

DATA VISUALIZATION FINAL PROJECT REPORT

Project Title: Global Alcohol Consumption Analysis

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Introduction:

Alcohol consumption is the act of consuming beverages that contain ethanol, a type of alcohol produced by the fermentation of grains, fruits, or vegetables. Alcohol consumption has been a part of human culture for thousands of years, and it is estimated that approximately two billion people consume alcohol worldwide.

While moderate alcohol consumption may have some health benefits, excessive alcohol consumption can have negative effects on physical and mental health, as well as social and economic consequences. According to the World Health Organization (WHO), alcohol is responsible for nearly 3 million deaths each year, making it one of the leading causes of preventable death worldwide.

Alcohol consumption is influenced by various factors, including cultural, social, economic, and environmental factors. Studies have shown that patterns of alcohol consumption differ across countries and regions, and are influenced by factors such as age, gender, income, education, and availability of alcohol.

Understanding the patterns of alcohol consumption and its associated consequences is essential for policymakers and healthcare professionals to develop effective interventions and policies to reduce the harms associated with excessive alcohol consumption.

The main aim of this project is to understand Global Alcohol Consumption.

Research Questions:

1. Exploring the Global Alcohol Consumption Per capita Analysis
 - How much Total alcohol is consumed per capita for Geographical Location?
 - Which Countries have the Highest Total Alcohol consumption per capita?
 - What is the Average Alcohol consumed per capita by Male Proportion across the Globe?

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- What is the Average Alcohol consumed per capita by Religion across the Globe?
- What is the Average Beer, Wine and Spirit servings split by male proportions across the Globe?

2. Comparison of alcohol consumed per capita with various parameters.

- What is the relationship between the Alcohol consumed per capita with the Average GDP per Capita of the country?
- What is the relationship between the Alcohol consumed per capita with the Human Development Index of the country?
- What is the relationship between the Alcohol consumed per capita with the Unemployment rate of the country?
- What is the relationship between the Alcohol consumed per capita with the Average Fertility rate of the country?

Methodology:

I used Four datasets in this project to understand Global Alcohol consumption.

Description of the datasets are given below:

Alcohol:

- country: Name of the country
- beer_servings: Total beer consumed in liters per capita in 2010
- spirit_servings: Total spirit consumed in liters per capita in 2010
- wine_servings: Total wine consumed in liters per capita in 2010
- total_litres_of_pure_alcohol: Total liters of pure alcohol consumed per capita in 2010
- religion: Dominant religion in the country
- males_percentage: Percentage of males in the country
- age15plus_population: Percentage of population with age above 15
- fertility_rate: fertility rate of women in the country
- GDP_per_capita: GDP per capita of the country

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Regions:

- country: Name of the country
- region: Region of the country
- continent: Continent in which the country is located

HDI:

- country: Name of the country
- human development index: Human development index of country
- HDI_rank: Human Development Index rank of the country

