



ANALYSING GLOBAL GOVERNMENT SPENDING

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A vertical stack of US one-dollar bills is positioned on the left side of the slide. The bills are slightly overlapping, showing various serial numbers and green seals. The background is white.

OUTLINE

1. Motivation and Objective
2. Dataset Overview
3. Data Analysis and Visualization
4. Conclusion

Motivation And Objective



Getting a clear and transparent view of the expenditure made by governments and the effect of those investments.

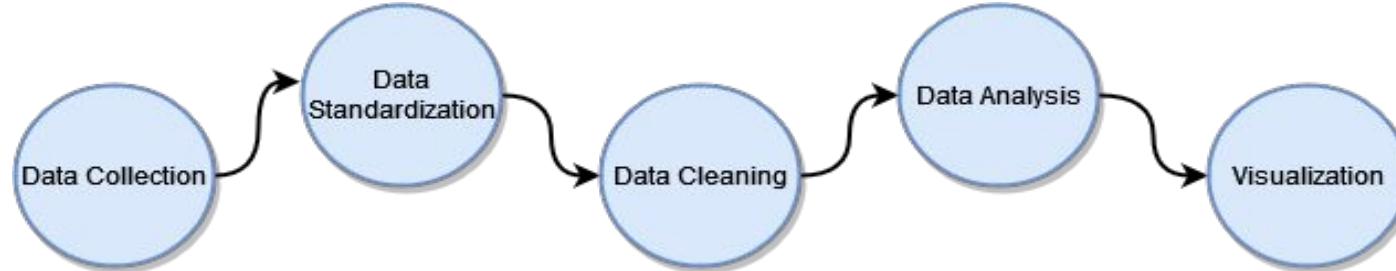
Dataset Overview

SOURCE

- OurWorldinData.org
- World Bank Open Data
- OECD Databank



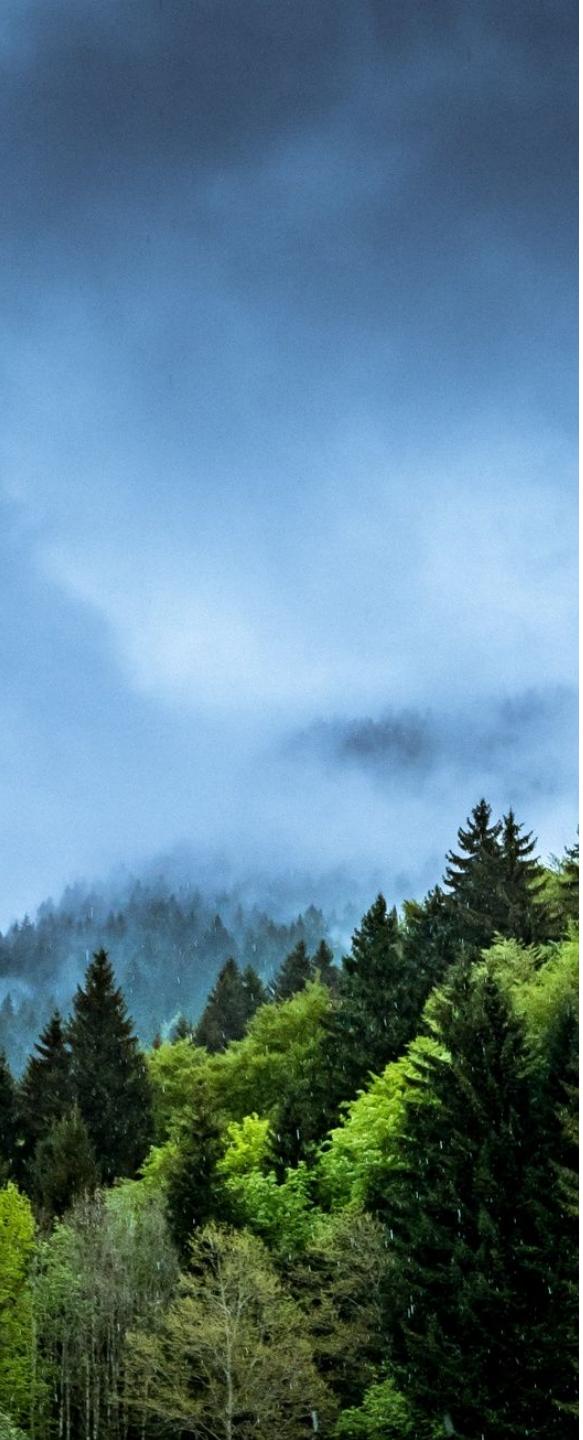
EDA Procedure



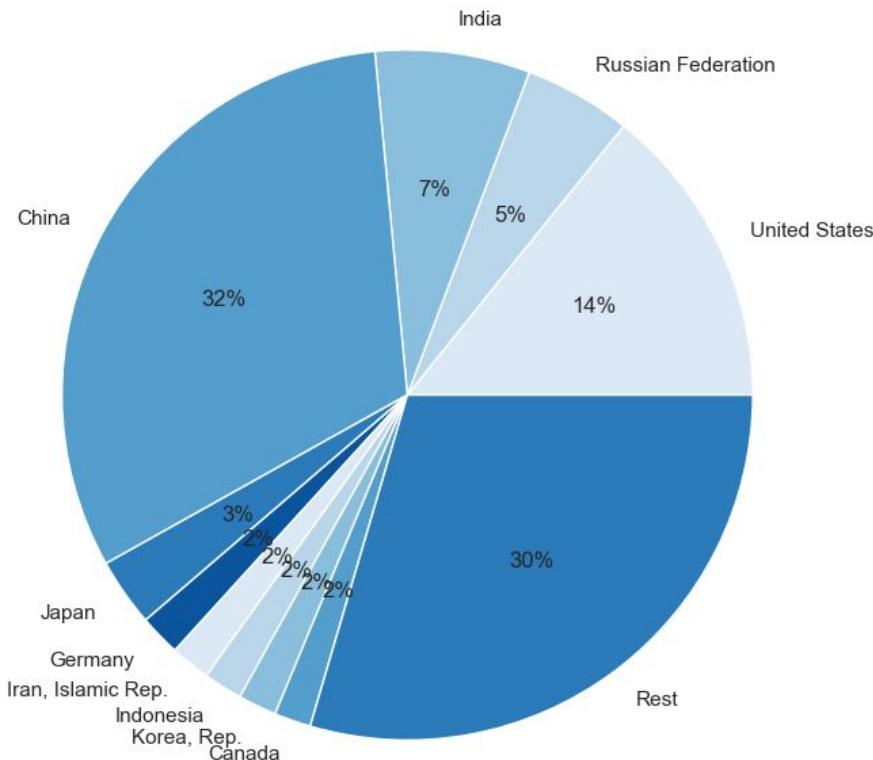


Can climate action and economic growth co-exist?

Are governments succeeding in the fight against climate change?



