



Regional Cooperation Council



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# Western Balkans-European Union ROAMING DATA REPORT



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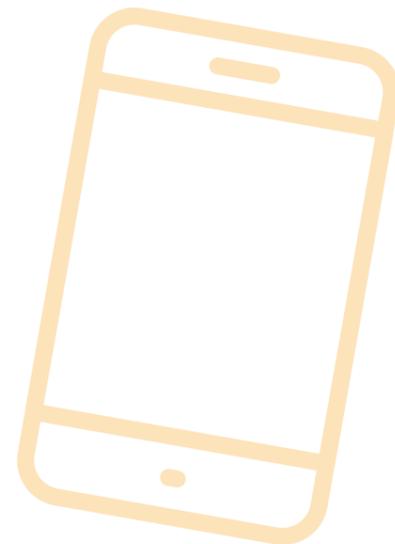
# BACKGROUND

The process for reducing roaming prices in the Western Balkans (WB) started in 2014 when the first regional “Agreement on reducing the prices of roaming services on public mobile communication networks” was signed among the ministers responsible for electronic communications from Bosnia and Herzegovina, Montenegro, Republic of North Macedonia and Serbia. This Agreement was based on EU Roaming Regulation from 2012, which introduced price caps on retail and wholesale roaming prices in the EU that gradually decreased over time, starting from 1 July 2012 and ending until 1 July 2017. The same rules and roaming prices applied in the Western Balkan region, starting from 30 June 2015.

As a next step to lowering the cost of roaming in the region, a new Regional Roaming Agreement (RRA) covering six Western Balkan economies was signed on 4 April 2019 in Belgrade. RRA stipulated significantly lowered roaming tariffs within the region from 1 July 2019 and abolition of roaming surcharges (Roam-Like-At-Home-RLAH) from 1 July 2021, using provisions and price caps from the EU Roaming Regulation from 2015 and 2017. RRA is a very important step towards harmonisation with the current EU roaming regulatory framework and launching the next phase of roaming prices reduction - reduction of roaming prices between the Western Balkan region and the EU.

In February 2018, the European Commission presented new Western Balkans strategy. The Digital Agenda for the Western Balkans is one of the key flagships of the Strategy, aiming to reduce the digital gap between the Western Balkan region and the EU and to ensure that citizens and businesses can fully benefit from digital transformation. A commitment to launching the Digital Agenda was declared during the Western Balkans Digital Summit held in Skopje in April 2018, including a roadmap for lowering roaming prices between the EU and Western Balkans partners.

The abolition of roaming surcharges in the Western Balkan region and reducing roaming prices with the EU are also part of the Common Regional Market 2021-2024 Action Plan and Western Balkans leaders committed to it at the Berlin Process Summit held in November 2020 in Sofia and confirmed the commitment at the Berlin Process Summit held in July 2021.



# OBJECTIVES

The overall objective of the assignment is to provide support to Western Balkan economies including Albania, Bosnia and Herzegovina, Kosovo<sup>1</sup>, Montenegro, Republic of North Macedonia and Serbia to further advance in the process of harmonisation of roaming policy with that of the EU and providing expert inputs on the approach and the steps that Western Balkan economies and telecom operators need to take towards reducing the roaming prices between the Western Balkan region and the EU.

In order to determine all the necessary elements for a potential glide path for reducing retail and wholesale roaming prices between the Western Balkan region and the EU, data on roaming users, traffic, retail and wholesale revenues and costs for 2019 and 2020 were collected through a questionnaire sent to Western Balkans regulators. The questionnaire also included qualitative questions for Western Balkans operators on key technical and operational obstacles they could face before and during the process of implementation of roaming prices reduction between the Western Balkan region and the EU. The data collection process began in May 2021 and was completed in June 2021.

Western Balkans regulators collected data from operators and provided most of the requested data and information. However, not all requested data were provided by all Western Balkan operators, as indicated in the relevant chapters of this report. The RCC or the Consultant assumes no responsibility for the completeness and accuracy of the data provided by regulators.

This report aims to provide an assessment of roaming data between the Western Balkan region and the European Economic Area (EEA)<sup>1</sup> that serves as a baseline for proposing a glide path for roaming prices reduction. The first chapter contains information on roaming users in the Western Balkan region and the EEA, followed by an analysis of consumption patterns. Chapter III focuses on retail roaming revenues, followed by information on wholesale roaming revenues in Chapter IV. Wholesale roaming costs and international MTRs are analysed in Chapter V, followed by a comparison of average retail prices and wholesale roaming costs.

<sup>1</sup> EEA consists of EU Member States as well as Iceland, Liechtenstein, and Norway. As BEREC questionnaires include the data for EEA and not only the EU, EEA is mentioned throughout the report.

\* This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo Declaration of Independence.





# EXECUTIVE SUMMARY

Total number of roaming users from the WB region using roaming services in the WB and EEA decreased by 53% in 2020 compared to 2019 as a consequence of Covid-19 travel restrictions.

In 2020, mainly due to Covid-19 travel restrictions across Europe, the number of roaming users from the WB region using roaming services in the WB region were higher compared to the total number of roaming users from the WB region using roaming services in the EEA in all WB economies, except in Serbia and Bosnia and Herzegovina where more roaming users used roaming services in the EEA. In 2019 situation was a bit different when only in Kosovo\* and Montenegro more roaming users used roaming services in the WB region while in other WB economies more roaming users used roaming services in the EEA.

Despite the lower number of roaming users in 2020 compared to 2019, the consumption of roaming voice and data services per roaming user was higher in 2020 compared to 2019 both in the WB region and the EEA. In 2020 a roaming user from the WB region spent on average 12 minutes on making calls and 13 minutes on receiving calls while using roaming services in the EEA and 76 minutes on making calls and 36 minutes on receiving calls in the WB region. In the same period, roaming user consumed on average 13 SMS while roaming in both the WB region and the EEA. The average data traffic per roaming user reached almost 2GB in the WB region and 190 MB in the EEA in 2020. Lower consumption per user while using roaming services in the EEA compared to roaming consumption per user in the WB region is directly related to higher retail prices for roaming services in the EEA.

Six EEA countries: Croatia, Greece, Italy, Germany, Slovenia and Austria accounted for more than 80% of outbound voice traffic made by WB roaming users in the EEA in 2020, while the same countries excluding Greece plus Denmark and Hungary accounted for 80% of inbound roaming traffic from the EEA in the WB region in 2020. This indicates a strong mutual interest of end users from the WB region to

travel and use roaming services in the respective EEA countries, and the interest of end users from the same EEA countries to travel and use roaming services in the WB region.

An analysis of the collected data on retail roaming revenues showed discrepancies between the average retail prices paid by WB end users when using roaming services in the WB region and in the EEA. It is obvious that end users pay higher prices when using roaming services within the EEA compared to regulated roaming prices applicable in the Western Balkan region and this gap is even higher now, after 1 July 2021, when "roam like at home" entered into force. For example, in 2020 roaming users from Albania paid on average 2 times more for making calls while in roaming in the EEA compared to average retail price for making roaming calls in the WB region, while roaming users from Kosovo\* paid on average 14 times more for making roaming calls in the EEA. Roaming users from Republic of North Macedonia paid on average 3 times more for using SMS services while in roaming in the EEA compared to the average roaming price for SMS services in the WB region, while roaming users from Montenegro paid on average 14 times more in 2020. Also, roaming users from Albania paid on average 2 times more for using roaming data services in the EEA, compared to the average retail price for data roaming service in the WB region, while roaming users from Montenegro paid on average 877 times more in 2020.

Average wholesale roaming revenues per minute of inbound voice traffic from the EEA operators are 2 times higher in Serbia compared to wholesale roaming revenues from WB operators and 6 times higher in Bosnia and Herzegovina.

Average wholesale roaming costs per minute of outgoing voice calls were 2 times higher in Albania, Bosnia and Herzegovina and Kosovo\* and 9 times higher in Montenegro for using roaming services in the EEA compared to average wholesale costs for using roaming services in the WB region. The average wholesale roaming costs per SMS in the EEA were lower in Albania, Kosovo\*, Republic of

North Macedonia and Serbia compared to the average wholesale roaming costs per SMS in the WB region. The average wholesale roaming costs per GB of data services in the EEA were lower in Albania, Bosnia and Herzegovina and Republic of North Macedonia compared to the average wholesale roaming costs per GB in the WB region. Despite lower average wholesale roaming costs of SMS services in the EEA compared to the WB, average retail roaming prices for SMS services in the EEA were 8 times higher in Kosovo\*, 7 times higher in Serbia and 3 times higher in Albania and Republic of North Macedonia compared to the average retail roaming prices for SMS services in the WB region. Average retail roaming prices for data services in the EEA in Bosnia and Herzegovina were 26 times higher, in Republic of North Macedonia 4 times higher and in Albania 2 times higher compared to the average retail roaming prices for data services in the WB region.

In the observed period in most WB economies the average non-regulated MTRs for international voice calls in the WB region were equal to the average international MTRs for voice calls in the EEA, except in Montenegro and Serbia, where the average international MTRs for voice calls in the EEA region were lower than the average non-regulated MTRs for international calls in the WB region. In all WB economies, international MTRs for voice calls in the EEA were higher compared to regulated MTRs for roaming voice calls in the WB region.

All of the above indicate that reducing roaming prices between the WB region and the EU is necessary next step for the benefit of end users and a very important step towards further harmonisation with the current EU roaming regulatory framework.



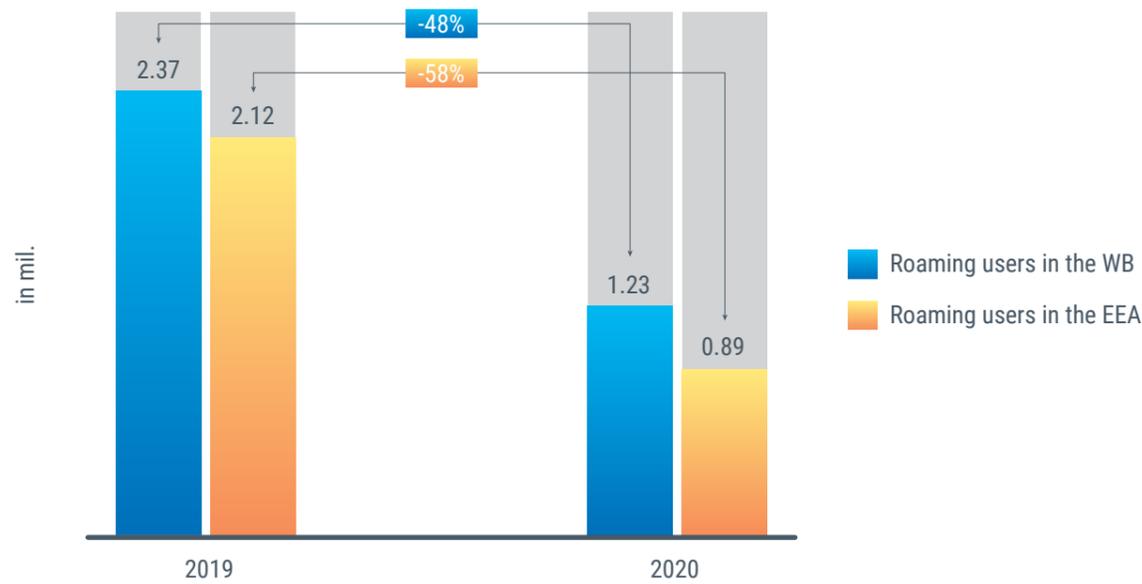


# I ROAMING USERS

The total number of roaming users was lower in all Western Balkan economies in 2020 compared to 2019 due to Covid-19 travel restrictions. The decrease in the total number of roaming users from the WB region was higher among users using

roaming services in the EEA (58%) compared to the decrease in the number of roaming users who used roaming services in the WB region (48%) in 2020 compared to 2019.

Figure 1 - Total number of roaming users

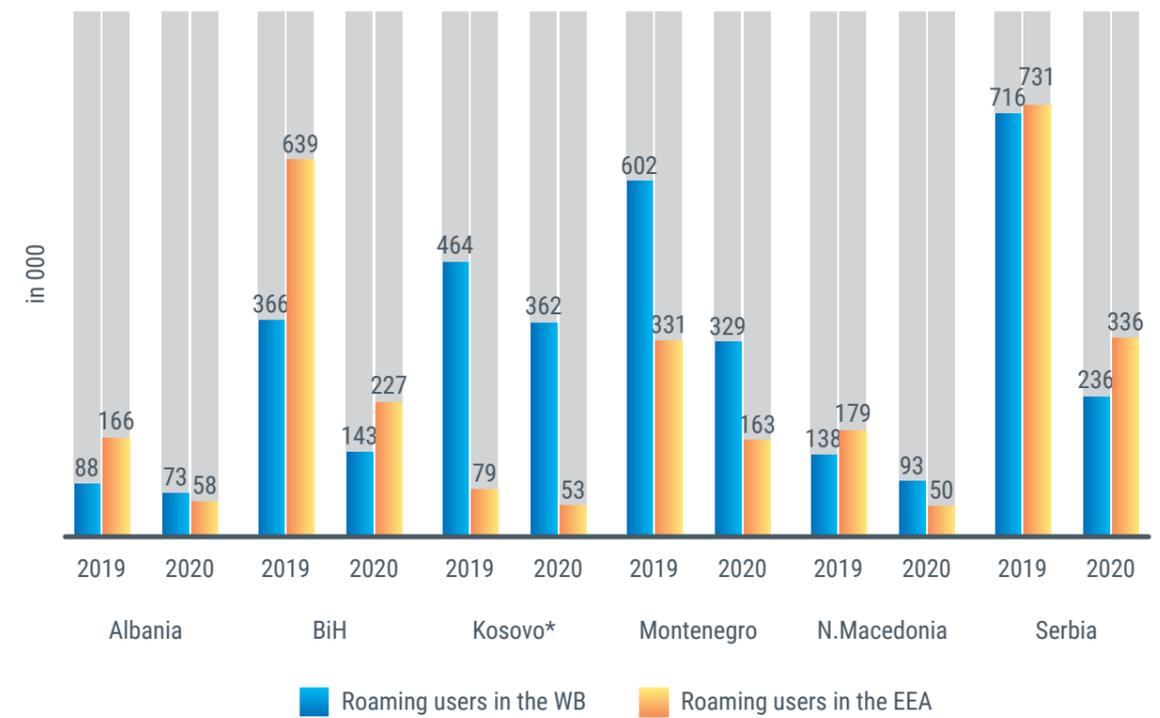


Source: Roaming questionnaire

In 2019, the number of roaming users using roaming services in the EEA was higher compared to the number of roaming users using roaming services in the WB region in all WB economies, except in Kosovo\* and Montenegro. In 2020, majority of WB

roaming users used roaming services in WB region, except in Bosnia and Herzegovina and Serbia where more roaming users used roaming services in the EEA.

Figure 2 - Roaming users in the WB and EEA



Source: Roaming questionnaire



# II ROAMING CONSUMPTION PATTERNS

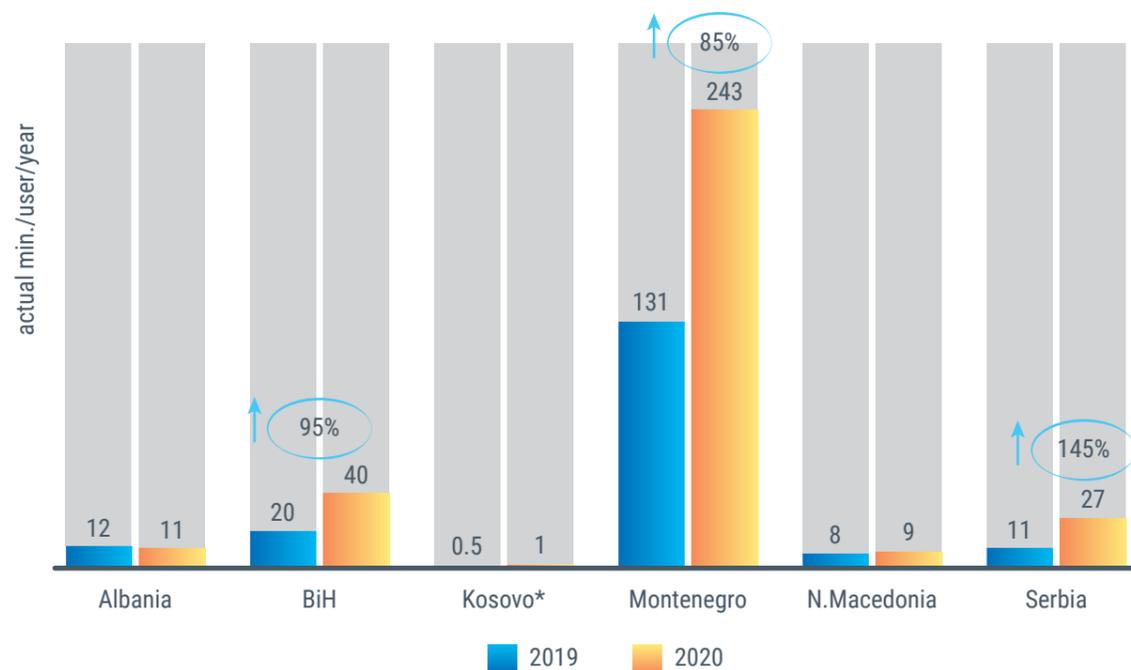
A roaming user from the WB region spent on average 12 minutes on making roaming calls in the EEA and 76 minutes in the WB region in 2020. The average data traffic per roaming user reached almost 2GB in the WB region and 190 MB in the EEA in 2020.

