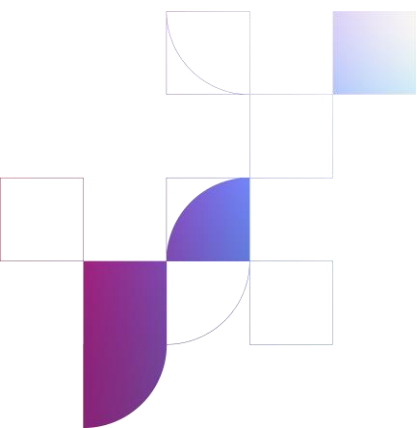


BEREC Report on Western Balkan Roaming

April 2022 – September 2022



28 March 2023

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1 Introduction

The BEREC Report on Western Balkan Roaming presents the results of the 8th round of data collection on international roaming services in the Western Balkans (WB) region including the economies Albania, Bosnia, Kosovo*, Montenegro, North Macedonia, Serbia undertaken by BEREC. This Report covers the period 1 April 2022 – 30 September 2022, i.e. from the 2nd quarter 2022 until the 3rd quarter 2022. It is the eighth report of a series of biannual Reports. From 2023 the report will be produced on annual basis.

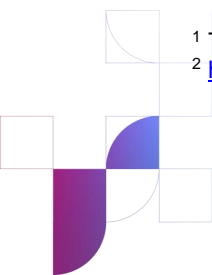
The applicable regulatory framework for this data collection is the Agreement on the price reduction of the roaming services in public mobile communication networks in the Western Balkans region, signed on 4 April 2019. According to this agreement, a transitional regime for roaming services shall apply from 1 July 2019 and allow adjustments of the price level of roaming services towards a “home-like” rule¹. As of 1 July 2021, Roam Like at Home (RLAH) regime in the region was successfully achieved and roaming free WB region was established, meaning that currently, WB consumers do not pay extra charges for calls, SMS and mobile data while in roaming in the region, compared to what they pay at home.

Roaming agreements are keystones of international cooperation in the telecommunications sector and this agreement therefore marks a milestone in the cooperation not only between all six WB signatories, but also with the European Union. Even at the early stage of the transitional regime, the average prices for roaming have been reduced significantly in all six WB signatories, in some cases by over 90%². In December 2022, an agreement was reached between EU and WB telecommunications providers to reduce roaming prices between EU and WB signatories, providing benefits to consumers in the WB and EU region alike. This agreement will come into effect on 1 October 2023.

This Report aims to provide information about consumption and price developments and to monitor the implementation of the roaming agreement. The first chapter contains information on subscribers in each of the WB signatories ([Chapter 2](#)), followed by an analysis of retail domestic consumption patterns in [Chapter 3](#). [Chapter 4](#) is focused on retail roaming consumption patterns. [Chapter 5](#) offers information on retail roaming revenues, complemented by a chapter on wholesale roaming revenues ([Chapter 6](#)). A full list of operators that submitted data may be found in the Annex

¹ The cited “home-like” rule shall correspond to the “roaming like at home” rules applicable in the European Union.

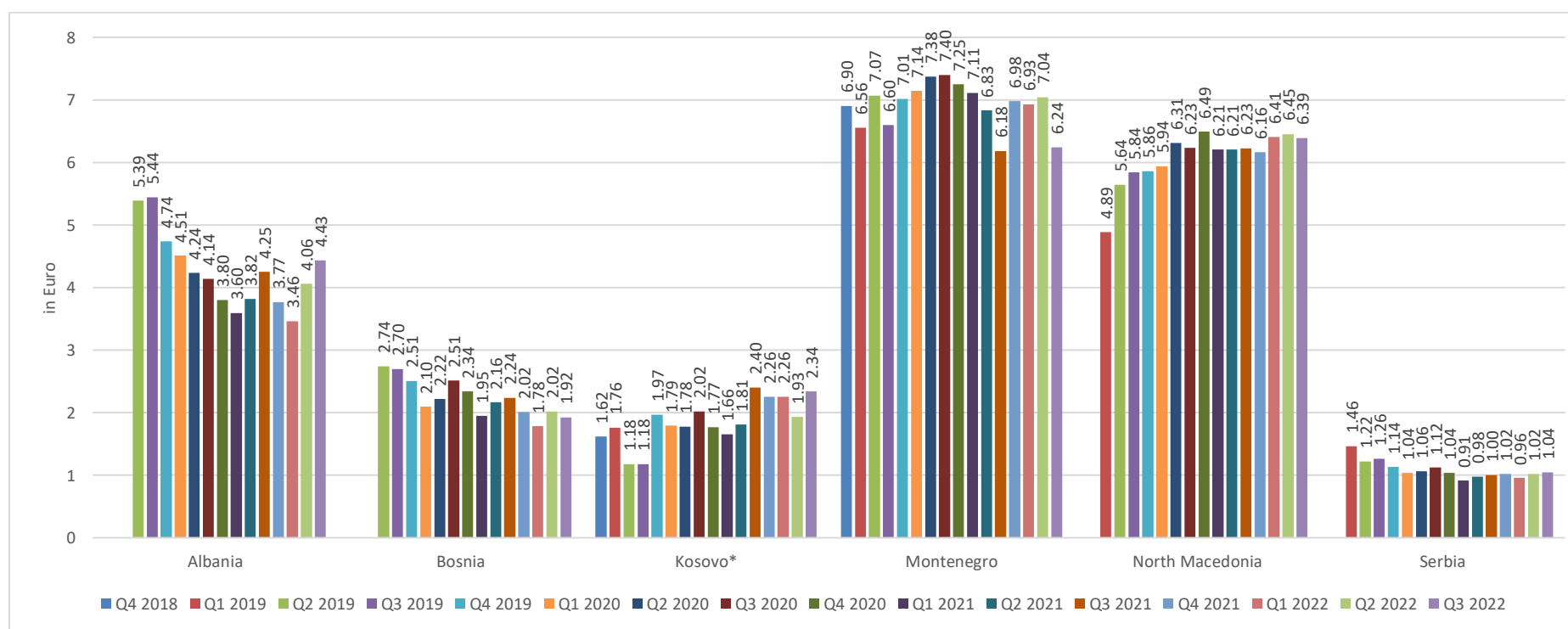
² <https://www.rcc.int/pubs/86/leaflet-roaming-free-western-balkans>



2 Analysis of subscribers and those that use roaming services

2.1 Domestic average Retail Mobile Revenue per User (ARRPU)

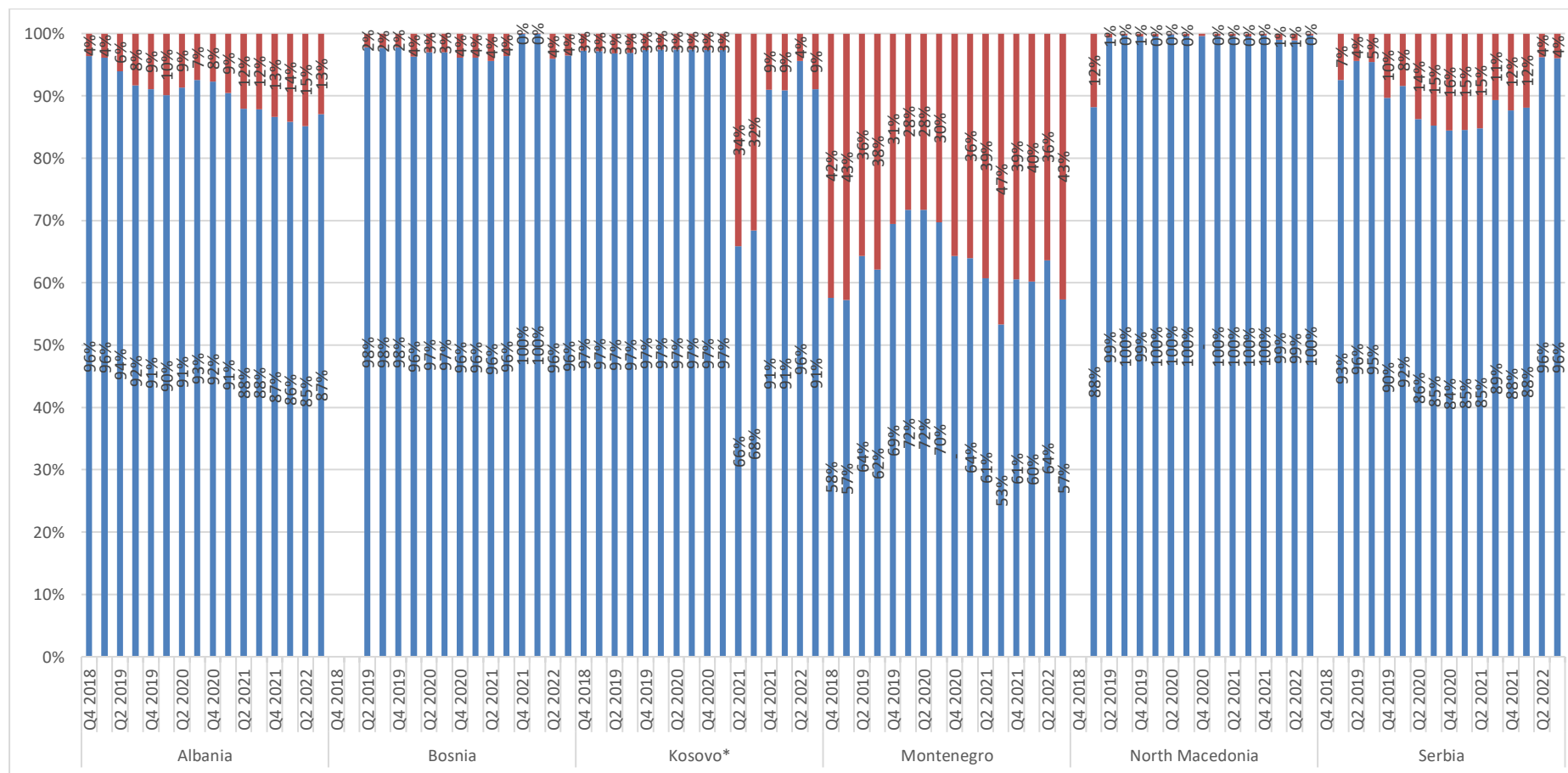
Figure 1: Domestic average retail mobile revenue (voice+SMS+data) per total number of subscribers per month in Euro³



³ Albanian operators reported bundle data given high prevalence of domestic bundles and MNOs difficulties in separating the revenues per each item.

2.2 Share of roaming enabled subscribers from total number of subscribers

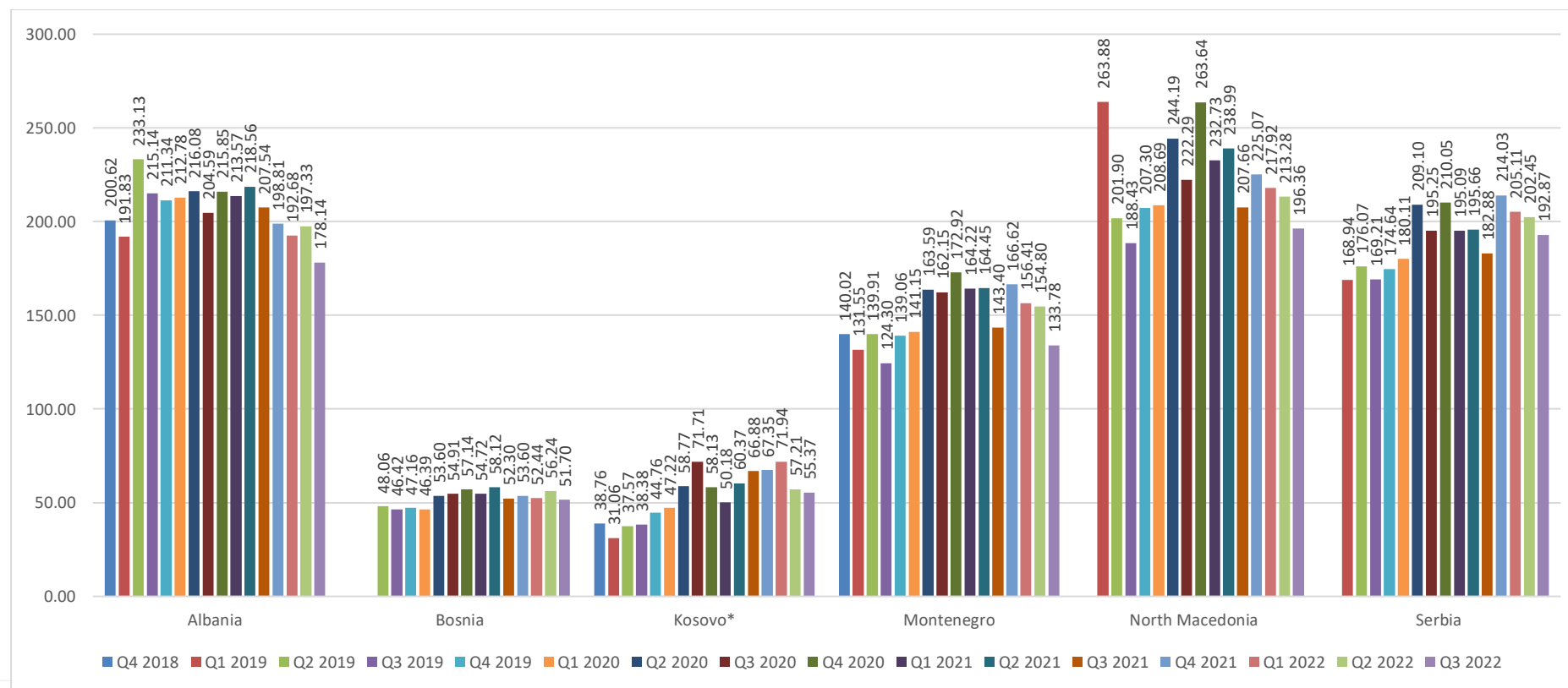
Figure 2: Share of roaming enabled subscribers from total number of subscribers



3 Consumption patterns for domestic mobile retail services

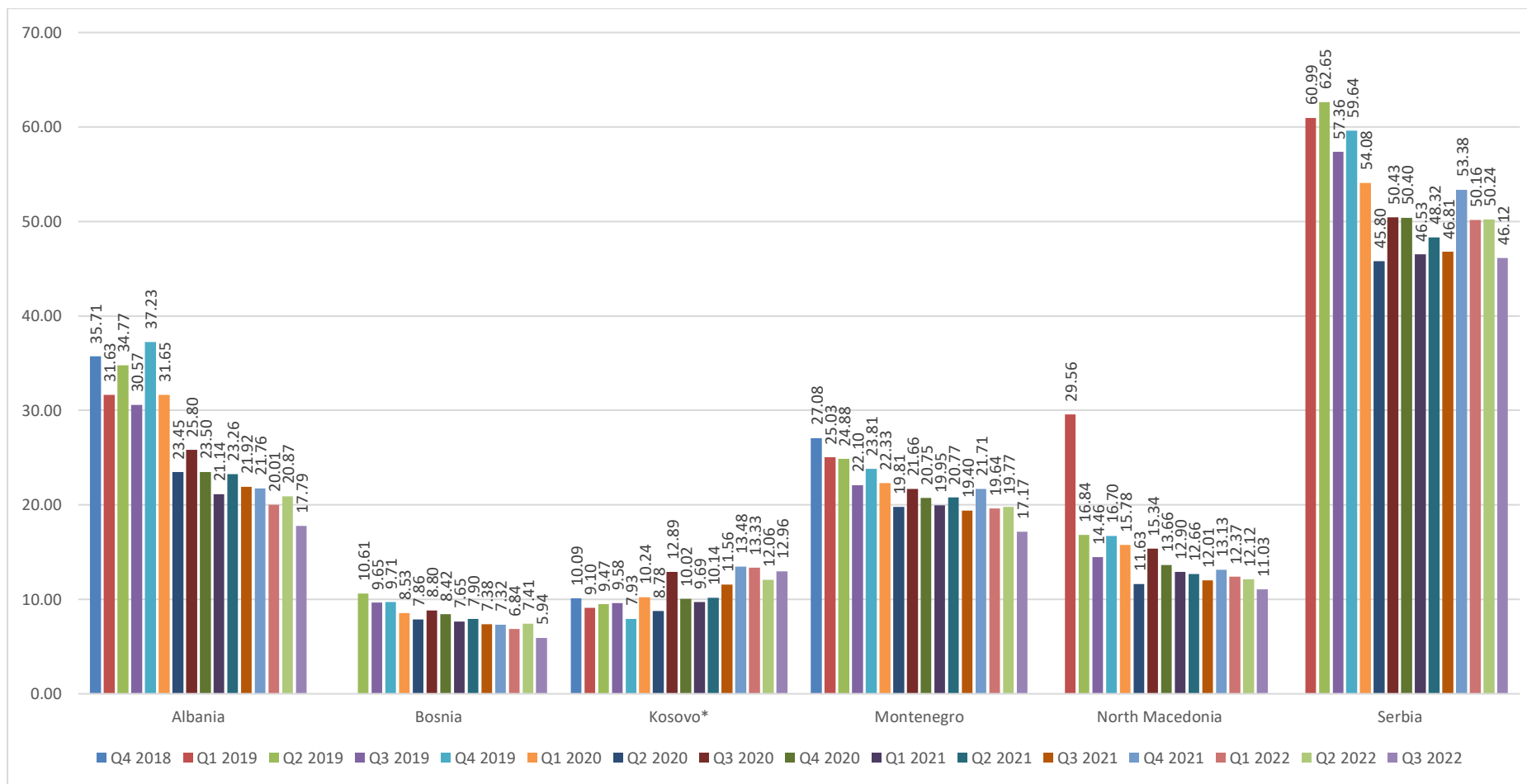
3.1 Domestic voice minutes: average number of domestic minutes (actual minutes) per total number of subscribers per month

Figure 3: Domestic voice minutes: average number of domestic minutes (actual minutes) per total number of subscribers per month



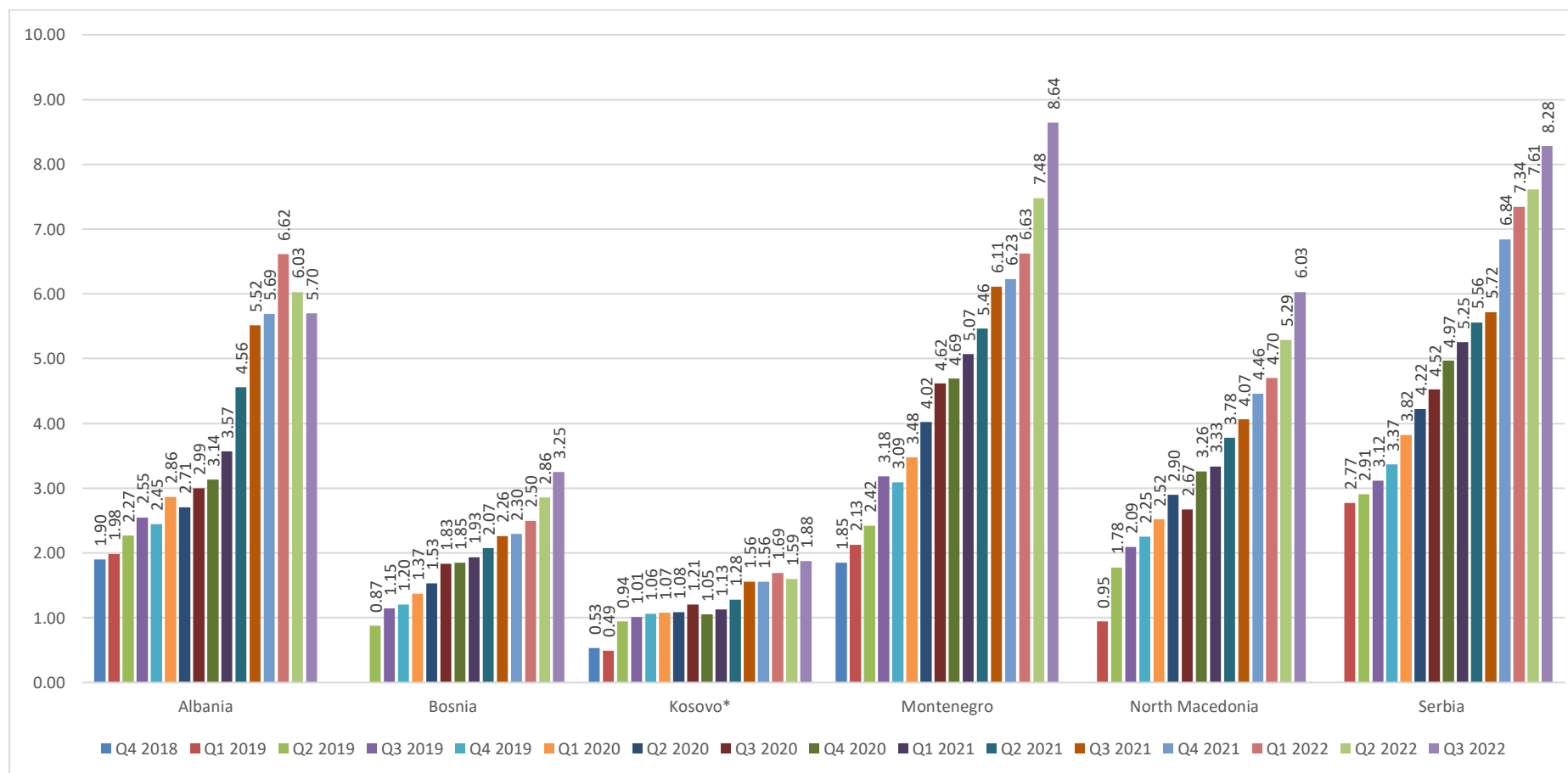
3.2 Domestic SMS: average number of domestic SMS per total number of subscribers per month

