

Study of Visa Policy

Group 6
Enting Zhou, Gianna Liu, Jaya Anand,
Siddharth Dey, Richard Gross



What do we mean by Visa Policy?

- Visas allows holder to stay in country

Different Types of Travel Requirements

- Need Visa
- Visa unneeded until after certain amount of days
- No visa needed to stay
- No admission at all



Data Collection



Data Collection

- Main Data Source: <https://www.passportindex.org>
 - Contains comprehensive data for visa policy for 199 countries
- Auxiliary Data Source 1:
<https://www.kaggle.com/datasets/fernandol/countries-of-the-world>
 - Contains data for basic information for countries, such as population, GDP, literacy.
- Auxiliary Data Source 2:
<https://www.kaggle.com/datasets/sujaykapadnis/world-freedom-index>
 - Contains data for global political rights and civil liberties statistics for 195 countries
- Auxiliary Data Source 3: <https://www.kaggle.com/datasets/ddosad/global-terrorism-index-2023>
 - Contains data for terrorism activities, such as terrorism rank, # of incident, fatalities.

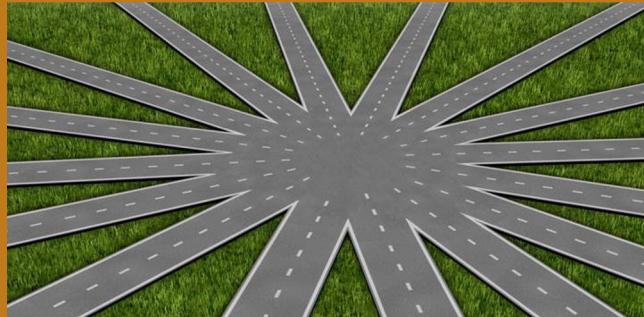
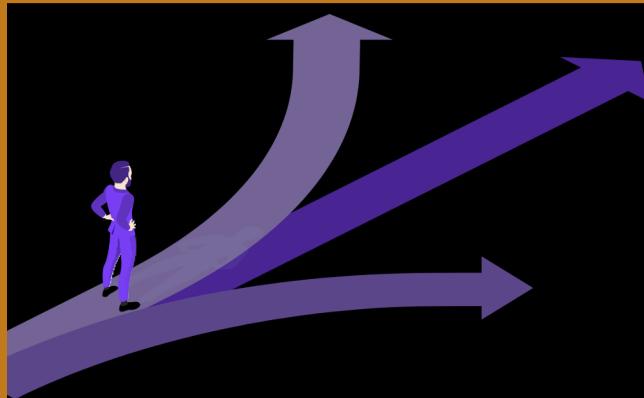
Exploratory Data Analysis

Number of “Outgoing Visa Travel Free Countries”

- Referring to the number of countries each country can travel to without a travel visa

Number of “Incoming Visa Travel Free Countries”

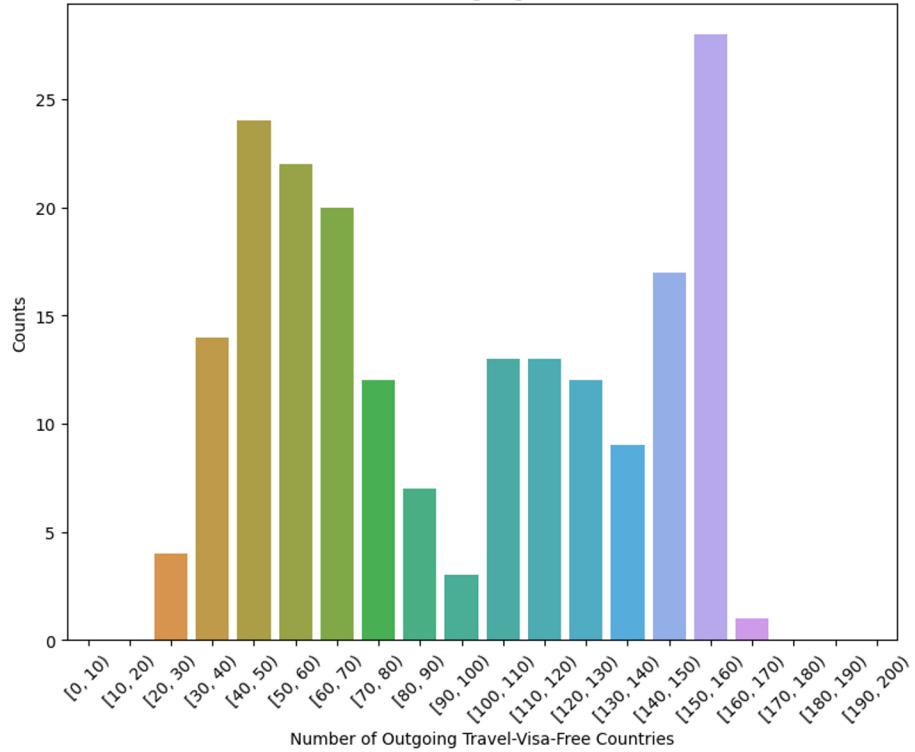
- Referring to number of countries from which other countries accept entry without a visa



