Exploratory Data Analysis
Best National University Rankings

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Nov 7, 2023

Introduction

How many people refer to national or global university rankings when applying to college/grad college?

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66% high school seniors considered college rankings in their college application process

This percentage increased to **85%** among students with high SAT scores

Introduction

Motivations

- What have been the changes in top universities over the past decade?

  Have there been any significant shifts?

- What kind of changes has Vanderbilt University's ranking undergone?

- Is there a significant difference between the US News and QS rankings?

- What factors influence university rankings?

Introduction
Dataset

US News
Best National University Rankings

QS World University Rankings
Top Global Universities

US News Data Source: https://andyreiter.com/datasets/

QS Data Source: https://www.kaggle.com/datasets/joebeachcapital/qs-world-university-rankings-2024/

Data

- Rankings from 1984 to 2023
- 168 rows and 41 columns

	When using, please cite as: Andrew G. Reiter, "U.S. News & World Report Historical Liberal Arts College and University Rankings," available at: http://andyreiter.com/datasets/	Unnamed: 1	Unnamed: 2	Unnamed: 3	Unnamed: 4	Unnamed: 5	Unnamed: 6	Unnamed: 7
0	University Name	IPEDS ID	State	2023.0	2022.0	2021.0	2020.0	2019.0
1	Princeton University	186131	NJ	1.0	1.0	1.0	1.0	1.0
2	Massachusetts Institute of Technology	166683	MA	2.0	2.0	4.0	3.0	3.0
3	Harvard University	166027	MA	3.0	2.0	2.0	2.0	2.0
4	Yale University	130794	CT	3.0	5.0	4.0	3.0	3.0
...	...	...	...	...	...	...	...	...
163	University of Cincinnati	201885	OH	NaN	148.0	NaN	NaN	NaN
164	University of Mississippi	176017	MS	NaN	148.0	NaN	NaN	NaN
165	Ohio University	204857	OH	NaN	NaN	NaN	NaN	NaN
166	University of Arkansas	106397	AR	NaN	NaN	NaN	153.0	147.0
167	Washington State University	236939	WA	NaN	NaN	NaN	NaN	NaN

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164	University of Mississippi	176017	MS	NaN	148.0	NaN	NaN	NaN
165	Ohio University	204857	OH	NaN	NaN	NaN	NaN	NaN
166	University of Arkansas	106397	AR	NaN	NaN	NaN	153.0	147.0
167	Washington State University	236939	WA	NaN	NaN	NaN	NaN	NaN

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Data

	2024 RANK	2023 RANK	Institution Name	Country Code	Country	SIZE	FOCUS	RES.	AGE	STATUS	...
0	rank display	rank display2	institution	location code	location	size	focus	research	age band	status	...
1	1	1	Massachusetts Institute of Technology (MIT)	US	United States	M	CO	VH	5	B	...
2	2	2	University of Cambridge	UK	United Kingdom	L	FC	VH	5	A	...
3	3	4	University of Oxford	UK	United Kingdom	L	FC	VH	5	A	...
4	4	5	Harvard University	US	United States	L	FC	VH	5	B	...
...	...	...	...	...	...	...	...	...	...	...	...
1493	1401+	1401+	University of Oradea	RO	Romania	L	FC	MD	4	A	...
1494	1401+	NaN	University of Stavanger	NO	Norway	NaN	CO	NaN	2	NaN	...
1495	1401+	1201-1400	University Politehnica of Timisoara, UPT	RO	Romania	M	FO	VH	5	A	...
1496	1401+	1201-1400	Western Washington University	US	United States	L	CO	HI	5	NaN	...
1497	1401+	NaN	Zürcher Hochschule Winterthur	CH	Switzerland	NaN	CO	NaN	NaN	NaN	...

