

ASSESSMENT OF DIVERSITY AND GENDER EQUALITY IN OPERATION RESEARCH

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OUTLINE



Executive
summary



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EXECUTIVE SUMMARY

Diversity

- There is geographical diversity in OR academia, with journals that publish more papers exhibiting greater diversity.
- International collaborations result in higher publication volumes, highlighting the U.S.'s leading role and China's growing presence in OR research.

Gender Equality

- Gender disparities persist in OR academia, with male authors consistently outnumbering female authors.
- Gender equality in OR positively impacts publication volumes, with higher female representation correlating to increased output.

INTRODUCTION

- This study examines diversity and gender representation in OR by analyzing data from ten journals between 2013 and 2022.
- Target Audience: Academics and Researchers, Journal Editors and Publishers

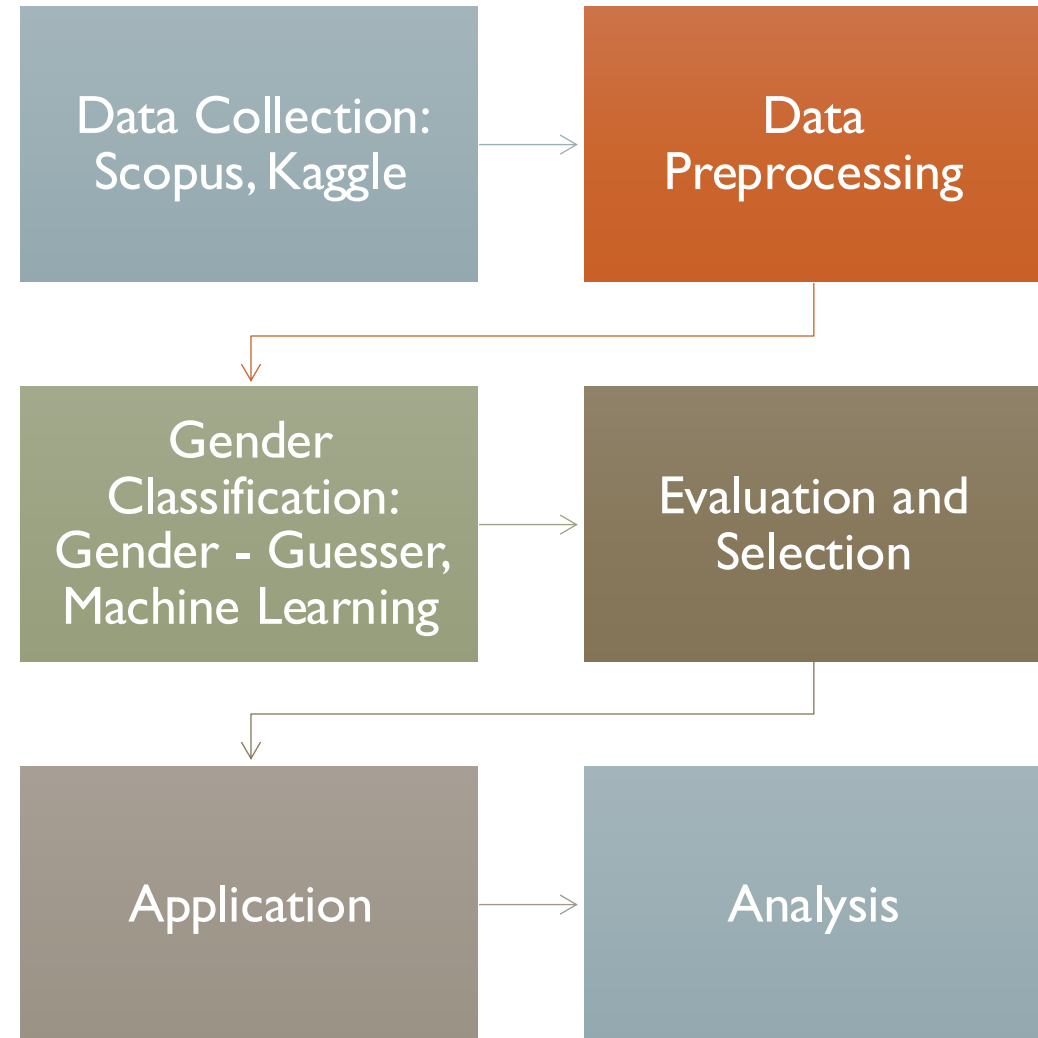
RQ 1

- How has the geographical distribution of OR publications evolved over the past decade, and which countries lead in publication output?