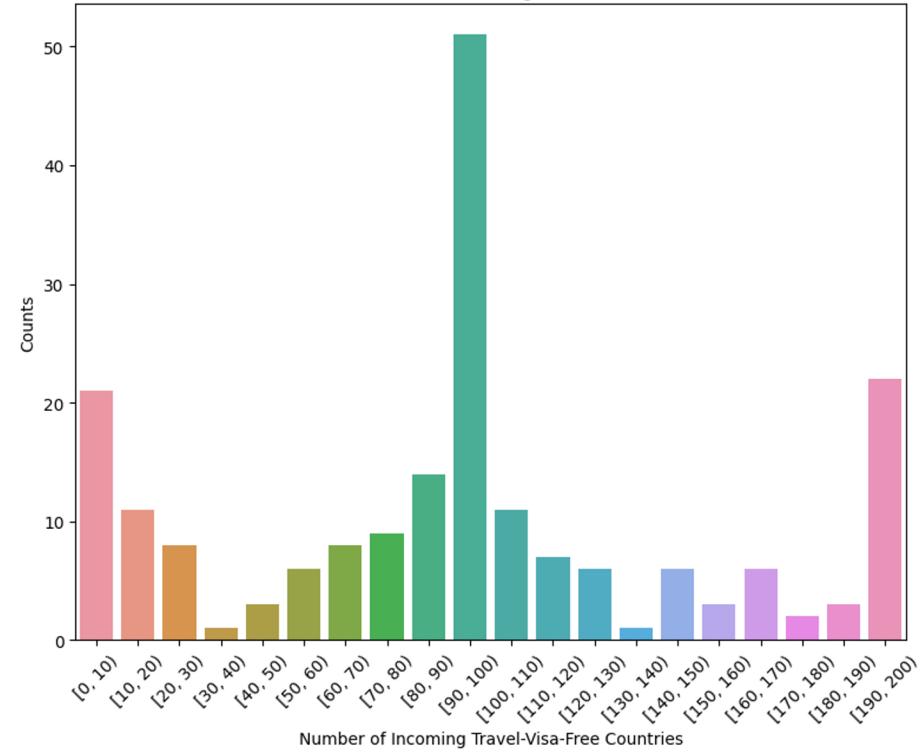


Simple Number Counts

Distribution of Number of Outgoing Travel-Visa-Free Countries



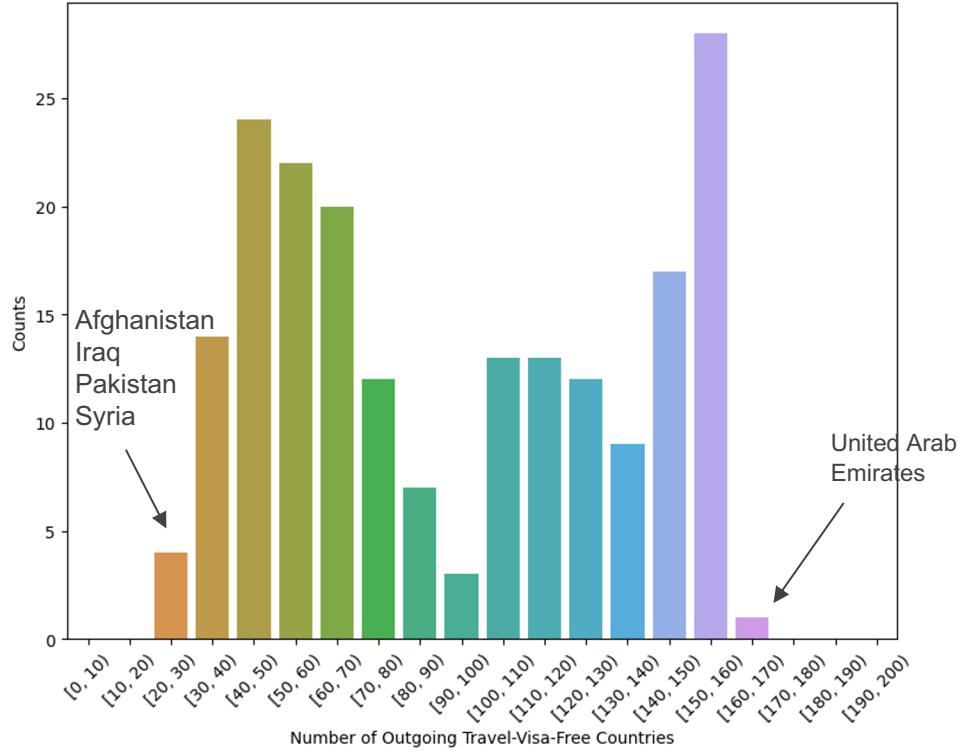
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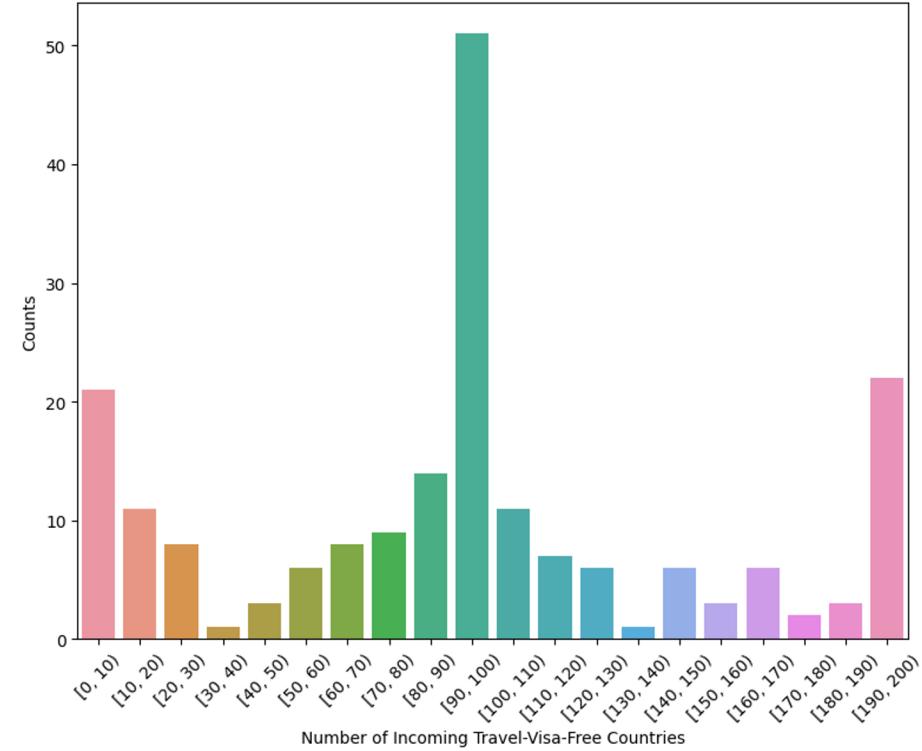


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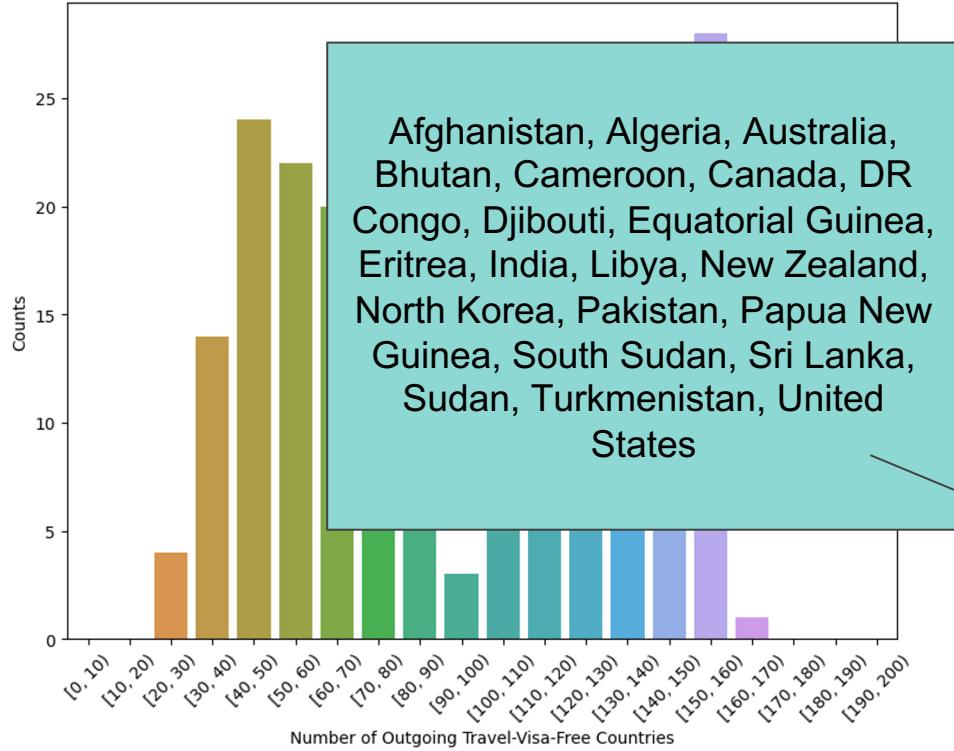
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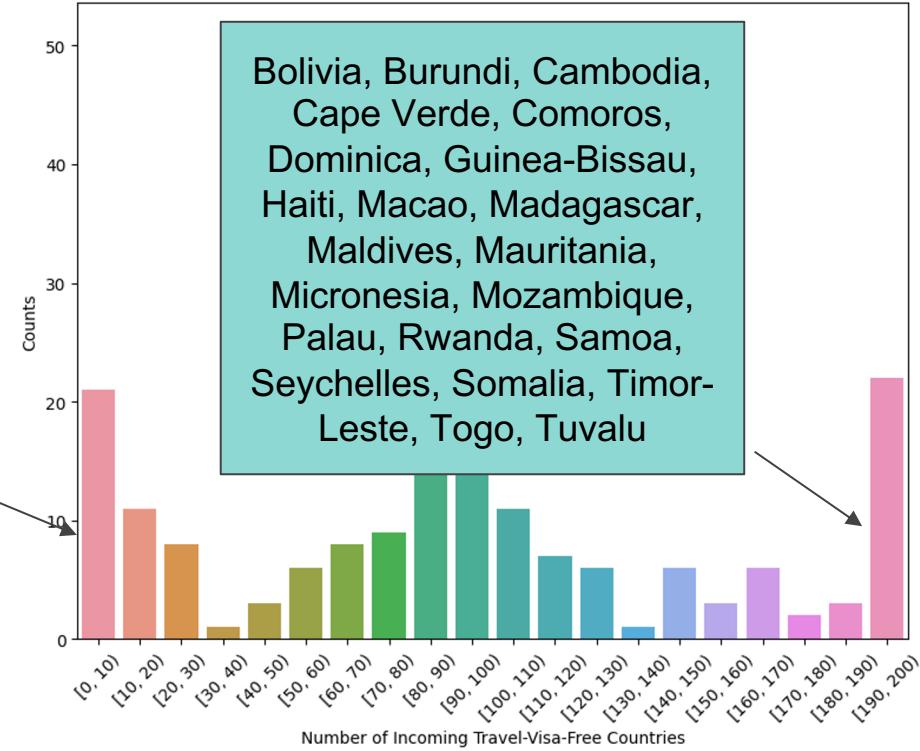


