory and spectrum fees should not be excessive.⁴⁷
- **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.⁴⁸
- **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.⁴⁹

- 41 IMF, OECD, UN and World Bank, 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>.
- 42 *ibid.*
- 43 ITU, 2013. Taxing Telecommunication/ICT services: an overview, <https://www.itu.int/en/ITU-D/Regulatory-Market/Documents/Taxation%20Study-final-en.pdf>.
- 44 *ibid.*
- 45 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>.
- 46 V. Tanzi and H. Zee, 2001. Tax Policy for Developing Countries, <https://www.imf.org/external/pubs/ft/issues/issues27/>.
- 47 International Telecommunications Union (ITU), 2013. Taxing Telecommunication/ ICT Services: An Overview, <https://www.itu.int/en/ITU-D/Regulatory-Market/Documents/Publications/Taxation2%20E-BAT3.pdf>. World Bank, InfoDev, IFC and ITU, 2011. Telecommunications Regulation Handbook, <http://documents.worldbank.org/curated/en/527131468338984285/pdf/NonAsciiFileName0.pdf>. Directive 2002/20/EC Of The European Parliament and of The Council of 7 March 2002 on the authorisation of electronic communications networks and services (Authorisation Directive), <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32002L0020&from=EN>.
- 48 IMF, OECD, UN, and World Bank, 2016. Enhancing the Effectiveness of External Support in Building Tax Capacity in Developing Countries. Prepared for Submission to G20 Finance Ministers, <http://www.oecd.org/ctp/enhancing-the-effectiveness-of-external-support-in-building-tax-capacity-in-developing-countries.pdf>.
- 49 IMF, 2011. Revenue Mobilization in Developing Countries, <https://www.imf.org/external/np/pp/eng/2011/030811.pdf>.

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

- **The current tax system has a high incidence on the mobile sector, limiting the positive externalities generated by the industry.**

As shown in section 2.2, the mobile tax burden is high in Ukraine at 35% of the total market revenue, which is significantly above the average tax burden seen in Europe (21% of market revenue).

Operators pay more than two thirds (68%) of the total tax burden, with consumers paying the remaining 32%. Further, Ukraine's mobile-specific taxes were equivalent to 14% of total mobile sector revenue; this is above the European average (4%). The mobile-specific burden is driven by the accumulation of regulatory fees and the special pension fund.

This high tax burden could make the Ukrainian tax system less conducive to investment, thereby limiting the wider benefits of increased mobile connectivity, productivity and digital inclusion across the whole economy.

- **The high tax burden on mobile operators can discourage further investment in the sector.**

As identified in section 2.2, the tax burden on Ukrainian operators (24% of the total market revenue) is above the European average (9% of the total market revenue). This is mainly due to corporate tax and spectrum fees payments, which together represent 36% of the total tax payments made by the mobile sector.

RFR represents 18% of the total tax burden alone; this is six times the European average spectrum fees (3% of total tax payments). Spectrum fees should not be excessive, since these taxes can distort competition and increase prices. Further, in Ukraine RFR is indexed to inflation which can lead to sudden and unexpected increases in payments from the operator. This can exacerbate the uncertainty around regulatory payments in the sector. A reduced and more certain RFR burden could make the tax system more conducive to investment and align Ukraine's spectrum fees closer to the levels seen in Europe.

Further, the absence of a pre-established procedure for granting discounts on RFMF (including the qualifying criteria, period or other guidance), creates some uncertainty and lack of transparency for mobile operators as to the level of RFM fee in a longer perspective.

Furthermore, as mentioned in section 2.1, the current VAT regime does not allow the deduction of input VAT incurred for the provision of exports of telecommunication services. This increases the costs of Ukrainian mobile operators and makes the sector less competitive against other European mobile operators which are currently able to recover input VAT on exports under the EU VAT Directive. By removing the current mismatch between Ukraine's VAT rules and the EU VAT directive, mobile operators would be able to compete in a more level playing field with other European operators.

- **The existence of an excise duty (in form of the special pension fund charge) on mobile services could slow mobile penetration.**

The excise tax burden on mobile consumers in Ukraine (17% of total tax payments) is more than eight times the European average (2% of total payments). In this regard, Ukraine diverges from standard practice in Europe, where excise duties on mobile services are exceptional; only Greece (at rates varying between 12% and 20%) and Malta (4%) have similar taxes. Most European markets, which are usually more developed compared to other regions, do not impose this type of taxes due to their negative impact on affordability, which could limit the positive externalities of the mobile sector.

- **There is still further scope to improve tax administration.**

Ukraine is committed to improve further the efficiency of tax and customs administrations, as well as to alleviate the compliance burden on taxpayers by shifting to risk-based audits; enhancing the online taxpayer portal (e-cabinet) to allow for online registration, updating of taxpayer information and electronic payment; and improving taxpayer information services.⁵⁰

The above assessment indicates that there is a significant opportunity for improvements to the Ukrainian tax and regulatory system, in particular to rebalance the spectrum fees burden and make the VAT regime on exports of telecommunication services compatible with EU rules. Based on this, the next section sets out three options that could improve the tax environment in Ukraine, including the rationale for change and the impacts of each option.