## 2.1. ROAMING VOICE CONSUMPTION

Roaming users from the WB region made a total of 96 million minutes of outgoing calls while using roaming services in the WB region in 2019 and 94 million minutes in 2020. Despite a significant decrease of 48% in the number of roaming users in the WB region in 2020 compared to 2019, the total number of minutes of outgoing calls decreased by less

than 3%. This implies that roaming users have made more minutes of outgoing roaming calls as a result of reduced retail roaming prices for outgoing voice calls in the WB region. The highest number of outgoing voice minutes per roaming user in the WB region in 2020 was made by roaming users from Montenegro, Bosnia and Herzegovina and Serbia.

Figure 3 - Outgoing voice minutes per roaming user in the WB

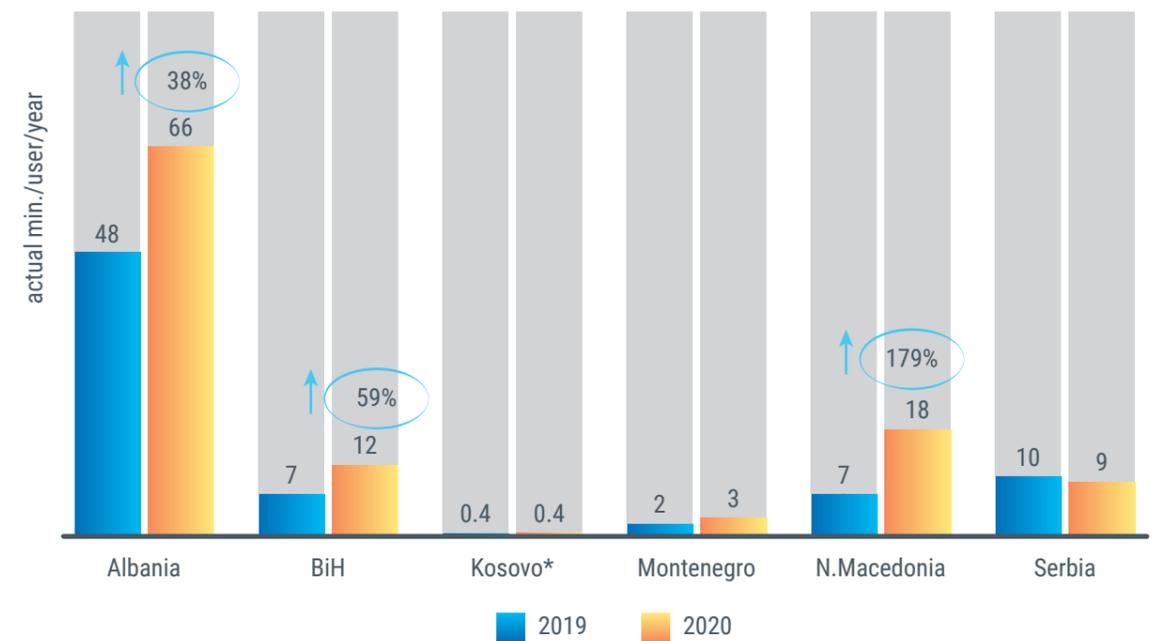


Source: Roaming questionnaire

WB roaming users made a total of 22 million minutes of outgoing calls while roaming in the EEA in 2019 and 11 million of outgoing call minutes in 2020. The decrease in the total number of outgoing voice minutes by 52% in 2020 compared to 2019 was accompanied by the same trend of decrease (58%) in the number of WB roaming users who used roaming services in the EEA.

The highest number of outgoing voice minutes per roaming user in the EEA in 2020 was made by roaming users from Albania, Republic of North Macedonia and Bosnia and Herzegovina.

Figure 4 - Outgoing voice minutes per roaming user in the EEA



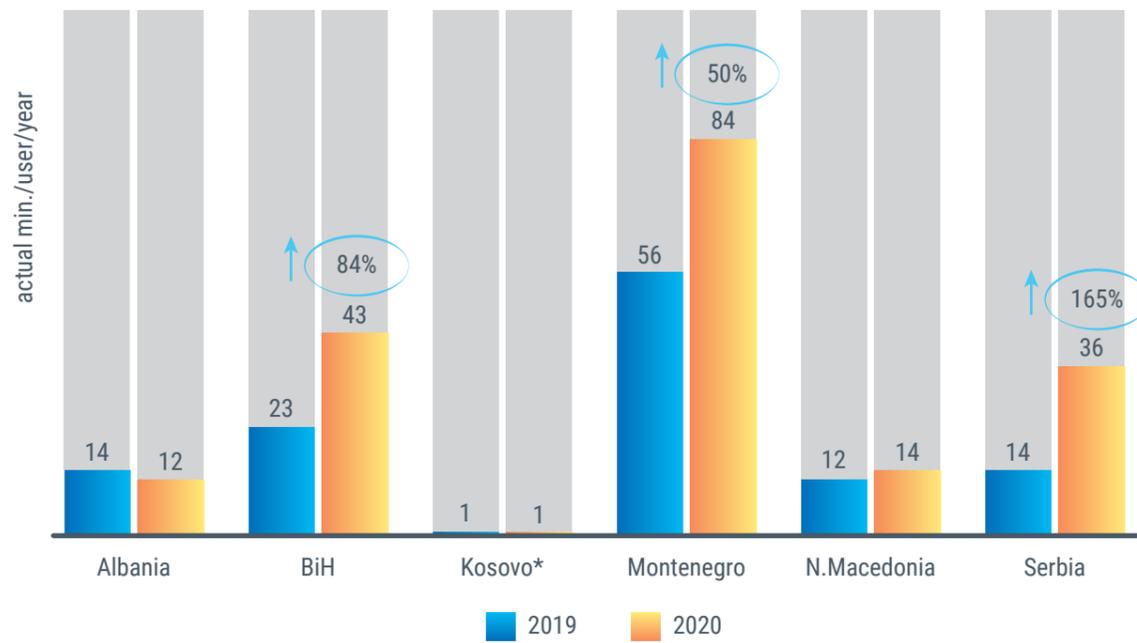
Source: Roaming questionnaire

The total number of minutes of incoming calls made by roaming users while roaming in the WB region was 55 million minutes in 2019 and 45 million minutes in 2020. The decrease in the total number of incoming voice minutes by 19% was less than the decrease in the total number of roaming users in the WB by 48% in 2020.

The highest number of incoming voice minutes per roaming user in the WB region in 2020 was made by roaming users from Montenegro, Bosnia and Herzegovina and Serbia.



**Figure 5 - Incoming voice minutes per roaming user in the WB**

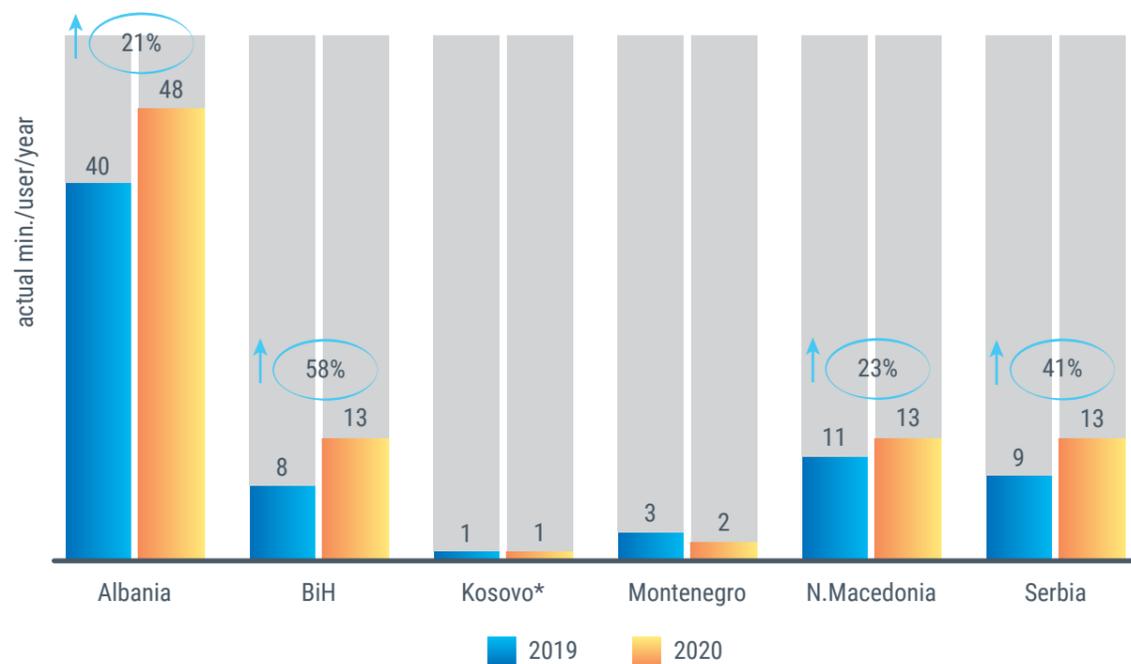


Source: Roaming questionnaire

The total number of minutes of incoming calls made by roaming users while using roaming services in the EEA was 22 million minutes in 2019 and 11 million minutes in 2020. The decrease in incoming voice minutes by 48% was less than decrease in the total number of roaming users by 58% in 2020.

The highest number of incoming voice minutes per roaming user in the EEA in 2020 was made by roaming users from Albania.

**Figure 6 - Incoming voice minutes per roaming user in the EEA**



Source: Roaming questionnaire

**2.2. THE MOST IMPORTANT EEA COUNTRIES FOR VOICE ROAMING TRAFFIC**

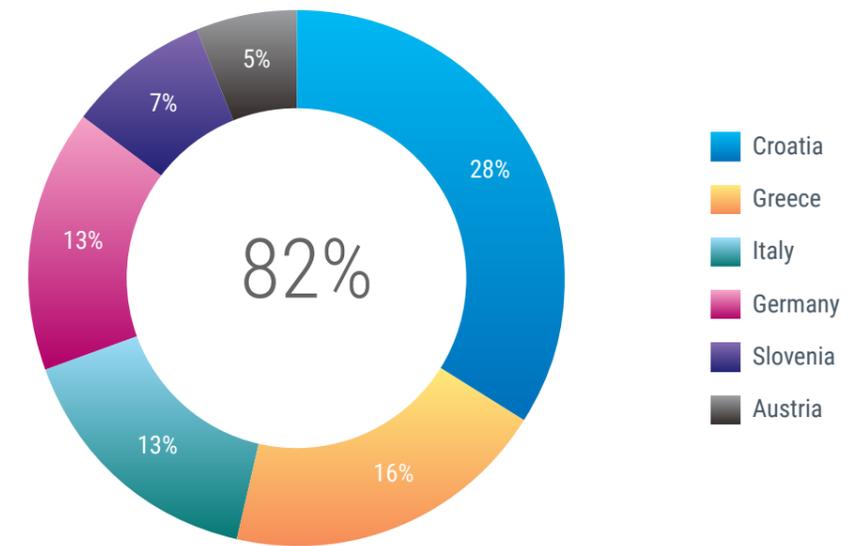
The six EEA countries account for about 80% of outbound and inbound roaming voice traffic in the WB region

Roaming users from the WB region using voice roaming services in the EEA spent 82% of the total

outgoing roaming voice traffic in 6 EEA countries in 2019 and 2020.

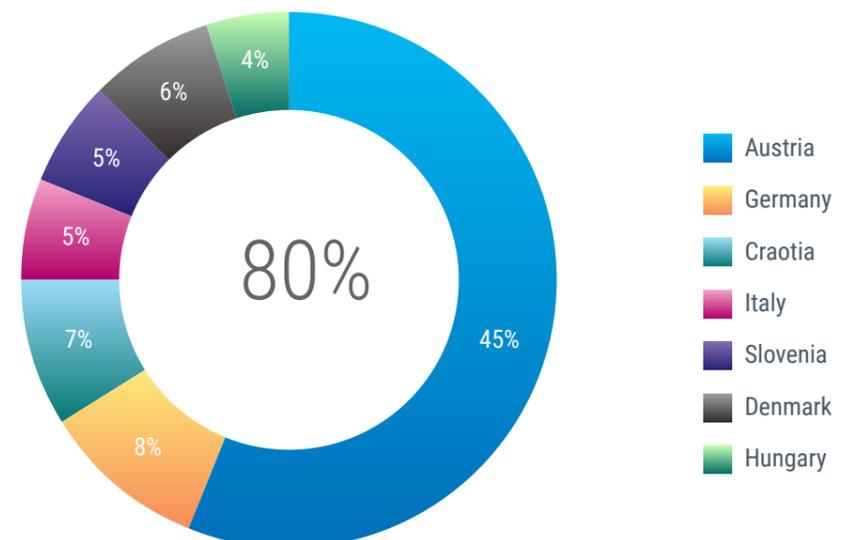
Roaming users from the EEA while using roaming services in the WB region made 66 million minutes of inbound roaming voice traffic in 2019 and 45 million minutes in 2020. Roaming users from 7 EEA countries generated 71% and 80% of inbound voice roaming traffic in the WB region in 2019 and 2020, respectively.

**Figure 7 - Top EEA countries (outbound voice traffic)**



Source: Roaming questionnaire

**Figure 8 - Top EEA countries (inbound voice traffic) in 2020**



Source: Roaming questionnaire. Data on inbound traffic per EEA country is not complete for Albania and Montenegro (2 out of 3 mobile operators provided data)

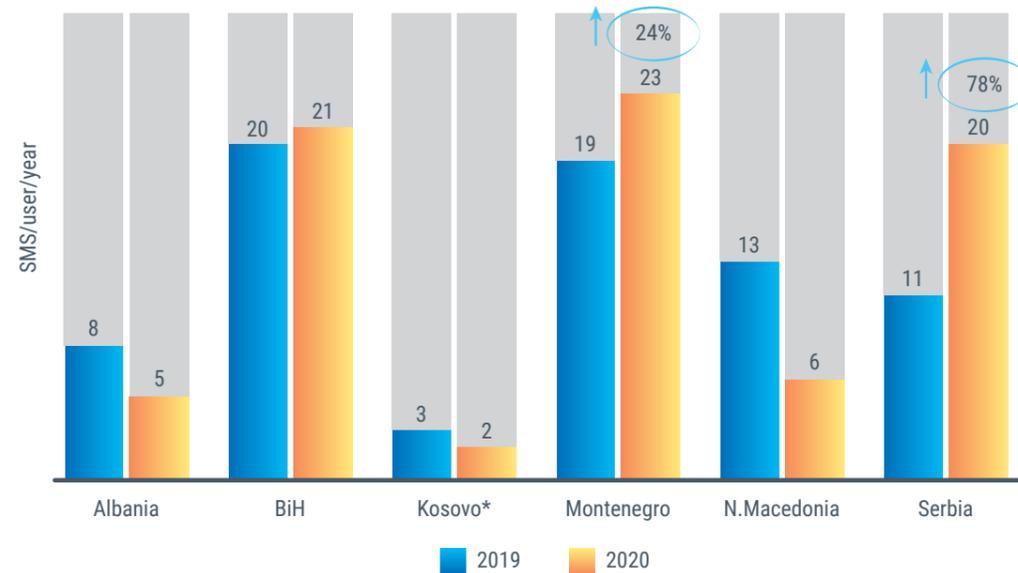


### 2.3. ROAMING SMS USAGE

WB roaming users spent 31 million SMS while using roaming services in the WB region and 34 million while using roaming services in the EEA in 2019. The total number of roaming SMS in 2020 decreased in the WB region and EEA by 45% and 67%, respectively.

Despite the general decreasing trend for SMS traffic, number of SMS per roaming user in Serbia and Montenegro were higher in the WB region in 2020 compared to 2019, which is a result of reduced retail roaming prices for SMS roaming services in the WB region.

Figure 9 - SMS traffic per roaming user in the WB

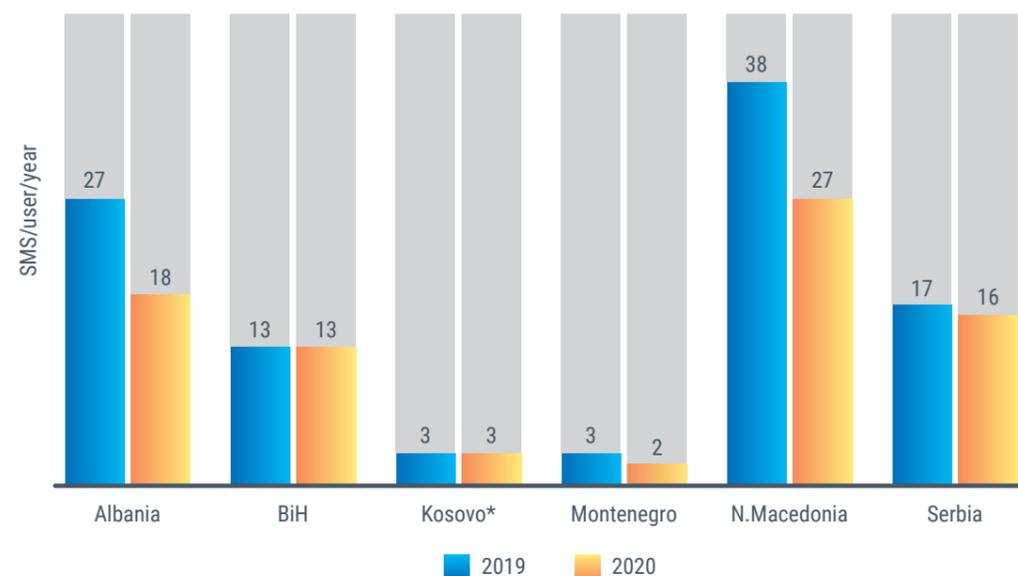


Source: Roaming questionnaire. Data for Serbia excludes tariff add-ons

The total number of roaming SMS used by WB roaming users in the EEA decreased in most WB economies in 2020 compared to the year before, while in

Bosnia and Herzegovina and Kosovo\* it remained almost flat.