Figure 4: Domestic SMS: average number of domestic SMS per total number of subscribers per month



3.3 Domestic data: average consumption of domestic data (GB) per total number of subscribers per month

Figure 5: Domestic data: average consumption of domestic data (GB) per total number of subscribers per month



4 Consumption patterns for roaming services (voice, SMS and data)

4.1 Roaming voice services, calls made: average number of regional roaming minutes per roaming enabled subscriber per month

Figure 6: Roaming voice services, calls made (actual minutes): average number of roaming minutes within the WB region (from alternative RLAH+ and RLAH tariffs) per number of subscribers roaming at least once in the concerned quarter and region per month⁴

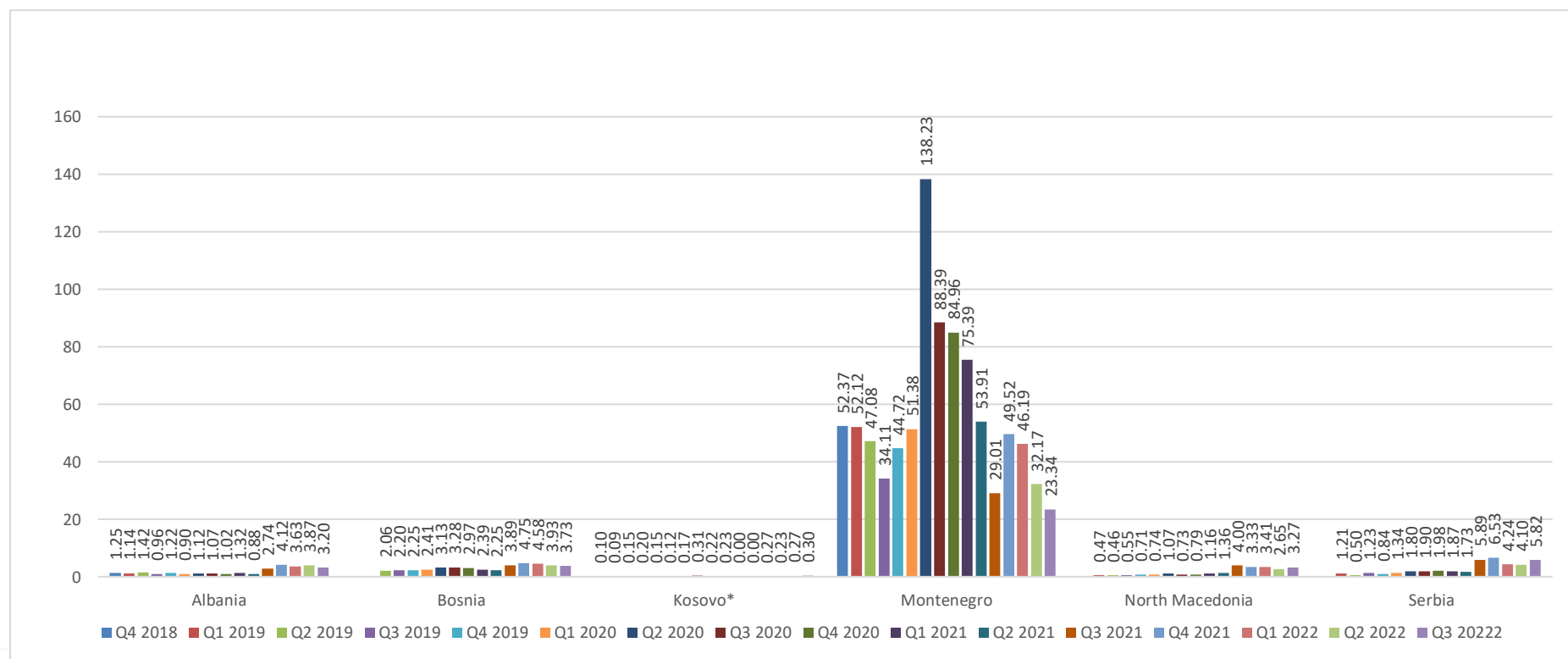
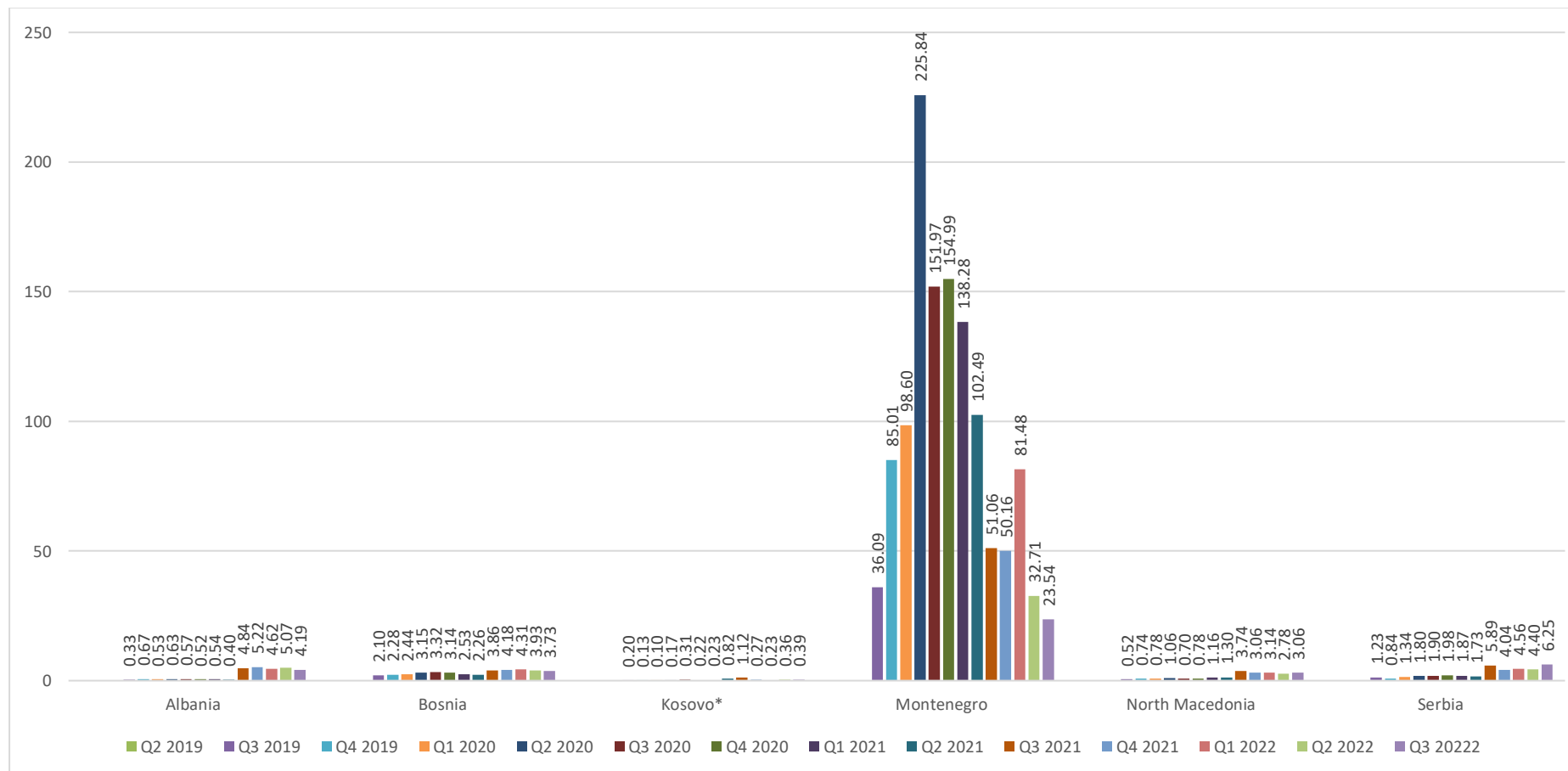
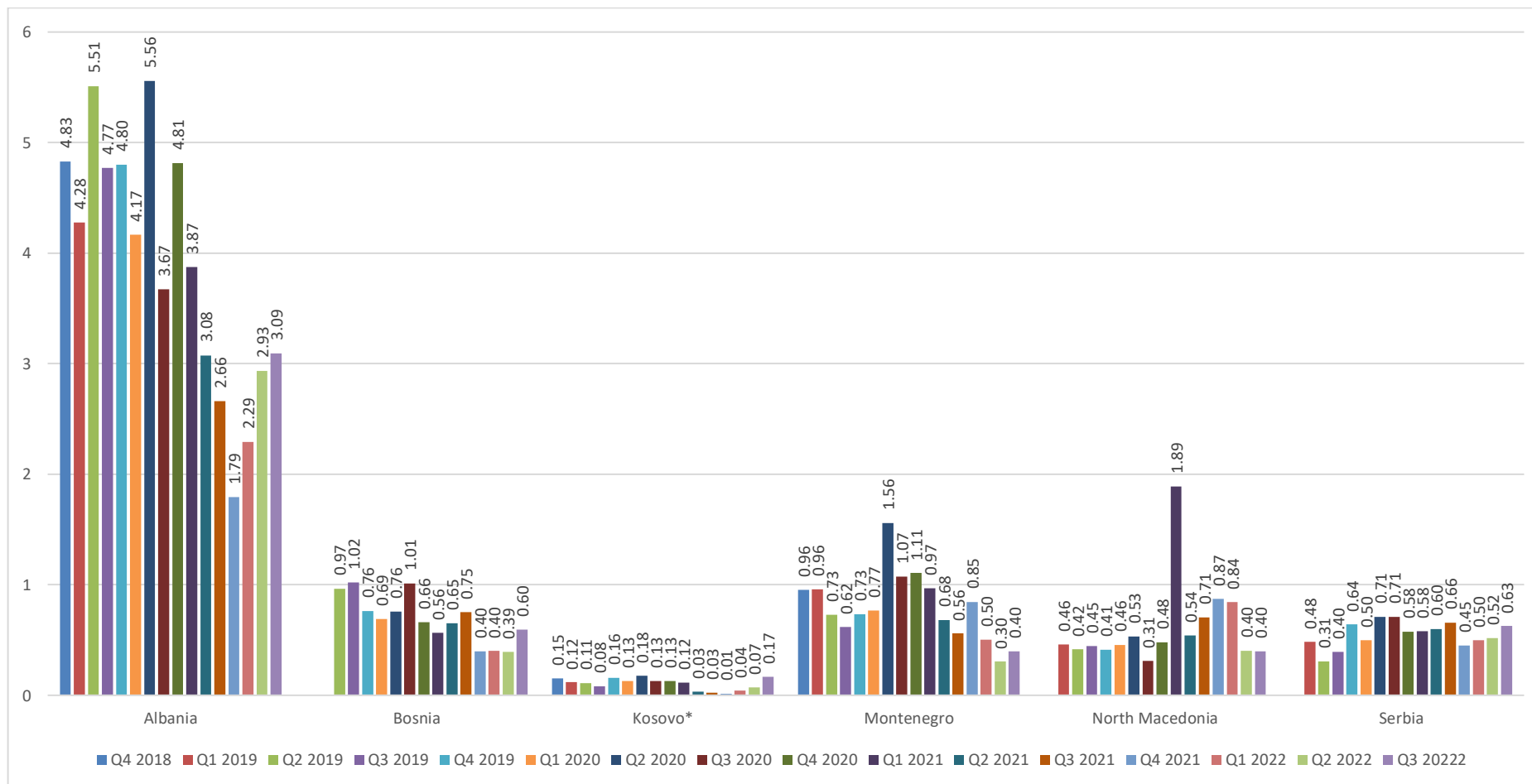


Figure 7: Roaming RLAH+ and RLAH minutes, calls made (actual minutes): average number of roaming minutes within the WB region from RLAH+ and RLAH tariffs per number of RLAH+ and RLAH subscribers roaming at least once in the concerned quarter and region per month⁵



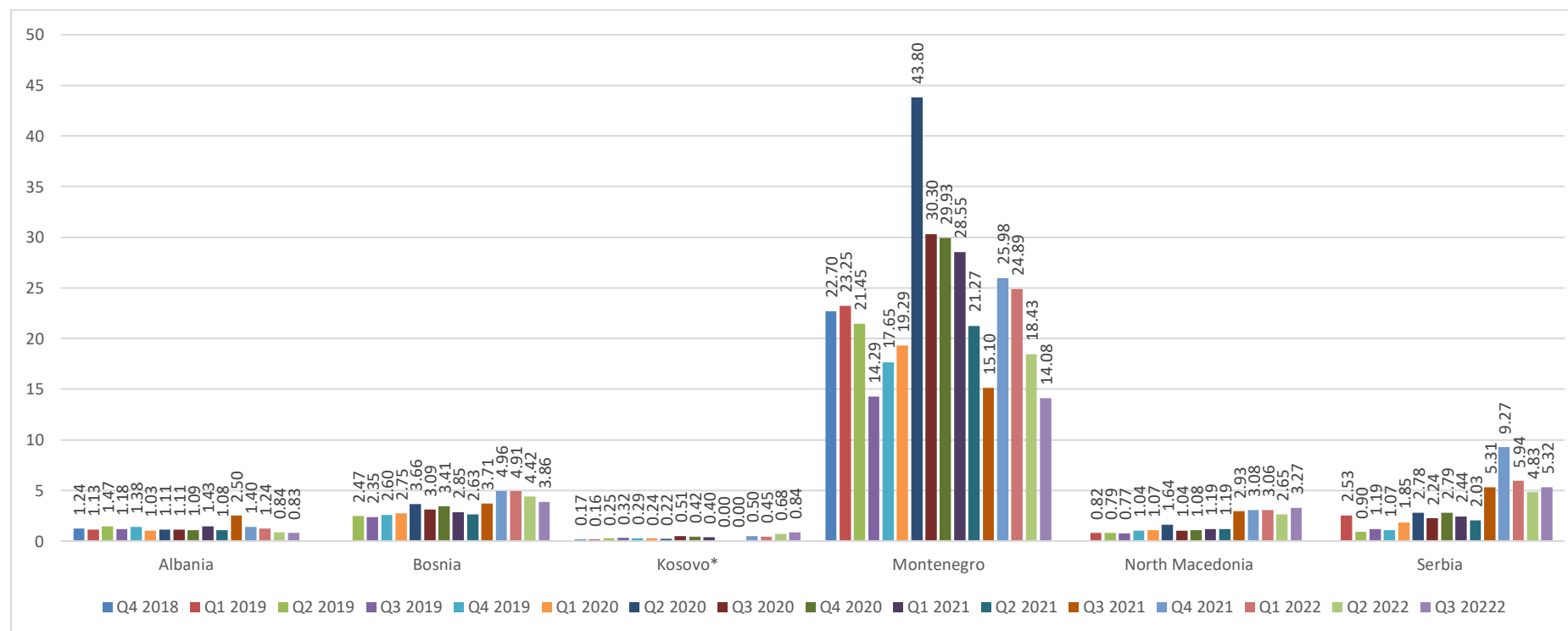
⁵ The categories “Western Balkans alternative” and “Western Balkans RLAH+” were implemented in Q3 2019, prior to which only the category “Western Balkans tariffs” existed. The category displayed from Q3 2019 onwards as “WB alternative” is therefore a very different category from the same category in the previous quarters. Roam Like at Home (RLAH) regime was successfully achieved and roaming free WB region was established as of 1 July 2021. RLAH+ is not being reported as of this date.

Figure 8: Roaming voice services, calls made (actual minutes): average number of roaming minutes within the EEA region per number of subscribers roaming at least once in the concerned quarter and region per month



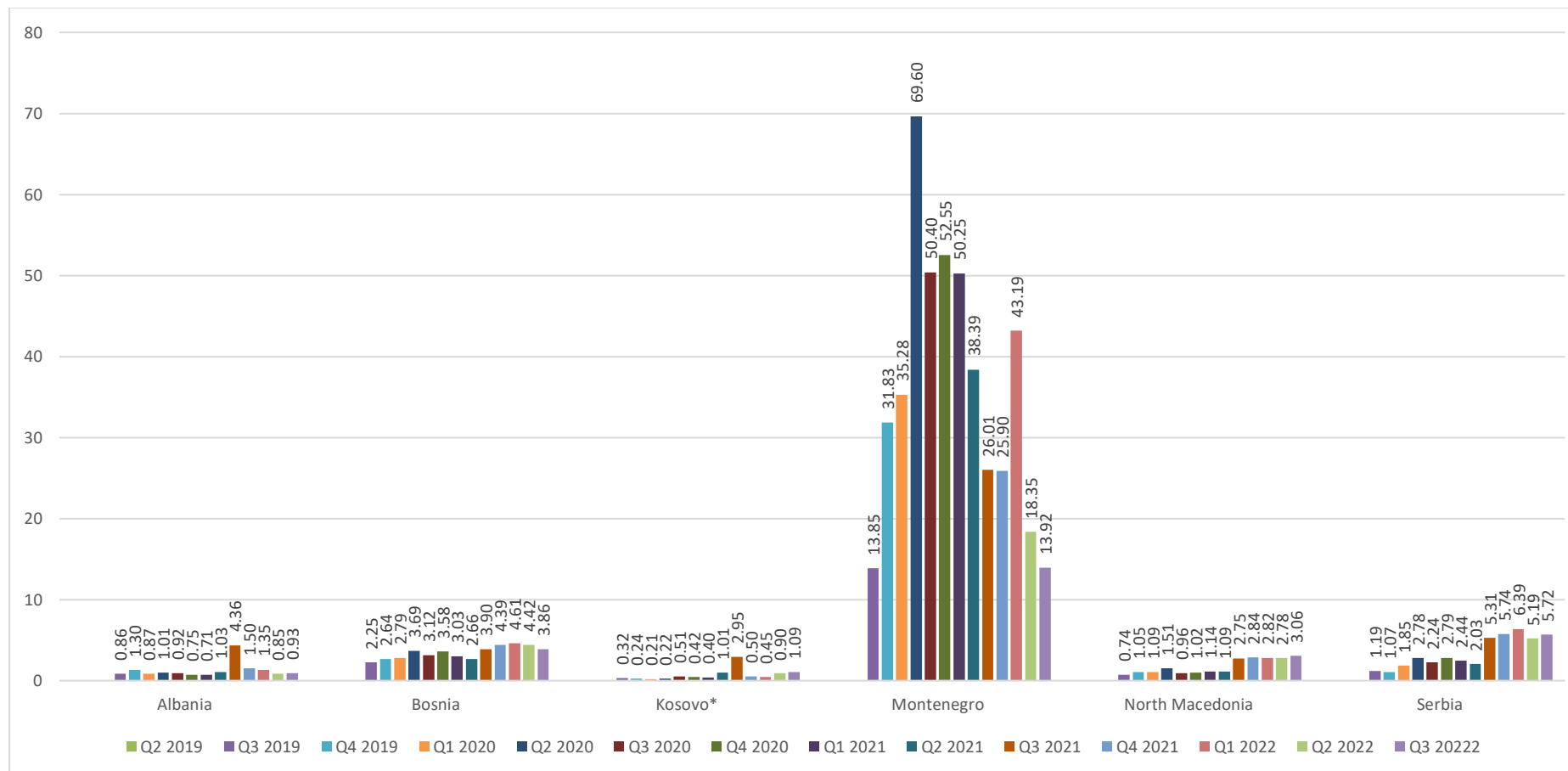
4.2 Roaming voice services, calls received: average number of roaming minutes per regional roaming enabled subscriber per month

Figure 9: Roaming voice services, calls received (actual minutes): average number of roaming minutes within the WB region (from alternative, RLAH+ and RLAH tariffs) per number of subscribers roaming at least once in the concerned quarter and region per month⁶