1498 rows × 29 columns

2023 and 2024 Rankings

1498 rows and 29 columns

Have metrics like College Size

Have metrics for measuring rankings, like Academic Reputation Score

Data

	2024 RANK	2023 RANK	Institution Name	Country Code	Country	SIZE	FOCUS	RES.	AGE	STATUS	...
0	rank display	rank display2	institution	location code	location	size	focus	research	age band	status	...
1	1	1	Massachusetts Institute of Technology (MIT)	US	United States	M	CO	VH	5	B	...
2	2	2	University of Cambridge	UK	United Kingdom	L	FC	VH	5	A	...
3	3	4	University of Oxford	UK	United Kingdom	L	FC	VH	5	A	...
4	4	5	Harvard University	US	United States	L	FC	VH	5	B	...
...	...	...	...	...	...	...	...	...	...	...	...
1493	1401+	1401+	University of Oradea	RO	Romania	L	FC	MD	4	A	...
1494	1401+	NaN	University of Stavanger	NO	Norway	NaN	CO	NaN	2	NaN	...
1495	1401+	1201-1400	University Politehnica of Timisoara, UPT	RO	Romania	M	FO	VH	5	A	...
1496	1401+	1201-1400	Western Washington University	US	United States	L	CO	HI	5	NaN	...
1497	1401+	NaN	Zürcher Hochschule Winterthur	CH	Switzerland	NaN	CO	NaN	NaN	NaN	...

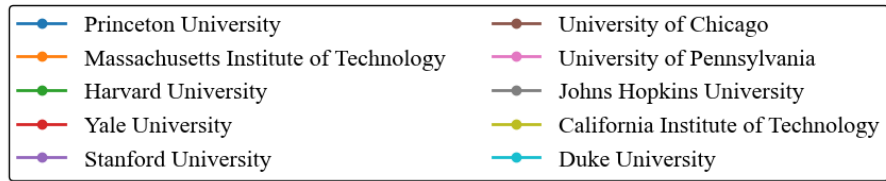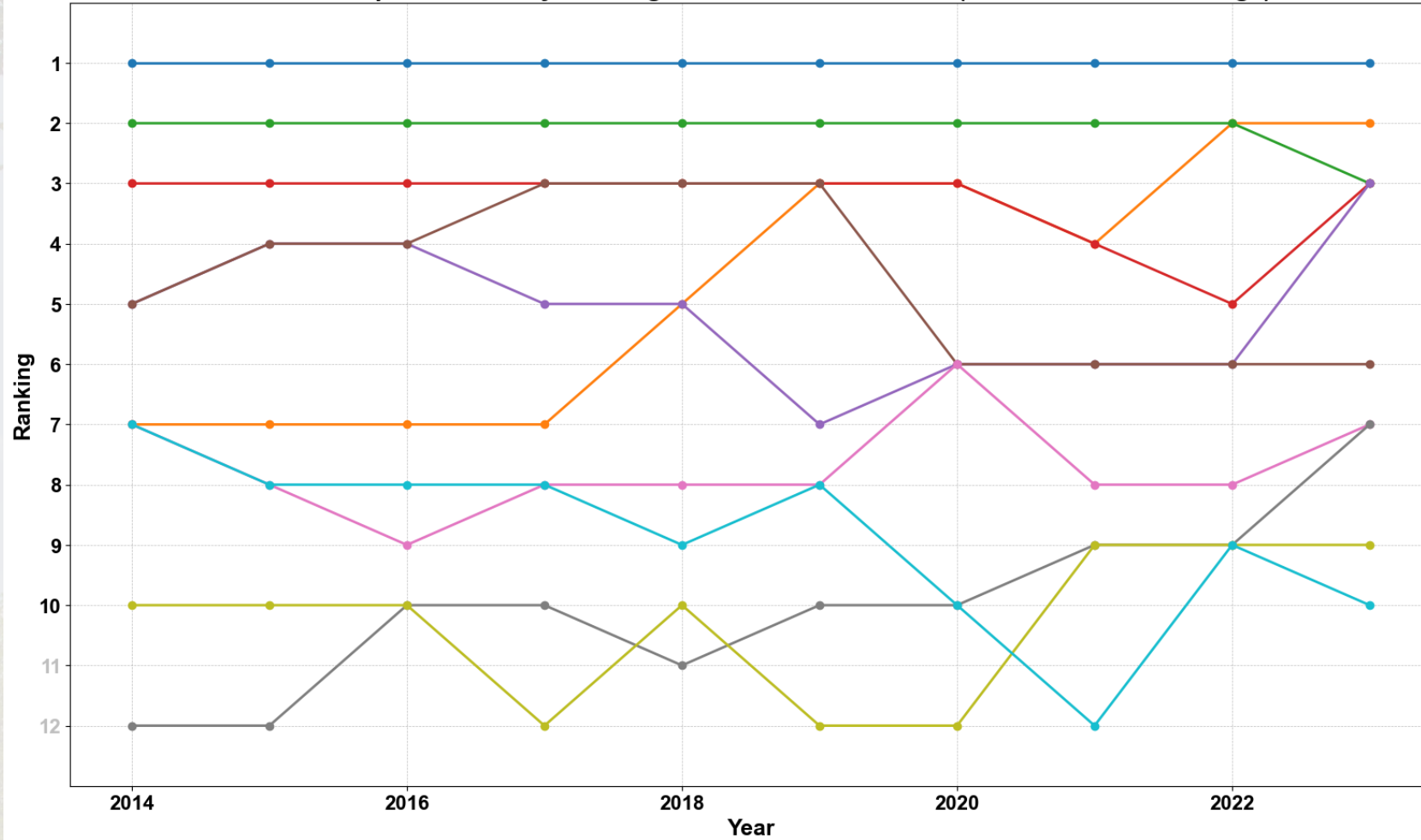1498 rows × 29 columns