Figure 10 - SMS traffic per roaming user in the EEA



Source: Roaming questionnaire. Data for Serbia excludes tariff add-ons

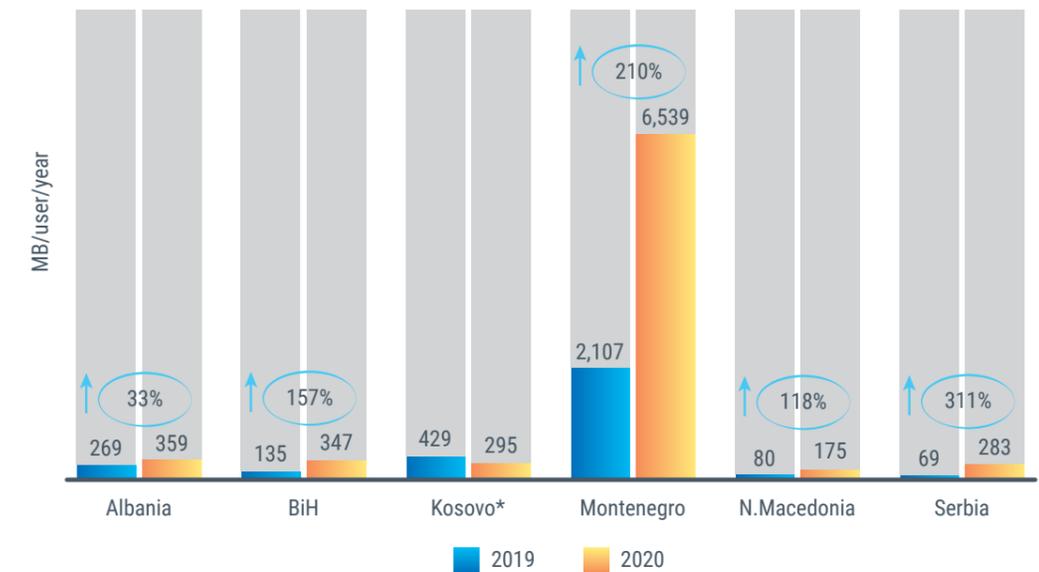
### 2.4. ROAMING DATA USAGE

Roaming users from the WB region spent 1.6 million GB of roaming data services in the WB region in 2019 and 2.4 million GB in 2020. Total data consumption in the WB region increased by 51% in 2020 compared to 2019 despite a significant decrease in

the number of roaming users in the WB region by 48% in 2020 compared to 2019. This implies that roaming users have used more data traffic due to reduced retail roaming prices.

The highest data traffic per roaming user in the WB region in 2020 was made by roaming users from Montenegro.

Figure 11 - Data traffic per roaming user in the WB

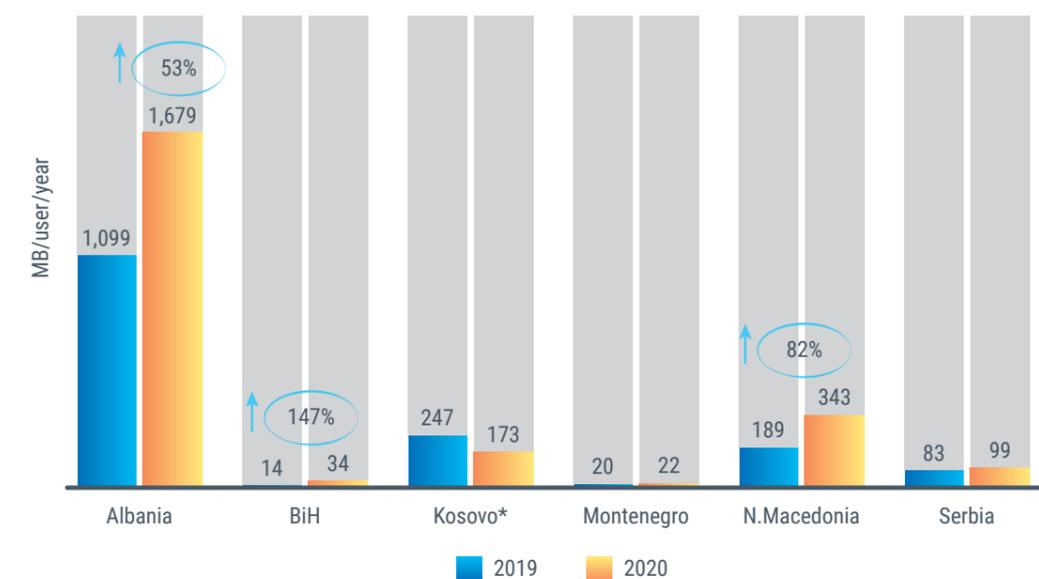


Source: Roaming questionnaire. Data for Serbia excludes tariff add-ons

Roaming users from the WB region spent 304 thousand GB of roaming data services in the EEA in 2019 and 164 thousand GB in 2020. Total data consumption in the EEA decreased by 46% in 2020 compared

to 2019 due to decrease in the number of roaming users in the EEA in 2020 compared to 2019 by 58%. The highest data traffic per roaming user in the EEA in 2020 was made by roaming users from Albania.

Figure 12 - Data traffic per roaming user in the EEA



Source: Roaming questionnaire. Data for Serbia excludes tariff add-ons



# III RETAIL ROAMING REVENUES

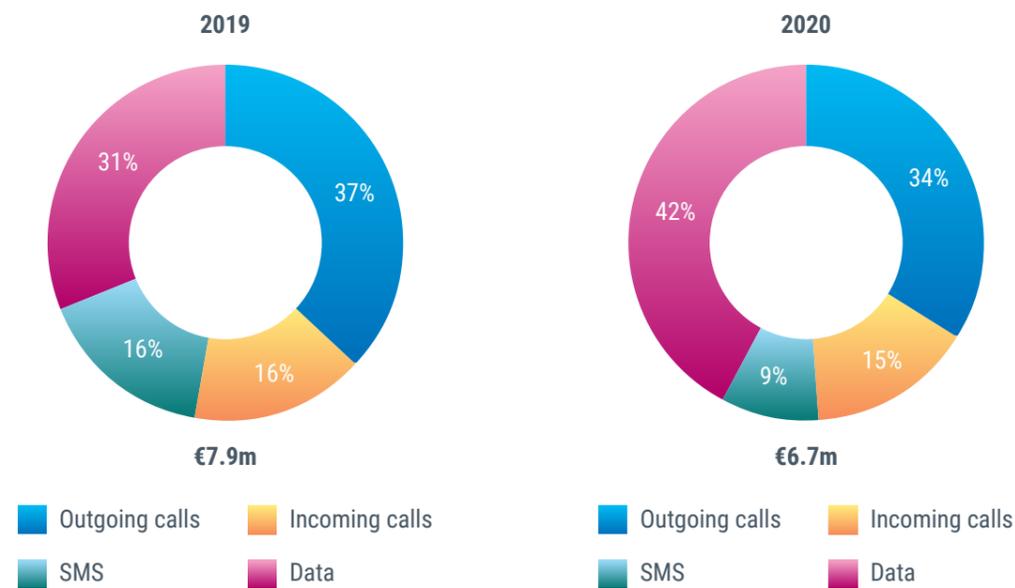
The average total retail roaming revenue per minute in the EEA was 33 times higher for outgoing roaming voice calls and 17 times higher for incoming roaming voice calls compared to the average total retail roaming revenues per minute of outgoing and incoming roaming voice calls in the WB region in 2020. For data services, this difference is even bigger - the average total retail roaming revenue per GB in the EEA was 43 times higher compared to the WB region.

### 3.1. RETAIL ROAMING REVENUES SPLIT PER SERVICES<sup>2</sup>

Total retail roaming revenues generated by WB roaming users while using roaming services in the WB region exceeded EUR 7.9 million in 2019. In 2020, total retail roaming revenues from the WB region de-

creased by 15% to EUR 6.7 million. Of the total retail roaming revenues in the WB region, 42% were revenues from data services, while outgoing voice calls accounted for 34% of total revenues in 2020. Incoming voice calls and SMS services accounted for 15% and 9% of total retail roaming revenues in 2020, respectively.

Figure 13 - Retail roaming revenues in the WB



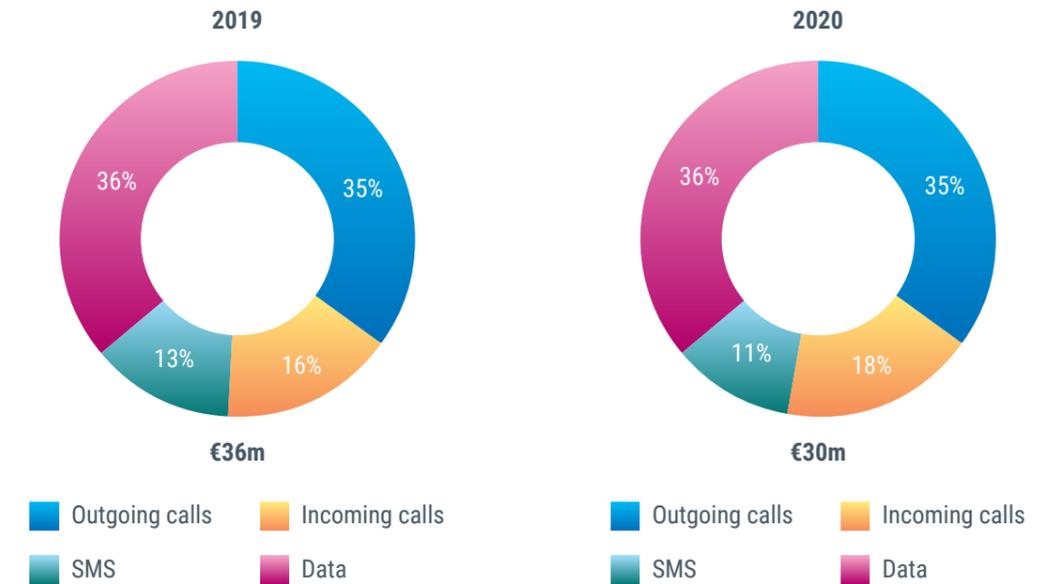
Source: Roaming questionnaire

<sup>2</sup> Revenues from roaming bundles are not included.

Total retail roaming revenues generated by WB roaming users in the EEA were EUR 36 million in 2019. In 2020, total retail roaming revenues in the EEA decreased by 18% to EUR 30 million. Of the total EEA retail roaming revenues in 2020, 36%

were revenues from data services, while outgoing voice services accounted for 35%. Incoming voice services and SMS services accounted for 18% and 11% of total retail roaming revenues in 2020, respectively.

Figure 14 - Retail roaming revenues in the EEA



Source: Roaming questionnaire

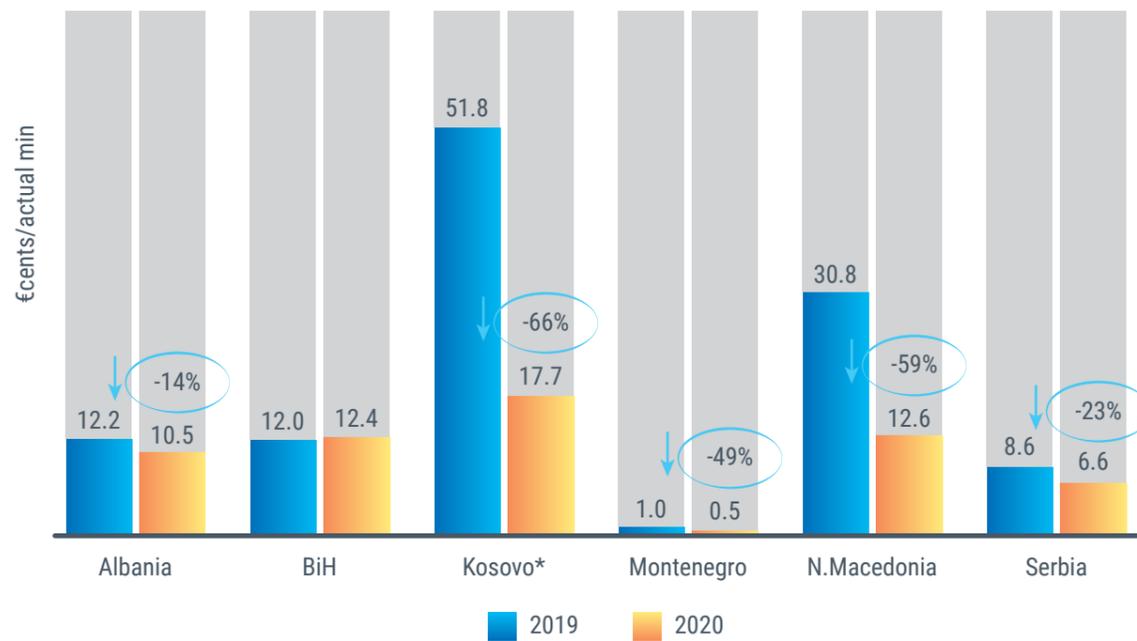
### 3.2. RETAIL ROAMING VOICE REVENUES

Roaming users from the WB region generated EUR 2.9 million of retail roaming revenues while making roaming calls in the WB region in 2019 and EUR 1.7 million in 2020. The decrease in retail roaming revenues from outgoing voice calls by 40% in 2020 was

mainly the result of reduced retail roaming prices in the WB region due to the new roaming price regulation. All WB economies, except Bosnia and Herzegovina, faced lower retail roaming revenues per minute of outgoing calls in the WB region ranging from 66% in Kosovo\* to 14% in Albania.



**Figure 15 - Retail roaming revenue per minute of outgoing calls in the WB**

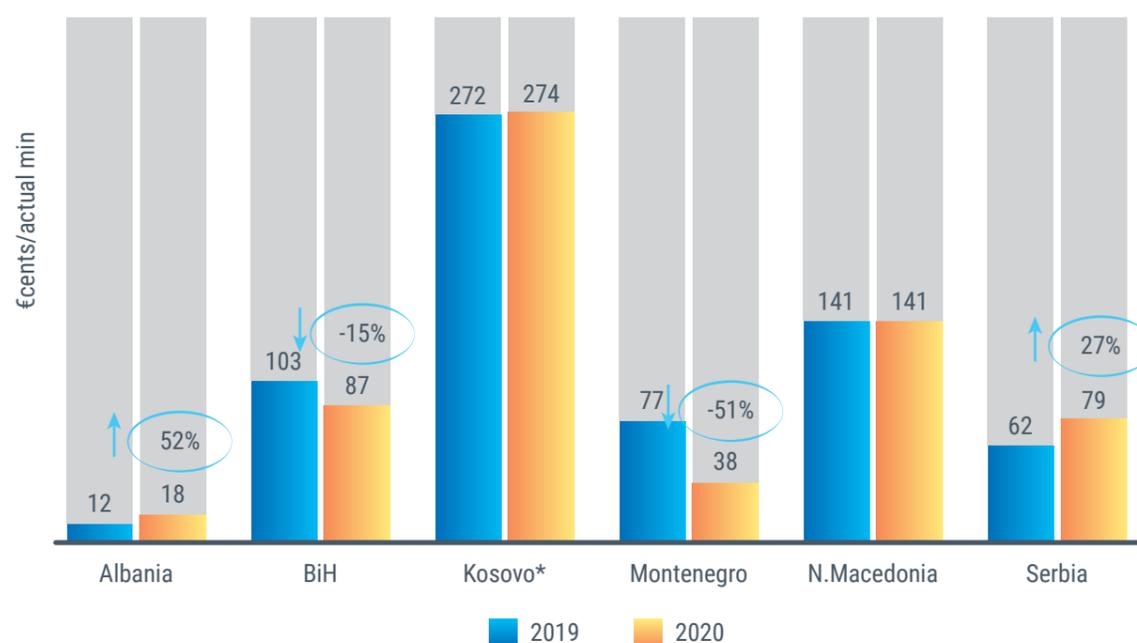


Source: Roaming questionnaire. Data for Serbia excludes tariff add-ons.

Roaming users from the WB region generated EUR 12.8 million of retail roaming revenues while making roaming calls in the EEA in 2019 and EUR 6.3 million in 2020. The decrease in the retail roaming revenues for outgoing voice calls by 51% in the EEA in 2020 mainly resulted from the decrease in the total

number of outgoing voice minutes by 52% in 2020. Albania and Serbia have managed to increase retail roaming revenue per minute of outgoing voice calls in the EEA, while in other WB economies retail roaming revenue per minute remained flat or decreased.

