DSA210 Project Part 2

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Global Trends: The Basics of Happiness

When we look at all countries together, we see that basic development is the biggest driver of happiness.

Technology and Infrastructure

"Individuals using the internet" has a very high correlation (Pearson 0.82), even higher than electricity (Pearson 0.7). This means connectivity is closely tied to national well-being.

Human Capital

Health and education are critical. The Human Capital Index has one of the highest correlations (0.81). Life expectancy is also very strong (0.8).

Birth Rate

There is a clear negative correlation (-0.7). Countries with lower birth rates tend to be happier. This often links to better education and career opportunities for women.

Government

"Government Effectiveness" matters a lot globally (0.77). People want a government that works.

The Top 30: When Basic Needs are Met

When we look only at the 30 happiest countries, the picture changes. Basic needs like electricity no longer affect the score because these countries already have 100% access. Instead, "higher-level" needs become important.

Freedom and Rights

"Voice and Accountability" becomes one of the strongest factors (Correlation 0.66, Spearman 0.79). This factor was not very visible in the global data, but for rich countries, freedom of speech and democratic rights are essential for happiness.

Corruption

Controlling corruption is much more important for the Top 30 (0.63) than it is for the global average.

Education Spending

Government expenditure on education shows a clear linear effect (0.66) in this group, whereas it was not very clear in the global data.

The Renewable Energy Shift

Globally, renewable energy consumption had a negative impact. However, in the Top 30, it has a positive effect. This suggests that wealthy countries might value "green" policies more, or they can afford the transition better.

The Bottom 30: A Noisy Picture

For the 30 countries with the lowest life evaluation, it is very hard to find a clear pattern.

Low Correlations

Almost every index that was important globally loses its predictive power here. The correlations drop significantly (often becoming very weak).

Few Drivers

The only factors that seem to keep a relationship are CO2 emissions (likely due to industrial activity increasing GDP), GDP itself, and Rule of Law.

Conclusion

This suggests that in struggling nations, happiness is likely driven by factors we are not measuring here, such as war, political instability, or immediate safety, rather than standard economic statistics.

Interesting Anomalies

- **CO2 Emissions:** There is a big difference between the Pearson (linear) and Spearman (rank) correlation globally. This is largely due to outliers like China (high CO2, medium happiness) and the USA (high CO2, high happiness).
- **Government Health Expenditure:** This is very important globally (0.72) but drops in importance for the Top 30 (0.5). This might be because all top countries already have decent health systems, so spending *more* doesn't automatically make people happier.

Suggestions for Future Exploratory Data Analysis (EDA)

To improve our understanding of the data, future analysis could focus on several key areas. We should remove large outliers like China and the USA to clarify the true relationship between CO2, GDP, and happiness, while also grouping countries by region (such as Europe or Asia) to see if culture influences how people rate their well-being. It would also be valuable to look at the data over time to see if a country becomes happier immediately after its economy grows, rather than just using ten-year averages. Finally, using a computer algorithm to group countries automatically could reveal interesting categories that simple sorting misses, such as nations that are wealthy but surprisingly unhappy.