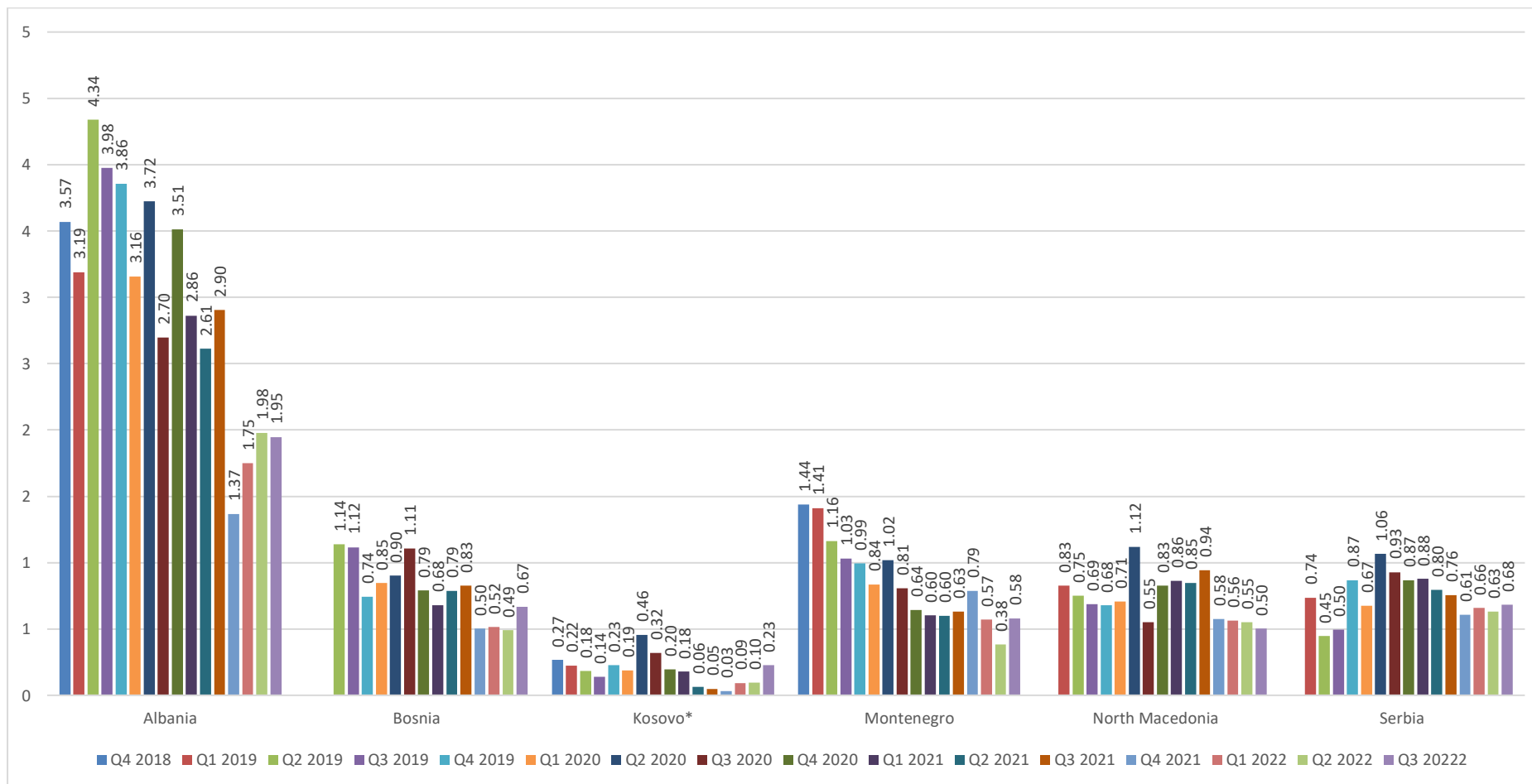
⁶ The categories “Western Balkans alternative” and “Western Balkans RLAH+” were implemented in Q3 2019, prior to which only the category “Western Balkans tariffs” existed. The category displayed from Q3 2019 onwards as “WB alternative” is therefore a very different category from the same category in the previous quarters. Roam Like at Home (RLAH) regime was successfully achieved and roaming free WB region was established as of 1 July 2021. RLAH+ is not being reported as of this date.

Figure 10: Roaming voice services, calls received (actual minutes): average number of roaming minutes within the WB region from RLAH+ and RLAH tariffs per number of RLAH+ and RLAH subscribers roaming at least once in the concerned quarter and region per month⁷



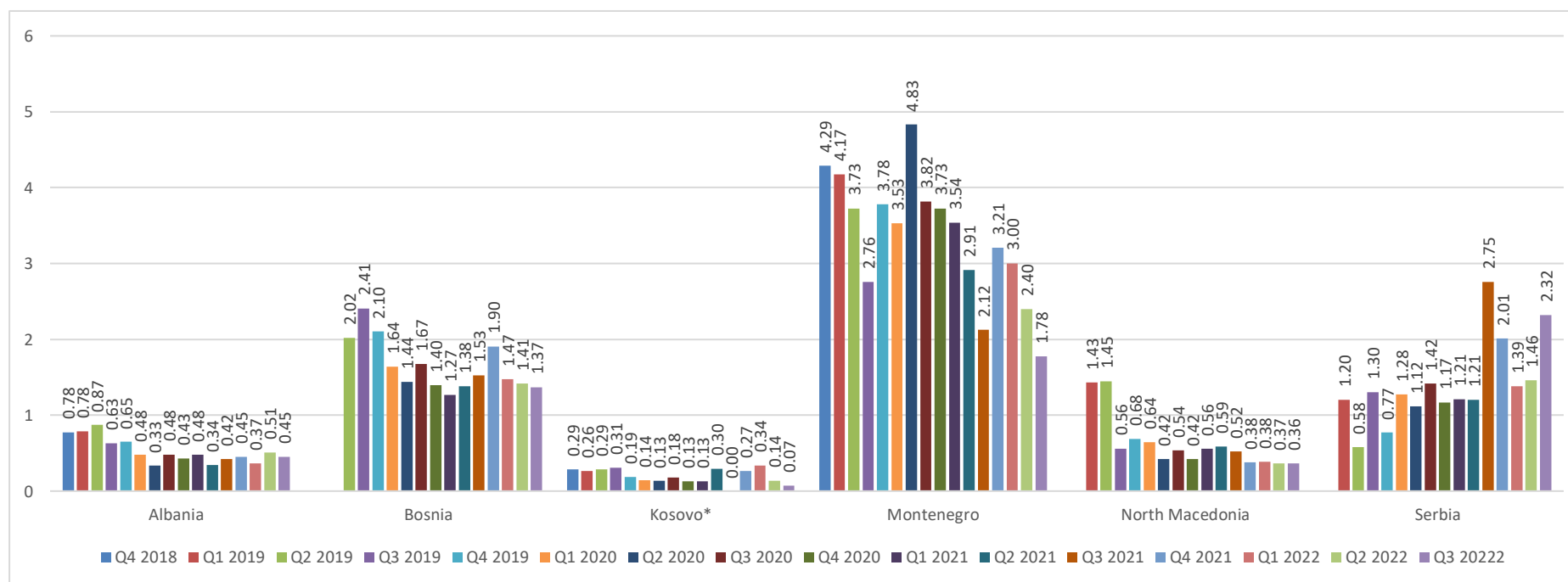
⁷ The categories “Western Balkans alternative” and “Western Balkans RLAH+” were implemented in Q3 2019, prior to which only the category “Western Balkans tariffs” existed. The category displayed from Q3 2019 onwards as “WB alternative” is therefore a very different category from the same category in the previous quarters. Roam Like at Home (RLAH) regime was successfully achieved and roaming free WB region was established as of 1 July 2021. RLAH+ is not being reported as of this date.

Figure 11: Roaming voice services, calls received (actual minutes): average number of roaming minutes within the EEA region per number of subscribers roaming at least once in the concerned quarter and region per month



4.3 Roaming SMS services: average number of roaming SMS per regional roaming enabled subscriber per month

Figure 12: Roaming SMS services: average number of roaming SMS (from alternative, RLAH+ and RLAH tariffs) within the WB region per number of subscribers roaming at least once in the concerned quarter and region per month⁸



⁸ The categories “Western Balkans alternative” and “Western Balkans RLAH+” were implemented in Q3 2019, prior to which only the category “Western Balkans tariffs” existed. The category displayed from Q3 2019 onwards as “WB alternative” is therefore a very different category from the same category in the previous quarters. Roam Like at Home (RLAH) regime was successfully achieved and roaming free WB region was established as of 1 July 2021. RLAH+ is not being reported as of this date.

Figure 13: Roaming SMS services: average number of roaming SMS within the WB region from RLAH+ and RLAH tariffs per number of RLAH+ and RLAH subscribers roaming at least once in the concerned quarter and region per month

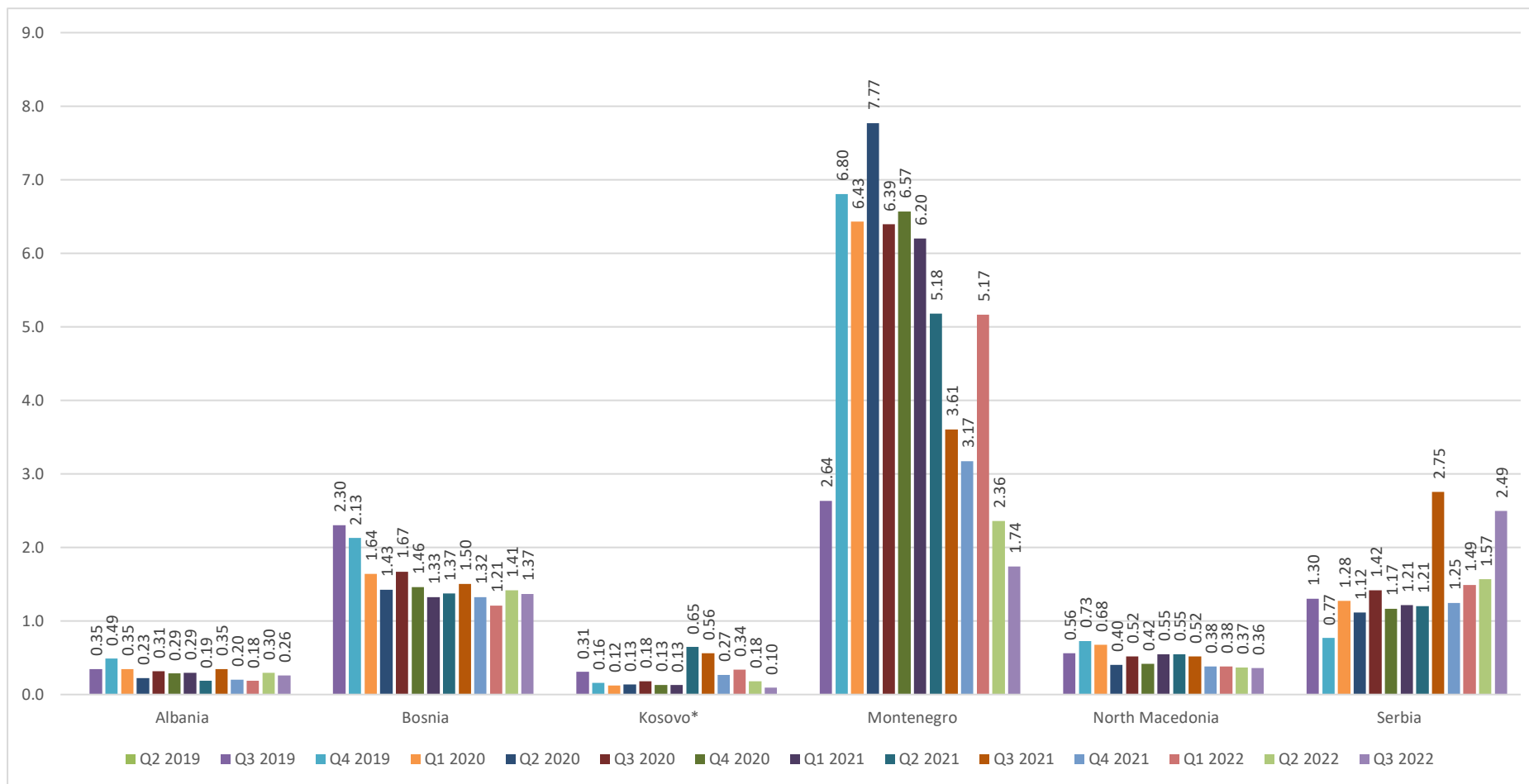
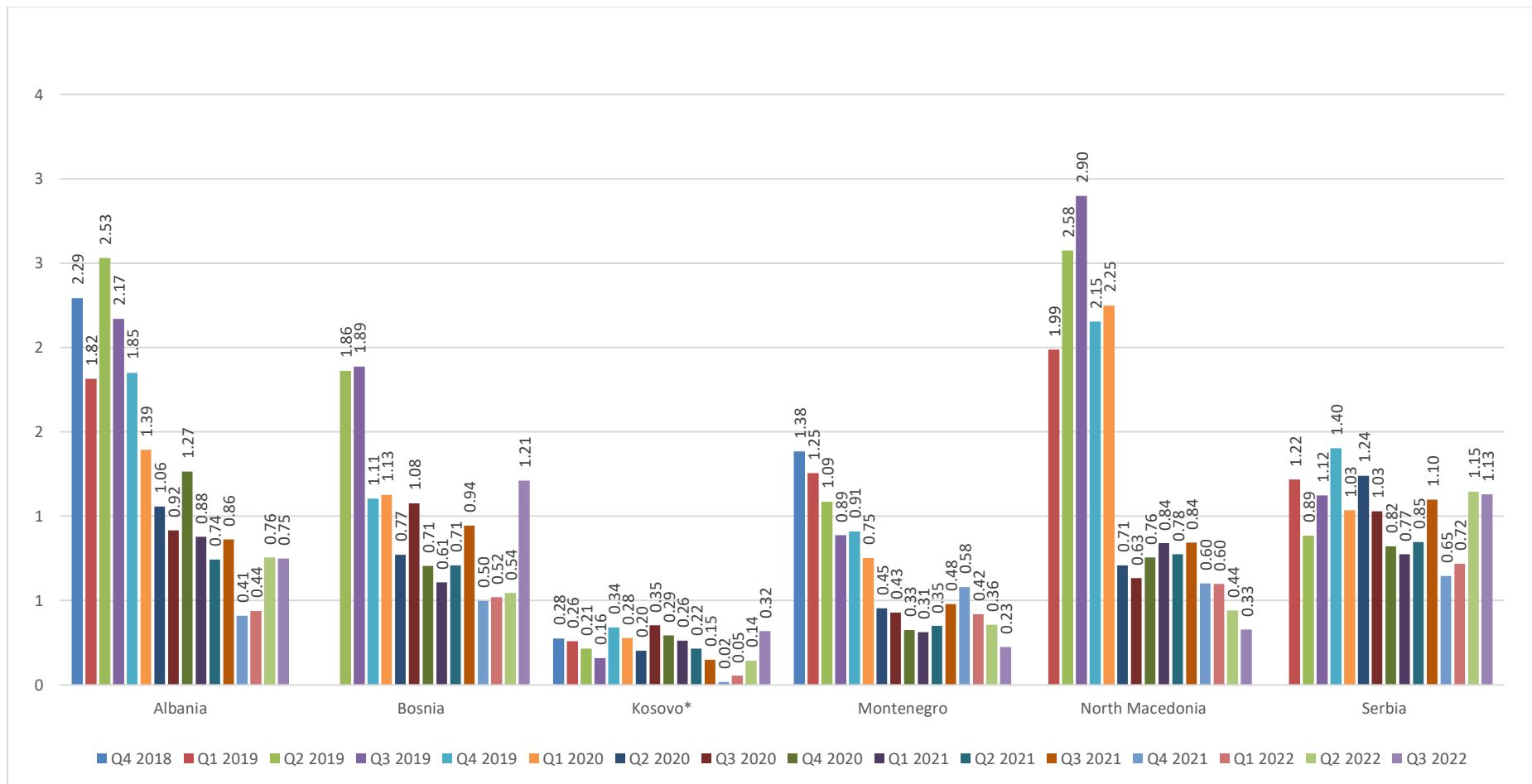
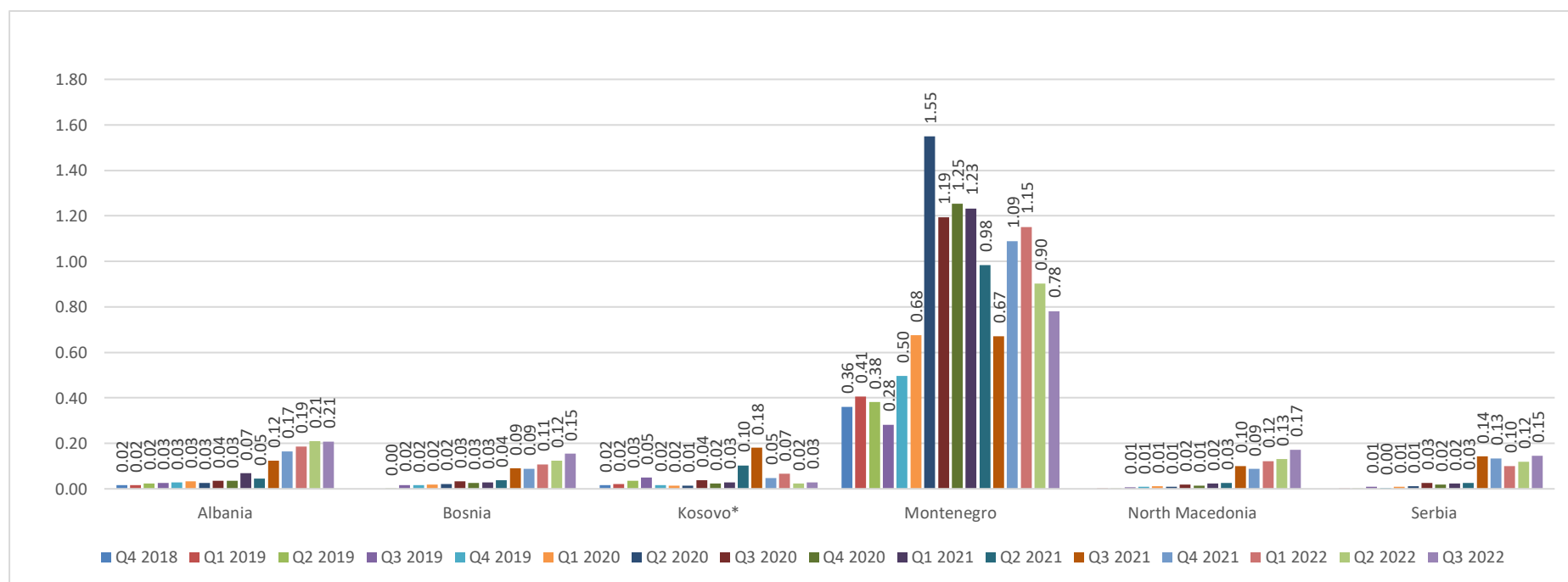


Figure 14: Roaming SMS services: average number of roaming SMS within the EEA region per number of subscribers roaming at least once in the concerned quarter and region per month



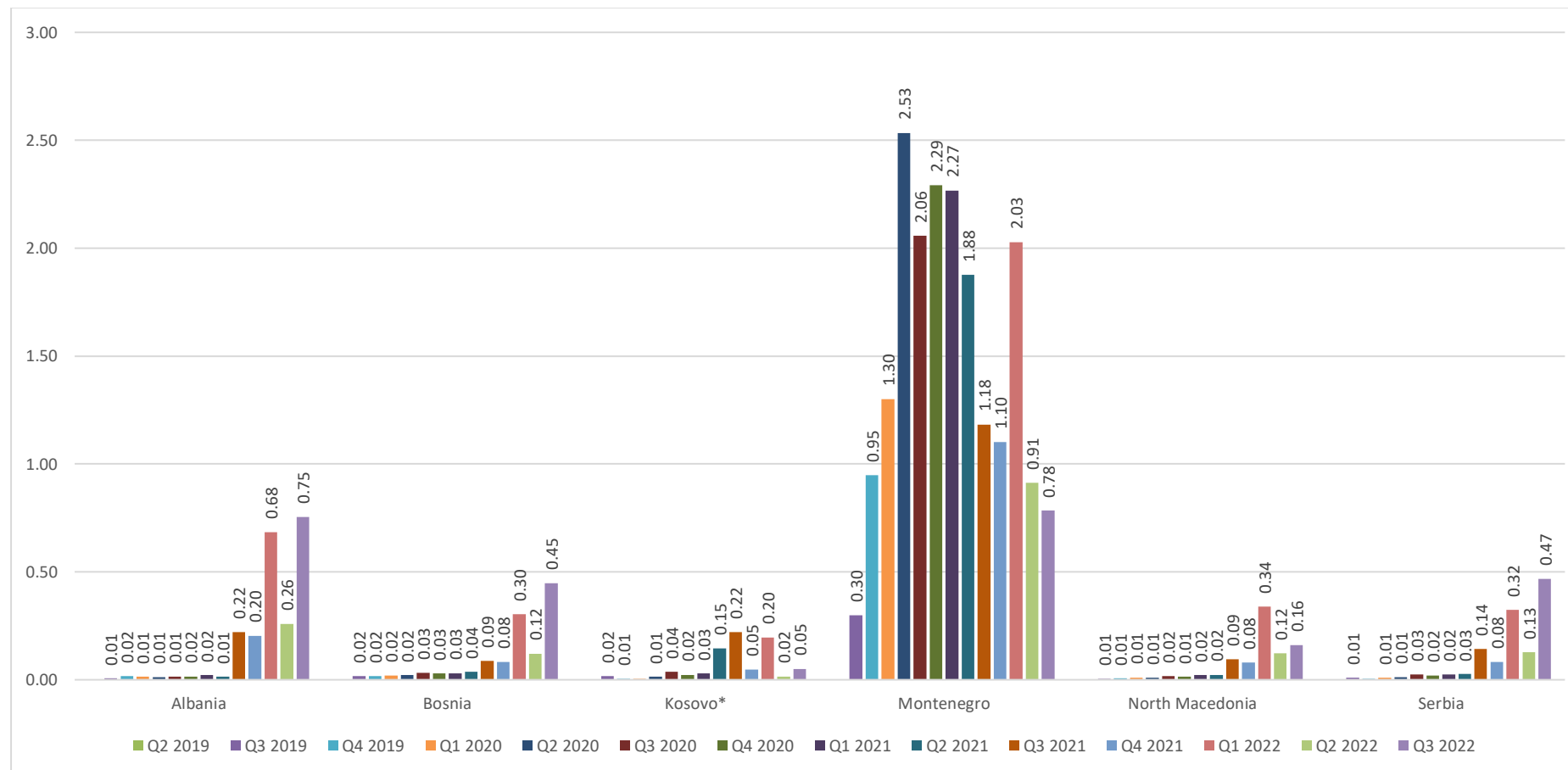
4.4 Roaming data services: average data roaming consumption in GB per regional roaming enabled subscriber per month