**Figure 16 - Retail roaming revenue per minute of outgoing calls in the EEA**

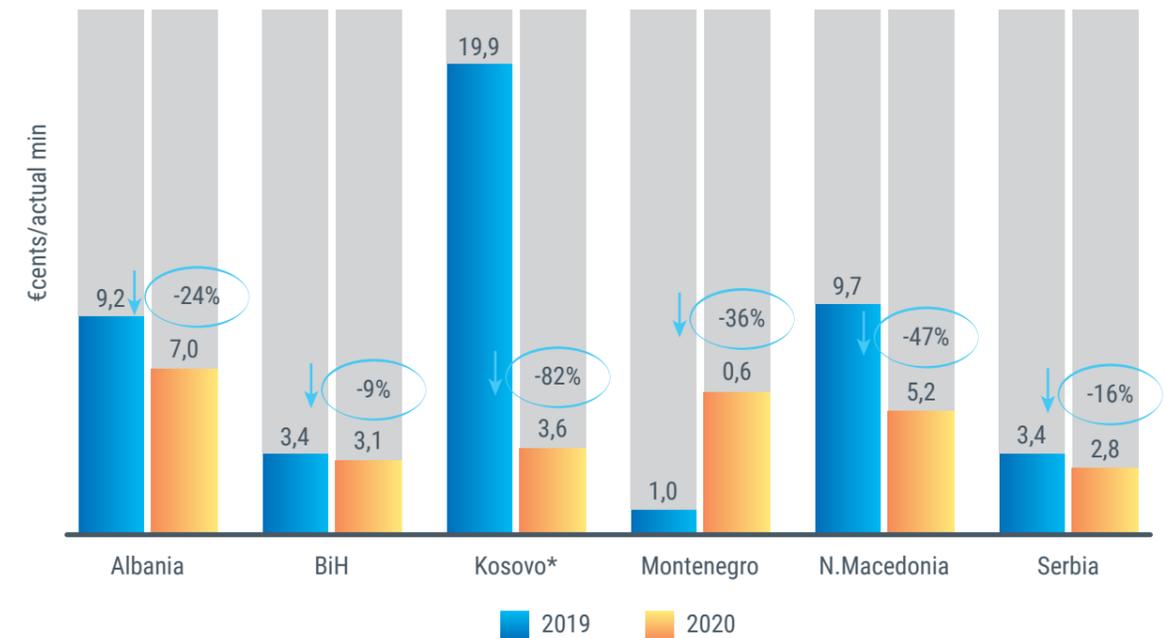


Source: Roaming questionnaire. Data for Serbia excludes tariff add-ons.

Roaming users from the WB region generated EUR 1.3 million of retail roaming revenues while receiving roaming calls in the WB region in 2019 and EUR 0.7 million in 2020. The decrease in retail roaming revenues from incoming voice calls in 2020 was mainly the result of reduced retail roaming prices in the WB region due to the new roaming price reg-

ulation and partially the result of lower number of incoming voice minutes in the WB region in 2020. All WB economies faced lower retail roaming revenue per minute of incoming calls in the WB region, ranging from 82% in Kosovo\* to 9% in Bosnia and Herzegovina.

**Figure 17 - Retail roaming revenue per minute of incoming calls in the WB**



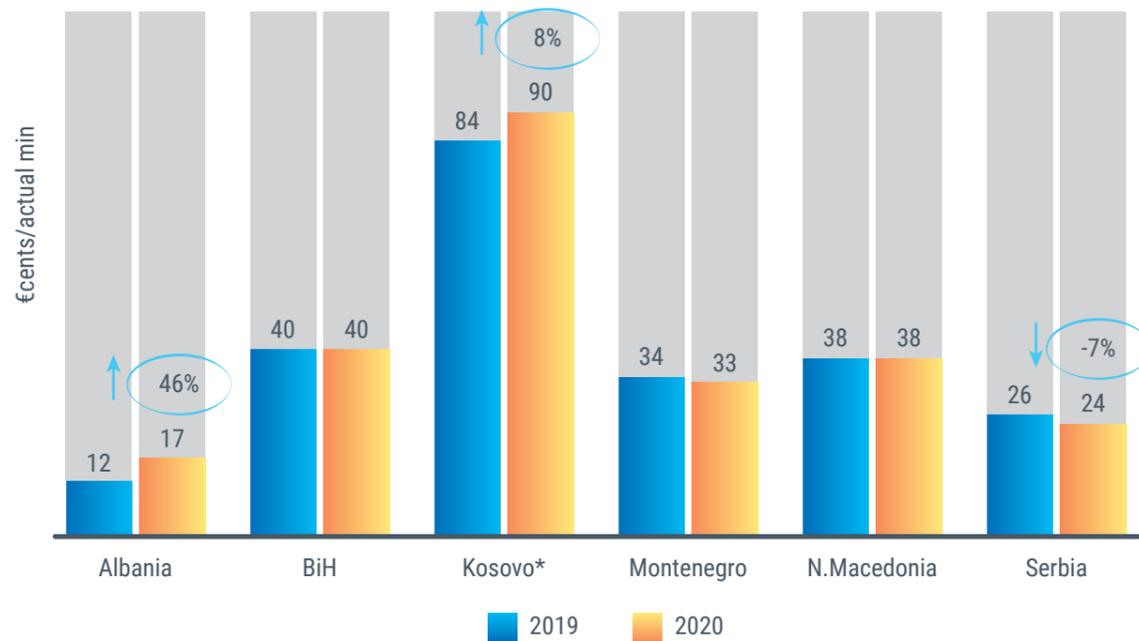
Source: Roaming questionnaire. Data for Serbia excludes tariff add-ons.

Roaming users from the WB region generated EUR 5.8 million of retail roaming revenues while receiving roaming calls in the EEA in 2019 and EUR 3.1 million in 2020. The decrease in retail roaming revenues from incoming voice calls in the EEA in 2020 was mostly influenced by the decline in the total number of incoming voice minutes in 2020.

Albania and Kosovo\* managed to increase retail roaming revenue per minute of incoming voice calls in the EEA, while in other WB economies retail roaming revenue per minute remained flat or slightly declined as in the case of Serbia.



Figure 18 - Retail roaming revenue per minute of incoming calls in the EEA



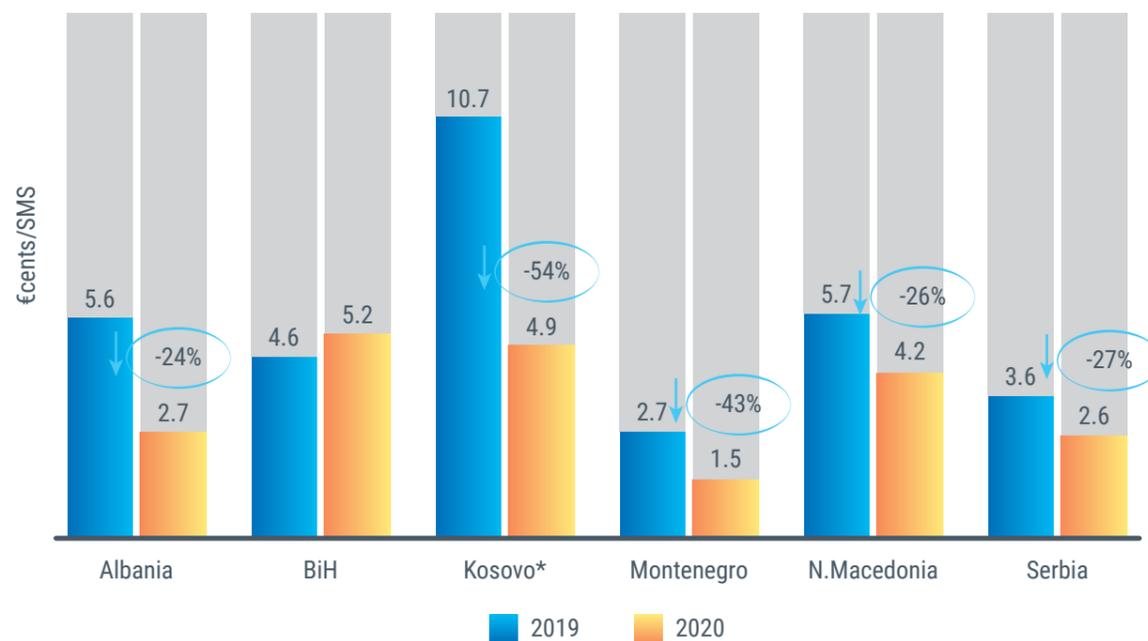
Source: Roaming questionnaire. Data for Serbia excludes tariff add-ons.

### 3.3. RETAIL ROAMING SMS REVENUES

Total retail roaming SMS revenues generated by roaming users from the WB region while using SMS roaming services in the WB region amounted to EUR 1.2 million in 2019 and EUR 0.5 million in 2020. The

decrease in retail roaming SMS revenues in 2020 was mainly influenced by the reduction of retail roaming prices in the WB region and by the lower number of roaming SMS in 2020. The increase in retail roaming revenue per SMS in 2020 was only seen in Bosnia and Herzegovina.

Figure 19 - Retail roaming revenue per SMS in the WB

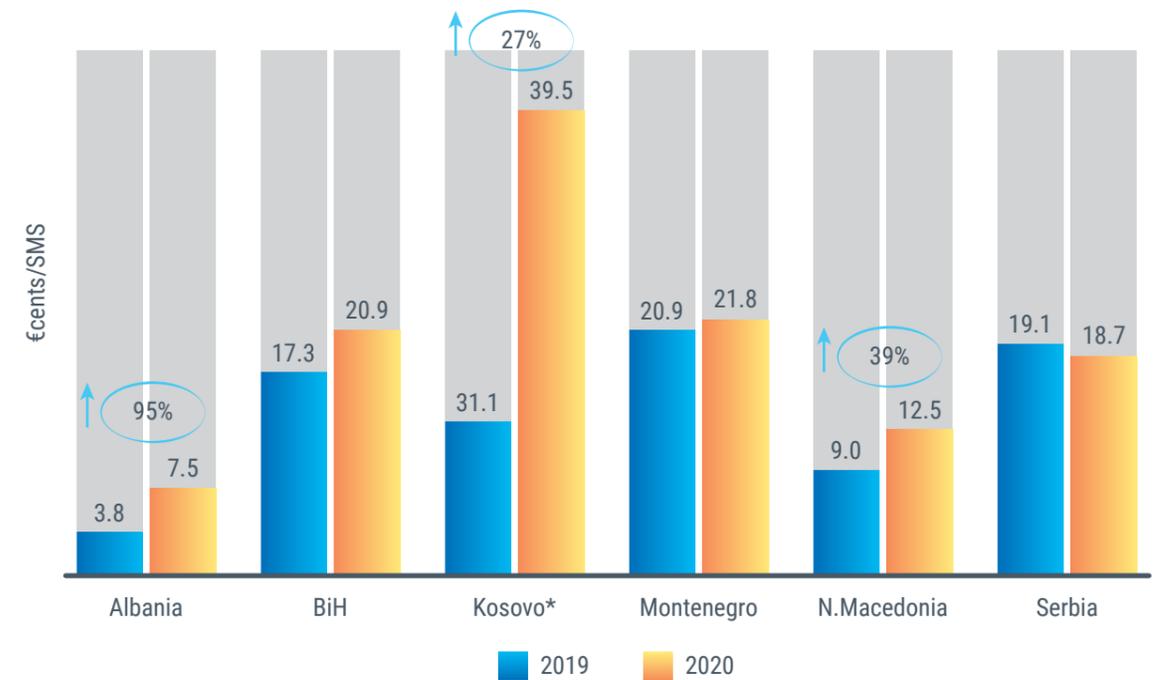


Source: Roaming questionnaire. Data for Serbia excludes tariff add-ons.

Total retail roaming SMS revenues generated by roaming users from the WB while using SMS services in the EEA amounted to EUR 4.9 million in 2019 and EUR 2 million in 2020. The decline in retail

roaming SMS revenues in 2020 was mainly due to a lower SMS traffic in 2020. The increase in retail roaming revenue per SMS in 2020 was recorded in Albania, Republic of North Macedonia and Kosovo\*.

Figure 20 - Retail roaming revenue per SMS in the EEA



Source: Roaming questionnaire. Data for Serbia excludes tariff add-ons.

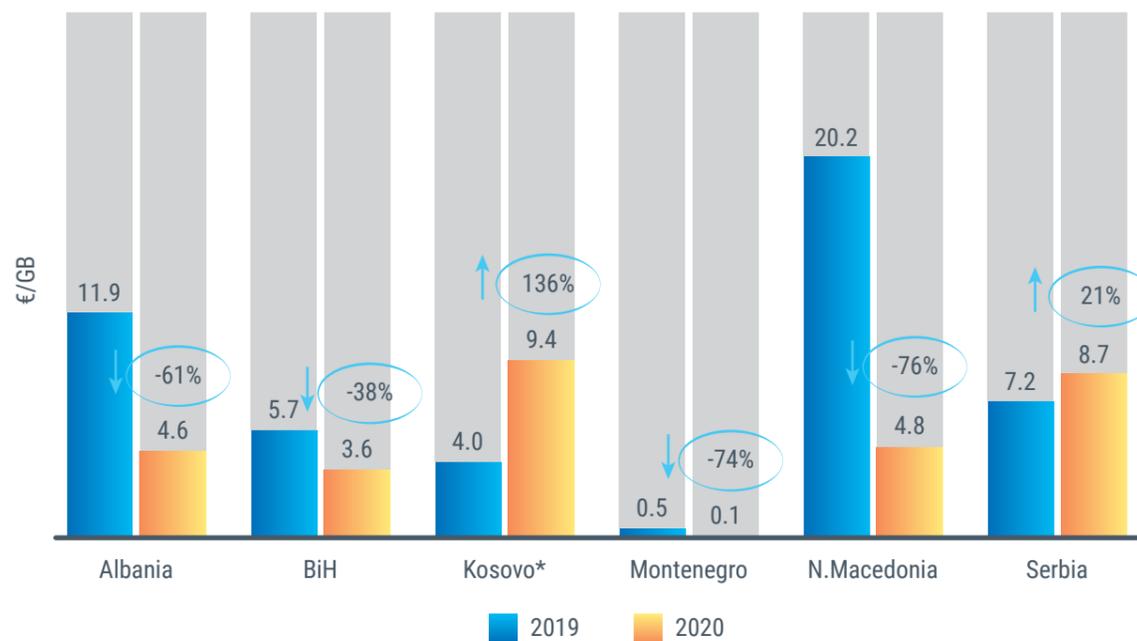
### 3.4. RETAIL ROAMING DATA REVENUES

Total retail roaming revenues from data services generated by WB roaming users while using roaming data services in the WB region amounted to EUR 2.4 million in 2019 and EUR 2.1 million in 2020. Despite the increase in total number of roaming GB

used in the WB region by 51%, the decline in retail data roaming revenues by 12% in 2020 was mainly due to the reduction of retail roaming prices in the WB region as a result of the new roaming price regulation. The increase in retail roaming revenue per GB in 2020 was only seen in Kosovo\* and Serbia.



Figure 21 - Retail roaming revenue per GB in the WB

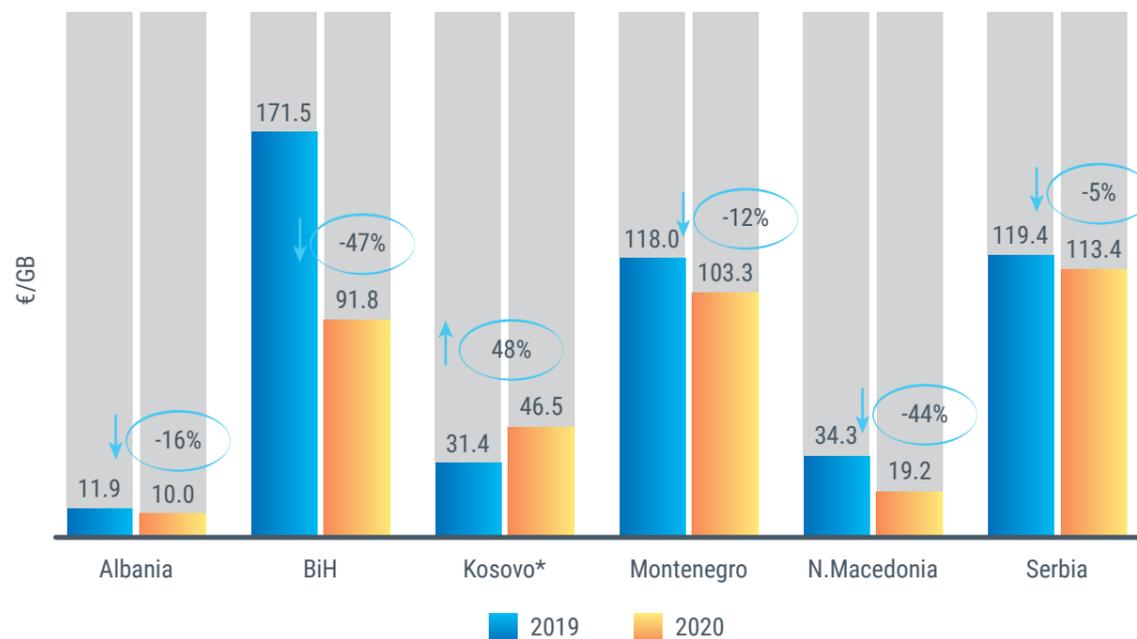


Source: Roaming questionnaire. Data for Serbia excludes tariff add-ons.