Simple Number Counts

Distribution of Number of Outgoing Travel-Visa-Free Countries



Distribution of Number of Incoming Travel-Visa-Free Countries



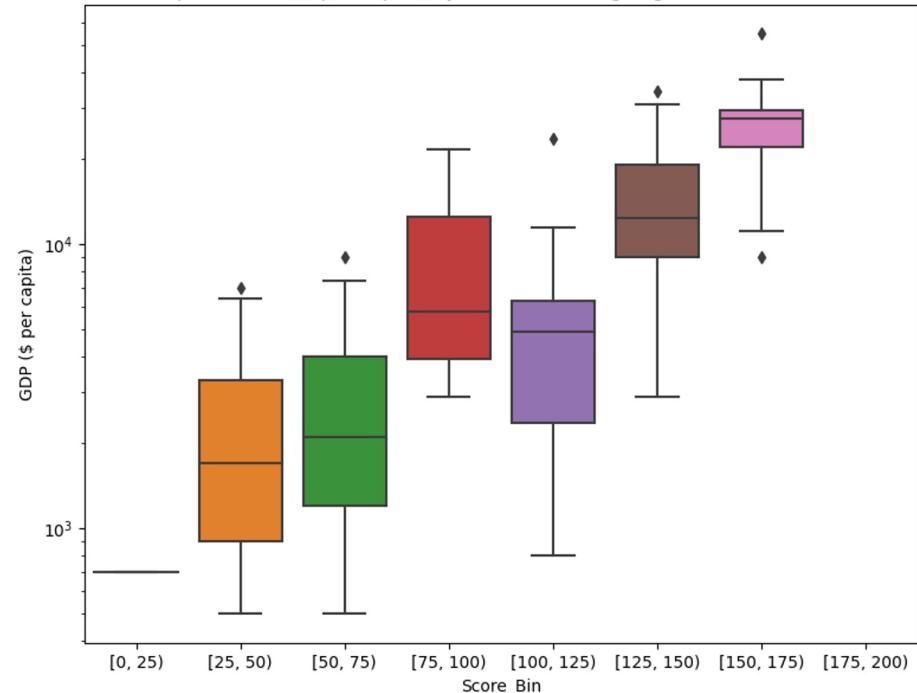
Outgoing and Incoming vs. GDP, Infant Mortality, Literacy, Birth Rates



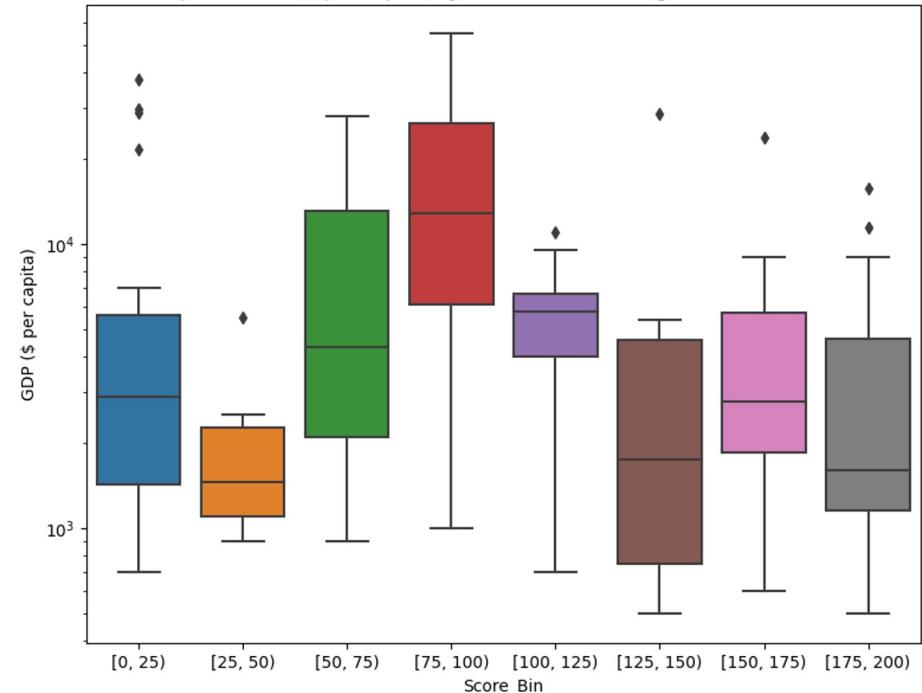


Counts Versus Basic Attributes - GDP

Boxplot of GDP (\$ per capita) by Number of Outgoing Visa-Free Countries



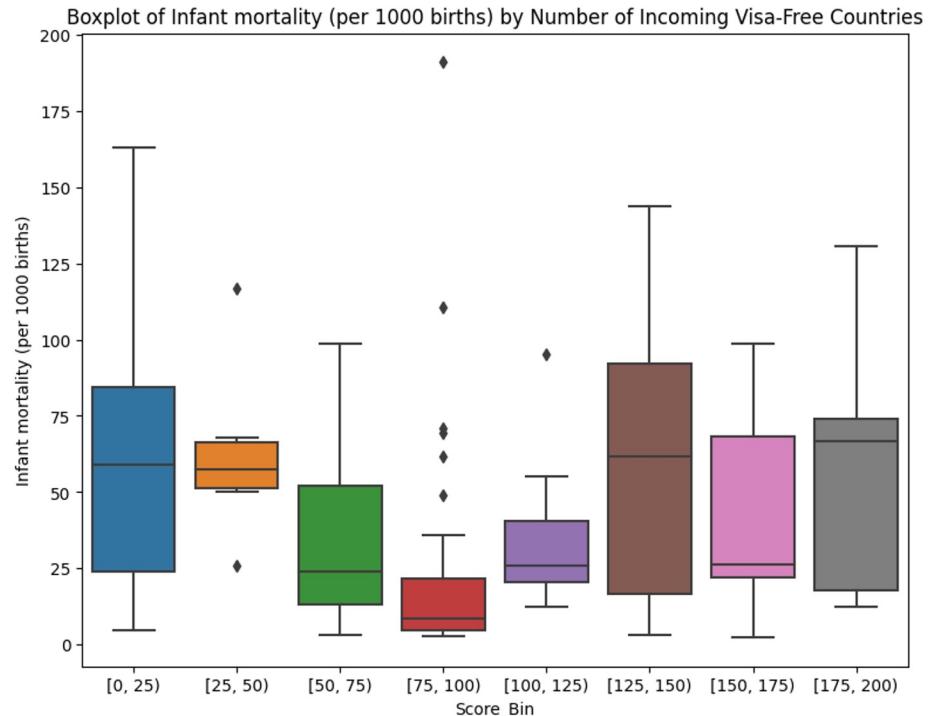
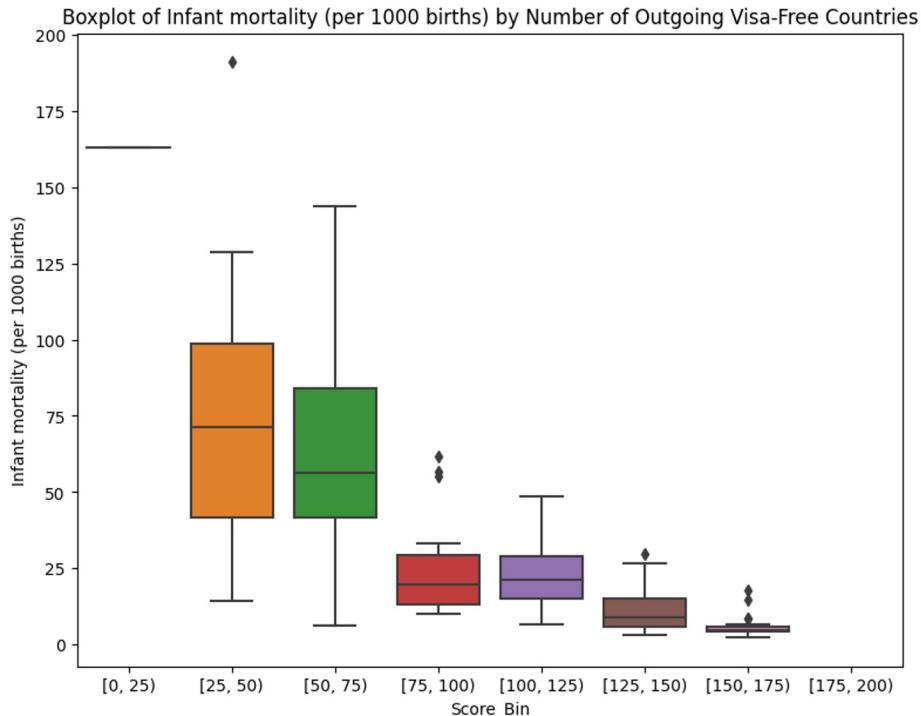
Boxplot of GDP (\$ per capita) by Number of Incoming Visa-Free Countries