RQ 2

- How have trends in gender representation among OR scholars changed from 2018 to 2022, and how consistent are these trends across journals in achieving gender balance?

METHODOLOGY



RESULTS - DIVERSITY

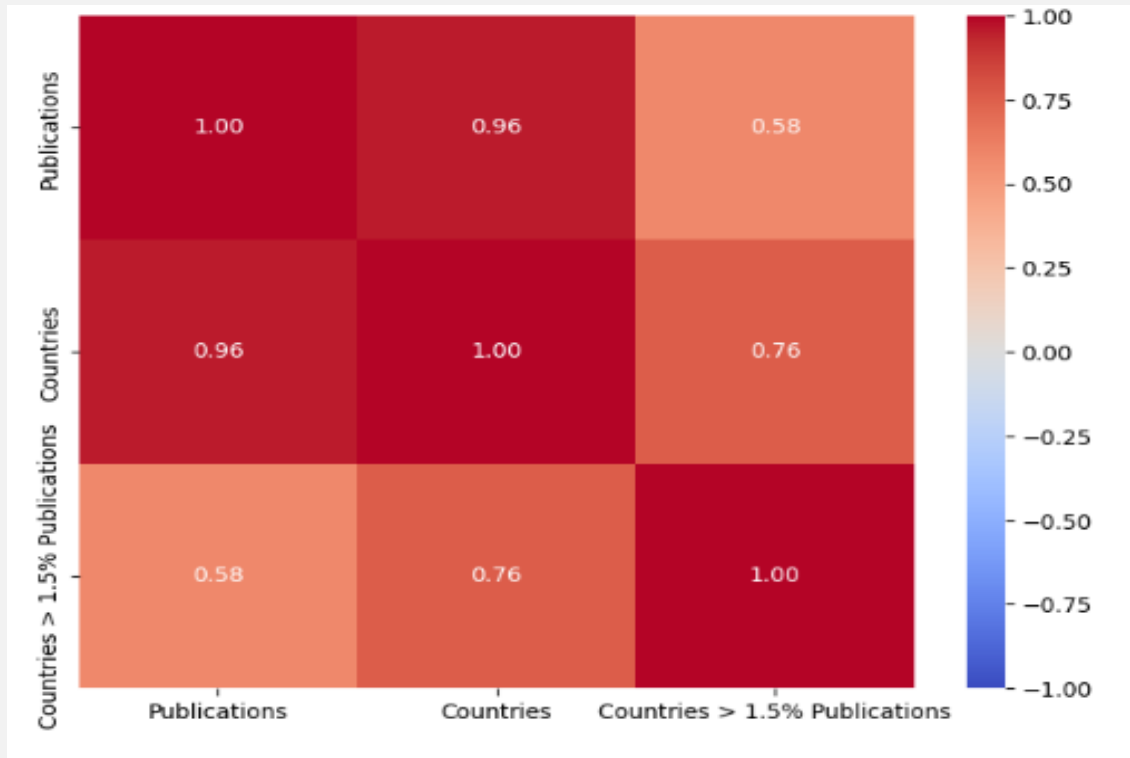


Figure1: Correlation matrix for publications and country data

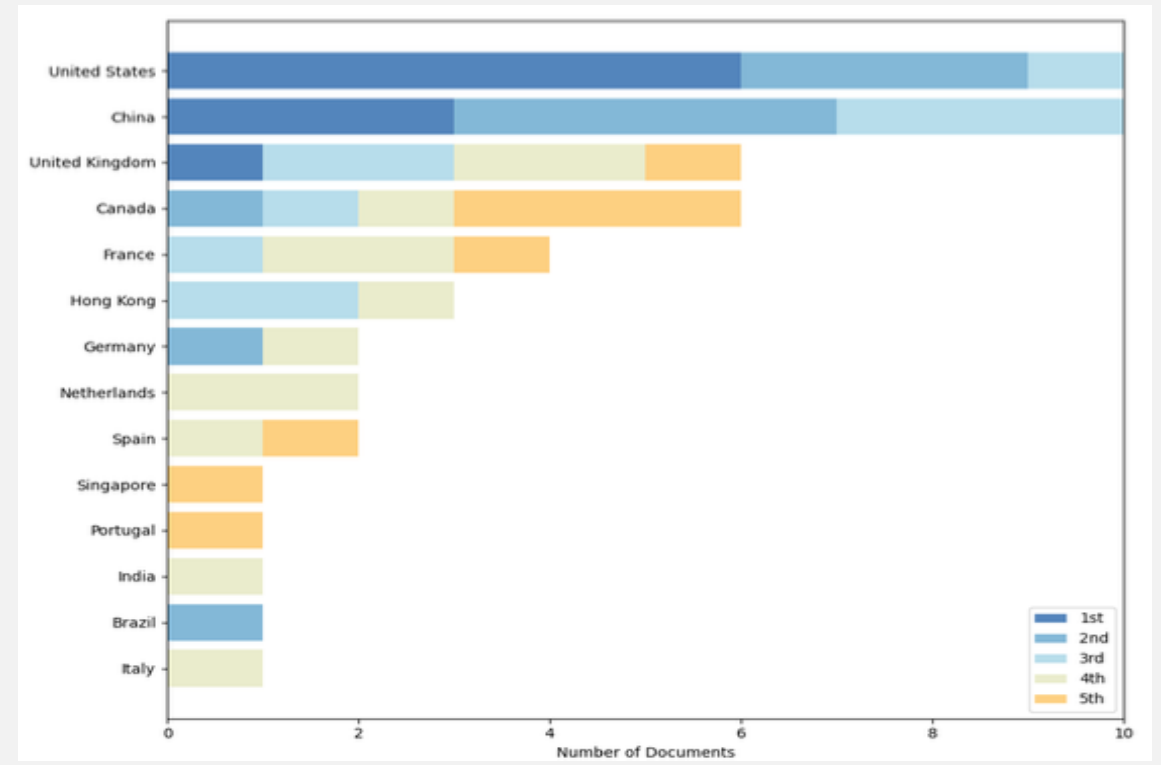


Figure 2: Country ranking distribution in journals

RESULTS - DIVERSITY

Findings

The number of publications in OR journals is correlated with the diversity of contributors' locations.

Implications

Encouraging international collaborations

There is geographical diversity in OR academia, however publications remain unevenly distributed, dominated by a few countries like the U.S, UK and China.

Support underrepresented countries through funding, collaboration, and knowledge-sharing to balance global contributions in OR research.

