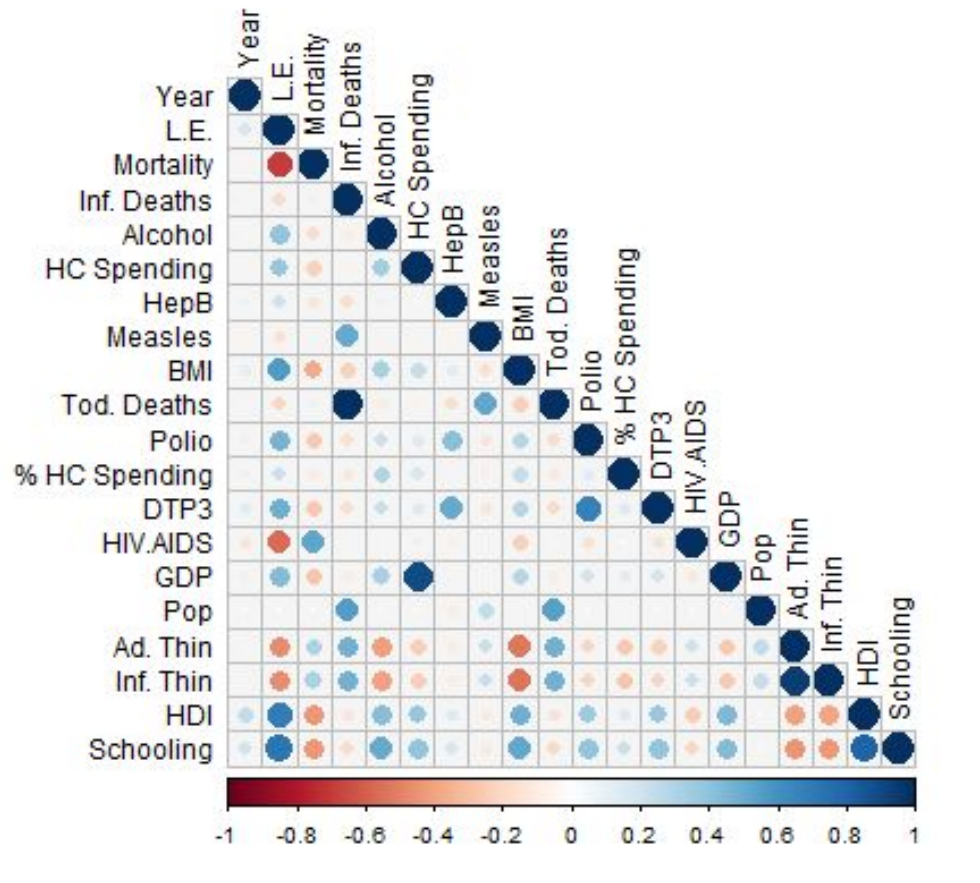
Marketing Health Products to the Elderly

