Introduction

"Money doesn't buy happiness" is a phrase we have all heard and many have accepted, but is it true? Those with more money not only have access to necessities, but also to nearly anything they desire, which should result in a happier life. Does a country's GDP per capita lead to higher happiness scores?
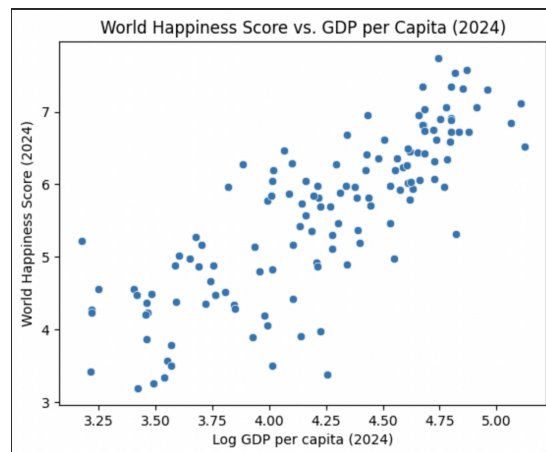
Data Methods

To investigate this question, I merged two datasets:

- GDP per capita (2024) from the World Bank.
- Happiness score (2024) from the *World Happiness Report*.

The sample consists of roughly 100 countries for which both GDP per capita and happiness data were available. For interpretability and to reduce right-skew in income, I used the log of GDP per capita in the analysis.

A scatterplot of happiness against log GDP per capita shows a clear upward trend: countries with higher income generally report higher levels of happiness.
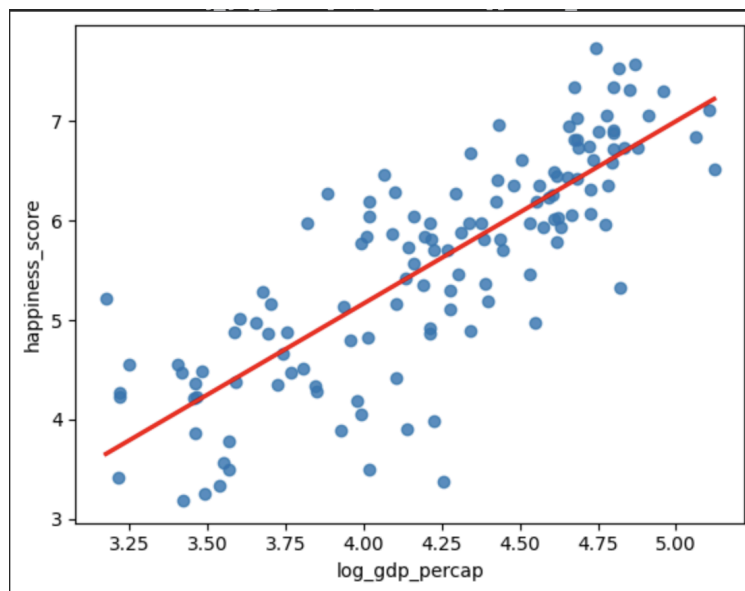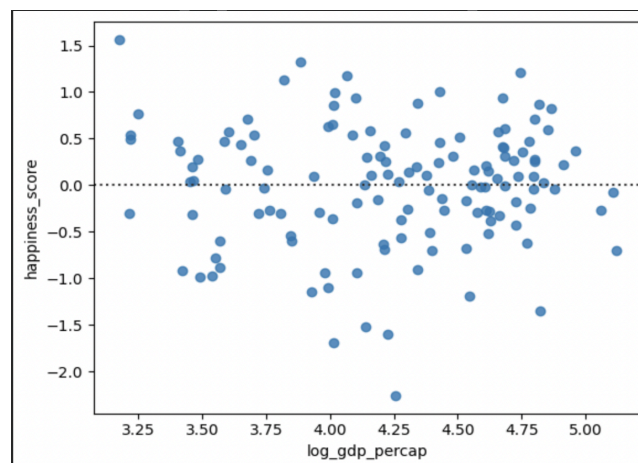
Statistical Methods

To formally test the relationship between economic prosperity and national well-being, I estimate the following linear regression model:

$$HappinessScore_i = \beta_0 + \beta_1(logGDPpc_i) + \varepsilon_i.$$

A fitted regression line overlays the scatterplot, suggesting a strong positive linear relationship.

To check for model validity, I plotted the residuals. They appear roughly centered around zero, though with some variation across income levels. To address potential heteroskedasticity, robust standard errors were considered.

Results

The regression output is as follows:

```
==============================================================================
                  coef     std err         t      P>|t|      [0.025      0.975]
------------------------------------------------------------------------------
Intercept       -2.1655      0.502     -4.316      0.000      -3.158      -1.173
log_gdp_percap   1.8333      0.118     15.567      0.000       1.600       2.066
==============================================================================
```

Interpretation:

- The coefficient on log GDP per capita (1.8333) is positive, large, and highly statistically significant ($p < 0.001$).
- Substantively, this means that a 1-unit increase in log GDP per capita is associated with an approximate 1.83-point increase in a country's happiness score on a 0–10 scale.
- The relationship is strong and positive: wealthier countries are reliably happier.

Plots confirm this result, the regression line rises steadily across log GDP levels, and the residuals appear approximately centered.

Sources

- World Bank (GDP per capita)
- World Happiness Report
- Python, Pandas, Matplotlib, Statsmodels in Google Colab