Predicting Authoritarianism

Measuring Popular Authoritarian Sentiment Using the World Values Survey

Alexander Gluck

Data Scientist: General Assembly

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Problem Statement

The rise of authoritarianism is a growing concern among democratic societies worldwide. To gain and maintain power, authoritarian leaders require a base of followers who support their ideology and policies. In this project, I aim to predict support for authoritarianism using data from the World Values Survey dataset. This dataset includes responses from individuals in various countries regarding their attitudes towards governance, society, and culture.

Problem Statement

By analyzing the WVS dataset using machine learning models, I seek to identify factors that contribute to support for authoritarianism. The results of this project could provide insights into the underlying causes of authoritarianism and inform strategies to prevent its spread in democratic societies.

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The Data

The World Values Survey

"The World Values Survey is a global network of social scientists studying changing values and their impact on social and political life, led by an international team of scholars"

www.worldvaluessurvey.org

History and Methodology

History

The first wave of the World Values Survey fielded in 1981, asking participants in more than 20 countries over 100 questions. Some topics include:

- Social values, attitudes and stereotypes
- Political culture and regimes
- Political interest and participation
- Ethical values and norms
- Religious values

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Subsequent Waves

Since that time the Survey has fielded 6 more waves, with wave 7 fielding from 2017-2022

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Increased Scope

As of wave 7 the Survey has expanded to encompass 290 questions, and is administered in over 120 countries

Countries Included in the World Values Survey

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Methodology

Engineering an Authoritarianism Index

Target Variable

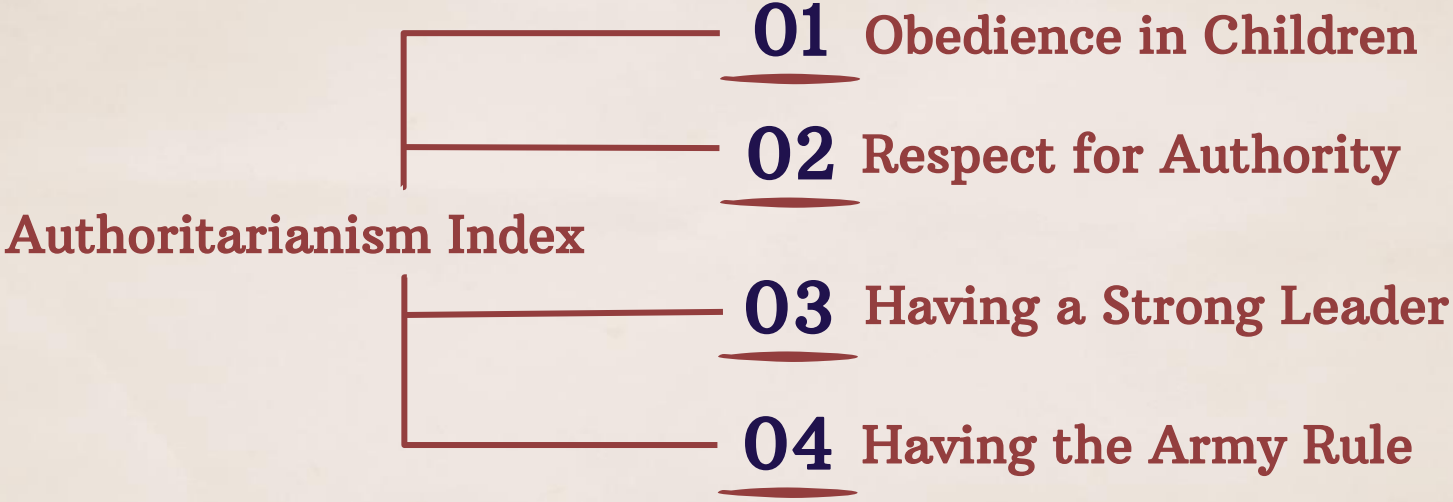
Composite score based on answers to several questions

Criteria:

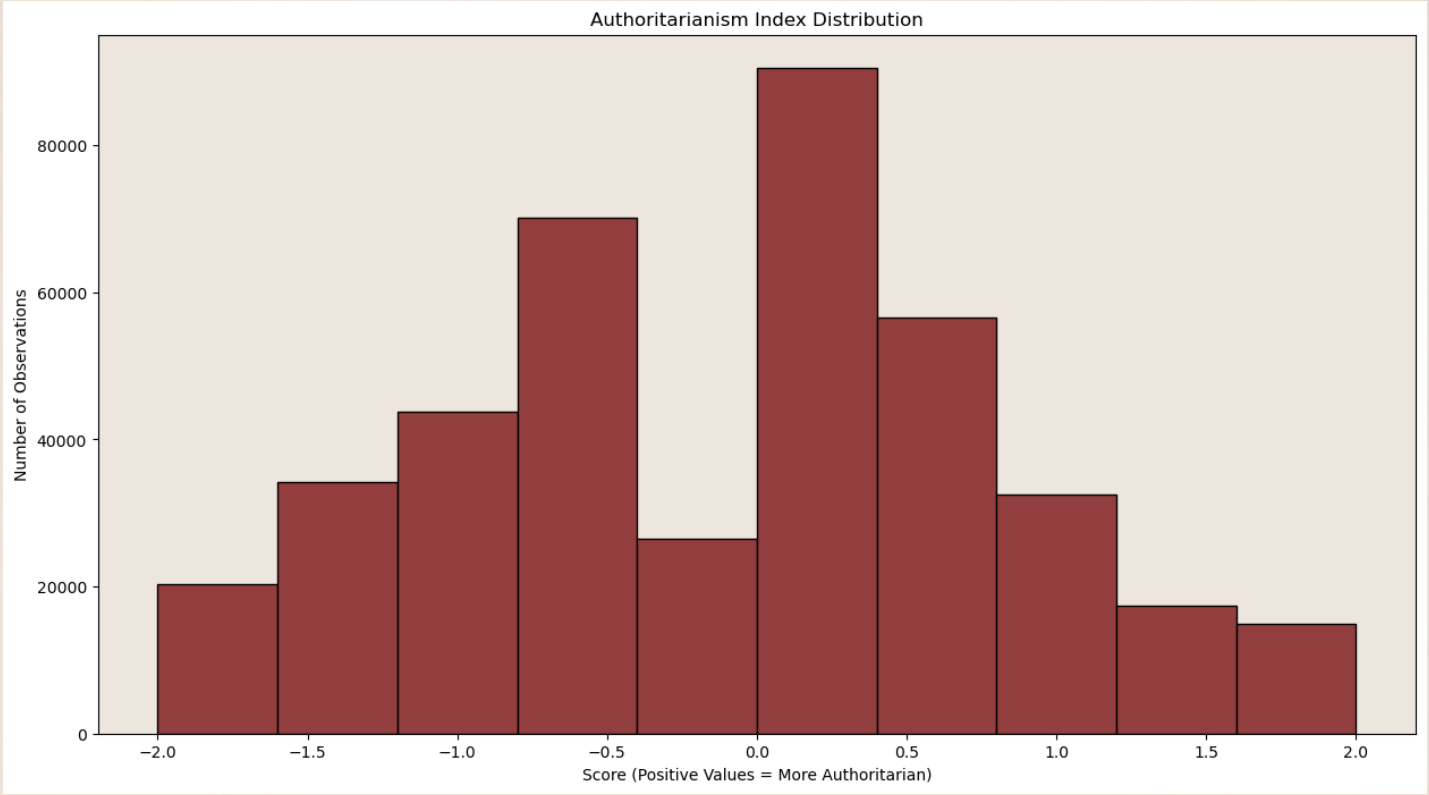
- Must be directly related to values associated w/ Authoritarianism
- Must appear in all waves included in model (waves 3-7)
- Responses must be in ordinal scale

Response scales to individual questions standardized, then summed

Engineering an Authoritarianism Index



Distribution of Authoritarianism Index



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Modelling

Two Models

Time-Series

Tracking the prevalence of authoritarian views through time

Classification

Predicting authoritarian views based on other values

Time-Series Model

Group Observations

- Year: annual data from 1981-2022
- Country: Ideally focusing on Europe
  - Geographically and culturally contiguous
  - Data goes back to wave 1

Multivariate Time-Series

- Interested in the relationships between countries
- Also intend to include secondary variables likely to be correlated with Authoritarianism Index