Total retail roaming data revenues generated by WB roaming users while using data services in the EEA amounted to EUR 13.1 million in 2019 and EUR 6.4 million in 2020. The decrease in retail roaming data revenues by 51% in 2020 was mainly the result

of lower data traffic (-46%) in the EEA in 2020 and partly due to lower average retail roaming prices for data services. The increase in retail roaming revenue per GB in 2020 was registered only in Kosovo\*.

Figure 22 - Retail roaming revenue per GB in the EEA



Source: Roaming questionnaire. Data for Serbia excludes tariff add-ons.

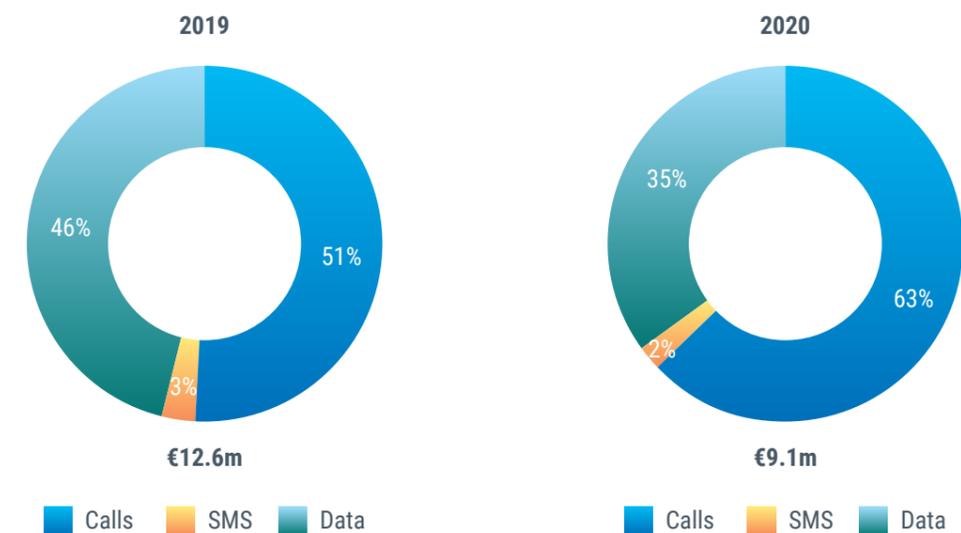
## IV WHOLESALE ROAMING REVENUES

### 4.1. WHOLESALE ROAMING REVENUES SPLIT PER SERVICES

Total wholesale roaming revenues generated by WB roaming users while using roaming services in the WB region amounted to EUR 12.6 million in 2019, and decreased in 2020 by 27% to EUR 9.1 million.

In 2020, 63% of total wholesale roaming revenues from WB region were revenues from voice services. Data services accounted for 35% of the total wholesale roaming revenues from the WB region.

Figure 23 - Wholesale roaming revenues from the WB



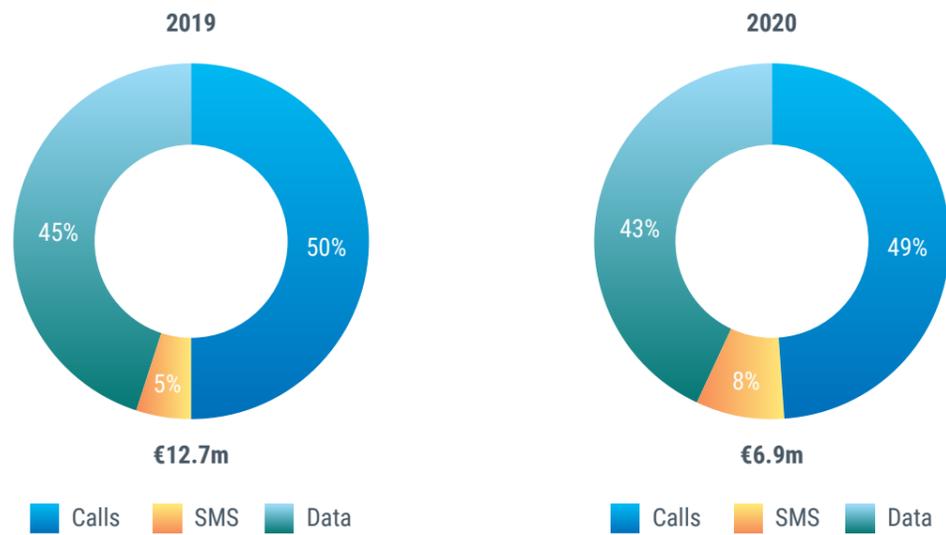
Source: Roaming questionnaire

Total wholesale roaming revenues generated by EEA roaming users while using roaming services in the WB region amounted to EUR 12.7 million in 2019. In 2020, total wholesale roaming revenues from the EEA decreased by 46% to EUR 6.9 million. Of the to-

tal wholesale roaming revenues from EEA roaming users, 49% were roaming revenues from voice services, while data services accounted for 43% of the total wholesale revenues in 2020.



**Figure 24 - Wholesale roaming revenues from the EEA**



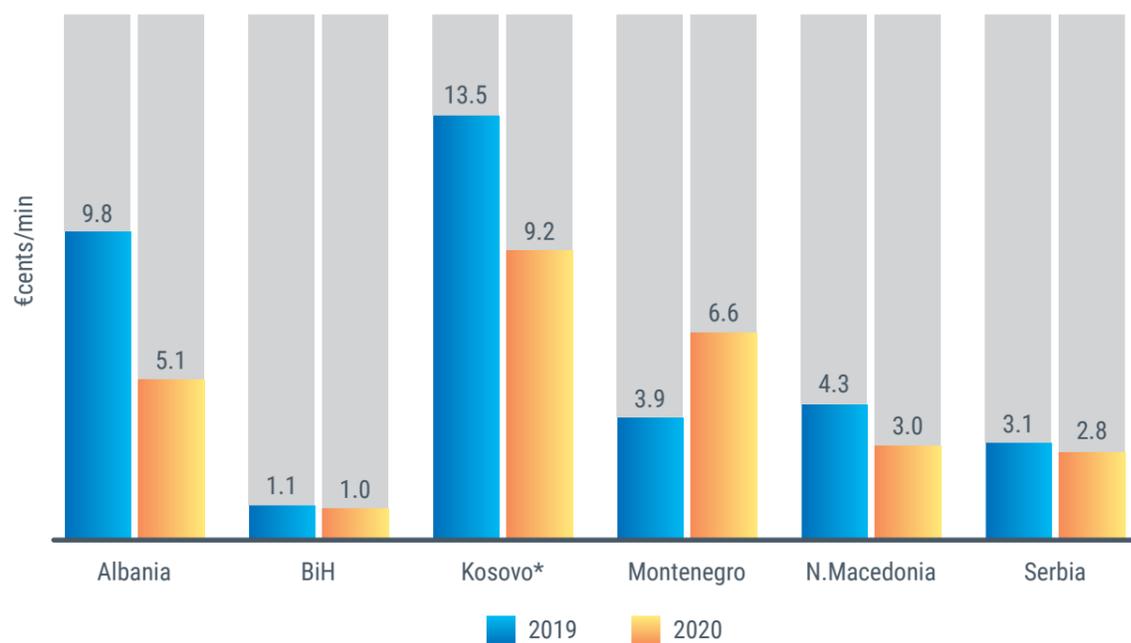
Source: Roaming questionnaire

**4.2. WHOLESALE ROAMING VOICE REVENUES**

Total wholesale roaming voice revenues generated by WB roaming users while using roaming voice services in the WB region amounted to EUR 6.5 million

in 2019, and decreased in 2020 by 10% to EUR 5.8 million, mainly as a result of reduced inbound roaming voice traffic from WB roaming users of 19% and lower average prices for inbound voice traffic in all WB economies, except in Montenegro.

**Figure 25 - Wholesale roaming revenue per minute from the WB**

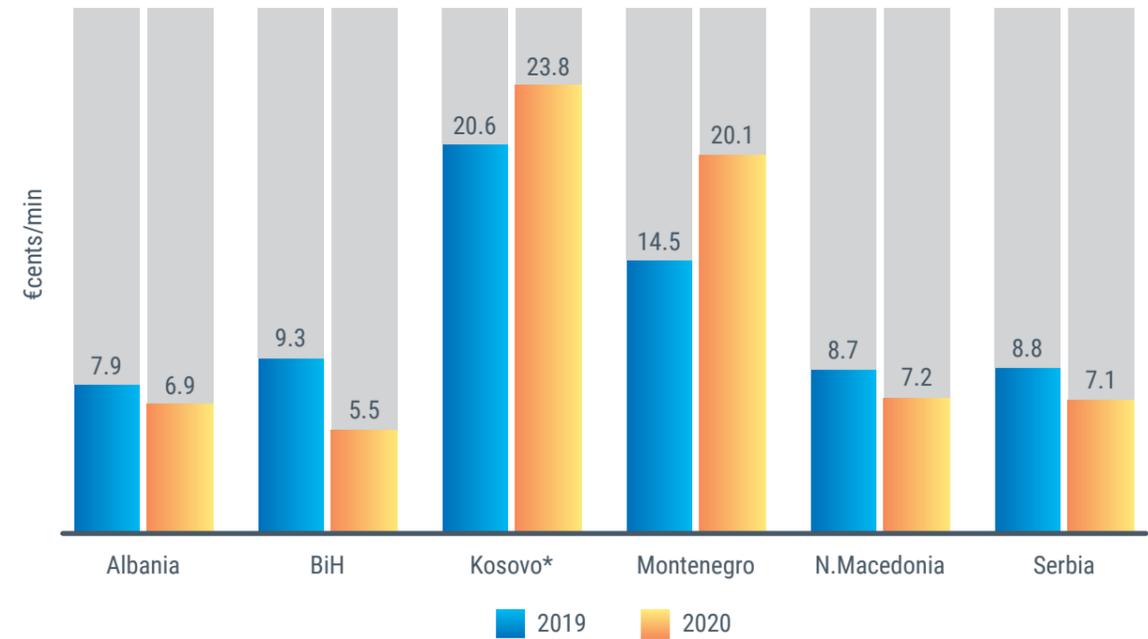


Source: Roaming questionnaire

Total wholesale roaming revenues generated by EEA roaming users while using roaming voice services in the WB region amounted to EUR 6.4 million in 2019. In 2020, total wholesale roaming voice revenues from EEA decreased by 47% to EUR 3.4 million,

mainly as a result of reduced inbound roaming voice traffic from EEA roaming users of 31% in 2020 and lower average prices for inbound voice traffic in all WB economies, except in Kosovo\* and Montenegro.

**Figure 26 - Wholesale roaming revenues per minute from the EEA**



Source: Roaming questionnaire

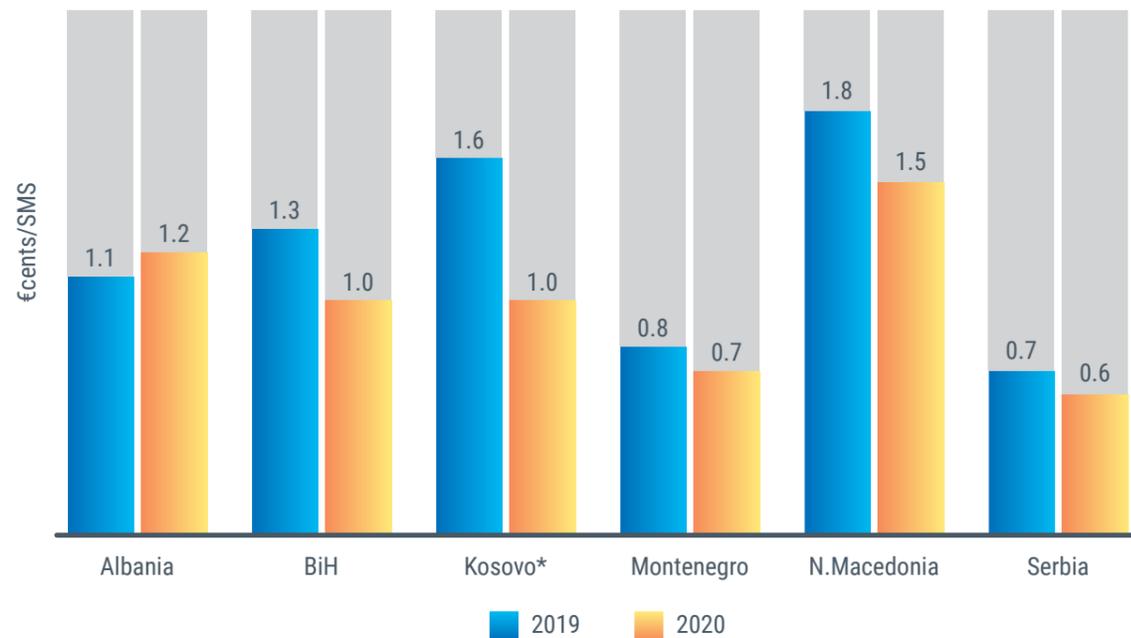
**4.3. WHOLESALE ROAMING SMS REVENUES**

Total wholesale roaming revenues from SMS services generated by WB roaming users while using SMS services in the WB region amounted to EUR 0.4

million in 2019 and EUR 0.2 million in 2020. The decline in wholesale roaming SMS revenues from the WB region in 2020 was mainly influenced by the lower inbound SMS roaming traffic and lower average prices for inbound SMS services in 2020.



**Figure 27 - Wholesale roaming revenue per SMS from the WB**

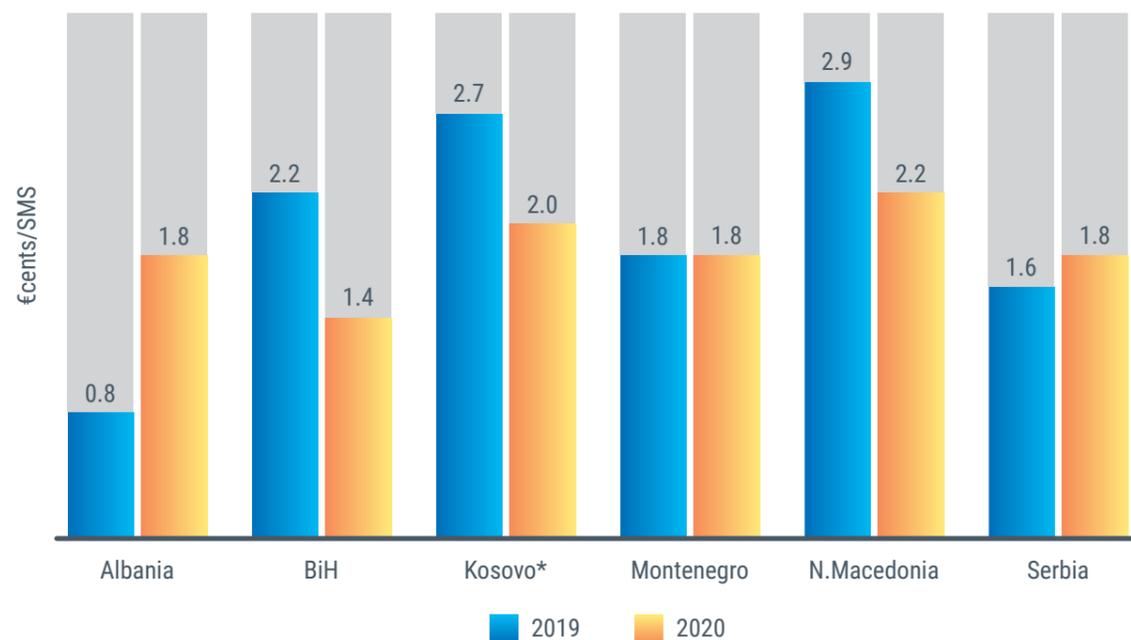


Source: Average wholesale roaming revenues per SMS in the WB calculated from BEREC report<sup>4</sup>

Total wholesale roaming SMS revenues generated by EEA roaming users while using roaming SMS services in the WB region amounted to EUR 0.6 million in 2019 and EUR 0.2 million in 2020. The decline

of wholesale roaming SMS revenues from the EEA was mainly due to the lower inbound SMS traffic in 2020.

