

An aerial photograph of a university campus, likely the University of Virginia, showing red brick buildings, green trees, and a large central lawn. The image is slightly faded to make the text stand out.

# **Exploratory Data Analysis Best National University Rankings**

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# **Introduction**

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



# Introduction

## Dataset



**US News**  
**Best National University Rankings**



**QS World University Rankings**  
**Top Global Universities**



# 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 in the rankings of the same school by US News and QS?**
- **What factors influence university rankings?**





# Data

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

	University	ID	State	2023	2022	2021	2020	2019	2018	2017	...
0	Princeton University	186131	NJ	1	1	1	1	1	1	1	...
1	Massachusetts Institute of Technology	166683	MA	2	2	4	3	3	5	7	...
2	Harvard University	166027	MA	3	2	2	2	2	2	2	...
3	Yale University	130794	CT	3	5	4	3	3	3	3	...
4	Stanford University	243744	CA	3	6	6	6	7	5	5	...
...	...	...	...	...	...	...	...	...	...	...	...
162	University of Cincinnati	201885	OH	<NA>	148	<NA>	<NA>	<NA>	<NA>	<NA>	...
163	University of Mississippi	176017	MS	<NA>	148	<NA>	<NA>	<NA>	<NA>	<NA>	...
164	Ohio University	204857	OH	<NA>	<NA>	<NA>	<NA>	<NA>	<NA>	<NA>	...
165	University of Arkansas	106397	AR	<NA>	<NA>	<NA>	153	147	133	135	...
166	Washington State University	236939	WA	<NA>	<NA>	<NA>	<NA>	<NA>	<NA>	<NA>	...

167 rows x 41 columns

Data Source: <https://andyreiter.com/datasets/>



	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 x 29 columns

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

2024 and 2023 Rankings

1498 rows and 29 columns

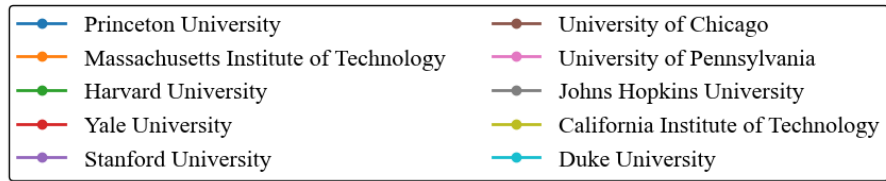
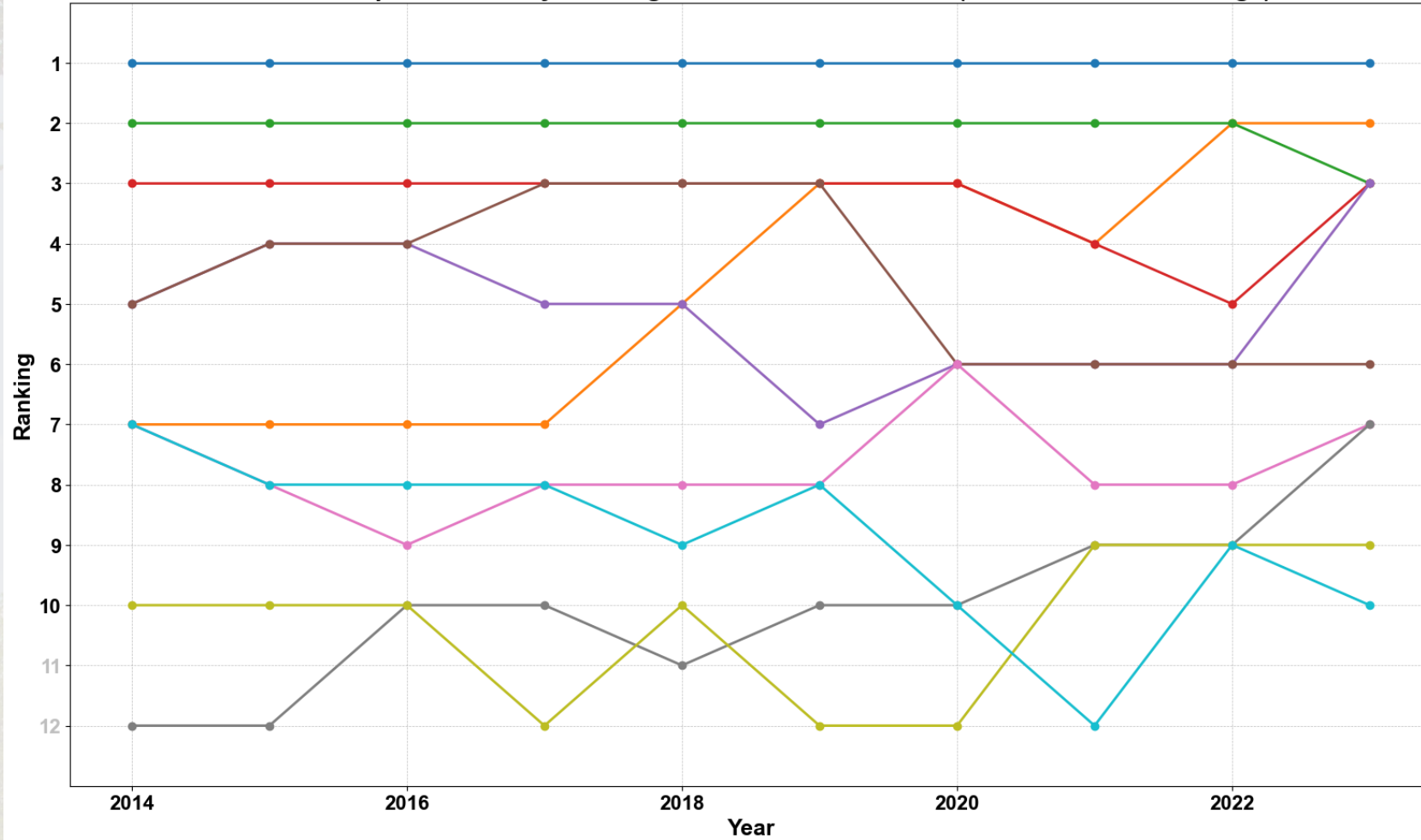
Have indicators like