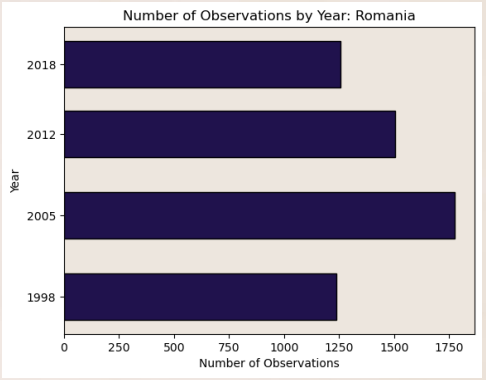
Time-Series Challenges

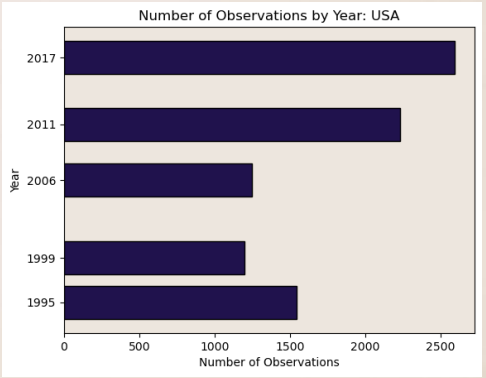
Waves 1-3 Too Spread Out

- 4 years between waves 1 and 2: (1985-88)
- 3 years between waves 2 and 3: (1992-94)
- **Resolution: Start with wave 3**
  - Lost 14 years of data (~34% of time range)

Time Gaps Within Countries

- Most countries complete wave in single year
- Some countries not involved in all waves
- **Resolution: Combine countries into regions**
  - Lose out on neighbor country relationships
  - Observations from one year to next contain completely different mix of countries
  - **Ultimately unsuccessful, as there were still time gaps within regions**

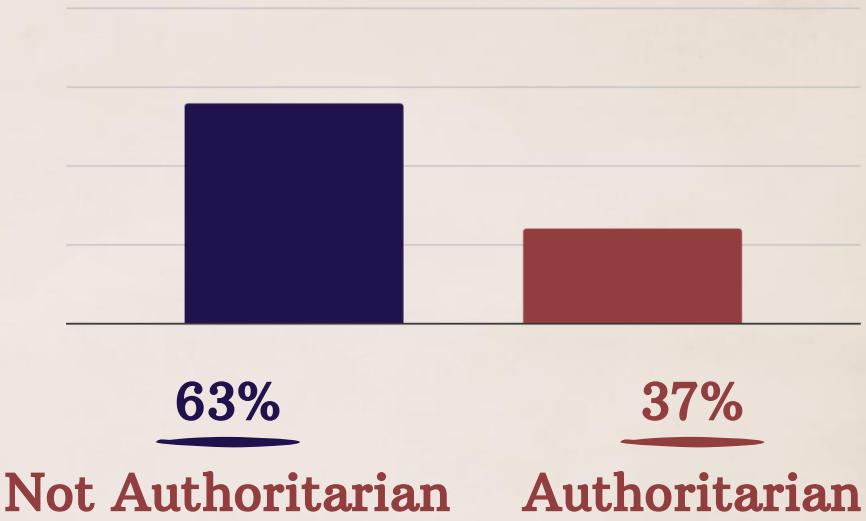




Classification Model

Goal to predict support for authoritarian values based on responses to other questions

- Binarize Authoritarianism Index Variable
- Wave 3 and onward
- Greater selection of questions to choose from
- Two Model types:
  - Random Forest – relatively white box, can extract feature importances
  - Dense Neural Network – for predictive performance



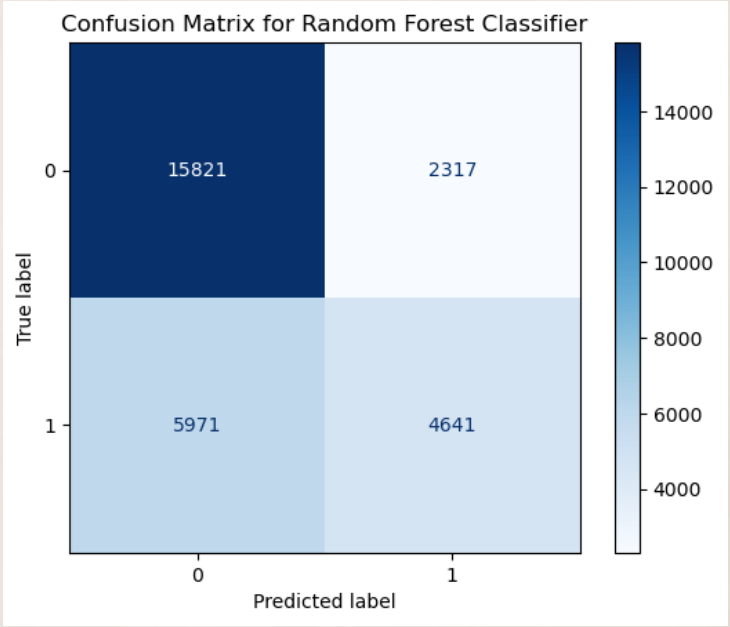
Random Forest

Parameters

- n_estimators = 1800
- max_depth = none

Performance

- Accuracy = 71.1%
- Sensitivity = 43.7%
- Precision = 66.7%



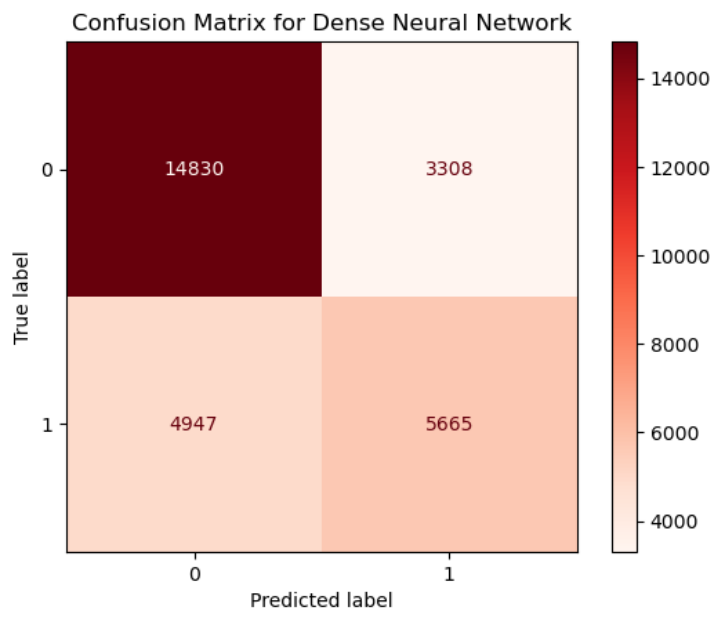
Dense Neural Network

Parameters

- Layers:
  - 3 Dense w/ 2048 nodes each
  - 3 Dropout of 0.5
  - 1 Batch normalization prior to final layer
- Optimizer = adam
- Batch_size = 64
- Epochs = 100
- Early stopping (patience = 5)

Performance

- Accuracy = 71.3%
- Sensitivity = 53.4%
- Precision = 63.1%



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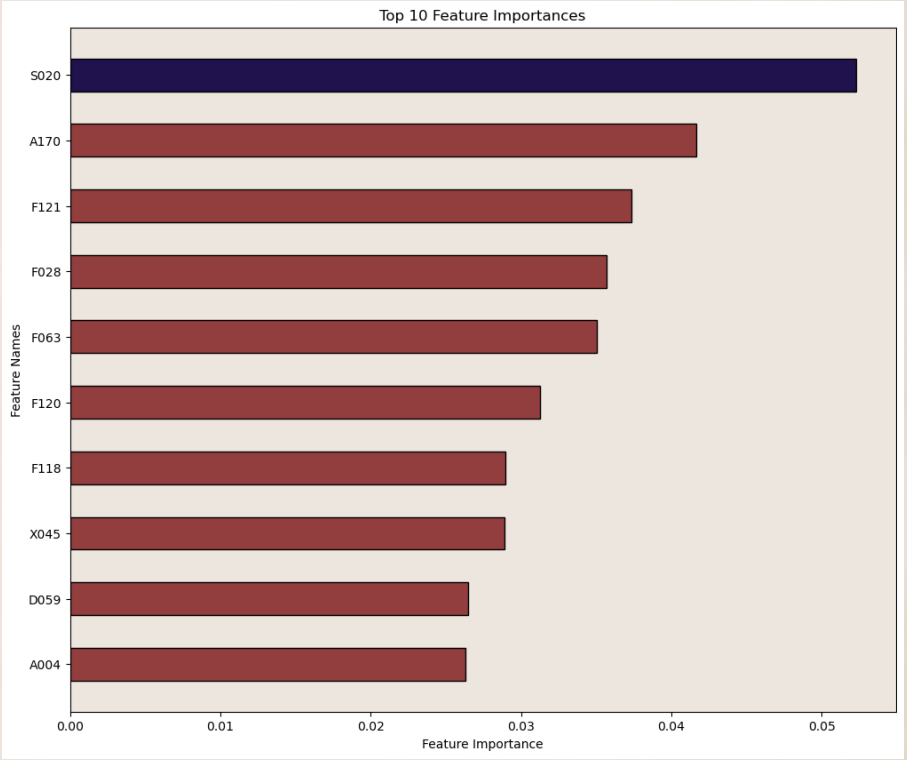
Analysis

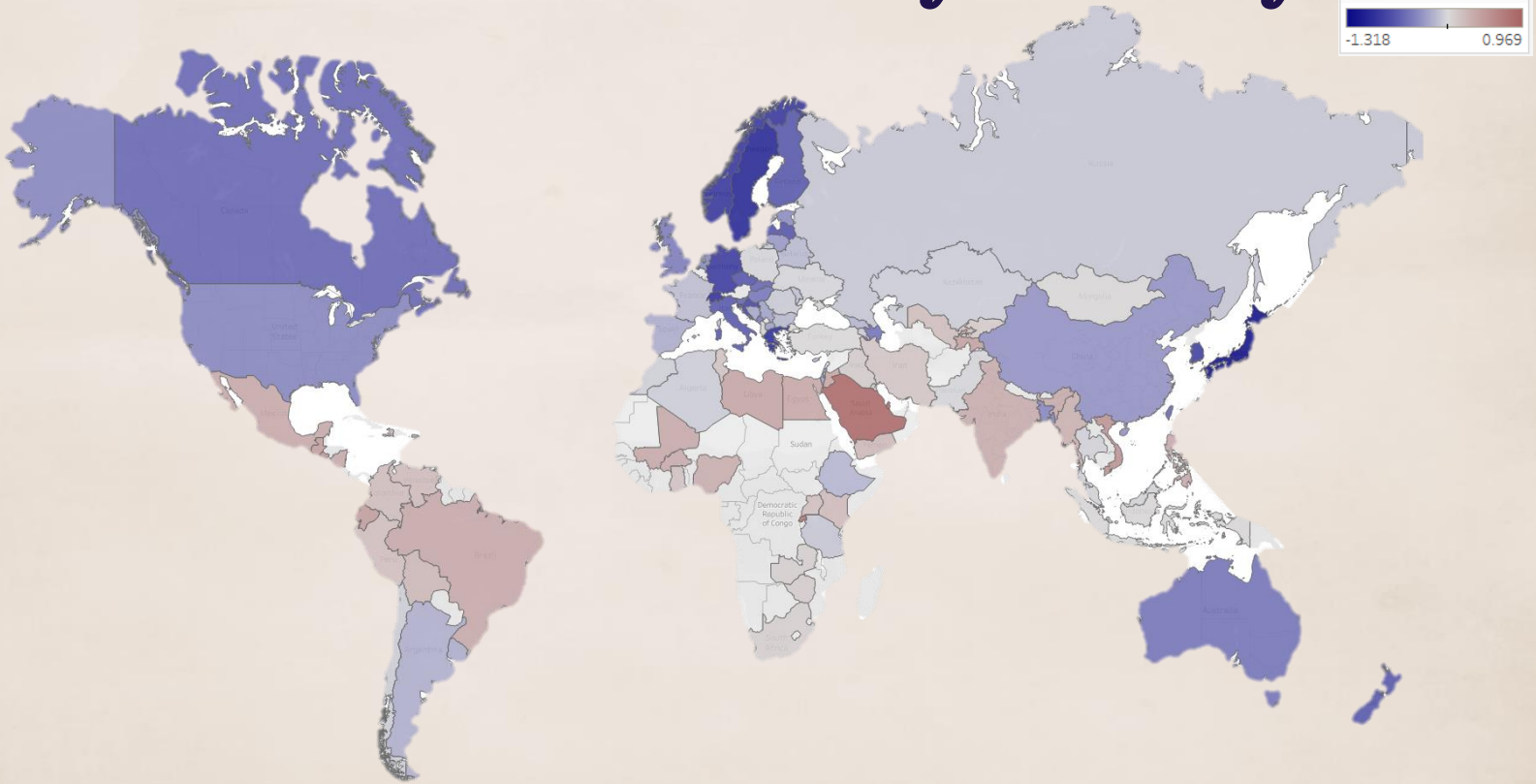
Feature Importances

Key:

- S020: Year of Survey
- A170: Satisfied with life?
- F121: Is divorce ever justified?
- F028: Religious service attended?
- F063: God important in life?
- F120: Is abortion ever justified?
- F118: Is homosexuality ever justified?
- X045: Social Class (self reported)
- D059: Do men make better political leaders?
- A004: Politics important in life?



Authoritarianism by Country



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Conclusions

Conclusions and Next Steps

Conclusions

- Authoritarian thinking related to attitudes towards religion, divorce, abortion, homosexuality, misogyny
- Authoritarian thinking particularly prevalent in Latin America and the Middle East
- Model was relatively effective predicting support for authoritarianism, achieving a 71% accuracy score over a 63% baseline

Next Steps

- Delve further into the relationship between economic insecurity and support for authoritarianism
- Investigate the role of social media in the spread of authoritarianism
- Compare individual attitudes towards authoritarianism to measures of societal oppression such as the Human Freedom Index

THANK YOU!
Any Questions?


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