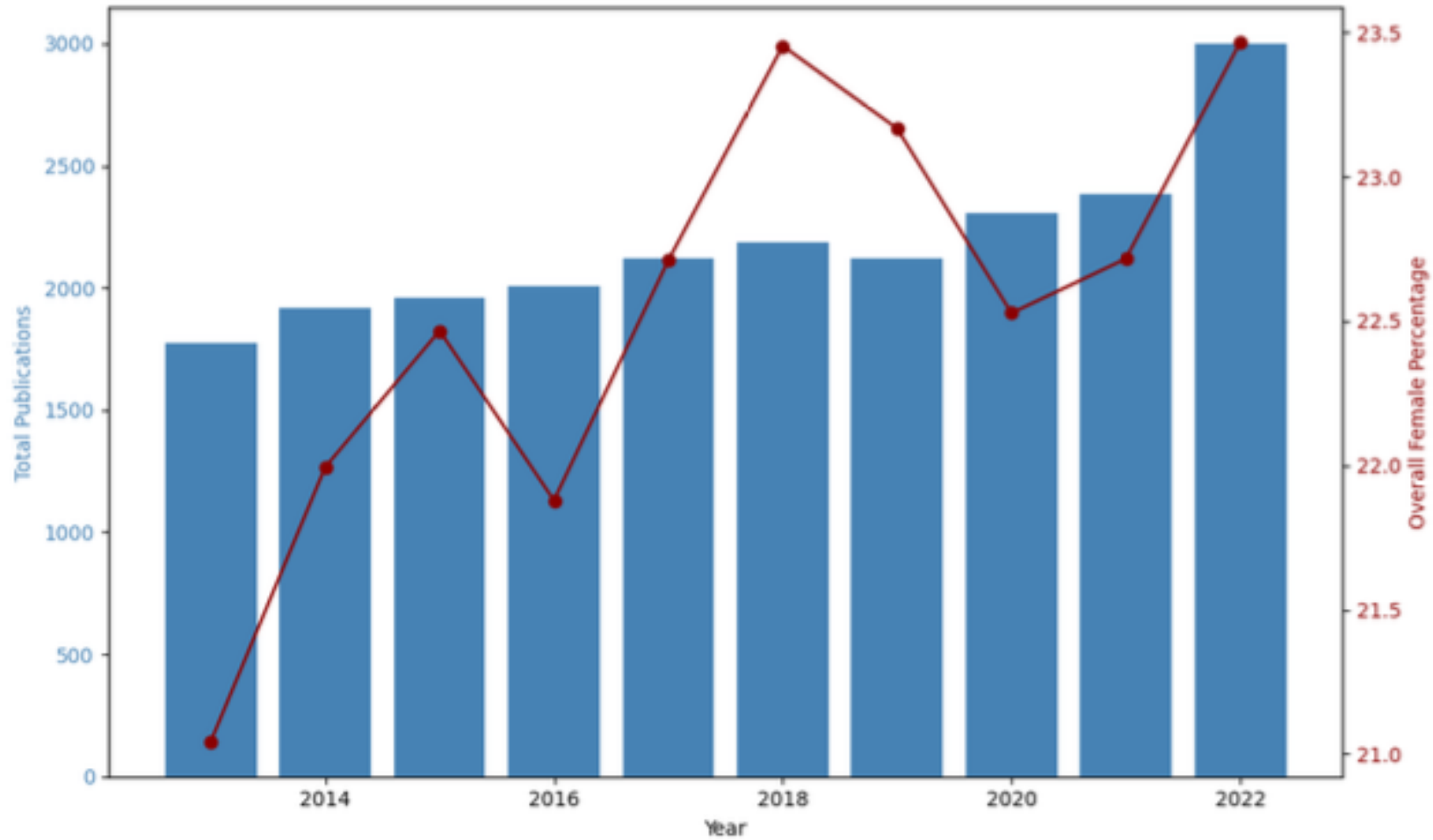


Figure 3: A review of publications and female contributions (2013 - 2022)

