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# Statistical analysis of top positioning bodies Techniques, Variables, Reasonableness for various disciplines and open positions.

**Dr. Nageswara Guptha M ,**

**Principal SVCE, Bengaluru, Drishti Singh , SVCE Bengaluru, Ayushi Singh , SVCE Bengaluru.**

**ABSTRACT**

The current scenario of global university ranking systems, such as the QS World University Ranking, THE World University Ranking system, U.S. News and World Report, Shanghai Ranking's Academic Ranking of World Universities (ARWU) and CWTS Leiden Ranking system presents a complex scenario with potential repercussions for higher education institutions worldwide. There is a growing concern about the influence of rankings on institutional strategies, funding allocations, and the perception of academic quality. Additionally, issues related to the transparency, fairness, and accuracy of ranking criteria contribute to the overall challenge. The proliferation of global university ranking systems, including but not limited to THE (Times Higher Education), QS World University Ranking, and U.S. News & World Report, has created a multifaceted challenge within the realm of higher education. The problem at hand is the need to comprehensively investigate and critique the methodologies and implications. This research paper critically examines the QS World University Ranking and THE World University Ranking system, delving into its methodology, impact on higher education institutions, and the challenges it poses. The study assesses the ranking criteria, considering factors such as academic reputation, faculty-student ratio, and internationalization. Furthermore, it explores the implications of these rankings on institutional policies, funding, and global academic competitiveness

**INTRODUCTION: -**

The two prominent Ranking Systems Worldwide are:

The QS World University Ranking, established by Quacquarelli Symonds, has emerged as a prominent player in this realm. Its methodology encompasses a wide spectrum of indicators, from academic reputation and faculty-to-student ratio to international diversity and employer reputation. Academic reputation is determined through a global survey of academics, while employer reputation is assessed through a survey of employers. Faculty/student ratio and international faculty and student ratios indicate the level of interaction and diversity within the academic community. Research impact is measured through citation counts and productivity. This ranking system has become a global benchmark, influencing not only the perceptions of institutions but also their strategic initiatives and collaborations on an international scale.

In parallel, THE Ranking, developed by Times Higher Education, has also carved its niche in the competitive terrain of global university assessments. THE employs a comprehensive set of criteria, placing significant emphasis on research output, teaching excellence, and international outlook. Research indicators include the volume of research produced by an institution, its research income, and the institution's research reputation. Citation impact, which measures the influence of an institution's research, is a crucial component in this category. THE places a strong emphasis on the impact of scholarly research. The citation score is based on the number of citations per paper, indicating a university's influence in the academic community. International outlook assesses the degree of internationalization in terms of the diversity of students and faculty, as well as international collaboration in research. This ranking system has gained recognition for its meticulous evaluation process and has become a reference point for universities aspiring to enhance their global standing. This research endeavors to unravel the methodologies underpinning these ranking systems, offering insights into their evolution, key evaluation metrics, and the implications of their rankings on universities' reputations and strategic priorities.

**METHODOLOGY USED (QS)-**

QS has articulated a comprehensive framework delineating the key determinants of a world-class university, encompassing four fundamental pillars which are: research, teaching, employability, and internationalization. Their ranking, active since 2004, incorporates six indicators, each scored from 1 to 100 and assigned a weight. These indicators, covering diverse aspects, are combined to generate an overall score, offering a concise numerical representation of a university's global standing. Furthermore, the QS Ranking introduces a weighting system to underscore the relative significance of each indicator in the overall assessment. This weighting process is crucial for ensuring a balanced and equitable representation of diverse criteria. The six indicators, together with their assigned weights, collectively contribute to formulating an aggregate score, presenting a consolidated numerical value that ranges between 1 and 100. This cumulative score serves as a comprehensive metric, offering stakeholders a quantitative perspective on the overall standing of a university in the global academic landscape.