College Size

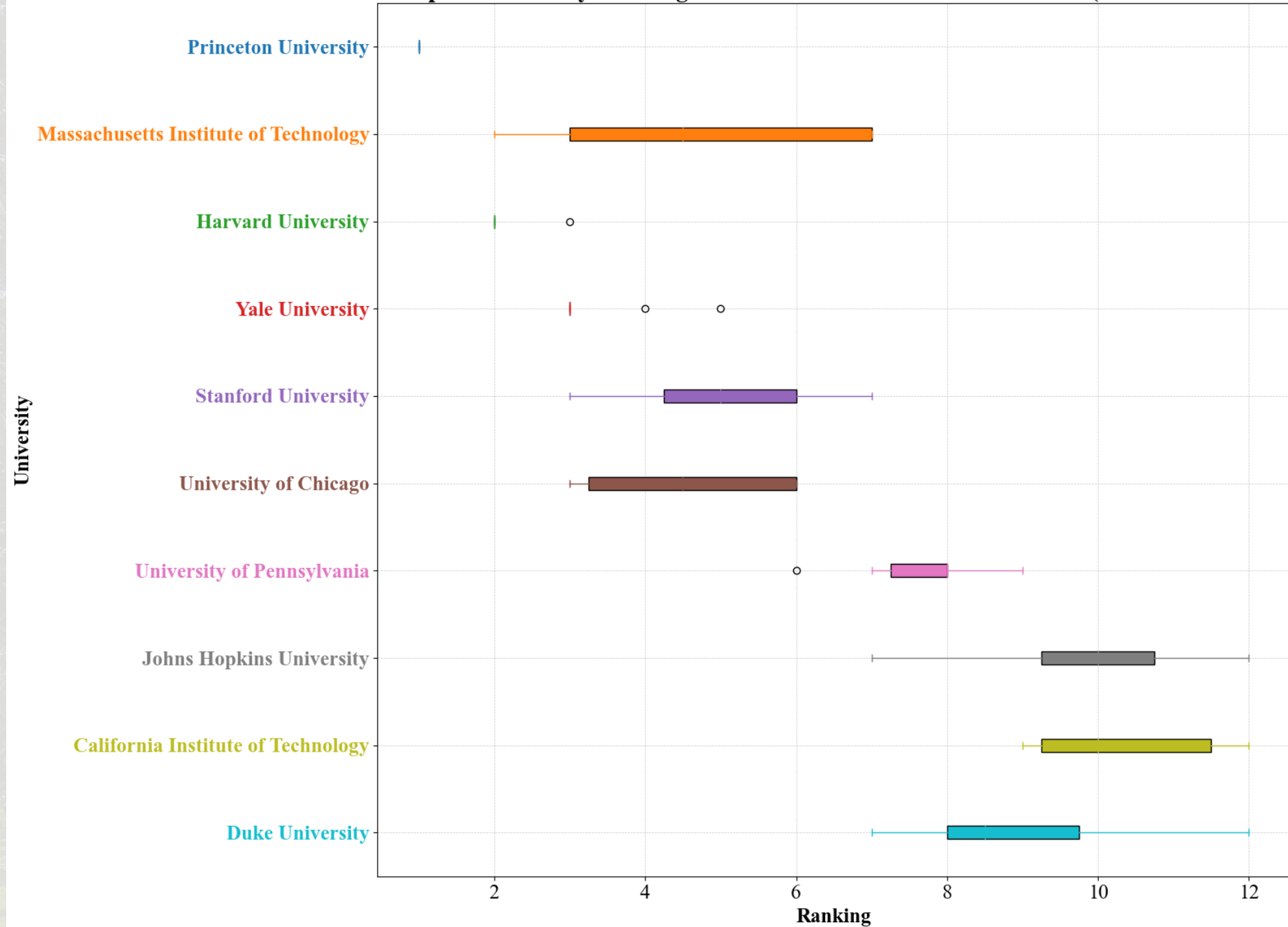
Have indicators for  
measuring rankings, like  
Academic Reputation Score