RESULTS – GENDER
EQUALITY

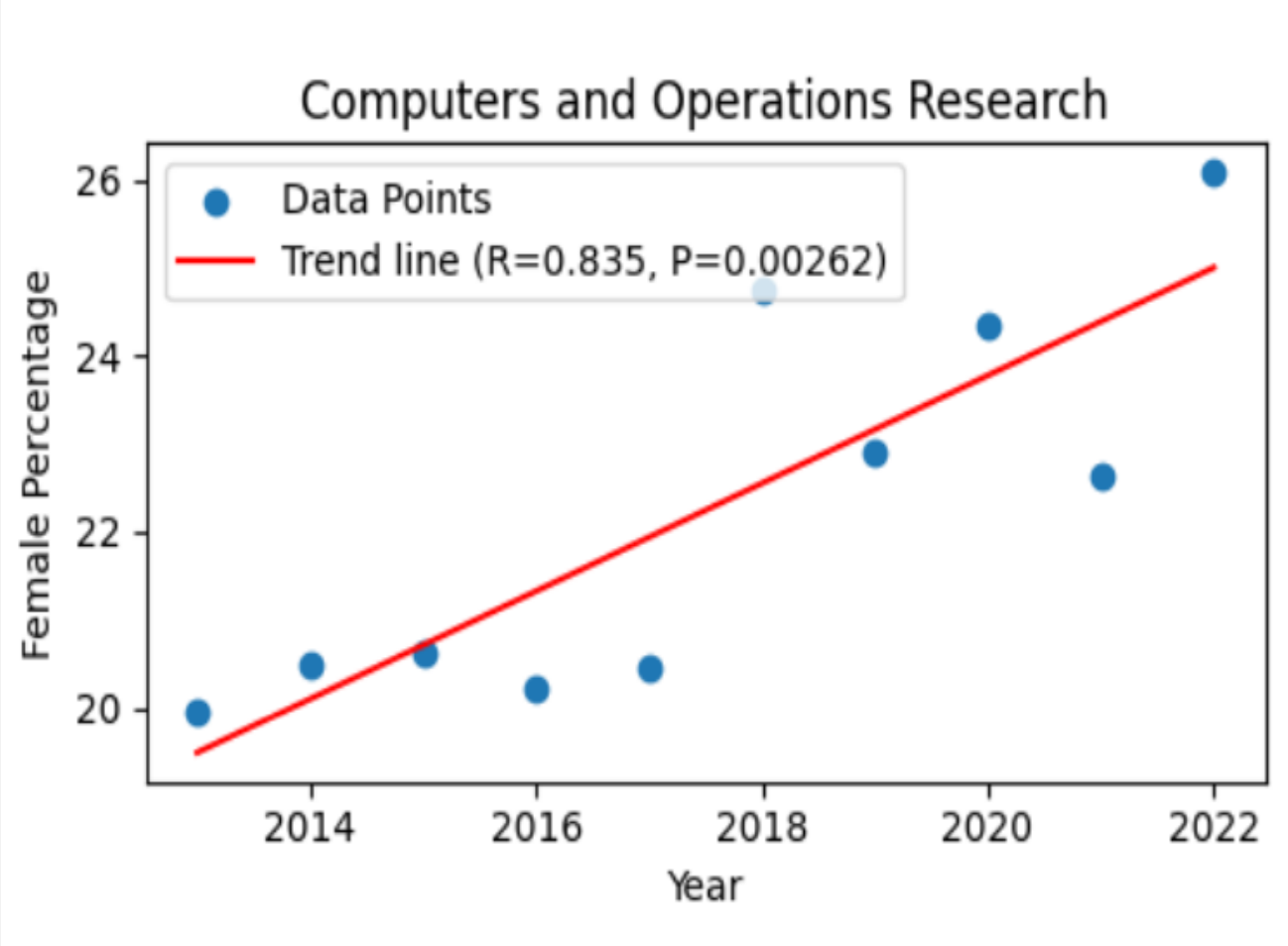


Figure 4: The trends in female authorship

RESULTS – GENDER EQUALITY

Only Computers and Operations Research shows a strong positive trend ($R = 0.835$), which is statistically significant ($P = 0.00262$), indicating a meaningful increase in the percentage of female authors over time.

RESULTS – GENDER EQUALITY

Findings	Implications
The academic field of OR remains predominantly male-dominated	Promote policies and initiatives to encourage greater female participation and leadership in OR research.
There is a positive connection between the ratio of female representation and the volume of publications	Increasing gender diversity in OR can enhance research productivity and overall academic output.

DISCUSSION



The findings highlight the need to address imbalances in geographical contributions and gender representation in OR academia.



Promoting international collaborations and gender diversity can enhance both the quantity and quality of research outputs.