Figure 15: Roaming data services: average data roaming consumption in GB (from alternative and RLAH+ tariffs) within the WB region per number of subscribers roaming at least once in the concerned quarter and region per month⁹



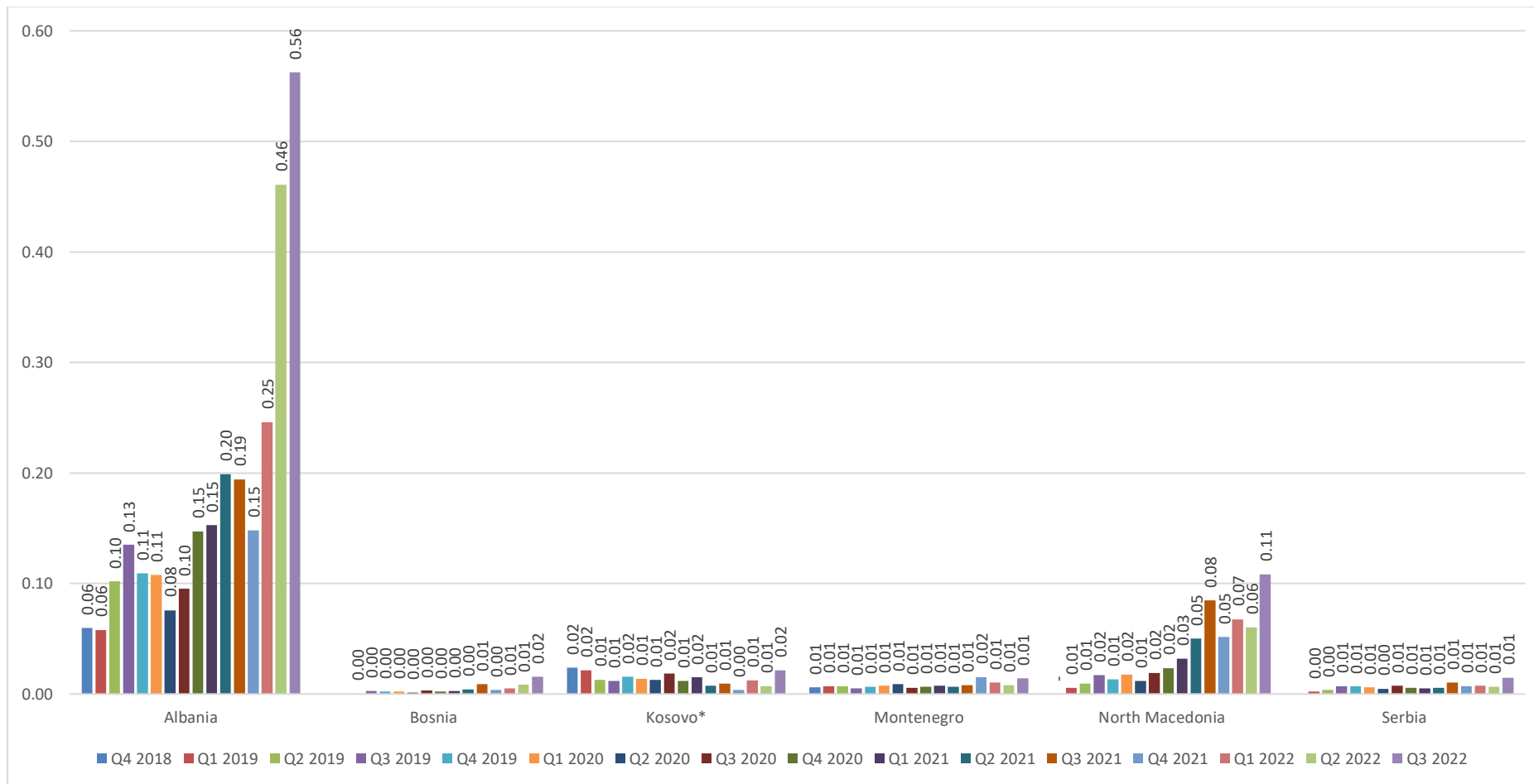
⁹ The categories “Western Balkans alternative” and “Western Balkans RLAH+” were implemented in Q3 2019, prior to which only the category “Western Balkans tariffs” existed. The category displayed from Q3 2019 onwards as “WB alternative” is therefore a very different category from the same category in the previous quarters. Roam Like at Home (RLAH) regime was successfully achieved and roaming free WB region was established as of 1 July 2021. RLAH+ is not being reported as of this date.

Figure 16: Roaming data services: average data roaming consumption in GB within the WB region from RLAH+ and RLAH tariffs per number of RLAH+ and RLAH subscribers roaming at least once in the concerned quarter and region per month¹⁰



¹⁰ The categories “Western Balkans alternative” and “Western Balkans RLAH+” were implemented in Q3 2019, prior to which only the category “Western Balkans tariffs” existed. The category displayed from Q3 2019 onwards as “WB alternative” is therefore a very different category from the same category in the previous quarters. Roam Like at Home (RLAH) regime was successfully achieved and roaming free WB region was established as of 1 July 2021. RLAH+ is not being reported as of this date.

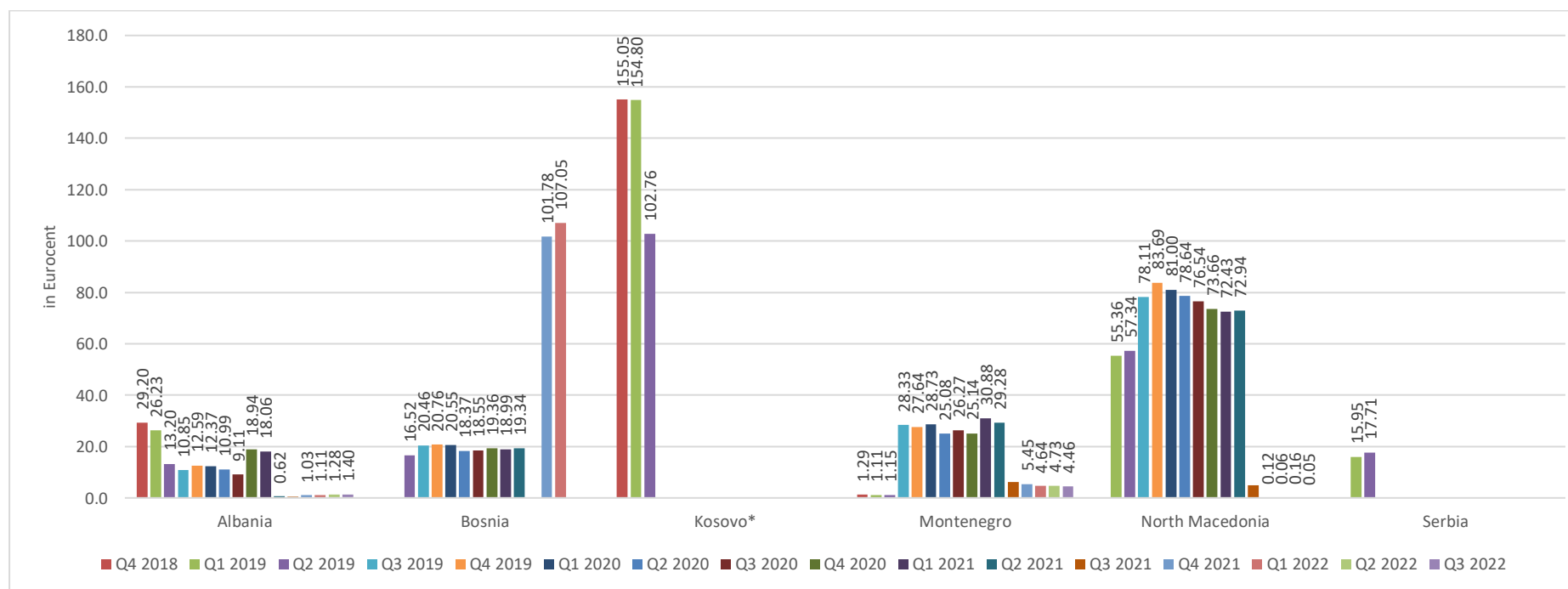
Figure 17: Roaming data services: average data roaming consumption in GB within the EEA region per number of subscribers roaming at least once in the concerned quarter and region per month



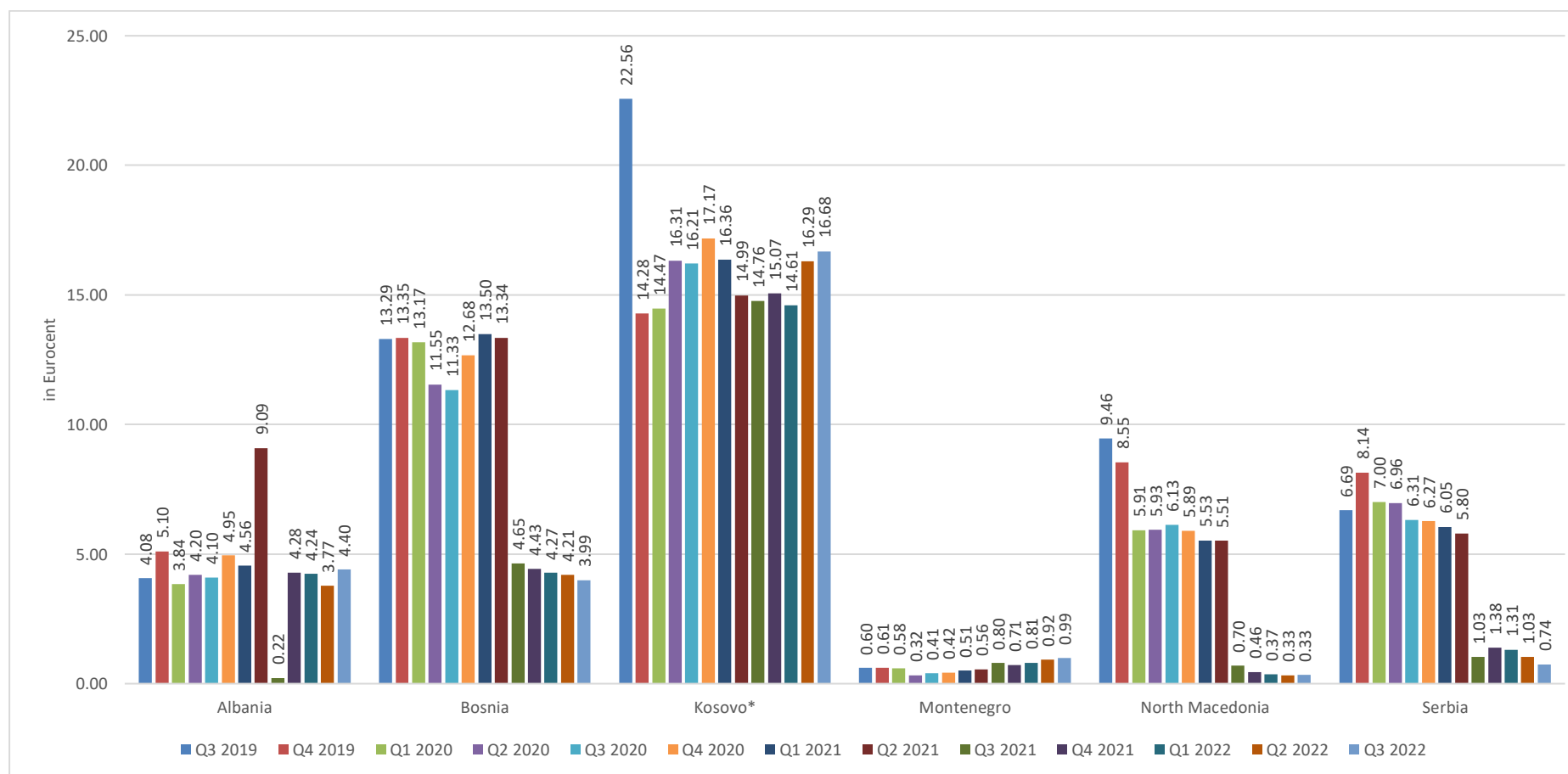
5 The development of retail roaming services: retail revenues per unit

5.1 Average retail roaming revenues per minute, calls made

Figure 18: Average retail roaming revenues per alternative WB roaming minute, calls made (actual minutes), in Eurocent (within WB)¹¹



¹¹ The categories “Western Balkans alternative” and “Western Balkans RLAH+” were implemented in Q3 2019, prior to which only the category “Western Balkans tariffs” existed. The category displayed from Q3 2019 onwards as “WB alternative” is therefore a very different category from the same category in the previous quarters.
Albania: Due to a high prevalence of retail roaming bundles, drivers were used to split the values provided for retail roaming revenues from bundles into categories. Q4 2018 and Q1 2019 estimations are based on data submitted by two out of three operators.

Figure 19: Average retail roaming revenues per WB RLAH+ and RLAH¹² roaming minute, calls made (actual minutes), in Eurocent (within WB)¹³

¹² Roam Like at Home (RLAH) regime was successfully achieved and roaming free WB region was established as of 1 July 2021. RLAH+ is not being reported as of this date.

¹³ Kosovo*: The high values in Q3 19 are due to one of the mobile operators being unable to provide retail roaming revenues for WB only. Instead, the figure presents the data for roaming calls made by customers while roaming in WB and EAA.

Figure 20: Average retail roaming revenues per minute, calls made (actual minutes), in Euro (within EEA countries)

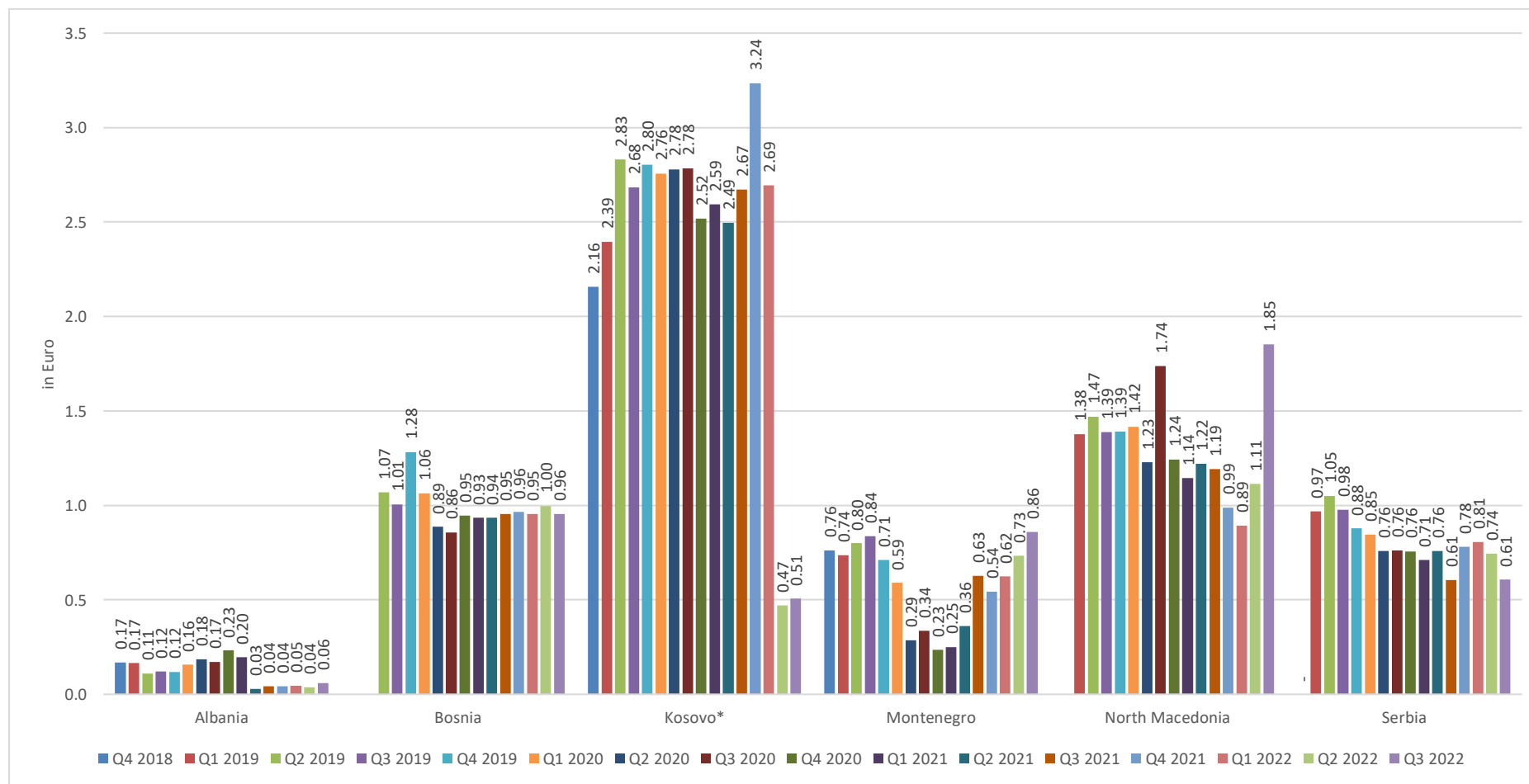
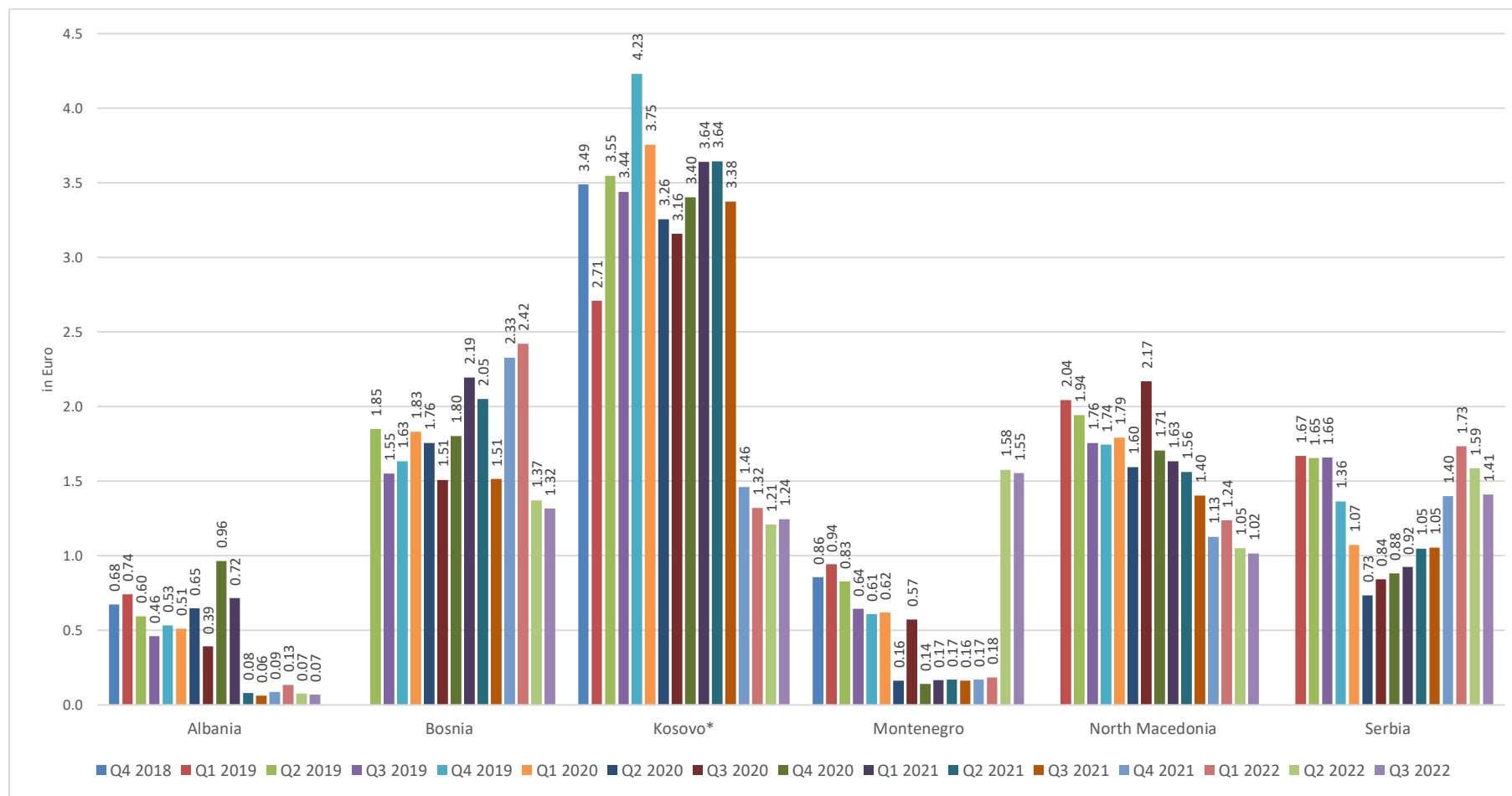
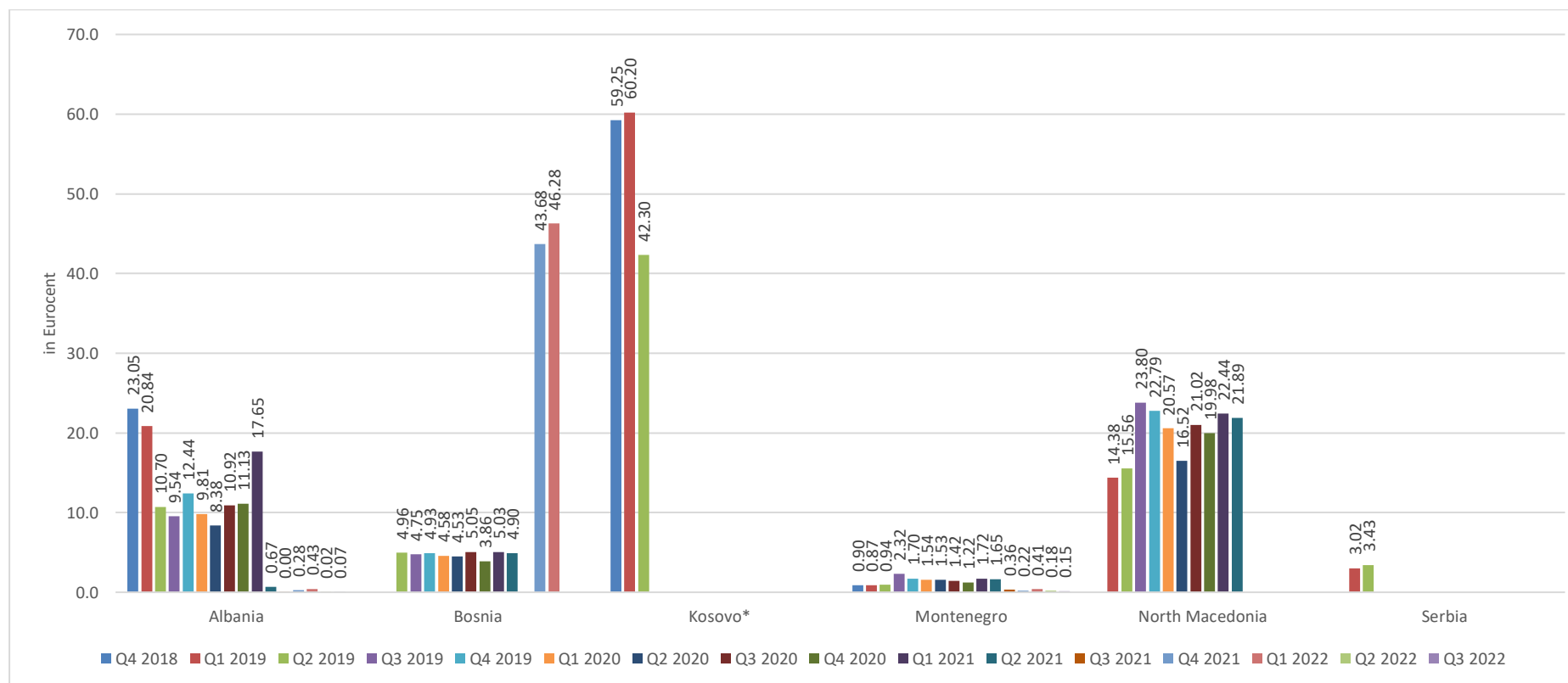