Using World Health Organization Data to Maximize Value

Data Exploration

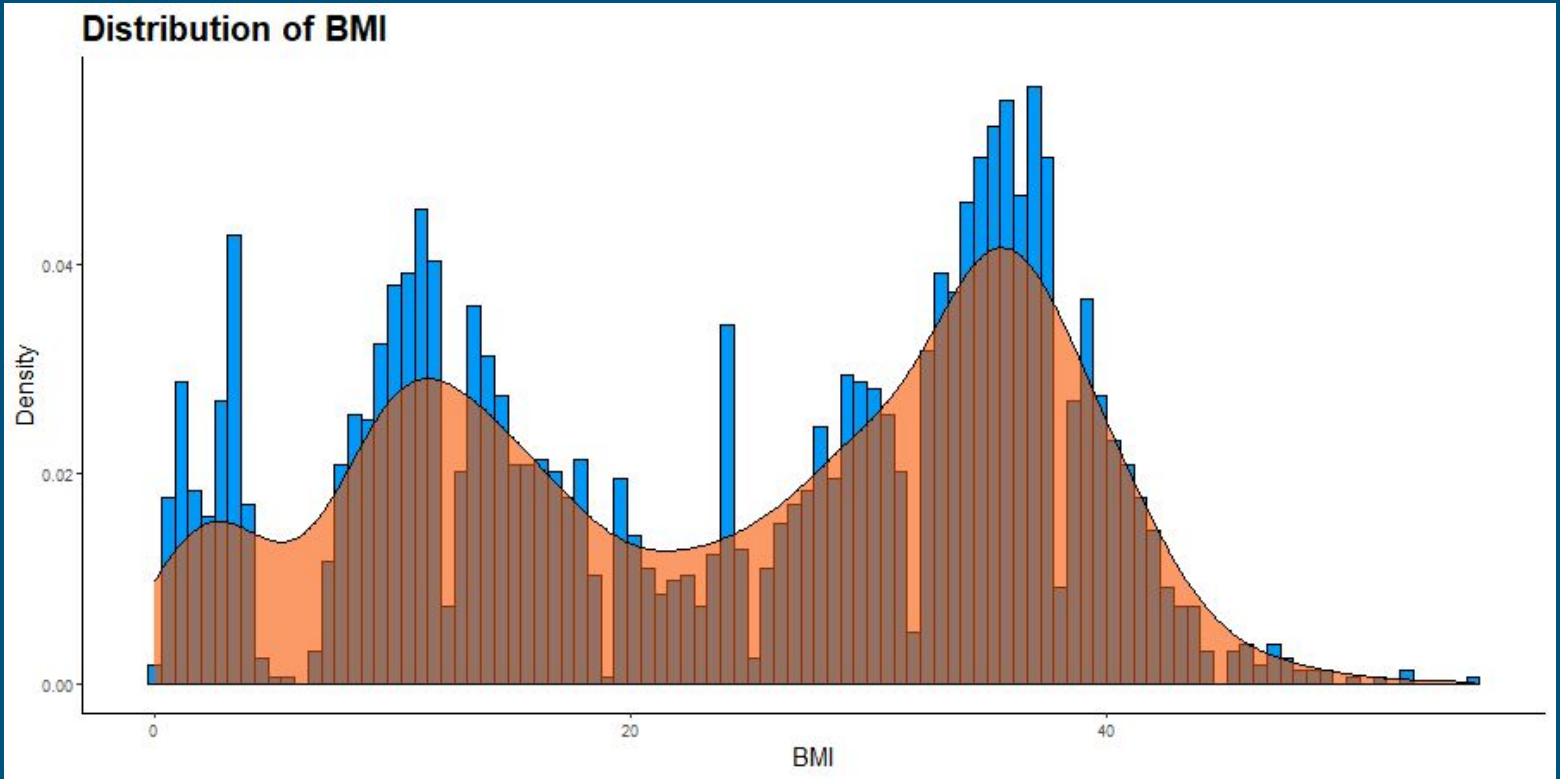
Correlation of Observations



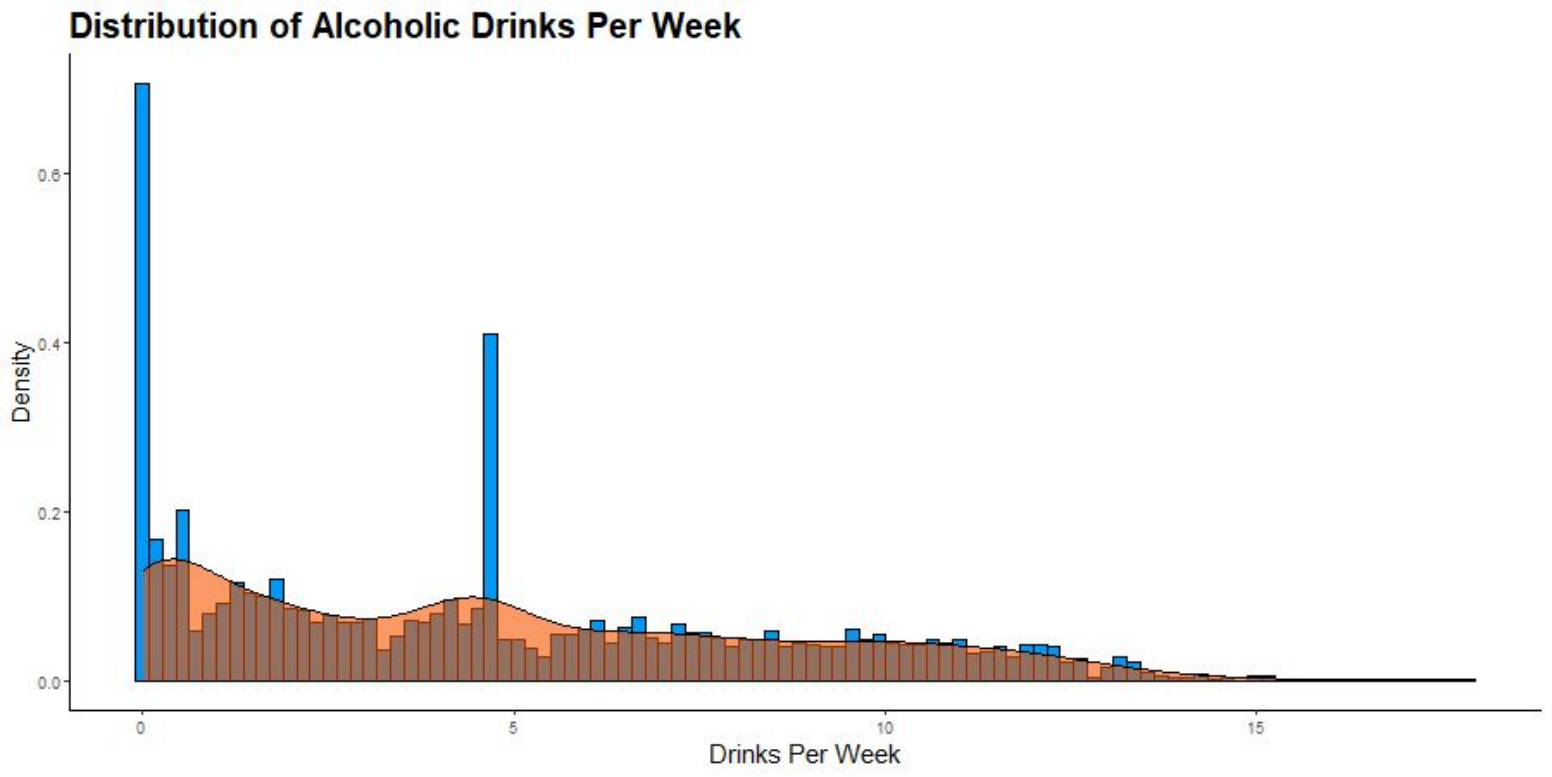
Variables with High Collinearity:

- GDP ~ Healthcare Spending
- Toddler ~ Adolescent Underweight
- Adult Mortality ~ Life Expectancy
- HDI ~ Education

