

Literate Programming with Quarto

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Introduction

The World Development Indicators dataset provides comprehensive global economic and health metrics (Bank 2022).

Here are some statistics from the WDI dataset

```
import pandas as pd
import matplotlib.pyplot as plt
df = pd.read_csv('/Users/KathMartini/Desktop/qtm350/wdi.csv')

selected_col = ['gdp_per_capita', 'life_expectancy', 'unemployment_rate']

summary_table = df[selected_col].describe().T

summary_table = summary_table[["mean", "std", "min", "25%", "50%", "75%", "max"]]
summary_table.columns = ["Mean", "Std Dev", "Min", "25th Percentile", "Median", "75th Percentile"]

display(summary_table)
```

| | Mean | Std Dev | Min | 25th Percentile | Median | 75th Percentile |
|-------------------|--------------|--------------|------------|-----------------|-------------|-----------------|
| gdp_per_capita | 20345.707649 | 31308.942225 | 259.025031 | 2570.563284 | 7587.588173 | 25982.6300 |
| life_expectancy | 72.416519 | 7.713322 | 52.997000 | 66.782000 | 73.514634 | 78.47500 |
| unemployment_rate | 7.268661 | 5.827726 | 0.130000 | 3.500750 | 5.537500 | 9.45525 |

The summary statistics show various things, but one to note is the GDP per capita and its high standard deviation. This shows that this variation between countries and their wealth disparities. What this tells us is that there some countries that are very wealthy and very

poor, and this variation is shown through the high standard deviation. As seen in articles (Gapminder 2022), there is a high correlation with a high GDP and a higher life expectancy.

For a demonstration of a histogram that showcases GDP Distribution, see Figure 1.

For a demonstration of a scatter plot that showcases Life Expectancy and GDP trends, see Figure 2.

To view a table of the dataset's key statistics, see Table 2.

