

Education Spending and Citizen Happiness: A Comparative Analysis

Executive Summary

The pursuit of happiness and well-being has become increasingly paramount in societal discourse, alongside traditional economic indicators. This study delves into the correlation between a country's education spending and the happiness of its citizens, as well as the specific relationship between tertiary education expenditure and national happiness. By analyzing datasets from the World Happiness Report 2023 and the World Bank, this study aims to shed light on these interconnections.

Introduction

In recent years, there has been a growing recognition of the importance of happiness and well-being in addition to conventional economic metrics. Understanding the factors that contribute to national happiness is crucial for policymakers seeking to improve societal welfare. Education is considered a key determinant of individual well-being, as it enhances life chances and expands opportunities. This study investigates whether a country's investment in education, both overall and in tertiary education specifically, correlates with the happiness of its populace.

Data Sources

This study draws upon data from two primary sources:

1. World Happiness Report 2023:

- The World Happiness Report, published annually by the Sustainable Development Solutions Network, provides insights into national happiness levels across the globe. The 2023 edition, edited by Helliwell et al., serves as a comprehensive resource for understanding subjective well-being worldwide. The report is freely downloadable, implying that the work is in the public domain as long as the citation below is given:
 - Helliwell, J. F., Layard, R., Sachs, J. D., Aknin, L. B., De Neve, J.-E., & Wang, S. (Eds.). (2023). World Happiness Report 2023 (11th ed.). Sustainable Development Solutions Network.
- Access the World Happiness Report [here](#).

2. World Bank Open Data Portal:

- The World Bank Open Data portal offers a wide array of datasets, including information on education expenditure as a percentage of GDP for various countries. This data, obtained under the Creative Commons Attribution 4.0

International license (CC-BY 4.0), provides valuable insights into countries' investments in education.

- Access the World Bank Open Data portal [here](#).

Data Collection Dates:

- The World Happiness Report 2023 data was retrieved from the report's website on May 30, 2023.
- Data on education expenditure from the World Bank Open Data portal was accessed on August 19, 2022.

Research Objectives

The primary objective of this study is to investigate the potential correlation between a country's expenditure on education and the happiness levels of its population. Specifically, we aim to address the following research questions:

1. Is there a relationship between the amount that a country spends on education as a proportion of its GDP, and the happiness of that country's citizens?

2. Is there a relationship between the amount that a country spends on tertiary education as a proportion of its GDP, and the happiness of that country's citizens?

Data

You can find data in the `data` directory as:

```
data/happiness_2023.xls
data/world_bank_education_data.csv
```