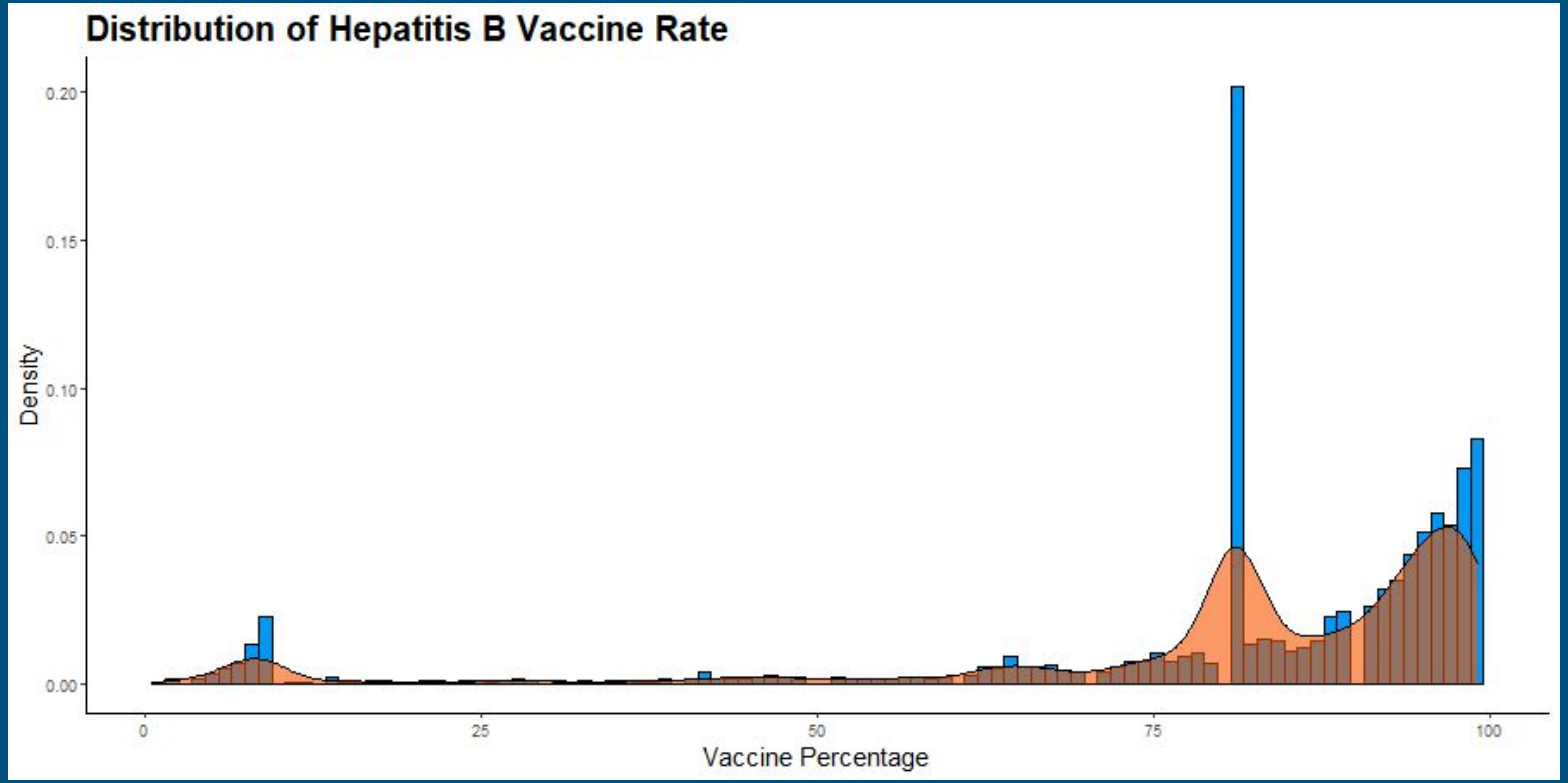
EDA: BMI



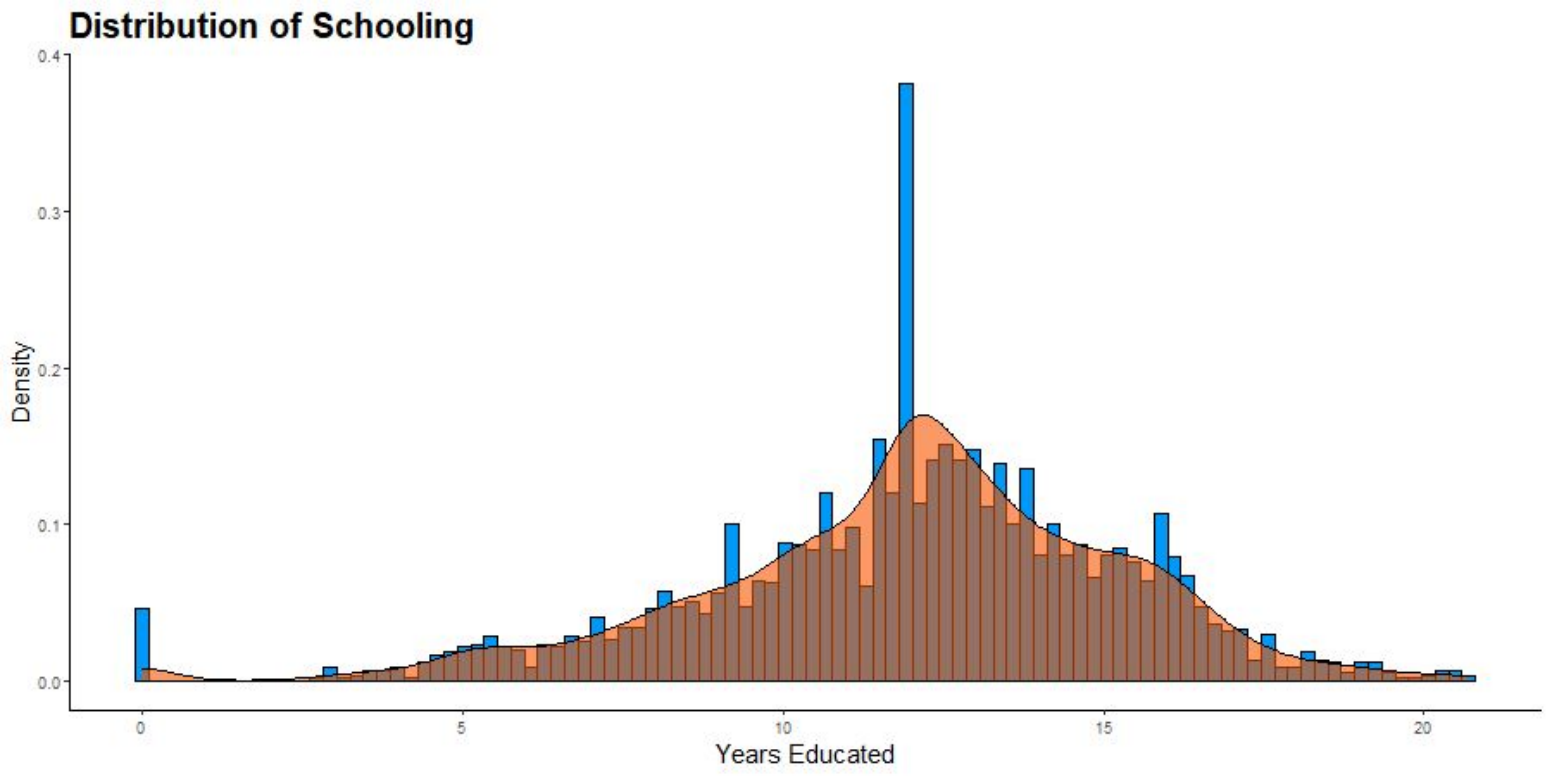
EDA: Alcohol


Distribution of Alcoholic Drinks Per Week
Density
0.6
0.4
0.2
0.0
0
5
10
15
Drinks Per Week

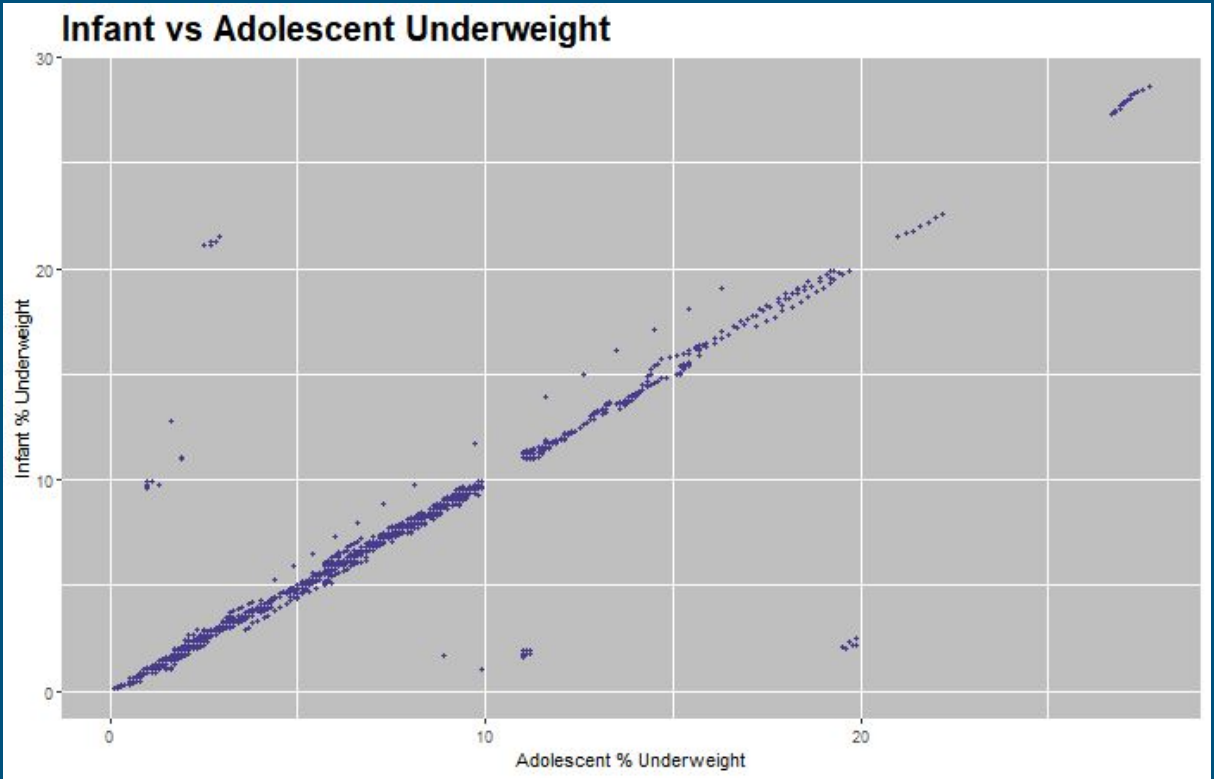
EDA: Hepatitis B Vaccine



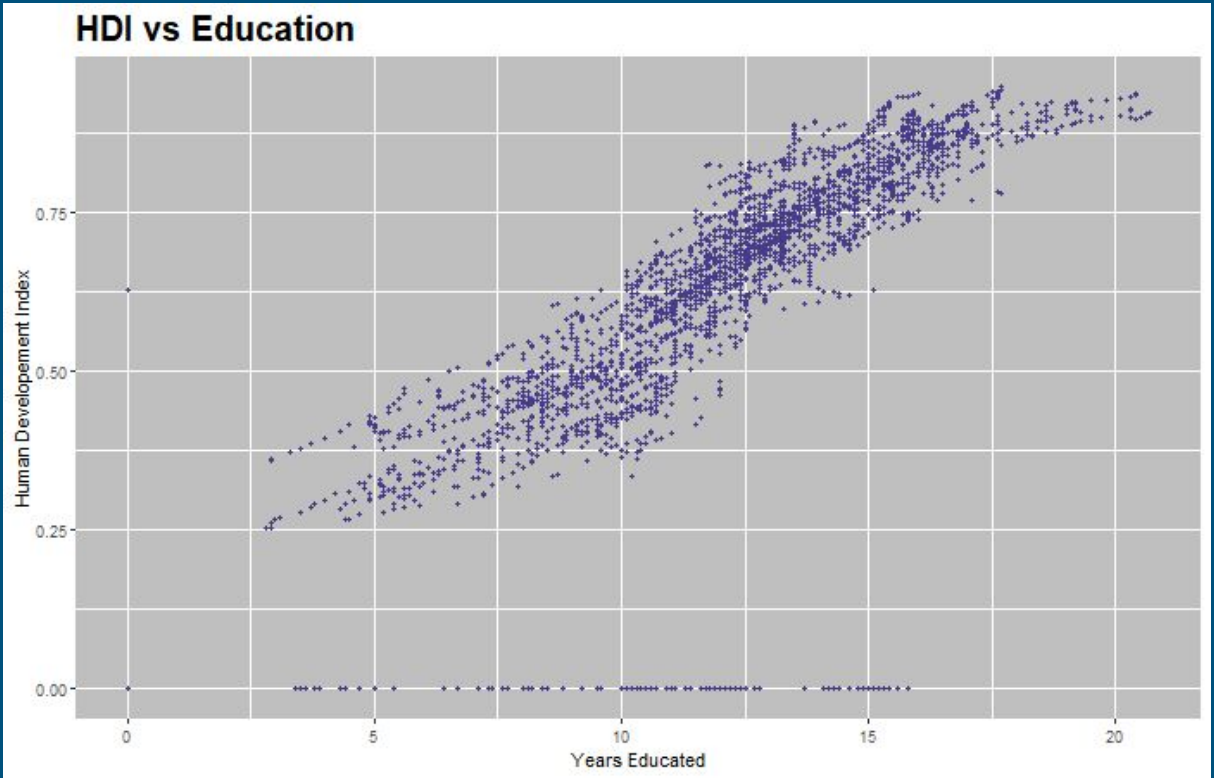
EDA: Schooling



‘Underweight’ Variables