Table1 QS World University Rankings methodology

| **Indicators** | **Acronyms** | **Weight(%)** |
|---|---|---|
| Academic reputation | AcRep | 40 |
| Employer reputation | EmRep | 10 |
| Teaching:students per faculty | StuFac | 20 |
| Research:citations per faculty | CitpFac | 20 |
| International faculty | IntFac | 5 |
| International students | IntStu | 5 |

QS-WUR releases a database featuring university indicators presented in Score and Rank categories, including Total Score and Global Rank. The dataset, sourced from the QS Intelligence Unit site displays the top five universities in the 2019 rankings alongside their respective indicator scores in Table 2. he Academic Reputation metric, carrying the highest weight at 40%, relies on a survey completed by roughly 100,000 global academicians. Employer Reputation, with a 10% weight, is derived from a survey with responses from approximately 45,000 employers. Students per Faculty, accounting for 20%, gauges teaching quality by favoring institutions with a lower student-to-faculty ratio. Citations per Faculty, weighted at 20%, assesses research quality based on faculty publications' citations in the last five years using Elsevier's Scopus database. International Faculty (5%) measures the proportion of professors from other countries, indicating an institution's global strength. International Student (5%) reflects an institution's ability to attract students globally, serving as an indicator of its international brand strength.

Table2 QS -WRU dataset(head)

| Group | Rank Range |
|---|---|
| A10 | [1,10] |
| A50 | [1,50] |
| A100 | [1,100] |
| A200 | [1,200] |
| A101 | [101,200] |
| A201 | [201,317] |

| Year | Rank | Instituion | AcRep | EmRep | StuFac | CitpFac | IntFac | IntStu | Overall |
|---|---|---|---|---|---|---|---|---|---|
| 2019 | 1 | MIT | 100 | 100 | 100 | 99.8 | 100 | 95.5 | 100 |
| 2019 | 2 | Stanford University | 100 | 100 | 100 | 99 | 99.8 | 70.5 | 98.6 |
| 2019 | 3 | Harvard University | 100 | 100 | 99.3 | 99.8 | 92.1 | 75.7 | 98.5 |
| 2019 | 4 | Caltech | 98.7 | 81.2 | 100 | 100 | 96.8 | 90.3 | 97.2 |
| 2019 | 5 | University of Oxford | 100 | 100 | 100 | 83 | 99.6 | 98.8 | 96.8 |

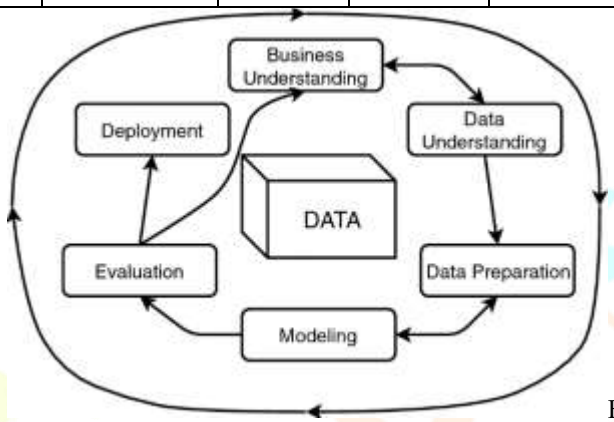


Fig1 CRISP Diagram

To further delve into this and enhance our understanding we practiced Cross-Industry Standard Process for Data Mining methodology. The six phases of CRISP-DM, illustrated in Fig. 1, encompass Business Understanding, Data Understanding, Data Preparation, Modeling, Evaluation, and Deployment. These stages are elucidated, applied, and discussed using the QS-WUR dataset in the subsequent sections. We define objectives and business goals with quantitative targets, aiming to predict and enhance university performance in global rankings. Utilizing data science algorithms and the QS-WUR methodology, we advise administration on strategies to improve internal academic processes. Through building predictive models and thorough data analysis, we gain insights into the ranking methodology, universities processes, and effective communication strategies for annual rankings.

Table 3-QS World University Ranking Dataset (head)

We gathered data and a model which was built in two parallel phases. Our process involved creating a data mining table, cleaning and formatting data, and integrating it. Exploratory data analysis helped us understand the dataset and its connection to our goal. We organized the data chronologically and focused on some consistent universities for a ten-year analysis. We focused on specific university groups like Top-Ten, Top-50, Top-100, and Top-200. Through statistical measures, we identified key indicators for academic growth.

