

**Use of bibliometrics for collection
development and
for advancing the status of libraries and
librarians on campus**

Lokman I. Meho, MLS, PhD

University Librarian

American University of Beirut

May 9, 2018

- **Definition:** bibliometrics is a research method that analyzes publications and their properties (De Bellis, 2009; Gingras, 2016)
- **Used, along with other methods, in:** collection development, research assessment, award giving, funding, hiring, promotion, tenure, university rankings, & strategic planning
- **Use by:** an increasing no. of universities, which are looking for librarians with domain knowledge & skills: 2 new positions in the U.S. every month
- **Training** in library school and via workshops, published literature & personal practice; but access to tools, staying up-to-date, & constant practice are critical

Popular bibliometric methods and tools

- **Methods**

- Citation count, publication count, paper per faculty, citations per paper, h-index
- Publications in high impact journals and magazines (top quartile, *Science*, *Nature*)
- Use statistics (books checked out, articles downloaded, ILL & DDS requests)

- **Tools**

- Scopus and Web of Science (commercial) **vs.** Google Scholar (Open Access)
- Journal Citation Reports (commercial) **vs.** SCImago Journal Rank (Open Access)
- Conference rankings/ratings: CCF, CORE, & QUALIS (all Open Access)
- Library system

Bibliometrics in collection development: AUB experience

- Since 2009, we **used bibliometric methods to:**
 - Cancel over 10,000 book requests (citation analysis)
 - Cancel or decline the subscription of hundreds of journals (citation analysis & use statistics)
 - Cancel or decline the subscription of dozens of databases (overlap & relevance studies)
 - Inform us of thousands of titles to approve for purchase and journals/databases to subscribe to
 - Discard over 50,000 volumes of books and periodicals
 - Develop core collections, identify & fill in gaps in collection, and compile valuable research guides
 - Benchmark with peer and aspirant institutions
- **Outcome:** Redirected use of \$1.5m, saved 2,000 linear meters of shelves and, by extension, over \$100,000 in annual costs, and created more space for new acquisitions

Caveats

- **In collection development, don't use citation analysis for:**
 - Material that support the curricula
 - Material relevant to country or region
 - Material in fields that attract few citations (art, architecture, area studies)
 - Material collected on a just in case basis or material that cannot be ignored/discarded regardless of use/citations data (Middle East Studies)
 - Material published by your own faculty, students, staff, and alumni
 - Non-research type of material (directories, annual reports, etc.)