4. Visualise the data

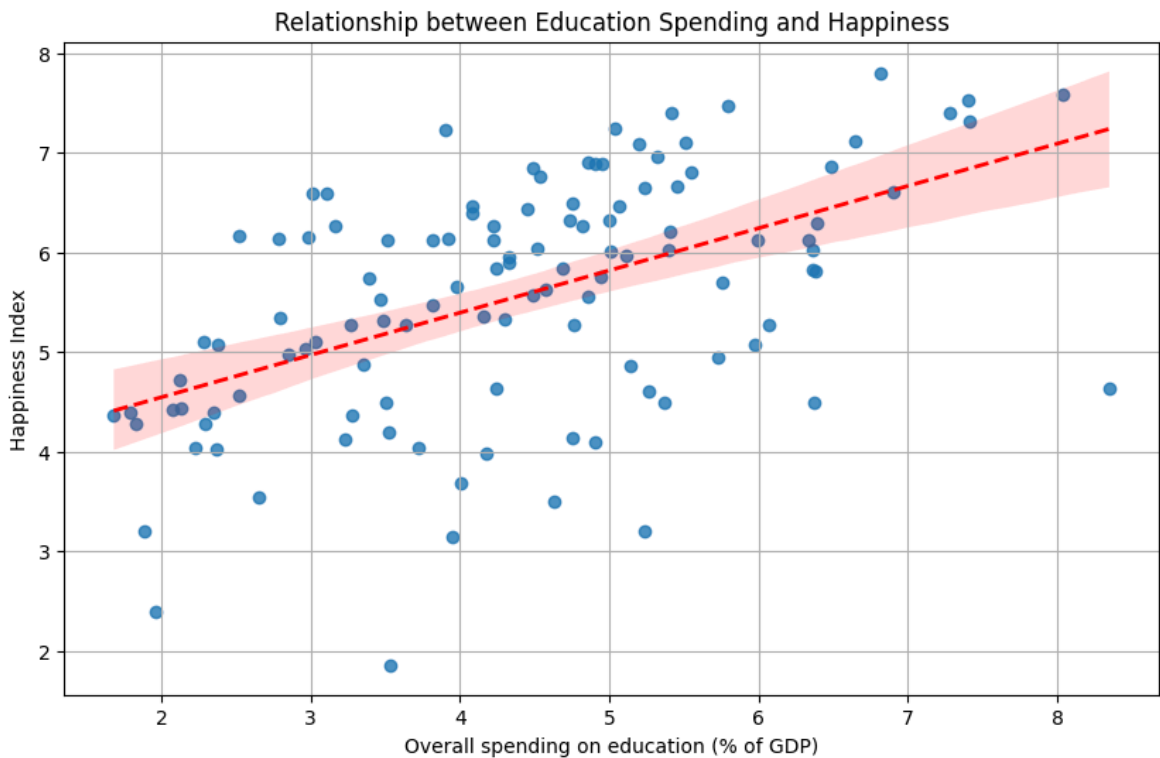
Question 1

Is there a relationship between the amount that a country spends on education as a proportion of its GDP, and the happiness of that country's citizens?

```
In [62]: plt.figure(figsize=(10, 6))

# Scatter plot with regression line
sns.regplot(x='Overall spending on education (as % of GDP)',
            y='Happiness index',
            data=plot_df,
            scatter_kws={'alpha':0.8},
            line_kws={'color': 'red', 'linestyle': 'dashed', 'linewidth':
plt.title('Relationship between Education Spending and Happiness')
```

```
plt.xlabel('Overall spending on education (% of GDP)')
plt.ylabel('Happiness Index')
plt.grid(True)
plt.show()
```



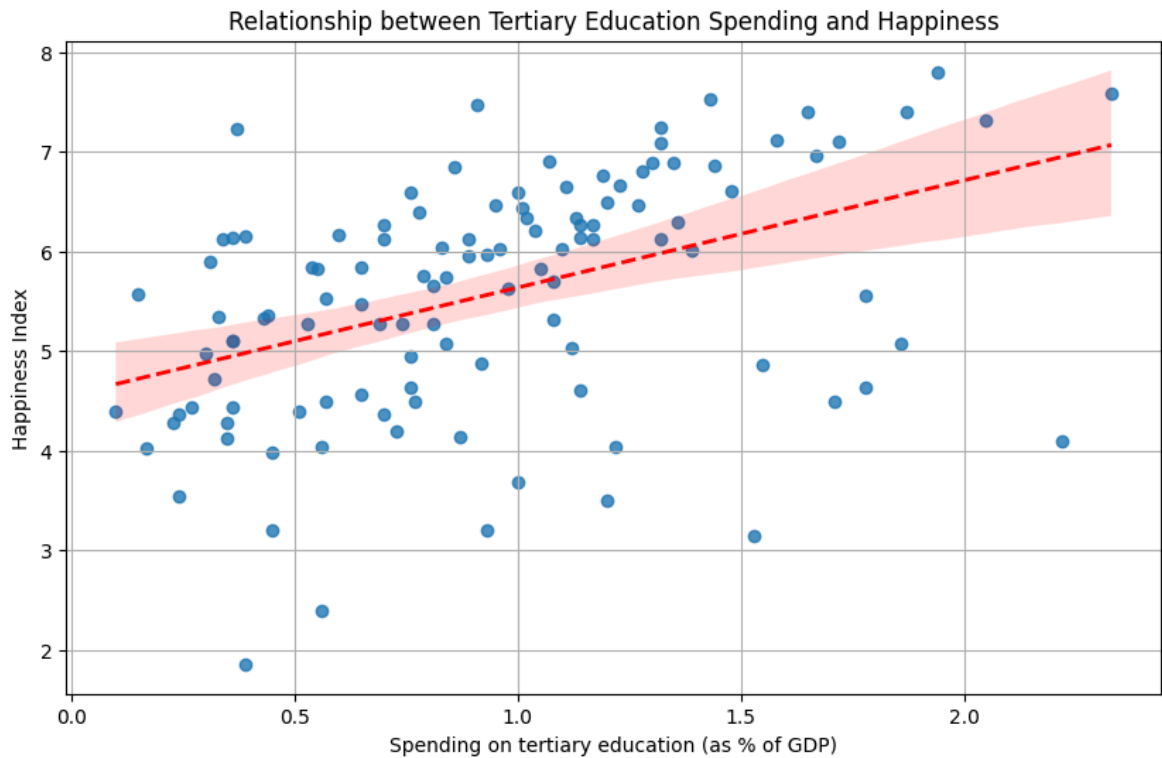
Question 2

Is there a relationship between the amount that a country spends on tertiary education as a proportion of its GDP, and the happiness of that country's citizens?

```
In [63]: plt.figure(figsize=(10, 6))

# Scatter plot with regression line
sns.regplot(x='Spending on tertiary education (as % of GDP)',
            y='Happiness index',
            data=plot_df,
            scatter_kws={'alpha':0.8},
            line_kws={'color': 'red', 'linestyle': 'dashed', 'linewidth':

plt.title('Relationship between Tertiary Education Spending and Happiness')
plt.xlabel('Spending on tertiary education (as % of GDP)')
plt.ylabel('Happiness Index')
plt.grid(True)
plt.show()
```



Conclusion (Interpret the plots)

Relationship between Overall spending on education and Happiness

The observed regression line in the plot implies a positive correlation between the overall spending on education (as a percentage of GDP) and the happiness index. This suggests that, on average, countries tend to experience higher happiness levels with increased investment in education. However, the presence of scattered outliers across the plot is noticeable and shows instances where this correlation is not consistently robust.

Relationship between Spending on Tertiary Education and Happiness

Similar to the previous scenario, the graph describing the relationship between spending on tertiary education and the happiness index reveals a positive correlation. This suggests that, on average, countries investing more in tertiary education tend to enjoy higher happiness levels. However, the correlation's strength is influenced by numerous outliers across the plot, rendering this correlation not consistently robust, much like the previous scenario.

In []: