

WORLD UNIVERSITY RANKINGS: DATA INSIGHTS

Analysis based on Times Higher Education data

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PRESENTATION PURPOSE

- **Objective & Scope – what we want to discover**
- **Dataset Overview – where the data comes from**
- **Top Countries by Universities – who dominates in numbers**
- **Score Distribution – how most universities perform**
- **Teaching vs Research vs Citations – metric correlation**
- **Citations & Total Score – does visibility matter?**
- **How the Total Score is Calculated**
- **Summary – wrap-up of key points**

Dataset Overview

The dataset comes from **Kaggle** and is based on the Times Higher Education World University Rankings.

Years covered: 2011–2016

Universities included: over 1,400 institutions

The dataset includes 1182 rows and 14 columns, covering universities from over 90 countries between 2011 and 2016.

Main columns:

- world_rank – global ranking
- university_name – name of institution
- country – country of location
- teaching, research, citations – evaluation metrics
- international – international outlook
- income – industry income
- total_score – final weighted score
- year – ranking year

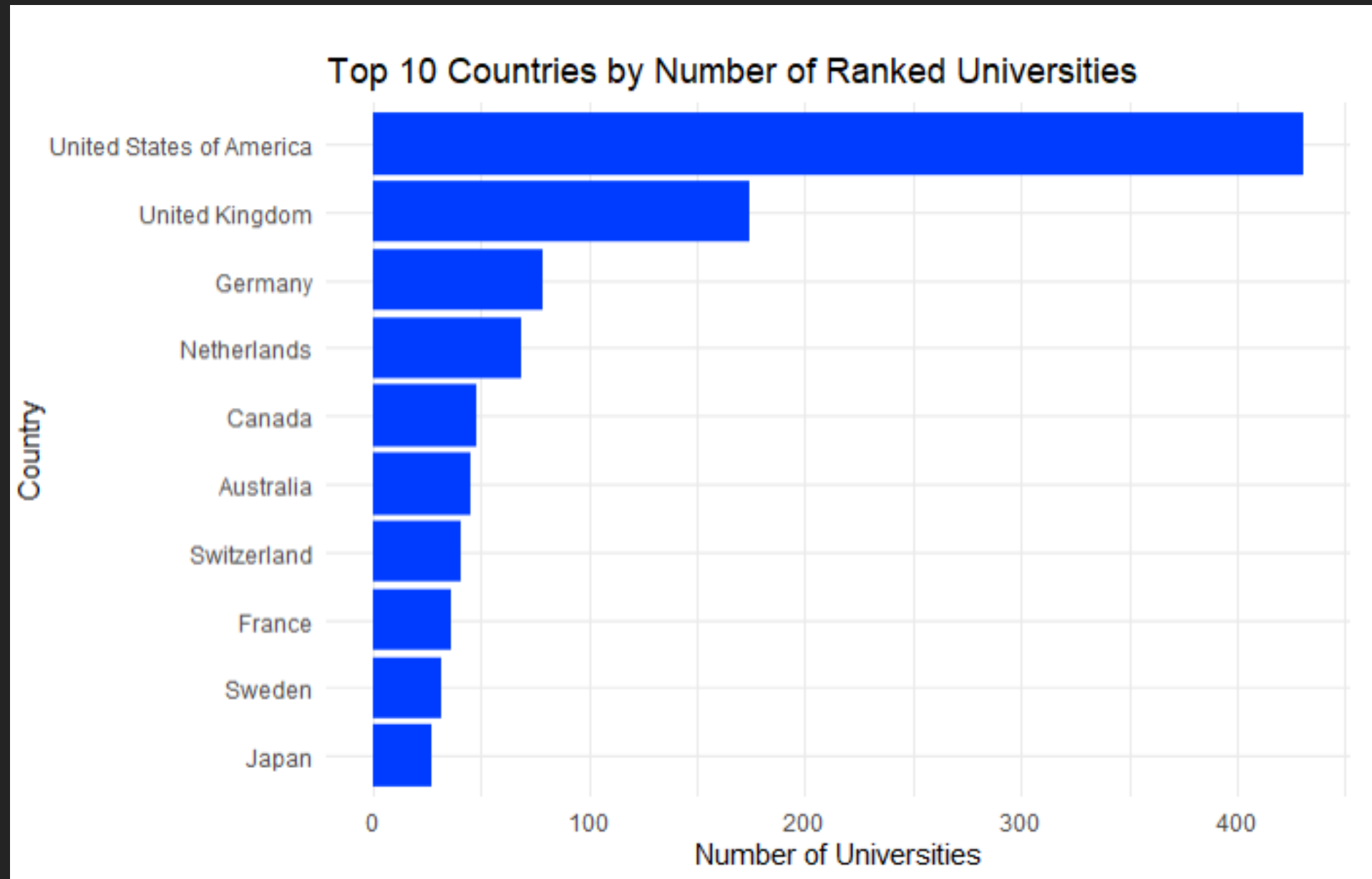
total_score <dbl>	international <chr>	research <dbl>	citations <dbl>
96.1	72.4	98.7	98.8
96.0	54.6	98.0	99.9
95.6	82.3	91.4	99.9
94.3	29.5	98.1	99.2
94.2	70.3	95.4	99.9
91.2	77.7	94.1	94.0