Bibliometrics for research assessment: AUB experience

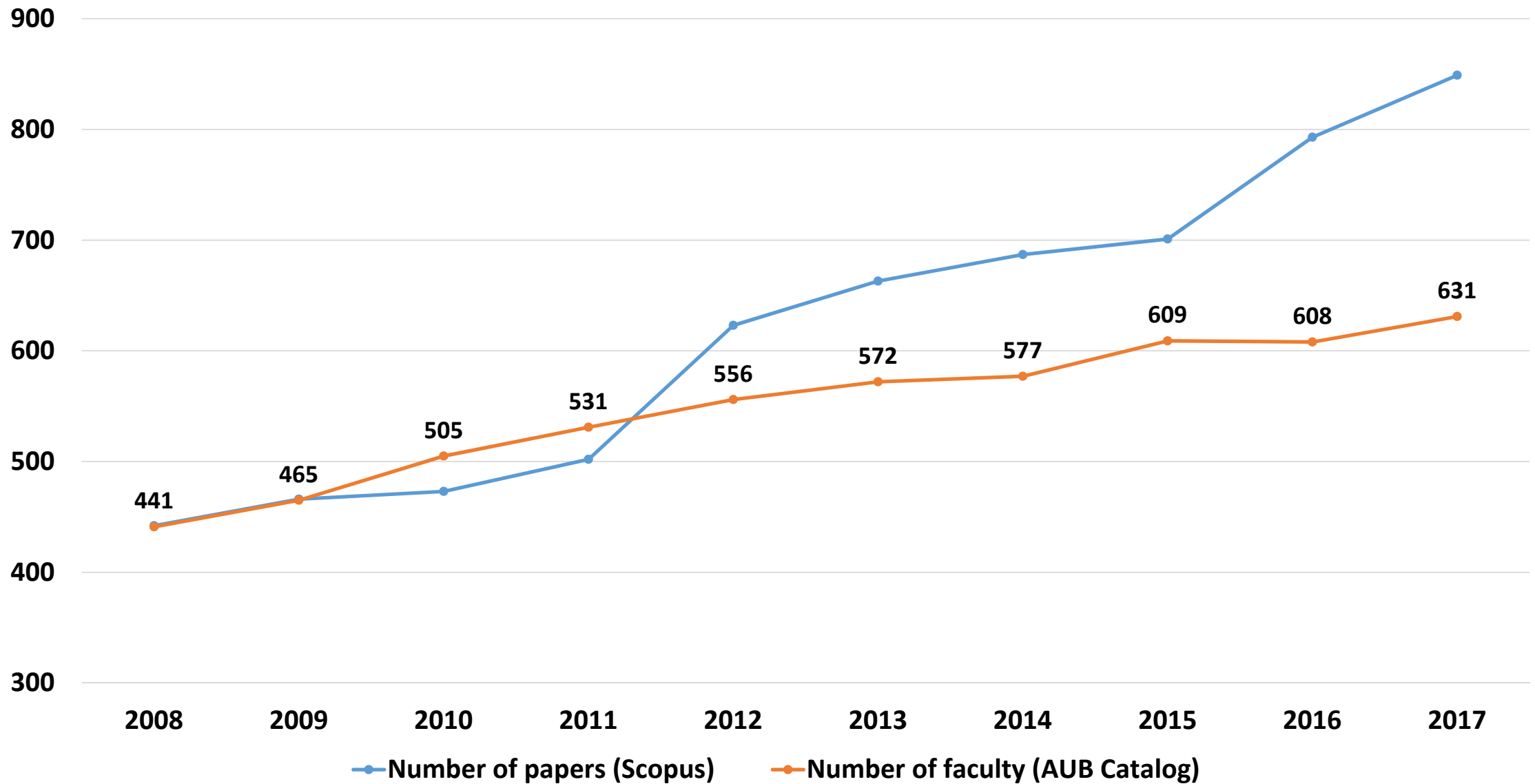
- Since 2009, we **used bibliometric methods to:**
 - Map and assess the quantity, quality, evolution, and impact of AUB research and compare it to, or benchmark it with, peer and aspirant institutions
 - Identify AUB research strengths nationally, regionally, & internationally
 - Analyze ranking methodologies and AUB collaboration activities and its impact on research
 - Determine quality of conferences and journals to which AUB faculty get invited to contribute
 - Assess research quality of faculty for promotion (annual exercise)
 - Identify referees for tenure (2018 on) and manuscript reviewing (since 2005)
 - Identify peer institutions for departments, schools, colleges, and universities
 - Provide guidance on better communicating and disseminating the impact of research

