
Project: GLOBAL EMISSIONS

— the data dudes 🕶️ —

Topic and motivation

- Fossil fuels are the largest contributor to global climate change
 - 75% of global greenhouse emissions from fossil fuels
 - Coal, oil, gas
- Together, China, the US, and India contribute to nearly half of global greenhouse gas emissions
 - In 2019:
 - China contributed 27%
 - The US contributed 11%
 - India contributed 6.6%.



The data

- CORGIS Data set
- Created by Sam Donald
- September 23, 2022
- Numerous variables including:
 - Country, country population, GDP, year, specific emission type (coal, gas, etc), greenhouse gas type (methane, Co2), and more.



Our Research Question

Which industry between coal, gas, and oil in India, China, and USA creates the most CO₂ emission production from 1992 to 2018?

Main Variables Used

- **Emissions.Production.CO2.Coal**
- **Emissions.Production.CO2.Gas**
- **Emissions.Production.CO2.Oil**

- The amount of CO₂ emissions in metric tons per capita produced by the coal, gas, and oil industries (of each country)

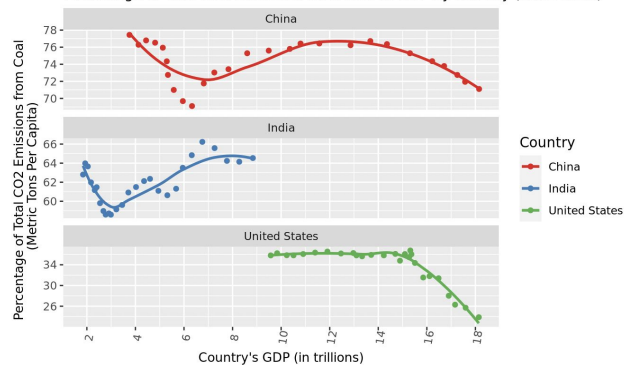
- **Country.Name**
- **Country.GDP**
- **Year**

- These variables used to compare the countries China, India, and the United States in their yearly emissions

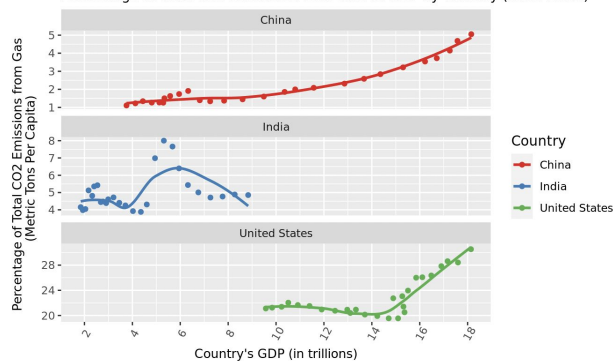


Modeling

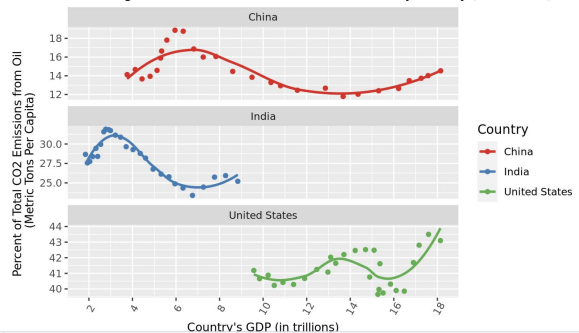
Percentage of Total CO2 Emissions from Coal vs GDP By Country (1992-2018)



Percentage of Total CO2 Emissions from Gas vs GDP By Country (1992-2018)



Percentage of Total CO2 Emissions from Oil vs GDP By Country (1992-2018)



