

Final Project Proposal

Explore the GLOBE
STATS 140XP Lecture 1

Ethan Allavarpu · Raymond Bai · Jaclyn Chiu
Ariel Chow · Carlie Lin · Dara Tan

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1 The Team

1.1 Members

- Ethan Allavarpu: Programmer
- Raymond Bai: Poster
- Jaclyn Chiu: Poster
- Ariel Chow: Report
- Carlie Lin: Report
- Dara Tan: Programmer

1.2 Deliverables

- Poster: Raymond, Jackie
- Presentation: Everyone
- Report: Ariel, Carlie

2 Problem Statement and Background

2.1 Problem Statement

1. Which characteristics or traits do countries tend to group together when determining “good” leadership values?
2. Do societal practices and societal values align?
 - If they do not, which practices and values deviate most significantly?

2.2 Background

Develop some background on the problem: why it is interesting, who might find it interesting, what do we already know about the problem.

1. The first question about leadership characteristics has value because we can see the types of values that get aggregated together—post-hoc analysis could also demonstrate which global regions fit into which categories.

- If we can understand how certain values are perceived, leaders can use this information to further their perception in the public eye. We already see this through propaganda used in numerous countries to push a specific narrative.
2. The alignment (or lack thereof) of societal practices and values may indicate for which topics is virtue signaling without any legitimate action an issue. We know that many countries—especially first-world countries—make claims about what we *should* do, but have little in terms of tangible efforts.

3 The Data

3.1 Sources

- Dana Landis Leadership
- GLOBE Research Survey
- ISO-3 Codes (via Wikipedia)

3.2 Cleaning and Joining the Data

- Join leadership and society and culture data by country, country name, and country cluster
- Added ISO-3 codes for visualizing data on a world map
- Eliminated duplicate variables
- Changed variable names for easier access and understanding

4 Analysis

1. Clustering methods and/or PCA to find the best groupings of the data.
2. Tests for slope coefficient β when comparing societal value with its associated practice
 - $H_0 : \beta = 0$
 - $H_A : \beta \neq 0$
 - We would perform these hypotheses for all practice-value pairs, adjusting α accordingly to limit the possibility of a false positive

5 Description of Analysis Tools

- EDA
 - Visualizations (Heat Maps)
 - Correlation Matrices
 - Box Plots
- Problem Statements
 1. Leadership Values
 - Clustering (K-means, hierarchical)
 - PCA (Principal Component Analysis)
 2. Societal Values and Practices
 - t -tests for significance of the slope
 - Bonferroni's correction for adjusting the significance level α