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



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



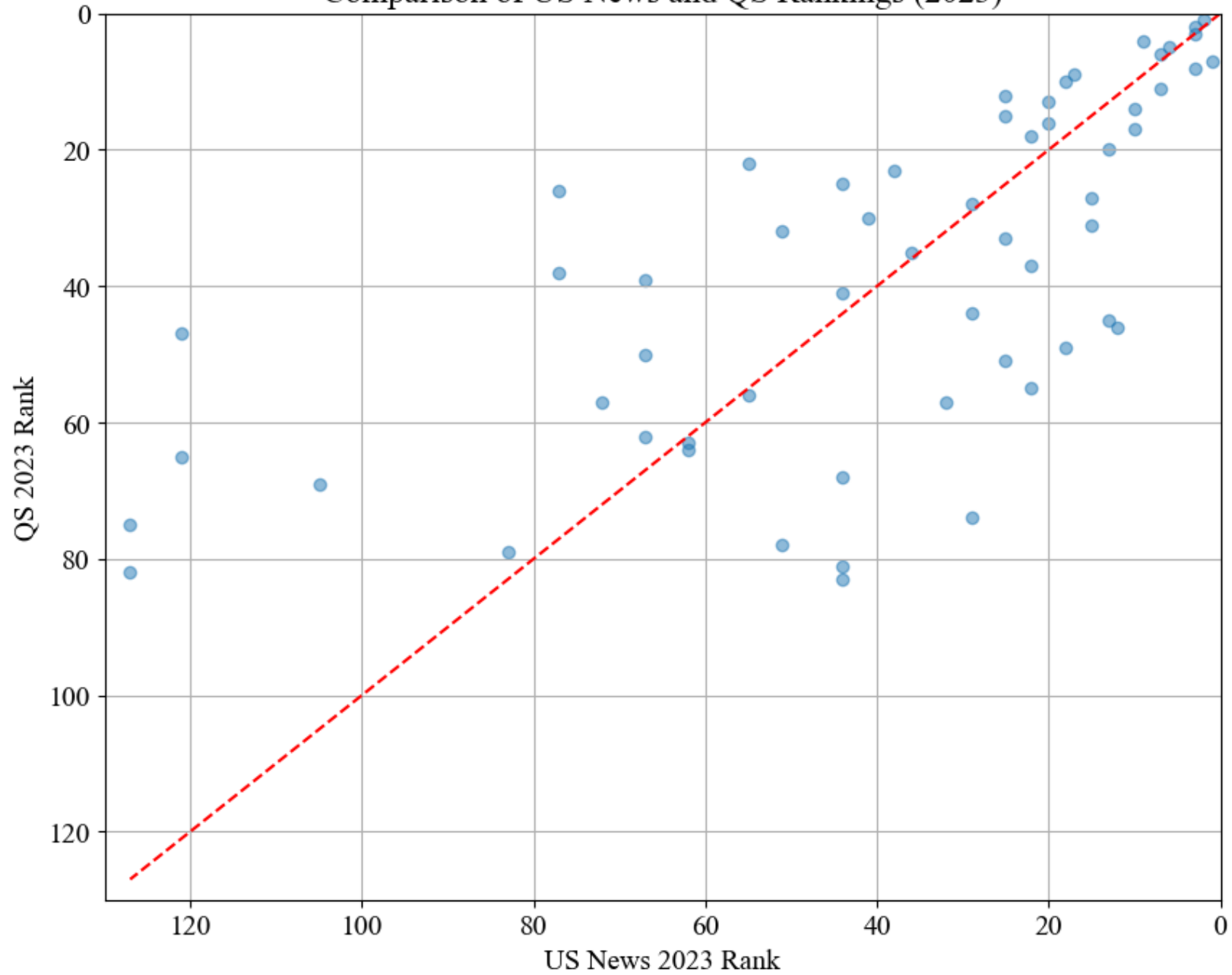


# US News Ranking Trend for Vanderbilt University





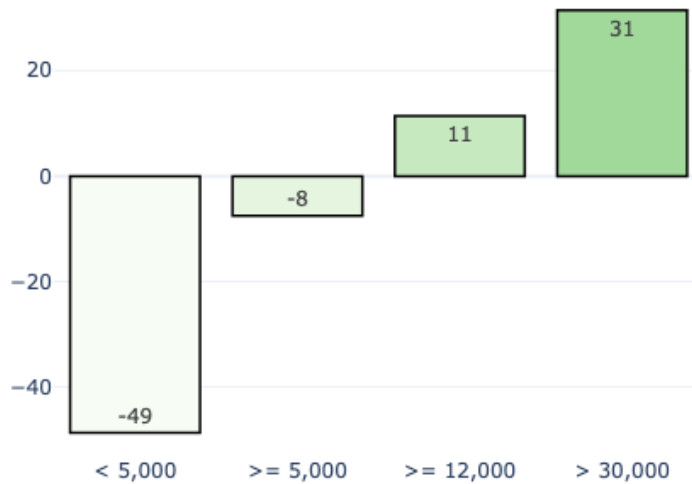