university_name <chr>
Harvard University
California Institute of Technology
Massachusetts Institute of Technology
Stanford University
Princeton University
University of Cambridge

```
```{r}
paste("Number of rows:", nrow(data))
```
```

```
[1] "Number of rows: 1182"
```

Top Countries by Universities



The dataset shows that the **United States** has by far the highest number of ranked universities, followed by the **United Kingdom**.

Countries such as Germany, Australia, Canada, and Australia also appear frequently, showing their strong presence in global education.

It's important to note that smaller countries may perform well in quality, but larger ones dominate in quantity.

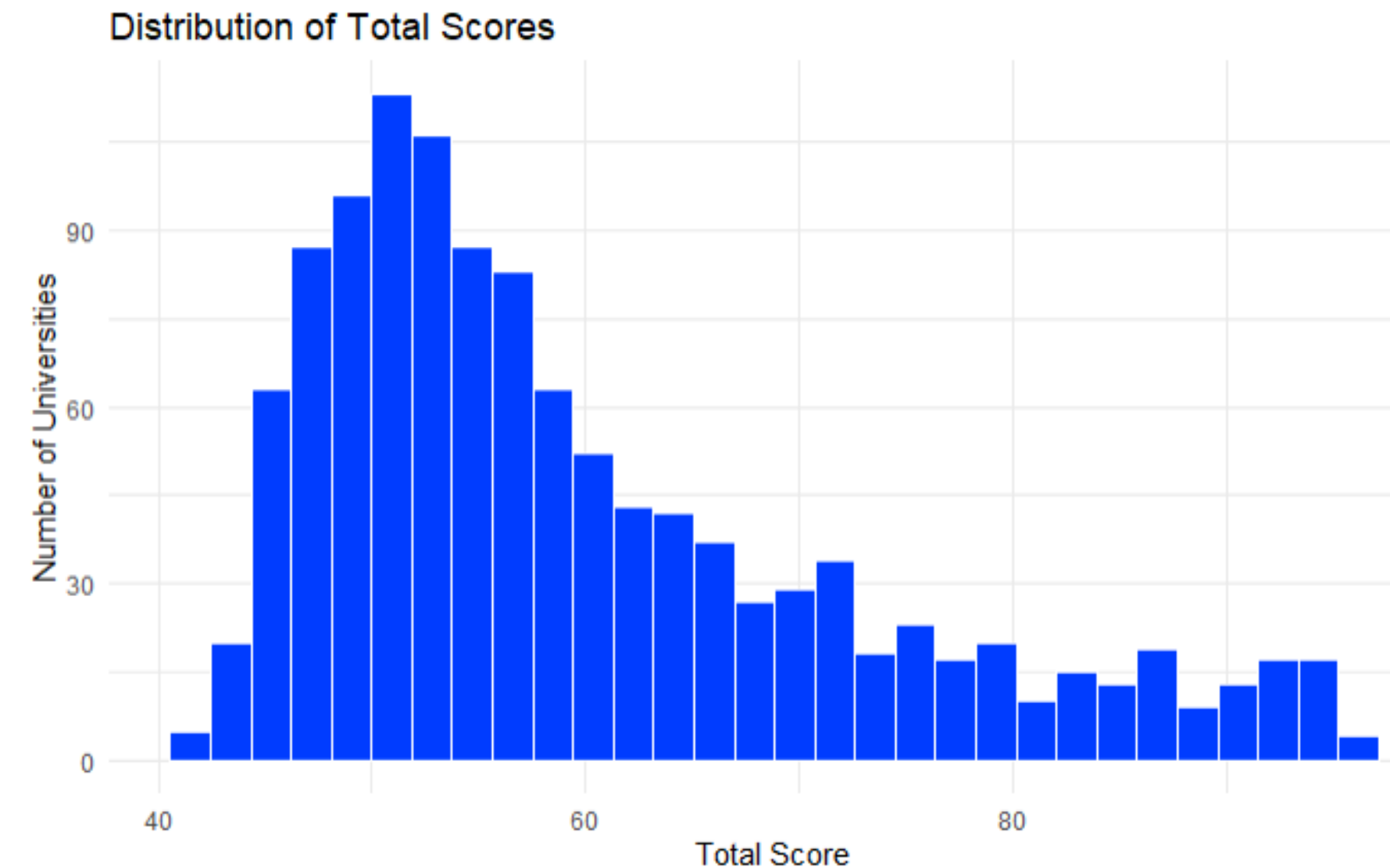
Score Distribution

The total score combines multiple evaluation criteria into a single performance measure.

Most universities score between **45 and 70**, with the peak around 55 points.

This indicates that the majority of institutions fall into the middle range of global performance.

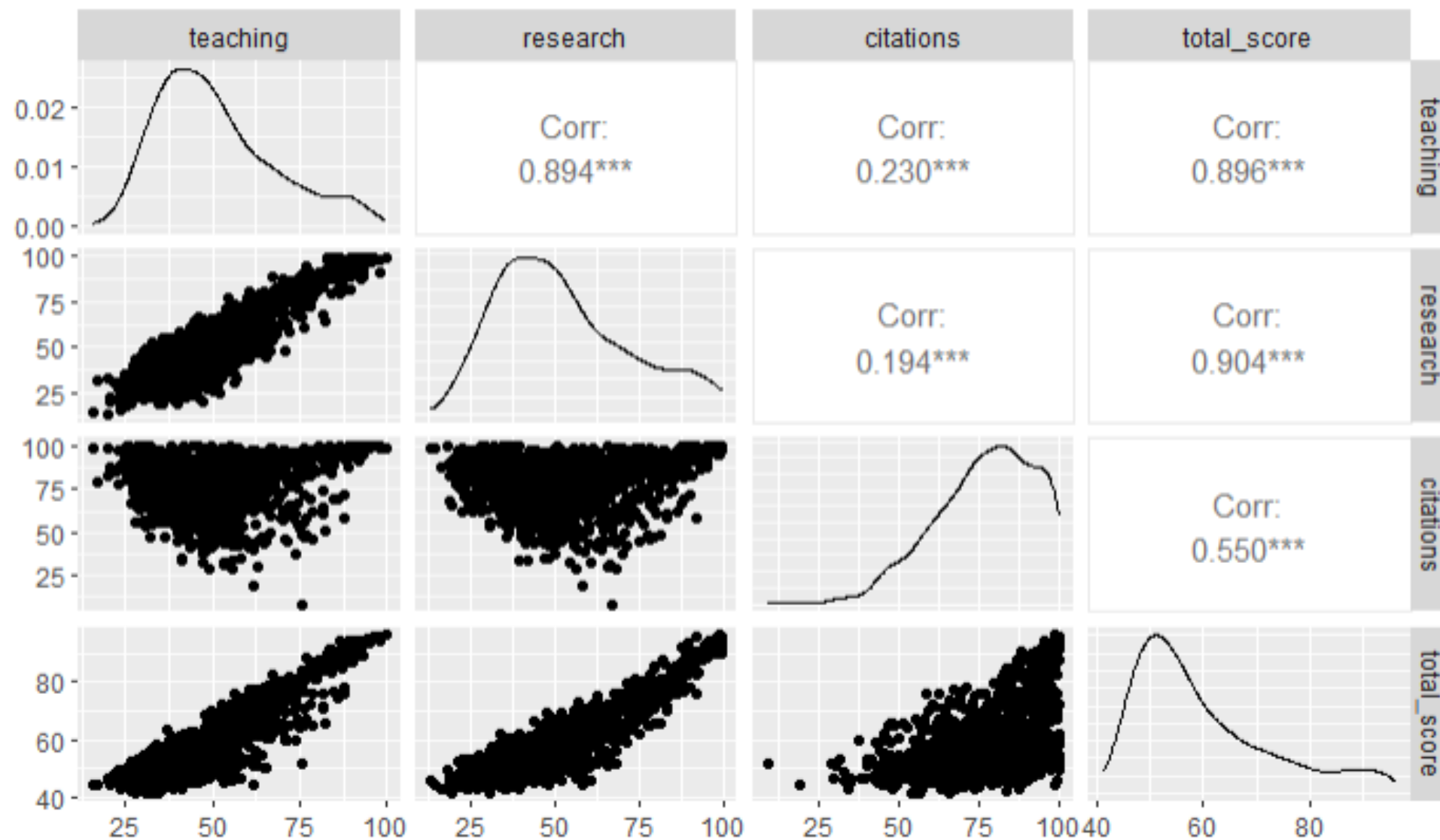
Only a small group of top-tier universities score above **85**, showing how competitive the highest ranks are.





Teaching vs Research vs Citations

Correlation Between Teaching, Research, Citations, and Total Score

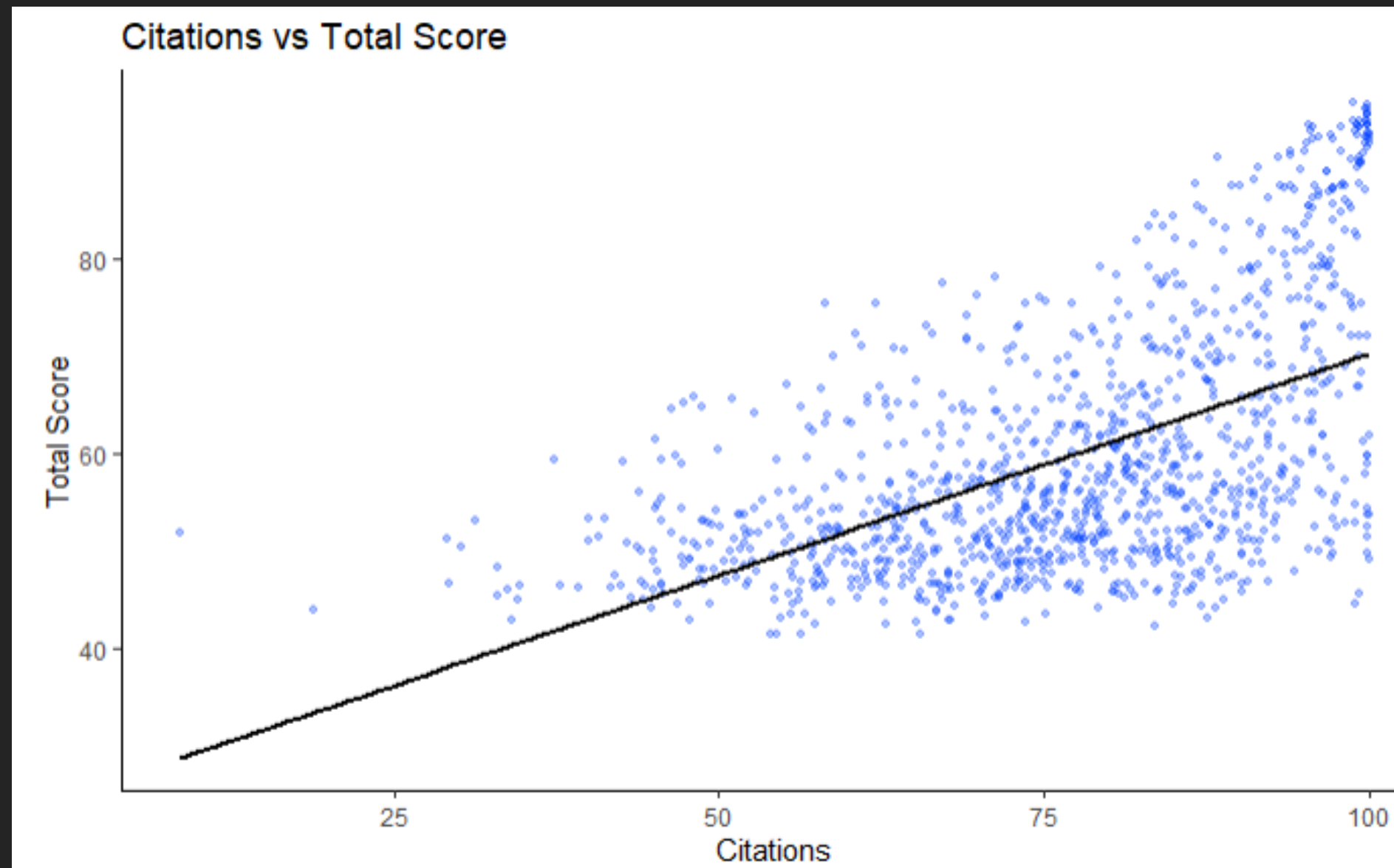


The correlation analysis reveals some important patterns:

- Teaching and Research are highly correlated ($r = 0.89$), suggesting institutions strong in research also offer high-quality teaching.
- Total Score is most strongly correlated with Research ($r = 0.90$) and Teaching ($r = 0.89$).
- Citations show weaker correlations with other metrics but still contribute to the overall score ($r = 0.55$ with Total Score).

Citations & Total Score

Scatter plot:



The more citations a university receives, the higher its total score tends to be.

Citations reflect the visibility and impact of research — and are a strong predictor of overall rank.