Multiple Regression is a method that uses math to minimize errors between predicted and real values. In this study, it was applied to 317 universities from 2011 to 2019, and later Panel Data was used. The model, built without temporal considerations, was tested on data from 2020. The regression equation predicts a university's score for QS-WUR rankings. The intercept (-0.019) and coefficients (for six indicators) contribute to the final score. If a university lacks QS data, its score can be estimated based on categorical traits. The model, considering temporal effects using Panel Data, yields a more precise prediction than Multiple Regression, evident in higher R-squared and p-values. Panel Data captures trends and variations over time, enhancing accuracy. Fixed Effect, chosen after the Hausman test, tailors the equation to each university, resulting in improved predictions compared to the basic Multiple Regression model.

Equation 1-

$$\text{Score} = -0.019 + 0.406 \times \text{AcRep} + 0.096 \times \text{EmRep} + 0.202 \times \text{FacStu} + 0.200 \times \text{CitpFac} + 0.049 \times \text{IntFac} + 0.054 \times \text{IntStU}$$

The coefficients for indicators shifted from Multiple Regression but remain key. For top-ranked MIT, Stanford, and Harvard, positive coefficients indicate significant impact on scores. Lower-ranked universities have smaller impacts, and some, like Ecole Des Ponts Paristech, even negative. These individual coefficients help predict scores accurately for each university. Comparison metrics like RMSE,

R-squared, and MAE favored Panel Data over Multiple Regression, though the difference is minimal. In a competitive ranking like QS, decimals matter, leading to the decision to use Panel Data for subsequent experiments. It is believed that the Panel Data model fulfills the function of recognizing individual influences, compensating for each university's and city's historical performance with each indicator's weight. The general form of the Panel Data equation is as follows:

Equation 2-

Score = 3.0013 + 0.3644 × AcRep + 0.0969 × EmRep + 0.1970 × FacStu + 0.2039 × CitpFac + 0.0487 × IntFac + 0.0442 × IntStu

Table4 Metrices with performance of multiple regression and panel data on the test set

| | RMSE | R-Squared | MAE |
|---|---|---|---|
| Multiple regression | 0.9425 | 0.9990 | 0.8347 |
| Panel data | 0.5489 | 0.9991 | 0.3842 |

**METHODOLOGU USED(THE)**

**Data Collection and Sources:** The Times Higher Education (THE) rankings collect institutional data via their portal, including information for the year ending in 2021. This can encompass the calendar year, academic year, financial year, or any other annual cycle that fits the institution's data. Bibliometric data from Elsevier is also utilized, covering over 134 million citations to 16.5 million publications over five years. This includes more than 27,950 active peer-reviewed journals. Elsevier calculates the Citation Impact and provides the mean Field-Weighted Citation Impact (FWCI) score, indicating how an institution's publications compare with the global average. Additionally, THE conducts an Academic Reputation Survey among academics globally, asking them to nominate institutions for teaching and research excellence.

**Methodology and Metrics:** THE rankings use various bibliometric measures to assess research impact, such as the FWCI and Research Strength. Research Excellence is calculated based on the number of publications within the top 10% by FWCI, normalized by year, subject, and staff size. Research Influence measures the importance of citing publications. Academic reputation is also a key factor, determined through a survey of academics.

**Reference Data:** THE uses reference datasets, including HM Revenue and Customs exchange rates, World Bank Purchase Power Parity data, IMF or UN data for countries not covered by the World Bank, World Bank Population data, UNESCO data for scholar distribution, and external datasets for quality checking.

In summary, THE rankings utilize institutional and bibliometric data, along with academic surveys, to assess research impact, academic reputation, and overall university performance. They also use reference datasets for currency conversion and quality checking.

**2. Exclusion and Inclusion Criteria:**

Universities must publish more than 1,000 relevant publications over the previous 5 years, with at least 150 publications in any single year.

