Observations about Mortality

Team Ryan and Maybe Others
(Just Ryan Amaral)

Overview of Data

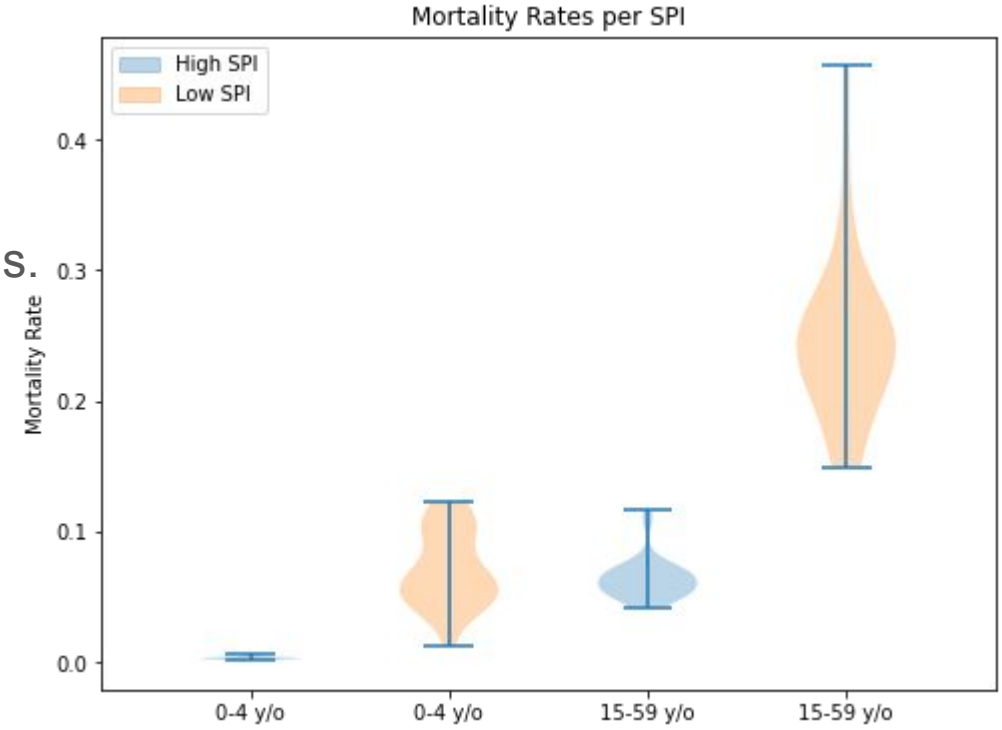
- Mortality Rates of two age groups.
  - 0-4 y/o, 15-59 y/o.
- Per Country per year (1950-2019)
- No Shock
  - No war, natural disaster, etc.

Hypotheses

- If there is generally a relationship between how developed a country is and its mortality rates, are there any notable outliers from which we can learn?
  - Open ended, there are expected to be outliers with useful information.
- How does the degree of vehicle ownership within a country relate to mortality rate?
  - For sufficiently and similarly developed countries, there is expected to be a positive correlation with vehicle ownership rate and mortality rate.
- As the distribution of age changes within a country, how are the mortality rates of different age groups affected?
  - As the portion of adults increases in a country, mortality rates go down overall.

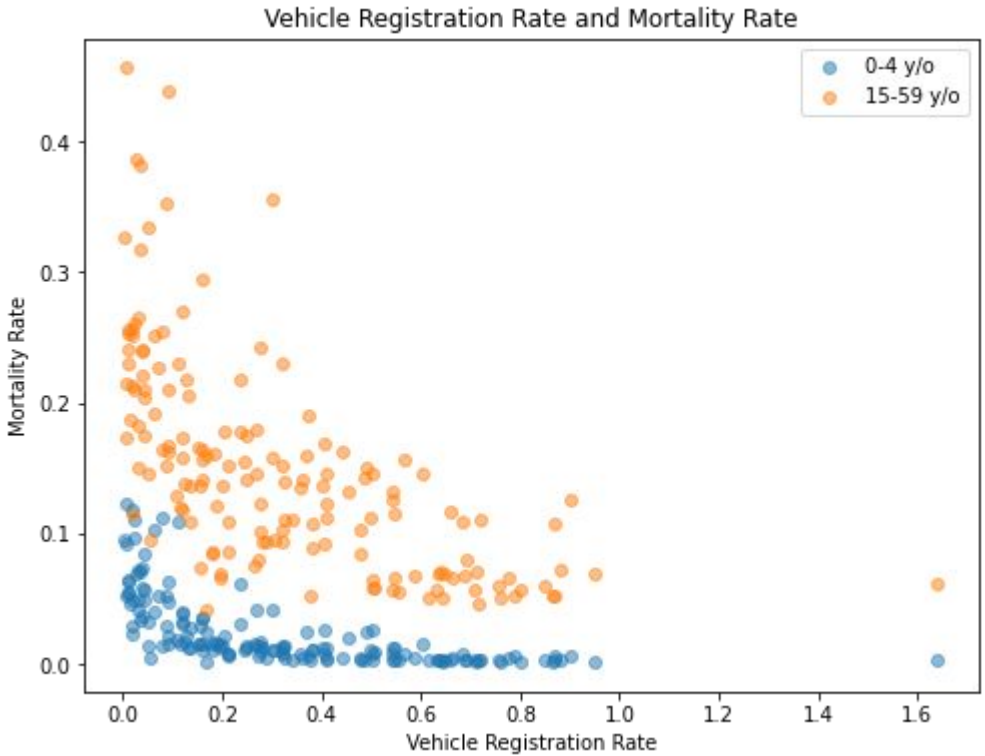
Mortality Rates and Social Progress Index

