Macrothink Institute™

International Research in Education
ISSN 2327-5499
2026, Vol. 14, No. 2

Where is Bosnian and Herzegovinian Higher Education in 2025, and How Can It Be Improved?

Monika Rizovska Tanevska (Corresponding author)

Founder, Researcher, Davleo, ul.Stale Popov br 9/1-53, North Macedonia

Dancho Dimkov

Founder, BizBee, Kavadarci, North Macedonia

Hari Lokvenec

Researcher, Skopje, North Macedonia

Goran Kokarovski

Researcher, Skopje, North Macedonia

Riste Aleksovski

Researcher, Skopje, North Macedonia

Natalija Efremova

Researcher, Skopje, North Macedonia

Received: October 7, 2026 Accepted: November 12, 2026 Published: November 17, 2026

doi: 10.5296/ire.v14i2.24164 URL: https://doi.org/10.5296/ire.v14i2.24164

Abstract

This study examines the position of higher education in Bosnia and Herzegovina (BiH) in 2025 within the Western Balkans. Global rankings reach only one BiH institution, so the study uses the Academic Ranking of Balkan Universities (ARBU), built on Google Scholar citation data as of 30 June 2025. The analysis covers all 21 ranked BiH institutions, benchmarks them against 151 institutions in eight countries, compares fields through within-field regional ranks, and ranks the 100 most-cited BiH researchers. BiH holds 16.4 percent of regional faculty but 5.6 percent of regional citations and records the lowest citations per professor of the eight systems (205). The University of Sarajevo holds 9th place in the region with 492 884 citations, up 13.22 percent from 2024, yet records the lowest rate per professor in the regional top 12 (246). Sarajevo and Banja Luka produce 64 percent of national citations. Within-field ranks, which avoid comparing fields with different citation cultures, place Sarajevo 5th in the region in Agriculture and Forestry and 7th in Medical Sciences, Social Sciences, and Humanities and Arts. One BiH researcher enters the regional top 25 and five enter the top 100. Because the indicators rest on raw citations, part of the differences between institutions reflects field mix rather than research quality. The main policy task is to raise output per faculty member. Recommendations include performance-based funding judged against field norms, complete Google Scholar coverage, cross-entity and international consortia, public-private research partnerships, and accreditation tied to research activity.

Keywords: higher education, university ranking, ARBU, Google Scholar, citation analysis, field normalization, research performance, Bosnia and Herzegovina

1. Introduction

Higher education drives national economic development, technological innovation, and social cohesion. Universities no longer serve only as centers of instruction and credentialing. They form the foundation of competitive knowledge economies. University rankings have therefore become one of the most influential tools in higher education governance. They shape student mobility, faculty recruitment, institutional strategy, and public funding (Hazelkorn, 2015; Marginson, 2022).

Three international systems dominate this field: the QS World University Rankings, the Times Higher Education (THE) World University Rankings, and the Academic Ranking of World Universities (ARWU) published by ShanghaiRanking Consultancy. Together they form the "Big Three". Each combines research output, citations, reputation surveys, staff-student ratios, and internationalization into one composite score (Quacquarelli Symonds, 2025; Times Higher Education, 2025; ShanghaiRanking Consultancy, 2024).

The design of the Big Three favors large, well-funded, research-intensive universities in Western Europe, North America, and resource-rich Asian economies. Smaller and transition systems, such as those of the Western Balkans, rarely clear the scale, publication, and reputation thresholds the Big Three apply. Bosnia and Herzegovina illustrates this gap. The country has 21 higher education institutions ranked in ARBU, but only the University of Sarajevo appears in QS or THE, and no BiH institution appears in ARWU. An analysis built on

the Big Three alone describes one institution out of 21 and leaves policymakers without data on the rest of the system.

The Academic Ranking of Balkan Universities (ARBU), introduced by Bojadziev (2020) and developed by Bojadjiev et al. (2023, 2024, 2026), addresses this gap. ARBU aggregates citation data from the Google Scholar profiles of academic staff and covers public and private institutions of every size. A recent ARBU study of North Macedonia found that the Macedonian flagship fell from 11th to 12th place in the region and that no Macedonian researcher reached the regional top 25 (Bojadjiev et al., 2026). Following that study, this paper asks the central question: where is Bosnian and Herzegovinian higher education in 2025, and how can it be improved?

Section 2 reviews the literature and the position of BiH in the global rankings. Section 3 describes the data, the method, and the treatment of differences in citation practice between fields. Sections 4 and 5 present results for institutions and researchers. Section 6 sets out recommendations, and Section 7 concludes.

2. Literature Review

2.1 Assessing Quality in Higher Education (and Who Does It)

Assessing quality in higher education is complex because modern universities carry several missions at once. Quality is generally assessed across three dimensions:

1. **Research output and impact**, measured through peer-reviewed publications, citations, and patents;
2. **Teaching and learning performance**, measured indirectly through staff-student ratios, graduation rates, and graduate employability;
3. **Institutional mission and engagement with society and industry**, including knowledge transfer, community service, and contributions to public policy.

Combining these dimensions into one score involves normative choices about weights, and different weights produce different orders (Marginson, 2014). Critics argue that composite scores obscure specific institutional strengths, reward scale and reputation, and push administrators toward short-term metric gaming rather than real academic improvement (Altbach, 2006; Salmi, 2009).

ARBU takes the opposite approach. ARBU measures only the research dimension, through citations recorded in Google Scholar, and applies the same indicator to every institution (Bojadjiev et al., 2023). Research output is the most internationally comparable dimension of academic performance, which makes a citation-based lens transparent and replicable for transition systems. Google Scholar indexes books, conference proceedings, open-access journals, and regional publications that Web of Science and Scopus often miss (Bojadjiev et al., 2024; Howland et al., 2009). The trade-off is known: Google Scholar records contain duplicates and update unevenly (Falagas et al., 2008), and citation counts say nothing about teaching or social impact.

Citation counts carry one further, well-documented bias. Citation density differs sharply between fields: medicine, the natural sciences, and large experimental collaborations accumulate citations far faster than the social sciences, economics, and the humanities. Raw citation totals therefore favor institutions and researchers in high-citation fields, independent of quality. Bibliometric practice addresses this bias in two ways. Field-normalized indicators divide observed citations by the citations expected for the same field, and rank-based or percentile indicators compare each unit only with others in the same field (Bornmann et al., 2013; Waltman, 2016). Section 3.2 explains how this study applies the second approach.

2.2 The Position of Bosnian and Herzegovinian Higher Education According to the "Big Three"

Western Balkan universities appear only sparsely in global rankings. ARWU lists four universities from the former Yugoslavia in the global top 1000: Belgrade, Zagreb, Ljubljana, and Novi Sad (ShanghaiRanking Consultancy, 2024). Several others appear in extended tiers or in the Global Ranking of Academic Subjects (GRAS).

For BiH, the visibility gap is pronounced. No BiH university appears in ARWU. The University of Sarajevo is the only BiH institution ranked in both QS and THE (University of Sarajevo, 2025). Table 1 tracks the Sarajevo record across three editions.