**Figure 28 - Wholesale roaming revenue per SMS from the EEA**



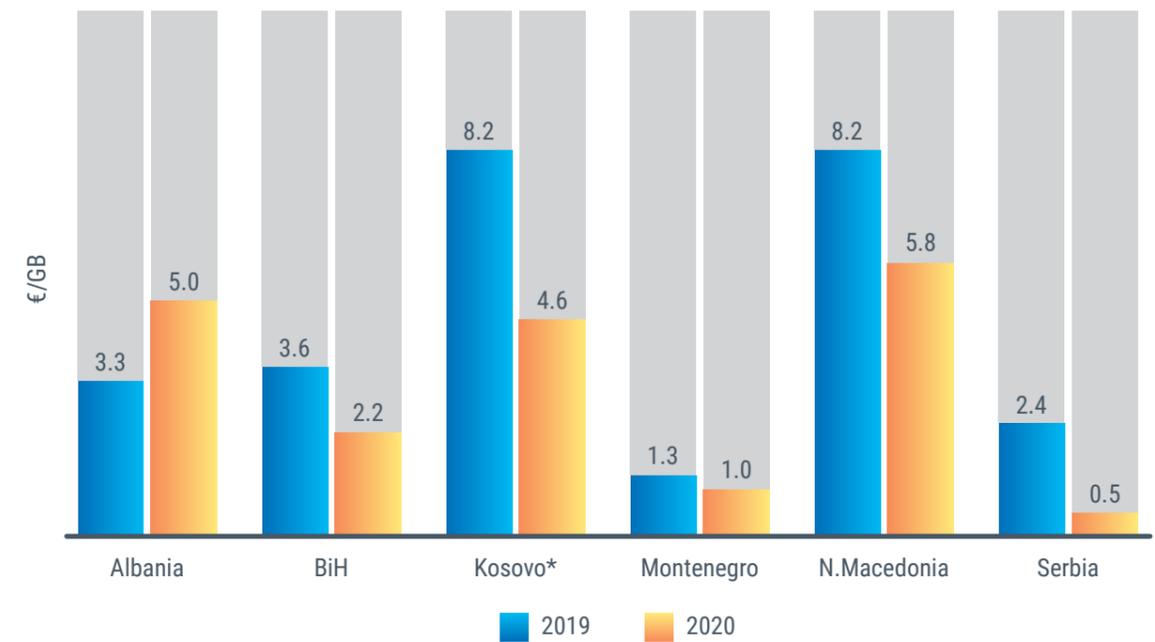
Source: Average wholesale roaming revenues per SMS in the WB calculated from BEREC report

**4.4. WHOLESALE ROAMING DATA REVENUES**

Total wholesale roaming data revenues generated by WB roaming users while using roaming data services in the WB region amounted to EUR 5.8 million

in 2019 and EUR 3.2 million in 2020. The decline in wholesale roaming data revenues from the WB region in 2020 was mainly due to the lower average prices for inbound data services in 2020.

**Figure 29 - Wholesale roaming revenue per GB from the WB**



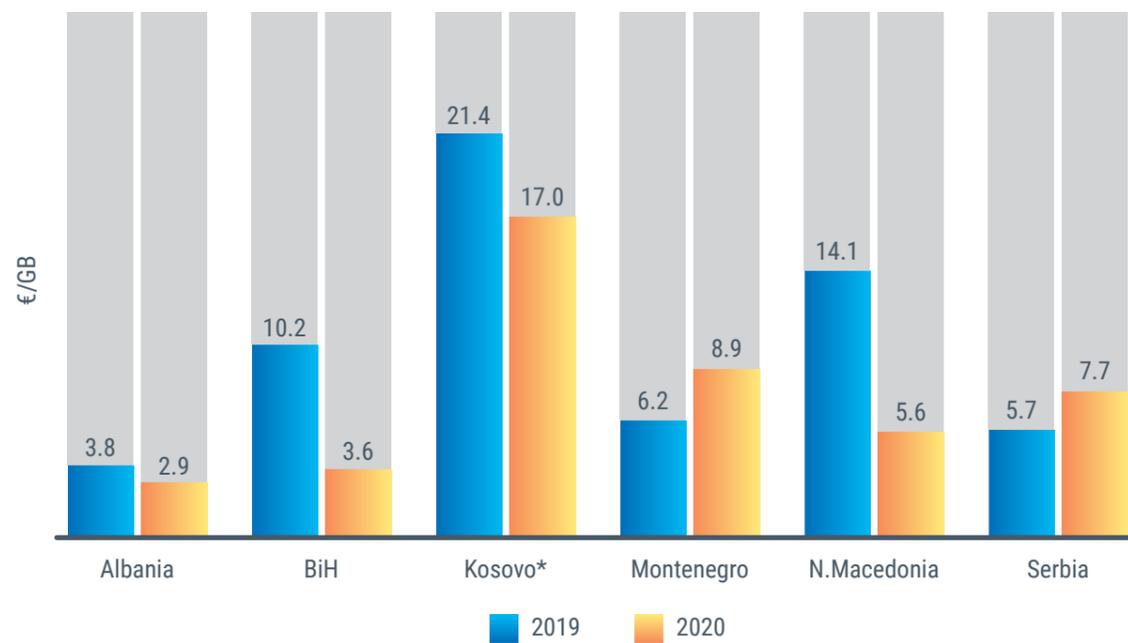
Source: Average wholesale roaming revenues per GB in the WB calculated from BEREC report

Total wholesale roaming data revenues generated by EEA roaming users while using roaming data services in the WB region amounted to EUR 5.8 million in 2019 and EUR 2.9 million in 2020. The decrease

in wholesale roaming data revenues from the EEA in 2020 was mainly the result of lower average prices for inbound data services in 2020.



Figure 30 - Wholesale roaming revenue per GB from the EEA



Source: Average wholesale roaming revenues per GBSMS in the WB calculated from BEREC report

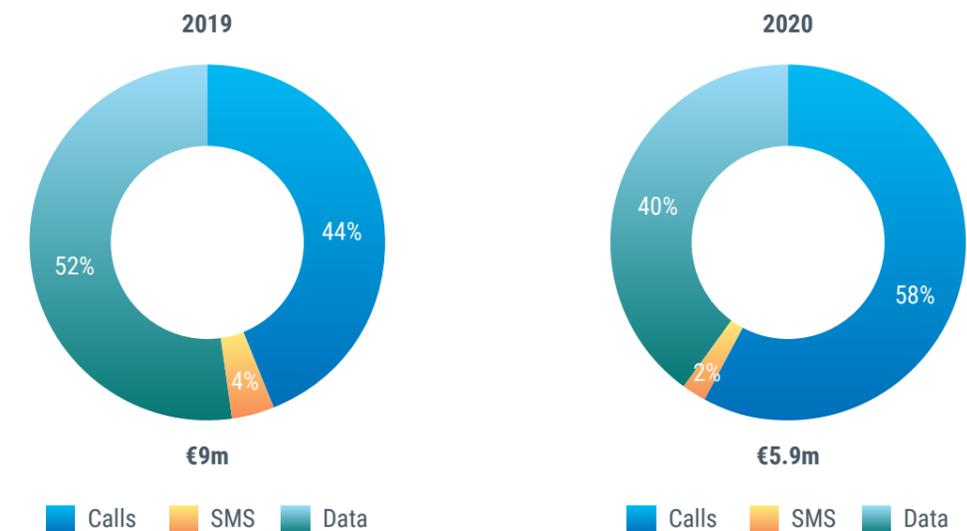
# V WHOLESAL ROAMING COSTS AND MOBILE TERMINATION RATES

## 5.1. WHOLESAL ROAMING COSTS SPLIT PER SERVICES

Total wholesale roaming costs generated by the WB roaming users while using roaming services in the WB region were EUR 9 million in 2019. In 2020 to-

tal wholesale roaming costs decreased by 34% to EUR 5.9 million. In 2020, 58% of the total wholesale roaming costs in WB region were costs from voice services, while data services accounted for 40% of total wholesale roaming costs in WB region.

Figure 31 - Wholesale roaming costs in the WB



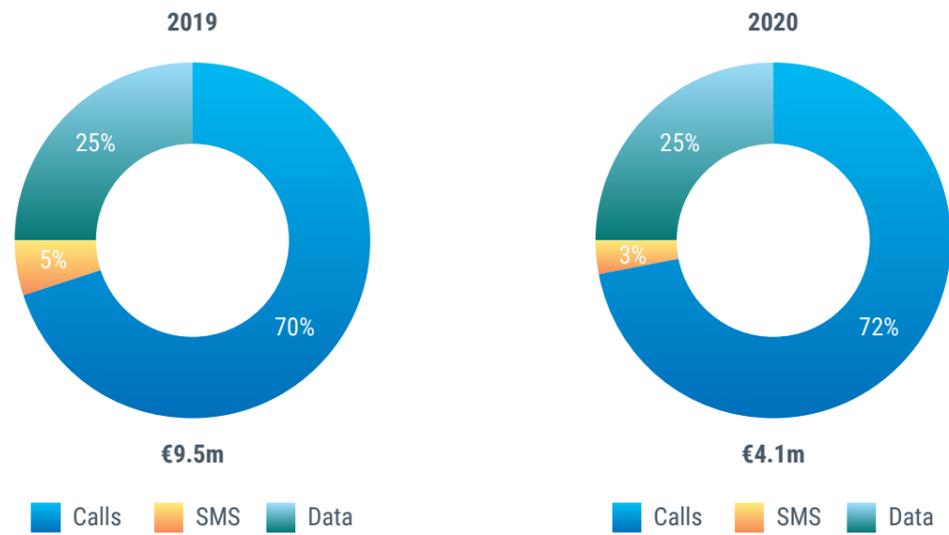
Source: Roaming questionnaire

Total wholesale roaming costs generated by the WB roaming users while using roaming services in the EEA amounted to EUR 9.5 million in 2019. In 2020, total wholesale roaming costs in the EEA decreased by 57% to EUR 4.1 million. Of the total wholesale

roaming costs in the EEA, 72% were costs from voice services, while data and SMS services represented 25% and 3% of the total wholesale costs in 2020, respectively.



Figure 32 - Wholesale roaming costs in the EEA



Source: Roaming questionnaire

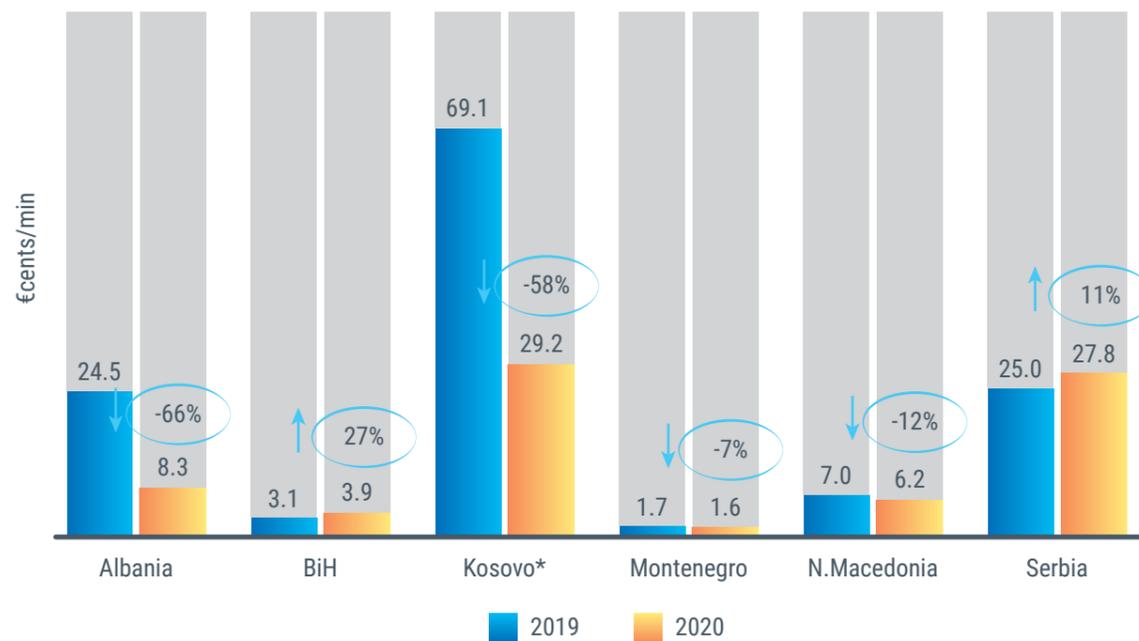
5.2. WHOLESALE ROAMING VOICE COSTS

Wholesale roaming voice costs generated by WB roaming users while using roaming voice services in the WB region amounted to EUR 4.0 million in 2019 and EUR 3.4 million in 2020. The decline in wholesale roaming costs by 15% in 2020 was mainly the

result of reduced average wholesale roaming voice prices in the WB region due to the new regulation of roaming prices.

All WB economies faced decreased wholesale roaming costs per minute of outgoing calls in the WB region in 2020, except Serbia and Bosnia and Herzegovina.

Figure 33 - Wholesale roaming voice costs per minute in the WB

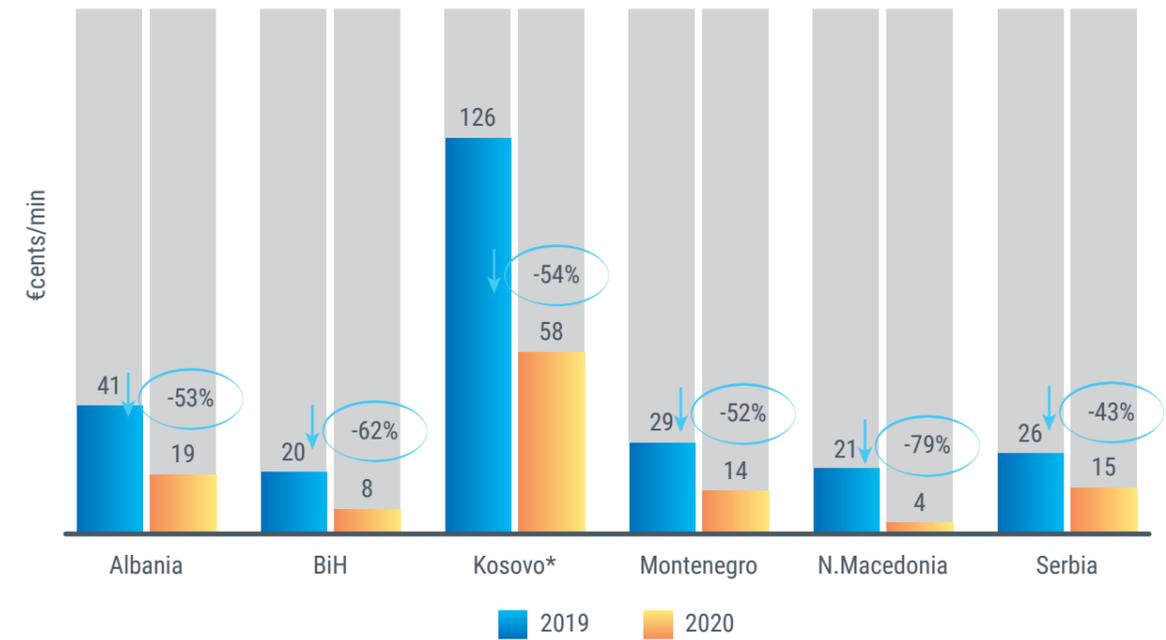


Source: Roaming questionnaire

Wholesale roaming voice costs generated by WB roaming users while using roaming voice services in the EEA amounted to EUR 6.6 million in 2019 and EUR 2.9 million in 2020. The decrease in the total wholesale roaming voice costs in the EEA by 56% in 2020 was mainly the result of a decrease in the average wholesale roaming voice prices with the EEA.

All WB economies faced decreased wholesale roaming costs per minute of outgoing calls in the EEA in 2020 ranging from 79% in Republic of North Macedonia to 43% in Serbia.

Figure 34 - Wholesale roaming voice costs per minute in the EEA



Source: Roaming questionnaire

5.3. WHOLESALE ROAMING SMS COSTS

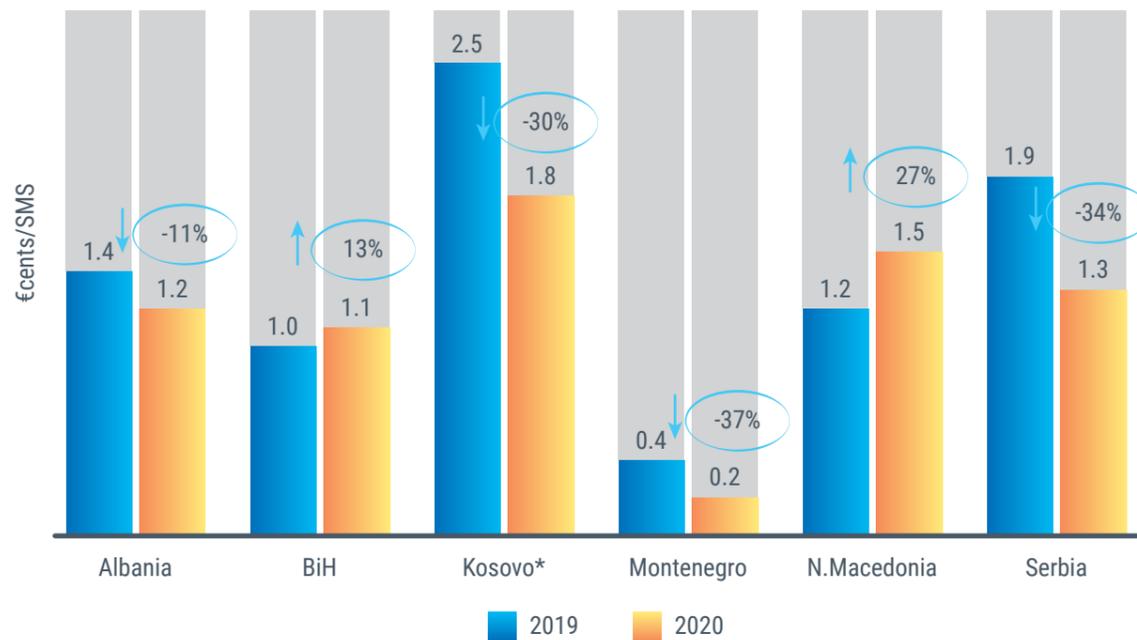
Wholesale roaming SMS costs generated by WB roaming users while using SMS services in the WB region amounted to EUR 0.3 million in 2019 and EUR 0.1 million in 2020. The decrease in wholesale roaming SMS costs by 60% in 2020 was mainly the

result of reduced average wholesale roaming prices in the WB region due to the new regulation of roaming prices.

All WB economies reported decreased wholesale roaming costs per SMS in the WB region in 2020, except Republic of North Macedonia.