Plots

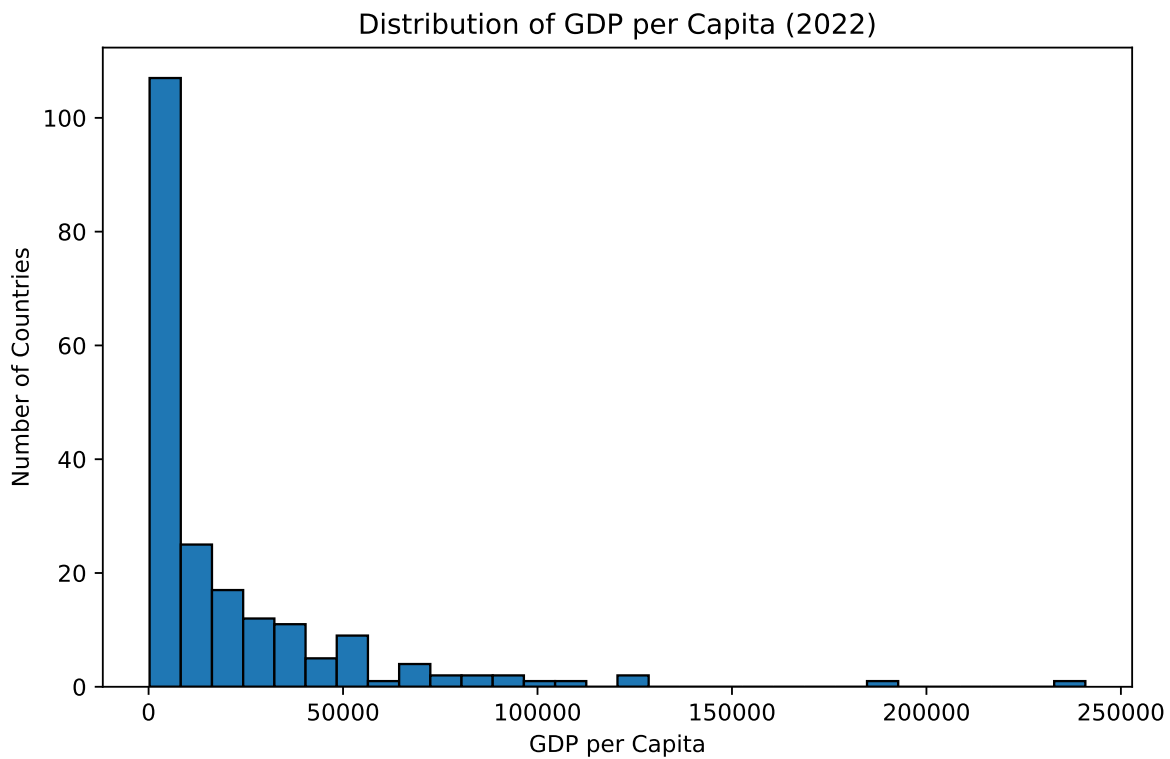


Figure 1: A histogram for the distribution of GDP per capita in 2022

Key statistics

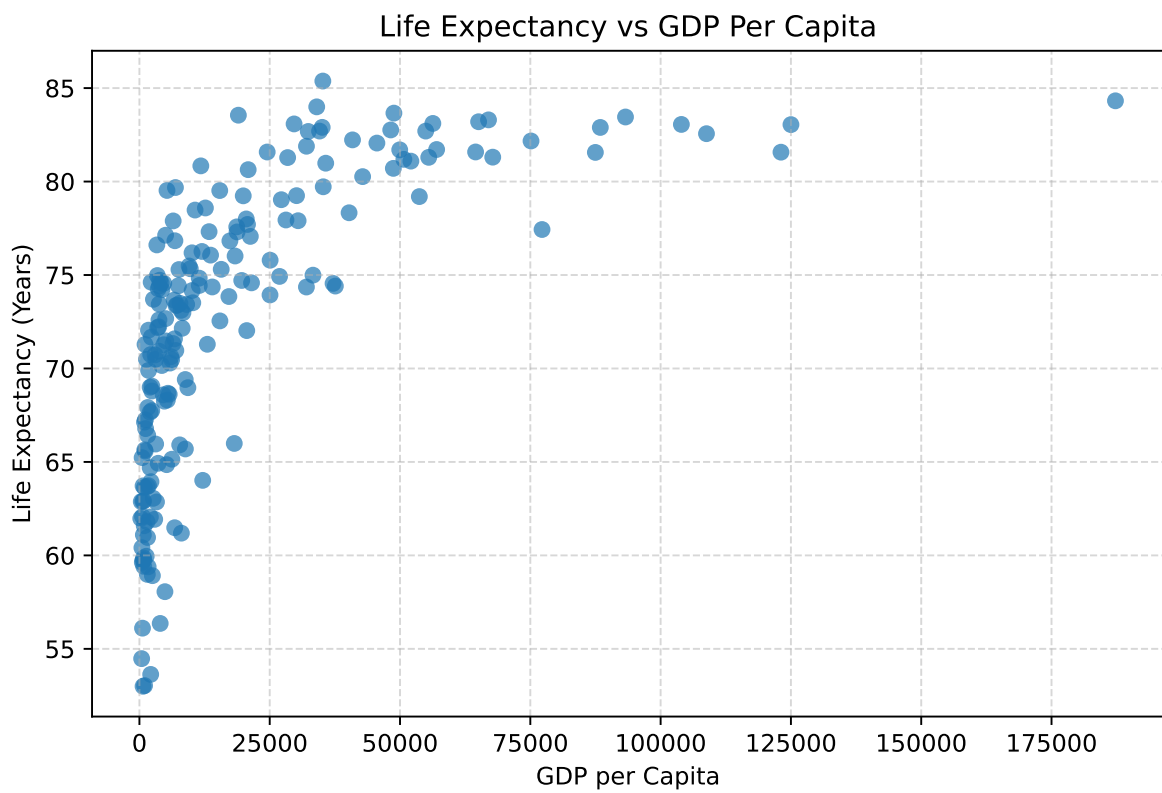


Figure 2: A scatter plot that compares the trends between life expectancy and GDP trends in 2022

Table 2: Key statistics for the WDI dataset

| Dataset Attribute | Standard Deviation | Mean |
|-------------------|--------------------|---------|
| GDP per Capita | 31308.9 | 20345.7 |
| Life Expectancy | 7.713 | 72.416 |
| Unemployment Rate | 5.828 | 7.269 |

Bank, World. 2022. “World Development Indicators 2022.” *World Bank Open Data*. <https://databank.worldbank.org/source/world-development-indicators>.

Gapminder. 2022. “How Does Income Relate to Life Expectancy?” *Gapminder*. <https://www.gapminder.org/answers/how-does-income-relate-to-life-expectancy/>.