Examples of reports requested by, and provided to, senior administrators at AUB

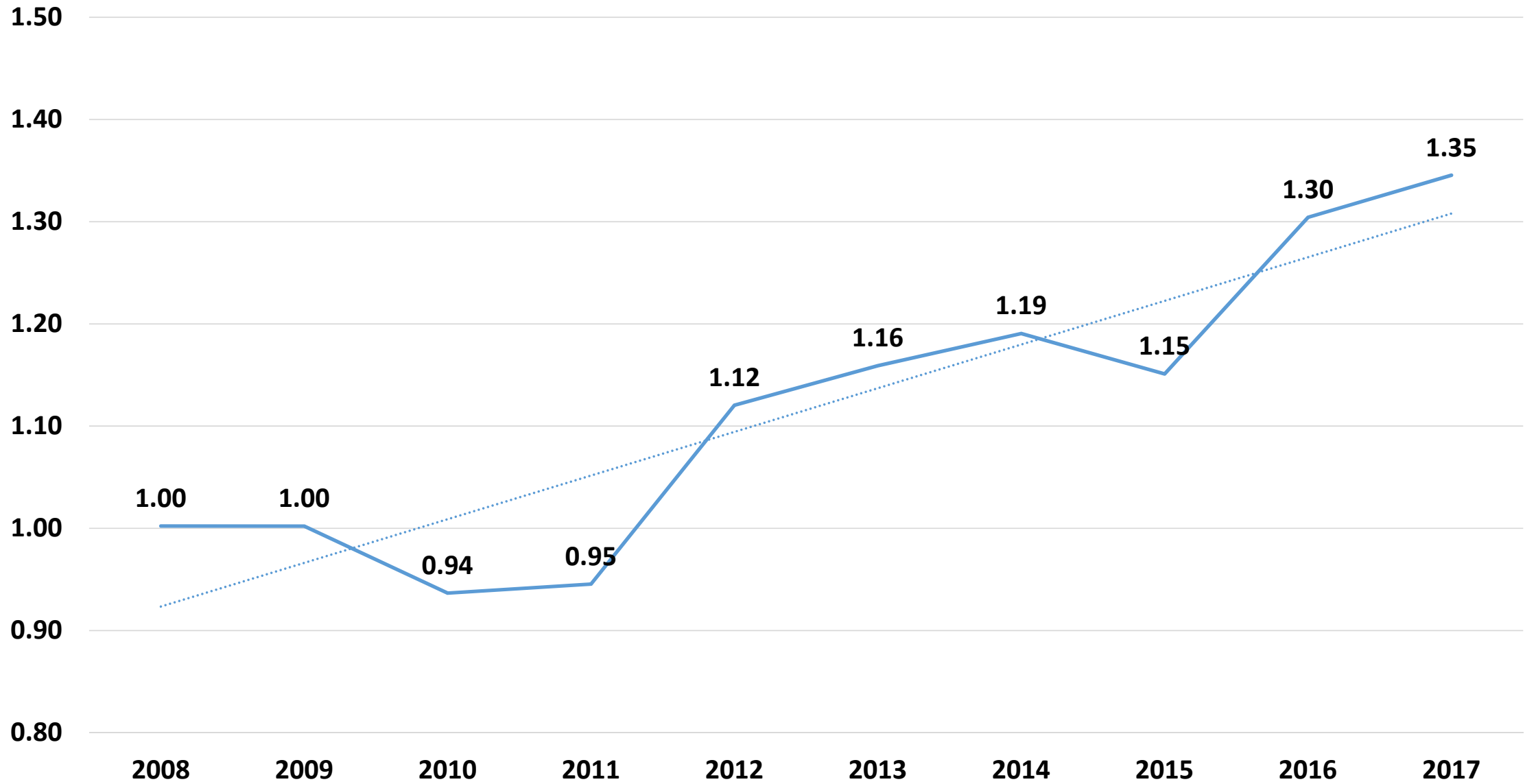
AUB research strengths

- Contributes 45% of Lebanon's entire research output and over 60% of the country's medical research
- Generates over 5% of the Arab world's research output in a number of disciplines
- Publishes its research in top journals and takes the lead in its research more than any other university in the Arab world
- Approximately 25% of the 100 most cited faculty on campus are women