2023 and 2024 Rankings

1498 rows and 29 columns

Have metrics like College Size

Have metrics for measuring rankings, like Academic Reputation Score

US News Top 10 University Rankings over the Last 10 Years (Based on 2023 Rankings)

Legend:
- Princeton University
- Massachusetts Institute of Technology
- Harvard University
- Yale University
- Stanford University
- University of Chicago
- University of Pennsylvania
- Johns Hopkins University
- California Institute of Technology
- Duke University

US News Top 10 University Rankings Distribution Over the Last 10 Years (Based on 2023 Rankings)
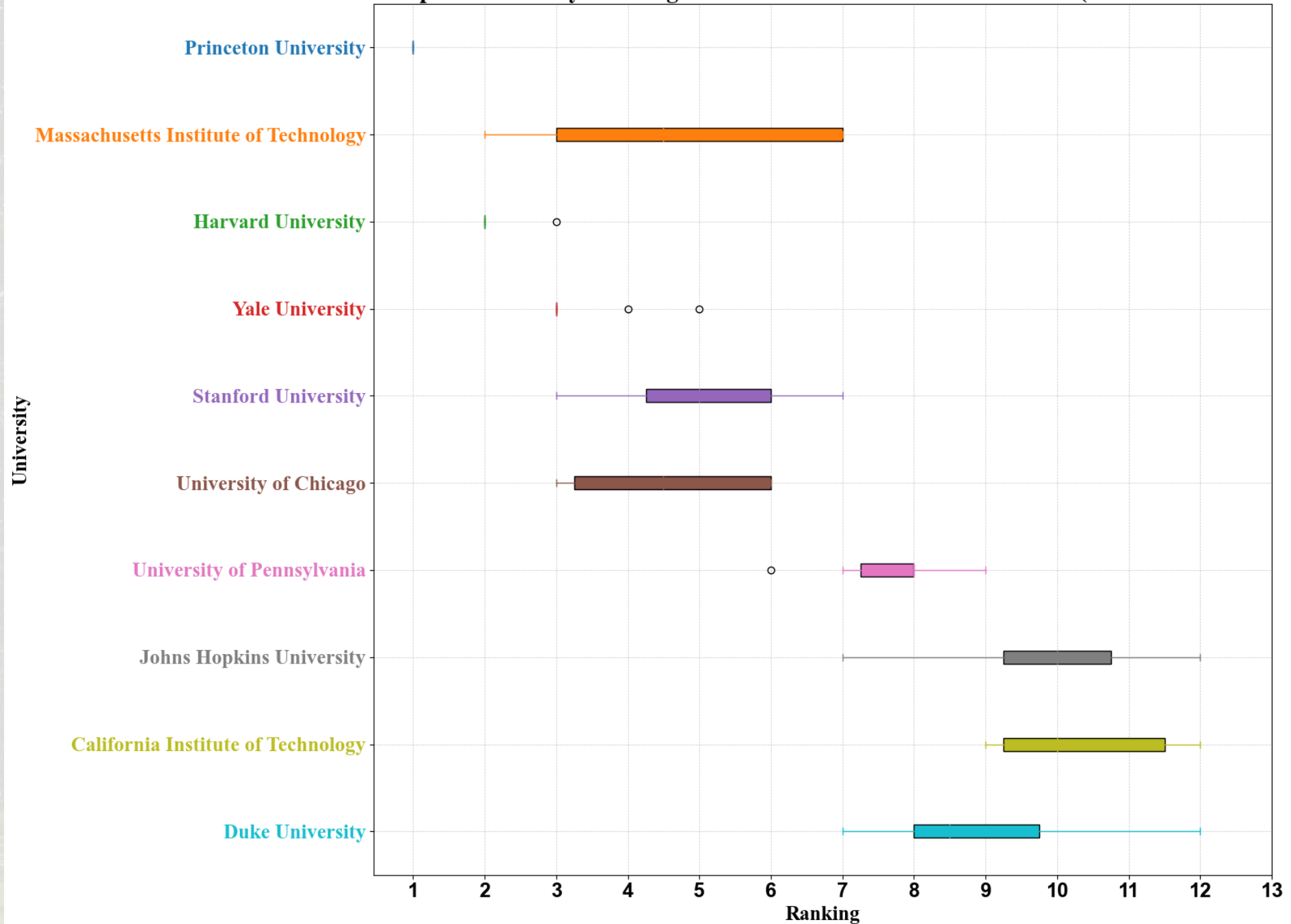
US News Ranking Trend for Vanderbilt University

