**Does economic freedom lead to happiness?**

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**Objective:**

* Determine if there is any linkage between Economic Freedom and Happiness
  + Do countries that rank high on the economic freedom index also rank high in the world happiness report

**Process:**

**Step 1: Extract Data**

Data sources: both datasets were found on Kaggle

Economic Freedom Data for 2019:

<https://www.kaggle.com/lewisduncan93/the-economic-freedom-index>

Original Source: [The Heritage Foundation](https://www.heritage.org/index/)

Happiness Data for 2019:

<https://www.kaggle.com/PromptCloudHQ/world-happiness-report-2019>

Original Source: [World Happiness Report](https://worldhappiness.report/)

**Step 2: Transformation of Data**

* The format for the two datasets were CSVs
* Loaded the CSVs into panda DataFrames
* After loading the data into DataFrames, we cleaned the data.
  + For the economic freedom index data:
    - Removed anything that did not have a value in the 2019 score
    - Removed leading and trailing spaces in the Country Name column
    - Retained only certain columns and renamed them

|  |  |
| --- | --- |
| **Column in CSV** | **Renamed Column** |
| Country Name | Country\_Name |
| World Rank | World\_Rank |
| 2019 Score | Score\_2019 |
| Financial Freedom | Financial\_Freedom |
| Income Tax Rate (%) | Income\_Tax\_Rate\_Pct |
| Corporate Tax Rate (%) | Corporate\_Tax\_Rate\_Pct |
| Tax Burden % of GDP | Tax\_Burden\_Pct\_of\_GDP |
| Population (Millions) | Population\_in\_Millions |
| GDP Growth Rate (%) | GDP\_Growth\_Rate\_Pct |
| 5 Year GDP Growth Rate (%) | Five\_Year\_GDP\_Growth\_Rate\_Pct |
| Unemployment (%) | Unemployment\_Pct |
| Inflation (%) | Inflation\_Pct |

* + For the happiness data:
    - Removed leading and trailing in the Country column
    - Retained all columns but renamed them

|  |  |
| --- | --- |
| **Column in CSV** | **Renamed Column** |
| Country (region) | Country |
| Ladder | Happiness\_Rank |
| Positive affect | Positive\_Emotion |
| Negative affect | Negative\_Emotion |
| Social support | Social\_support |
| Log of GDP  per capita | GDP\_Contribution |
| Healthy life  expectancy | Healthy\_life\_expectancy |

**Step 3: Load the data into MySQLWorkbench**

* Create a database called happiness\_db in MySQLWorkbench
* Within the happiness\_db, created two tables:
  + economic\_table – contains the economic freedom index data
    - Primary key is CountryID
  + happiness\_table – contains the happiness report data
    - Primary Key - an ID column was created with auto increment

**Analysis**

* Created correlation matrix, observing if there was a correlation between happiness rank (or any factors that were part of calculating the happiness score) and the Economic Freedom Index
* Did the same, isolating only the top 10 countries by Economic Freedom Index in one data frame, and only the bottom 10 countries in another data frame.

**Findings**

* Overall
  + Happiness Rank, Economic World Rank, R2= 0.67
  + Happiness Health Life Expectancy, Economic World Rank, R2 = 0.71
* Top 10 Countries Based on Economic Freedom Index Rank
  + Happiness Rank, Economic World Rank, R2= -0.45
  + Happiness Health Life Expectancy, Economic World Rank, R2 = 0.70
* Bottom 10 Countries Based on Economic Freedom Index Rank
  + Happiness Rank, Economic World Rank, R2= -0.35
  + Happiness Health Life Expectancy, Economic World Rank, R2 = -0.58

**Conclusion**:

The strongest correlation observed with the economic world rank in the overall data is with happiness and health life expectancy. However, when the data was analyzed as a subset of the top 10 and the bottom 10 countries, the same correlation was not observed except for health life expectancy in the top 10 countries. The lack of expected correlations in the data subsets is possibly due to a small data size(n=10) or to the presence of outliers.

In conclusion economic freedom affects people’s happiness and is linked to health life expectancy.