Efforts to create inclusive opportunities will drive innovation and enrich the global OR research landscape.

APPENDIX

Annals of Operations Research		Computers and Operations Research		EJOR	
Country	Documents	Country	Documents	Country	Documents
United States	769	China	399	United States	1385
China	666	United States	359	China	1072
France	440	Canada	265	United Kingdom	990
United Kingdom	378	France	260	Germany	703
India	287	Spain	229	France	658
Italy	259	Italy	217	Canada	515
Canada	197	United Kingdom	192	Spain	444
Germany	196	Brazil	190	Italy	403
Spain	192	Turkey	167	Netherlands	396
Turkey	143	Germany	166	Belgium	289
Iran	140	Australia	107	Australia	272
Australia	133	Iran	106	Brazil	210
Brazil	122	Belgium	105	Hong Kong	201
Taiwan	111	Netherlands	93	Turkey	193
Greece	105	Portugal	75	Portugal	178
Belgium	95	Taiwan	53	Taiwan	158
Netherlands	89	India	51	Austria	149
South Korea	89	Hong Kong	50	Denmark	137
Hong Kong	84	Denmark	48	Iran	133
Japan	81	Austria	48	Greece	123
Israel	67	Norway	46	Singapore	122
Denmark	66	Chile	39	India	122
United Arab Emirates	54			Norway	119
				Japan	111
				South Korea	98

Table I: Number of documents published by top contributed countries in ten journals
(Continued on next page)

APPENDIX

IJOPM		IJPE		ITOR		M&SOM	
Country	Documents	Country	Documents	Country	Documents	Country	Documents
United Kingdom	288	United States	905	China	233	United States	582
United States	168	China	772	Brazil	114	China	97
China	79	United Kingdom	466	United States	102	Hong Kong	64
Netherlands	71	France	265	Spain	80	Canada	62
Italy	65	Canada	256	Portugal	62	Singapore	51
Spain	55	Hong Kong	228	Canada	61	United Kingdom	47
Denmark	50	Germany	196	France	56	France	30
Finland	49	Italy	193	Italy	53	Netherlands	22
Germany	45	Taiwan	135	Iran	40	Germany	18
Australia	38	Netherlands	134	Belgium	37	Turkey	12
Sweden	33	India	128	United Kingdom	27	Israel	10
France	32	Australia	118	Germany	23		
Ireland	28	Brazil	107	Australia	23		
Canada	28	Spain	90	Turkey	22		
Brazil	26	Iran	81	India	21		
India	22	Sweden	75	Hong Kong	20		
Switzerland	17	South Korea	72	Taiwan	19		
Norway	16	Turkey	58	South Korea	19		
Hong Kong	14	Denmark	55	Norway	18		
Taiwan	13	Japan	53	Chile	17		
Portugal	11						
Belgium	11						

Table I: Number of documents published by top contributed countries in ten journals
(Continued on next page)

APPENDIX

Operations Research		TRE		Transportation Science	
Country	Documents	Country	Documents	Country	Documents
United States	811	China	782	United States	276
Canada	119	United States	436	Germany	105
China	112	Hong Kong	223	China	101
Hong Kong	108	United Kingdom	168	Netherlands	98
United Kingdom	103	Canada	111	Canada	95
Singapore	66	Australia	108	Italy	54
France	48	Singapore	102	France	52
Netherlands	47	Netherlands	94	United Kingdom	36
Germany	42	Taiwan	90	Hong Kong	35
Israel	37	Germany	87	Singapore	35
Italy	35	France	82	Spain	23
Australia	23	Iran	76	Denmark	23
Turkey	21	India	52	Norway	22
India	18	Denmark	49	Australia	19
		Italy	47	Belgium	15
		Spain	47	Brazil	14
		South Korea	36	Turkey	14
		Turkey	34	Austria	12
		Sweden	32	India	12
		Belgium	30	Portugal	12