Countries that have higher GDP have more travel-visa-free countries.

Counts Versus Basic Attributes

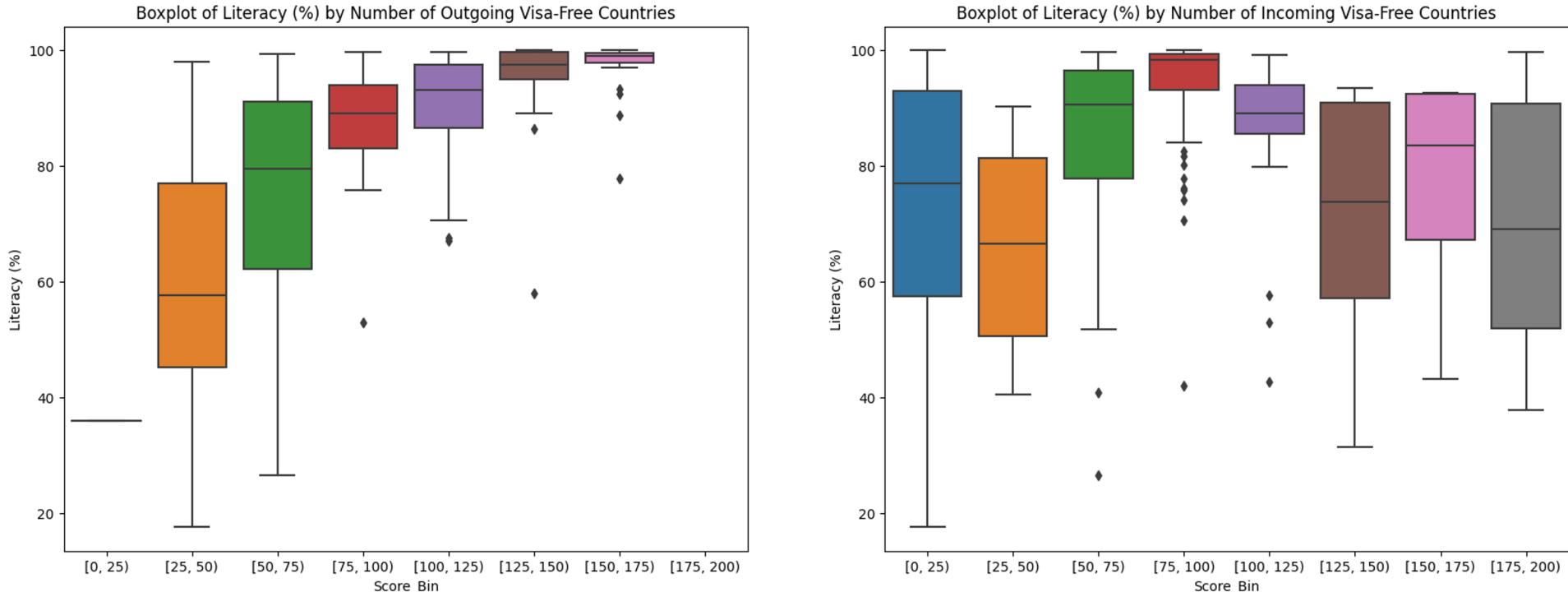
- Infant Mortality



Countries that have lower infant mortality have more travel-visa-free countries.



Counts Versus Basic Attributes - Literacy

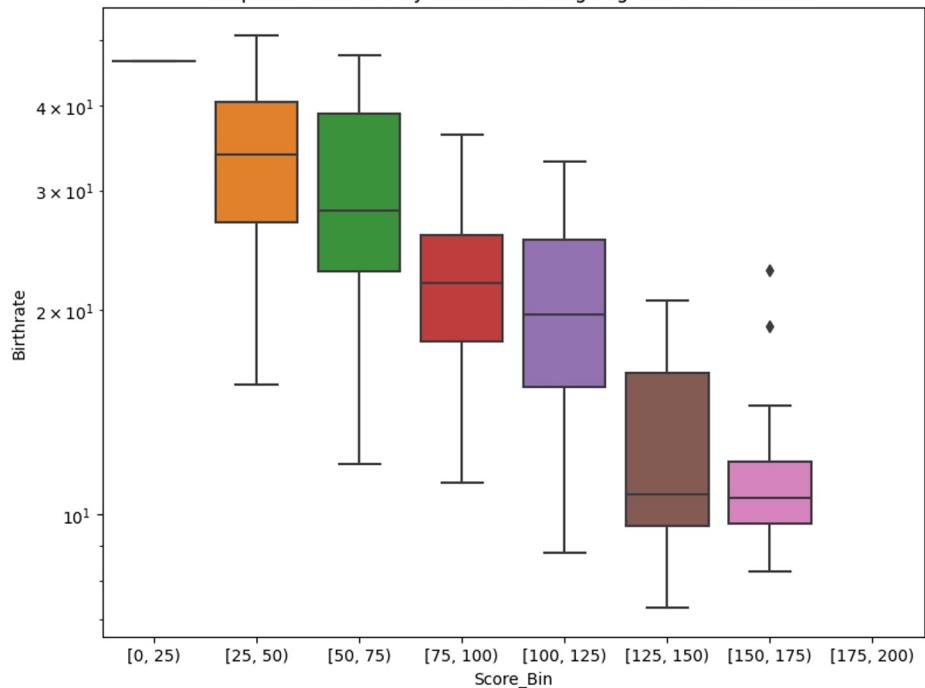


Countries that have higher literacy have more travel-visa-free countries.