Comparison of US News and QS Rankings (2023)
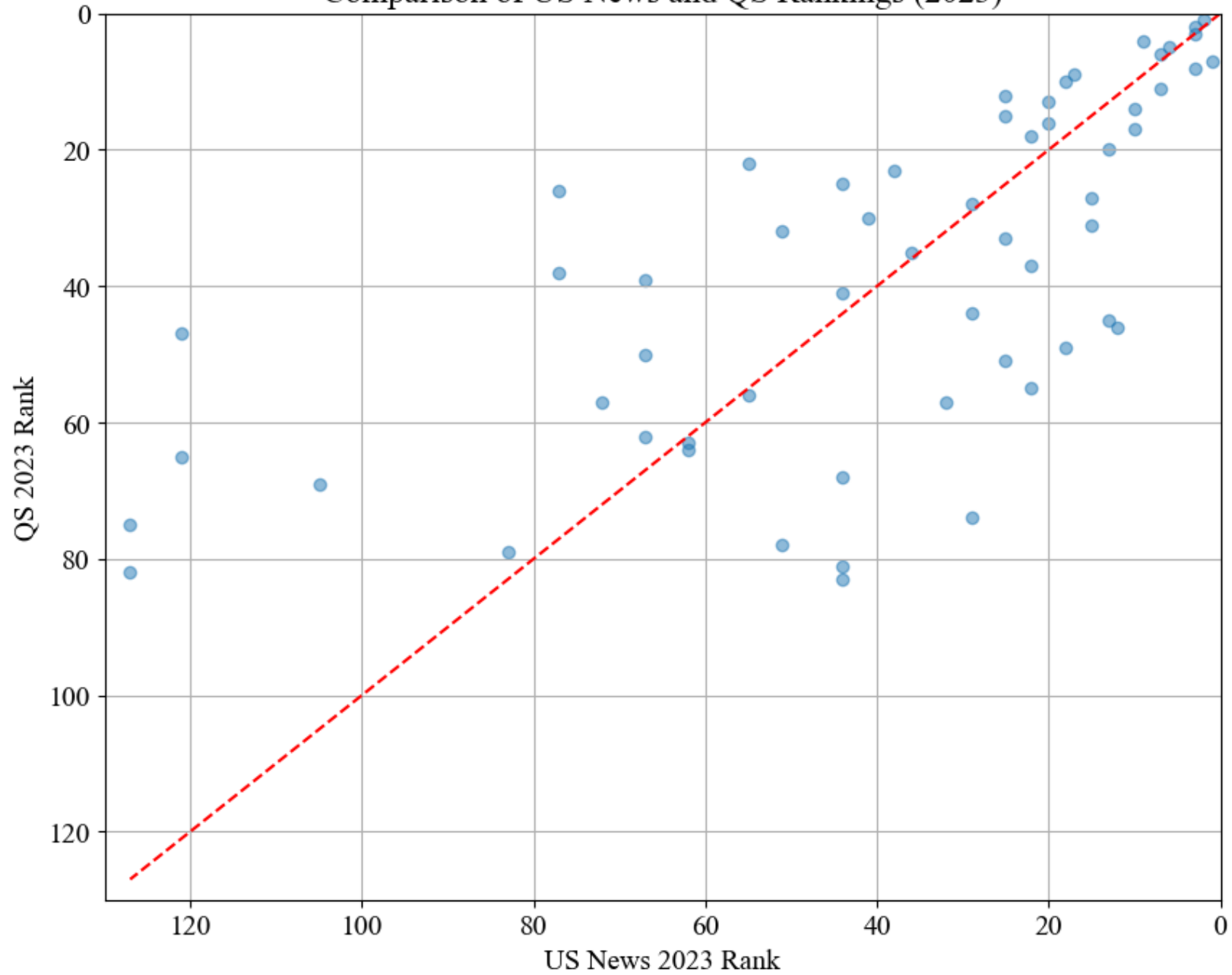
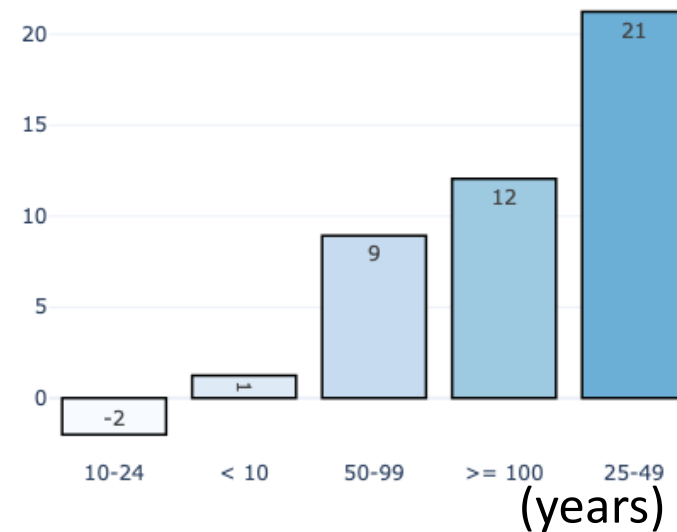Average QS Rank Change by Categories: College Size, Focus, Research Intensity, and Age
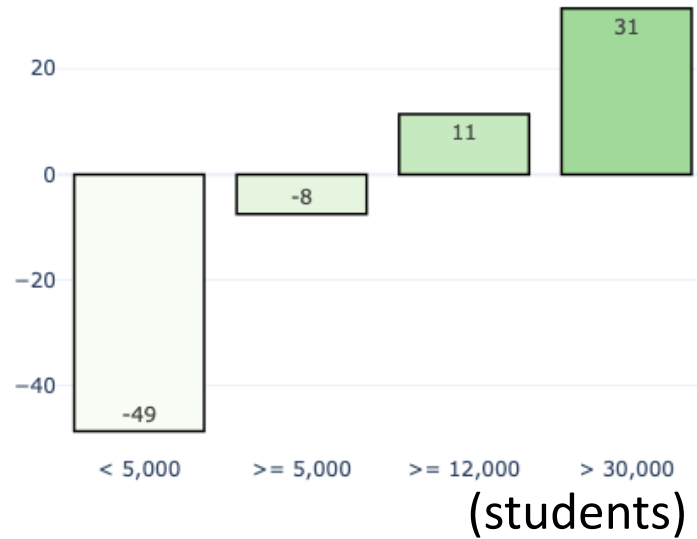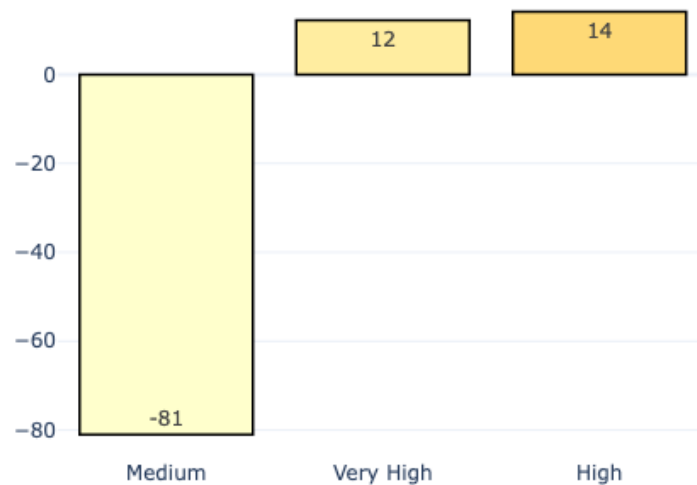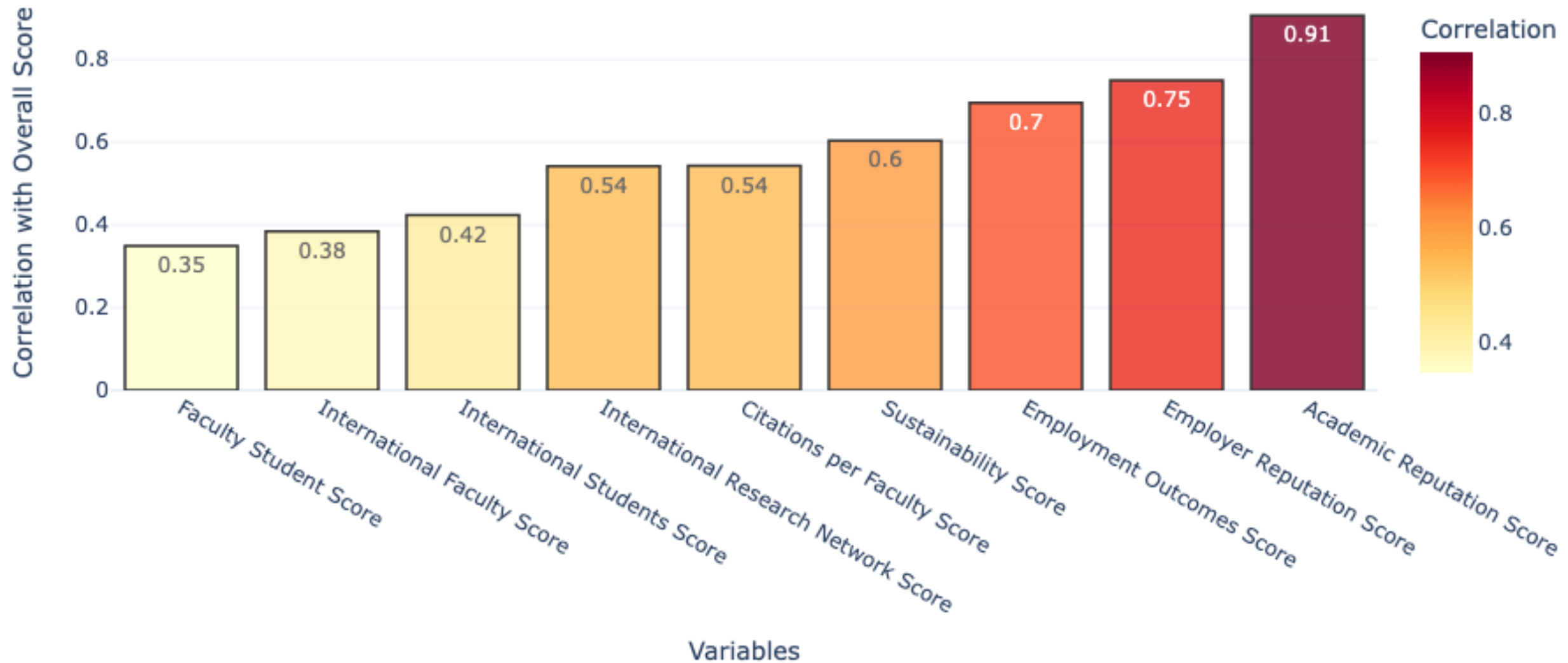
- Fully Comp. : all 5 faculty areas + medical school
- Comprehensive: all 5 faculty areas
- Focused: 3 or 4 faculty areas
- Specialist: 2 or fewer faculty areas

Correlation between Variables and Overall Score of QS Ranking

Takeaways

- University rankings reveal stable positions for top institutions amidst yearly shifts.

- Vanderbilt University's ranking improvement reflects its pursuit to progress.

- Comparisons show US News and QS rankings align for top universities but differ lower down.

- Academic reputation is a key factor in QS Rankings, influencing overall scores significantly.

- Rankings highlight facets of prestige but should complement a broader university selection process.

- Rankings guide, not govern, the choice of university, acting as indicators rather than directives.

Thank you for your listening

References:

1. https://www.fierceeducation.com/leadership/how-important-are-college-rankings-students-school-selection-process
2. https://andyreiter.com/datasets/
3. https://www.kaggle.com/datasets/joebeachcapital/qs-world-university-rankings-2024/