Figure 21: Average retail roaming revenues per minute, calls made (actual minutes), in Euro (within RoW countries)



5.2 Average retail roaming revenues per minute, calls received

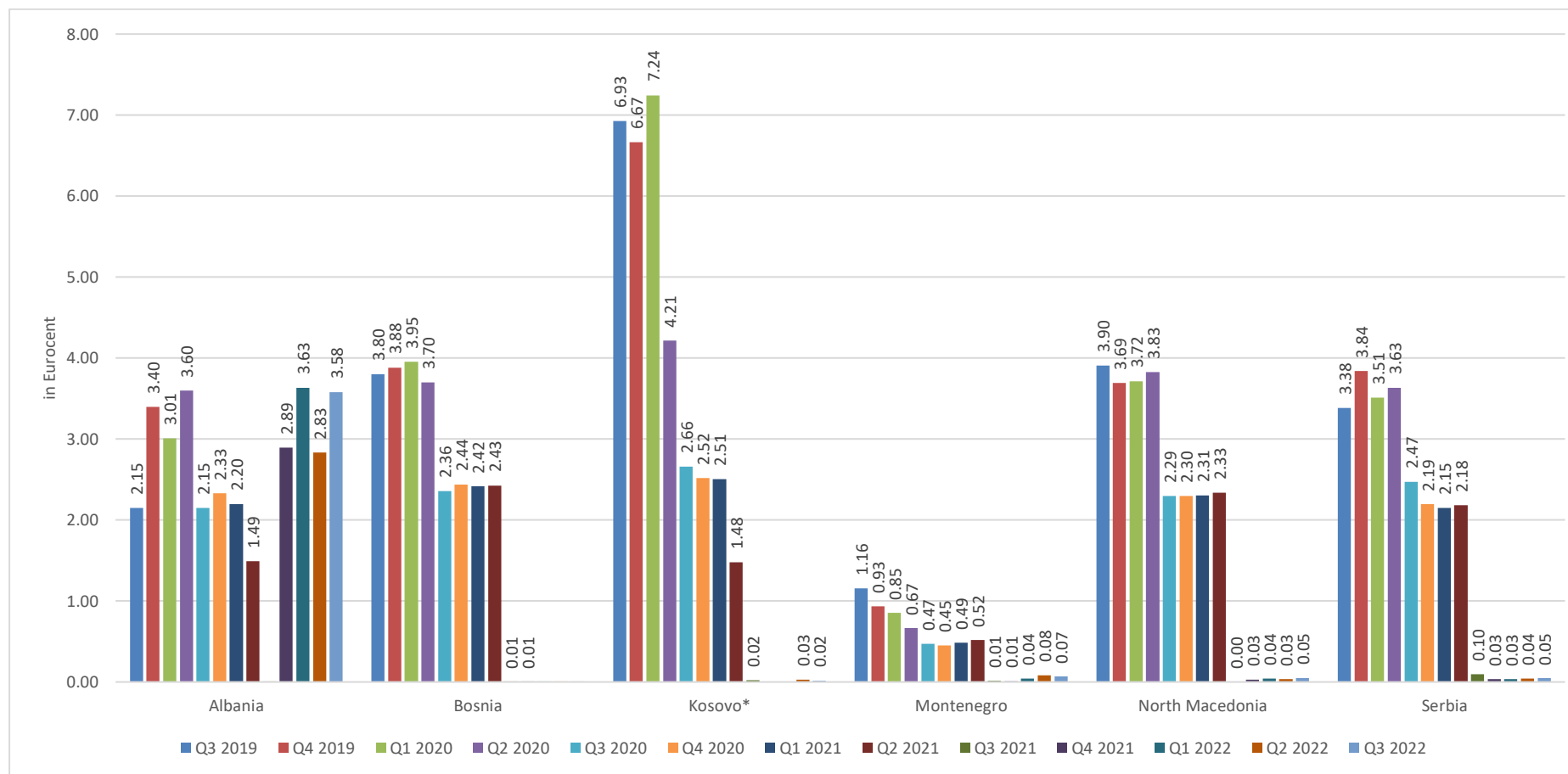
Figure 22: Average retail roaming revenues per alternative WB roaming minute, calls received (actual minutes), in Eurocent (within WB)¹⁴¹⁵



¹⁴ The categories “Western Balkans alternative” and “Western Balkans RLAH+” were implemented in Q3 2019, prior to which only the category “Western Balkans tariffs” existed. The category displayed from Q3 2019 onwards as “WB alternative” is therefore a very different category from the same category in the previous quarters.

¹⁵ The decline of retail roaming revenues for alternative roaming is due to the gradual phase-out of such tariffs.

Figure 23: Average retail roaming revenues per WB RLAH+ and RLAH¹⁶ roaming minute, calls received (actual minutes), in Eurocent (within WB)



¹⁶ Roam Like at Home (RLAH) regime was successfully achieved and roaming free WB region was established as of 1 July 2021. RLAH+ is not being reported as of this date. Albania: Due to a high prevalence of retail roaming bundles, drivers were used to split the values provided for retail roaming revenues from bundles into categories. Q4 2018 and Q1 2019 estimations are based on data submitted by two out of three operators

Figure 24: Average retail roaming revenues per minute, calls received (actual minutes), in Euro (within EEA countries)

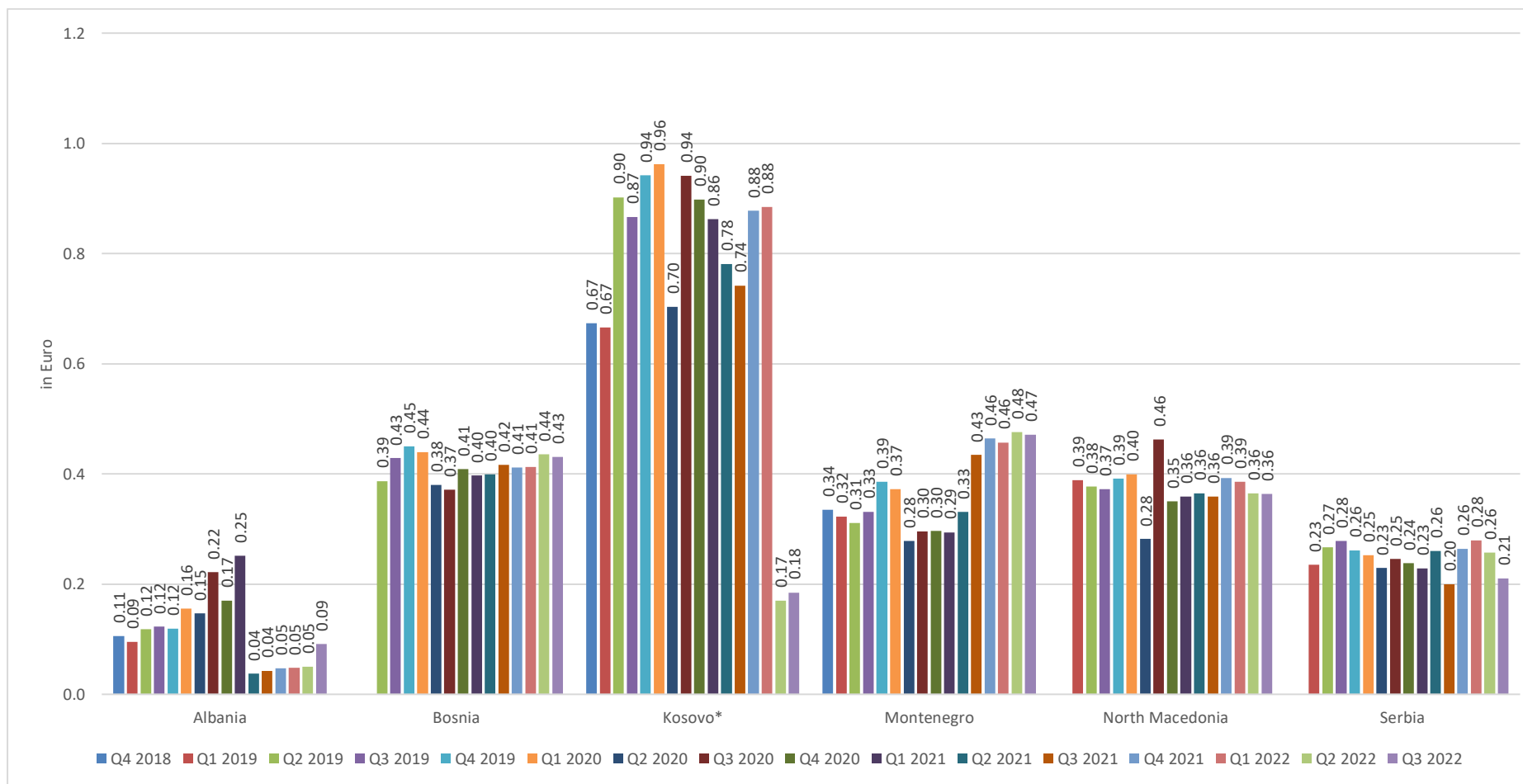
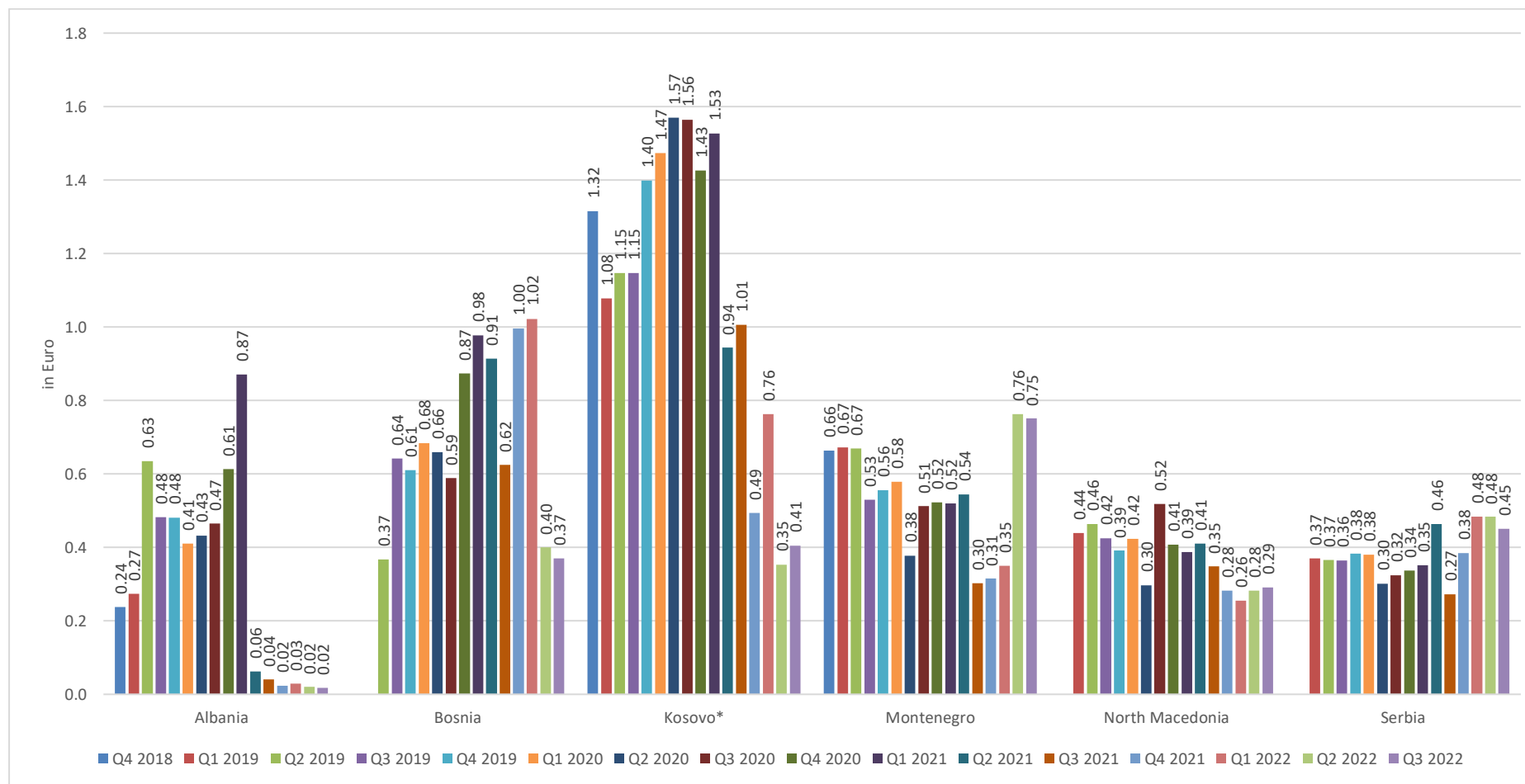
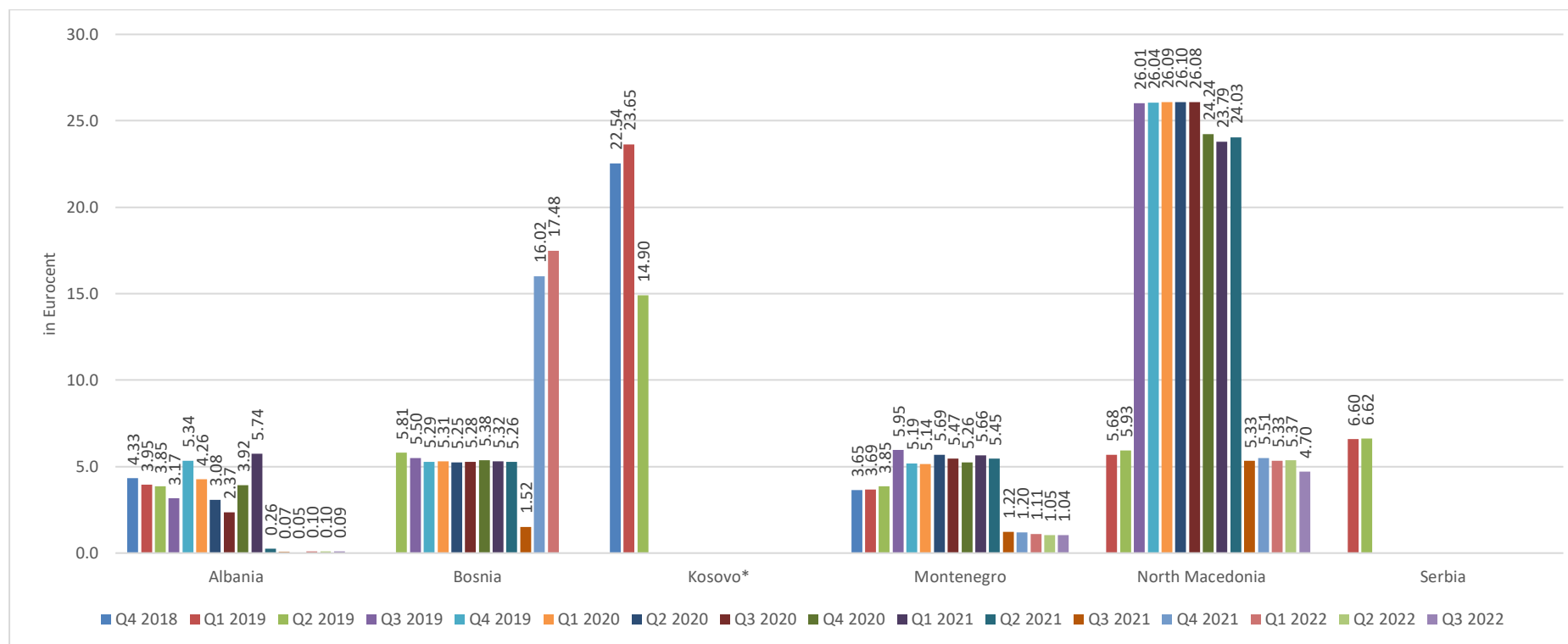


Figure 25: Average retail roaming revenues per minute, calls received (actual minutes), in Euro (within RoW countries)



5.3 Average retail roaming revenues per SMS

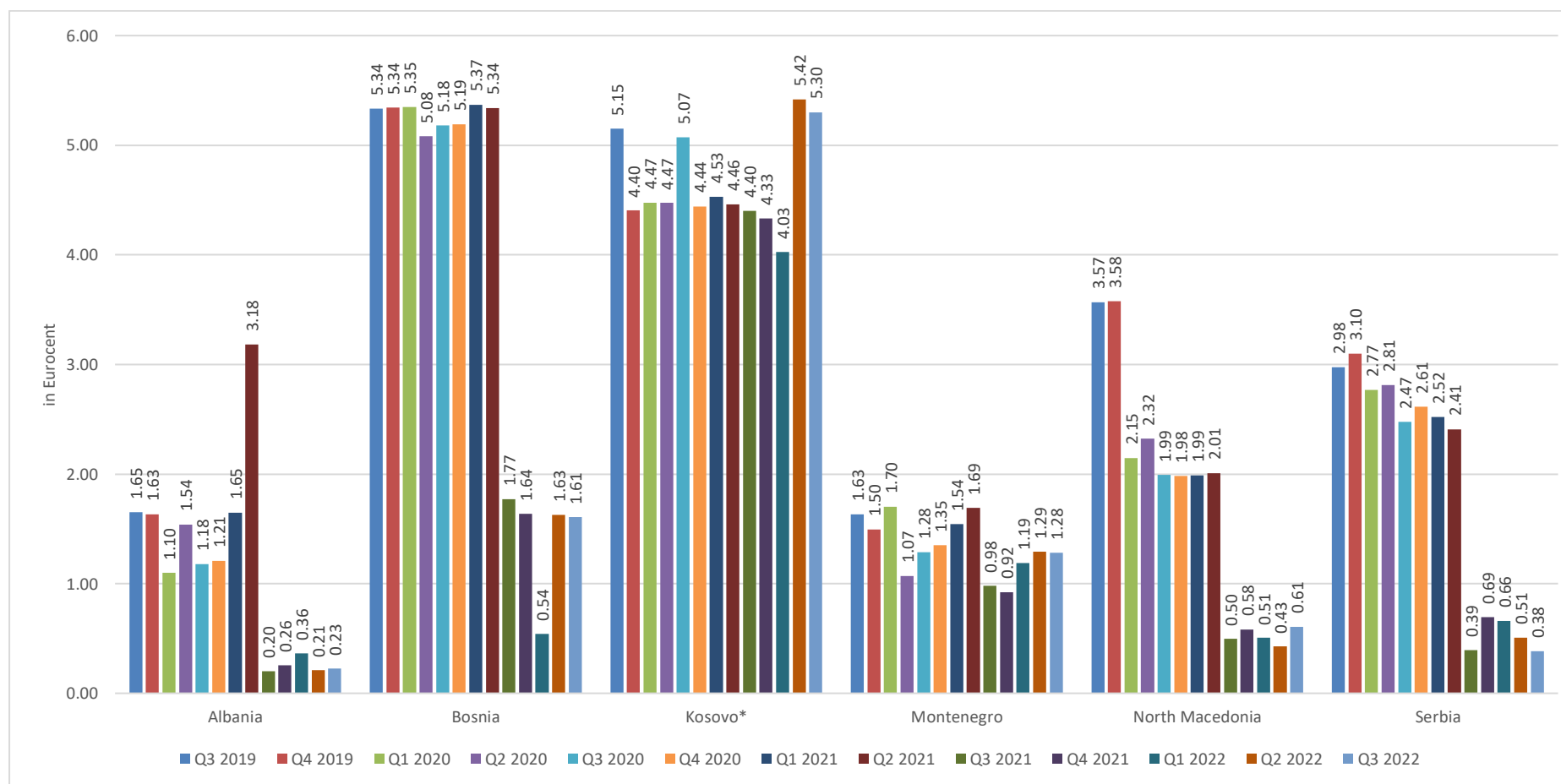
Figure 26: Average retail roaming revenues per alternative WB roaming SMS, in Eurocent (within WB)¹⁷¹⁸



¹⁷ The categories “Western Balkans alternative” and “Western Balkans RLAH+” were implemented in Q3 2019, prior to which only the category “Western Balkans tariffs” existed. The category displayed from Q3 2019 onwards as “WB alternative” is therefore a very different category from the same category in the previous quarters.