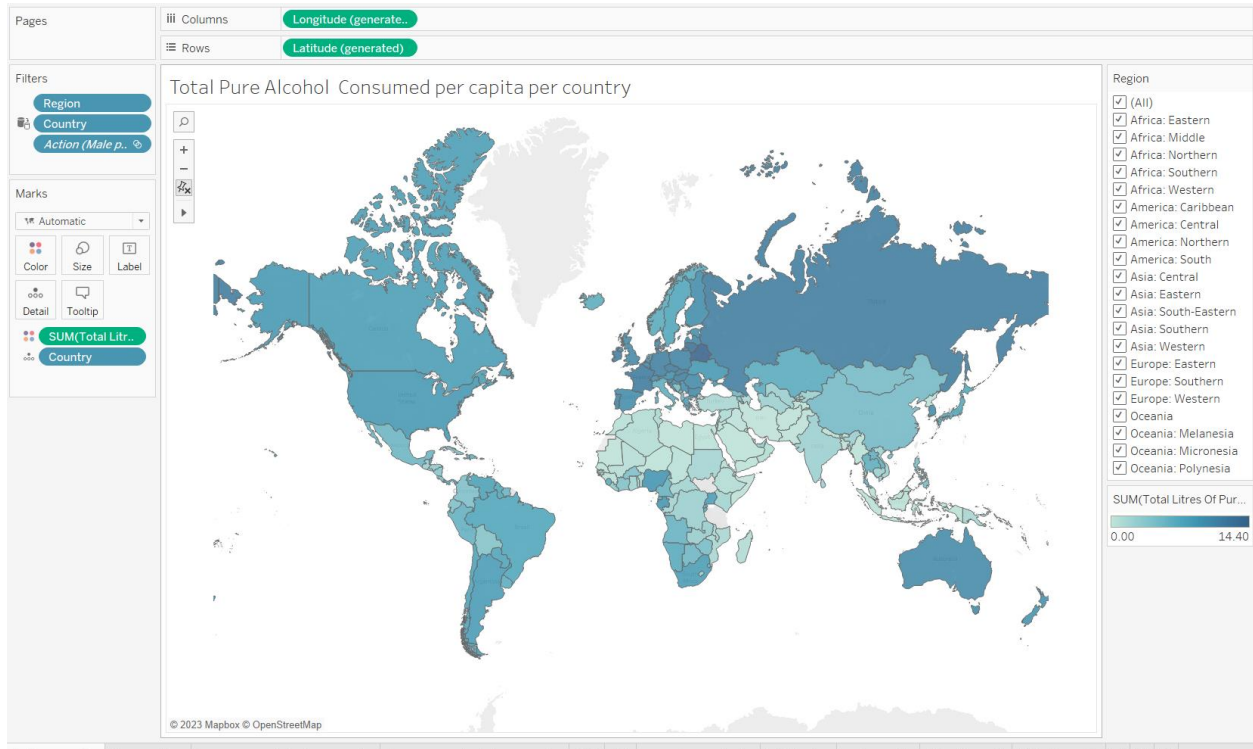
Unemployment rate:

- country: Name of the country
- unemployment rate: unemployment rate of the country

All the datasets are linked to each other with common column Country Name.

Analysis:

Visualization – 1: Total pure alcohol consumed per capita per country.



The map was created to visually represent the per capita consumption of pure alcohol for each country, with a color gradient ranging from light blue to dark blue. The light blue countries on the map indicate lower levels of per capita alcohol consumption, while the dark blue countries indicate higher levels of per capita alcohol consumption.

Visualization -2

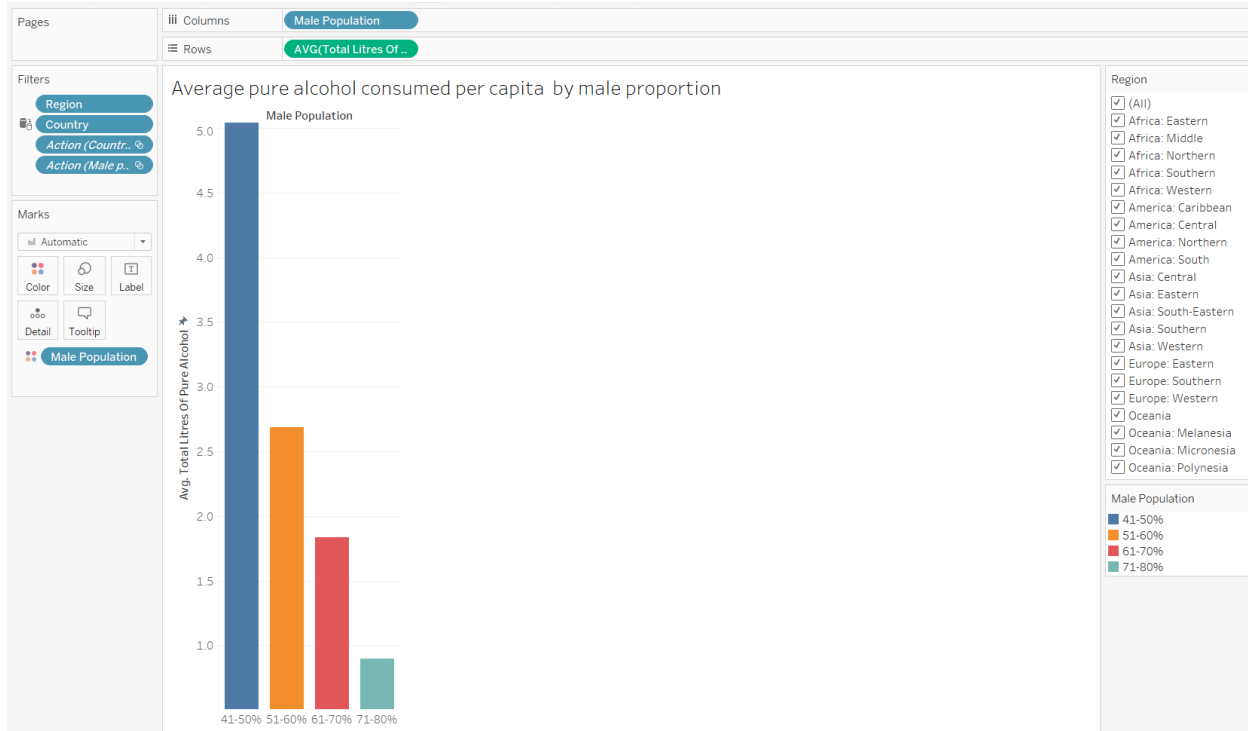
Top countries in consumption of alcohol per capita



