

Effect of Air Quality on Quality of Life

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Dataset

For the purpose of this analysis, i have used the following dataset provided by the world bank.

- World Development Indicators Dataset.
- Link: <https://www.kaggle.com/worldbank/world-development-indicators>

Motivation

My motivation for this analysis was to see **how air quality affects the quality of life** by measuring the **significance** it has on various indicators. The idea was to figure out the **best indicator** among various indicators which represent air quality, and then to compare it against **multiple indicators** that represent different aspects of quality of life.

We obviously think bad air quality means lower quality of life, but I wanted to find out and present the **magnitude** at which air quality affects the various indicators that represent quality of life.

I wish to **spread awareness** so that we can make calculated and informed changes to our current habits give the **next generations a better quality of life**.

Research Questions

This is a **2 part** analysis.

1. What is the **best indicator** we can use among all indicators which **represents air quality**? What are the **best indicator(s)** that **represent different aspects of quality of life**?
2. How much **effect** does the **indicator representing air quality** have on the multiple **indicators representing quality of life**?

Findings - Indicator Selection

By exploring the data, we found that we **do not** have **sufficient data** for **any air quality indicators** except for **CO2 emissions**. Hence we have chosen **CO2 Emissions (kt)** as the **best indicator** which represents **air quality**,

We have found that we **do not** have **sufficient data** for health indicators for **prevalence of stunting** and **low-birth weight babies**. Hence we have chosen the following **5 indicators** to represent **health quality**.

- Birth rate, crude (per 1,000 people)
- Mortality rate, infant (per 1,000 live births)
- Fertility rate, total (births per woman)
- Life expectancy at birth, total (years)
- Population growth (annual %)

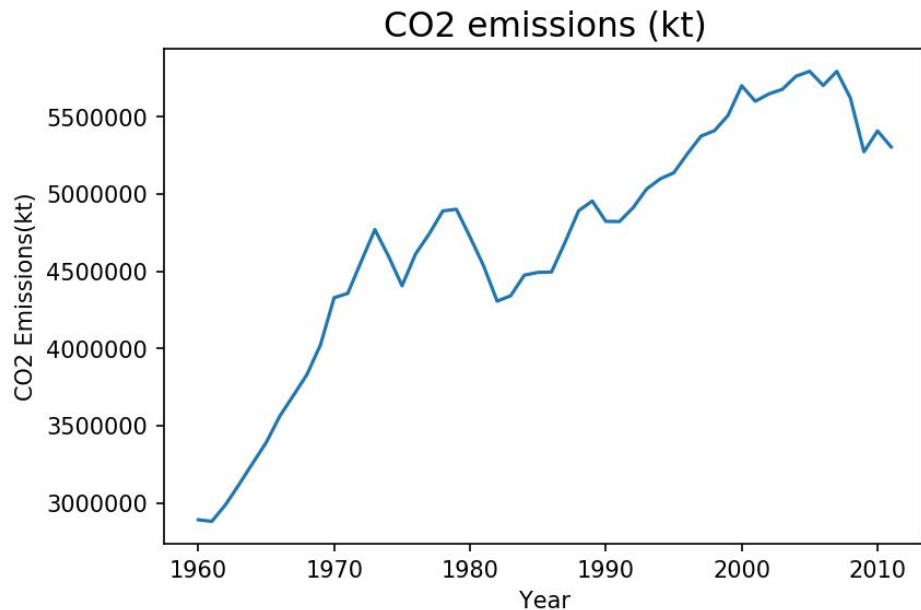
Findings - Analysis

We want to quantify the effect that **quality of air** has on the multiple **indicators representing quality of life**

The analysis that will be performed is the **Effect of CO2 emissions (kt)** on

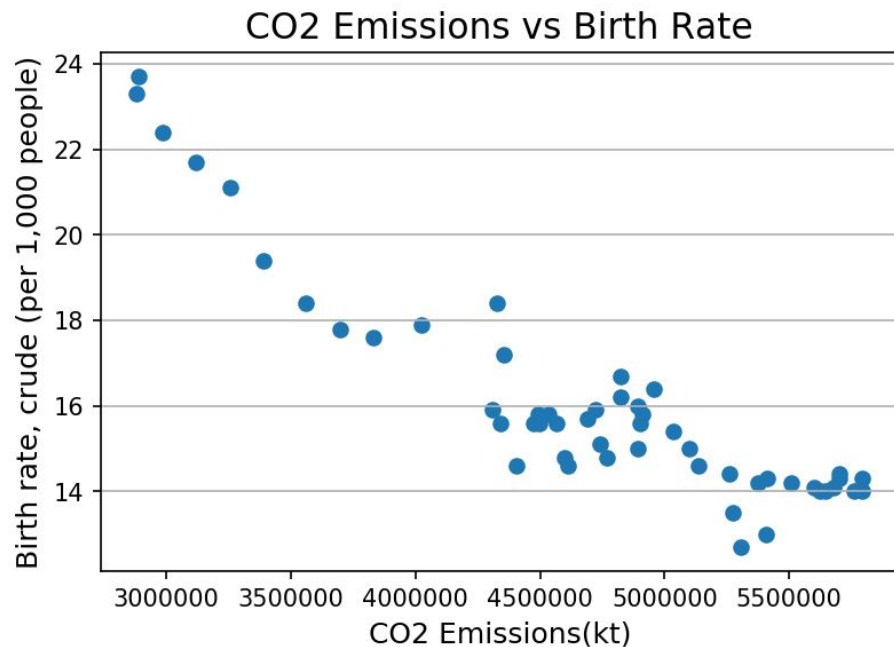
- Birth rate, crude (per 1,000 people)
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Line Plot of CO2 Emissions (kt)



We observed that the **overall trend** for CO2 Emissions is **increasing** with **3** slight drops.

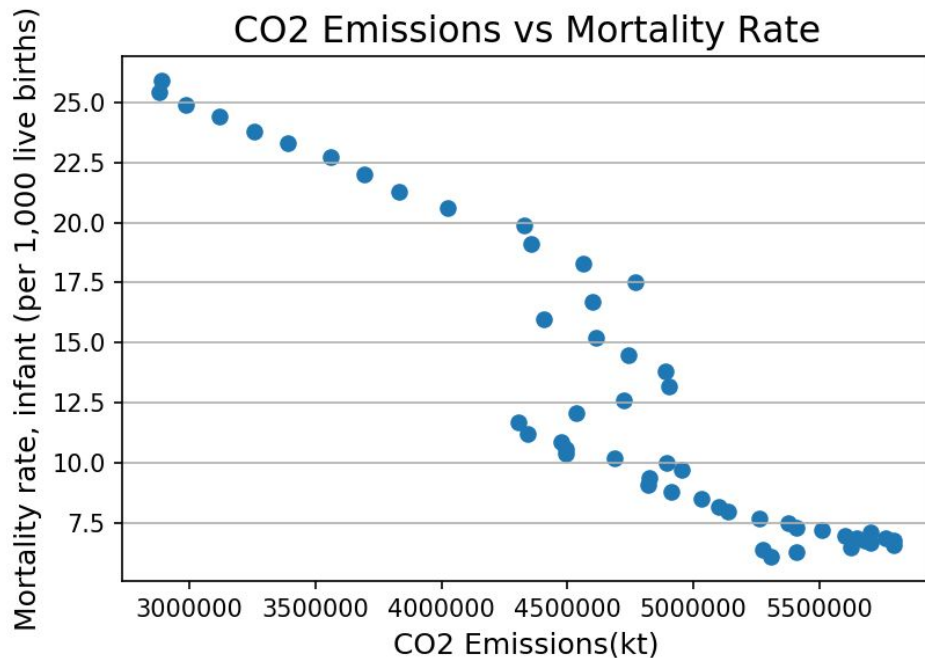
Scatter Plot of CO2 Emissions vs Birth rate



The **correlation** between CO2 Emissions and Birth Rate is: **-0.91**.

We have observed CO2 Emissions have a **very strong negative impact** on Birth rate.

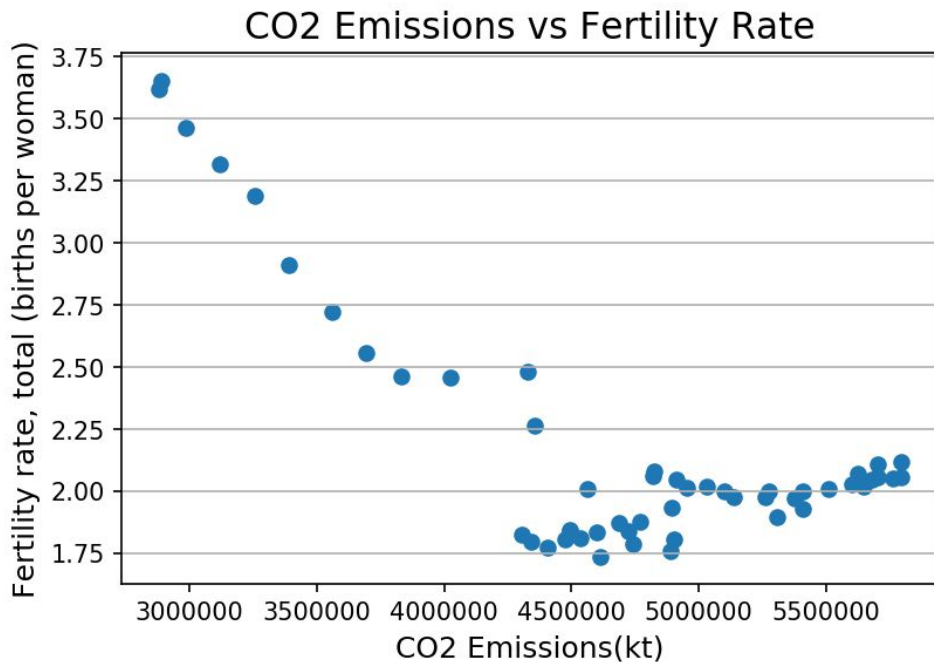
Scatter Plot of CO2 Emissions vs Mortality rate



The **correlation** between CO2 Emissions and Mortality Rate is: **-0.93**.

We have observed CO2 Emissions have a **negligible impact** on Mortality rate

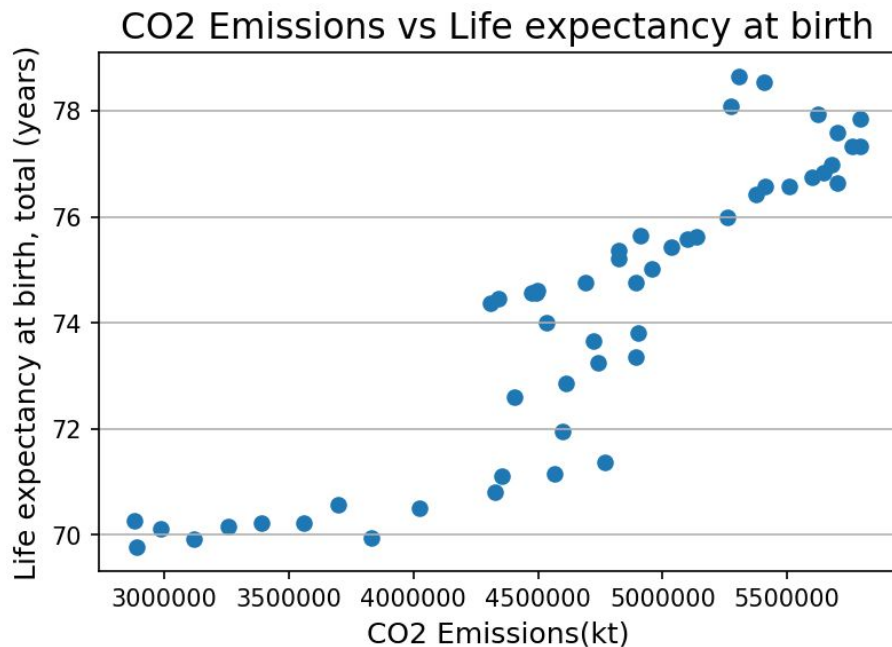
Scatter Plot of CO2 Emissions vs Fertility rate