Table 1. University of Sarajevo in the QS and THE World University Rankings

Edition	QS World University Rankings	THE World University Rankings
2024	1201-1400	1501+
2025	1001-1200	1501+
2026	1201-1400	1501+

Source: University of Sarajevo (2024, 2025); Times Higher Education (2025).

The record shows a one-band gain in QS 2025, reversed in QS 2026, and no movement in THE. Twenty of the 21 ranked BiH institutions hold no position in any Big Three ranking. These include the major public universities in Banja Luka, Tuzla, East Sarajevo, Mostar, and Zenica, as well as all private universities. Relying on global rankings alone therefore creates the false impression of an invisible higher education sector and hides real differences in research activity across the country.

2.3 What is ARBU – Academic Ranking of Balkan Universities?

ARBU is a regional bibliometric ranking designed to evaluate Balkan higher education institutions in a complete, transparent, and context-sensitive way. The methodology was first presented in "The Advantages of Google Scholar Rankings" (Bojadziev, 2020) and developed in "Understanding University Rankings and the Need for an Academic Ranking of Balkan

Universities" (Bojadjiev et al., 2023). The project began in 2001 and was first selected for support by the Fund for Innovation and Technological Development (FITR) of North Macedonia, though the funding did not follow (Bojadjiev et al., 2026).

The ARBU snapshot of 30 June 2025 covers 151 ranked institutions in eight countries: Slovenia, Croatia, Serbia, Bosnia and Herzegovina, Montenegro, North Macedonia, Albania, and Kosovo (ARBU, 2025). Any accredited public or private higher education institution qualifies, including specialized faculties and national academies of sciences and arts. Stand-alone research institutes do not. Researchers enter the ranking when they list a Balkan institution as their affiliation on Google Scholar. ARBU classifies output into seven fields: Natural Sciences; Engineering and Technology; Medical Sciences; Agriculture and Forestry; Social Sciences; Humanities and Arts; and Economics, Business and Organizational Sciences. Within each field, ARBU publishes a separate ranking of institutions and researchers.

ARBU has particular relevance for BiH. With only one institution visible in global rankings, regional comparison offers the only realistic benchmark for the other 20. Rankings act both as a reflection of institutional performance and as a driver of reform (Hazelkorn, 2015). This paper treats ARBU in both roles.

3. Methodology

3.1 Data Sources

The primary data source is the ARBU dataset as of 30 June 2025 (ARBU, 2025). At the institutional level, the dataset covers all 21 ranked BiH institutions and the 130 other institutions in the region, with faculty counts, total citations, and citations per professor for each, together with the separate institutional rankings for each of the seven fields. At the researcher level, the dataset includes the top 100 BiH researchers and the regional top 100 researchers across the eight countries. Data for 2024 come from the published ARBU study of North Macedonia (Bojadjiev et al., 2026). Global ranking data come from QS, THE, ARWU, and the University of Sarajevo.

The ARBU methodology evaluates three indicators:

1. **Total number of professors:** academic staff with a Google Scholar profile linked to the institution, a baseline measure of research-active size;
2. **Total citations:** the sum of citations across all institutional profiles, a measure of absolute research impact;
3. **Citations per professor (rank coefficient):** total citations divided by the number of professors, a size-adjusted measure of research intensity. This ratio adjusts for size but not for field.

Researcher scores need one technical note. ARBU does not publish citation counts in the national researcher ranking. It rescales each researcher to a 0-100 index against the leading researcher in the chosen frame. In the BiH frame, Olja Đorđić scores 100. In the regional frame, Marko Mikuž of the Jožef Stefan International Postgraduate School scores 100 with 270 339

citations, and Đorđić scores 25.50 with 68 936 citations. The national index therefore converts to approximately 689 citations per index point. Section 5 uses this rate to derive citation figures for the other BiH researchers. These figures are index-based estimates, not observed counts. They are rounded to the nearest hundred and should be read as approximate magnitudes; the national index remains the primary measure.

3.2 Treatment of Differences Between Fields

Citation habits differ sharply by field (Section 2.1). The preferred remedy is a field-normalized indicator, which divides each unit's citations by the average citations of all units in the same field (Waltman, 2016). Such an indicator requires regional field baselines: the total citations and total professors of each field across all 151 institutions. ARBU 2025 publishes the field rankings but not these baselines, so a full field-normalized indicator cannot be computed from the published data. The study therefore applies three rules that keep cross-field effects out of the comparisons:

1. **Within-field ranks for field comparisons.** The position of BiH in each field is expressed as the regional rank of the leading BiH institution within that field. Each institution is compared only with other institutions in the same field, so differences in citation culture between fields do not enter the comparison (Bornmann et al., 2013).
2. **Within-field efficiency comparisons only.** Citations per professor are compared between institutions in the same field, never between fields.
3. **Explicit qualification of mixed-field figures.** Country totals, institution totals, the national efficiency ranking, and the field composition of the leading researchers combine several fields. The paper reports them as descriptive figures, states that they partly reflect field mix, and does not rank fields against one another on raw citation counts.

Comprehensive universities with broad field portfolios offer the fairest like-for-like institutional comparison, because their field mixes resemble one another. Where the paper draws conclusions on institutional productivity, it relies on comparisons within this group.

3.3 Analytical Approach

The analysis follows a four-stage procedure:

1. **Regional benchmarking** – BiH compared with the seven other systems on totals, intensity, and representation in the regional top 12;
2. **National ranking** – all 21 BiH institutions ranked by total citations and citations per professor, with a split between public, private, and academy institutions;
3. **Field analysis** – BiH institutions placed against regional peers within each of the seven ARBU fields, using within-field ranks and within-field efficiency;

4. **Individual researcher evaluation** – the top 25 BiH researchers ranked by national index, with institution, field, and rank within field, and compared with leading researchers across the region.

When the same pattern appears at several levels, the paper treats the pattern as structural rather than as a by-product of one analytical choice.

3.4 Limitations

Five limitations apply. First, ARBU uses citations as the sole indicator and does not capture teaching quality, student outcomes, graduate employability, or governance (Altbach, 2006). Second, citation habits differ by field. Within-field ranks remove this effect from the field comparisons, but country totals, institution totals, and researcher lists still reflect the field mix of each unit, and a full field-normalized indicator awaits the publication of regional field baselines. Within-field ranks also reflect institution size, since ARBU orders each field by total citations. Third, hyper-authored international collaborations, particularly in experimental physics and multinational clinical trials, inflate individual and institutional totals. Fourth, the data form a snapshot. Only the University of Sarajevo and the other regional top 12 universities have a published 2024 comparison point, and researcher citation figures below the national leader are index-based estimates. Fifth, ARBU counts only staff with a Google Scholar profile, so institutions where many staff lack profiles appear weaker than their true output. Within these limits, the method provides a transparent and comparable measure of research visibility and a sound basis for policy discussion.

4. Results – Bosnian and Herzegovinian Institutions

4.1 Regional Positioning – ARBU 2025 Results

As of 30 June 2025, ARBU has evaluated 151 institutions across eight countries, with 19.7 million citations and 33 157 ranked professors. Table 2 sets out the country totals.