- Social Progress Index (SPI)
  - Health, sanitation, equality, etc.
  - High SPI (Highest 30)
  - Low SPI (Lowest 30)
- Clear difference between SPI levels.
  - Quite Obvious
- Used throughout presentation.



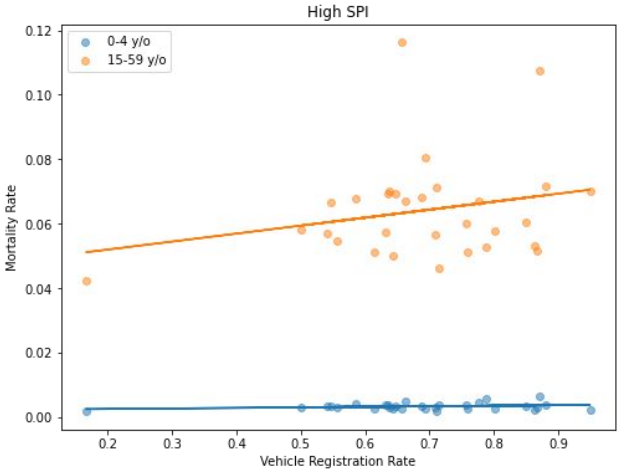
Vehicle Registration and Mortality

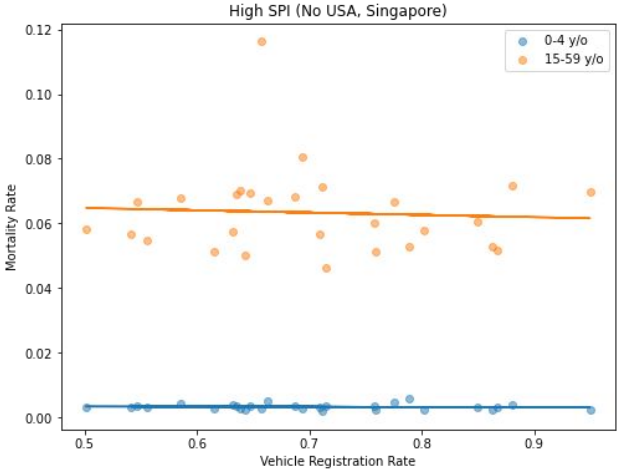
- Low registrations correlated with higher mortality.
  - Just a correlation
  - Less developed countries afford less vehicles and also tend to have higher mortality rates.



Vehicle Registration and Mortality

- Top 30 SPI countries only.
- Relatively Low Correlation Coefficient ~(0.24)
- USA and Singapore are Outliers
  - Positive correlations including USA and Singapore.
  - Negative otherwise.
  - USA: High mortality rate and vehicle registration rate
  - Singapore: Low mortality rate and vehicle registration rate





USA and Singapore

USA

- Veh. Regs. per person: **0.87**
- Adult Mortality Rate: **0.11**
- Traffic Mortality Rate: **1.17**
  - Per 10,000 people
- ~3X the mortality rate
- ~4.5X the traffic mortality rate

- More sprawled development, inducing more traffic.