The above visualization shows that the alcohol consumption is more in the Belarus, Lithuania followed by Grenada and Later is the Czech Republic, France, Russia, and Ireland. I have leveraged the parameters functionality to show top N countries dynamically in terms of pure alcohol consumption where N can be in the range of 1 to 50.

Visualization-3

Average pure alcohol consumed per capita by male proportion.

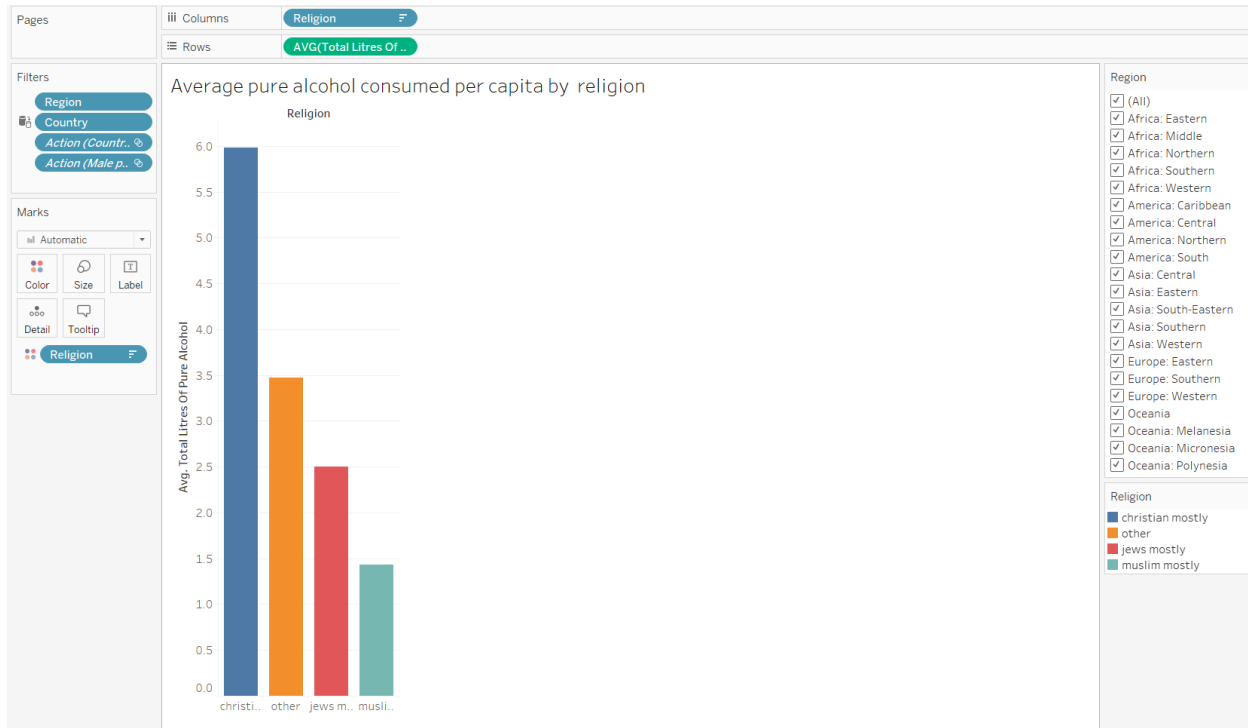


The above visualization includes four flags to indicate whether a country is predominantly male or female. I compared the total liters of pure alcohol consumed in each country to the proportion of males in the population. Based on the resulting bar chart, it appears