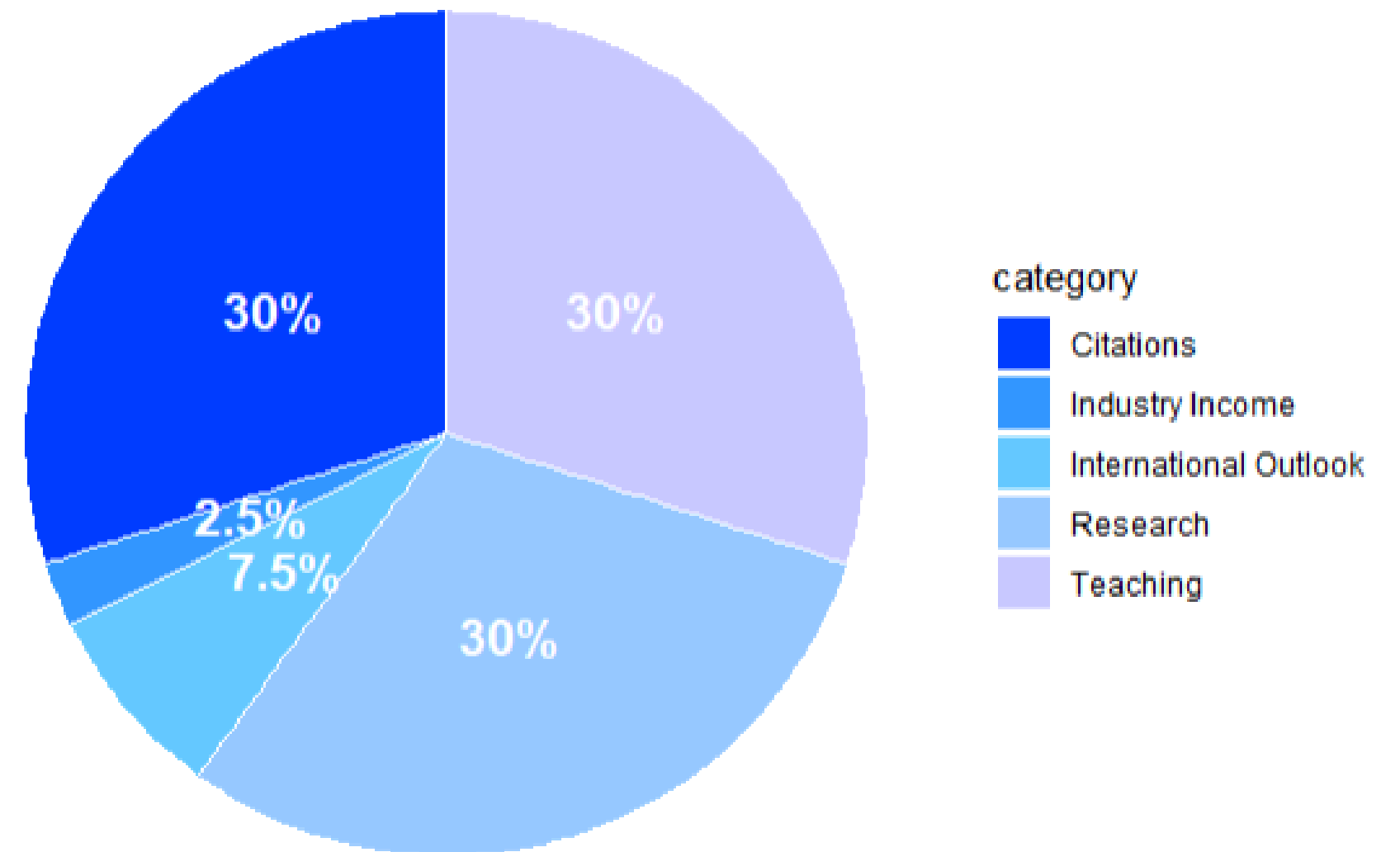
Still, some universities achieve high scores with moderate citation levels, showing the role of other factors.

How the Total Score is Calculated

The total score is based on five factors.

- Teaching, research, and citations each count for 30%.
- International outlook is 7.5%, and industry income is 2.5%.

Each part plays a role in the final ranking.



pie chart:

Conclusion



Summary

- Most universities rank in the mid-range, with scores between 45 and 70.
- The USA and UK dominate in the number of ranked institutions.
- Research and teaching are the strongest predictors of total score.
- Citations play a major role but are not the only driver.



Interesting Insight

Did you know?

Some small countries, like Switzerland and Singapore, consistently achieve higher international outlook scores than much larger nations.

Sources & Tools

Dataset:

Kaggle – <https://www.kaggle.com/datasets/mylesoneill/world-university-rankings>

- Based on Times Higher Education World University Rankings

Tools Used:

RStudio – data analysis and visualization

ggplot2 – charts and plots

dplyr – data manipulation

GGally – correlation matrix

Canva – presentation design

All analysis was done using R and open-source packages.



THANK YOU

For your attention