Table 2. Western Balkan country totals (ARBU, 30 June 2025)

Country	Institutions	Professors	Total citations	Share of citations (%)	Share of professors (%)	Citations per professor
Croatia	31	11 967	8 100 527	41.0	36.1	677
Slovenia	18	2860	4 375 724	22.2	8.6	1530
Serbia	16	6138	4 202 375	21.3	18.5	685
Bosnia and Herzegovina	**21**	**5430**	**1 112 662**	**5.6**	**16.4**	**205**
North Macedonia	20	2706	730 977	3.7	8.2	270

Country	Institutions	Professors	Total citations	Share of citations (%)	Share of professors (%)	Citations per professor
Kosovo	14	2255	594 752	3.0	6.8	264
Montenegro	4	713	373 753	1.9	2.2	524
Albania	27	1088	245 938	1.2	3.3	226
Total	**151**	**33 157**	**19 736 708**	**100.0**	**100.0**	**595**

Source: Authors' calculations from ARBU (2025).

BiH ranks fourth by total citations, behind Croatia, Slovenia, and Serbia, and third by number of professors, ahead of Slovenia. The gap between these two positions defines the system. With 16.4 percent of regional faculty, BiH produces 5.6 percent of regional citations. At 205 citations per professor, BiH records the lowest research intensity of all eight countries, below Albania (226), Kosovo (264), and North Macedonia (270). Slovenia produces 7.5 times more citations per professor than BiH, and Montenegro, with 13 percent of the BiH faculty, produces 2.6 times more.

These country figures combine all fields and are not field-normalized. Part of the distance to Slovenia and Croatia reflects their strong presence in high-citation fields, including physicists in large international collaborations (Section 5.2). The comparison with North Macedonia, Kosovo, and Albania, systems without such a concentration among the regional leaders, suggests that field mix does not explain the whole gap. The exact share that field mix explains can only be measured once regional field baselines become available.

At the institutional level, one BiH university enters the regional top 12. Table 3 lists the group.

Table 3. Top 12 universities in the Western Balkans by total citations (ARBU, 30 June 2025)

Rank	University	Country	No. of professors	Total citations	Citations per professor
1	University of Zagreb	Croatia	6363	4 619 105	726
2	University of Belgrade	Serbia	3081	2 490 515	808
3	University of Ljubljana	Slovenia	1336	2 082 950	1559
4	University of Split	Croatia	1155	1 810 012	1567
5	Jožef Stefan International Postgraduate School	Slovenia	416	1 143 404	2749

Rank	University	Country	No. of professors	Total citations	Citations per professor
6	University of Rijeka	Croatia	1253	667 801	533
7	University of Maribor	Slovenia	534	615 908	1153
8	University of Novi Sad	Serbia	1080	547 214	507
9	**University of Sarajevo**	**Bosnia and Herzegovina**	**2002**	**492 884**	**246**
10	University of Osijek	Croatia	1074	470 925	438
11	University of Kragujevac	Serbia	329	398 854	1212
12	Ss. Cyril and Methodius University, Skopje (UKIM)	North Macedonia	1000	396 854	397

Source: ARBU (2025).

The University of Sarajevo anchors BiH in the region at 9th place, ahead of Osijek, Kragujevac, and UKIM Skopje. Two features of the table matter more than the rank. First, Sarajevo has the third-largest faculty in the region, behind only Zagreb and Belgrade. Second, Sarajevo records the lowest rate per professor in the top 12, at 246. Institutional ratios also combine fields, so the fairest comparison is with other comprehensive universities with broad field portfolios. Within that group, Sarajevo (246) remains below UKIM Skopje (397), Osijek (438), Novi Sad (507), Rijeka (533), and Zagreb (726). Kragujevac records 4.9 times more citations per profile than Sarajevo, but part of this difference reflects the field composition of the two universities, so the paper does not read it as a direct measure of relative productivity.

Table 4 compares the University of Sarajevo in 2024 and 2025, and Table 5 shows citation growth for the whole regional top 12.

Table 4. University of Sarajevo in ARBU, 2024 and 2025

Indicator	2024	2025	Change
Regional rank	9	9	0
No. of professors	1953	2002	+2.5%
Total citations	435 335	492 884	+13.2%
Citations per professor	223	246	+10.5%

Source: 2024 data from Bojadjiev et al. (2026); 2025 data from ARBU (2025).

Table 5. Growth of citations of the regional top 12 universities, 2024-2025

Rank 2025	University	Total citations 2024	Total citations 2025	Growth (%)
1	University of Zagreb	4 292 348	4 619 105	7.61
2	University of Belgrade	2 129 532	2 490 515	16.95
3	University of Ljubljana	1 840 811	2 082 950	13.15
4	University of Split	1 575 050	1 810 012	14.92
5	Jožef Stefan International Postgraduate School	1 043 847	1 143 404	9.54
6	University of Rijeka	603 941	667 801	10.57
7	University of Maribor	554 508	615 908	11.07
8	University of Novi Sad	485 102	547 214	12.80
9	**University of Sarajevo**	**435 335**	**492 884**	**13.22**
10	University of Osijek	410 751	470 925	14.65
11	University of Kragujevac	329 923	398 854	20.89
12	Ss. Cyril and Methodius University, Skopje	341 852	396 854	16.09

Source: 2024 data from Bojadjiev et al. (2026); 2025 data from ARBU (2025). The UKIM 2025 figure follows the ARBU database (396 854); Bojadjiev et al. (2026) report 369 854 in one table, which appears to be a transposition.

Sarajevo held 9th place and improved on every indicator. Growth came mostly from output rather than headcount: professors rose 2.5 percent while citations rose 13.2 percent. Sarajevo ranks 6th of 12 on growth, above Zagreb (7.6 percent), Novi Sad (12.8 percent), and Ljubljana (13.2 percent), and below Kragujevac (20.9 percent), Belgrade (17.0 percent), UKIM (16.1 percent), Split (14.9 percent), and Osijek (14.7 percent). Kragujevac overtook UKIM in 2025, while Sarajevo kept a lead of 1.24 to 1 over the Macedonian flagship.

Table 6 expresses the distance between Sarajevo and its regional peers as a multiple of Sarajevo citations.

Table 6. Citations of selected regional universities as a multiple of University of Sarajevo citations (2024 and 2025)

University	**2024**	**2025**
Zagreb	9.86	9.37
Belgrade	4.89	5.05
Ljubljana	4.23	4.23
Split	3.62	3.67
Rijeka	1.39	1.35
Maribor	1.27	1.25
Novi Sad	1.11	1.11
Sarajevo	**1.00**	**1.00**
Osijek	0.94	0.96
Ss. Cyril and Methodius, Skopje	0.79	0.81
Kragujevac	0.76	0.81

Source: Authors' calculations from ARBU (2025) and Bojadjiev et al. (2026).