CO₂ Emission Concentrated on Few Countries

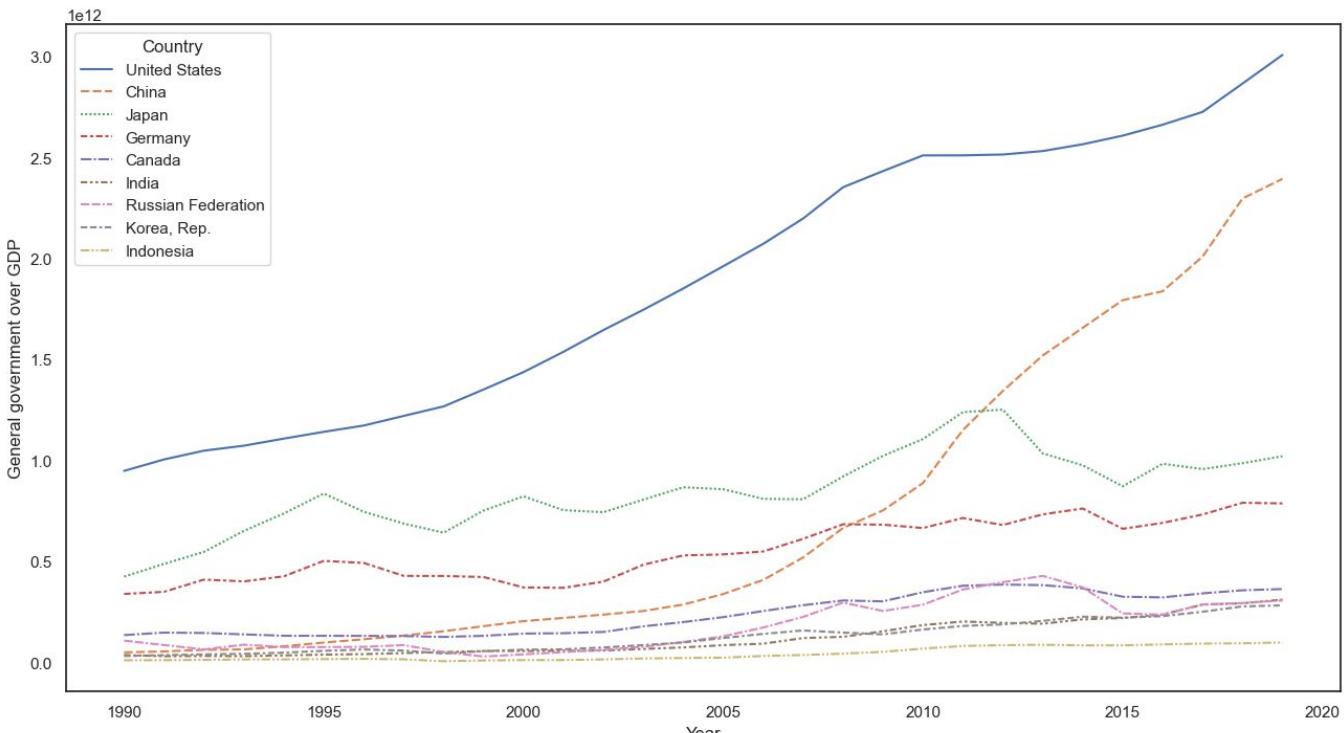


CO₂ emission share in 2020.

In 2020, top 9 countries emit more than 70% of total CO₂.

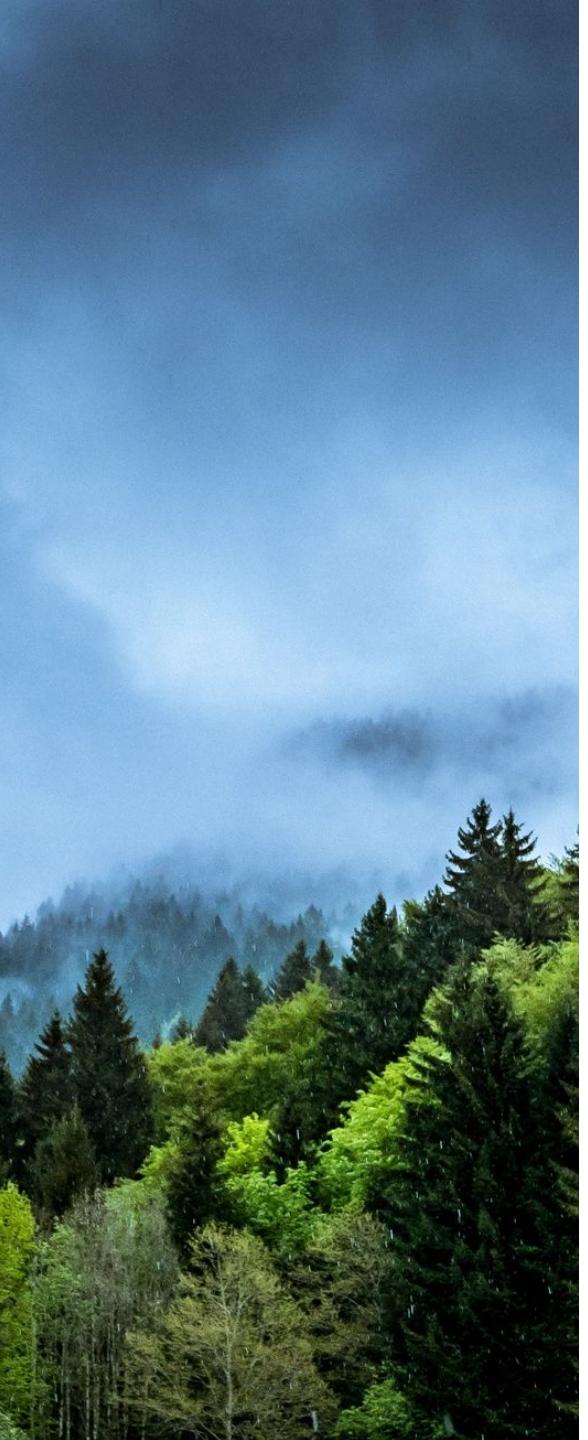
In the following part we will mainly analyze the relationship between CO₂ emission and government spending of these countries.

GDP Growth of Countries

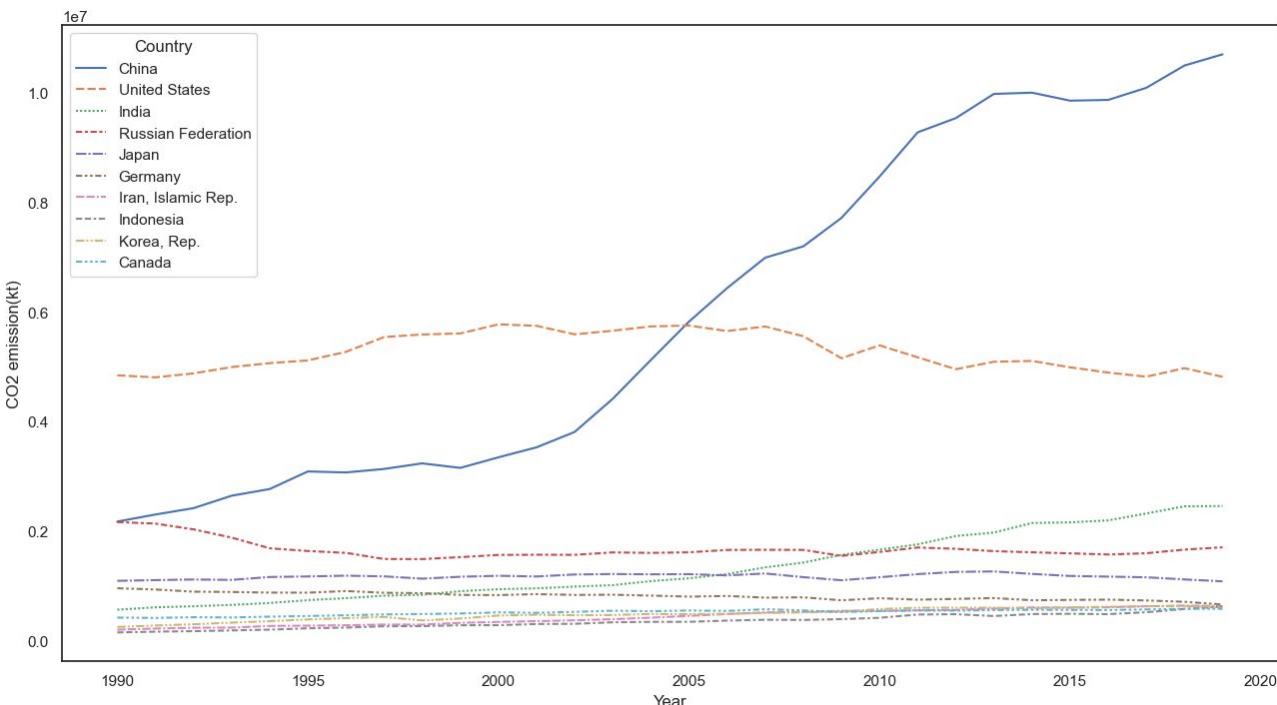


GDP of most countries increased rapidly in the last 30 years

GDP of top 10 countries from 1990-2020.