⁵⁰ IMF, 2019, Request for Stand-By Arrangement and Cancellation of Arrangement under the Extended Fund Facility—Press Release; Staff Report; and Statement by the Executive Director for Ukraine, IMF Country Report No. 19/3, January 2019, <https://www.imf.org/en/Publications/CR/Issues/2019/01/08/Ukraine-Request-for-Stand-By-Arrangement-and-Cancellation-of-Arrangement-Under-the-Extended-46499>.



3. Economic impact of tax and regulatory reform on the mobile sector in Ukraine



In this section, three options for regulatory fees and tax reform are assessed on the basis of their impacts on the mobile sector and the wider economy. These options were developed collaboratively by EY, the GSMA and its Ukrainian members.

3.1 Options for reform

Option 1: Removal of RFR inflation and elimination of RFMF

In this scenario, inflation indexation is removed from the RFR, and the RFMF is also eliminated, from 2021 onwards. Currently, these account for 21% of total regulatory and tax payments from the mobile sector. A reduction in these regulatory payments would facilitate further investment in the mobile industry and reduce effective prices for consumers. It would also increase certainty, as historically indexation has been applied in an ad hoc manner (in some years it is applied while in other years it is not), leading to unexpected RFR increases (as outlined in Section 2.3).

The level of RFMF payable is dependent on a discount from published rates, which is set by the Ukrainian State Centre of Radio Frequencies (UCRF) and approved by the National Commission for the State Regulation of Communications and Informatization (NCCIR). The discount is set annually, there is no guidance available on how its level or qualifying criteria are determined, and the UCRF reserves the right to cancel announced discounts, subject to the NCCIR's agreement. This, again, creates uncertainty for operators, and hence the removal of RFMF would both reduce costs and increase certainty.

Implementation of Option 1 would result in an effective rate reduction by comparison to the “baseline” scenario of no fee change⁵¹ in each year of the reform, as outlined in the first two rows of Table 4. The bottom two rows of the table illustrate the respective proportions of the change in the effective rate caused by each element of the reform.

Table 4

Forecast effective regulatory fees as a percentage of recurring revenues

Source: EY analysis

Regulatory fees as a percentage of recurring revenues	2021	2022	2023	2024	2025
Baseline	9.0%	9.9%	10.9%	11.8%	12.6%
Scenario 1	7.3%	7.6%	7.8%	8.0%	8.1%
<i>Percentage of change attributable to removal RFR inflation</i>	28%	45%	56%	63%	68%
<i>Percentage of change attributable to RFMF elimination</i>	72%	55%	44%	37%	32%

⁵¹ The baseline scenario reflects the current taxation on the mobile sector, and therefore includes the prevailing regulatory fee levels. See Appendix A for more detail on the modelling assumptions used in this study and Appendix B for detailed estimated impacts.

Option 2: 50% reduction in RFR during 4G network rollout

In this scenario, the RFR rate would be reduced by 50% for entities involved in spectrum re-farming during the modelled period (2021-2025).

This time-limited reduction in RFR would incentivise increased investment in 4G networks, which should accelerate expansion of network coverage and increase capacity, which should lower prices and improve the quality of mobile services. Retaining the reduction beyond the 4G network rollout period may also assist in facilitating subsequent investment in 5G networks.

Option 3: Introduction of a VAT credit on export of mobile services

This scenario would allow for recoverability of VAT on the export of mobile services from 2021. It would cover services provided to foreign mobile operators by Ukrainian mobile operators, including roaming, international traffic transit and termination.

Currently, the export of telecommunications services falls outside the scope of Ukrainian VAT and the corresponding input VAT is not recoverable. This increases the costs of Ukrainian mobile operators and is not consistent with the policy adopted in most other European countries, which allows for input VAT to be recovered on exports under the EU VAT Directive.

Allowing the recoverability of input VAT on telecommunication services would be consistent with the ‘fiscal neutrality’ principle, which is a core feature of VAT under the Tax Code of Ukraine. Furthermore, under its Association Agreement with the European Union, Ukraine will need to implement the VAT Directive by 1 September 2022, which would include allowing the deduction of input VAT incurred for supply of exports of telecommunication services.

3.2 Modelling approach



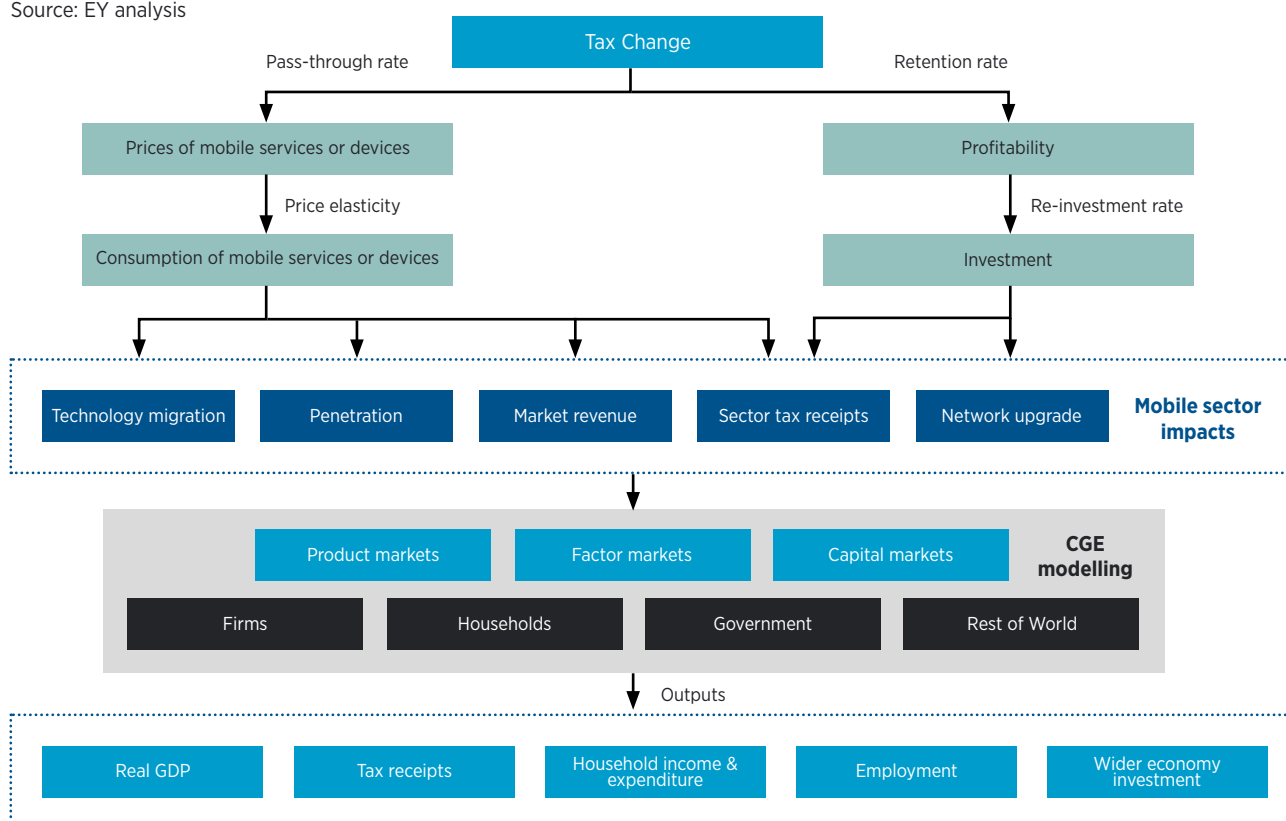
The potential quantitative impacts of the reform options have been analysed using a robust, two-stage modelling process to analyse both the Ukrainian mobile sector and the wider Ukrainian economy (through Computable General Equilibrium (CGE) modelling,⁵² namely the standard version of the Global Trade Analysis Project (GTAP) model and its associated dataset).⁵³ While it is recognised that a combination of these regulatory fee and tax reforms can have beneficial economic impacts for Ukraine, the assessment considers the options as separate ‘scenarios’, where each regulatory fee or tax is reformed and compared to a status quo scenario with no change.

A schematic of the modelling approach used in this study is shown in Figure 11 below.⁵⁴ This illustrates how the approach captures the mechanism by which the regulatory fee or tax change would be expected to impact the mobile sector and the wider economy. The reduction in regulatory fees or taxation would lead to lower effective prices for consumers and greater profitability for operators, increasing consumption of mobile services and investment respectively. This would have several impacts on the mobile market, including increased market revenue and faster penetration growth, as well as wider economy effects including increased employment growth and increased GDP growth.

Figure 11

Overview of the modelling approach

Source: EY analysis



52 CGE models reproduce the structure of the whole economy by mapping all existing economic transactions. 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 academic literature.

53 Aguiar, A., Chepeliev, M., Corong, E., McDougall, R., and D. van der Mensbrugghe, 2019. The GTAP Data Base: Version 10. Journal of Global Economic Analysis, 4(1), 1-27. <https://www.jgea.org/resources/jgea/ojs/index.php/jgea/article/view/77>

54 Please see Appendix A for more detail on the methodology approach used. A full description of the quantitative methodology can be found in the accompanying standalone methodology report.

3.3 Summary of modelling results

Table 5 outlines the annual impacts that each scenario is forecast to have compared to the baseline scenario by 2025.

Table 5

Summary of modelled impacts: annual change compared to baseline scenario by 2025

Source: EY analysis

	Scenario 1: RFR inflation indexation removal and RFMF elimination	Scenario 2: 50% RFR reduction for 4G network rollout	Scenario 3: Introduction of a VAT credit for mobile services exports	Description of impact
Tax revenue impact	\$134m	\$180m	\$34m	Tax revenue would increase due to the expansion of the mobile sector and growth in the wider economy.
Mobile market revenue	\$35m	\$36m	\$7m	Mobile sector revenue would increase due to the increased number of connections, and higher overall usage.
New connections	1.3m unique subscribers (3.0 percentage points (pp)); 2.0m connections (4.6pp)	1.2m unique subscribers (2.8pp); 1.8m connections (4.4pp)	217,000 unique subscribers (0.5pp); 336,000 connections (0.8pp)	Of the new connections, 86% would be prepay and 52% would be classified as low-income.
Usage	Data: 7.9% Voice: 6.7% Messages: 6.5%	Data: 7.3% Voice: 6.2% Messages: 6.1%	Data: 1.3% Voice: 1.1% Messages: 1.1%	The reductions in price of would lead to an increase in data, voice and message services usage.

	Scenario 1: RFR inflation indexation removal and RFMF elimination	Scenario 2: 50% RFR reduction for 4G network rollout	Scenario 3: Introduction of a VAT credit for mobile services exports	Description of impact
Productivity gain	0.40% productivity gain	0.37% productivity gain	0.07% productivity gain	The increase in unique subscriber penetration would lead a gain in productivity across the economy, increasing output, incomes and expenditure.
GDP increase	\$499m (0.38%)	\$629m (0.48%)	\$117m (0.09%)	GDP would increase as a result of the price and productivity effects.
Employment increase	14,481 jobs (0.09%)	18,101 jobs (0.11%)	3,563 jobs (0.02%)	Increased economic activity would lead to an employment increase.
Wider investment in the economy	\$462m (2.06%)	\$579m (2.58%)	\$103m (0.46%)	Decreased intermediate costs for businesses using mobile would make additional resources available for investment.
Benefits to other sectors	Trade: 2.42% Comms: 1.32% Construction: 0.62%	Trade: 2.22% Comms: 1.19% Construction: 0.57%	Trade: 0.40% Comms: 0.15% Construction: 0.11%	All sectors within the economy would expand. In all scenarios, trade output rises the most, followed by the communications sector and construction.

Appendix A

Methodology

This Appendix sets out the key principles underpinning the methodology applied in this study to calculate the potential economic impacts of tax policy scenarios; and assumptions specific to the modelling approach undertaken for Ukraine.

A full modelling methodology can be found in the accompanying standalone methodology report. This includes the technical details of the methodology, as well as the economic theory underpinning it.

• Two-stage approach

A model of the Ukrainian 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.

The wider economic impacts of each tax policy scenario are assessed via a CGE model, namely the standard version of the Global Trade Analysis Project (GTAP) model and its associated dataset.⁵⁵

• Price elasticity of demand

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

To establish relevant price elasticities for Ukraine, a set of studies pertaining to high-income countries has been used (Ukraine is defined as an upper middle-income economy by the World Bank).⁵⁶

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

- Mobile usage elasticities:⁵⁷ from -0.7 to -0.9 for voice and from -0.9 to -1.2 for data;
- Mobile ownership elasticities:⁵⁸ from -0.7 to -0.9 for mobile services; and
- Technology migration elasticities:⁵⁹ from -0.3 to -0.4 for data.

• Total factor productivity

It has been assumed that a 1% increase in unique subscriber penetration leads to a 0.13% increase in total factor productivity (TFP).⁶⁰

55 Aguiar, A., Chepeliev, M., Corong, E., McDougall, R., and D. van der Mensbrugghe, 2019. The GTAP Data Base: Version 10. Journal of Global Economic Analysis, 4(1), 1-27.

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

57 Mobile usage elasticities relate to the change in usage per connection following a change in price.

58 Mobile ownership elasticities relate to the change in number of connections following a change in the price of services and handsets.

59 Technology migration elasticities which relate to the migration from 2G to 3G / 4G services following a change in the price of data, and a change in price of handsets.

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

• Effective pass-through rates

The effective pass-through rate is the percentage of the tax or fee change which is passed through to subscribers in the form of lower effective prices. Effective prices represent the value for money achieved by subscribers; effective price changes are therefore wider ranging than pure price changes. The effective price subscribers face can be said to decrease if they receive a better quality or quantity of service for the same price. Effective pass-through rates, therefore, do not imply a one-for-one reduction in headline prices from lower taxation.

The level of effective pass-through has been based on the results of macro-economic modelling in GTAP.⁶¹ Across the three scenarios, the mobile operators are assumed to pass approximately 98-99% of the tax decrease on to subscribers by decreasing the effective prices of mobile services. These high effective pass-through rates are driven by competition in the Ukrainian mobile market. Therefore, mobile operators are able to retain a smaller share of the tax saving, which can be channelled into increased investment, or retained as higher profits.

Since these rates reflect changes in effective prices that take place over the medium- to long-run as a transition to a new equilibrium state of the economy following a shock such as a change in taxation, they would not only capture the immediate price decisions of mobile operators, but would also include reallocation of resources (due to changes in relative prices/costs) and effects of improved productivity on average costs. Thus, the effective pass-through rates have been phased as per Table 6.

Table 6

Evolution of effective pass-through rates in Ukraine⁶²

Source: EY analysis

Effective pass-through rate	Year 1	Year 2	Year 3	Year 4	Year 5
Scenario 1	84.7 %	92.1 %	99.6 %	99.6 %	99.6 %
Scenario 2	83.4 %	90.7 %	98.1 %	98.1 %	98.1 %
Scenario 3	84.4 %	91.9 %	99.3 %	99.3 %	99.3 %

⁶¹ The level of effective pass-through in GTAP is driven by the underlying sectoral linkages and behavioural relationships in the Ukrainian economy. The effective pass-through rate in each case is endogenously generated from the CGE model of the wider Ukrainian economy and reflects the level of price competition in the Ukrainian communications sector.

⁶² GTAP, EY analysis

- **Reinvestment by mobile operators**

In Ukraine, 2G and 3G mobile services cover almost all of the population (100% and 90% respectively), and 4G coverage is already extensive (77%). Therefore, the modelling assumes that reinvestment of additional funds made available to mobile operators as a result of the modelled tax reforms is primarily targeted at improving capacity of the existing network, although coverage expansion will continue quality improvements.⁶³

- **Employment**

In Ukraine, it can be observed that there is significant unemployment among the lower-skilled workforce.⁶⁴ Therefore, the GTAP modelling approach allows for employment to increase among lower-skilled labour in Ukraine, specifically in the “Technicians and associated professions and clerks” category. This means that an expansion of demand in the economy leads to both an increase in employment and an increase in wages for lower-skilled workers.

- **Labour mobility**

Ukraine’s labour market flexibility index score in the World Economic Forum’s Global Competitiveness Report indicated that there is some flexibility in the labour market. The assumption of perfect labour mobility in GTAP was adjusted, with mobility set to 75%.

- **Regional aggregation in GTAP**

The following regions have been separated in GTAP for the purposes of conducting the CGE macro-economic analysis: Ukraine, Russia, China, Germany, Poland, Turkey, the Rest of the European Union and the Rest of the World.⁶⁵

63 The Government has stated its intention for operators to expand 4G network coverage to up to 98% over the next few years, to cover rural areas, roads and railways. There would likely therefore be further investment from operators which is additional to that enabled by the regulatory fee and tax reforms, to increase coverage.

64 Unemployment by education level, ILOSTAT labour force survey

65 Based on analysis of international trade data for Ukraine



Appendix B

Detailed modelling outputs



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: removal of RFR inflation and elimination of RFMF

This scenario models the implications of the removal of inflation indexing from RFR, as well as the elimination of the RFMF.⁶⁶

The fees to be reduced and eliminated are specific (as opposed to ad valorem), with the forecast post-reform effective rate depending on the cumulative inflation indexation that had accrued from the start of the reform to be removed from the fee.

The reform would take place from 2021.

Table 7 and Figure 12 outline the forecast impacts of the regulatory fee reduction compared to the baseline scenario.

⁶⁶ It should be noted that this scenario embeds a key assumption that inflation has been — and in the baseline scenario with no tax reform, will be — included in RFR in each year. If this were not to be the case in practice, the modelled impacts in this scenario would be overstated.

Table 7

Annual impact of removal of RFR inflation and elimination of RFMF⁶⁷

Source: EY analysis

Mobile sector impacts	2021	2022	2023	2024	2025
Change in effective price of services ⁶⁸ vs baseline	-1.5%	-0.6%	-0.7%	-0.6%	-0.7%
Cumulative price change vs baseline	-1.5%	-2.1%	-2.8%	-3.5%	-4.1%
Incremental connections (total)	391,000	942,000	1,288,000	1,635,000	1,964,000
Incremental unique subscribers (total)	252,000	608,000	831,000	1,056,000	1,270,000
Incremental connections (3G and 4G) ⁶⁹	462,000	1,184,000	1,667,000	2,163,000	2,624,000
<i>of which technology migration</i>	134,000	342,000	482,000	628,000	770,000
Incremental connections by low income subscribers	211,000	508,000	691,000	862,000	1,029,000
ARPU (total) vs baseline	-0.8%	-0.3%	-0.4%	-0.3%	-0.2%
Increase in mobile penetration (connections)	0.9%	2.2%	3.0%	3.8%	4.6%
Increase in mobile penetration (unique subscribers)	0.6%	1.4%	1.9%	2.5%	3.0%
Increase in mobile penetration (unique mobile broadband subscribers)	0.7%	1.8%	2.5%	3.3%	4.0%
Data usage vs baseline	1.5%	3.6%	5.0%	6.5%	7.9%
Data usage per connection vs baseline	0.8%	2.0%	2.8%	3.6%	4.3%
Increase in market revenue (total)	-\$1m	\$15m	\$21m	\$28m	\$35m
Increase in market revenue (total) vs baseline	-0.1%	1.2%	1.8%	2.5%	3.1%
Static tax impact ⁷⁰	-\$22m	-\$29m	-\$36m	-\$43m	-\$50m
Impact on mobile sector taxation	-\$22m	-\$26m	-\$30m	-\$35m	-\$40m
Wider economic impacts⁷¹	2021	2022	2023	2024	2025
Full impact on communications sector taxation	-\$19m	-\$30m	-\$44m	-\$42m	-\$40m
Receipts from all other sectors	\$5m	\$42m	\$96m	\$135m	\$174m
Total tax receipts	-\$14m	\$12m	\$52m	\$93m	\$134m
<i>Cumulative total receipts</i>	-\$14m	-\$2m	\$50m	\$143m	\$278m
Real GDP	\$4m	\$98m	\$249m	\$373m	\$499m (0.38%)
Employment	Impact estimated for 2025 only				14,481 (0.09%)
Household income	Impact estimated for 2025 only				\$445m (0.45%)
Household expenditure	Impact estimated for 2025 only				\$406m (0.45%)
Investment	Impact estimated for 2025 only				\$462m (2.06%)

67 Some figures do not sum due to rounding.

68 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.

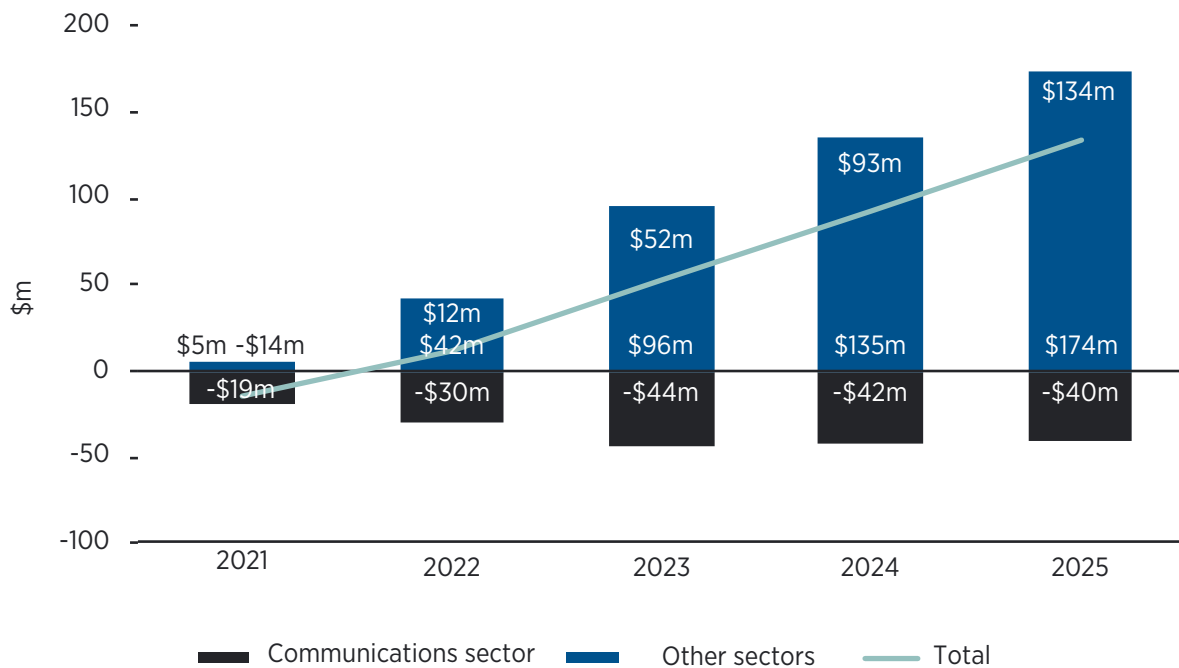
69 The incremental number of 3G and 4G connections includes both newly joining 3G and 4G subscribers and those migrating from 2G to mobile broadband enabled technologies.

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

71 Macro-economic impacts in Scenario 1 have been calculated for the five years using a bespoke phasing framework due to the unique nature of the tax cut. The communications tax revenues have been phased in based in the path of the tax rate changes, while the tax receipts for other sectors and the GDP impacts have been phased in using a path calculated to combine the expected changes in penetration and the pass through by which behaviour is expected to change.

Figure 12
Removal of RFR inflation and elimination of RFMF – annual impacts on tax receipts

Source: EY analysis


Scenario 2: 50% reduction in RFR during 4G network rollout

This scenario models a 50% reduction in the RFR rate for entities involved in the spectrum re-farming during the modelled period.^{72, 73}

Table 8 and Figure 13 outline the forecast impacts of the regulatory fee reduction compared to the baseline scenario.

⁷² Modelled period is 2021-2025. Long-term wider economic impacts will be overstated if the 50% reduction is reversed after the network rollout.

⁷³ RFR payments are assumed to reduce by the full 50%, as mobile operators currently pay nearly all RFR payments; non-Telecommunications spectrum owners contribute a negligible proportion of payments.

Table 8

Annual impact of a 50% reduction in RFR during 4G network rollout⁷⁴

Source: EY analysis

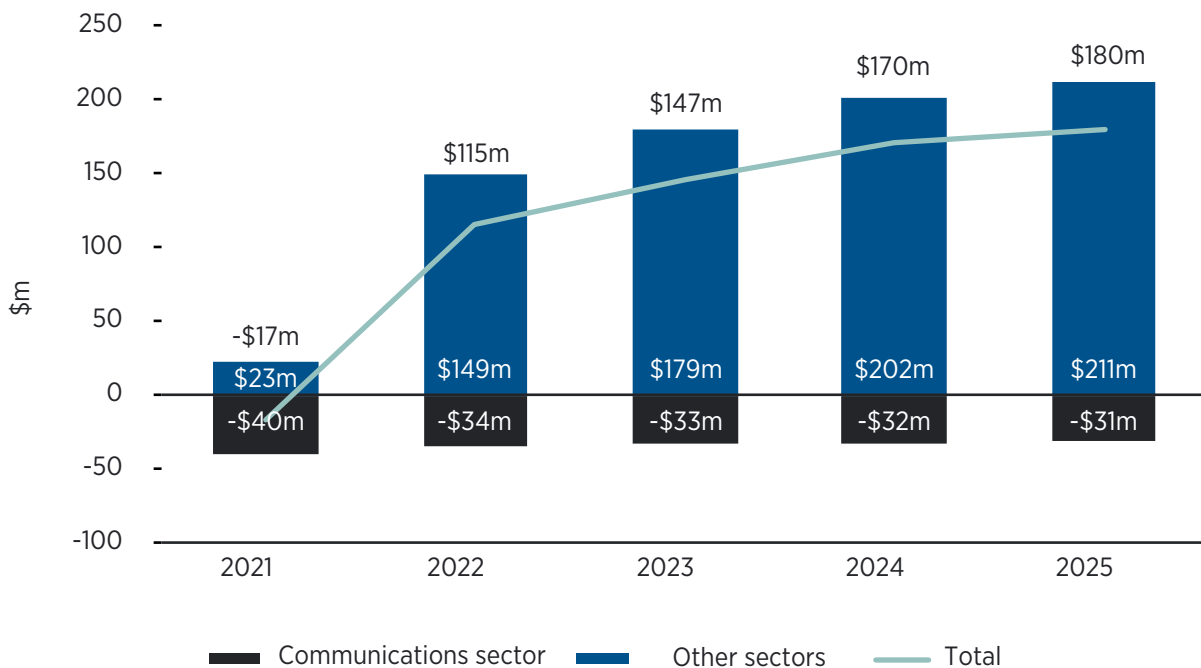
Mobile sector impacts	2021	2022	2023	2024	2025
Change in effective price of services vs baseline	-3.0%	-0.3%	-0.3%	0.0%	0.0%
Cumulative price change vs baseline	-3.0%	-3.3%	-3.6%	-3.6%	-3.6%
Incremental connections (total)	797,000	1,665,000	1,798,000	1,855,000	1,842,000
Incremental unique subscribers (total)	513,000	1,073,000	1,160,000	1,198,000	1,191,000
Incremental connections (3G and 4G)	944,000	2,092,000	2,323,000	2,442,000	2,445,000
<i>of which technology migration</i>	276,000	604,000	670,000	700,000	706,000
Incremental connections by low income subscribers	430,000	897,000	964,000	978,000	965,000
ARPU (total) vs baseline	-1.59%	-0.21%	-0.17%	0.00%	0.05%
Increase in mobile penetration (connections)	1.8%	3.9%	4.2%	4.4%	4.4%
Increase in mobile penetration (unique subscribers)	1.2%	2.5%	2.7%	2.8%	2.8%
Increase in mobile penetration (unique mobile broadband subscribers)	1.4%	3.1%	3.5%	3.7%	3.7%
Data usage vs baseline	3.0%	6.5%	7.0%	7.3%	7.3%
Data usage per connection vs baseline	1.7%	3.6%	3.9%	4.0%	4.0%
Increase in market revenue (total)	-\$3m	\$31m	\$33m	\$36m	\$36m
Increase in market revenue (total) vs baseline	-0.3%	2.6%	2.9%	3.2%	3.2%
Static tax impact	-\$46m	-\$45m	-\$46m	-\$46m	-\$45m
Impact on mobile sector taxation	-\$46m	-\$38m	-\$36m	-\$35m	-\$35m
Wider economic impacts	2021	2022	2023	2024	2025
Full impact on communications sector taxation	-\$40m	-\$34m	-\$33m	-\$32m	-\$31m
Receipts from all other sectors	\$23m	\$149m	\$179m	\$202m	\$211m
Total tax receipts	-\$17m	\$115m	\$147m	\$170m	\$180m
<i>Cumulative total receipts</i>	-\$17m	\$98m	\$245m	\$415m	\$595m
Real GDP	\$20m	\$421m	\$522m	\$597m	\$629m (0.48%)
Employment	Impact estimated for 2025 only				18,101 (0.11%)
Household income	Impact estimated for 2025 only				\$561m (0.57%)
Household expenditure	Impact estimated for 2025 only				\$511m (0.57%)
Investment	Impact estimated for 2025 only				\$579m (2.58%)

74 Some figures do not sum due to rounding.

Figure 13

50% reduction in RFR during network rollout – annual impacts on tax receipts

Source: EY analysis



Scenario 3: introduction of a VAT credit on the export of mobile services

This scenario models the introduction of a VAT credit on the export of mobile services from 2021. In modelling terms, this in effect amounts to an elimination of VAT payments on the export of mobile services, the rate of tax for which is currently 20%.⁷⁵

Table 9 and Figure 14 outline the forecast impacts of the tax reduction compared to the baseline scenario.

⁷⁵ The modelling embeds an assumption that the price changes that would arise as a result of the reduced tax payments by operators would accrue to domestic subscribers, rather than those overseas.

Table 9

Annual impact of the introduction of a VAT credit on the export of mobile services from 2021⁷⁶

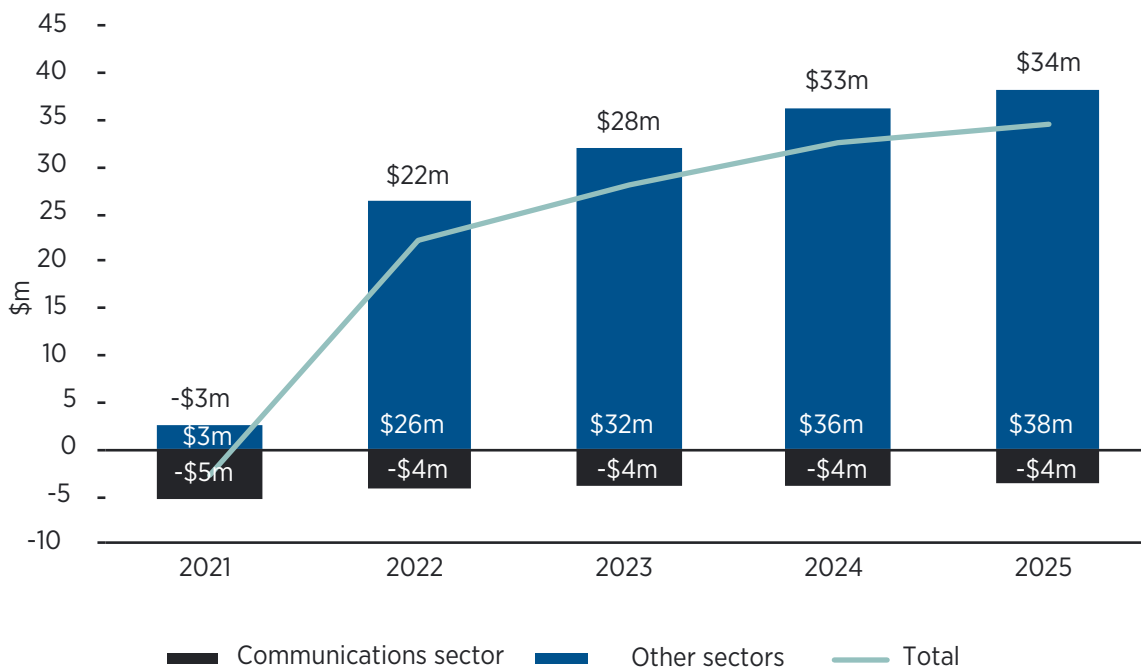
Source: EY analysis

Mobile sector impacts	2021	2022	2023	2024	2025
Change in effective price of services vs baseline	-0.56%	-0.05%	-0.05%	0.00%	0.00%
Cumulative price change vs baseline	-0.56%	-0.61%	-0.66%	-0.66%	-0.66%
Incremental connections (total)	146,000	304,000	328,000	338,000	336,000
Incremental unique subscribers (total)	94,000	196,000	212,000	219,000	217,000
Incremental connections (3G and 4G)	173,000	382,000	423,000	444,000	443,000
<i>of which technology migration</i>	50,000	110,000	121,000	126,000	126,000
Incremental connections by low income subscribers	79,000	164,000	176,000	178,000	176,000
ARPU (total) vs baseline	-0.29%	-0.03%	-0.02%	0.01%	0.02%
Increase in mobile penetration (connections)	0.3%	0.7%	0.8%	0.8%	0.8%
Increase in mobile penetration (unique subscribers)	0.2%	0.5%	0.5%	0.5%	0.5%
Increase in mobile penetration (unique mobile broadband subscribers)	0.3%	0.6%	0.6%	0.7%	0.7%
Data usage vs baseline	0.6%	1.2%	1.3%	1.3%	1.3%
Data usage per connection vs baseline	0.3%	0.6%	0.7%	0.7%	0.7%
Increase in market revenue (total)	-\$1m	\$6m	\$6m	\$7m	\$7m
Increase in market revenue (total) vs baseline	0.0%	0.5%	0.5%	0.6%	0.6%
Static tax impact	-\$8m	-\$8m	-\$8m	-\$7m	-\$7m
Impact on mobile sector taxation	-\$8m	-\$8m	-\$6m	-\$6m	-\$6m
Wider economic impacts	2021	2022	2023	2024	2025
Full impact on communications sector taxation	-\$5m	-\$4m	-\$4m	-\$4m	-\$4m
Receipts from all other sectors	\$3m	\$26m	\$32m	\$36m	\$38m
Total tax receipts	-\$3m	\$22m	\$28m	\$33m	\$34m
<i>Cumulative total receipts</i>	-\$3m	\$19m	\$47m	\$80m	\$114m
Real GDP	\$2m	\$78m	\$97m	\$111m	\$117m (0.09%)
Employment	Impact estimated for 2025 only				3,563 (0.02%)
Household income	Impact estimated for 2025 only				\$104m (0.11%)
Household expenditure	Impact estimated for 2025 only				\$95m (0.10%)
Investment	Impact estimated for 2025 only				\$103m (0.46%)

76 Some figures do not sum due to rounding.

Figure 14
Introduction of a VAT credit on the export of mobile services – annual impacts on tax receipts

Source: EY analysis



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