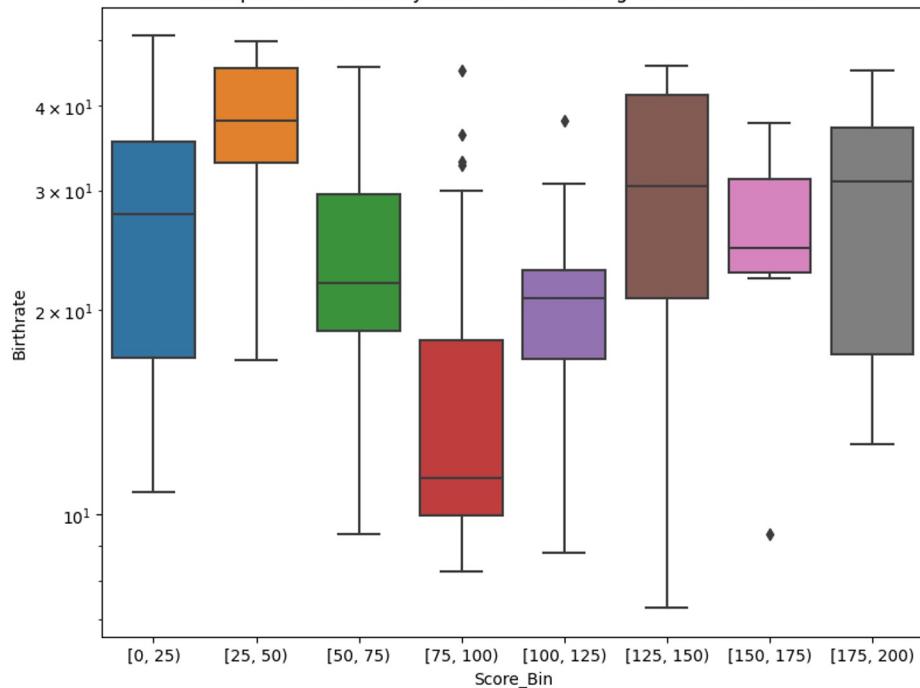


Counts Versus Basic Attributes - Birth Rates

Boxplot of Birthrate by Number of Outgoing Visa-Free Countries



Boxplot of Birthrate by Number of Incoming Visa-Free Countries



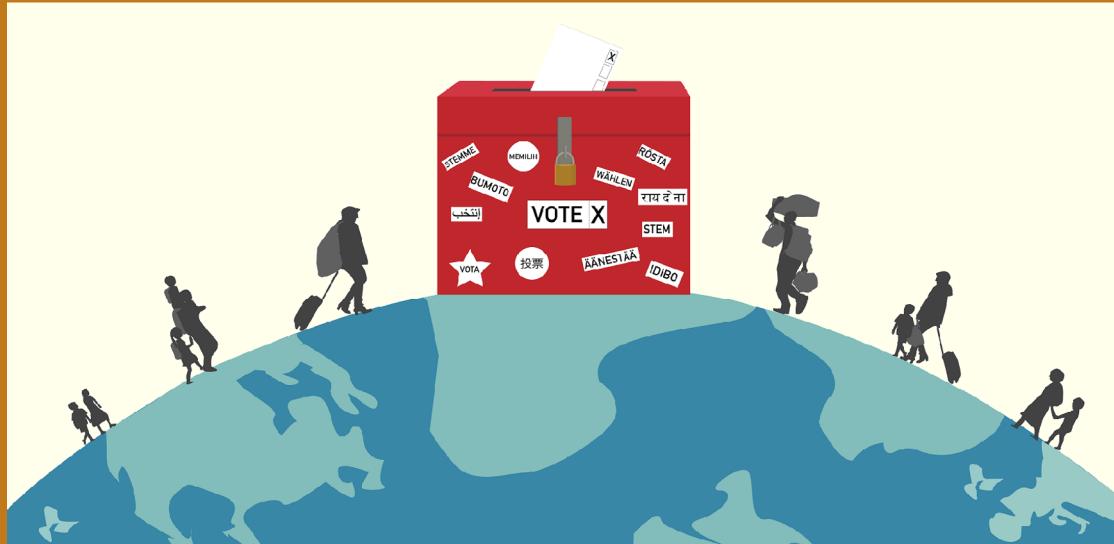
Countries that have lower birth rate have more travel-visa-free countries.



Key Findings

- Countries that have more access to other countries without travel visa also have...
 - Higher GDP
 - Lower infant mortality
 - Higher literacy
 - Lower birth rate
- Countries that are more welcome to tourists have...
 - ??? No trend found

Migration, Political Freedom

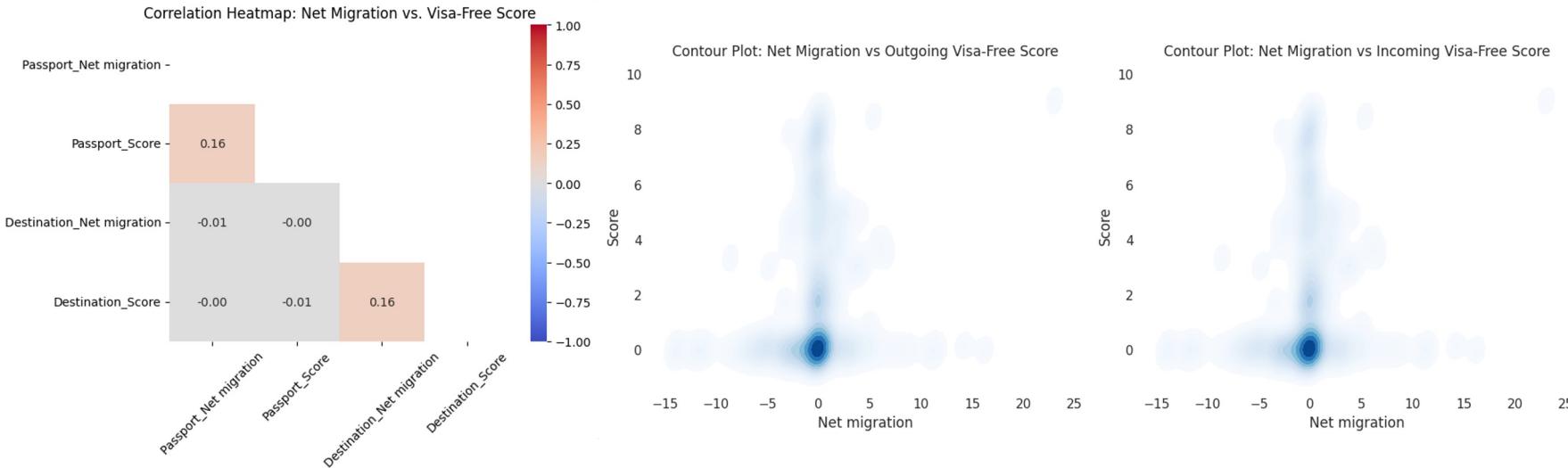


Migration



Does migration lead to a country achieving travel-visa-free status?

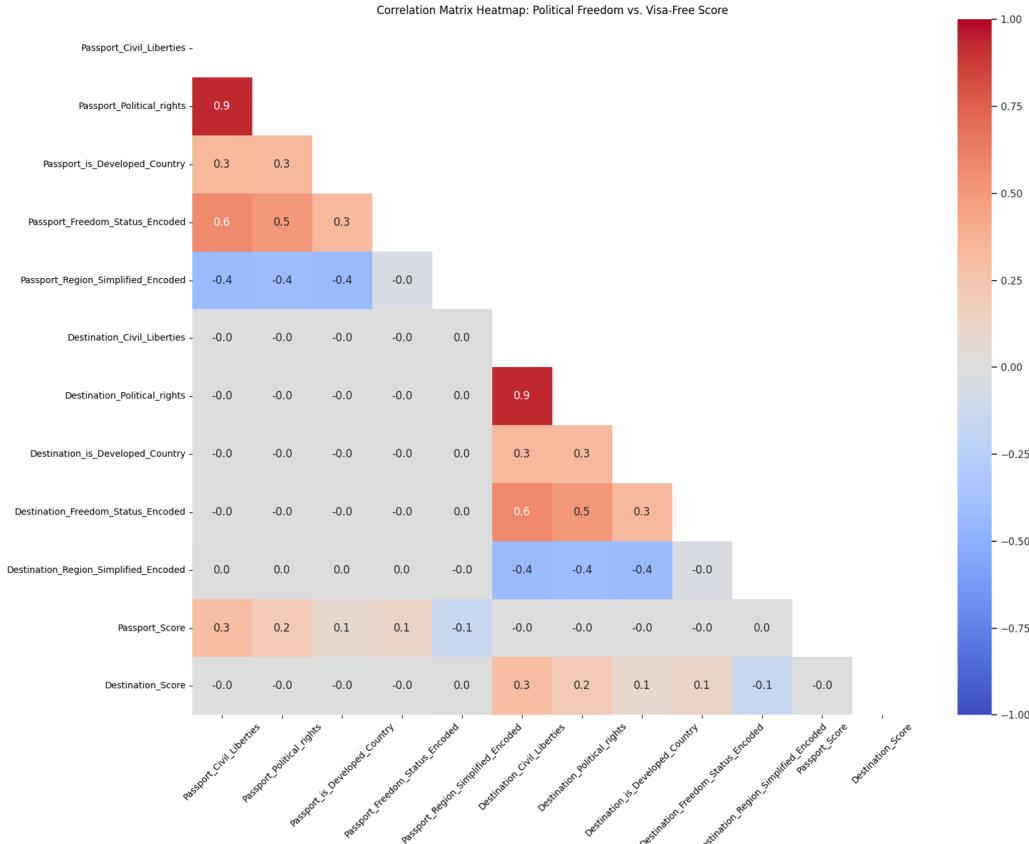
- Heatmaps and contour plots reveals a notable absence of significant correlation between migration and travel-visa-free scores.
- Visualizations suggest that migration factors do not prominently influence the travel-visa-free scores for countries.