that countries with a lower proportion of males (41-50%) tend to have lower levels of alcohol consumption, while those with a higher proportion of males (71-80%) tend to have the highest levels of alcohol consumption.

More specifically, countries with 41-50% of males appear to be predominantly female and consume an average of 5.225 liters of alcohol per capita. In contrast, countries with 51-60% of males consume an average of 2.684 liters of alcohol, those with 61-70% of males consume an average of 1.833 liters of alcohol, and those with 71-80% of males consume an average of 0.90 liters of alcohol.

Visualization -4

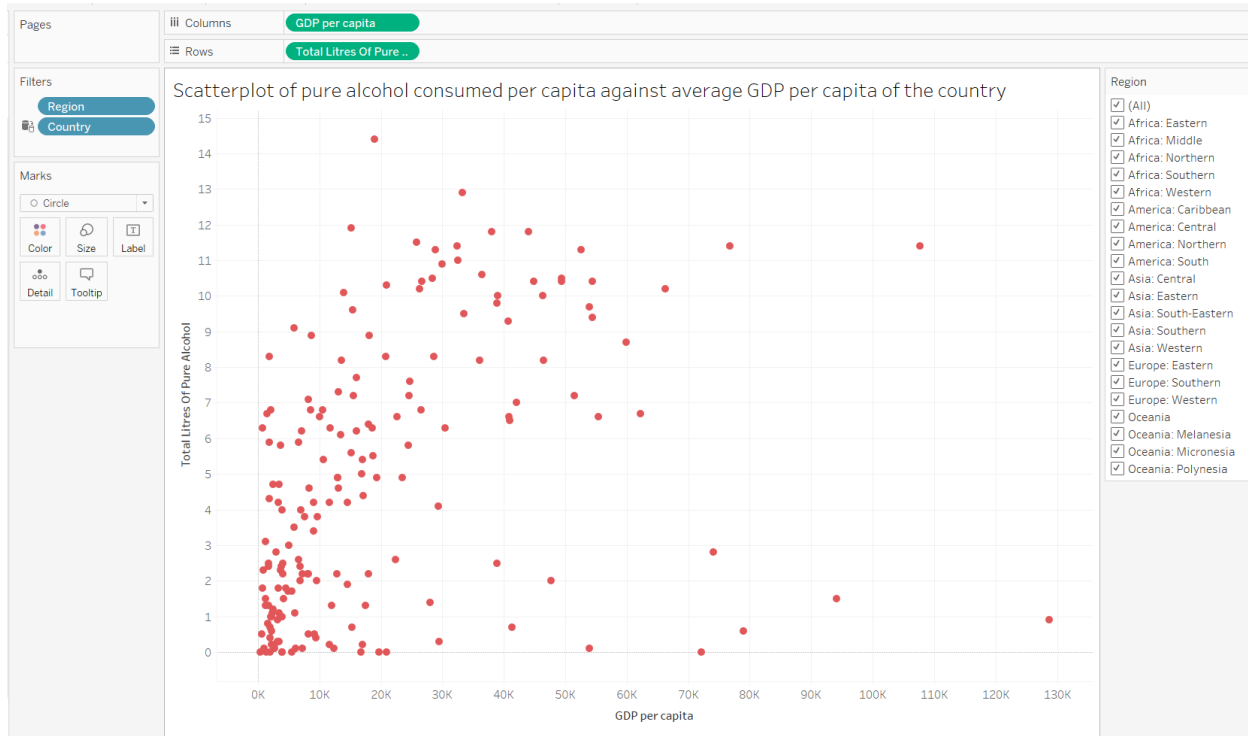
Average pure alcohol consumed per capita by religion.