Albania: Due to a high prevalence of retail roaming bundles, drivers were used to split the values provided for retail roaming revenues from bundles into categories. Q4 2018 and Q1 2019 estimations are based on data submitted by two out of three operators.

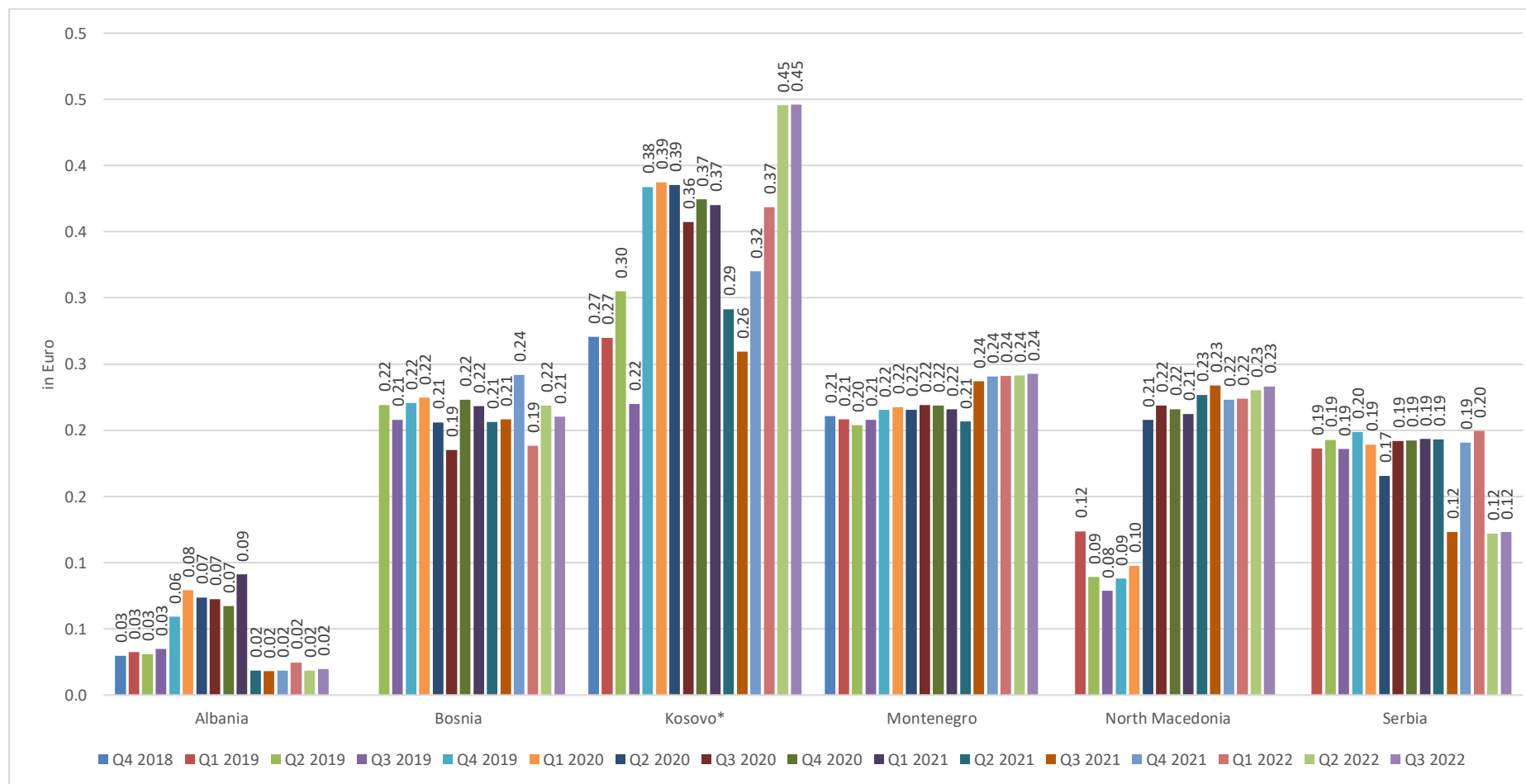
¹⁸ The decline of retail roaming revenues for alternative tariffs is due to the gradual phase-out of such tariffs.

Figure 27: Average retail roaming revenues per WB RLAH+ and RLAH¹⁹ roaming SMS, in Eurocent (within WB)²⁰

¹⁹ RLAH+ was in place until 1 July 2021, Roam Like at Home (RLAH) regime was successfully achieved and roaming free WB region was established as of 1 July 2021. RLAH+ is not being reported as of this date.

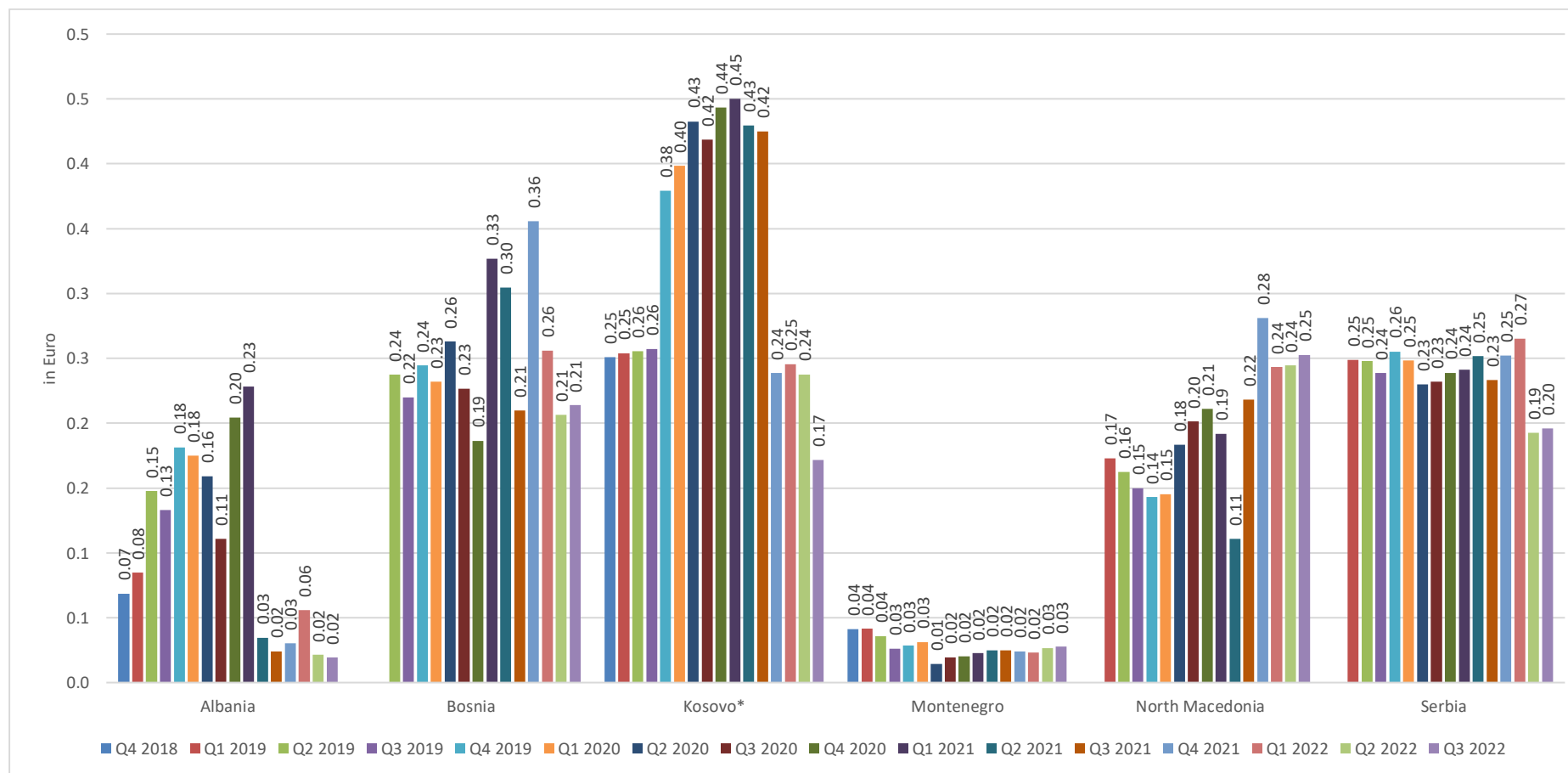
²⁰ Kosovo*: The high values in Q3 19 are due to one of the mobile operators being unable to provide retail roaming revenues for WB only. Instead, the figure presents the data for roaming SMS sent by customers while roaming in WB and EAA.

Figure 28: Average retail roaming revenues per SMS, in Euro (within EEA countries)²¹



²¹ Kosovo*: The increase in the average retail roaming revenue per SMS in Q4 19 is due to an MVNO having discontinued business activities in Kosovo* in this quarter.

Figure 29: Average retail roaming revenues per SMS, in Euro (within RoW countries)²²



²² Kosovo*: The increase in the average retail roaming revenue per SMS in Q4 19 is due to an MVNO having discontinued business activities in Kosovo* in this quarter. Montenegro Q4 2021 and Q1 2022 developments suggest a market change, information needs to be verified by the reporting NRA.

5.4 Average retail roaming revenues per GB

Figure 30: Average retail roaming revenues per alternative WB roaming GB, in Euro²³

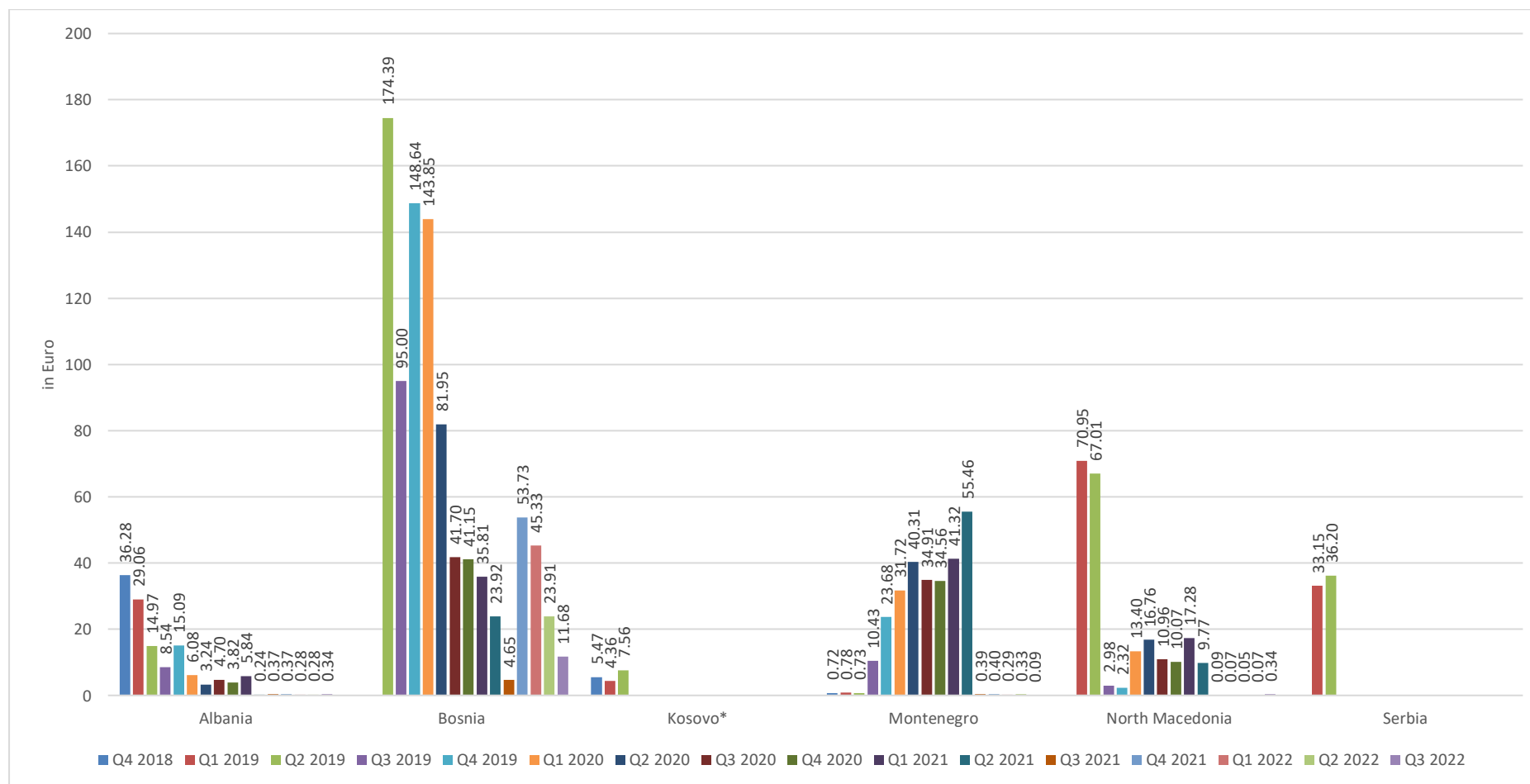
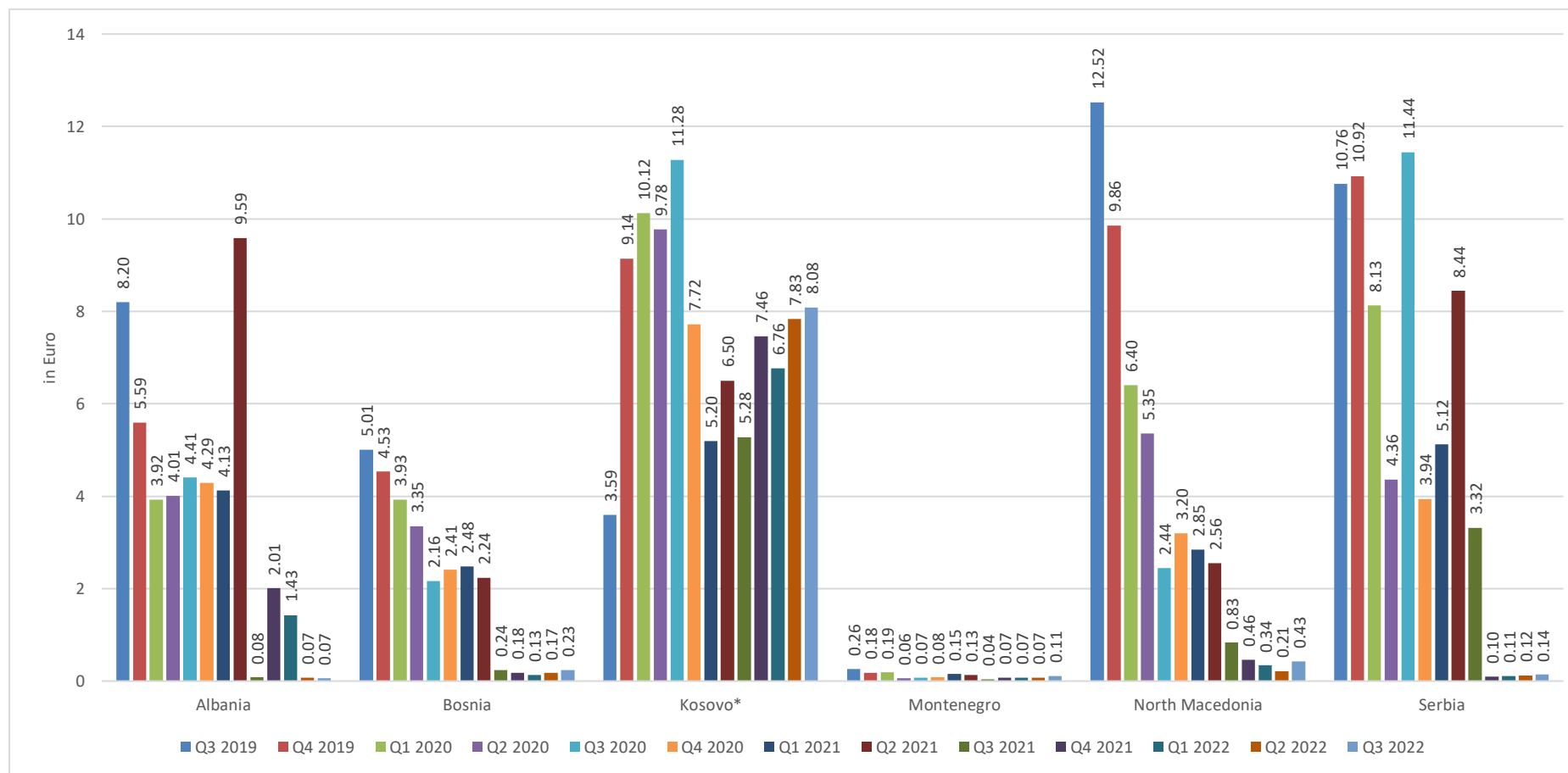


Figure 31: Average retail roaming revenues per WB RLAH+ and RLAH²⁴ roaming GB, in Euro



²⁴ RLAH+ was in place until 1 July 2021, Roam Like at Home (RLAH) regime was successfully achieved and roaming free WB region was established as of 1 July 2021. RLAH+ is not being reported as of this date.

