

Renewable Energy Consumption Across Various Economies

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Dataset:

- I've used World Development Indicators Dataset
 - Source: <https://www.kaggle.com/worldbank/world-development-indicators>
- This project uses countries sorted by low income, middle income and high income. Further information can be found out at <http://www.worldbank.org/>
- This project also refers to OECD countries and non OECD countries. Further information about OECD can be found at <http://www.oecd.org/>
 - (OECD: The Organisation for Economic Co-operation and Development is an intergovernmental economic organisation with 36 member countries, founded in 1961 to stimulate economic progress and world trade.)

Motivation

- We have been increasing our footprint on Earth as we progress in time, and have consumed many resources that have formed over several millions of years. Our rate of consumption is much higher than the rate of production of these resources
- As we make progress in science and technology, we need to reduce our dependency on fossil fuels. We should aim at harvesting renewable energy sources and maximize their usage to improve the long-term sustainability of our planet
- In this context, I find it interesting to see how much renewable energy is used across countries and to see if there's any relation between economy of that country and the renewable energy they use.
- In addition I wanted to see if any other factors can be related to renewable energy usage, because these factors could help us increase our usage of renewable energy, thus helping our sustainability on this planet

Research Question(s)

- A. Among all the countries in the world, is there a relation between their economy and the percentage of their needs met by renewable energy?



- B. If there are countries on equal economical footing, are there any other factors that can be related to the renewable energy usage?

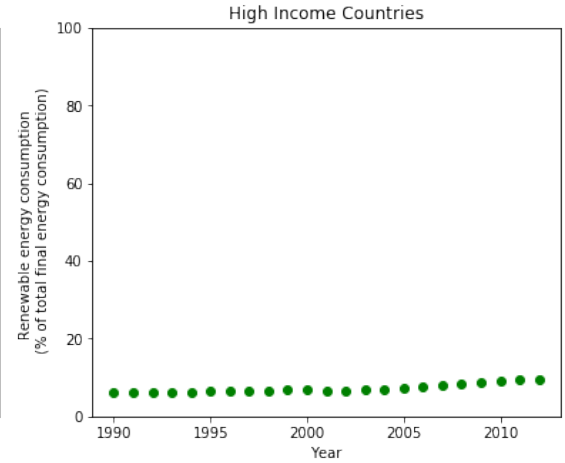
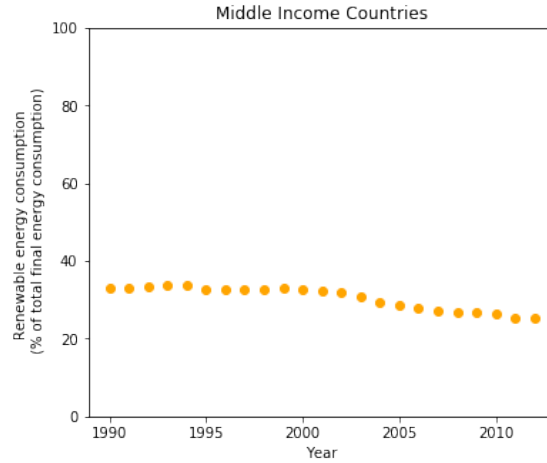
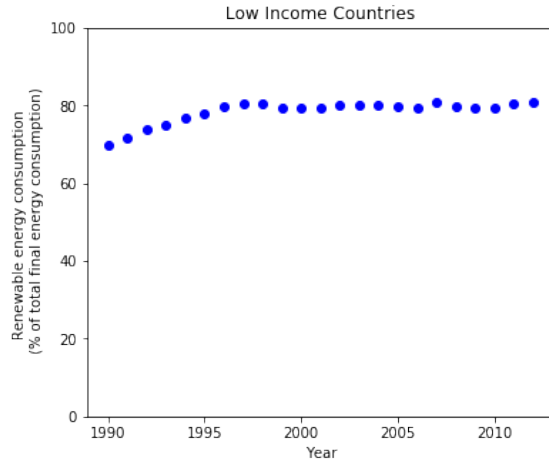


Findings (A)

Renewable Energy Usage
(as a % of total energy usage)



Economy



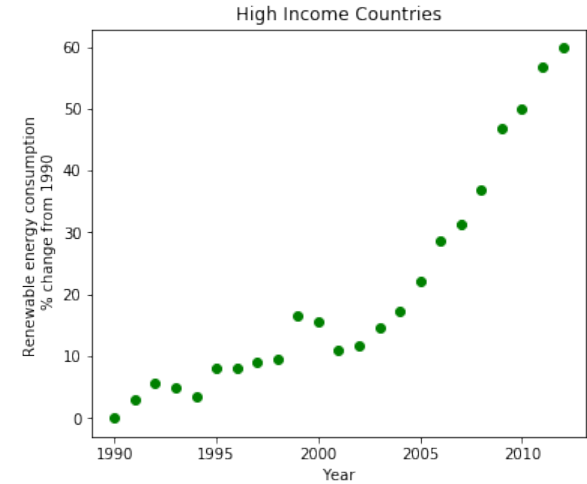
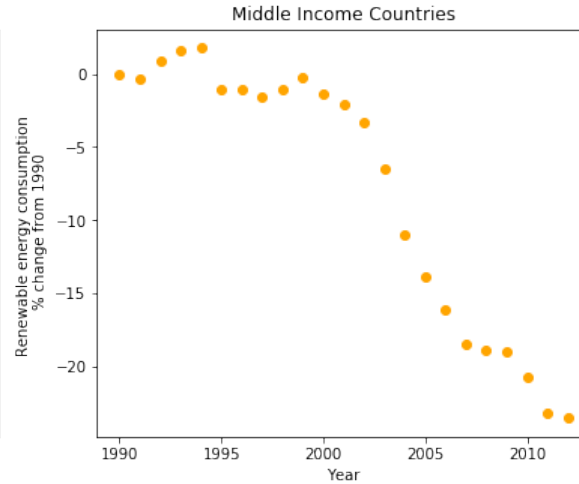
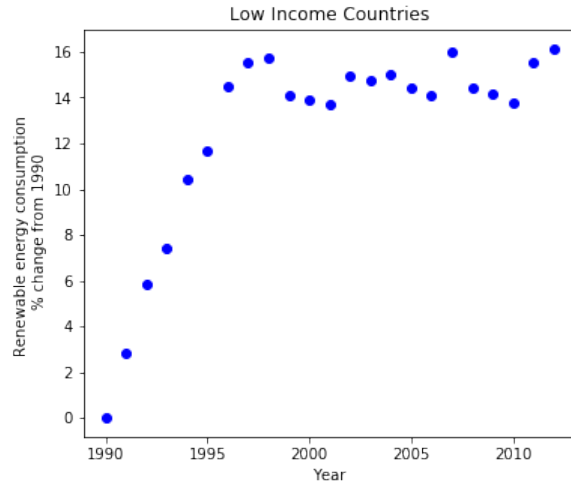
- It is apparent that as the income increases across the graphs from left to right, the average percentage of total final energy consumption obtained from renewable energy decreases
- There also seems to be a trend over time, which I'll explore further

Findings (A)

Renewable Energy Usage
(as a % of total energy usage)



Economy



- This graph shows how the renewable energy usage changed over time, represented as a percentage change from 1990 in the renewable energy usage
- It can be seen that the middle income countries are reducing their energy contribution from renewable energy, where as low and high income countries either kept increasing or stayed constant for most of the time

Findings (A)

Renewable Energy Usage
(as a % of total energy usage)



Economy

A possible explanation:

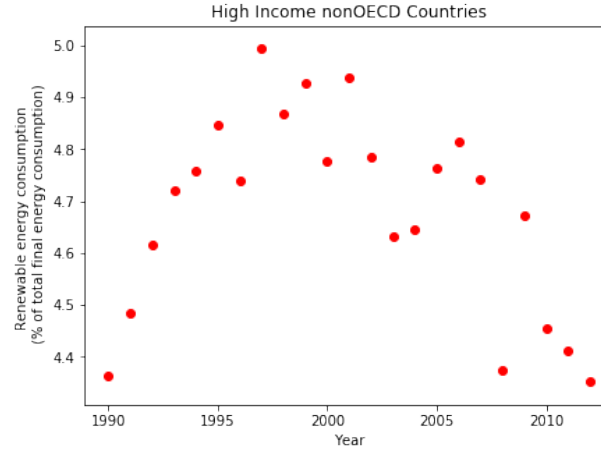
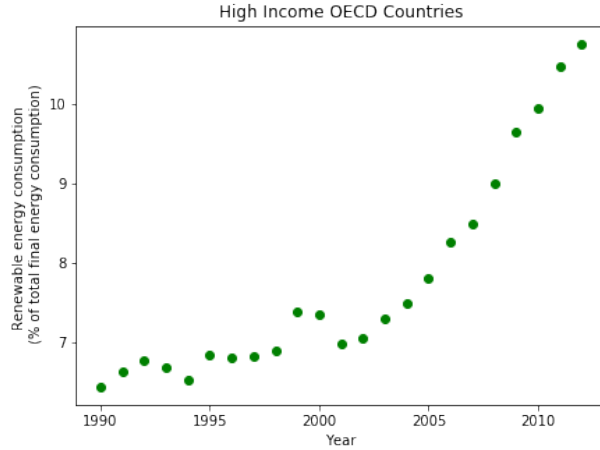
- First, I need to explicitly state that this explanation is my own and could be completely wrong. I have only looked at the data presented above, and tried to explain it with a theory of my own.
- It may be a possibility that when the economy is small (implying a small country), their needs might be met with whatever renewable energy sources were readily and easily available. That's why we can see a larger percentage contribution from renewable energy.
- But as the economy starts to grow from low to middle income countries, maybe the country needs more and more total energy and probably couldn't keep up with renewable energy with limited resources at their hand. Also, this could probably explain why the percentage of renewable energy for middle income countries is lower than low income countries, but higher than high income countries.
- Further when the countries start to grow from middle to high income countries, they are already meeting needs for high energy demands, but probably now have the means to pursue renewable energy and thus keep increasing the contribution from renewable energy.
- Again, this is all just a possible theory that could explain the data from my perspective. Further research and data analysis is required to make any conclusive remarks.

Findings (B)

Countries with
similar economy



Renewable Energy Usage
(as a % of total energy usage)



- This graph shows how the renewable energy usage changed over time, among high income countries that were part of OECD organisation and countries that weren't involved in OECD organisation.
- OECD started in 1961, so it was well before the start point of the data we have, and thus should not affect the quality of our data
- Although all the countries in this data belong to high income, it can be seen that countries that are part of OECD have been increasing their renewable energy usage contribution over time, where as countries that aren't part of OECD did not make any significant changes over years.

Conclusion

- There appears to be a relation between the renewable energy usage (% of final energy usage) and economy of the countries
- There are also other connecting factors that are related to the renewable energy usage (such as countries being part of OECD)
- My findings and conclusion are based on a limited data set, and could change with introduction of more data or other factors.
- It is also to be noted that what I found are just relations, more like a correlation and it is important to understand that CORRELATION DOES NOT IMPLY CAUSATION

Acknowledgements

No other sources were involved other than the ones stated in the beginning.

Also no other person or resources were involved in either preparation, presentation or feedback on this project

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All the work has been done by myself, and any findings are solely my interpretations of the data.