Political Freedom



Does political freedom lead to a country achieving travel-visa-free status?



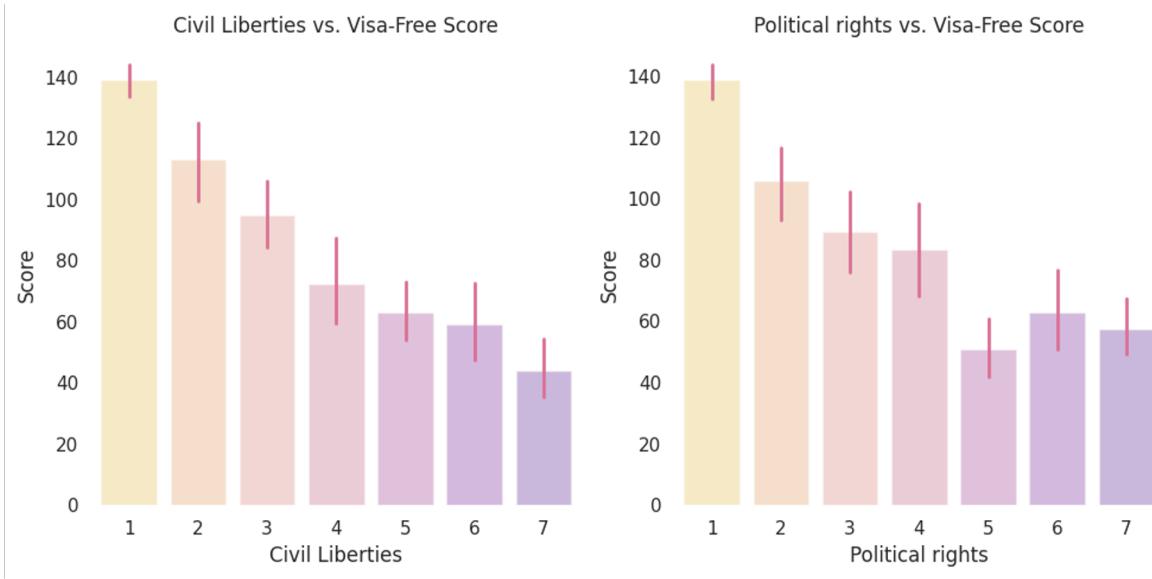
- A weak positive correlation between the indicators of political freedom and the score of travel-visa-free.

Region, Freedom Status and Development vs. Travel-Visa-Free Scores



- Regional Trends: Europe consistently leads in visa-free scores, followed by the Americas, Oceania, Asia, and Africa.
- Freedom Classification: "Free" countries display the highest visa-free scores, indicating a positive correlation between freedom status and visa-free scores.
- Development Impact: Developed countries boast higher visa-free scores, showing a positive correlation between a country's development level and its visa-free access.

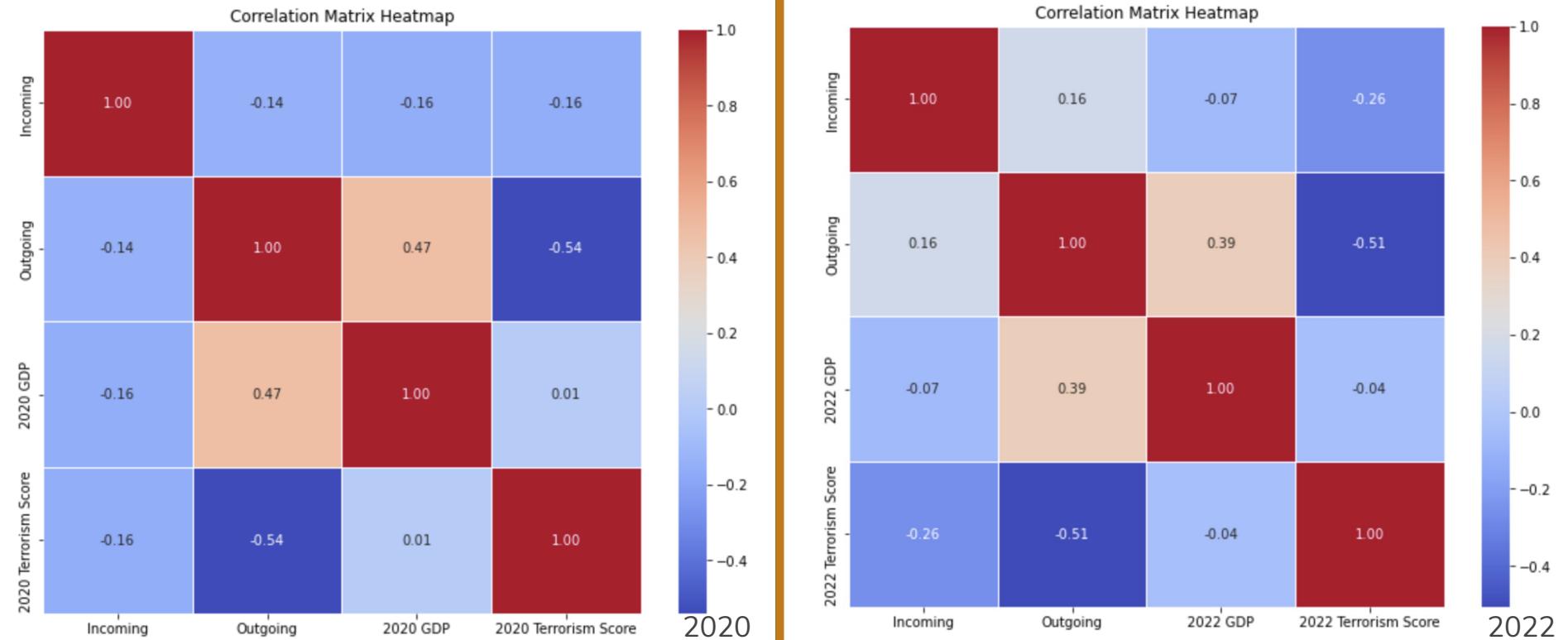
Civil Liberties and Political Rights vs. Travel-Visa-Free Scores



- Civil Liberties: Higher civil liberties in a country correspond to higher visa-free scores.
- Political Rights: Stronger political rights align with higher visa-free scores

Terrorism & GDP Vs Visa-free



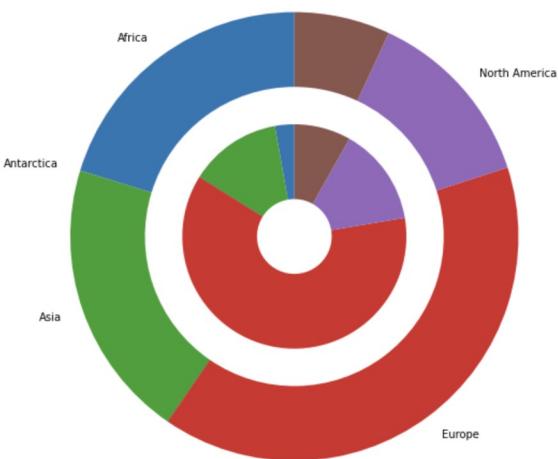


- Strong negative correlation between Terrorism score and Outgoing VISA.
- Terrorism Scores and Incoming VISA is also negatively correlated.
- There is a strong positive correlation between GDP and Outgoing VISA.
- There is a weak negative correlation between GDP and Incoming VISA.

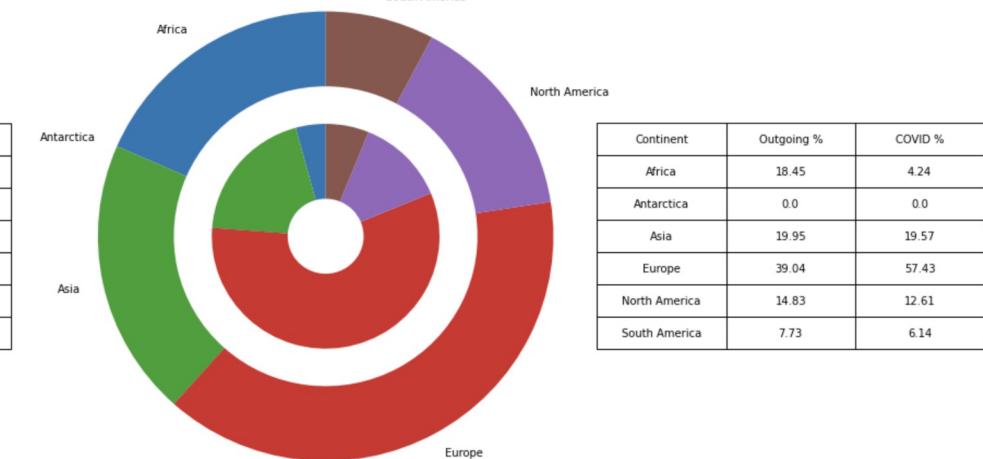
COVID vs VISA requirements



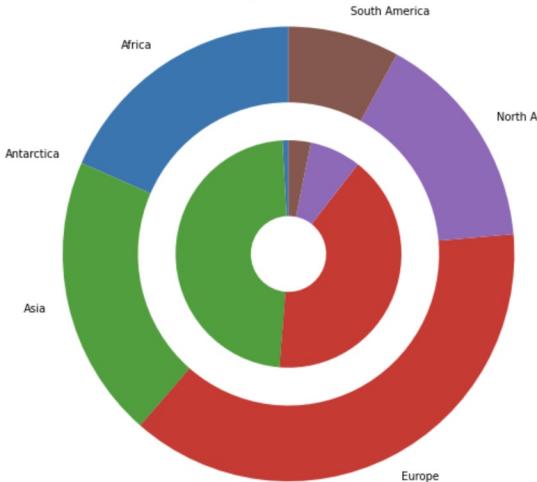
COVID Cases (Inner) vs Outgoing Visas (Outer) by Continent (2020)



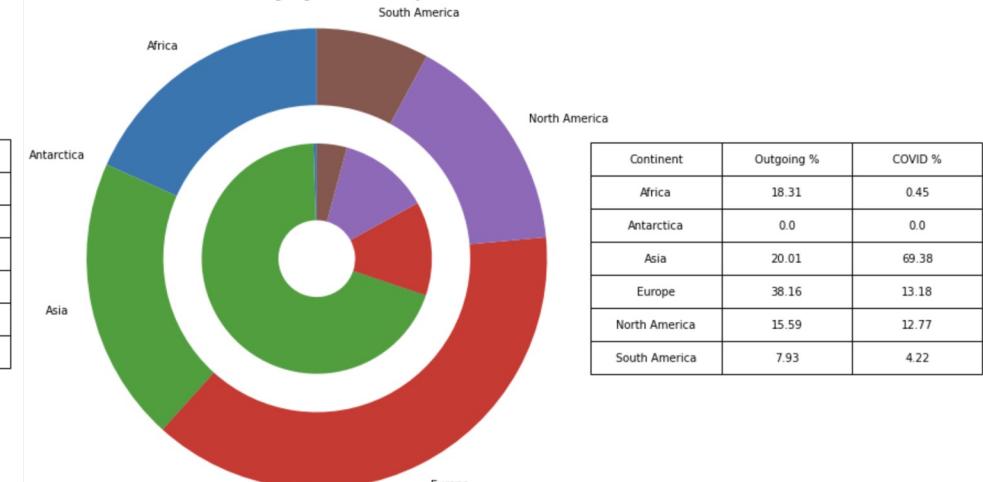
COVID Cases (Inner) vs Outgoing Visas (Outer) by Continent (2021)



COVID Cases (Inner) vs Outgoing Visas (Outer) by Continent (2022)



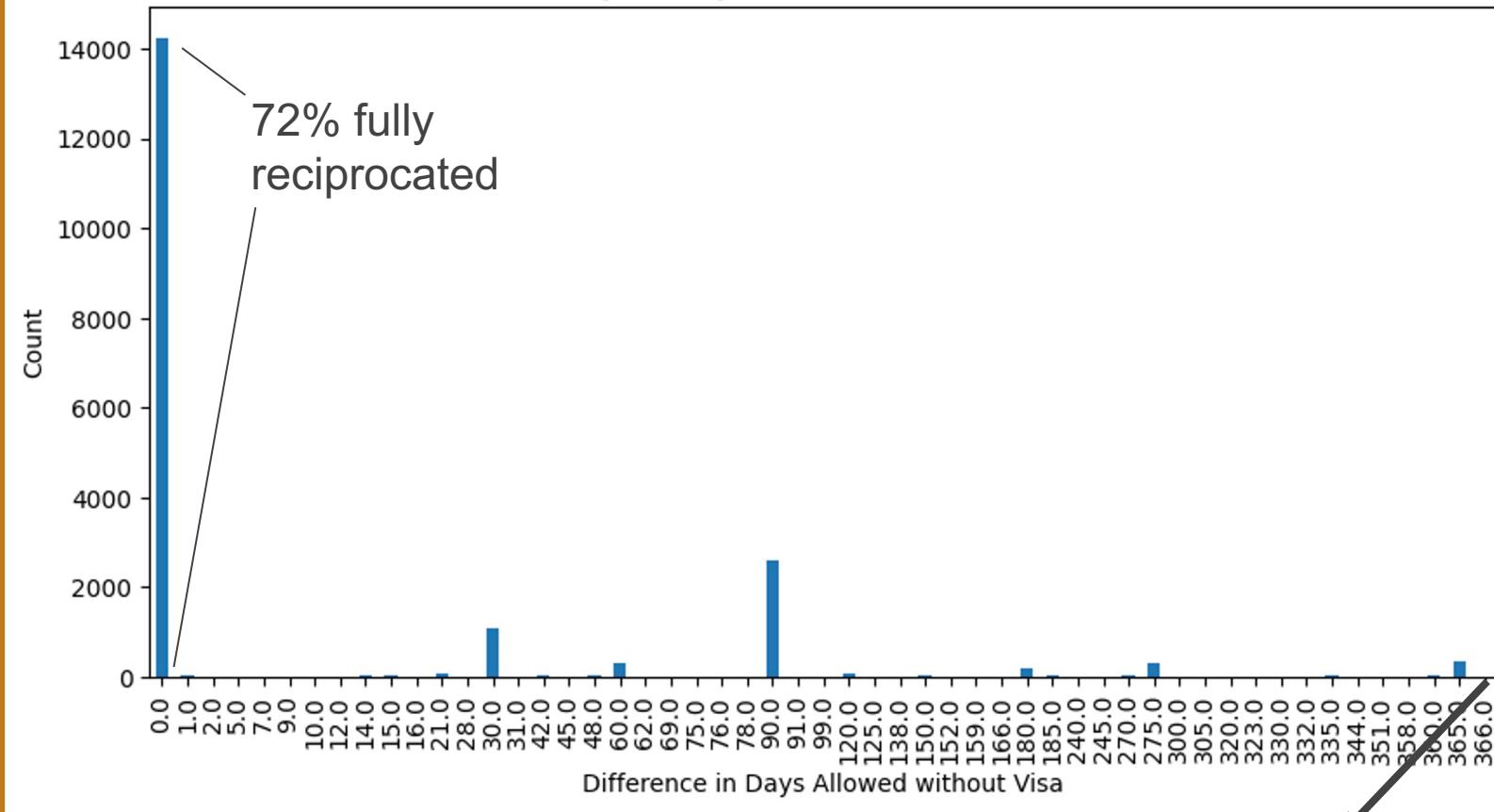
COVID Cases (Inner) vs Outgoing Visas (Outer) by Continent (2023)



Reciprocity and Asymmetry



Asymmetry Between Two Countries



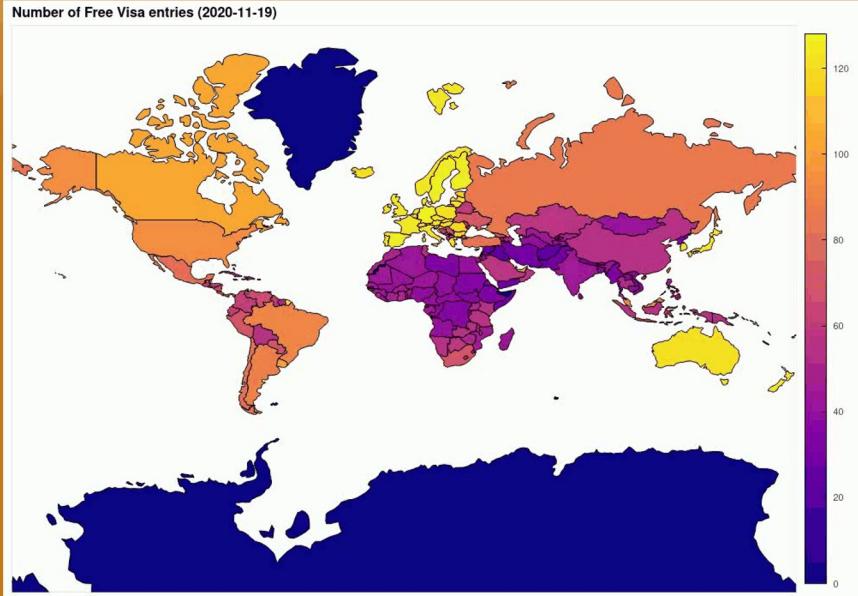
Syria no admission to Palestine, Palestine visa-free for Syria

Kyrgyzstan no admission to Tajikistan, Tajikistan visa-free for Kyrgyzstan

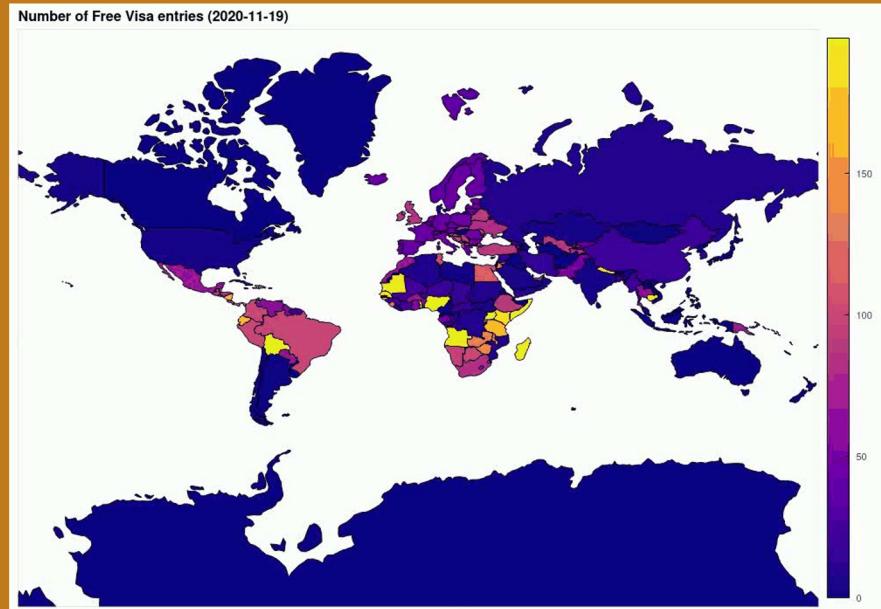
Visa Free Travel Animation and Tool



Choropleth Map Animation



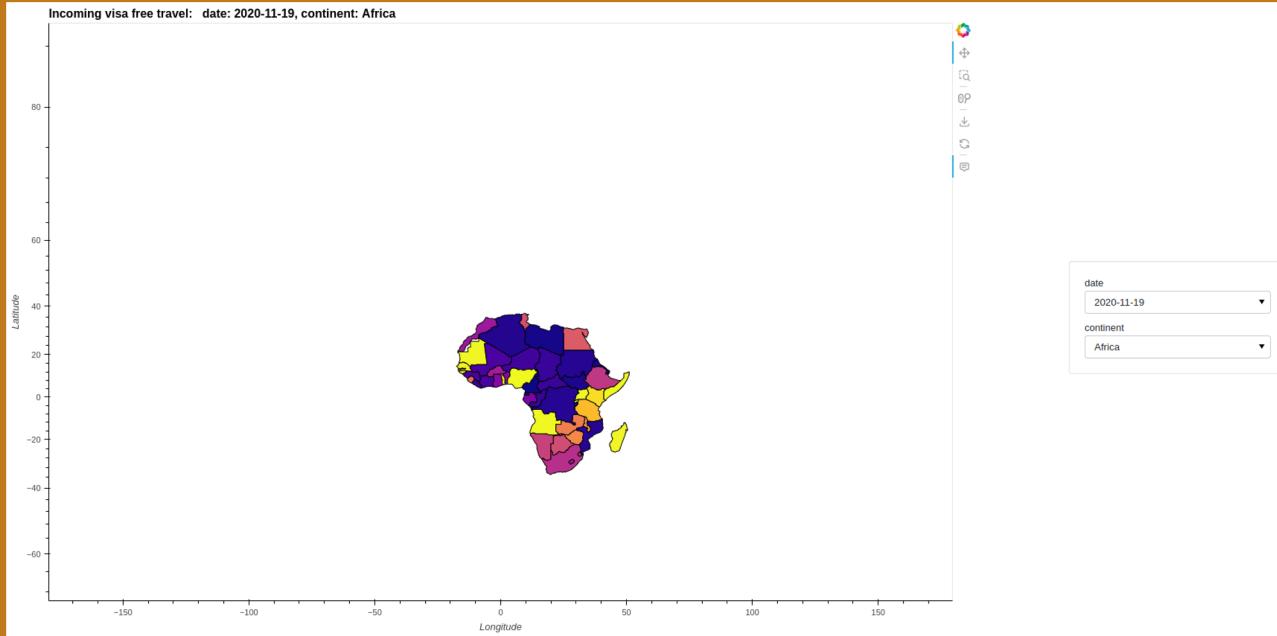
Outgoing visa free travel



Incoming visa free travel

- The above choropleth maps are made using GeoPandas and GeoViews libraries
- Used OpenCV and moviepy for gif generation

Interactive Tool



- Outgoing tool: <https://siddharthdey.github.io/>

Questions?