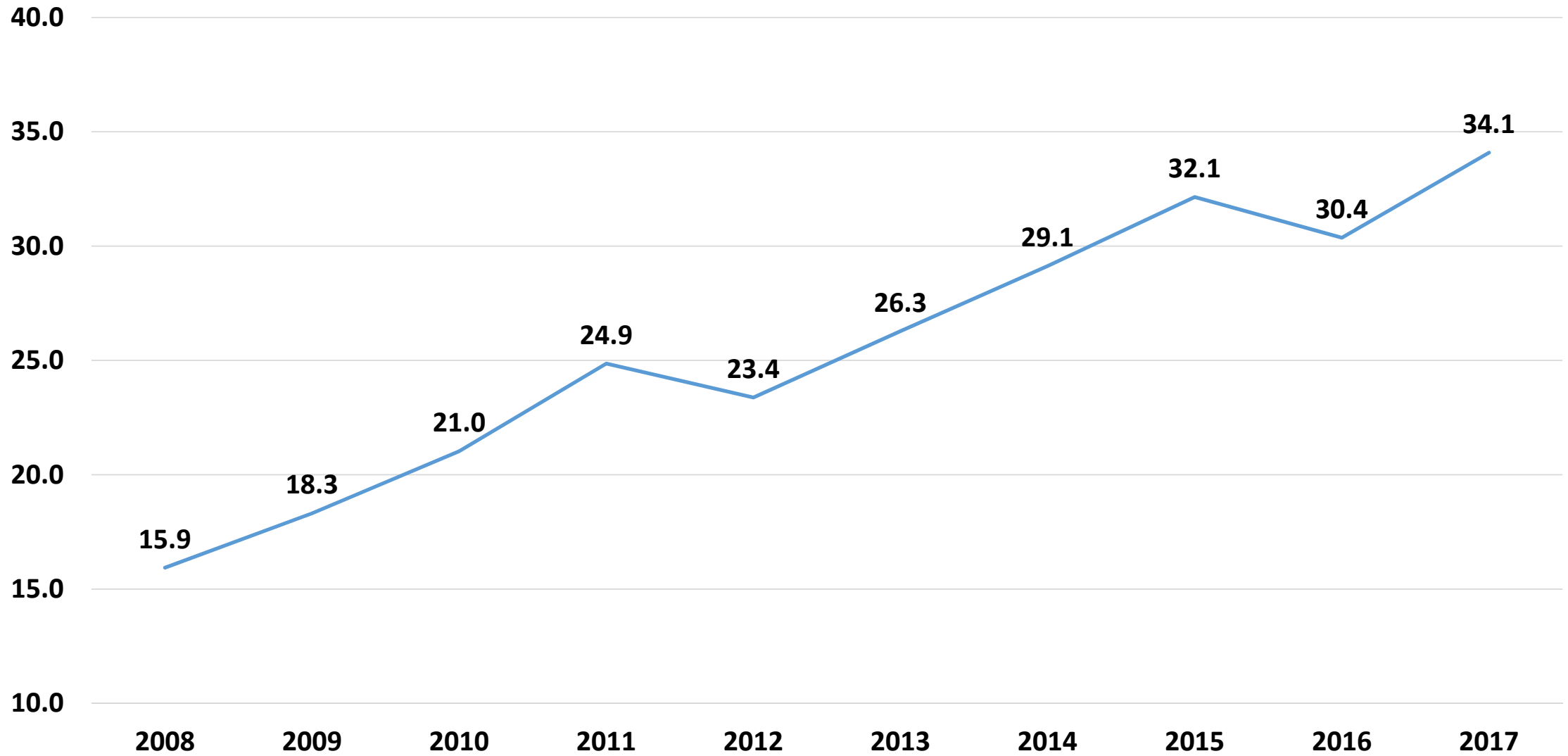
Research productivity of assist prof, assoc prof, & prof, 2008-2017