Figure 32: Average retail roaming revenues per GB, in Euro (within EEA countries)

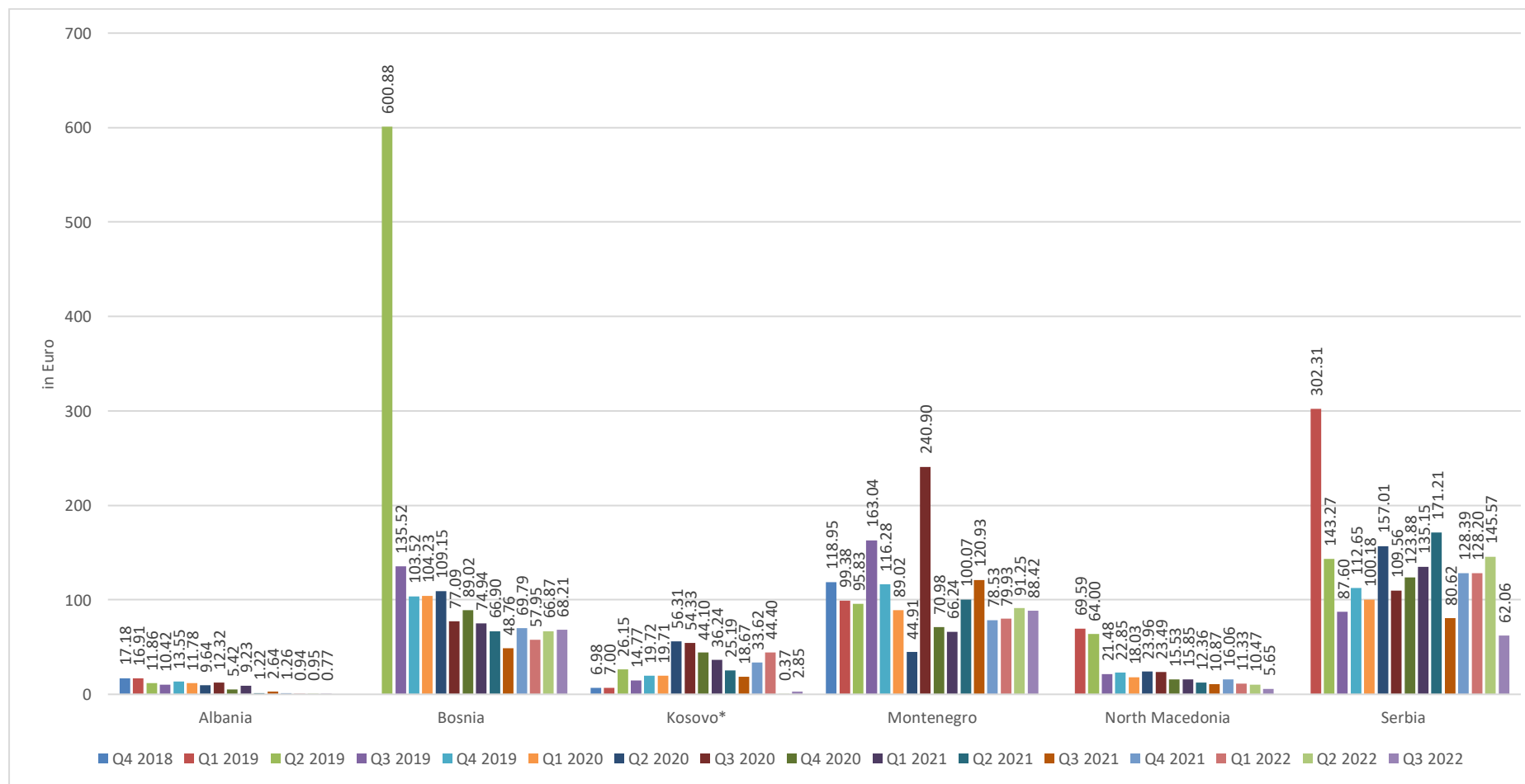
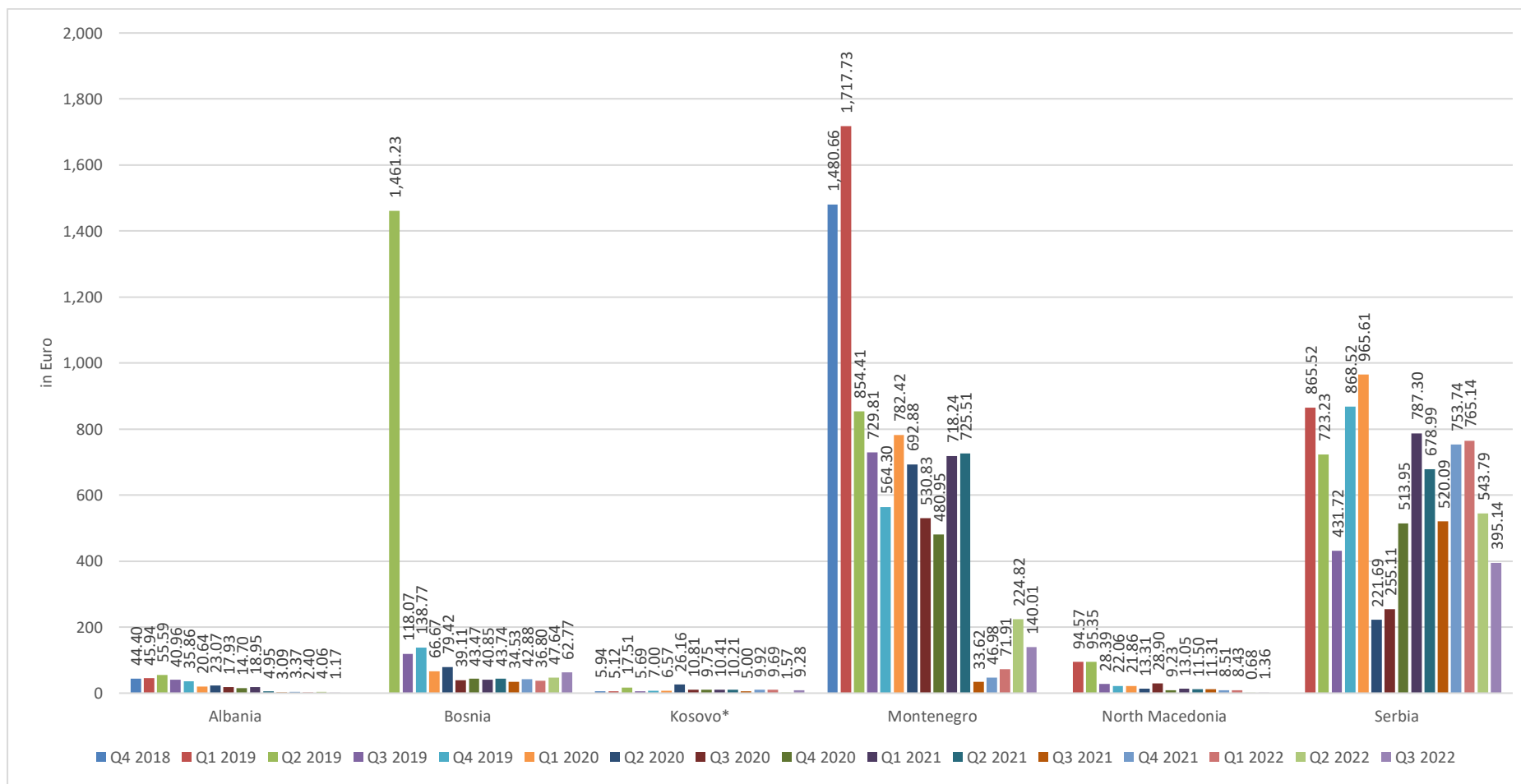


Figure 33: Average retail roaming revenues per GB, in Euro (within RoW countries)



6 The development of wholesale roaming services: wholesale revenues per unit

6.1 Wholesale voice roaming services: wholesale revenues per minute (group and non-group)

Figure 34: Average Wholesale voice roaming services: wholesale revenues per minute (group and non-group) in Eurocent, within WB region

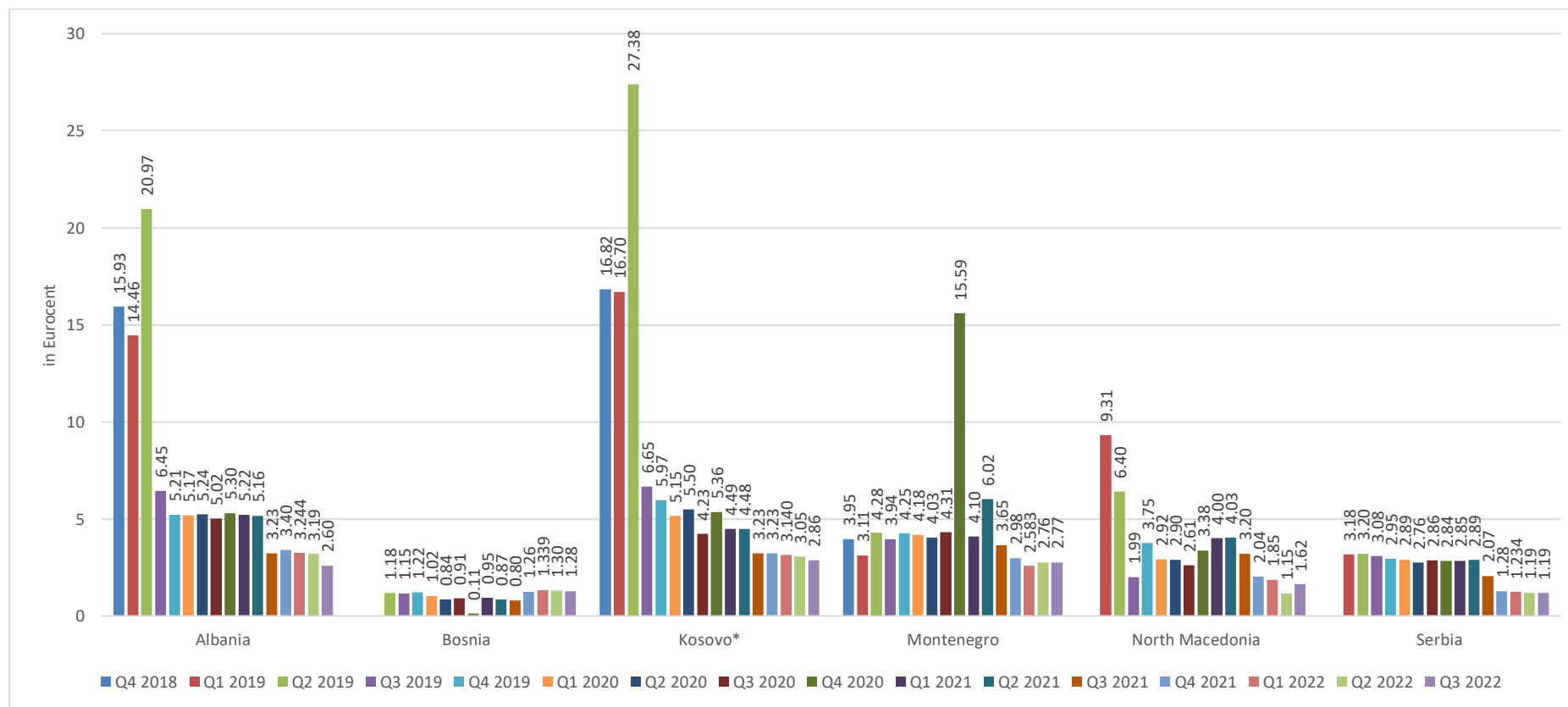


Figure 35: Average Wholesale voice roaming services: wholesale revenues per minute (group and non-group) in Eurocent, from EEA countries

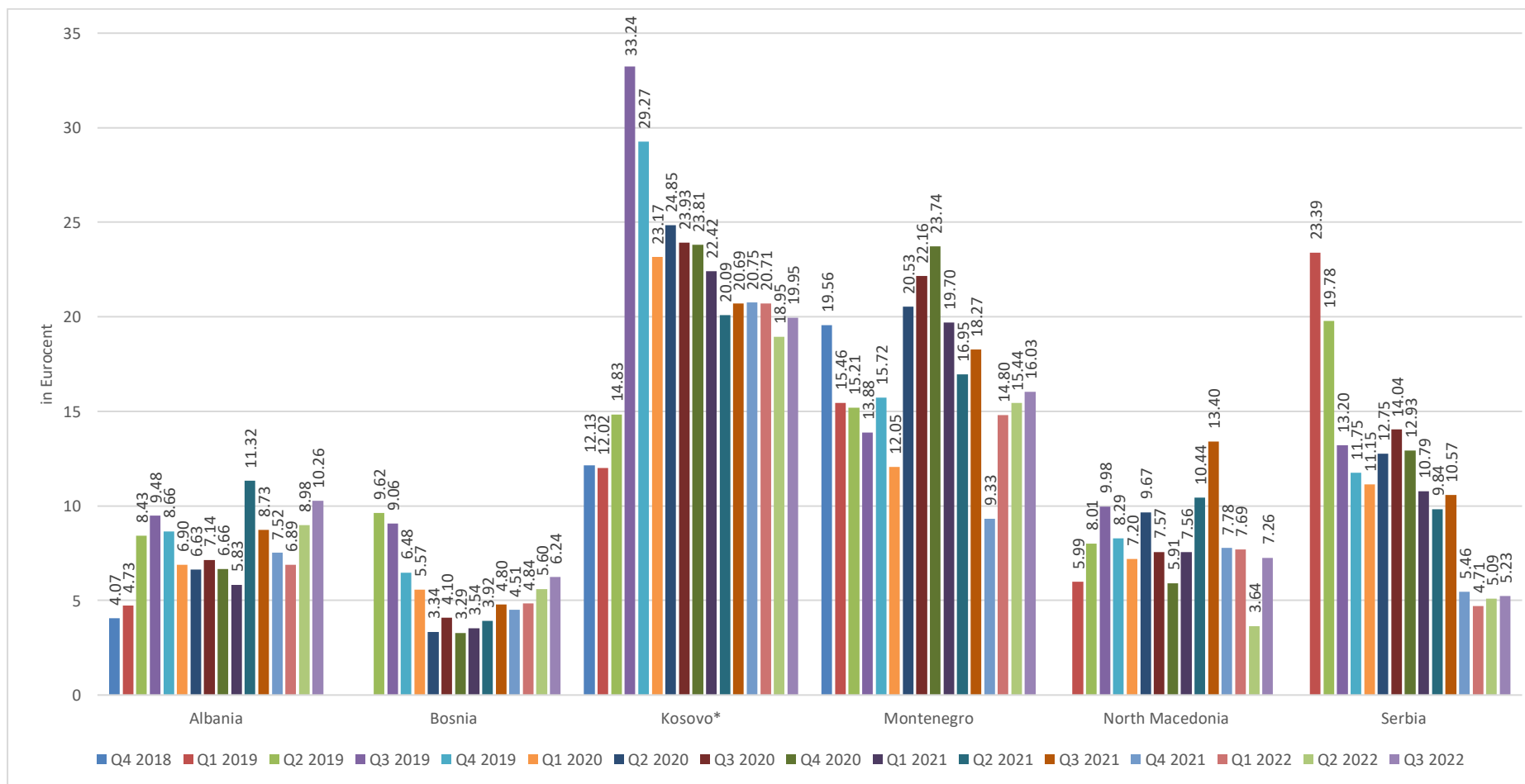
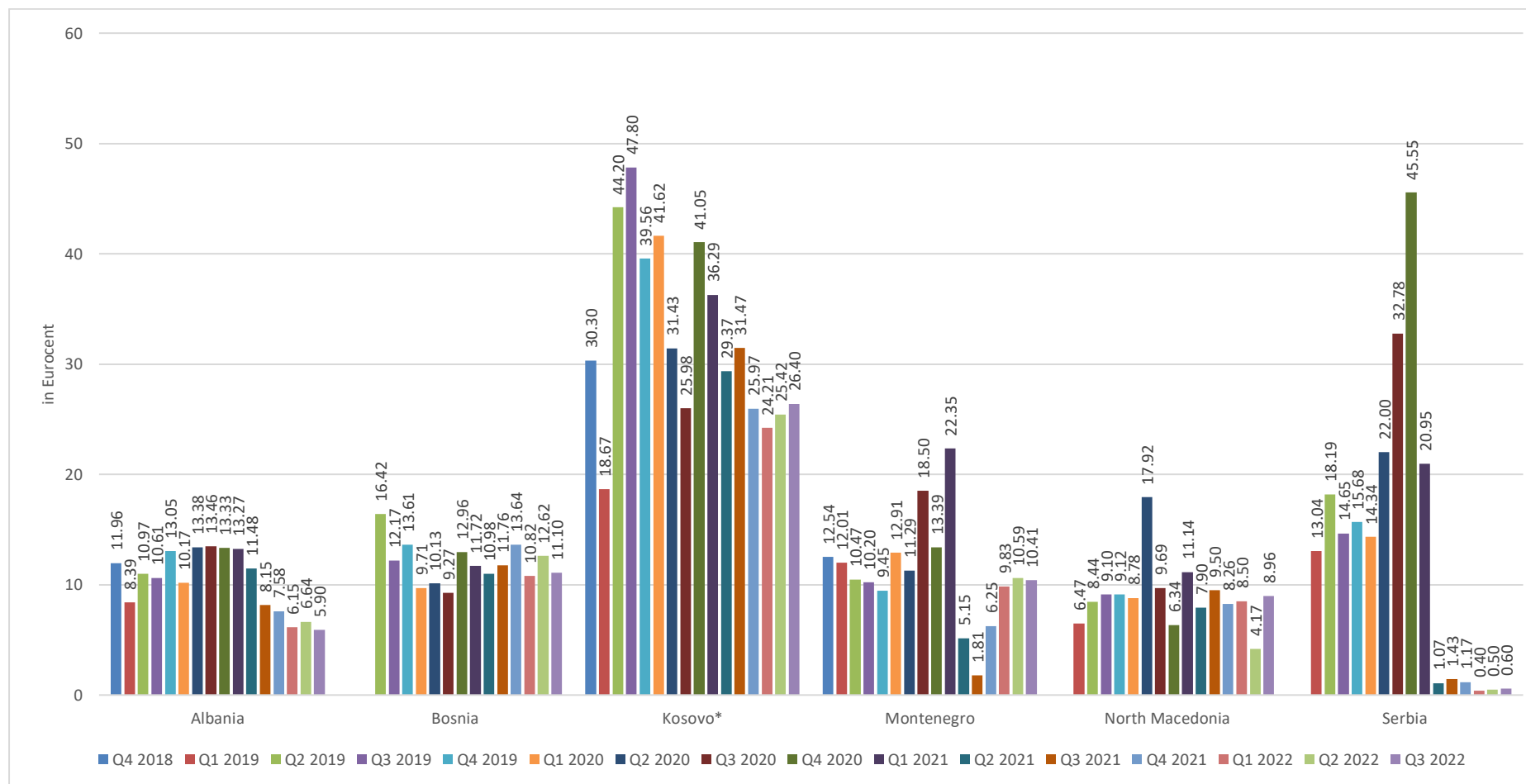


Figure 36: Average Wholesale voice roaming services: wholesale revenues per minute (group and non-group) in Eurocent, from RoW countries



6.2 Wholesale SMS roaming services: wholesale revenues per SMS (group and non-group)

Figure 37: Average Wholesale SMS roaming services: wholesale revenues per SMS (group and non-group) in Eurocent, within WB region

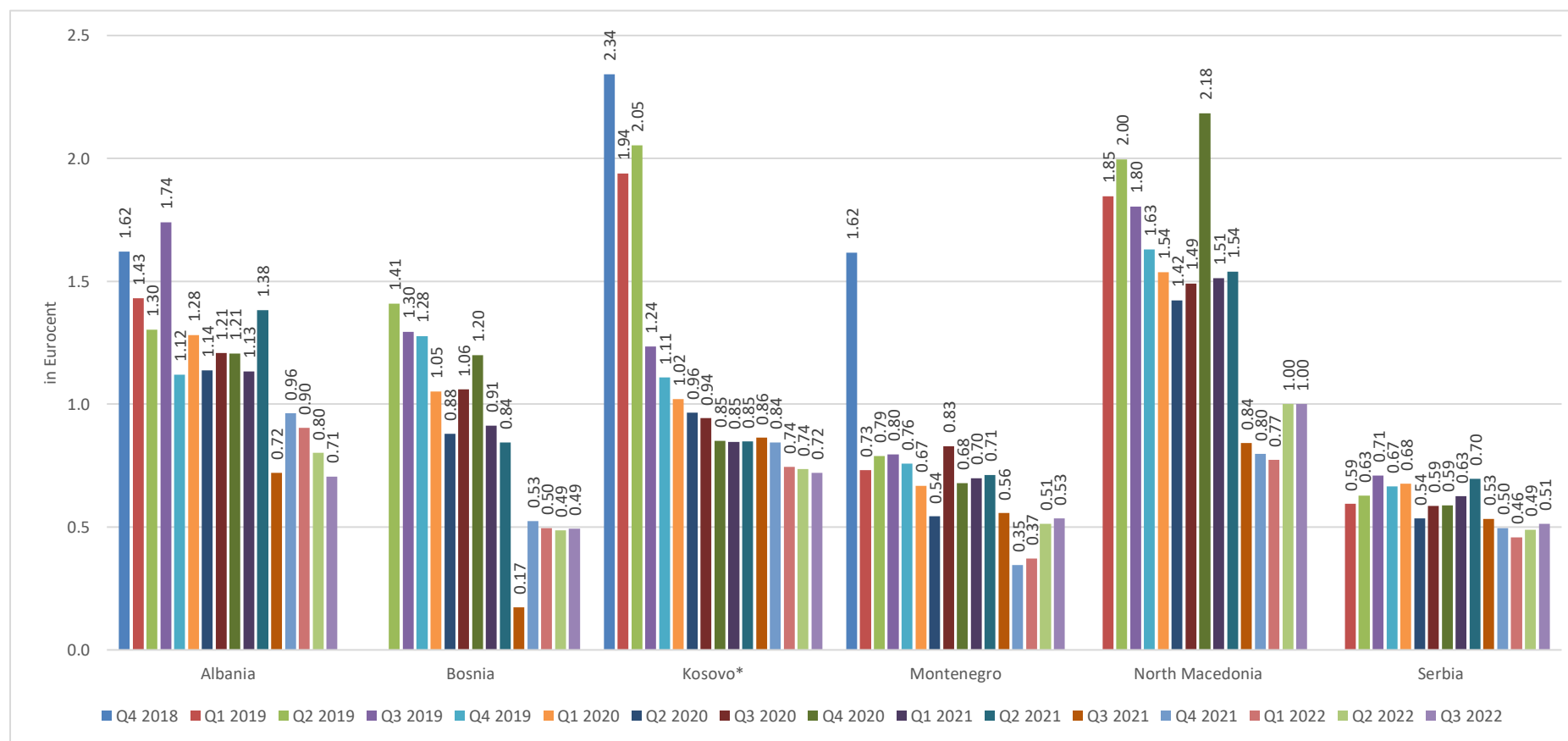


Figure 38: Average Wholesale SMS roaming services: wholesale revenues per SMS (group and non-group) in Eurocent, from EEA countries