COAL

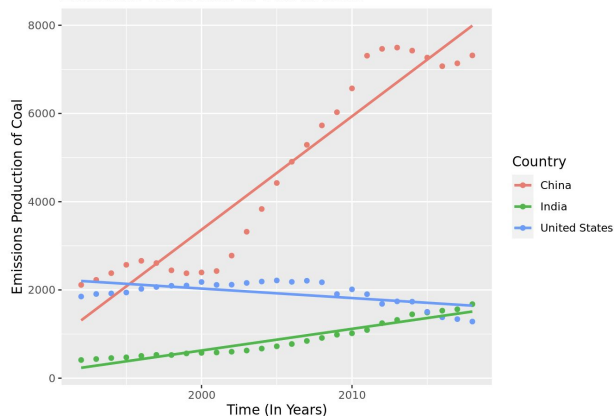
GAS

OIL

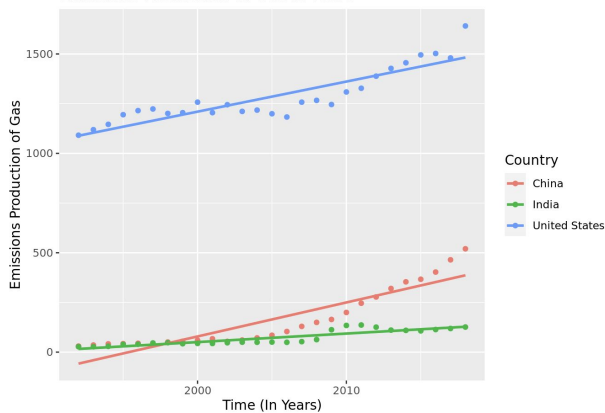
- GDP is a valuable predictor of the type of emissions in a country and can be predictive in examining trends over time

Inference

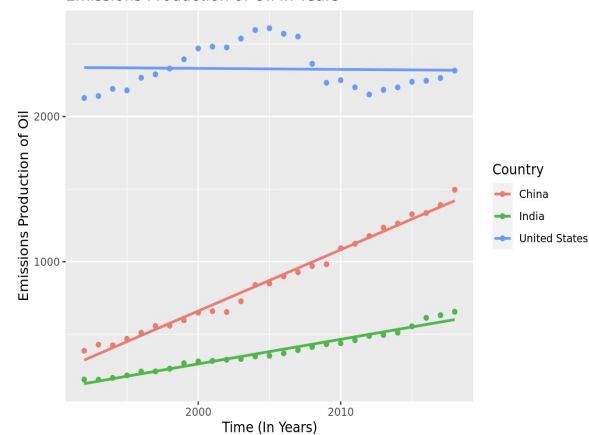
Emissions Production of Coal in Years



Emissions Production of Gas in Years



Emissions Production of Oil in Years



Coal Predictions by 2050
(metric tons per capita):

India: 3079

China: 16214

United States: 956

Gas Prediction by 2050
(metric tons per capita):

India: 265

China: 934

United States: 1967

Oil Prediction by 2050
(metric tons per capita):

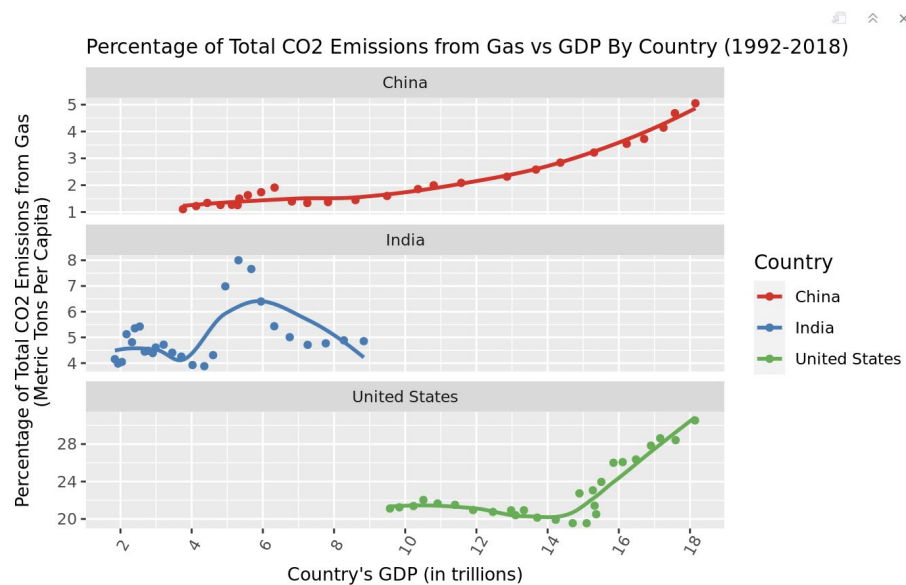
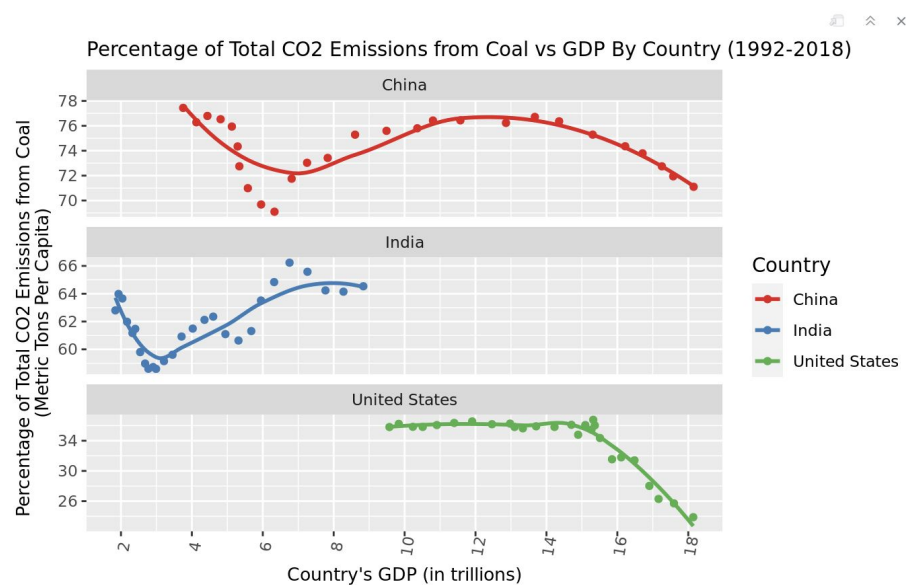
India: 1144