Comparison of US News and QS Rankings (2023)





## Average Rank Change by Categories: College Size, Focus, Research Intensity, and Age

### Average Rank Change by College Size

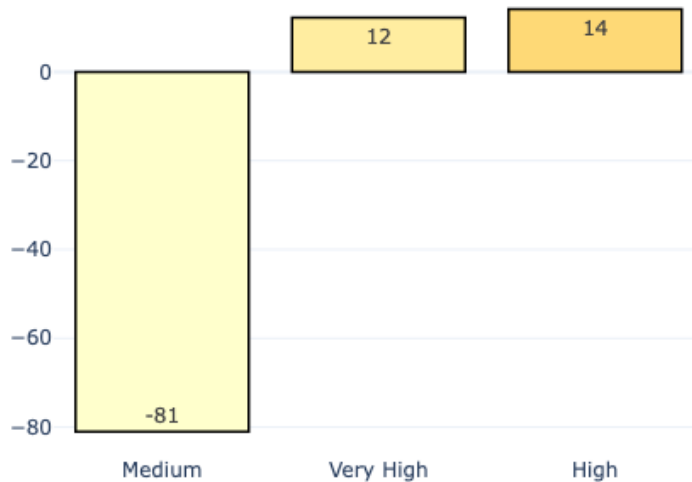


(students)