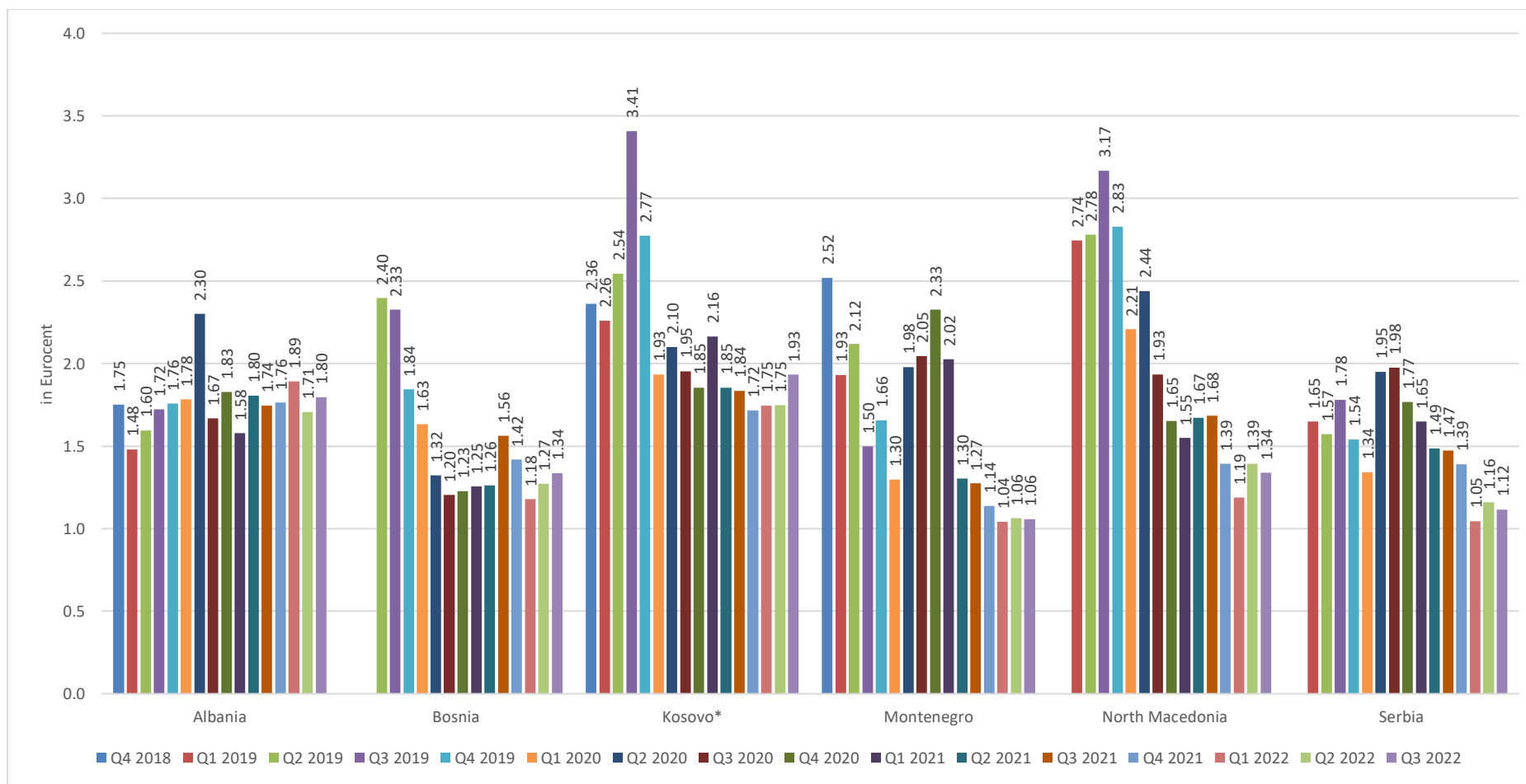
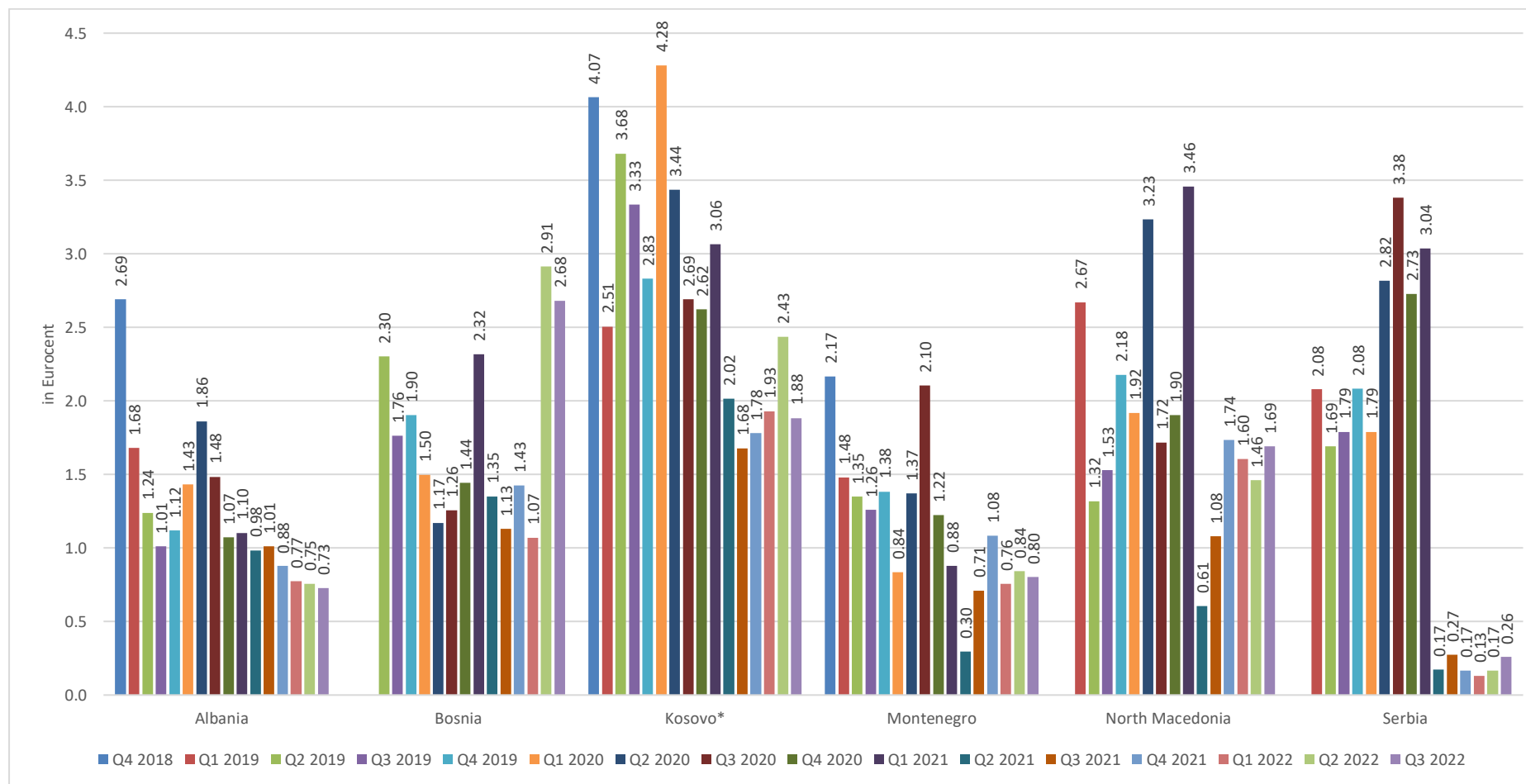
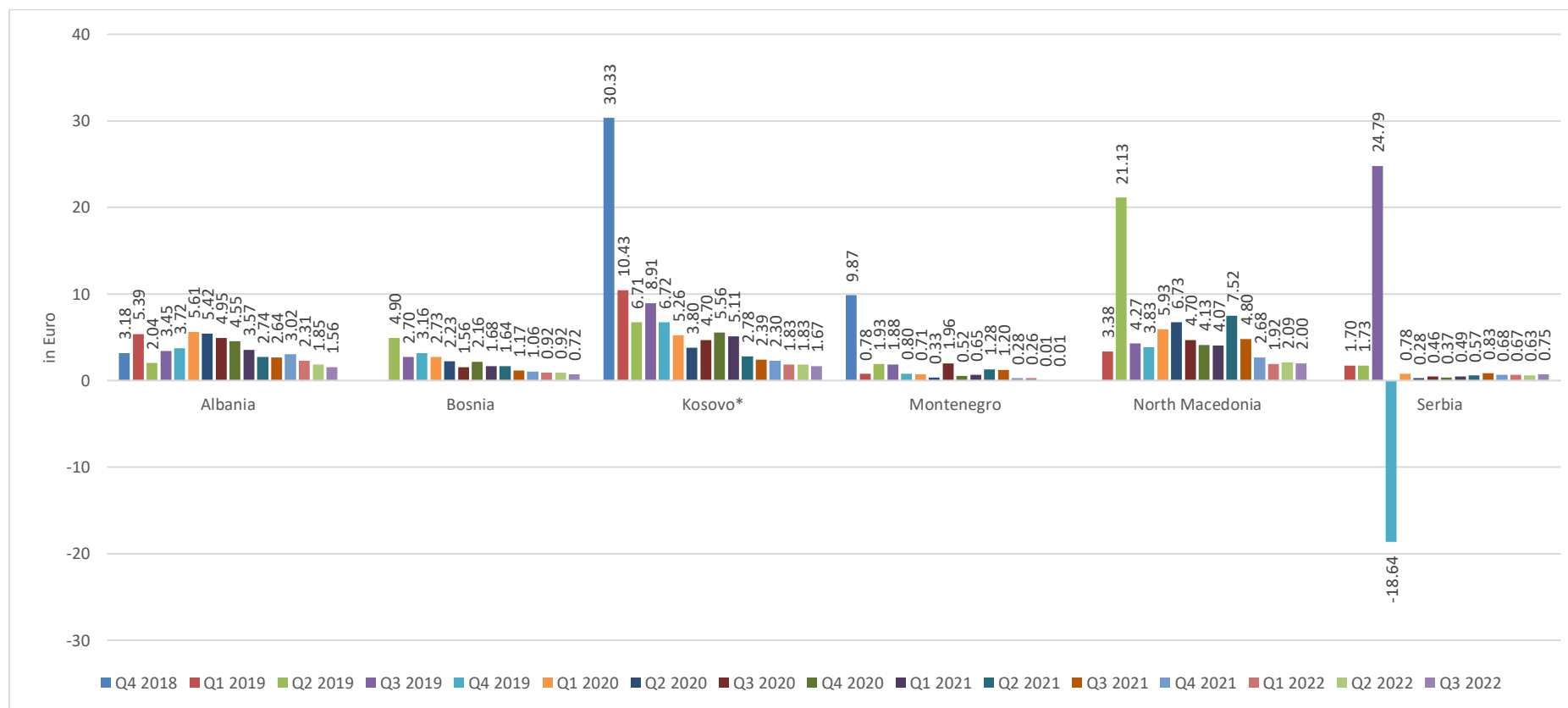


Figure 39: Average Wholesale SMS roaming services: wholesale revenues per SMS (group and non-group) in Eurocent, from RoW countries



6.3 Wholesale data roaming services: wholesale revenues per GB

Figure 40: Wholesale data roaming services: wholesale revenues per GB in Euro, within WB region²⁵



²⁵ Serbia: Due to the implementation period, the calculation of lower regulated roaming prices in the system is visible in Q4 2019. For the period Q3 2019, revenues at the wholesale level of data transmission are higher than expected, so the data should be viewed together for the period Q3 and Q4 2019, considering that financial reconciliation does not necessarily take place in the month in which the turnover took place, but also later in the accounting year.

Figure 41: Wholesale data roaming services: wholesale revenues per GB in Euro, from EEA countries

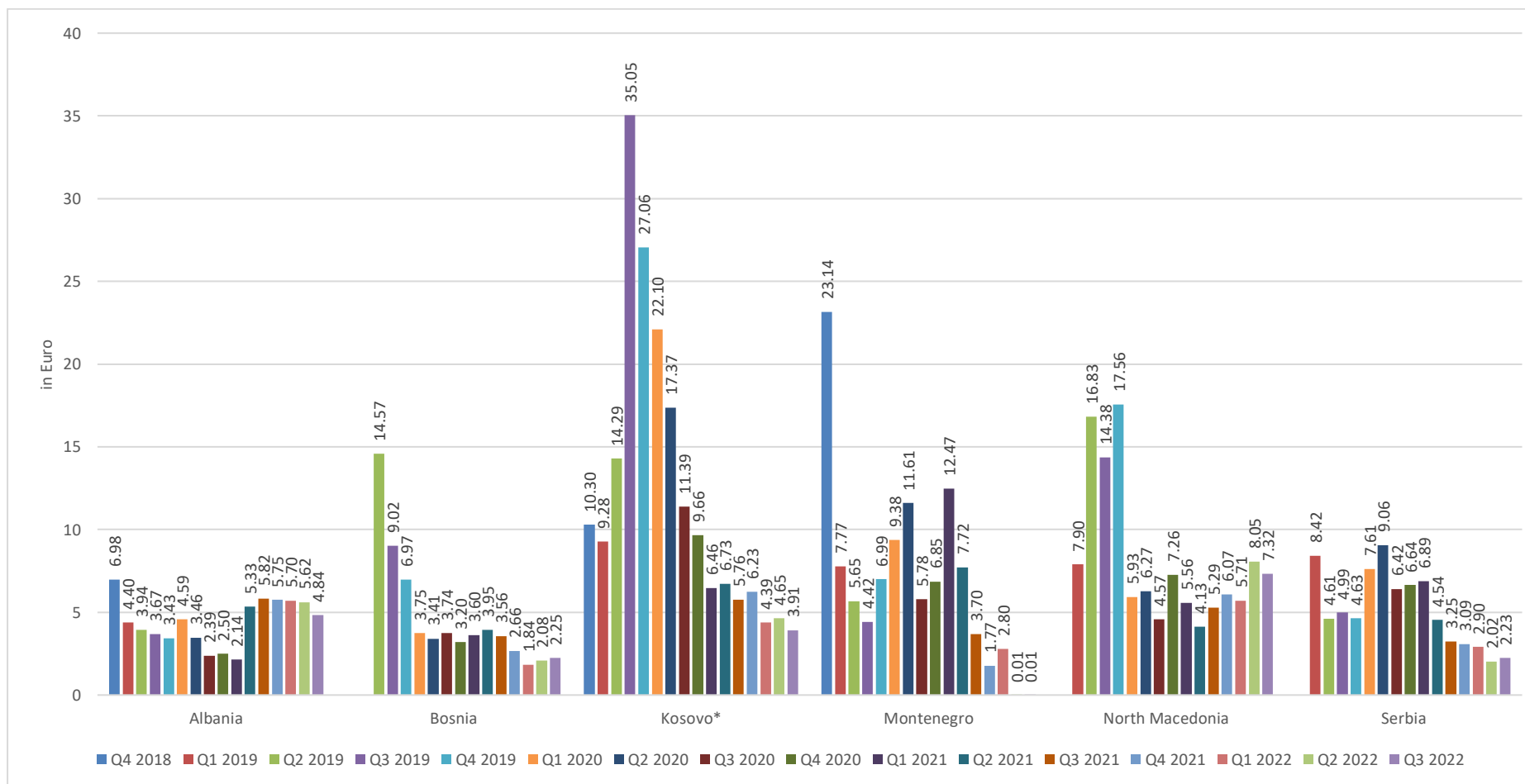
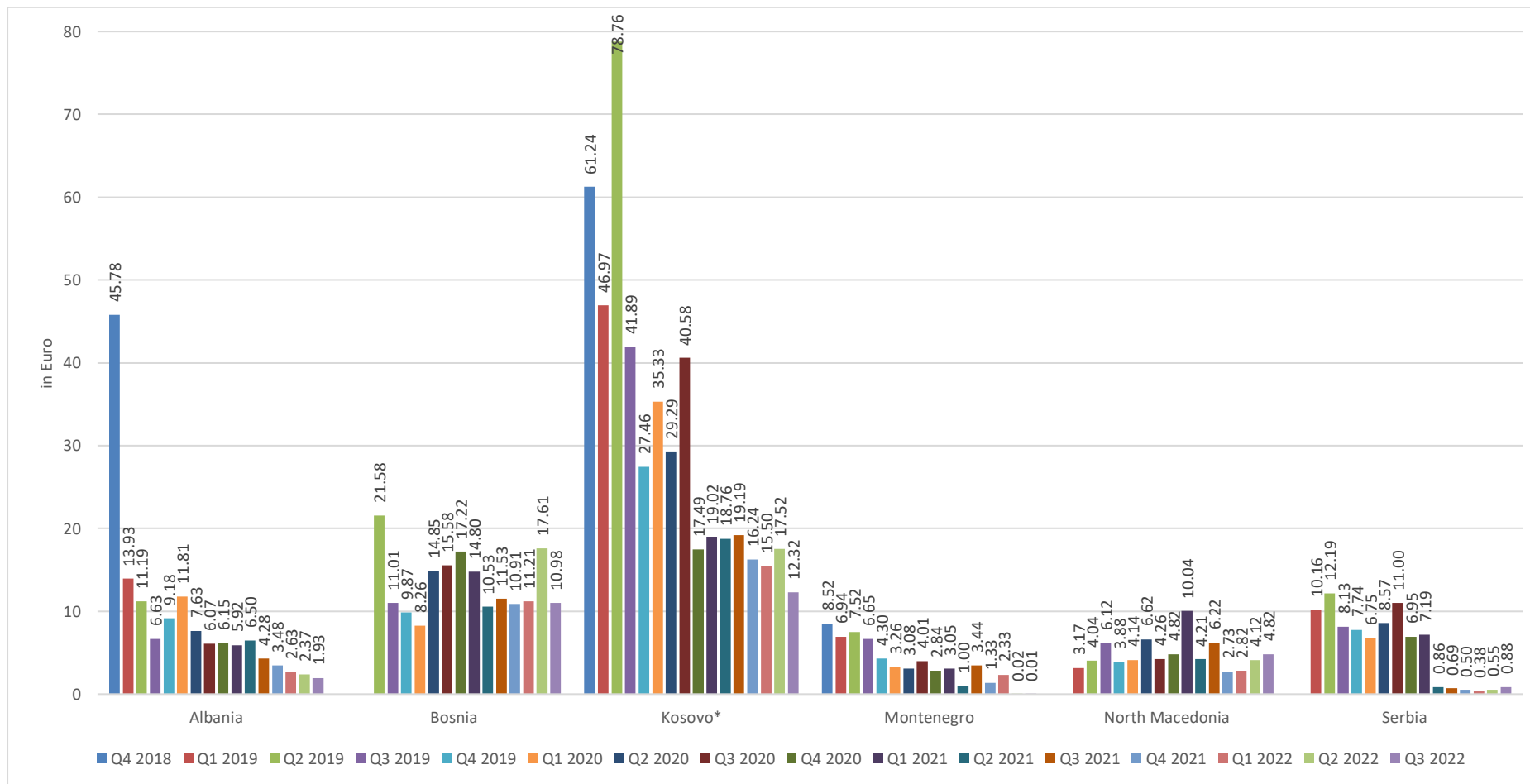


Figure 42: Wholesale data roaming services: wholesale revenues per GB in Euro, from RoW countries



7 Annex

The following chapter contains a list of national operators who submitted data during the data collection exercise. The data submitted by the operators has been aggregated for this report.

Albania

Albtelecom

One Telecommunications

Vodafone Albania

Globaltel d.o.o.

Kosovo*

IPKO Telecommunications

Kosovo Telecom

Bosnia

BH Telecom d.d.

HT d.d

Dasto Semtel d.o.o.

Logosoft d.o.o.

Telekom Srpske a.d.

Montenegro

Crnogorski Telekom

ONE CRNA GORA

M:tel

Serbia

Telekom Srbija a.d.

Telenor d.o.o.

A1 d.o.o.

North Macedonia

A1 Makedonija

Lajkamobajl

Makedonski Telekom

Robi

Green mobile