China: 2772

United States: 2297

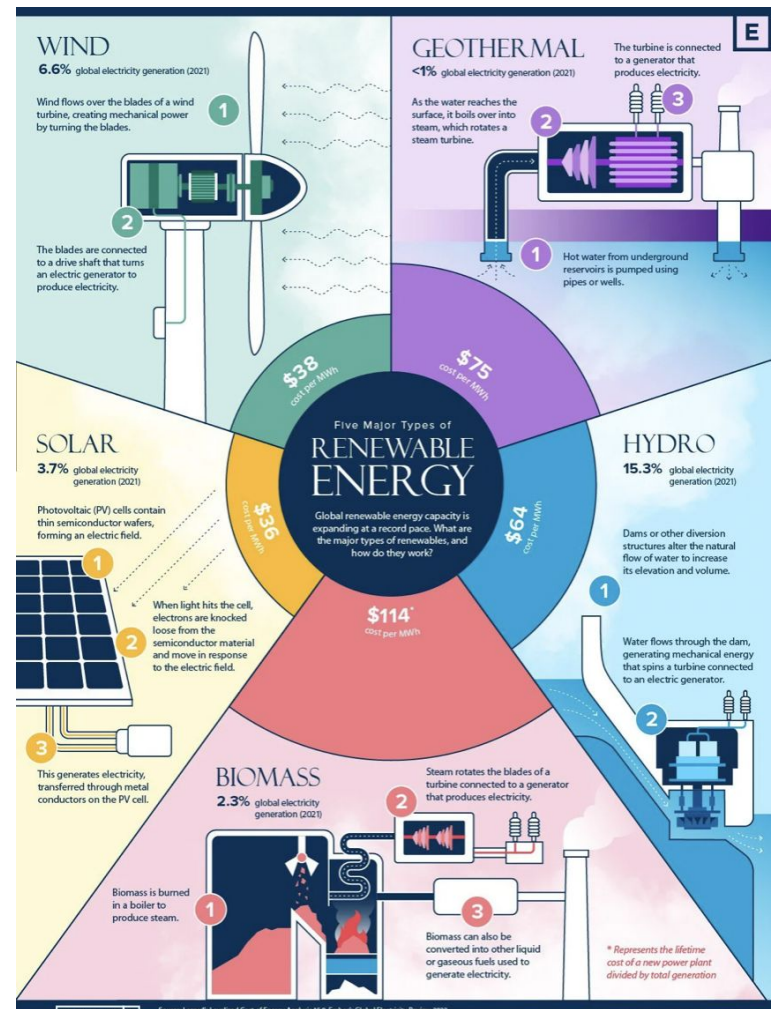
Conclusions

- After the countries hit a certain level GDP, percentage emissions from coal decreases
 - More developed countries use less coal
- After the countries hit a certain level GDP, percentage emissions from gas increases



Looking Forward

- Coal : China, India, United States
- Gas : United States, China, India
- Oil : United States, China, India
- India and China are growing the fastest in consumption for coal which supports our hypothesis of development
- United States is at a greater stage of development and should start using alternative energy forms and renewable forms of energy
- Research is needed to identify effective policies and technologies to help developing countries rely less on fossil fuels as well



Sources Cited

- <https://ecowarriorprincess.net/2018/04/carbon-intensive-industries-industry-sectors-emit-the-most-carbon/>
- <https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data>
- <https://www.un.org/en/climatechange/science/causes-effects-climate-change>
- https://corgis-edu.github.io/corgis/csv/global_emissions/