Sarajevo closed part of the gap to Zagreb, Rijeka, and Maribor, held level with Ljubljana and Novi Sad, and lost ground to Belgrade and Split. Below Sarajevo, Osijek, Skopje, and Kragujevac all moved closer. The three universities directly above Sarajevo, Novi Sad (1.11), Maribor (1.25), and Rijeka (1.35), form realistic targets. At 2024-2025 growth rates, however, Sarajevo would pass Maribor in about 12 years, Rijeka in about 13 years, and Novi Sad in about 28 years. Growth faster than peers, not steady growth, will decide whether Sarajevo moves up.

4.2 ARBU National Ranking of Bosnian and Herzegovinian Institutions

BiH higher education combines comprehensive public universities established along entity and cantonal lines with a growing group of private and specialized institutions. ARBU ranks 21 BiH institutions: nine public universities, eleven private institutions, and the Academy of Sciences and Arts of Bosnia and Herzegovina (ANUBiH). Table 7 presents the full national ranking.

Table 7. National ranking of BiH higher education institutions (ARBU, 30 June 2025)

BiH rank	ARBU rank	Institution	Type	Professors	Total citations	Citations per professor	Share (%)
1	9	University of Sarajevo	Public	2002	492 884	246	44.3
2	17	University of Banja Luka	Public	864	223 063	258	20.0
3	23	University of Tuzla	Public	557	111 199	200	10.0
4	29	University of Mostar	Public	551	73 169	133	6.6
5	32	University of East Sarajevo	Public	522	65 387	125	5.9
6	41	University of Zenica	Public	274	30 576	112	2.7
7	42	International Burch University (IBU)	Private	147	30 065	205	2.7
8	43	Sarajevo School of Science and Technology (SSST)	Private	70	29 571	422	2.7
9	44	International University of Sarajevo (IUS)	Private	131	29 268	223	2.6
10	69	University Džemal Bijedić of Mostar	Public	161	6996	43	0.6
11	73	University of Bihać	Public	90	6175	69	0.6
12	82	Academy of Sciences and Arts of BiH (ANUBiH)	Academy	3	4696	1565	0.4
13	83	University of Bijeljina	Public	4	4615	1154	0.4
14	105	Paneuropean University Apeiron	Private	16	2186	137	0.2

BiH rank	ARBU rank	Institution	Type	Professors	Total citations	Citations per professor	Share (%)
15	113	University Sinergija	Private	9	1407	156	0.1
16	126	Herzegovina University	Private	11	605	55	0.1
17	130	University of Business Studies	Private	3	416	139	<0.1
18	133	Banja Luka College	Private	9	314	35	<0.1
19	139	Banja Luka College of Communications Kappa Phi	Private	1	54	54	<0.1
20	144	American University of Bosnia and Herzegovina	Private	3	8	3	<0.1
21	145	International University of Goražde	Private	2	8	4	<0.1
		Total		**5430**	**1 112 662**	**205**	**100.0**

Source: ARBU (2025); type classification by the authors. Share = share of national citations.

The national system falls into four tiers:

- **Tier 1 (national flagship):** the University of Sarajevo, which leads on scale, total citations, faculty headcount, and disciplinary breadth, with 44.3 percent of national citations.
- **Tier 2 (major regional public universities):** the University of Banja Luka and the University of Tuzla, which together add 30 percent of national citations, with strong output in Medical Sciences, Natural Sciences, and Engineering.
- **Tier 3 (mid-sized public universities and research-active private universities):** Mostar, East Sarajevo, Zenica, IBU, SSST, and IUS, each between 29 000 and 74 000 citations.
- **Tier 4 (smaller institutions and colleges):** twelve institutions with fewer than 7000 citations each and 2.5 percent of national output combined.

Concentration is high. Sarajevo and Banja Luka produce 64.3 percent of national citations, and the five largest public universities produce 86.8 percent. Sarajevo produces 2.2 times the citations of Banja Luka, and Banja Luka produces 2.0 times the citations of Tuzla. Table 8 groups institutions by ownership.

Table 8. BiH institutions by type (ARBU, 30 June 2025)

Type	Institutions	No. of professors	Total citations	Share of national citations (%)	Citations per professor
Public universities	9	5025	1 014 064	91.1	202
Private institutions	11	402	93 902	8.4	234
Academy (ANUBiH)	1	3	4696	0.4	1565

Source: Authors' calculations from ARBU (2025).

Public universities carry the system. Private institutions hold 7 percent of profiles and 8.4 percent of citations, so their staff record slightly more citations per head. Three private universities, SSST, IBU, and IUS, account for 95 percent of private output. The other eight private institutions together record 4998 citations.

4.3 Efficiency Ranking of Bosnian and Herzegovinian Institutions

Ranking by citations per professor reorders the national hierarchy and highlights institutions with concentrated research activity. Table 9 lists institutions with at least ten Google Scholar profiles, to avoid ratios driven by one or two people. The ratios combine all fields, so an institution focused on engineering, computing, or medicine will tend to score higher than one with a large share of staff in the social sciences, economics, or humanities. Table 9 therefore describes citation intensity, not relative research quality.

Table 9. Citations per professor of BiH institutions with ten or more profiles (ARBU, 30 June 2025)

Rank	Institution	No. of professors	Total citations	Citations per professor
1	Sarajevo School of Science and Technology	70	29 571	422
2	University of Banja Luka	864	223 063	258
3	University of Sarajevo	2002	492 884	246

Rank	Institution	No. of professors	Total citations	Citations per professor
4	International University of Sarajevo	131	29 268	223
5	International Burch University	147	30 065	205
6	University of Tuzla	557	111 199	200
7	Paneuropean University Apeiron	16	2186	137
8	University of Mostar	551	73 169	133
9	University of East Sarajevo	522	65 387	125
10	University of Zenica	274	30 576	112
11	University of Bihać	90	6175	69
12	Herzegovina University	11	605	55
13	University Džemal Bijedić of Mostar	161	6996	43

Source: Authors' calculations from ARBU (2025).

SSST leads at 422 citations per professor, 1.7 times the Sarajevo rate. Its profile concentrates in engineering and medicine, two high-citation fields, so part of this lead reflects field mix. Banja Luka edges ahead of Sarajevo, at 258 against 246. ANUBiH (1565) and the University of Bijeljina (1154) post higher ratios still, but each rests on three or four profiles, and Bijeljina rests on one highly cited researcher.

The main lesson concerns the ceiling, not the order. No BiH institution with more than 100 profiles exceeds 260 citations per professor. The three largest BiH universities, Sarajevo (246), Banja Luka (258), and Tuzla (200), are comprehensive universities with broad field portfolios, as are UKIM Skopje (397), Osijek (438), and Novi Sad (507). Because these institutions have comparable field mixes, the gap among them is less likely to stem from field composition. Low citation intensity appears to be a system-wide feature of BiH, not a weakness of one university.

4.4 Bosnian and Herzegovinian Institutions by Academic Field

This section compares BiH institutions with regional peers inside each field, following the rules in Section 3.2. Tables 10a to 10c show the three leading BiH institutions in Medical Sciences, Engineering and Technology, and Natural Sciences, with the regional rank within the field in brackets. Table 10d covers the remaining four fields. Citations per professor in these tables are comparable within a table, but not between tables.

Table 10a. Medical Sciences (ARBU, 30 June 2025)

National rank	Institution (regional rank in field)	No. of professors	Total citations	Citations per professor
1	University of Sarajevo (7)	444	182 741	412
2	University of Tuzla (18)	102	54 147	531
3	University of Banja Luka (20)	182	43 636	240

Table 10b. Engineering and Technology (ARBU, 30 June 2025)

National rank	Institution (regional rank in field)	No. of professors	Total citations	Citations per professor
1	University of Sarajevo (12)	292	89 092	305
2	University of Banja Luka (16)	184	58 350	317
3	University of East Sarajevo (19)	96	32 581	339

Table 10c. Natural Sciences (ARBU, 30 June 2025)

National rank	Institution (regional rank in field)	No. of professors	Total citations	Citations per professor
1	University of Banja Luka (12)	94	84 863	903
2	University of Sarajevo (13)	177	76 301	431
3	University of Tuzla (26)	92	13 723	149

Source: ARBU field rankings (2025).

Table 10d. BiH institutions in the regional top 10 of the remaining fields (ARBU, 30 June 2025)

Field	BiH institution (regional rank in field)	Total citations	Leading BiH researchers in the national top 100
Agriculture and Forestry	University of Sarajevo (5); University of Banja Luka (8)	22 023; 12 037	Dalibor Ballian, Faruk Bogunić, Admir Avdagić (Sarajevo); Novo Pržulj (Banja Luka); Ahmet Yildirim (IUS)
Humanities and Arts	University of Sarajevo (7)	34 098	Marin Ćorluka (Mostar)
Social Sciences	University of Sarajevo (7)	24 499	Damir Marjanović (IBU); Zoran Tomić (Mostar); Nermin Đapo (Sarajevo)
Economics, Business and Organizational Sciences	None in regional top 10 (10th place: 42 426)	–	Adis Puška (Bijeljina); Muris Čičić, Maja Arslanagić-Kalajdžić, Lejla Turulja, Almir Peštek (Sarajevo); Meliha Handžić (IBU)

Source: ARBU (2025).

Table 10e brings the seven fields together on a field-consistent basis. It reports, for each field, the best regional rank that a BiH institution achieves within that field. Because each rank compares BiH only with institutions in the same field, the table avoids ranking fields on raw citation counts.

Table 10e. Best within-field regional rank of a BiH institution, by field (ARBU, 30 June 2025)

Field	Leading BiH institution	Regional rank in field	Second BiH institution (regional rank)
Agriculture and Forestry	University of Sarajevo	5	University of Banja Luka (8)
Medical Sciences	University of Sarajevo	7	University of Tuzla (18)
Humanities and Arts	University of Sarajevo	7	Outside regional top 10

Field	Leading BiH institution	Regional rank in field	Second BiH institution (regional rank)
Social Sciences	University of Sarajevo	7	Outside regional top 10
Natural Sciences	University of Banja Luka	12	University of Sarajevo (13)
Engineering and Technology	University of Sarajevo	12	University of Banja Luka (16)
Economics, Business and Organizational Sciences	Not identified in published data	Outside top 10	–

Source: Compiled by the authors from ARBU field rankings (2025), Tables 10a to 10d.

Read within each field, the results differ from what raw volumes suggest. First, the strongest BiH regional position is in Agriculture and Forestry, where Sarajevo ranks 5th and Banja Luka 8th, although this field supplies no researcher to the national top 25. Second, Sarajevo ranks 7th in three fields with very different citation cultures: Medical Sciences, Social Sciences, and Humanities and Arts. Medical Sciences provides the largest volume of BiH citations, with 37 percent of Sarajevo citations, but this volume mainly reflects the high citation density of the field. On a within-field basis, medicine stands level with the social sciences and the humanities, not ahead of them. Third, BiH holds its weakest field positions in Natural Sciences and Engineering and Technology, at 12th place at best, and in Economics, where no BiH institution enters the regional top 10.

Within-field efficiency comparisons between BiH institutions remain valid. In Natural Sciences, Banja Luka records 903 citations per professor, more than double the Sarajevo rate in the same field; one researcher, Olja Đorđić, accounts for most of this result. In Medical Sciences, Tuzla records the highest efficiency in BiH, at 531 citations per professor, ahead of Sarajevo (412) and Banja Luka (240). In Engineering and Technology, the three leading institutions record similar rates (305 to 339). Overall, Sarajevo holds the leading BiH position in five of the seven fields; Banja Luka leads in Natural Sciences, and the published data do not identify the BiH leader in Economics. A within-field rank removes differences in citation culture between fields, but not differences in institution size or in the number of institutions competing in each field. The ranks therefore show relative position, not research quality.

5. Results – Bosnian and Herzegovinian Researchers

5.1 Researchers' Ranking in the National Context

Table 11 presents the 25 most-cited researchers in BiH. The national index follows the ARBU national ranking, where the leader scores 100, and is the primary measure. The citation column

gives index-based estimates derived as explained in Section 3.1, rounded to the nearest hundred; only the leader's figure is an observed count. The table also reports each researcher's rank within his or her own field among the top 25, which compares researchers only with colleagues who share the same citation culture.

Table 11. Leading researchers in Bosnia and Herzegovina, ranked by national index (ARBU, 30 June 2025)

#	Researcher	Institution	Field	Rank in field	Index	Approx. citations (index-based estimate)
1	Olja Đorđić	University of Banja Luka	Natural Sciences	1	100.00	68 936[a]
2	Biljana Antunović	University of Banja Luka	Engineering and Technology	1	47.43	32 700
3	Aida Pilav	University of Sarajevo	Medical Sciences	1	42.81	29 500
4	Zumreta Kušljugić	University of Tuzla	Medical Sciences	2	30.41	21 000
5	Šekib Sokolović	University of Sarajevo	Medical Sciences	3	27.61	19 000
6	Kemal Hanjalić	University of Sarajevo	Engineering and Technology	2	23.49	16 200
7	Emin Sofić	University of Sarajevo	Natural Sciences	2	22.18	15 300
8	Dejan B. Milošević	University of Sarajevo	Natural Sciences	3	19.07	13 100
9	Belma Pojskić	University of Zenica	Medical Sciences	4	16.38	11 300
10	Željko Stević	University of East Sarajevo	Engineering and Technology	3	15.12	10 400
11	Ejup Ganić	SSST	Engineering and Technology	4	13.08	9000

#	Researcher	Institution	Field	Rank in field	Index	Approx. citations (index-based estimate)
12	Duško Vulić	University of Banja Luka	Medical Sciences	5	11.92	8200
13	Izet Mašić	University of Sarajevo	Medical Sciences	6	11.17	7700
14	Asif Šabanović	IUS	Engineering and Technology	5	9.29	6400
15	Mirza Dilić	University of Sarajevo	Medical Sciences	7	7.96	5500
16	Emina Dervišević	University of Sarajevo	Medical Sciences	8	7.05	4900
17	Adis Puška	University of Bijeljina	Economics, Business and Org. Sciences	1	6.90	4800
18	Samir Delibegović	University of Tuzla	Medical Sciences	9	6.86	4700
19	Damir Marjanović	IBU	Social Sciences	1	6.41	4400
20	Ismet Demirdžić	University of Sarajevo	Uncategorized	1	6.39	4400
21	Miomir Pavlović	University of East Sarajevo	Engineering and Technology	6	6.34	4400
22	Almir Badnjević	University of Sarajevo	Engineering and Technology	7	6.11	4200
23	Enver Zerem	ANUBiH	Medical Sciences	10	6.00	4100
24	Samir Muzaferija	University of Sarajevo	Engineering and Technology	8	5.23	3600
25	Muris Čičić	University of Sarajevo	Economics, Business and Org. Sciences	2	5.14	3500

Source: ARBU (2025). Index = ARBU national index (leader = 100). Citation estimates by the authors (national index × 689.36, rounded to the nearest hundred). [a] Observed count from the ARBU regional ranking.

The list has a steep head. Olja Đorđić scores more than double the second-placed researcher, Biljana Antunović, and accounts for about 22 percent of the estimated top-25 total. The index falls below 20 by 8th place and below 10 by 14th place. Several leading profiles belong to senior scholars with long careers, part of which took place abroad, so the national elite reflects decades of accumulated work as much as current output.

Table 11 combines researchers from different fields, so the order partly reflects field citation density. A profile in Medical or Natural Sciences accumulates citations faster than a profile of comparable standing in Economics or the Social Sciences. The list therefore identifies the most-cited BiH researchers, not the strongest researchers in each field. The "Rank in field" column offers the field-consistent reading: Đorđić leads Natural Sciences, Antunović leads Engineering and Technology, Pilav leads Medical Sciences, Puška leads Economics, and Marjanović leads Social Sciences among the top 25.

5.1.1 Institutional Contribution of the Researchers

Table 12. Institutional contribution of the top 25 BiH researchers

Institution	**Researchers**	**Approx. citations (index-based estimate)**	**Share (%)**	**Representative researchers**
University of Sarajevo	12	127 000	40	A. Pilav, Š. Sokolović, K. Hanjalić, E. Sofić, D. B. Milošević
University of Banja Luka	3	109 800	35	O. Đorđić, B. Antunović, D. Vulić
University of Tuzla	2	25 700	8	Z. Kušljugić, S. Delibegović
University of East Sarajevo	2	14 800	5	Ž. Stević, M. Pavlović
University of Zenica	1	11 300	4	B. Pojskić
SSST	1	9000	3	E. Ganić
IUS	1	6400	2	A. Šabanović
University of Bijeljina	1	4800	1	A. Puška

Institution	Researchers	Approx. citations (index-based estimate)	Share (%)	Representative researchers
IBU	1	4400	1	D. Marjanović
ANUBiH	1	4100	1	E. Zerem
Total	**25**	**317 300**	**100**	

Source: Authors' calculations from ARBU (2025). Citation figures are index-based estimates rounded to the nearest hundred.

Sarajevo places 12 researchers in the top 25 and Banja Luka places 3, yet the two universities carry similar weight: Sarajevo holds about 40 percent of the estimated top-25 citations and Banja Luka about 35 percent. Banja Luka relies on a few highly cited individuals, while Sarajevo relies on breadth. Three private universities, SSST, IUS, and IBU, each place one researcher, which shows that smaller institutions can develop highly cited researchers in targeted fields. The broader top 100 confirms the picture: Sarajevo places 51 researchers, followed by Banja Luka (11), Tuzla (10), East Sarajevo (6), Mostar (6), IBU (5), IUS (4), SSST (3), Zenica (2), Bijeljina (1), and ANUBiH (1). Private institutions place 12 researchers in the top 100, above their 7 percent share of profiles. These institutional shares also depend on the field profile of each institution.

5.1.2 Field Composition of the Leading Researchers

Table 13 describes how the top 25 divides across fields. It shows the composition of a mixed-field list and does not rank fields against one another.

Table 13. Composition of the top 25 BiH researchers by field (descriptive)

Field	Researchers	Approx. citations (index-based estimate)	Share (%)	Researchers included
Medical Sciences	10	115 900	37	A. Pilav, Z. Kušljugić, Š. Sokolović, B. Pojskić, D. Vulić
Natural Sciences	3	97 400	31	O. Đorđić, E. Sofić, D. B. Milošević

Field	Researchers	Approx. citations (index-based estimate)	Share (%)	Researchers included
Engineering and Technology	8	86 900	27	B. Antunović, K. Hanjalić, Ž. Stević, E. Ganić, A. Šabanović
Economics, Business and Org. Sciences	2	8300	3	A. Puška, M. Čičić
Social Sciences	1	4400	1	D. Marjanović
Uncategorized	1	4400	1	I. Demirdžić
Agriculture and Forestry	0	0	0	In top 100: D. Ballian, N. Pržulj
Humanities and Arts	0	0	0	In top 100: M. Ćorluka
Total	**25**	**317 300**	**100**	

Source: Authors' calculations from ARBU (2025). Citation figures are index-based estimates rounded to the nearest hundred.

Medical Sciences (10 researchers) and Engineering and Technology (8) supply most of the list, and Natural Sciences holds a large share of estimated citations with three researchers because of the single top-ranked profile. This composition is what a raw-citation list would show in most systems, since these fields have the highest citation density. It should not be read as evidence that BiH researchers in these fields outperform their colleagues in Economics, the Social Sciences, Agriculture and Forestry, or Humanities and Arts. The within-field ranks in Table 10e give the field-consistent view, and they place Agriculture and Forestry, the Social Sciences, and Humanities and Arts at or above the level of medicine. In the national top 100, the field composition is: Medical Sciences 40, Engineering and Technology 25, Natural Sciences 12, Economics 8, Uncategorized 6, Agriculture and Forestry 5, Social Sciences 3, and Humanities and Arts 1.

5.2 Bosnian and Herzegovinian Researchers in the Regional Context

One BiH researcher enters the regional top 25: Olja Đorđić (University of Banja Luka, Natural Sciences), in 20th place with 68 936 citations and 25.50 regional points. Table 14 shows the country structure of the regional top 25. The regional list also mixes fields, and several of its highest places belong to physicists in large international collaborations, such as Mikuž, Puljak, and Godinović. Country counts in Table 14 therefore partly reflect participation in such collaborations.

Table 14. Structure of the top 25 researchers in the region by country (ARBU, 30 June 2025)

Country	Researchers in regional top 25	Share (%)	Leading regional researchers (rank)
Croatia	13	52	I. Puljak (2), N. Godinović (3), M. Kovač (4), T. Ševa (8)
Serbia	5	20	M. Jakovljević (5), P. Seferović (7), E. Dubljanin (23)
Slovenia	3	12	M. Mikuž (1), S. Stanič (15), D. Zavrtanik (25)
Kosovo	2	8	G. Bajraktari (6), S. Hasallari (12)
Albania	1	4	S. Tafaj (22)
Bosnia and Herzegovina	**1**	**4**	**O. Đorđić (20)**
North Macedonia	0	0	None
Montenegro	0	0	None

Source: ARBU (2025); Bojadjiev et al. (2026).

In the regional top 100, BiH places five researchers, one more than North Macedonia and two more than Montenegro. Table 15 lists them.

Table 15. BiH researchers in the regional top 100 (ARBU, 30 June 2025)

Regional rank	Researcher	Institution	Field
20	Olja Đorđić	University of Banja Luka	Natural Sciences
41	Biljana Antunović	University of Banja Luka	Engineering and Technology
47	Aida Pilav	University of Sarajevo	Medical Sciences
75	Zumreta Kušljugić	University of Tuzla	Medical Sciences
86	Šekib Sokolović	University of Sarajevo	Medical Sciences

Source: ARBU (2025).

This list points to three facts:

1. The 25 leading BiH researchers together hold an estimated 317 000 citations. By comparison, the 25 leading Macedonian researchers together hold fewer citations than the regional leader alone, at 270 339 (Bojadjiev et al., 2026). Both lists mix fields, so the comparison indicates scale rather than quality.
2. The two highest-placed BiH researchers both work at the University of Banja Luka. The University of Sarajevo, with 2002 profiles, places its first researcher in 47th position.
3. Three of the five BiH researchers in the regional top 100 work in Medical Sciences. This matches the 7th-place within-field rank of Sarajevo in medicine, but the regional list favors high-citation fields, so it does not by itself show that medicine is the most competitive BiH field.

6. Discussion – How Can Bosnian and Herzegovinian Higher Education Be Improved?

The main BiH problem is productivity, not size. The country already employs the third-largest research workforce in the region, yet its comprehensive universities record lower citation intensity than comprehensive universities with similar field portfolios elsewhere in the region (Section 4.3). The recommendations below follow from that finding.

6.1 Raise Output per Professor

Table 16 shows where the University of Sarajevo would stand at different rates of citations per professor, with its current 2002 profiles, its current field mix, and all other institutions held at their 2025 levels.

Table 16. University of Sarajevo: regional rank under efficiency scenarios

Citations per professor	Benchmark	Total citations	Regional rank
246	Sarajevo, 2025	492 884	9
300	–	600 600	8
400	Near UKIM Skopje (397)	800 800	6
507	Novi Sad	1 015 014	6

Source: Authors' calculations from ARBU (2025).

A rise to 400 citations per professor, the level of UKIM Skopje and still below Osijek (438) and Novi Sad (507), would move Sarajevo to 6th place in the region. All three benchmarks are comprehensive universities, which makes them realistic references for Sarajevo. At country

level, if BiH matched the regional average of 595 citations per professor, national output would reach 3.2 million citations, 2.9 times the current total; this average, however, includes systems with a stronger presence in high-citation fields. Promotion criteria, internal grants, and doctoral supervision rules should reward output per staff member rather than expand staff numbers.

6.2 Introduce Competitive, Performance-Based Research Funding

Public funding should shift from historical line-item budgets toward competitive, performance-based research grants. Funds should go to high-performing research groups at the public flagships in Sarajevo, Banja Luka, and Tuzla, with clear output goals. Funding formulas should include a research-output component, so that institutions gain resources for results rather than for enrolment alone. That component should rest on field-normalized indicators, or at least on comparisons within each field, so that formulas do not shift resources toward high-citation fields because of citation culture alone.

6.3 Build on Fields Where BiH Ranks Highest Within the Field

Within-field ranks (Table 10e) give BiH its strongest regional positions in Agriculture and Forestry, where Sarajevo ranks 5th and Banja Luka 8th, and in Medical Sciences, Social Sciences, and Humanities and Arts, where Sarajevo ranks 7th. Within-field efficiency points to further strengths: Tuzla in Medical Sciences (531 citations per professor) and Banja Luka in Natural Sciences (903). Targeted support for research groups in these areas offers the fastest return.

6.4 Strengthen Fields With Weaker Within-Field Positions

BiH holds its weakest within-field positions in Engineering and Technology, Natural Sciences, and Economics. In Engineering and Technology, Sarajevo, Banja Luka, and East Sarajevo all enter the regional top 20, but none rises above 12th place. In Natural Sciences, the Banja Luka position rests largely on one researcher, and in Economics no BiH institution enters the regional top 10. Dedicated grant lines, doctoral support, and open-access publishing support in these fields would broaden the national research base. National evaluation should judge every field against its own norms, so that work in Economics, the Social Sciences, and Humanities and Arts is not measured against the citation volumes of medicine and engineering.

6.5 Form Cross-Entity and International Research Consortia

Competence for higher education in BiH is divided among the Republika Srpska, the ten cantons of the Federation of Bosnia and Herzegovina, and the Brčko District. The five largest public universities sit in different jurisdictions, yet together produce 86.8 percent of national citations. Joint consortia across Sarajevo, Banja Luka, Tuzla, Mostar, and East Sarajevo would pool equipment, doctoral training, and applications to European programs such as Horizon Europe. The high citation totals of Split and the Slovenian institutions show how participation in large international collaborations, including those at CERN, raises research visibility and citation impact.

6.6 Connect Public and Private Institutions

SSST, IBU, and IUS show research agility: SSST records the highest citations per professor among BiH institutions with ten or more profiles, and the three together place 12 researchers in the national top 100. Joint doctoral programs, shared research infrastructure, and cross-institutional research centers with public universities would spread these practices across the system.

6.7 Complete and Clean Google Scholar Coverage

ARBU counts only staff with a Google Scholar profile. Every missing, duplicated, or misattributed profile lowers measured output. Each university should audit its profiles once a year, require a verified institutional email, standardize the affiliation name, and merge duplicate records. This step costs little and shows results within one ranking cycle (Bojadjiev et al., 2024). In parallel, publication of regional field baselines in future ARBU editions would allow field-normalized indicators for every institution.

6.8 Tie Accreditation to Research Output

Twelve BiH institutions record fewer than 7000 citations each, and eight private institutions together record 4998. Accreditation rules should include a minimum level of research activity for university status, measured transparently, adjusted for the field profile of the institution, and reviewed every cycle.

6.9 Set Measurable Five-Year Targets

Table 17. Proposed five-year targets (2025-2030)

Institution	**2025 position**	**Target**	**Required effort**
University of Sarajevo	9th, 492 884 citations	Pass Novi Sad, Maribor, and Rijeka	Annual growth of 15.2%, 16.1%, and 17.5% respectively, against 13.2% in 2024-2025
University of Banja Luka	17th, 223 063 citations	Enter the regional top 15	Close a 51% gap to the University of Montenegro (15th)
University of Tuzla	23rd, 111 199 citations	Enter the regional top 20	Close a 15% gap to Singidunum University (20th)
BiH system	205 citations per professor	Pass North Macedonia (270) and Kosovo (264)	Raise system intensity by about one third

Source: Authors' calculations from ARBU (2025) and Bojadjiev et al. (2026). Peer growth rates for 2024-2025 held constant.

7. Conclusions

The study is based on ARBU, a practical model for measuring academic performance through a single dimension, research citations recorded in Google Scholar. ARBU does not replace the Big Three, which measure research, teaching, and social impact, but ARBU covers all 21 BiH institutions where the Big Three cover one. The results reveal several defining patterns of Bosnian and Herzegovinian higher education in 2025:

- **A large workforce with low intensity.** BiH holds 16.4 percent of regional faculty and 5.6 percent of regional citations. At 205 citations per professor, BiH ranks last of eight systems. Part of the gap reflects field mix, but BiH comprehensive universities also trail comprehensive universities with similar field portfolios.
- **A stable flagship.** The University of Sarajevo holds 9th place in the region, unchanged from 2024, with 492 884 citations and growth of 13.22 percent. Sarajevo outranks Osijek, Kragujevac, and UKIM Skopje (1.24 to 1), but records the lowest rate per professor in the regional top 12.
- **Wide gaps to the leaders.** Zagreb produces 9.37 times, Belgrade 5.05 times, Ljubljana 4.23 times, and Split 3.67 times the Sarajevo citation total. Novi Sad (1.11), Maribor (1.25), and Rijeka (1.35) form realistic five-year targets.
- **Strong national concentration.** Sarajevo produces 44 percent of BiH citations, Sarajevo and Banja Luka together 64 percent, and nine public universities 91 percent. Twelve institutions share 2.5 percent.
- **Field positions.** Within each field, BiH ranks highest in Agriculture and Forestry (5th) and in Medical Sciences, Social Sciences, and Humanities and Arts (7th), and lowest in Natural Sciences and Engineering and Technology (12th) and Economics (outside the top 10). Banja Luka leads BiH in Natural Sciences and Tuzla shows the highest medical efficiency.
- **Leading researchers.** BiH places one researcher in the regional top 25 and five in the top 100, ahead of North Macedonia and Montenegro. Researcher figures below the national leader are index-based estimates.

Bosnia and Herzegovina does not lack researchers. It lacks output per researcher. Reforms that raise productivity, fund research on performance judged against field norms, connect universities across entity, cantonal, and public-private lines, strengthen fields with weaker within-field positions, clean up profile coverage, and link accreditation to research activity address this gap directly. The scenario analysis shows the scale of the opportunity: at 400 citations per professor, the University of Sarajevo would rank 6th in the region.

This paper provides a situational analysis of the positions of universities and researchers within Bosnia and Herzegovina and within the region. Two extensions would strengthen it. Future ARBU editions will allow every BiH institution to be tracked over time, not only Sarajevo, and the publication of regional field baselines would allow full field-normalized indicators at institution and researcher level.

References

Altbach, P. G. (2006). The dilemmas of ranking. *International Higher Education,* (42), 2-3. https://doi.org/10.6017/ihe.2006.42.7878

ARBU. (2025). *Academic Ranking of Balkan Universities: ARBU 2025 results database.* Retrieved from https://arbu-ranking.com/

Bojadjiev, M., Krliu, V., Pavlova, S., & Mileva, I. (2024). The advantages of Google Scholar ranking. *International Journal of English Language Education, 12*(1), 76-87. https://doi.org/10.5296/ijele.v12i1.21766

Bojadjiev, M., Mileva, I., Pavlova, S., & Krliu-Handjiski, V. (2023). Understanding university rankings and the need for Academic Ranking of Balkan Universities. *International Journal of Euro-Mediterranean Studies, 16*(1), 73-91.

Bojadjiev, M. I., Vaneva, M., Lazarova, A., Bojadjieva, I., Dimitrievska, V., & Temkovska, V. (2026). Where is the Macedonian higher education in 2025, and how can it be improved? *International Research in Education, 14*(1), 47-68. https://doi.org/10.5296/ire.v14i1.23607

Bojadziev, M. (2020). The advantages of Google Scholar rankings. *International Journal of Education Research and Development, 2*(1), 15-24.

Bornmann, L., Leydesdorff, L., & Mutz, R. (2013). The use of percentiles and percentile rank classes in the analysis of bibliometric data: Opportunities and limits. *Journal of Informetrics, 7*(1), 158-165. https://doi.org/10.1016/j.joi.2012.10.001

Falagas, M. E., Pitsouni, E. I., Malietzis, G. A., & Pappas, G. (2008). Comparison of PubMed, Scopus, Web of Science, and Google Scholar: Strengths and weaknesses. *The FASEB Journal, 22*(2), 338-342. https://doi.org/10.1096/fj.07-9492LSF

Hazelkorn, E. (2015). *Rankings and the reshaping of higher education: The battle for world-class excellence* (2nd ed.). London: Palgrave Macmillan. https://doi.org/10.1057/9781137446671

Howland, J. L., Wright, T. C., Boughan, R. A., & Roberts, B. C. (2009). How scholarly is Google Scholar? A comparison to library databases. *College & Research Libraries, 70*(3), 227-234. https://doi.org/10.5860/0700227

Marginson, S. (2014). University rankings and social science. *European Journal of Education, 49*(1), 45-59. https://doi.org/10.1111/ejed.12061

Marginson, S. (2022). Global university rankings and higher education: A century of competition. *International Journal of Chinese Education, 11*(1).

Quacquarelli Symonds. (2025). *QS World University Rankings 2026.* Retrieved from https://www.topuniversities.com/world-university-rankings

Salmi, J. (2009). *The challenge of establishing world-class universities*. Washington, DC: World Bank. https://doi.org/10.1596/978-0-8213-7865-6

ShanghaiRanking Consultancy. (2024). *Academic Ranking of World Universities 2024.* Retrieved from https://www.shanghairanking.com/rankings/arwu/2024

Times Higher Education. (2025). *World University Rankings 2026: University of Sarajevo.* Retrieved from https://www.timeshighereducation.com/world-university-rankings/university-sarajevo/for-professionals

University of Sarajevo. (2024). *The University of Sarajevo records an increase in its international reputation in the world rankings of universities.* Retrieved from https://unsa.ba/en/node/13560

University of Sarajevo. (2025, July 31). *University of Sarajevo among the top 3.5% of universities worldwide according to Webometrics ranking.* Retrieved from https://unsa.ba/en/node/16336

Waltman, L. (2016). A review of the literature on citation impact indicators. *Journal of Informetrics, 10*(2), 365-391. https://doi.org/10.1016/j.joi.2016.02.007

Acknowledgments

Not applicable.

Authors' contributions

Monika Rizovska Tanevska: conceptualization, methodology, formal analysis, writing (original draft), writing (review and editing), and project administration. Dancho Dimkov: conceptualization, supervision, validation, and writing (review and editing). Hari Lokvenec: data curation and investigation, including collection and verification of the ARBU institutional data. Goran Kokarovski: formal analysis, validation of the calculations, and preparation of the tables. Riste Aleksovski: investigation, literature review, and writing (original draft) of the literature review and policy recommendations. Natalija Efremova: data curation of the researcher-level data, reference checking, and writing (review and editing). All authors read and approved the final manuscript.

Funding

Not applicable.

Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Macrothink Institute. The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

Not commissioned; externally double-blind peer reviewed.

Data availability statement

The ARBU data used in this study are publicly available at https://arbu-ranking.com/. Derived calculations are available on request from the corresponding author.

Data sharing statement

No additional data are available.

Open access

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (http://creativecommons.org/licenses/by/4.0/).

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.