

INFO - I590 Data Visualization

Project Proposal

Travel Visa Inequality

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1 Abstract

Visa policies have always been restrictive and controlled people from traveling and exploring the world. However, these policies have many times been against the concept of Globalisation which promotes cross-border transactions. Recent developments with respect to immigration, security have largely affected the visa policies of all the countries. The main aim of this project to visualize and analyze the factors that contribute to treating the equal citizens of different countries differently in terms of travelling. The visualizations will help to give insights regarding the factors which distinguish different visa policies across different countries. Interactive visualizations coupled with plots based on country specific ranks will help to drill down and identify the root causes that affect a country's visa policy.

2 Introduction

Through this project, we try to identify if the extent of visa free mobility is constant across the world or not? If not, the distribution of this mobility may explain certain other derivable insights regarding each country's progress and overall economy.

2.1 Motivation

Mobility is a key feature of modern times. Although the movement of people has always been a central feature of human history, it has never been as frequent and widespread as today. The number of people crossing borders

each year has increased about 50 times since World War II[4]. As travelers now can witness at international airports, citizenship and identification papers have a great influence on the ease of travel. While people holding passports of the wealthy or befriended countries can often breeze through custom checks, often using fully automated systems such as “e-gates” citizens of poor and politically fragile countries, particularly from South and South-East Asia, the Middle East and Africa, generally require a travel visa to enter and have to queue up in long rows at the border. This seems to mirror a structural inequality in immigration and travel rights. We find that, on average, visa-free mobility has increased over the past 40 years. However, not everybody has benefited from these developments. In fact, visa waivers are increasingly unequally divided: While citizens of OECD countries and rich countries have gained mobility rights, mobility rights for other regions have stagnated or even diminished, in particular for citizens from African countries[1]. Overall, we find a clear bifurcation in mobility rights, leading to a ‘global mobility divide’. So this piece of work aims to visualize the inequality of visa restrictions and how it is affecting the mobility of citizens of different countries.[3]

2.2 Background

The visa policies are changing rapidly with an intention to make the travel and exploration easier. However, our personal experiences made us wonder whether these policies actually promote the travel or restrict the same. This was the main motivation behind exploring the related work and datasets available to develop the visualizations.

the United Nations World Tourism Organization (UNWTO)[2] drafted a Global Code of Ethics for Tourism where it has proposed that “The prospect of direct and personal access to the discovery and enjoyment of the planet’s resources constitutes a right equally open to all the world’s inhabitants.” Even though still being in the preliminary stage we are far away from this goal of establishing free travel as a right.

Another reading [5] describes that the freedom of travel for the people is directly affected by the citizenship they have. Additionally, factors like Economy of the home country, infrastructure, presence of consulates always correlate with overall visa policies. This can either encourage or limit the free travel opportunities.

Travel now is a large of share of global economy contributing to almost

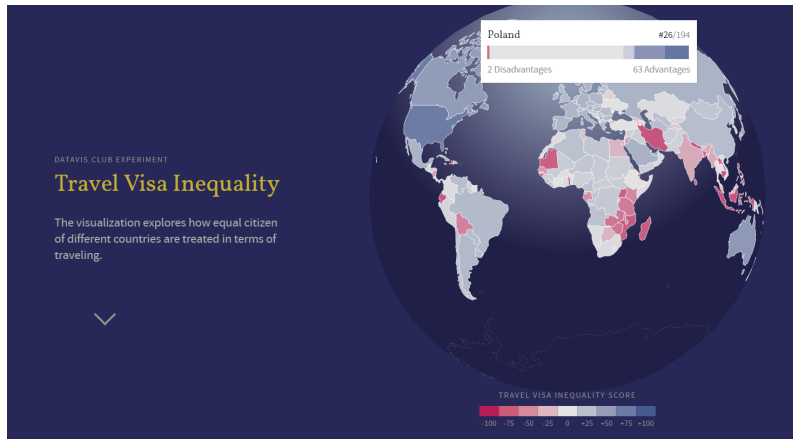


Figure 1: Country Specific Visa Policies

Ranking

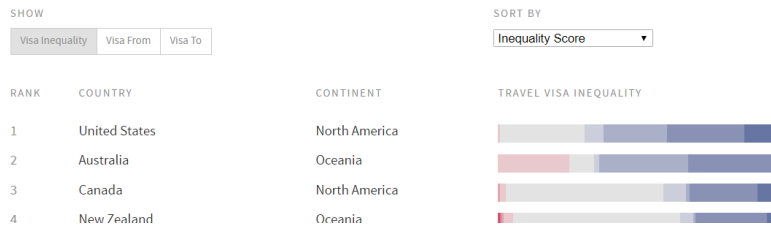


Figure 2: Country Specific Visa Policies

9.5%.[5] The visa policies have actually restricted the travel economy considering the sovereignty of every country and the decisions taken by the respective governments.