CO₂ Emission Grows at the Same Time

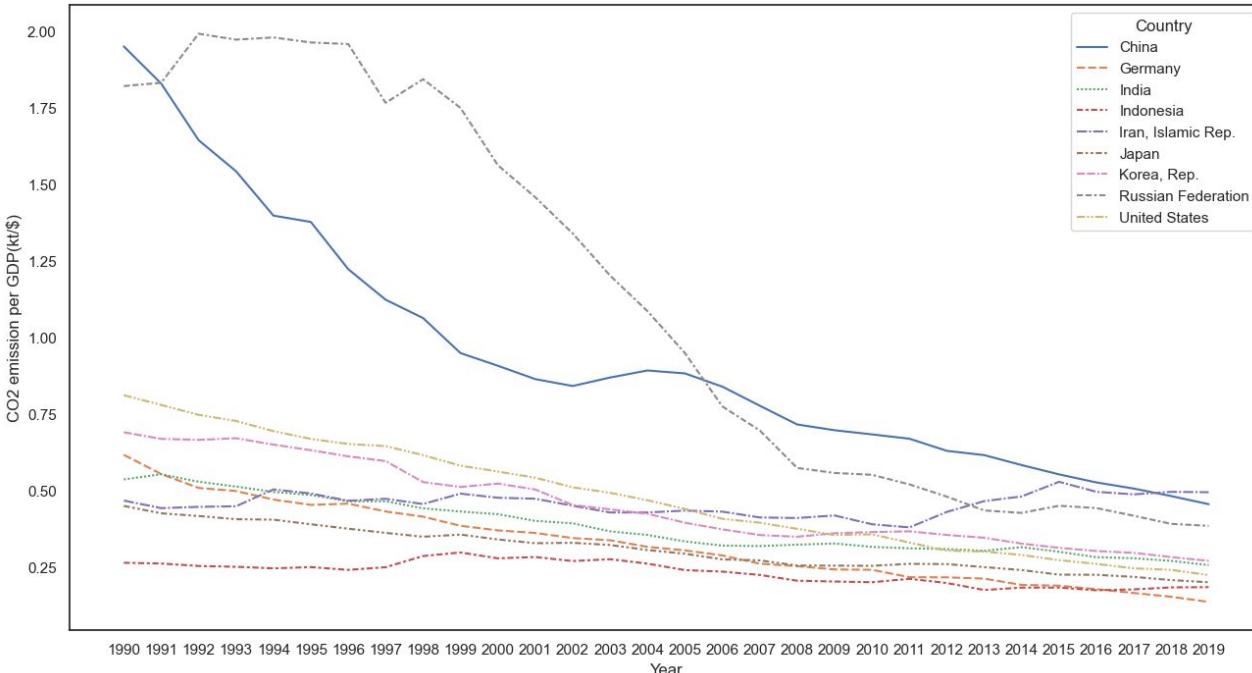


CO₂ emission of top 10 countries from 1990-2020.

Developed countries are emitting equal or less CO₂ than previous years

Developing countries are emitting more

CO₂ Emission Per GDP Decreases

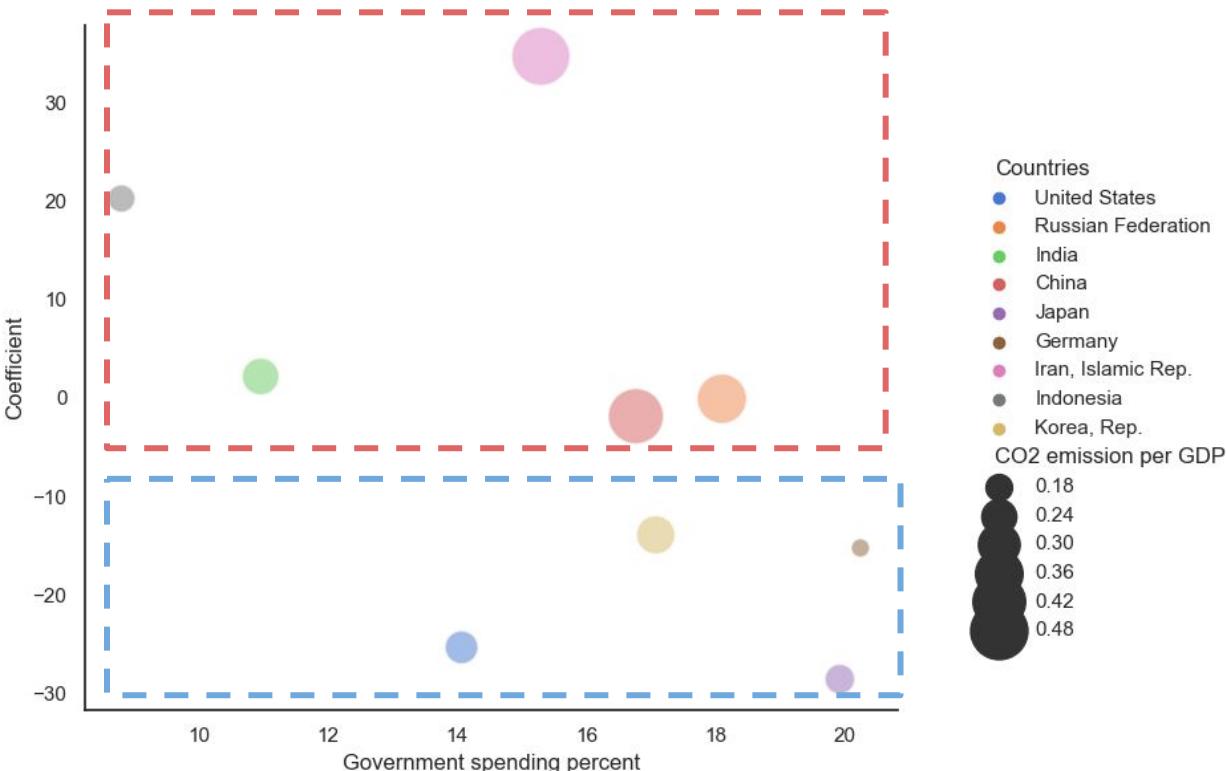


CO₂ emission per GDP of top 10 countries from 1990-2020.

CO₂ per GDP is decreasing for most of countries, which shows a growing awareness of environmental protection.

Is this trend related to government spending?

Relationship Between CO₂ and Government Spending Varies



We perform linear regression between CO₂ emission per GDP and Government spending percent.
Y-axis shows the coefficient.

For developed countries, CO₂ emission per GDP decrease when Government spending increase and vice versa for developing countries.

Coefficient between CO₂ emission and government spending.

Developed Countries Developing Countries

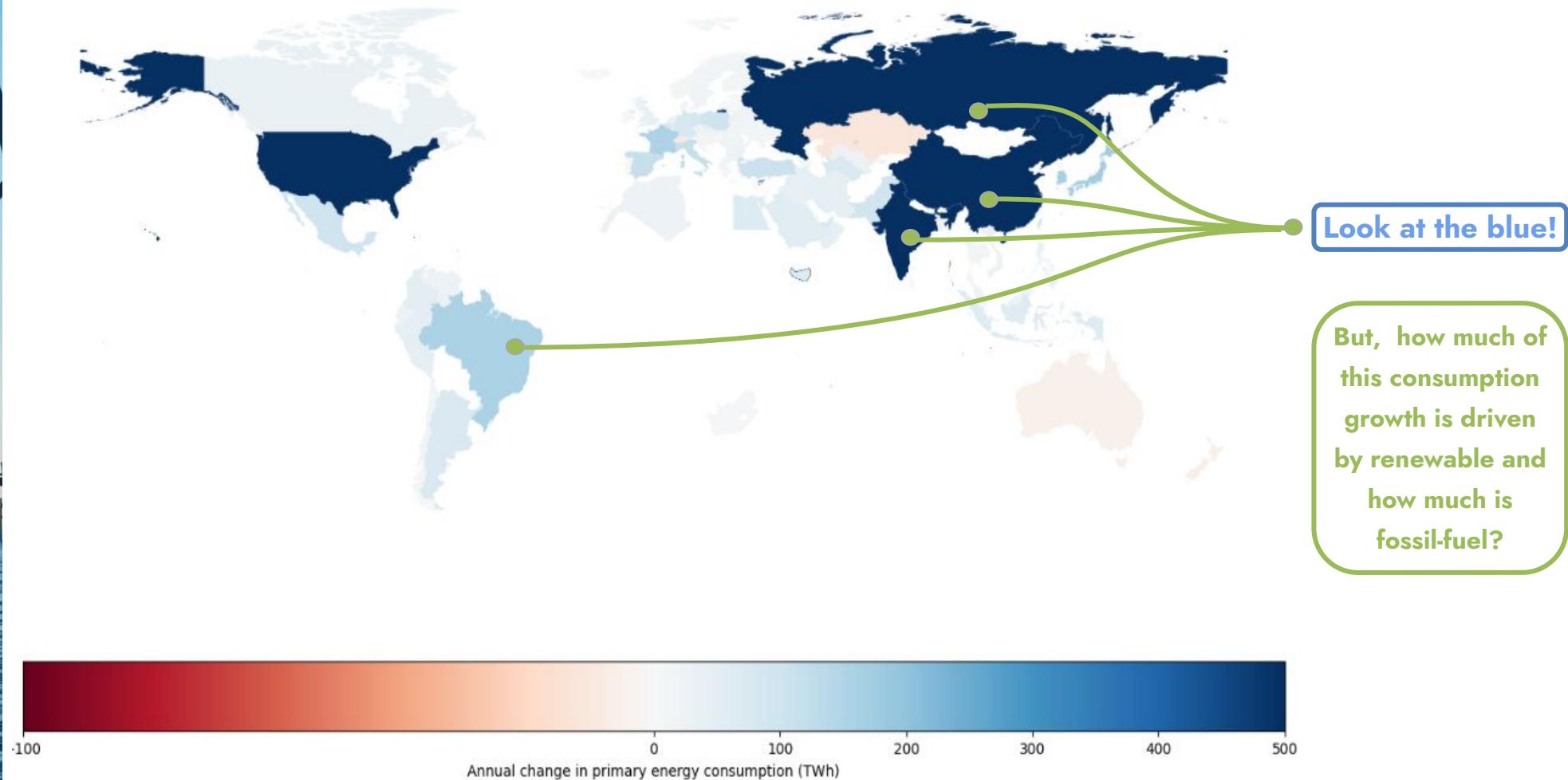


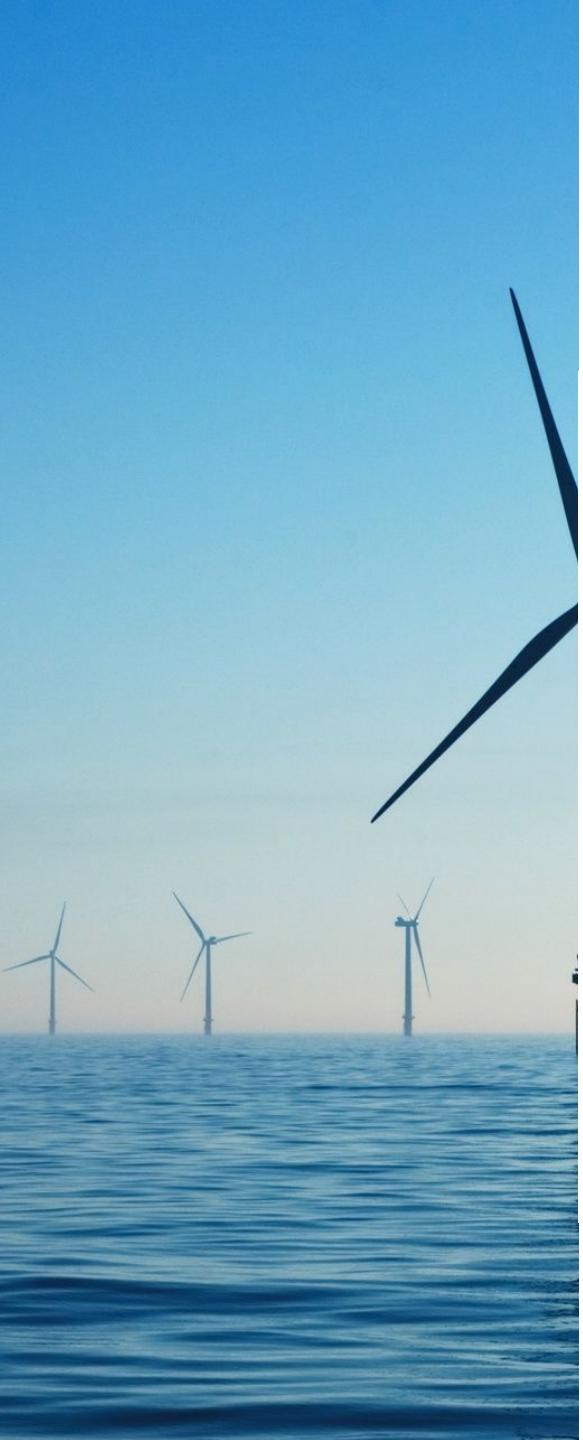
If developing countries are increasing CO₂ emissions while the developed world has reduced their emissions, are we actually making progress on an overall reduction?



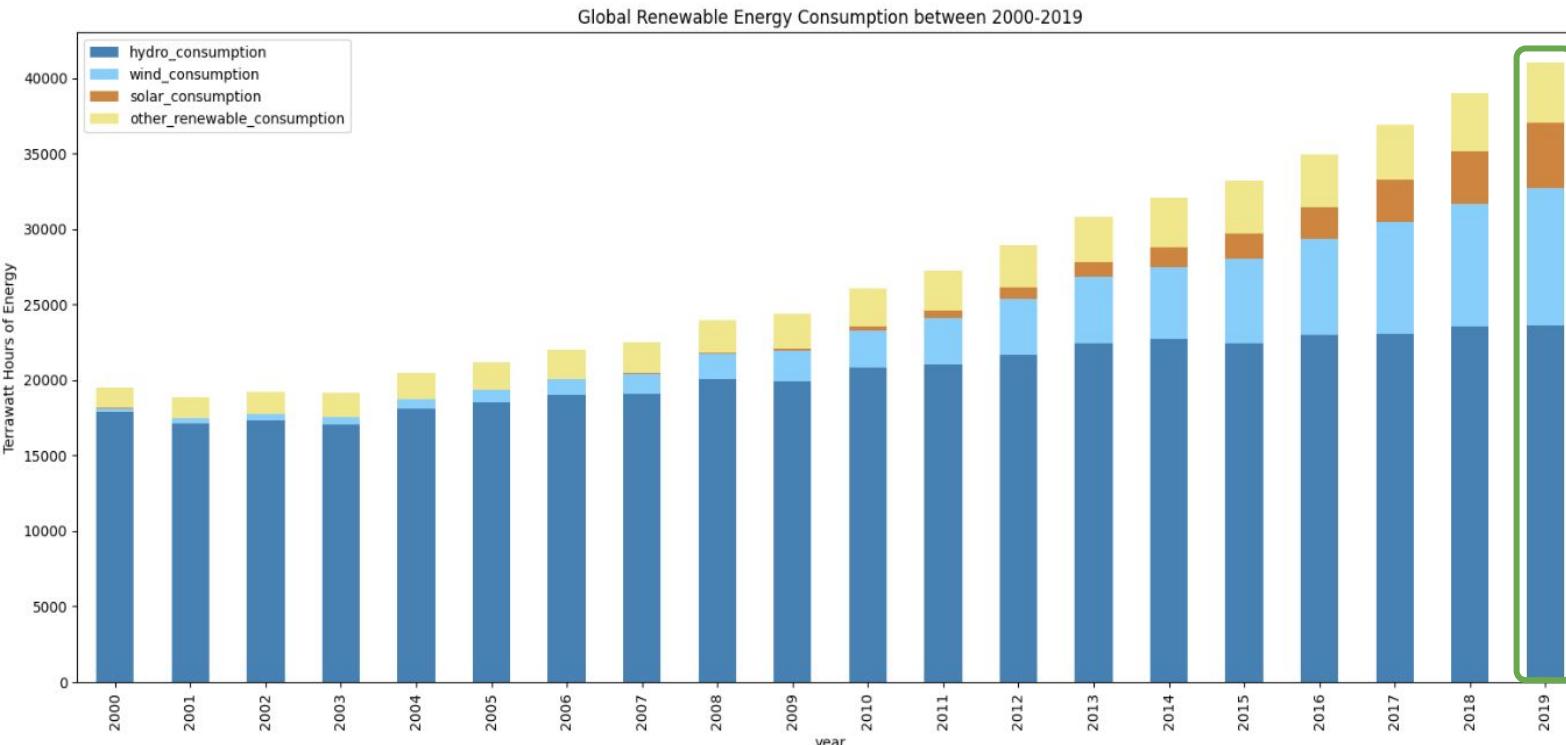
Energy Consumption is Increasing Globally

Annual Increase in Total Energy Consumption (2021 - 2022)





Renewable Energy Consumption Has Doubled Over Last 20 Years

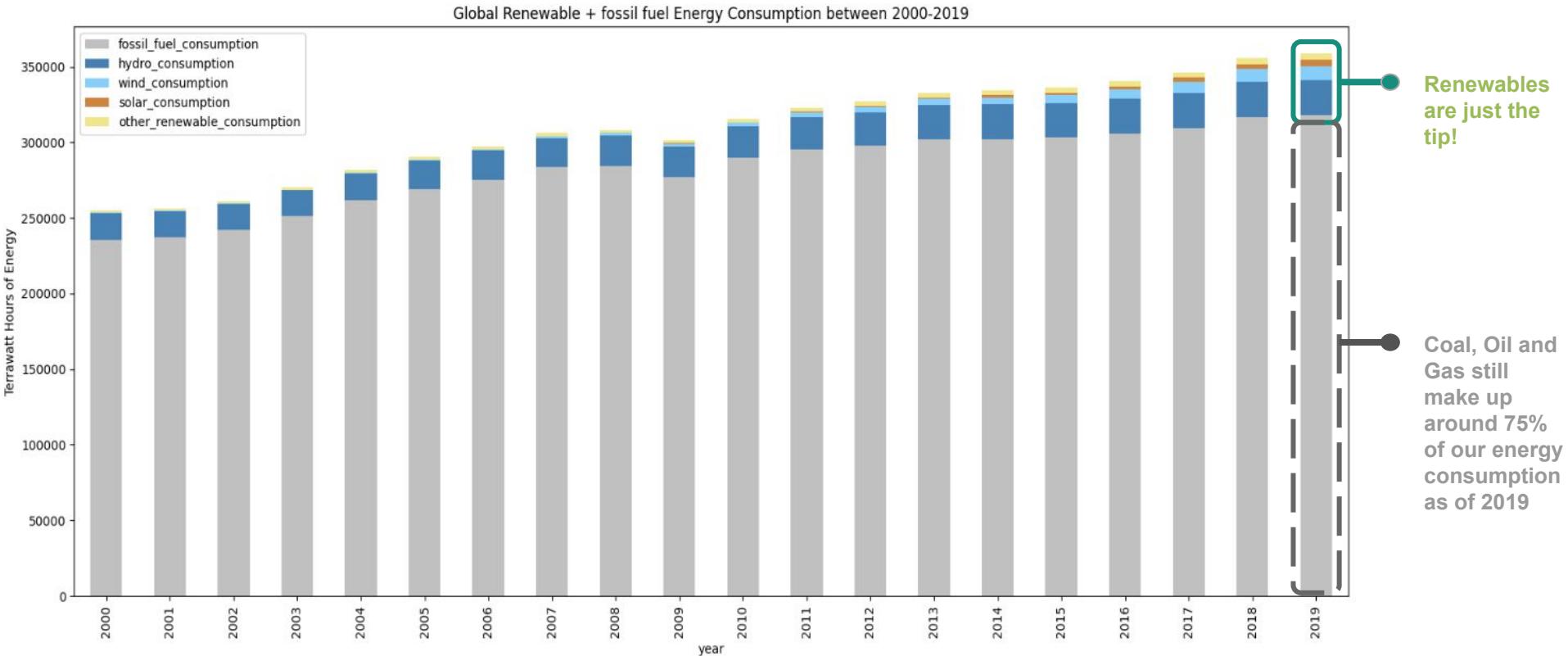
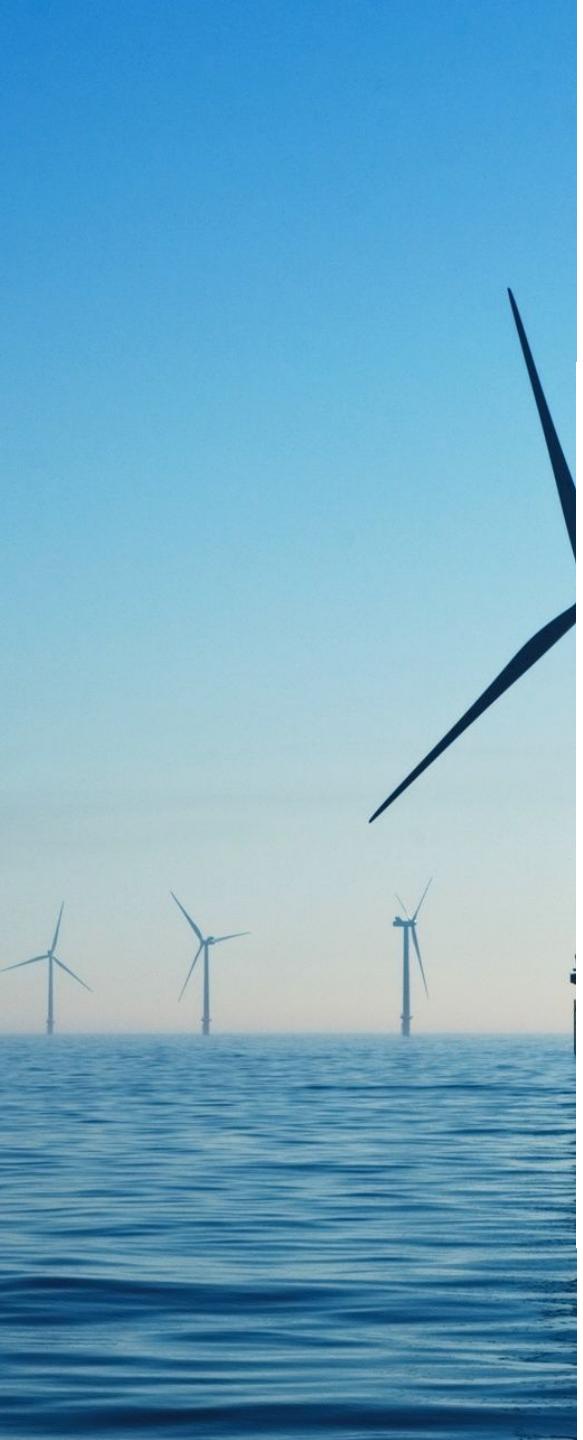


40,000 TWh of renewable energy was consumed globally in 2019, as compared to 20,000 TWh consumed in the year 2000

- But, how does this renewable energy consumption stack up to fossil fuel consumption?
- Is renewable energy making a dent in our fossil fuel purchases- are we purchasing less fossil-fuels ?

Let us take a look at the Growth in consumption for all sources, fossil fuels included, to put the above growth in perspective.

Putting Our Renewable Energy Progress in Perspective

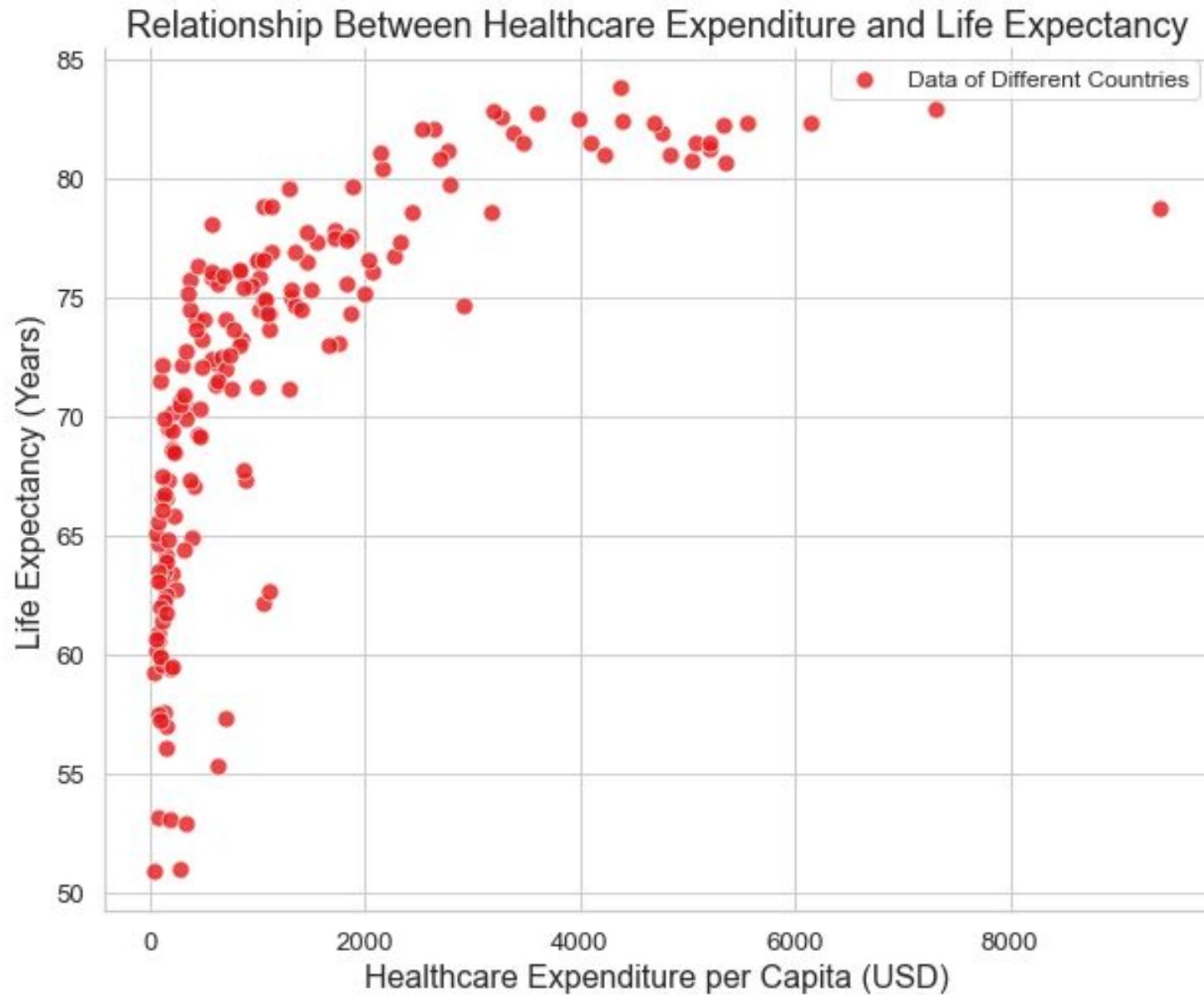


We consumed around 270,000 TwH worth of foss-fuels in comparison to 40,000 TwH of renewable energy in the year 2019. We still have a long way to go!



Does increasing healthcare expenditure result in a greater life expectancy?

Life Expectancy Increase



Increased government spending on healthcare can lead to longer life expectancies, which in turn can lead to a healthier and more productive population, and ultimately, a stronger economy.

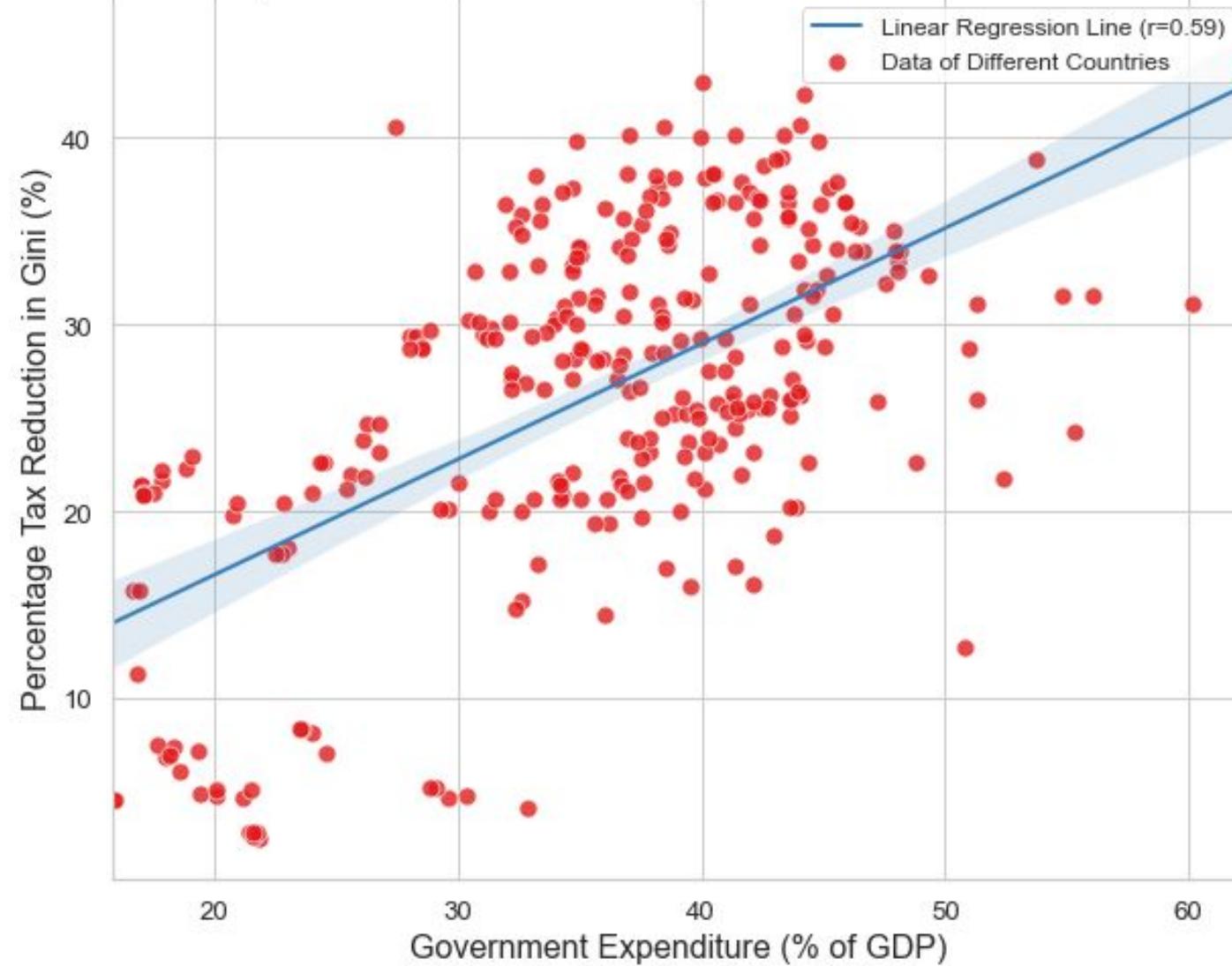


Does increasing government spending make a difference in the economic status of its people?

Inequality Reduction



Relationship Between Government Expenditure and Tax Reduction in Gini



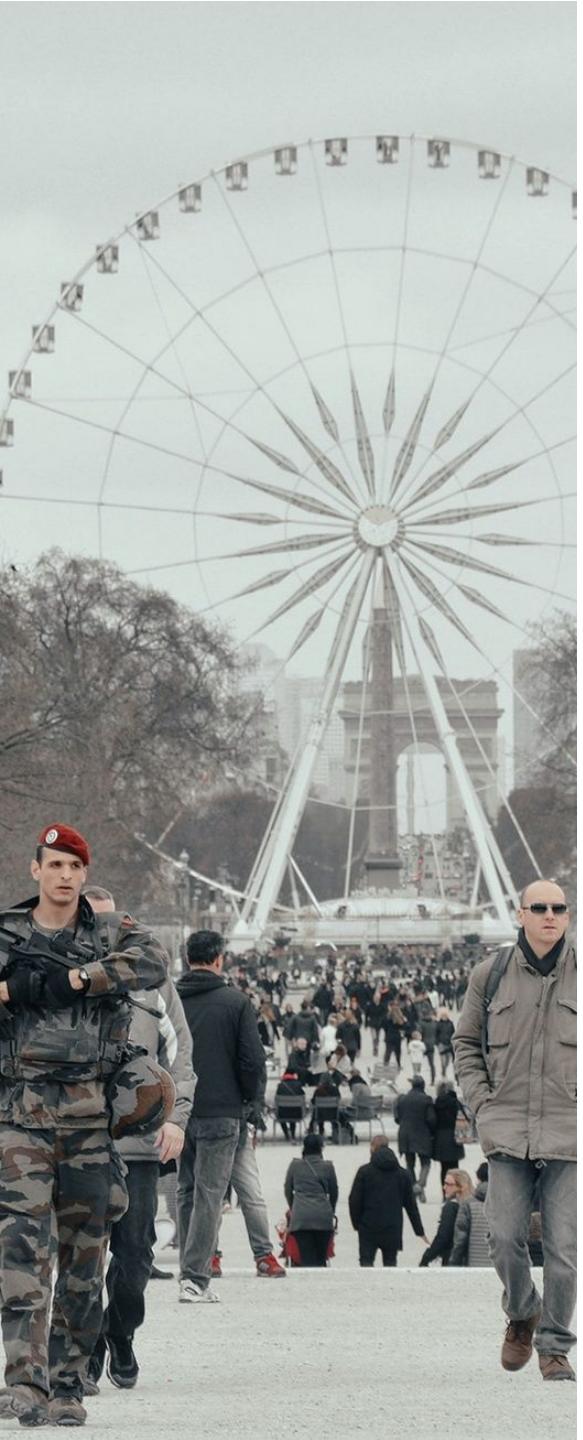
The Gini Coefficient reduction is caused by tax redistribution. The graph shows that when government expenditure increases, the Gini Coefficient tend to reduce.

Inequality will hurt economic growth, so reducing inequality will booster the economic growth by leading to a more equitable and prosperous society.

The Gini coefficient: a measure of income or wealth distribution within a population. (0 represents perfect equality, 1 represents the perfect inequality.)

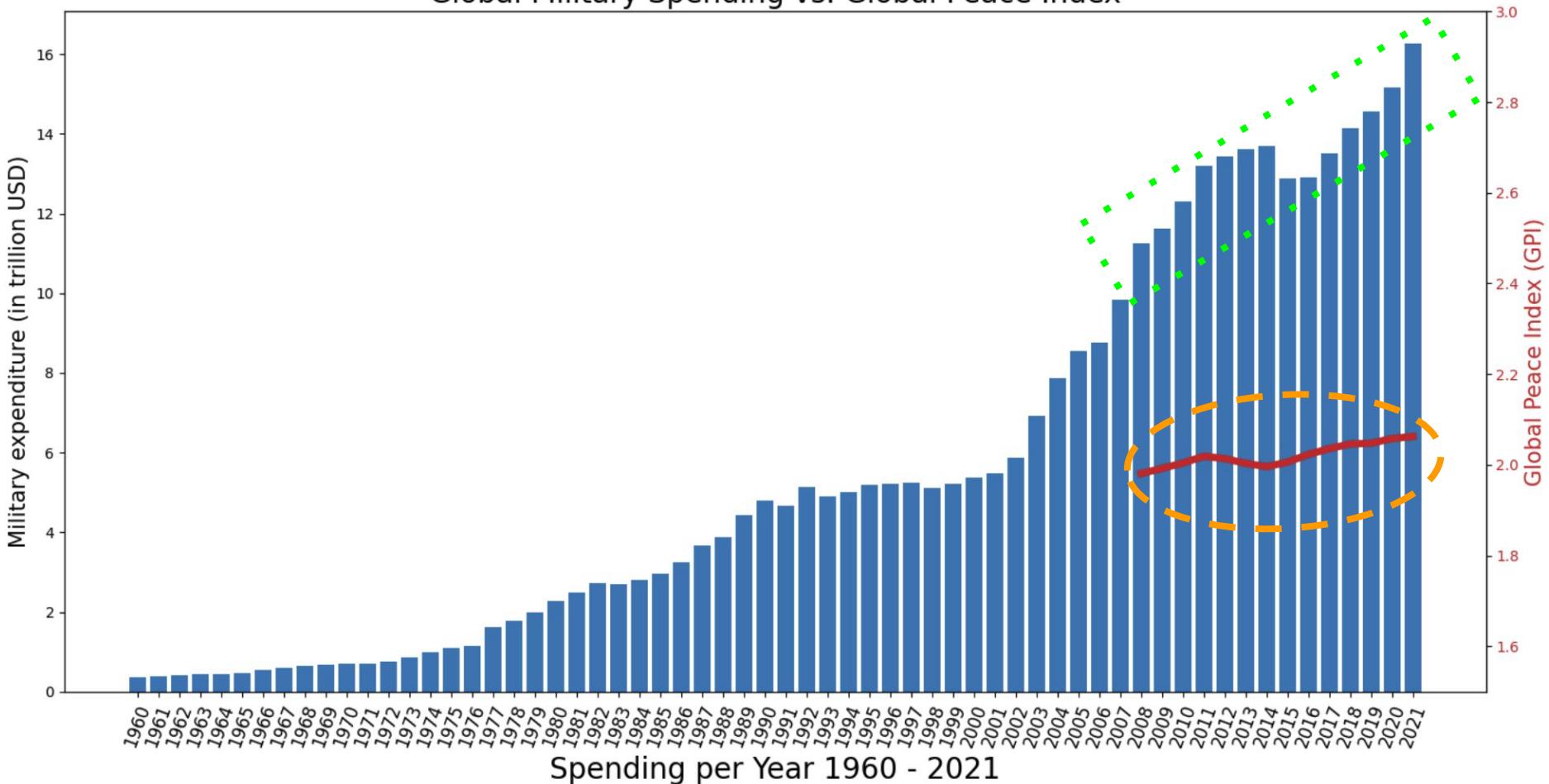


Can government spending on military make the world more peaceful?



Global Military Spending

Global Military Spending vs. Global Peace Index



Global Peace Index (GPI) is a report produced by the Institute for Economics & Peace (IEP) which measures the relative position of nations' and regions' peacefulness. The GPI ranks 163 independent states and territories (collectively accounting for 99.7 per cent of the world's population) according to their levels of peacefulness. It ranks nations with a score of 1-5, with 1 being the most peaceful and 5 being the least peaceful. The data from this report is only available from 2008.

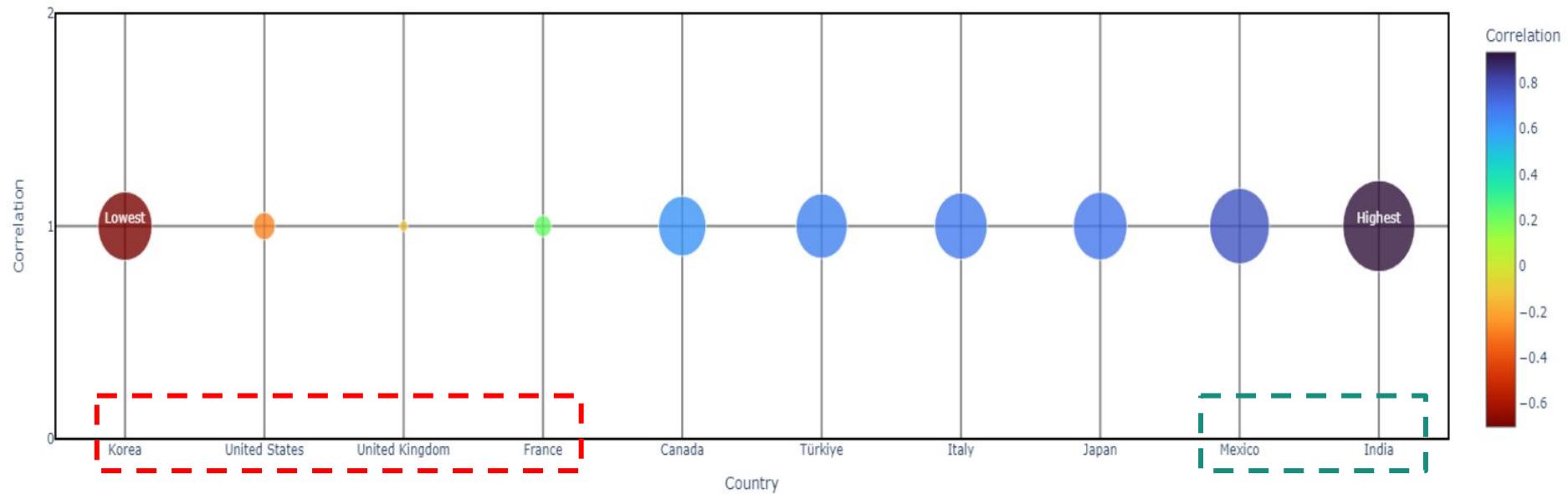


How effective is current global infrastructure spending?