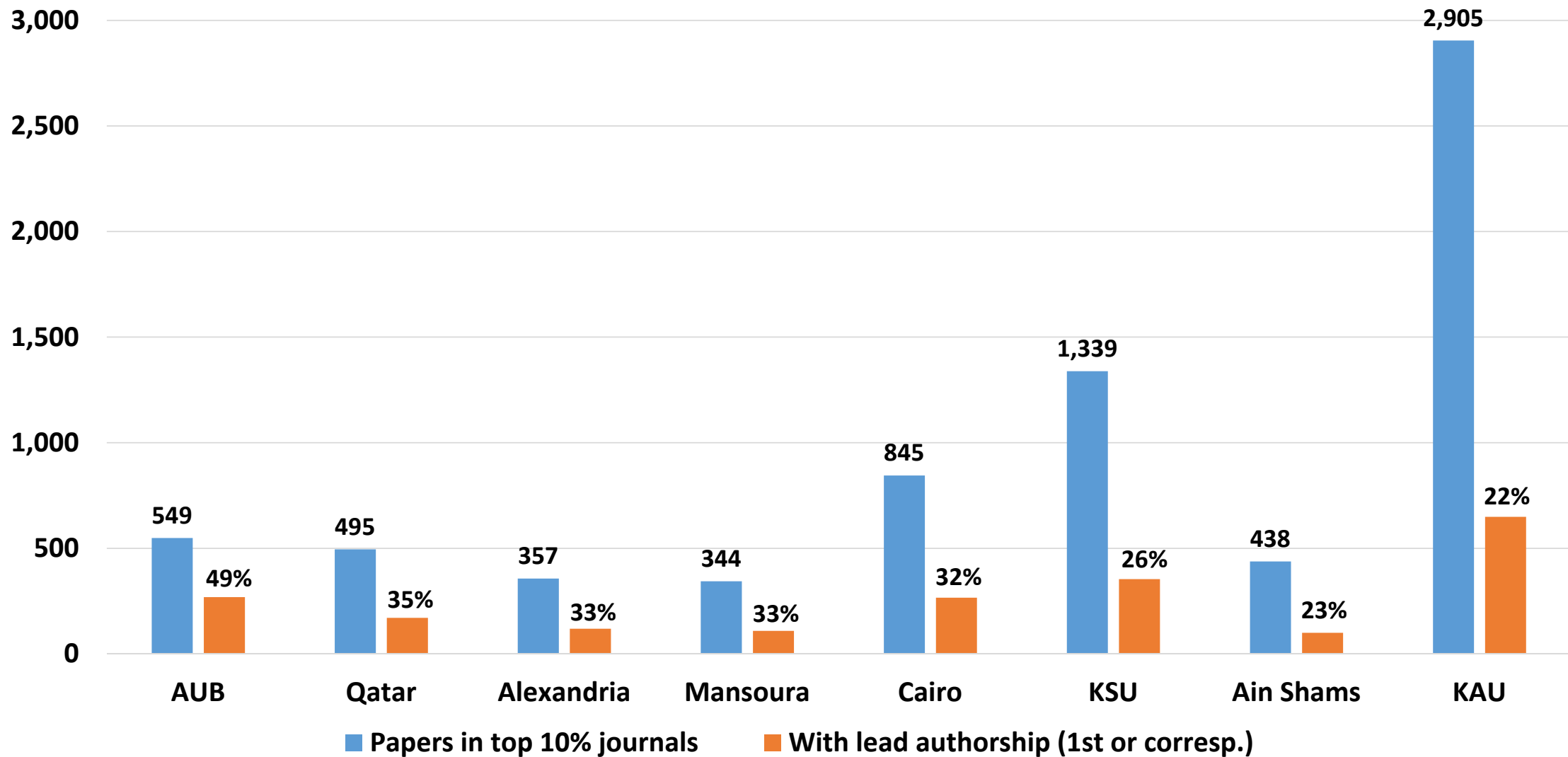
Research productivity in terms of papers per faculty, 2008-2017



Research impact/quality: citations per paper (of papers published in previous five years)



Research leadership in top 10% journals among universities with medical schools, 2013-April 2018



How does AUB compare to its U.S. peers in global university rankings

				QS	Times Higher Ed	U.S. News
				Proportion of rank influenced by size of institution		
	Faculty count	Papers per faculty (2016)	% papers in Q1-Q2 journals	0%	30%	40%
American University of Beirut	996	0.9*	48.0%*	235	501-600	680
George Washington University	2,279	1.0	52.1%	352	201-250	260
Tulane University	1,561	0.9	53.4%	451-460	351-400	460
Drexel University	1,995	0.8	51.8%	501-550	351-400	414
University of Vermont	1,422	1.0	55.4%	551-600	351-400	450
Loyola University Chicago	1,221	0.8	46.4%	751-800	NR	656
Saint Louis University	1,230	1.0	48.1%	NR	401-500	569

*Top in the Arab world among four-year colleges

Transformative health and medical research at AUB: health sciences & nursing

- Medicine-related research on refugees, asylum seekers, and displaced people
 - AUB is among the 25 most published universities in the world (over 30 papers since 2013)
 - Primary investigators: several faculty at FHS
- Non-Communicable Diseases
 - AUB is most published university in the Arab world (15% of the region's output; 6 papers per year)
 - Primary investigators: Abla Mehio-Sibai (FHS) and Nahla Hwalla, Farah Naja, and Lara Nasreddine (FAFS)
- Nursing
 - AUB is third most published in the Arab world (9% of the region's output; over 75 papers since 2013)
 - Primary investigators: faculty at HSON
- Substance Abuse
 - AUB is most published institution in the Arab world (over 30 of the region's 180 papers since 2013)
 - Primary investigator: Lilian Ghandour (FHS)

Transformative health and medical research at AUB: medicine

- Hematology
 - **Most published in the Arab world** (10% of the region's 1,250 papers; around 25 papers per year since 2013)
 - Primary investigators: Ali Bazarbachi and Ali T. Taher
- Multiple Sclerosis
 - **Most published in the Arab world** (12% of the region's 400 papers since 2013)
 - Primary investigators: Samia J. Khoury and Bassem I. Yamout
- Systematic Reviews
 - **Third most published in the Arab world** (8% of the region's output; 150 papers since 2013 vs. KSU's 175 and KAU's 160)
 - Primary investigator: Elie A. Akl
- Vitamin D, Osteoporosis, and Bone Mineral Density
 - **AUB accounts for over 5% of the Arab world's research output since 2013**
 - Primary investigator: Ghada El-Hajj Fuleihan

Transformative health and medical research at AUB: multidisciplinary

- Epidemiology
 - **Second most published in the Arab world** (5% of the region's output; 6 papers per year since 2013)
 - Primary investigators: faculty in FHS and FM
- Medical Ethics
 - **Most published in the Arab world** (14% of the region's output; 15 papers since 2008)
 - Primary investigators: Thalia Arawi (FM) and Rima T. Nakkash (FHS)
- Prevalence and health risks of waterpipe tobacco smoking
 - **Most published institution in the world** (over 100 papers overall; 60 papers since 2013)
 - Primary investigators: Rima A. Afifi and Rima T. Nakkash (FHS), Elie A. Akl (FM), and Alan L. Shihadeh (MSFEA)
- Public Health, Environmental and Occupational Health
 - **Most published institution in the Arab world** (6% of the region's output; over 225 papers since 2013)
 - Primary investigators: Rima A. Afifi and Fadi El-Jardali (FHS) and Elie A. Akl (FM)

Engineering research areas in which AUB ranks among the top 10 universities in the Arab world in terms of number of papers published from 2013 to April 2018

Research Area	Rank in Arab world
Aerosols	Top 10
Computational fluid dynamics	Top 5
Concrete and structural engineering	Top 10
Energy consumption, efficiency, savings, utilization	Top 10
Indoor air quality/pollution	Top 5
Sustainable development	Top 10
Urban design, planning, growth, population	Top 5
Waste management/solid waste	Top 5
Water quality	Top 10
Waterpipe tobacco smoking	Top 5

Collaboration effort among AUB engineering FT faculty

Year	Total papers	Coll with Leb inst.	Collab with Arab countries	Collab with U.S.	Overall collab
2013	116	2.6%	17.2%	19.8%	47.4%
2014	111	7.2%	13.5%	22.5%	48.6%
2015	135	5.9%	7.4%	29.6%	48.9%
2016	147	6.1%	12.2%	32.0%	49.7%
2017	162	9.3%	12.3%	23.5%	48.1%

AUB global and regional rankings in medical, life, and health sciences

	AUB world rank	AUB rank in AW	Total ranked in AW	Top in AW	Ranking system
Clinical Medicine	346	4	9	KAU	U.S. News
Clinical, Pre-Clinical & Hlth	251-300	4	11	KAU	THE
Life Sciences	401-450	T4	7	KAU	THE
Medicine	251-300	T1	11	AUB, CU, KAU, KSU	QS
Soc. Sci. & Public Health	207	1	1	AUB	U.S. News

Outcome and future of AUB library use of bibliometrics for research assessment

- Transformed the libraries into key players in assisting faculty and administrators in demonstrating tangible and meaningful outcomes of research
- Made many faculty and the administrators identify the libraries as the best providers of research evaluation support services on campus
- Helped in making the libraries become partners in supporting the research mission of the University & allowed the librarians to become more engaged with the faculty and administrators
- Enhanced collaboration between faculty and librarians, as evidenced in the rise of number of collaborations between them as co-authors on research projects
- Future direction: rise in evidence-based decision making and increased demand for evaluation of research, requires that we think about:
 - Developing a library program with staff fully dedicated to research evaluation support services
 - Developing customized publication and citation reports, resource guides, visualizations, training, etc.