The visualization by Chritian Laessar effectively visualizes the visa data with interactive visualizations. In figure 4, the visualization describes a high level view with interactive display of a country and its visa policies. The colors in this visualization show the type of Visa required. In figure 2, the figure shows a display of rank with the overall advantage or disadvantage of traveling in a country. All the ranks are based on incoming or outgoing travellers. On diving deeper to search for a dataset which can prove this inequality, we came across a dataset on Kaggle "Visa Free Travel by Citizenship" which included a matrix level comparison for the travel between 2 countries. Each matrix entry consists of type of visa required for the travel. All these sources

will help us to identify the key factors affecting visa policies, and identify if they prove to be restrictive for travellers through a visualization perspective.

2.3 Objectives

1. The main objective of this project to put forth a visualization medium to show the mobility of people across the world. The visualization will help us analyze as to how visa policies restrict this mobility.
2. Diving deeper into this visualization to analyze the type of visas and their individual effects on the mobility.
3. Making an Interactive tool will help us better visualize and understand countries promoting or discouraging free visa travel.
4. We intend to add filters like country, region, location and passport color to increase the granularity of the data available.
5. We plan on getting rank based scores to explore every country's policy independently.
6. We intend to test the hypothesis : Restrictions in visa policies affect the travellers.
7. The visualization will help to study if GDP, resident population, relative economy, incoming and outgoing rates negatively affect the visa policies or vice versa.
8. Encourage discussions on visa policies, citizenship, country branding, global mobility, public security, philanthropy and foreign policy.
9. In today's world, becoming a Global Citizen is more important than ever. Having a second citizenship is a liberating and empowering privilege which comes with a responsibility to the world.

3 Questions

We plan to visualize, how do the different visa policies affect the freedom of mobility of citizen based on his country of origin. The data on its own

is confusing given the complexity of the visa processes. However the visualizations from this data will help a layman understand his countries position with respect to foreign policy. This will truly encourage the concept of globalization with a uniform criteria of judgement for every country. The other questions which motivate us to create visualizations to better explain the visa policy scenario are:

- Are borders more restrictive or open due to changing visa policies?
- Has mobility increased/decreased for all or just for specific groups.
- If only for specific groups, do the groups have any more common characteristics.
- Does the visa free travel also establish the credibility of the traveller of a particular origin.
- Have the changed visa policies increased/reduced the illegal cross border transactions.
- Is there any way to group the travel mobility based on country, regions, color of passports or other generated features.
- What improvements are possible over the existing visa based visualizations like passportindex.org or <https://projects.christianlaesser.com/travel-visa-inequality/>

4 Datasets

Dataset1:

Source: Github account-Ilya Ilyankou

Overview of data:

Last updated on July 18, 2019

The first column represents a passport (=from), each remaining column rep-

resents a foreign country (=to). and the third column as value.

Values:

3 = visa-free travel

2 = eTA is required

1 = visa can be obtained on arrival (which Passport Index considers visa-free)

0 = visa is required

-1 is for all instances where passport and destination are the same

We plan to use this data in the interactive component of the visualization. The data of the countries will help us to visualize the mobility power of a particular country in comparison to other other countries travelling to a same place. The adjacency matrix type of data will help us to visualize the difference between to and fro travel between 2 countries.

Dataset2:

Source: <https://www.passportindex.org/byRank.php>

Overview of data:

Data set has features like country name, gdp, tourist incoming and outgoing. We plan to use this dataset to include the effect of the factors like population, GDP etc on the visa policies. This data will be used to generate a scoring scale criteria for all the nations present in Dataset 1.

5 Methods

We are planning to develop the following interactive map visualization using python libraries like alter, bokeh etc.