The above visualization illustrates the total pure alcohol consumption by religion across all countries. The visualization shows that Christian-dominant countries consume the highest amount of pure alcohol, with an average consumption of 5.979 liters per capita. In comparison, countries dominated by other religions consume an average of 3.475 liters of pure alcohol per capita, indicating a difference of about 2.5 liters. Jewish-dominant countries consume an average of 2.5 liters of pure alcohol, while Muslim-dominant countries have the lowest average consumption of pure alcohol at about 1.43 liters.

Visualization -5

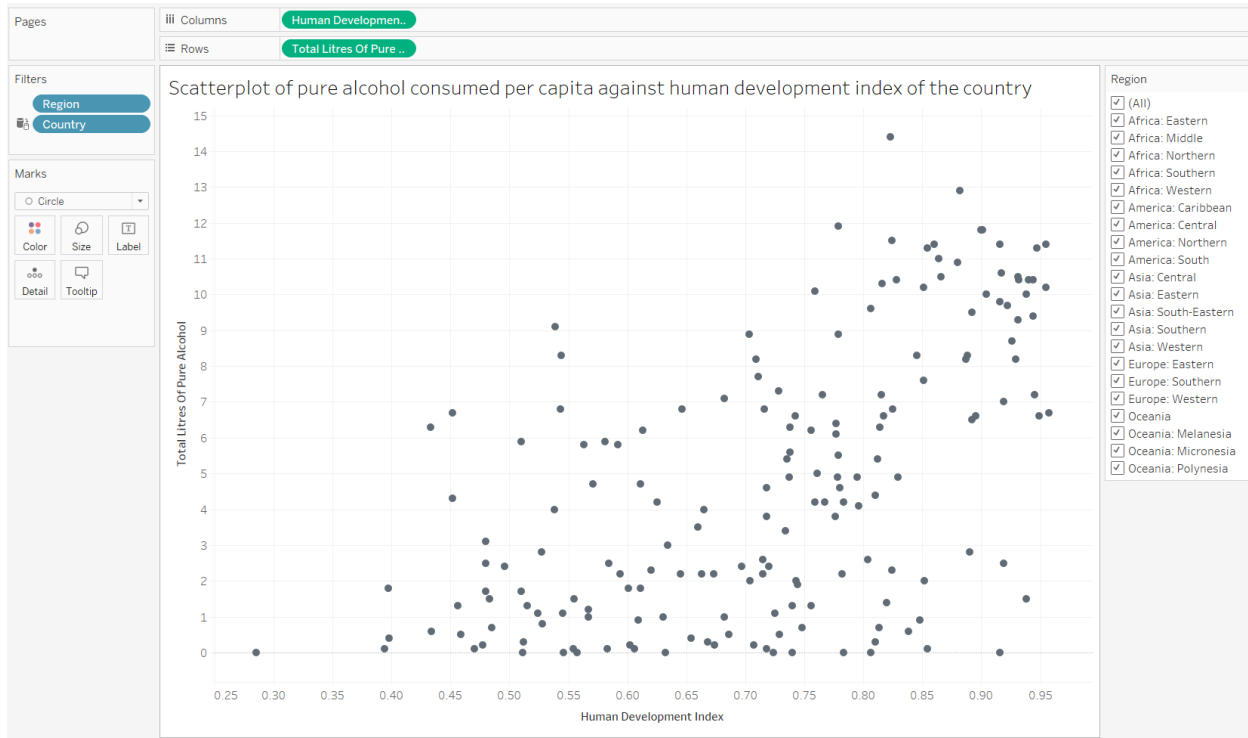
Scatterplot of pure alcohol consumed per capita against average GDP per capita of the country.



In the above scatter plot, I have plotted the total liters of pure alcohol consumed per capita of each country against their respective GDP per capita. It is evident from the visualization that there exists a positive linear correlation between the total liters of pure alcohol consumed per capita and the GDP per capita of the countries.