1. They must teach at an undergraduate level.
2. They must not be focused on a single narrow subject area (more than 80% of their publication output from one subject).
3. They must supply "overall" numbers for the ranking year.
4. They must not have more than two critical values missing (e.g., academic staff, international students).
5. They must mark at least one subject as applicable.
6. They must not be on the custom exclusions list (e.g., institutions that have requested not to participate).

Universities meeting all seven criteria are included in the rankings. Universities meeting criteria 4, 6, and 7 but not all other criteria are listed as "Reporters" without scores.

3. **Subject Ranking Criteria: Publication Eligibility**

For subjects with high publication volumes (Clinical and Health, Computer Science, Engineering, Life Sciences, Physical Sciences), universities must have:

- At least 500 publications from 2018 to 2022.

For subjects with lower publication volumes:

- Arts and Humanities: At least 250 publications.
- Business and Economics: At least 200 publications.
- Social Sciences: At least 200 publications.
- Psychology: At least 150 publications.
- Education: At least 100 publications.
- Law: At least 100 publications.

**Table 1: Subject Ranking Criteria - Publication Eligibility**

| ubject | ublications for 5 years 2018 - 2022) |
|---|---|
| linical and Health | 00 |
| omputer Science | 00 |
| ngineering | 00 |
| ife Sciences | 00 |
| hysical Sciences | 00 |
| rts and Humanities | 50 |
| usiness and Economics | 00 |
| ocial Sciences | 00 |
| sychology | 50 |
| ducation | 00 |
| aw | 00 |

**Subject Ranking Criteria: Staff Eligibility**

Universities must have either:

- A proportion of academic staff in a discipline (e.g., 5% for Arts and Humanities, Business and Economics, Clinical and Health, Life Sciences, Physical Sciences; 4% for Engineering and Social Sciences; 1% for Computer Science, Psychology, Law, or Education). OR

- An absolute number of academic staff (e.g., 50 for Arts and Humanities, Business and Economics, Clinical and Health, Life Sciences, Physical Sciences; 40 for Engineering and Social Sciences; 20 for Computer Science, Psychology, Law, or Education).

**Table 2: Subject Ranking Criteria - Staff Eligibility**

| Subject | Proportion of academic staff | Absolute number of academic staff (FTE) |
|---|---|---|
| Arts and Humanities | % | 0 |
| Business and Economics | % | 0 |
| Clinical and Health | % | 0 |
| Computer Science | % | 0 |
| Education | % | 0 |
| Engineering | % | 0 |
| Law | % | 0 |
| Life Sciences | % | 0 |
| Physical Sciences | % | 0 |
| Psychology | % | 0 |
| Social Sciences | % | 0 |

**Data Adjustments**

- After the data submission deadline, THE reviews and approves institution submissions for appropriateness and accuracy.
- Missing data points may be imputed based on the average of the two lowest metric scores for an institution or the minimum score awarded across the whole population for that metric.
- Financial information provided by institutions is converted into USD using international PPP exchange rates.
- Institution-level bibliometric data obtained from Elsevier is mapped to THE's institution data.

**3.Calculation, Scoring, and Ranking:**

1. **Teaching:**

- Teaching Reputation: Total number of votes from the Academic Reputation Survey, weighted by subject and country.
- Student Staff Ratio: Total FTE academic staff divided by FTE students.
- Doctorate Bachelor Ratio: Total number of doctorates awarded divided by undergraduate degrees awarded.
- Doctorate Staff Ratio: Total subject weighted doctorates divided by total subject weighted academic staff.
- Institutional Income: Institutional income adjusted to PPP divided by total academic staff.

2. **Research Environment:**

- Research Reputation: Total number of votes from the Academic Reputation Survey for research.
- Research Income: Total subject weighted research income adjusted for PPP divided by total subject weighted academic staff.
- Research Productivity: Total subject weighted number of papers published in Scopus per scholar, divided by total subject weighted number of FTE research and academic staff.

3. **Research Quality:**

- Citation Impact: Average number of times a university's published work is cited by scholars globally.
- Research Strength: 75th percentile FWCI of all papers published by a university.

4. **International Outlook:**

- International Students: Proportion of international students on campus.
- International Staff: Proportion of international academic staff on campus.
- International Co-authorship: Proportion of total research publications with at least one international co-author.
- Studying Abroad: Outbound exchange students divided by total FTE students.

5. **Industry:**

- Industry Income: Research income earned from industry adjusted for PPP, divided by total FTE academic staff.
- Research Excellence: Total number of publications by an institution in the top 10% worldwide by FWCI.
- Research Influence: Influence of an entity's publications based on citations.

**Normalization:**

- Standardization approach based on the distribution of data within each indicator.
- Cumulative probability function used to evaluate where an institution's indicator sits within the function.
- For all metrics except the Academic Reputation Survey metrics, Research Excellence, Research Influence, and Patents, a version of Z-scoring is used.
- Patents metric is subject weighted and normalized by the sum of academic and research staff.

**Calculation of Final Rankings:** Once the final population of universities and indicators is prepared, the scores for each university are generated by weighting the metrics, and the Final Rankings are calculated according to the above percentage breakdowns.

**Weightings of Metrics to Final Scores and Rankings:**

| **Pillar** | **Metric** | **% Weighting** |
|---|---|---|
| Teaching | Teaching Reputation | 5.00 |
| | Student Staff Ratio | .50 |
| | Doctorate Bachelor Ratio | .00 |

| Pillar | Metric | % Weighting |
|---|---|---|
| | Doctorate Staff Ratio | .50 |
| | nstitutional ncome | .50 |
| Research Environment | Research Reputation | 8.00 |
| | Research Income | .50 |
| | Research Productivity | .50 |
| Research Quality | Citation Impact | 5.00 |
| | Research Strength | .00 |
| | Research Excellence | .00 |
| | Research nfluence | .00 |
| nternational Outlook | nternational Students | .50 |
| | nternational Staff | .50 |
| | nternational Co-uthorship | .50 |
| | Studying Abroad | .00 |
| ndustry | ndustry Income | .00 |
| | Patents | .00 |
| Total | | 00 |

**Subject Ranking Differentiation:**

- Methodology: The subject tables use 18 performance indicators under 5 pillars, same as the overall rankings, but with recalibrated weightings for each subject to best suit their research culture.
- Weighting Changes:
- Arts and humanities give less weight to "citations: research influence" (7.5%).

- Social sciences, law, education, engineering, and computer science reduce the weighting for "citations: research influence" to 13.7%.
- Physical, life sciences, psychology, and clinical and health increase the weighting for "citations: research influence" to 17.5%.

Indicator Weightings:

| Indicator | Overall | Arts & Humanities | Business & Economics | Clinical & Health | Computer Science | Education | Engineering | Law | Life Sciences | Physical Sciences | Psychology | Social Sciences |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Teaching Reputation | 15.00% | 25.30% | 21.10% | 17.90% | 19.50% | 20.00% | 19.50% | 21.00% | 17.90% | 17.90% | 17.90% | 21.10% |
| Student Staff Ratio | 4.50% | 3.90% | 3.30% | 2.80% | 3.00% | 4.50% | 3.00% | 4.50% | 2.80% | 2.80% | 2.80% | 3.30% |
| Doctorate Bachelor Ratio | 2.00% | 1.70% | 0.00% | 1.20% | 1.00% | 0.00% | 1.00% | 0.00% | 1.20% | 1.20% | 1.20% | 1.40% |
| Doctorate Staff Ratio | 5.50% | 4.30% | 4.20% | 3.30% | 3.00% | 5.30% | 3.00% | 4.20% | 3.30% | 3.30% | 3.30% | 4.30% |
| Institutional Income | 2.50% | 2.10% | 1.80% | 1.60% | 1.50% | 2.40% | 1.50% | 2.50% | 1.60% | 1.60% | 1.60% | 1.80% |
| Research Reputation | 18.00% | 30.00% | 22.80% | 19.30% | 21.00% | 20.00% | 21.00% | 21.00% | 19.30% | 19.30% | 19.30% | 22.80% |
| Research Income | 5.50% | 3.60% | 4.40% | 3.60% | 4.00% | 4.40% | 4.00% | 4.40% | 3.60% | 3.60% | 3.60% | 4.40% |
| Research Productivity | 5.50% | 3.60% | 4.40% | 3.60% | 4.00% | 4.40% | 4.00% | 4.40% | 3.60% | 3.60% | 3.60% | 4.40% |
| Citation Impact | 15.00% | 7.50% | 13.00% | 17.50% | 13.70% | 13.70% | 13.70% | 12.40% | 17.50% | 17.50% | 17.50% | 12.40% |
| Research Strength | 5.00% | 2.50% | 4.00% | 5.90% | 4.60% | 4.60% | 4.60% | 4.20% | 5.90% | 5.90% | 5.90% | 4.20% |
| Research Excellence | 5.00% | 2.50% | 4.00% | 5.90% | 4.60% | 4.60% | 4.60% | 4.20% | 5.90% | 5.90% | 5.90% | 4.20% |
| Research Influence | 5.00% | 2.50% | 4.00% | 5.90% | 4.60% | 4.60% | 4.60% | 4.20% | 5.90% | 5.90% | 5.90% | 4.20% |
| Industry Income | 2.00% | 1.50% | 2.00% | 2.00% | 4.00% | 2.00% | 4.00% | 2.00% | 2.00% | 2.00% | 2.00% | 2.00% |
| Patents | 2.00% | 1.50% | 2.00% | 2.00% | 4.00% | 2.00% | 4.00% | 2.00% | 2.00% | 2.00% | 2.00% | 2.00% |
| International Students | 2.50% | 2.50% | 3.00% | 2.50% | 2.50% | 2.50% | 2.50% | 3.00% | 2.50% | 2 | | |

**4.Publication and Reporting of Final Rankings:**

All institutions are ranked overall and published in the final rankings table on the THE website, displaying both the overall score and pillar scores. Precise overall scores are shown for the top 200 institutions, while banded overall scores are presented for institutions in lower ranks (e.g., 201-250). Individual pillar scores are displayed for each ranked institution.

For institutions ranked 1-200, an individual rank position is listed. Subsequent institutions are placed in bands such as 201-250, 251-300, and so on. Institutions with the 'Reporter' status, indicating they did not meet all ranking criteria, are listed at the end without a rank or scores.

In light of the situation in Ukraine, THE has considered the positions of Ukrainian universities, with steps outlined in the World University Rankings 2024 table information (Live from 27 Se**Publication and Reporting of Final Rankings:**

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In light of the situation in Ukraine, THE has considered the positions of Ukrainian universities, with steps outlined in the World University Rankings 2024 table information (Live from 27 September).

**Review and sign off**

The Rankings are formally signed off by THE World Universities Insights Limited management prior to being published in print and online. The Rankings results are reviewed and signed off by THE's Chief Data Officer.

**Reporting**

The Rankings for the top 200 universities and banding allocation below top 200 are accurately reported on the THE website. Ωxii

The specific procedures for the Overall Rankings are located on the Times Higher Education website at: https://www.timeshighereducation.com/world-university-rankings/world-university-rankings-2024-methodology.

| Rule number | Methodology section | Rule description |
|---|---|---|
| (i) | Data collection and sources | A named representative from each nstitution submits and authorises their institutional data for use in the Rankings. |
| (ii) | Data collection and sources | Times Higher Education will not elf-submit data for an institution without positive |

| Rule number | Methodology section | Rule description |
|---|---|---|
| | | confirmation from the named representative of the institution. |
| (iii) | Data collection and sources | Prior to submission of data within the portal, the draft data undergoes automatic validation checks reviewed by the named representative. |
| (iv) | Criteria for exclusion, inclusion and data processing | Total reputation score for each university was calculated based on the aggregate of individual respondent data. |
| (v) | Criteria for exclusion, inclusion and data processing | Universities meeting the seven key inclusion criteria are included in the rankings. |
| (vi) | Criteria for exclusion, inclusion and data processing | Management review and approve all institution submissions data for appropriateness and accuracy, based on prior year values and gaps within datasets. |
| (vii) | Criteria for exclusion, inclusion and data processing | Data provided by institutions for financial information is converted into USD using international PPP exchange rates. |
| (viii) | Criteria for exclusion, inclusion and data processing | Institution-level bibliometric (Scopus and/or SciVal) obtained from Elsevier is |

| Rule number | Methodology section | Rule description |
|---|---|---|
| | | mapped to THE institution data via THE's institution ID. |
| (ix) | Calculation, scoring and ranking | The pre-weighted indicators are calculated for each university. |
| (x) | Calculation, scoring and ranking | Once the final population of institutions and indicators has been prepared, the scores for each university are generated by weighting the metrics and the Final Rankings are calculated according to the following percentage breakdowns. |
| (xi) | Publication and reporting | The Rankings results are reviewed and signed off by THE's Chief Data Officer. |
| (xii) | Publication and reporting | The Rankings for the top 200 universities and banding allocation below top 200 are accurately reported on the THE website. The 'Reporters' are listed at the end of the. |

**Analytical and Statistical Conclusion of the Paper:**

While the paper offers a detailed comparison of the THE and QS ranking methodologies, it lacks a dedicated analytical and statistical conclusion. However, based on the information provided, here's an attempt to draw some analytical and statistical insights:

**Similarities:**

- Both methodologies heavily rely on **bibliometric data** (citations, publications) to assess research quality and impact.
- Both use **academic reputation surveys** to gauge institutional prestige and recognition.

- Both employ **standardized weighting systems** to combine various indicators into a single score.
- Both publish **rankings with limitations**, such as banded scores for lower-ranked institutions.

**Differences:**

- **QS:** Assigns higher weight to **employer reputation** and **faculty-student ratio**. This suggests a stronger focus on employability and teaching quality.
- **THE:** Emphasizes **research income** and **industry income** more heavily, indicating a greater weight on financial resources and collaboration with industry.
- **QS:** Uses a simpler **linear regression model** for score prediction, while **THE** employs a more complex **panel data model**, potentially leading to higher accuracy.
- **QS:** Ranks all participating institutions, while **THE** has exclusion criteria and a "Reporter" category for incomplete data.

**Limitations:**

- Both methodologies rely on self-reported data, which can be susceptible to **inaccuracies and biases**.
- The weightings assigned to different indicators are subjective and can influence the final rankings significantly.
- The rankings primarily reflect **past performance** and may not capture future potential or emerging areas of excellence.

**Further Analysis:**

- It would be beneficial to statistically compare the **correlations** between rankings generated by each methodology.
- Analyzing the **impact** of these rankings on university behavior and resource allocation could be insightful.
- Exploring **alternative ranking approaches** that consider factors like diversity, sustainability, and social impact could offer a more holistic perspective.

**Conclusion:**

While both THE and QS rankings provide valuable insights into university performance, it's crucial to be aware of their methodological differences, limitations, and potential biases. Utilizing a combination of ranking systems and considering additional factors is recommended for a more comprehensive evaluation of universities.

While both QS and THE rankings offer valuable insights, choosing which one to prioritize depends on your specific academic interests and goals. Here's a breakdown to help you decide:

**If you are interested in:**

- **Business, Management, Arts & Humanities, or Education:** QS rankings might be more relevant. These areas align with QS's strengths in employer reputation surveys and faculty-student ratios, potentially indicating better career preparation and teaching quality.
- **Science, Engineering, Technology, or Medicine:** THE rankings could hold more weight. They emphasize research income and industry income, suggesting a focus on research strength and potential industry partnerships in these fields.
- **A broader perspective across various disciplines:** Consider using both QS and THE rankings. This provides a more comprehensive overview and allows you to compare universities based on different strengths.

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12-External datasets corresponding to over 74 governmental and non-governmental sources for quality checking and verification of institutional data.

13- Safón, V. Inter-ranking reputational effects: an analysis of the Academic Ranking of World Universities (ARWU) and the Times Higher Education World University Rankings (THE) reputational relationship. Scientometrics 121, 897–915 (2019)-

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