The **correlation** between CO2 Emissions and Fertility Rate is: **-0.752**.

We have observed CO2 Emissions have a **strong negative impact** on Fertility rate

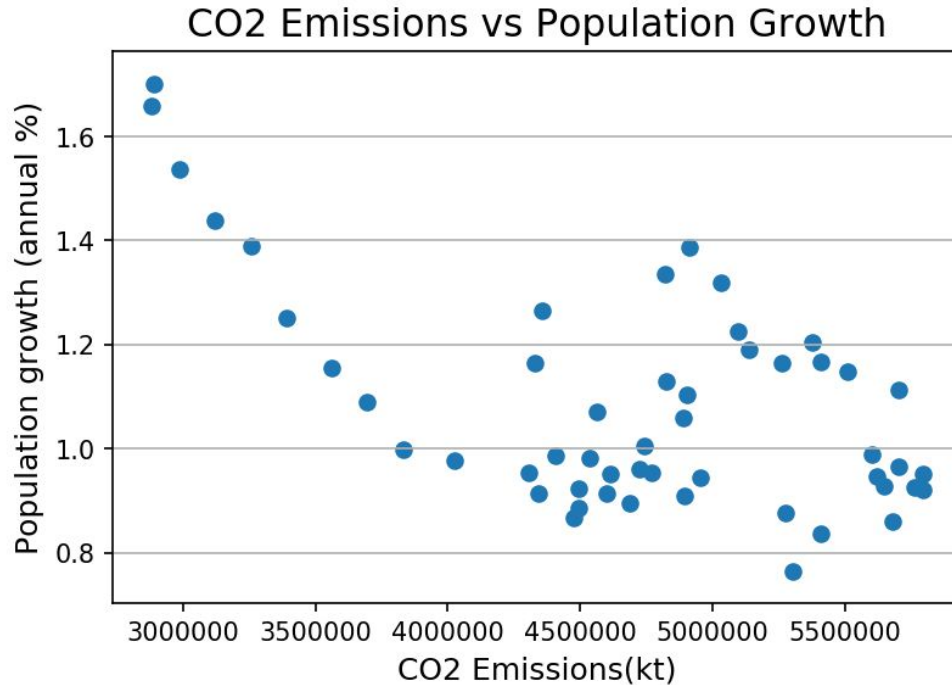
Scatter Plot of CO2 Emissions vs Life expectancy



The **correlation** between CO2 Emissions and Life Expectancy at birth is: **0.899**.

We have observed CO2 Emissions have a **negligible impact** on Life expectancy at birth.

Scatter Plot of **CO2 Emissions** vs **Population growth**



The **correlation** between CO2 Emissions and Population Growth is: **-0.591**.

We have observed CO2 Emissions have a **mild negative impact** on Population growth (annual %).

Acknowledgements

I would like to thank the **course instructors** at **UC San Diego** for providing me the **opportunity** to exhibit my learnings in the means of a project.

I did not get feedback from a professional.

I would also like to thank my younger sister who has a background in programming, who appreciated the ease at which she could understand step by step process in the Pandas notebook as the content was very well structured.

References

All the work was solely done by myself. I have used no references.