Figure 35 - Wholesale roaming costs per SMS in the WB

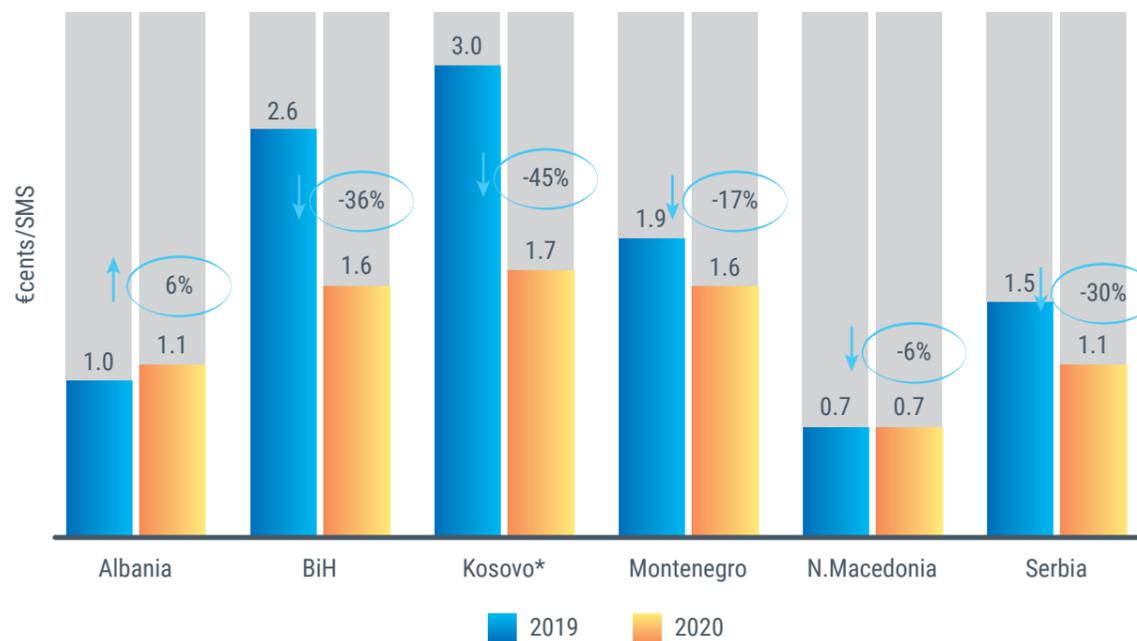


Source: Roaming questionnaire

Wholesale roaming SMS costs generated by WB roaming users while using SMS services in the EEA amounted to EUR 0.5 million in 2019 and EUR 0.1 million in 2020. The decrease in total wholesale roaming SMS costs by 75% in 2020 was mainly the result of a decreased outbound SMS traffic by 65%

and reduced average wholesale roaming prices for SMS services in the EEA. All WB economies reported decreased wholesale roaming costs per SMS in the EEA in 2020, except Albania.

Figure 36 - Wholesale roaming costs per SMS in the EEA



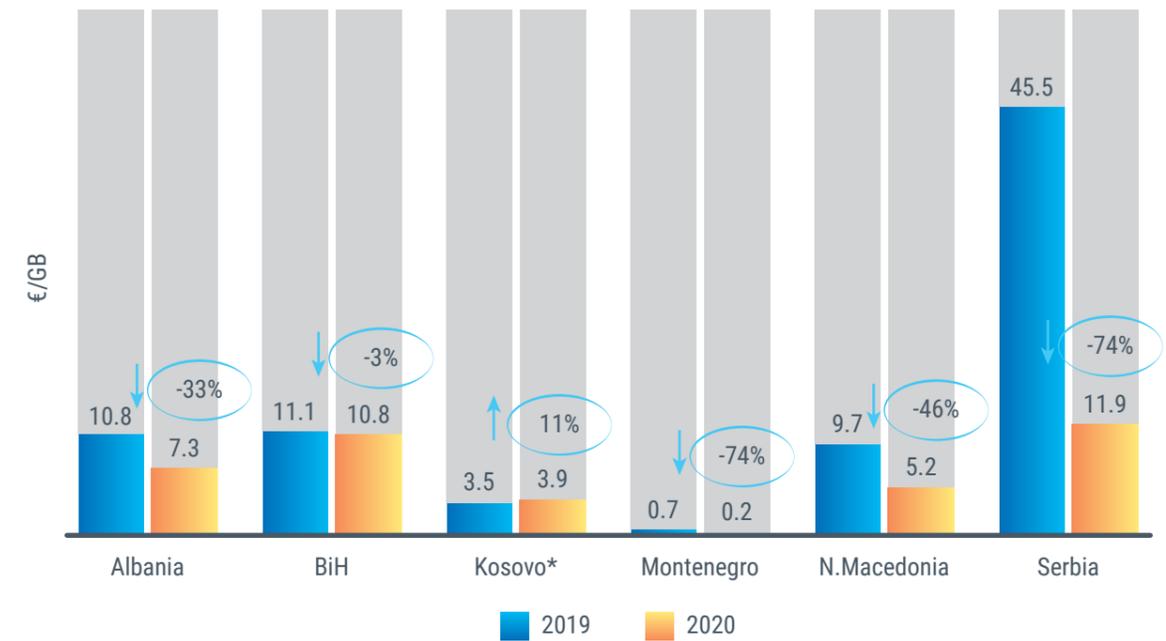
Source: Roaming questionnaire

#### 5.4. WHOLESALE ROAMING DATA COSTS

The wholesale roaming data costs generated by WB roaming users while using data services in the WB region amounted to EUR 4.7 million in 2019 and EUR 2.4 million in 2020. Despite the increase in the outbound roaming data traffic by 52% in 2020, the

decrease in the wholesale roaming costs by 49% in 2020 was mainly the result of reduced average wholesale roaming prices due to the new roaming prices regulation in the WB region. All WB economies reported decreased wholesale roaming costs per GB in the WB region in 2020, except Kosovo\*.

Figure 37 - Wholesale roaming costs per GB in the WB



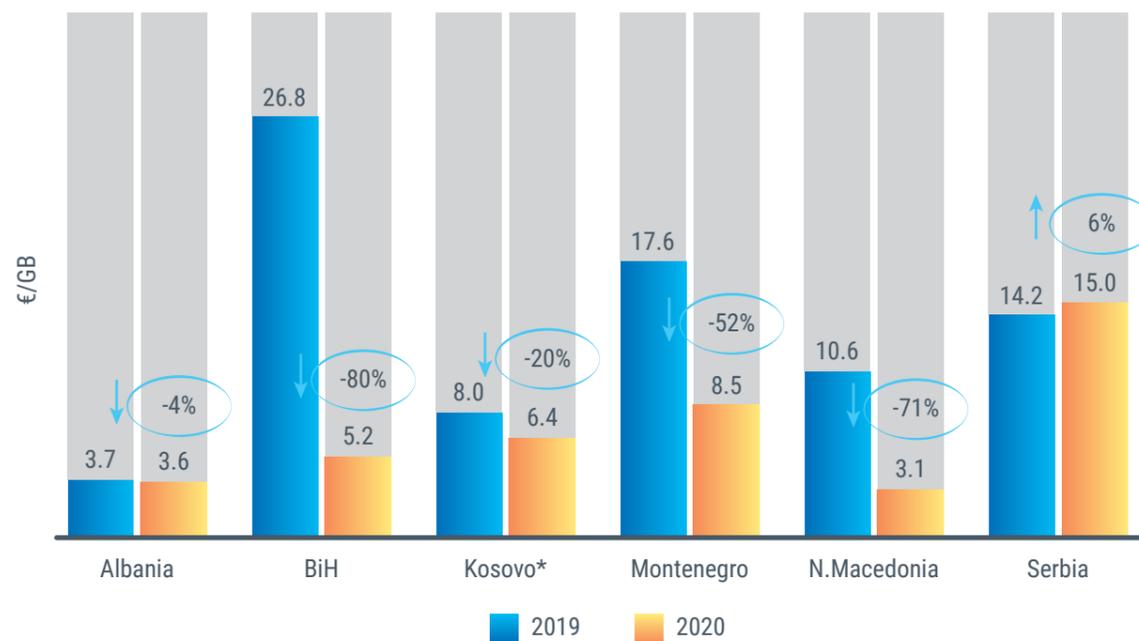
Source: Roaming questionnaire

Wholesale roaming data costs generated by WB roaming users while using data services in the EEA amounted to EUR 2.4 million in 2019 and EUR 1.0 million in 2020. The decrease in wholesale roaming data costs by 57% in 2020 was mainly the result of decreased outbound data traffic by 46% and re-

duced average wholesale prices for data traffic in the EEA. All WB economies reported decreased wholesale roaming costs per GB in the WB region in 2020, except Serbia.



Figure 38 - Wholesale roaming costs per GB in the EEA



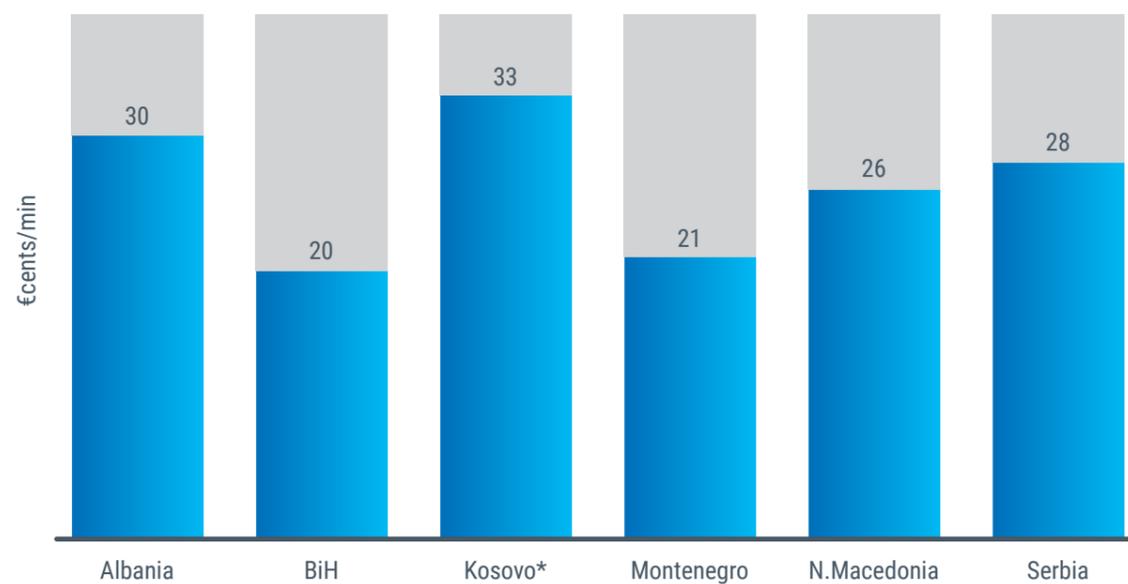
Source: Roaming questionnaire

### 5.5. MOBILE TERMINATION RATES

The regulated maximum mobile termination rate of roaming calls originated and terminated in the WB region is set at EUR 0.016 per minute from 1 July 2021.

The average mobile termination rates of roaming calls originated and terminated in the EEA in 2020 ranged from EUR 0.2 per minute in Bosnia and Herzegovina to EUR 0.33 per minute in Kosovo\*.

Figure 39 - Average mobile termination rates with EEA in 2020



Source: Roaming questionnaire

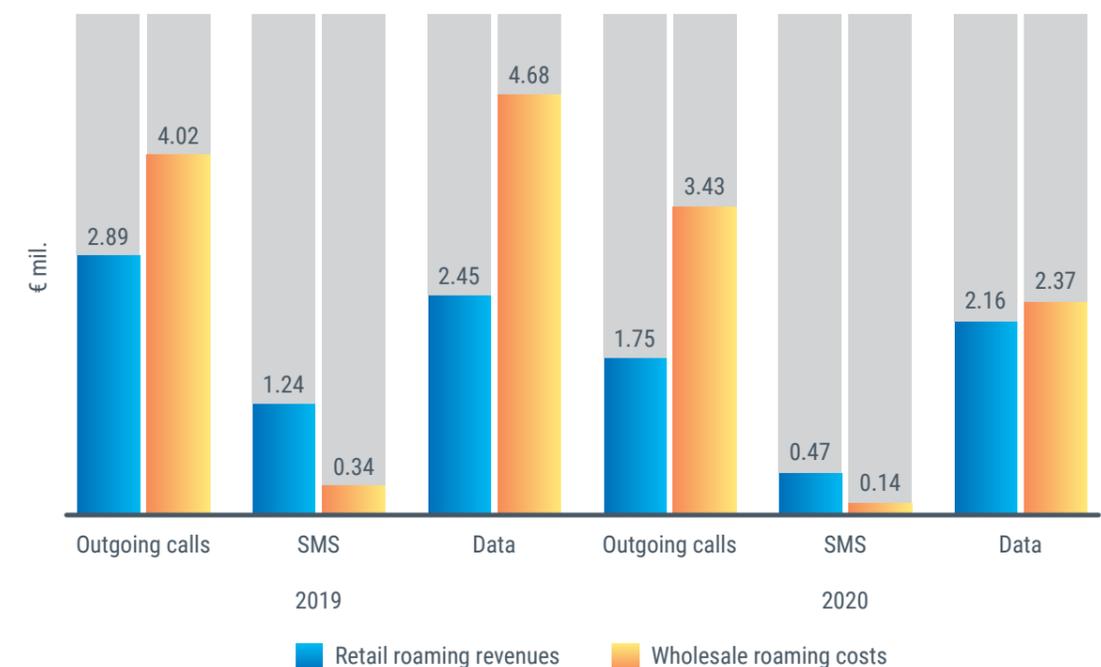
## VI COMPARISON OF RETAIL ROAMING REVENUES AND WHOLESALE ROAMING COSTS

### 6.1. TOTAL RETAIL ROAMING REVENUES<sup>4</sup> AND WHOLESALES ROAMING COSTS SPLIT PER SERVICES

region were higher than total reported retail revenues from these services. In the case of SMS services, total reported retail roaming revenues were higher than total wholesale roaming costs in both years.

In both observed years, total wholesale roaming costs of outgoing calls and data services in the WB

Figure 40 - Retail roaming revenues and wholesale roaming costs in the WB



Source: Roaming questionnaire

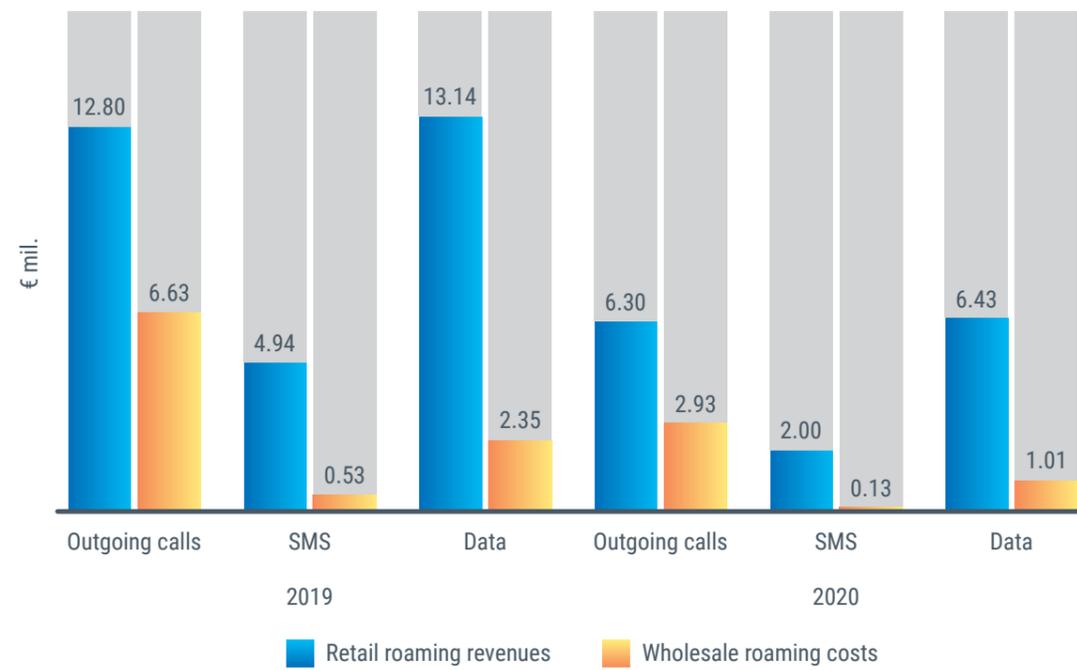
In both observed years, total reported retail roaming revenues from outgoing calls, SMS and data ser-

vices in the EEA were higher than total wholesale roaming costs of these services.

<sup>4</sup> Revenues from roaming bundles are not included.



**Figure 41 - Retail roaming revenues and wholesale roaming costs in the EEA**



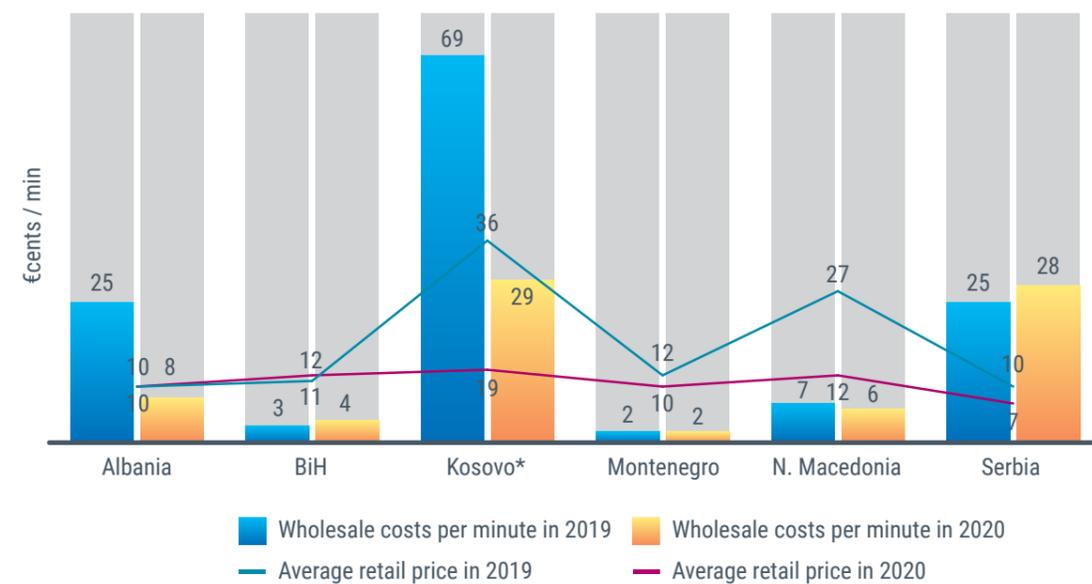
Source: Roaming questionnaire

**6.2. RETAIL ROAMING PRICES AND WHOLESALE ROAMING COSTS FOR OUTGOING VOICE SERVICES**

calls shows that in Kosovo\* and Serbia, the average wholesale costs per minute of outgoing voice calls were higher than the average retail roaming price for outgoing voice calls in the WB region in 2020.

A comparison of retail roaming revenues and wholesale roaming costs per minute of outgoing

**Figure 42 - Average retail roaming prices and wholesale roaming costs per minute in the WB**

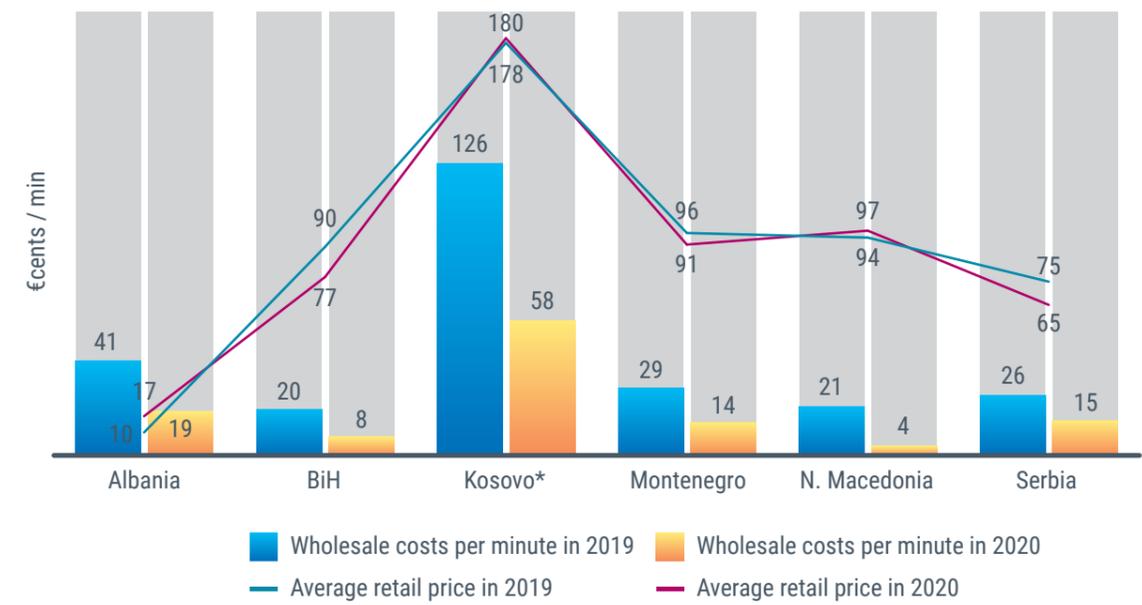


Source: Roaming questionnaire, retail roaming revenues are calculated per billed outgoing minute, wholesale roaming costs are calculated per actual outgoing minute

The average retail roaming prices per minute of outgoing voice calls were higher than the average wholesale

roaming costs per minute of outgoing voice calls in the EEA for all WB economies in 2020, except Albania.

**Figure 43 - Average retail roaming prices and wholesale roaming costs per minute in the EEA**



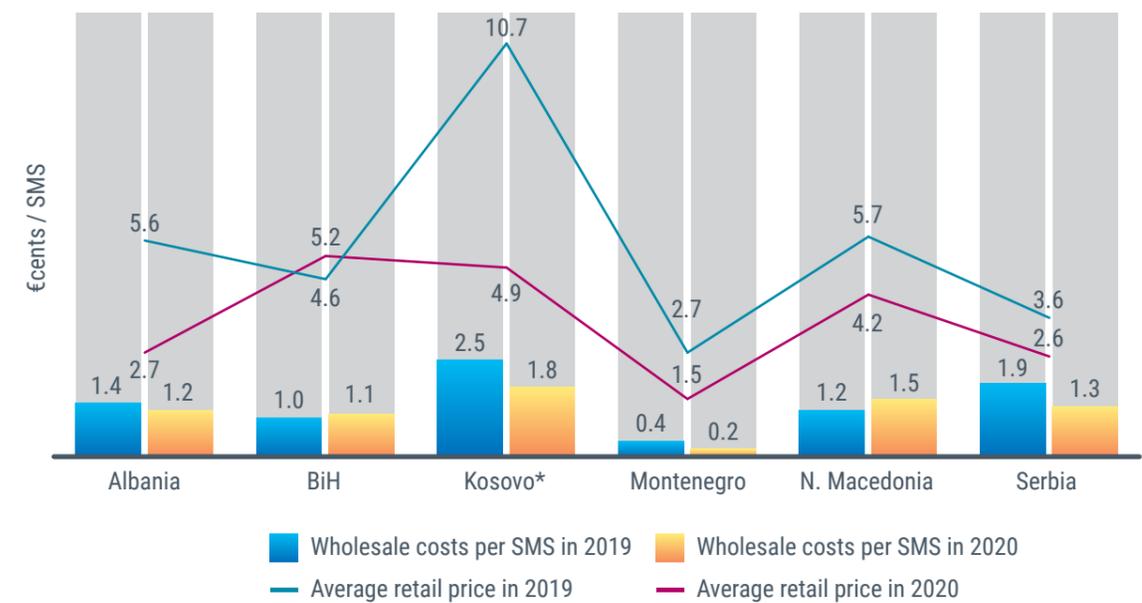
Source: Roaming questionnaire, retail roaming revenues are calculated per billed outgoing minute, wholesale roaming costs are calculated per actual outgoing minute

**6.3. RETAIL ROAMING PRICES AND WHOLESALE ROAMING COSTS FOR SMS SERVICES**

Average retail roaming prices per SMS were higher than the average wholesale roaming costs per SMS

in both WB region and the EEA for all WB economies in 2020.

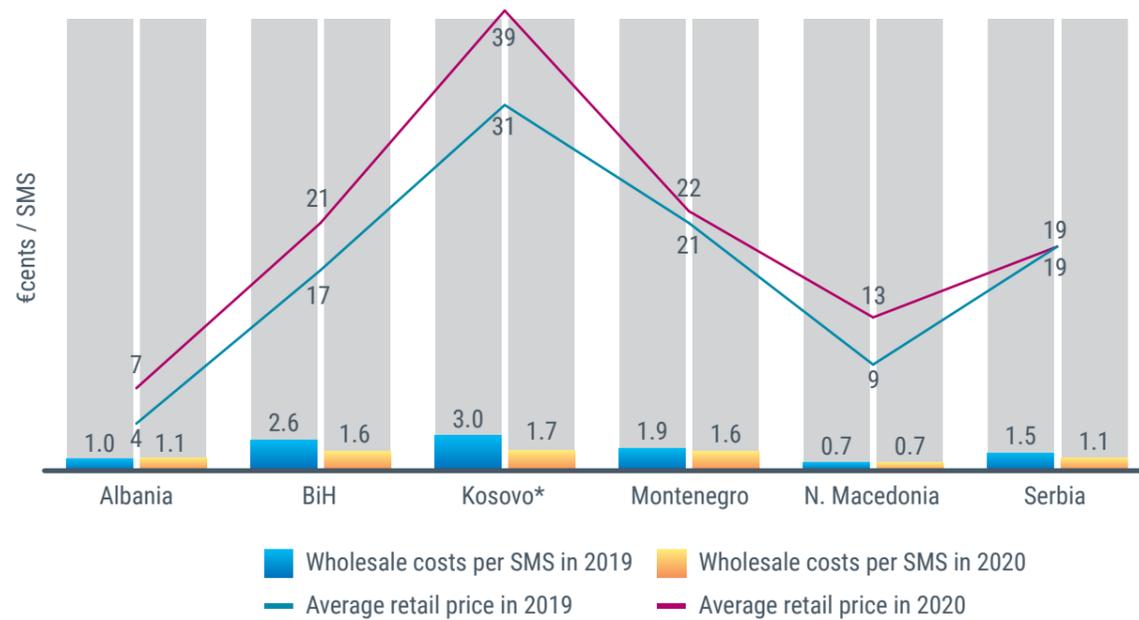
**Figure 44 - Average retail roaming prices and wholesale roaming costs per SMS in the WB**



Source: Roaming questionnaire



**Figure 45 - Average retail roaming prices and wholesale roaming costs per SMS in the EEA**



Source: Roaming questionnaire

**6.4. RETAIL ROAMING PRICES AND WHOLESALE ROAMING COSTS FOR DATA SERVICES**

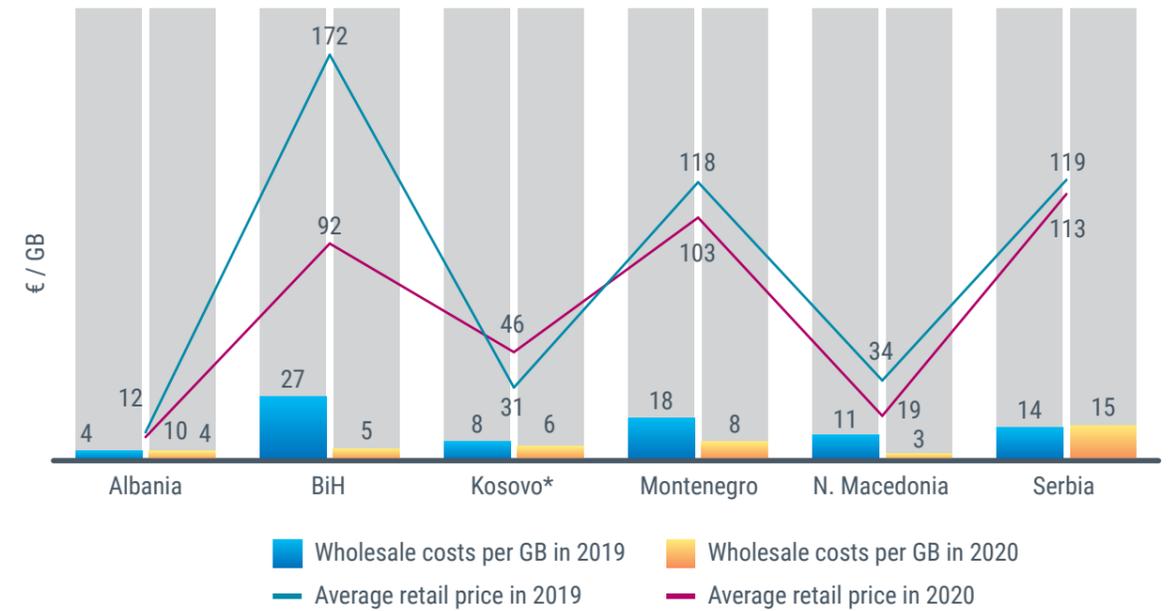
In all WB economies, except Kosovo\*, the average wholesale roaming costs per GB of data services

were equal or higher compared to the average retail roaming prices per GB of data services in the WB region in 2020.

In all WB economies average retail roaming prices per GB of data services were higher than the average

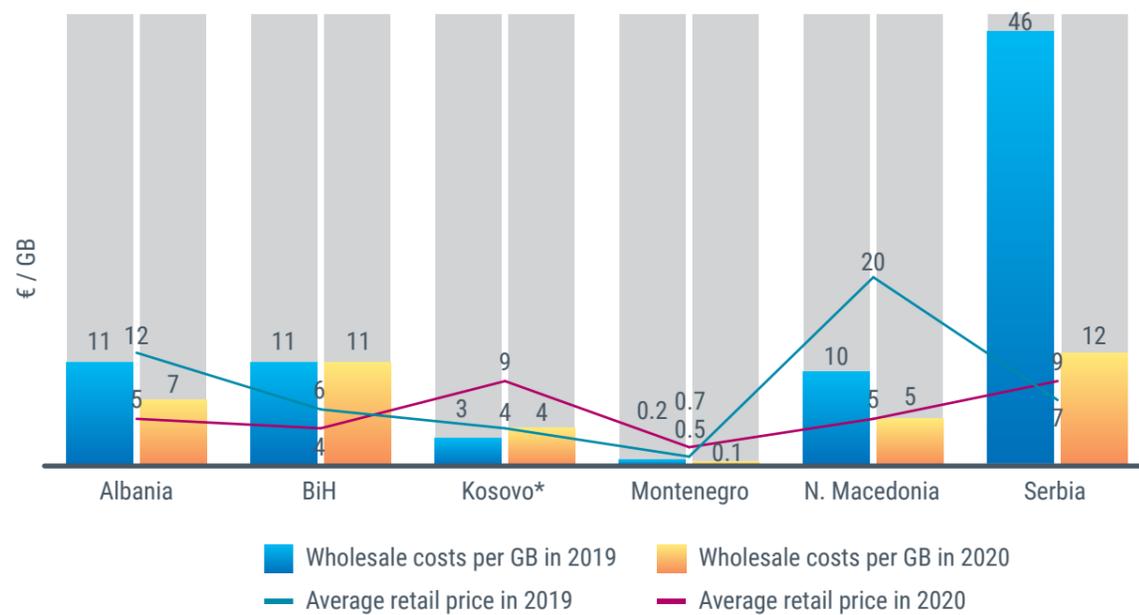
wholesale roaming costs per GB of data services in the EEA in 2020.

**Figure 47 - Average retail roaming prices and wholesale roaming costs per GB in the EEA**



Source: Roaming questionnaire

**Figure 46 - Average retail roaming prices and wholesale roaming costs per GB in the WB**



Source: Roaming questionnaire

# VII CONCLUDING REMARKS REGARDING THE WB-EU ROAMING REGULATIONS

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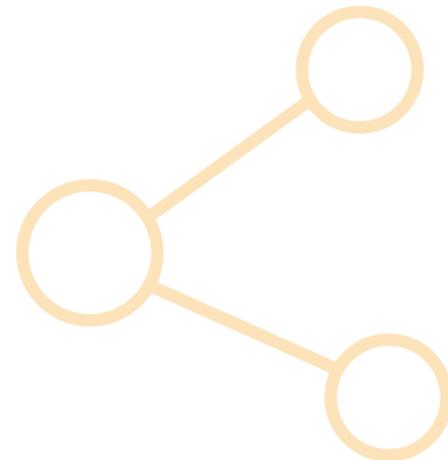
Reducing roaming costs between the WB region and the EU is essential for fostering connectivity of WB citizens while travelling across Europe and is also a very important step in the process of harmonisation with the current EU roaming regulatory framework. In order to complete the process successfully, it is essential to have transparent and inclusive process to ensure full commitment of all involved stakeholders, in particular regulatory authorities and ministries from the Western Balkan region, telecom operators, both from the WB region and the EU, the European Commission and the Regional Cooperation Council.

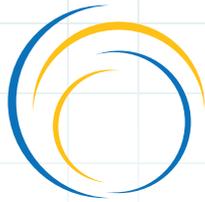
The wholesale roaming prices for outgoing voice and SMS services in the WB region have been aligned with the prices in the EU from 1 July 2021, and average wholesale roaming price for data services in the WB region is EUR 7.7 per GB from 1 July 2021, while the current average wholesale roaming price for data services in the EU is EUR 3 per GB.

The mobile termination rate of roaming calls originated and terminated in the WB region has been set

at EUR 0.016 per minute as of 1 July 2021, while current termination rate of roaming calls originated and terminated in the EU is 0.007 EUR per minute.

According to RRA, international mobile termination rates in the WB region are divided into regulated international mobile termination rates for roaming traffic in the WB region and non-regulated international mobile termination rates related to international (non-roaming) traffic in the WB region. This served as a temporary mechanism to safeguard revenues from international traffic in the WB region, but caused many technical and operational problems for the WB operators to separate regulated and non-regulated voice traffic, including fraud prevention, which operators highlighted in their responses to the questionnaire. In order to avoid such problems and to comply with the EU roaming regulations, the separation of international termination rates for roaming and non-roaming traffic is not envisaged in the process of reducing roaming charges between the WB and the EU





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