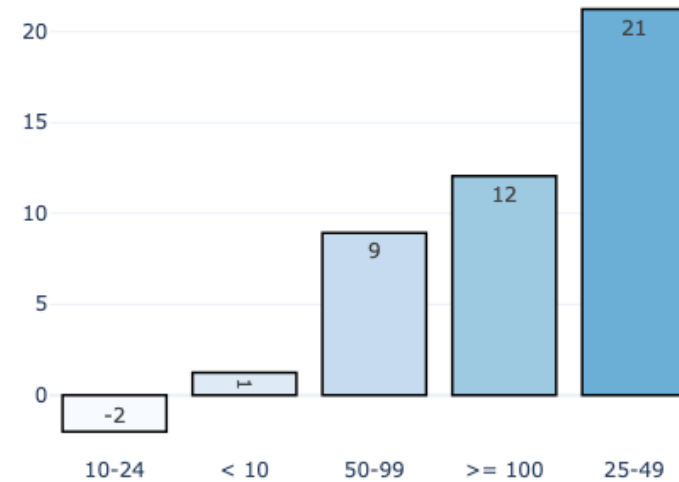
### Average Rank Change by College Focus



### Average Rank Change by College Research Intensity



### Average Rank Change by College Age

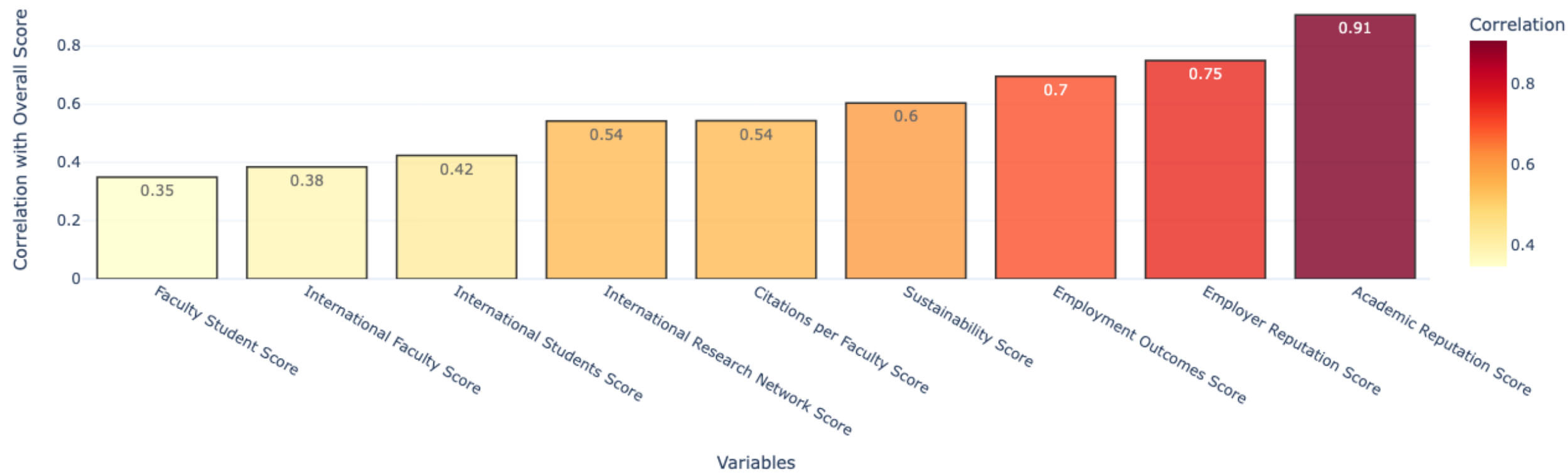


(years)

- 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





# Takeaways

- **Top schools have experienced fluctuations in their rankings over the past decade, but overall they have remained stable.**
- **Vanderbilt University's national ranking has generally been on the rise over the past several decades.**
- **The rankings of top 10 universities by US News and QS are generally consistent, but the lower the school's ranking, the greater the discrepancy between the two rankings tends to be.**
- **Rankings are derived from multiple indicators, each affecting the ranking differently, and the definition of different indicators has a subjective aspect. Rankings are of referential but not decisive significance, and we should choose our preferred majors and institutions, rather than apply based on rankings.**





**Thank you for your listening**