Visualization -6

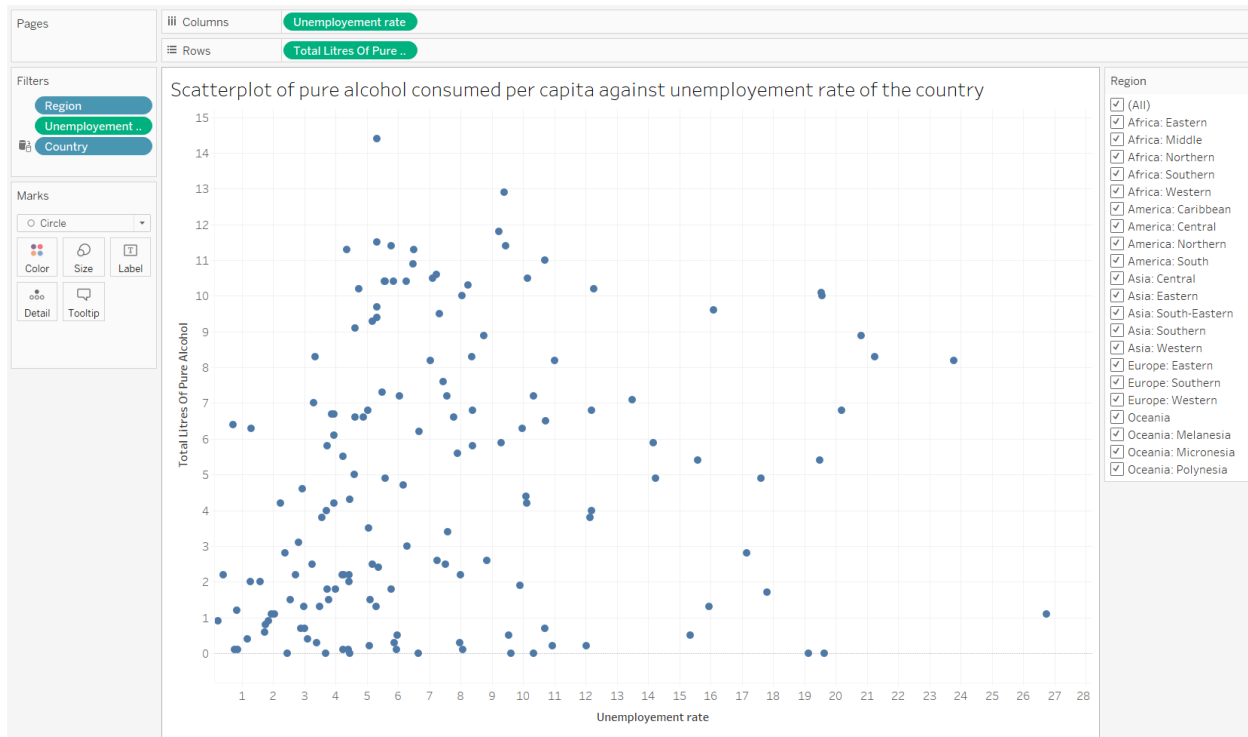
Scatterplot of pure alcohol consumed per capita human development index of the country.



In the above scatter plot, I have plotted the total liters of pure alcohol consumed per capita of each country against their respective Human Development Index. The visualization clearly demonstrates a positive linear correlation between the total liters of pure alcohol consumed per capita and the Human Development Index of the countries.

Visualization – 7

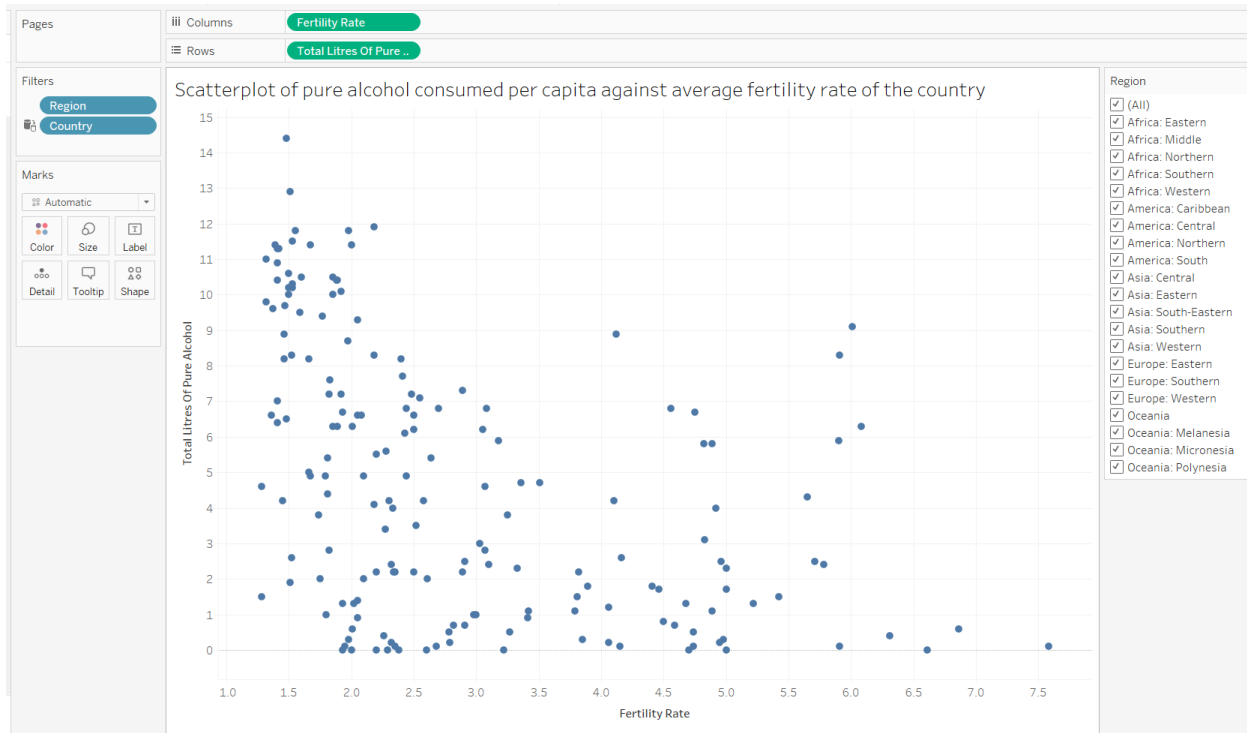
Scatterplot of pure alcohol consumed per capita against unemployment rate of the country.



In the above scatter plot, I have plotted the total liters of pure alcohol consumed per capita of each country against their respective unemployment rate. The visualization clearly demonstrates a positive correlation between the total liters of pure alcohol consumed per capita and the unemployment rate of the countries.

Visualization – 8

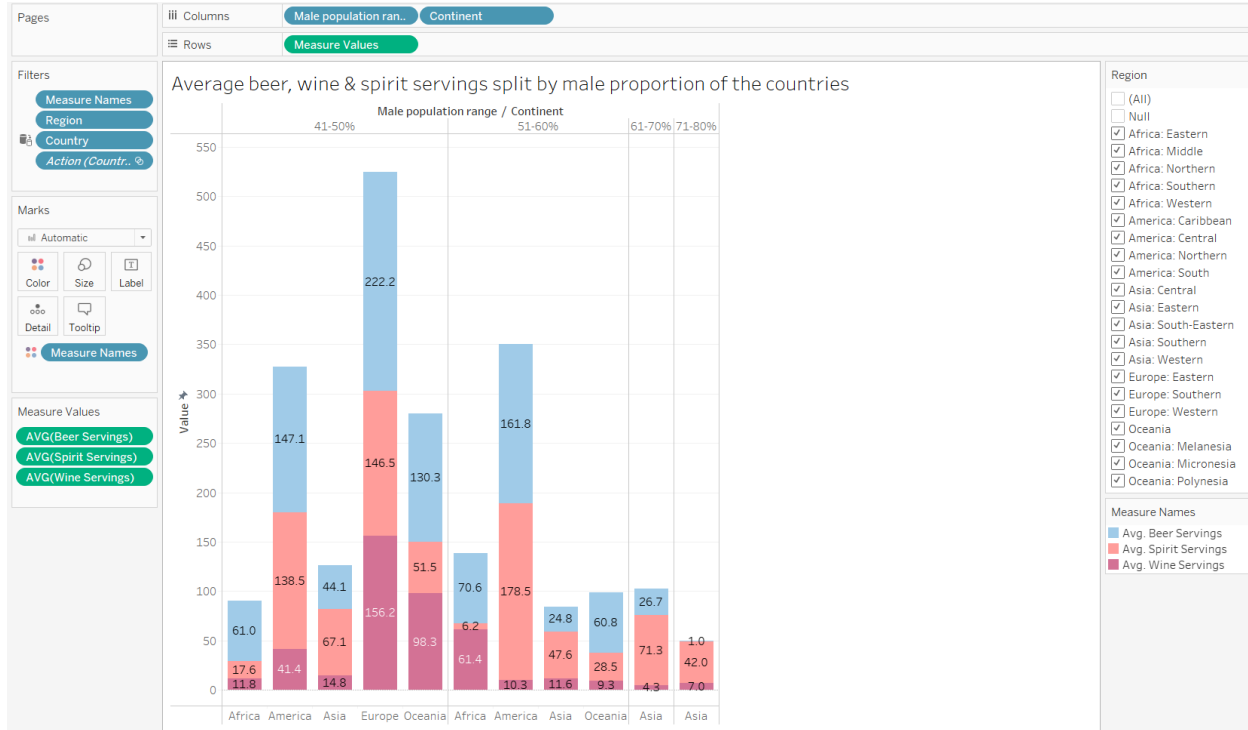
Scatterplot of pure alcohol consumed per capita against average fertility rate of the country.



In the above scatter plot, I have plotted the total liters of pure alcohol consumed per capita of each country against their respective average fertility rate. It is evident from the visualization that there exists a negative curvilinear correlation between the total liters of pure alcohol consumed per capita and the average fertility rate of the countries.

Visualization-9

Average beer, wine& spirit servings split by male proportion of the countries.



In the above visualization, I have used stacked bar charts to display the average servings of alcohol on the Y-axis and the male proportion of countries by continent on the X-axis. The three types of alcohol, namely beer, spirit, and wine, are represented using different colors, and region filters have been applied. Based on the visualization, it is evident that beer is the most consumed alcoholic beverage by males across all regions, followed by spirits. Conversely, wine is the least consumed alcoholic beverage by males in all regions.

Conclusions:

- From visualization -2: The most significant finding from this graphic is that alcohol consumption is higher in Europe and lower in Asia.
- From Visualization -3: countries where women predominate generally consume more alcohol than countries where men predominate.
- From Visualization -4: Average alcohol consumption is higher in Christian-dominant countries than in Muslim-dominant ones because of recognized regional limitations in the latter.
- From Visualization-5: The total number of liters of pure alcohol consumed increases as the GDP per capita of a nation increases.
- From Visualization-6: More pure alcohol is consumed overall in countries with higher Human Development Indexes.
- From Visualization-7: The total number of liters of pure alcohol consumed increases as the unemployment rate of a country increases.
- From Visualization-8: Pure alcohol consumption declines curvilinearly as a nation's average birth rate rises.
- From Visualization-9: Most nations with a male predominance prefer spirit, followed by beer and wine, while nations with a female predominance prefer beer, then spirit, then wine. Asian nations choose alcohol over other types of beverages, whereas the others favor beer.

Future Research Questions:

- Is there any relationship between Climatic conditions of the country and average alcohol consumed in those countries?
- Is there any correlation between literacy rate of the country and alcohol consumption in those countries?
- Is there any relationship between the culture of the country and alcohol consumption in those countries?

References:

- [Alcohol Consumption - dataset by fivethirtyeight | data.world](#)
- [Human Development Index \(HDI\) by Country 2023 \(worldpopulationreview.com\)](#)
- [List of countries by continents - Simple English Wikipedia, the free encyclopedia](#)
- [Unemployment, total \(% of total labor force\) \(modeled ILO estimate\) | Data \(worldbank.org\)](#)