

Does the HDI (Human Development Index) affect the CO2 Emissions of a country

Introduction

We aimed to find out if the HDI affects the CO2 emissions of a country.

The Human Development Index is a summary measure of a country's average achievement in three basic aspects of human development: health, education, and standard of living. The scale of the HDI goes from 0 to 1, with 0 meaning low development and 1 meaning high development.

The CO2 emissions of a country are emissions created from the burning of fossil fuels for energy. There are many contributors to CO2 emissions but the main reason is for industrial processes. They are measured in metric tons.

Method

We chose 15 different countries from a variety of continents and HDI rankings.

- The HDI for each country listed was found on the website; hdr.undp.org (reference 1) for the year 2020.
- The CO2 emissions were found on the website; worldpopulationreview.com (reference 2) also for the year 2020.

We put all the information found on both HDI and CO2 emissions into an excel document. From there we converted the information into three different types of charts.

We chose the year 2020 for both HDI and CO2 emissions as it was the most recent year available on both websites.

The range was calculated for both HDI and CO2 Emissions. However, we didn't calculate the mean, median and mode as it was not relevant to our research project.

Results

Fig. 1

Country	CO2 Emissions (MT)	HDI
Australia	386.44	0.947
Ethiopia	17.01	0.498
Guatemala	19.62	0.635
India	2411.73	0.642
Indonesia	568.27	0.709
Ireland	32.65	0.943
Liberia	1.26	0.48
Mexico	407.7	0.756
Mongolia	38.23	0.745
Norway	42.18	0.959
Poland	292.56	0.876
Sierra Leone	1.01	0.475
Switzerland	35.3	0.956
United States	4535.3	0.92
Vietnam	321.93	0.71

Fig. 2

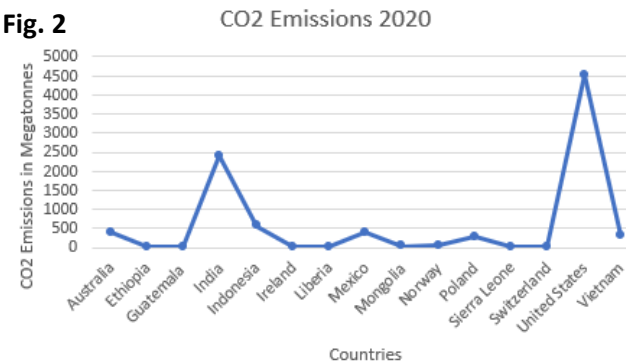


Fig. 3

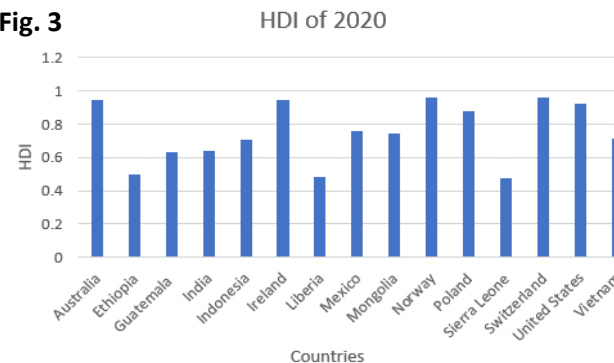
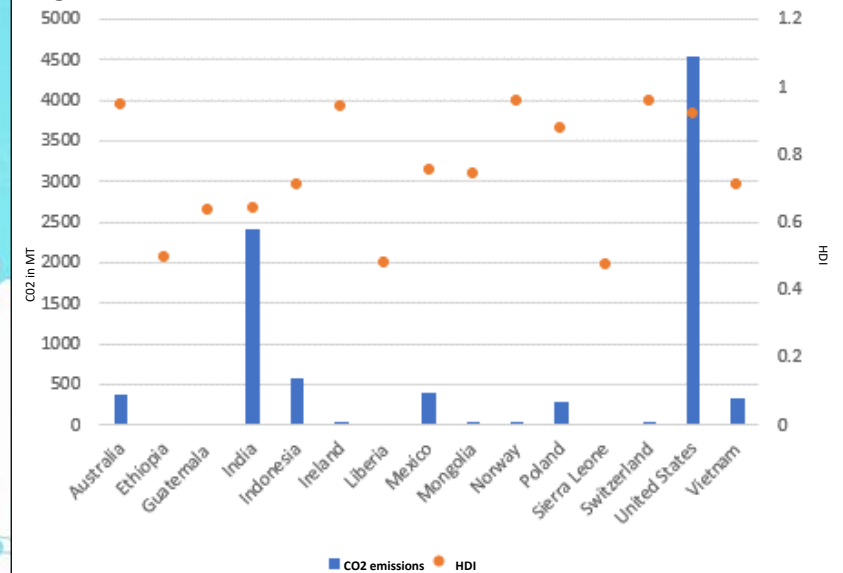


Fig. 4

Comparison of HDI to CO2 Emissions



Statistical Analysis

The number figures we found are secondary data as it was collected by someone else earlier. We found this information on internet.

The range for the CO2 emissions for the year 2020 was 4534.29 MT. This was found by subtracting the lowest emissions (Sierra Leone) from the highest emissions (U.S.A) Here we can see that the range is enormous.

The range for the HDI was 0.484. This was calculated from Norway's and Sierra Leone's HDI.

Further Research

Extending the amount of countries researched and bring in a range of different years.

Conclusion

In conclusion we found no direct correlation between the HDI and CO2 emissions as in fig. 4 you can see that the U.S.A has a high HDI but the highest CO2 emissions but Norway that had the highest HDI had one of the lowest CO2 emissions.

References

Reference 1: HDR. (2023). Human Development Index (HDI). [Online]. hdr.undp.org. Available at: <https://hdr.undp.org/data-center/human-development-index#/indicies/HDI> [Accessed 26th January 2023].

Reference 2: World Population Review. (2023). Carbon Footprint by Country 2023. [Online]. Available at: <https://worldpopulationreview.com/country-rankings/carbon-footprint-by-country> [Accessed 26th January 2023]