

# University Evaluation Over Time

## Research Proposal

### Secondary Data Analysis

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## 1 Background/Motivation

University rankings play a key role in the academic environment from several perspectives.

- research opportunities
- strong candidates for undergraduate studies who seek to study at the best institutions

As research quality is the key criterion for our research we have looked for relevant data sets which consider quality of education as primary factor when performing university ranking and rating systems.

We want to get an overview of the dynamics of two commonly used university rankings over the last 10 years. Our research should identify the strong institutions that remained in the top and also point out the reasons why other ones made it a few places higher while others dropped in the ranking. Correlate the found out reasons with the variables on which we base our research.

## 2 Research question/specific focus

Our main research questions are:

- What are the main criteria which make a university to be ranked as a top one?
- Which field of study is predominant at a top ranked university and which is the relation to the position?
- Which particular feature should a top university have if it is ranked as a top one?
- What are the chances that a non-top university make it into top 10-20 and what are the changes that have been done in that area?

- Finally trying to predict what changes are needed to be done by a university to make it into the top.

We will be focusing on the academic results when we analyze the rankings. Also we will not take into account the background of the students.

### 3 Methodological approach

#### 3.1 Data Sources

In our research we will use the following data sources:

- Academic ranking of world universities(ARWU)
- OECD Education Statistics(OECD iLibrary)

#### 3.2 Main Variables

We will use a total of five variables for constructing the ranking analysis. Those variables will be:

1. Overall score (500 universities)
2. Top clinical medicine and pharmacy
3. Social sciences
4. Natural sciences and mathematics
5. Engineering/Technology and computer science

#### 3.3 Indicators and Weights

Criteria	Indicator	Weight
Quality of Education	Alumni of an institution winning Nobel Prizes and Fields Medals	10%
Quality of Faculty	Staff of an institution winning Nobel Prizes and Fields Medals	20%
	Highly cited researchers in 21 broad subject categories	20%
Research Output	Papers published in Nature and Science	20%
	Papers indexed in Science Citation Index-expanded and Social Science Citation Index	20%
Per Capita Performance	Per capita academic performance of an institution	10%

### **3.4 Level of analysis**

The level of analysis we will use for this project given the type of data is a macro level analysis.

### **3.5 Statistical techniques to be used**

We will use correlation and classification.

## **4 Expected results/Main hypotheses/Main claims**

### **4.1 Expected results**

- We will expect to see a correlation between the ratio (students enrolled in universities and total population) and the quality of studies that country offers. A higher ratio should imply better quality of studies.
- We will expect to see a severe modification in the ranking when a country modifies its tuition fees policy or passes new education laws.

### **4.2 Main hypotheses**

Even those countries that are not represented by a high number of universities in the top, can be competitive in the quality of studies they offer.

### **4.3 Main claims**

- USA is the leading country by producing specialists of any field.
- UKs overall rankings will be affected by the changes of tuition fees in 2004 and 2010.
- Germany, France and Switzerland are serious competitors in the university business when it comes to engineering.

## **5 Project plan**

In our group we have the following positions:

Roxana - project manager

Vlad - content expert

Alex - data specialist and analysis expert

The following time plan will be used (every 2 weeks until 18th Nov):

[?]

Time Interval	23 Sept - 7 Oct	8 Oct- 21 Oct	22 Oct- 4 Nov	5 Nov- 15 Nov	18 Nov - 1 Dec
Roxana	Consult with the team on their findings and together decide on the, most suitable tools for our research and apart from that, collect their results and start making a rough, analysis of the data.	Work on the statistical analysis +and interpret the findings based on both number and graphs/seek, possible indepth correlations.	Based on the previous stage and on Alex's results put together the two approaches used for statistical analysis and generate the results. Make sure we are on track with the project.	All 3 of us interpret the results and put the results in graphs, plots. Discuss findings and main gains(reached targets). Do the draft of the video.	Revise and improve b
Vlad	Put the data in an appropriate format(vector, matrix) to use for analysis, identify and test tools to be used to generate graphs and numbers.	Generate the respective visuals.	Start gathering results from the rest and put the data in a un format (visual and numerical)		easy for analysis.
Alex	Investigate the 2 sources of data & extract relevant info from the data.	Use the data to seek for correlation factors.	Classification		