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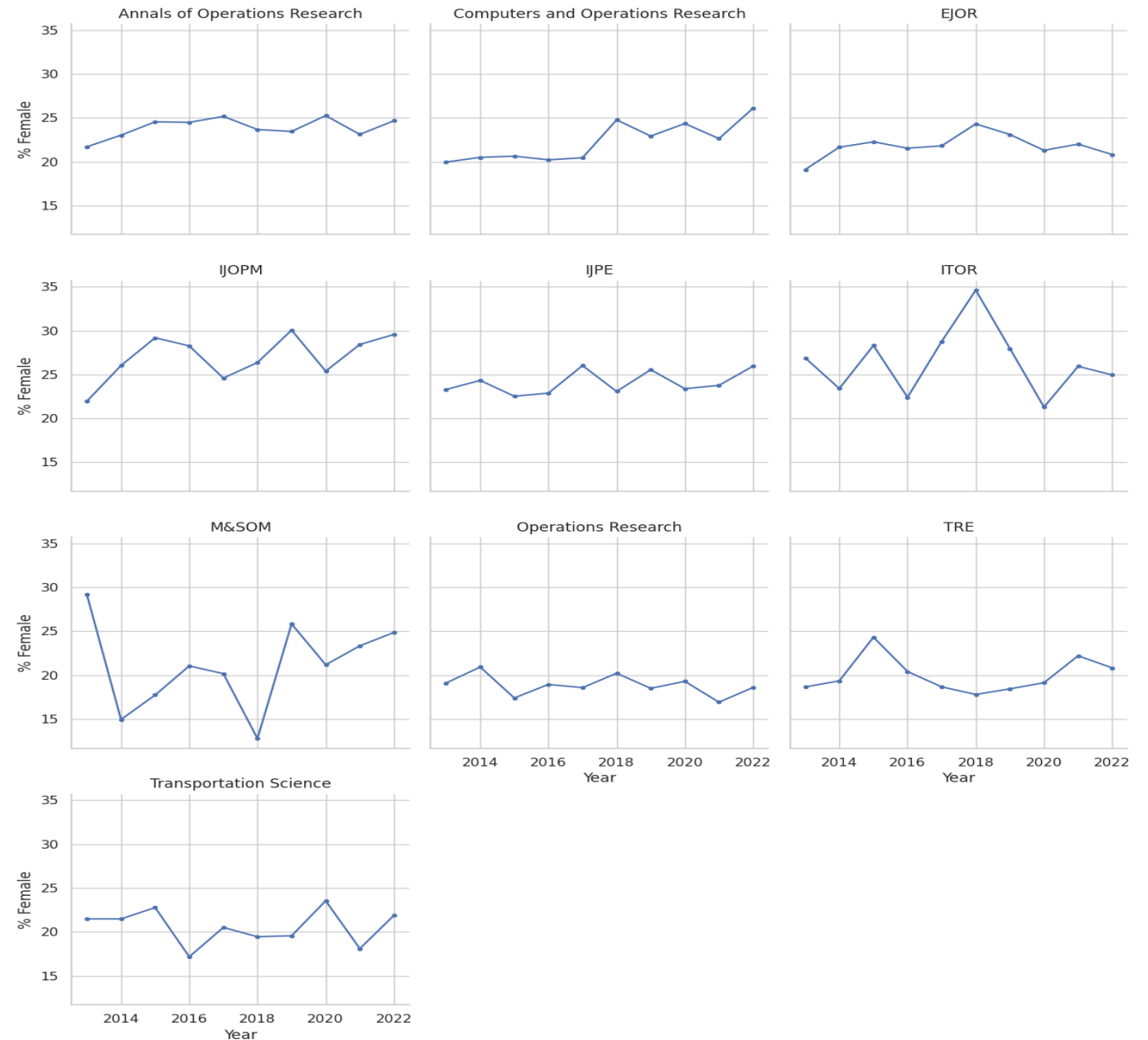


Figure 5: Female representation across ten journals (2013 - 2022)