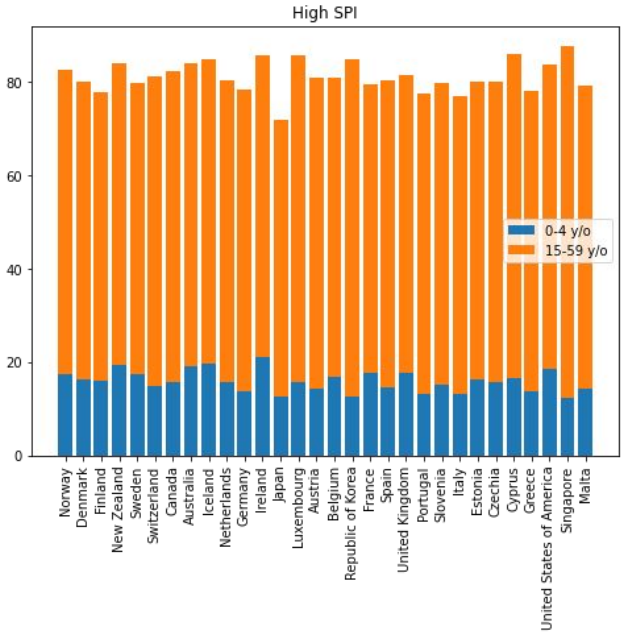
Singapore

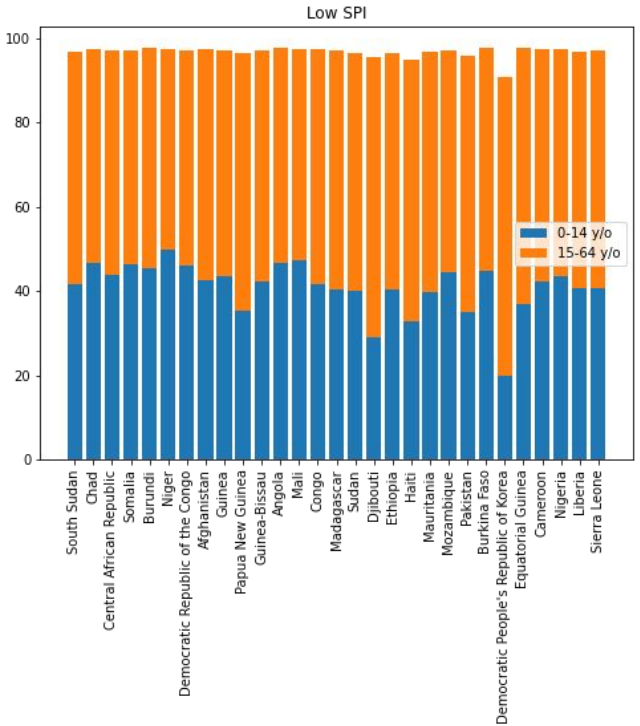
- Veh. Regs. per person: **0.17**
- Adult Mortality Rate: **0.04**
- Traffic Mortality Rate: **0.25**
  - Per 10,000 people

- Incentivises non-personal vehicular travel.

Age Demographics

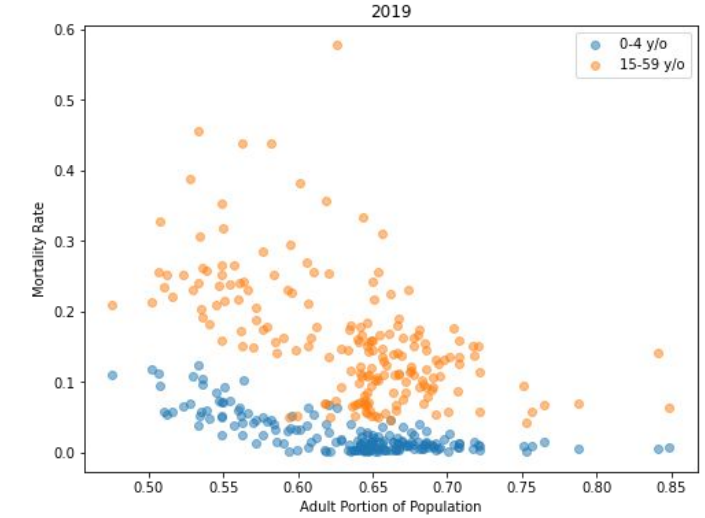
- Low SPI nations tend to have more youths.
- Less incentives to have children in further developed countries.

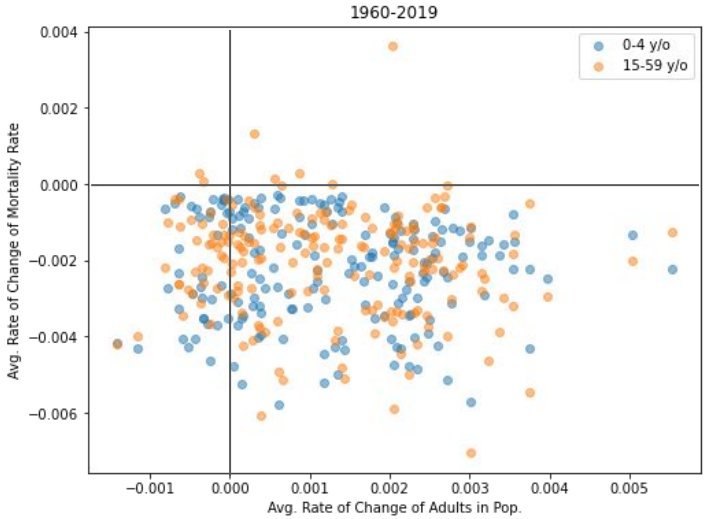




Adult Proportion and Mortality Rates

- Lower portion of adults correlated with higher mortality rates.
  - Similar as shown in low SPI countries.
- Majority of countries decrease mortality rate per year.
  - 181/188
- Most of those countries show an increase in the adult portion of the population.
  - 145/181





Conclusion

- If there is generally a relationship between how developed a country is and its mortality rates, are there any notable outliers from which we can learn?
  - Open ended, there are expected to be outliers with useful information.
  - Perhaps some things to note from USA and Singapore.
- How does the degree of vehicle ownership within a country relate to mortality rate?
  - For sufficiently and similarly developed countries, there is expected to be a positive correlation with vehicle ownership rate and mortality rate.
  - No notable correlation found (outside of outliers).
- As the distribution of age changes within a country, how are the mortality rates of different age groups affected?
  - As the portion of adults increases in a country, mortality rates go down overall.
  - This is shown to be the case for the majority of countries with increasing adults or decreasing mortality rates.

The End