Infrastructure Spending - Highways

Correlation between Investment Capital in Road infrastructure and the volume of Freight operated through Roads



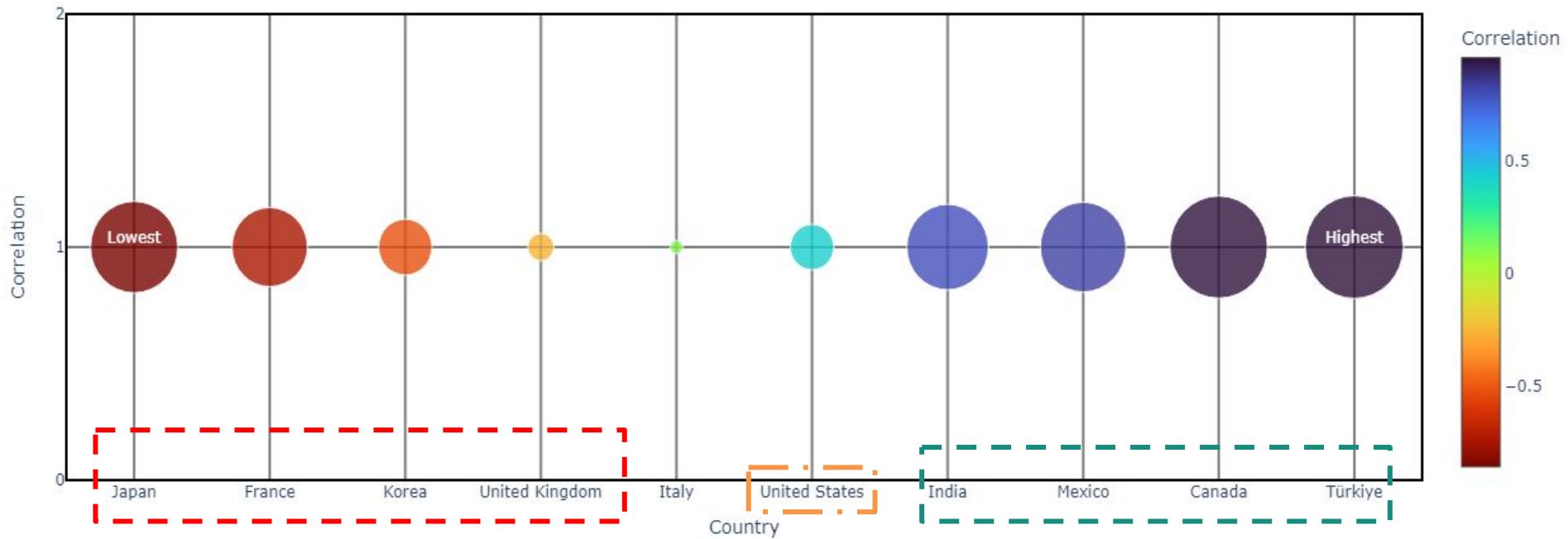
Developed nations on one hand see that trade isn't heavily reliant on highway construction.

Developing nations benefit a lot because of the expenditure on highways with respect to trade and logistical hassles.



Infrastructure Spending - Railways

Correlation between Investment Capital in Rail infrastructure and the volume of Freight operated through Rail



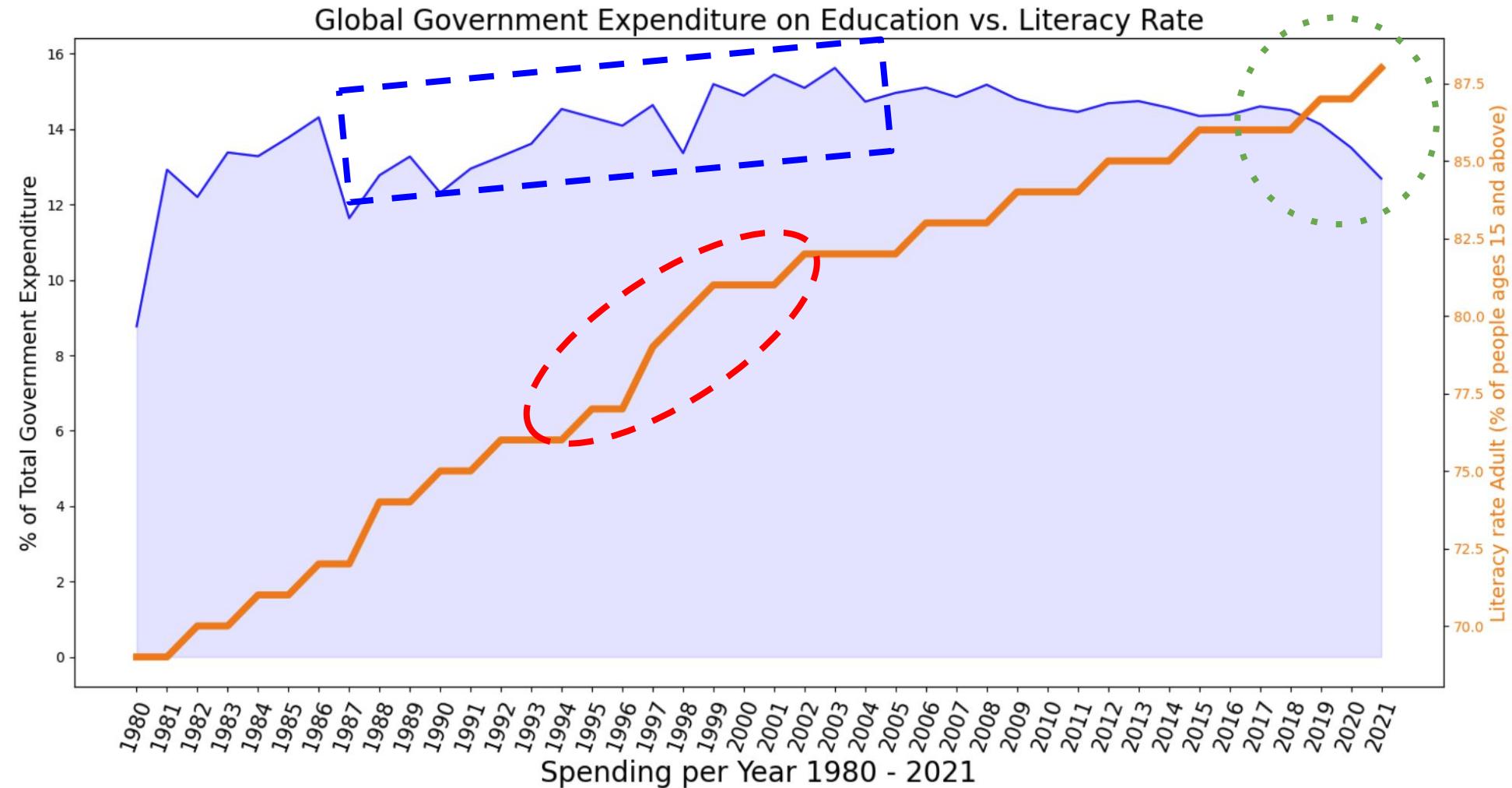
Developed nations on one hand see that trade isn't heavily reliant on highway construction.

USA here is a unique case and its logical because of the size of the country

Developing nations benefit a lot because of the expenditure on highways with respect to trade and logistical hassles.



Is the World Learning as fast as it should?



- Early 2000s witnessed a significant rise in literacy rate of 10% point within a span of 5 years with consistent government spending
- In the late 2010s, the literacy rate of the world continues to grow at 2% YoY even with reduced spending on education, indicating a self-sufficient global learning environment.

Environment



Renewable Energy



Healthcare



Inequality Reduction



Military



Infrastructure



Education



CO2 emission reduction **Renewable Energy Increase**



Renewable Energy Increase **Life Expectancy Increase**



Life Expectancy Increase



Gini Coefficient Reduction



Peace Index Increase



Transportation Benefits



Literacy Rate



Government expenditure really contributes to normal people's lives

A photograph of a young woman with long brown hair, wearing a light-colored blouse. She is resting her chin on her hand and looking upwards and to the right with a thoughtful expression. Above her head, there is a white chalk-style drawing of a brain with many arrows pointing in various directions, symbolizing thought or complex decision-making.

Conclusion

- A ***more data analytical approach*** needs to be taken by governments while budgeting depending on where the country is positioned now in the growth trajectory in sectors like infrastructure.
- All countries should invest ***more capital in improving primary indices*** like health care, education, demographics for a healthy society.
- A ***calibrated expenditure*** in the areas of climate change and military is the need of hour to see better and faster returns.