1. Color gradient map, depicting the travel inequality score across the world. So it shows which nations have most powerful passport and least powerful passport.
2. Color gradient Map with interactive filter, upon selecting the from country, it shows a person belong to selected filter the travel policies to travel to different country.
3. Color gradient Map with interactive filter, upon selecting the from country, it highlights the difference between travelling from and travelling to, blue

shows the advantages and red show the disadvantage for selected country

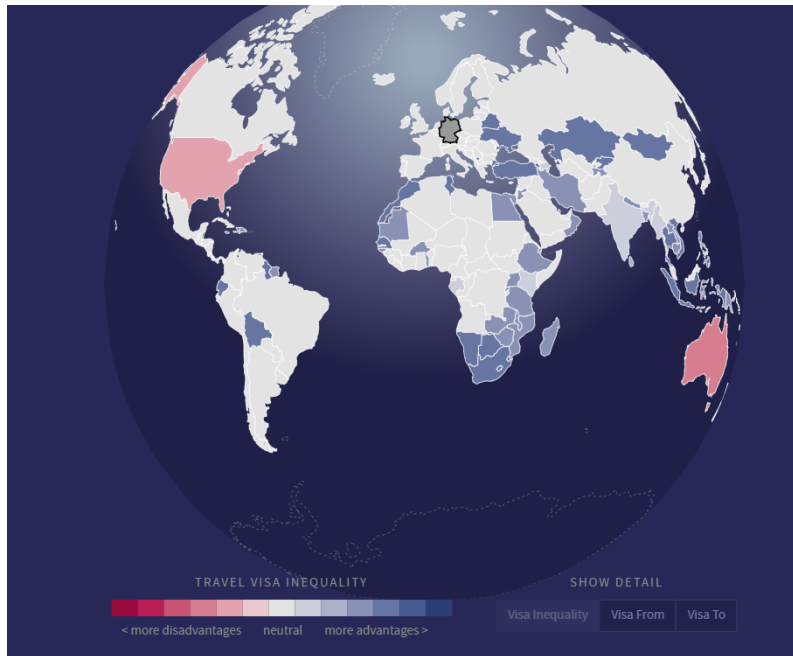


Figure 3: Travel inequality score

4. Horizontal stack bar, depicting the proportional of visa policies for each countries
5. Visualization depicting the GDP and inequality score-Bubbles Map chart can be used. Size of bubble can represent GDP and color to differentiate the the travel inequality score.
6. Visualization depicting the number of travellers normalized over population and inequality score-Bubbles Map chart can be used. Size of bubble can represent of travellers and color to differentiate the the travel inequality

References

- [1] Roland J Fuchs and George J Demko. Geographic inequality under socialism. *Annals of the Association of American Geographers*, 69(2):304–318, 1979.

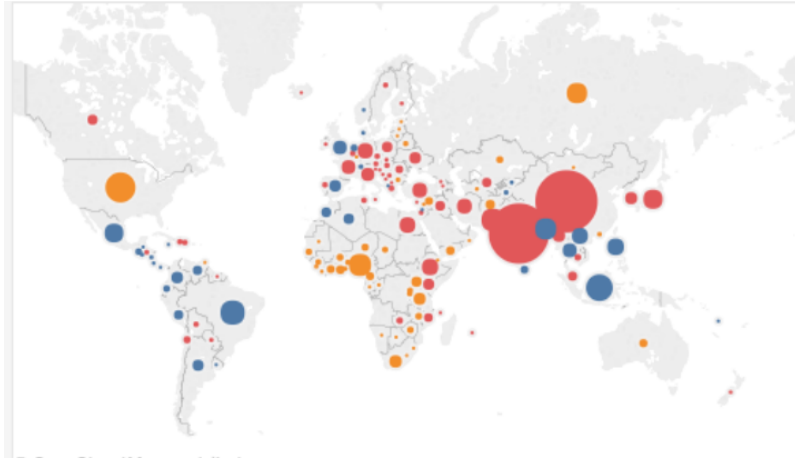


Figure 4: GDP VS Travel Inequality

- [2] Lena Laube. Who may see the Acropolis? Global patterns of inequality and the right to tourism. *Völkerrechtsblog*, November 2017.
- [3] Steffen Mau. Mobility Citizenship, Inequality, and the Liberal State: The Case of Visa Policies. *International Political Sociology*, 4(4):339–361, December 2010.
- [4] Steffen Mau. *Social transnationalism: Lifeworlds beyond the nation-state*. Routledge, 2010.
- [5] Lene Laube Steffan Mau, Fabian Gulzau and Natascha Zaun. The global mobility divide: How visa policies have evolved over time. *Journal of Ethnic and Migration Studies*, 41(8):1192–1213, 2017.