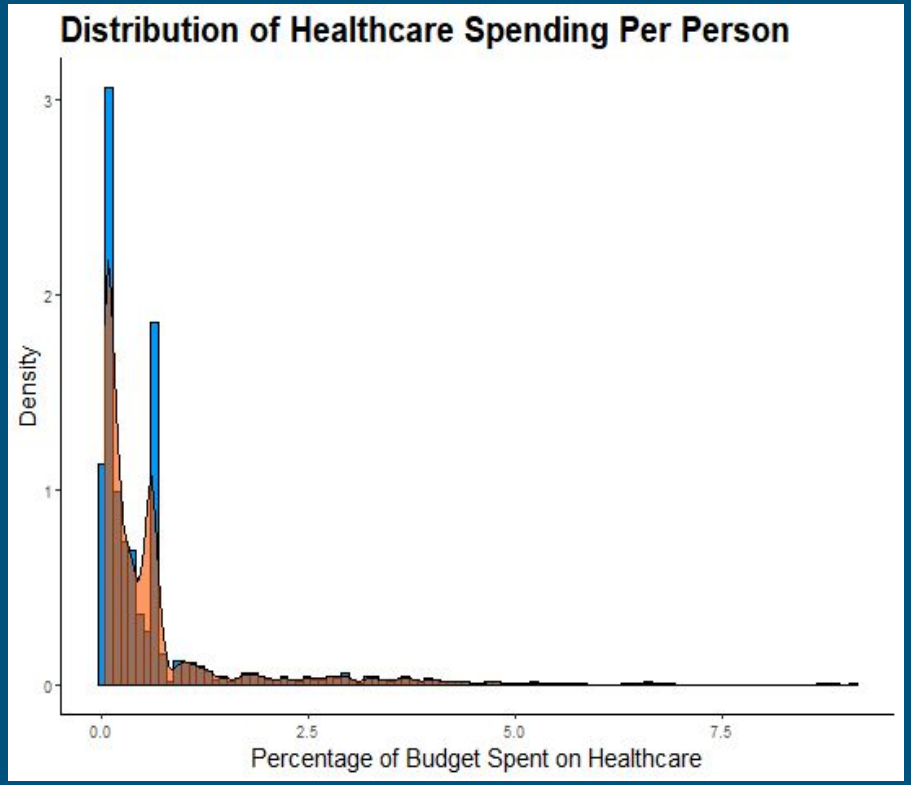


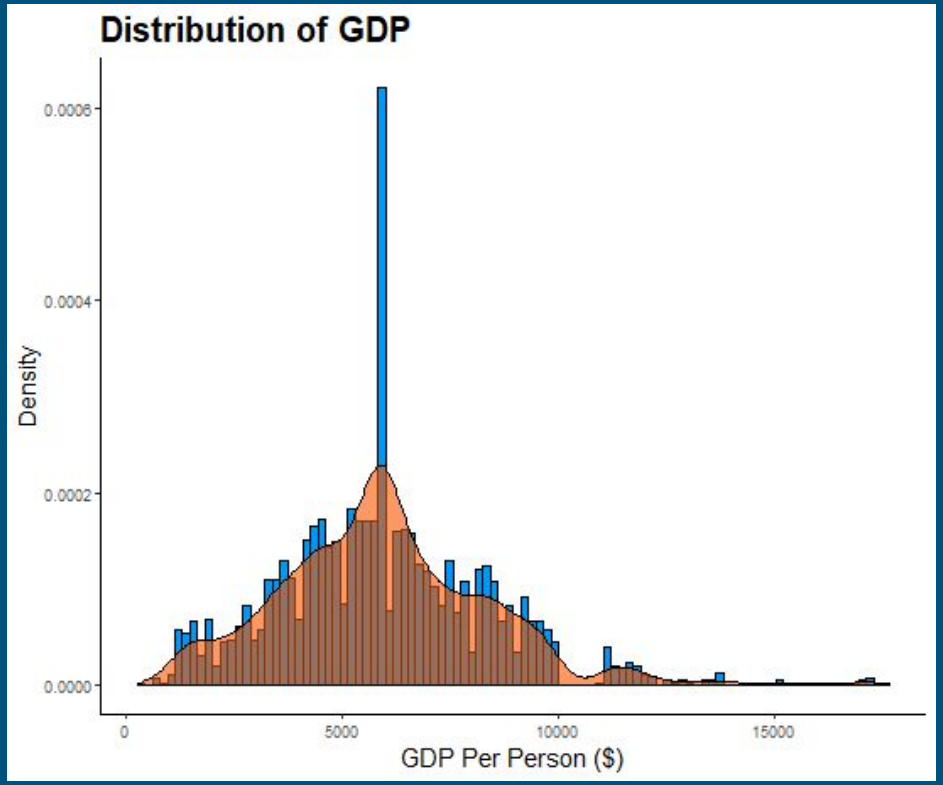
HDI and Education



Training a Model

Which GDP Variable to Keep?



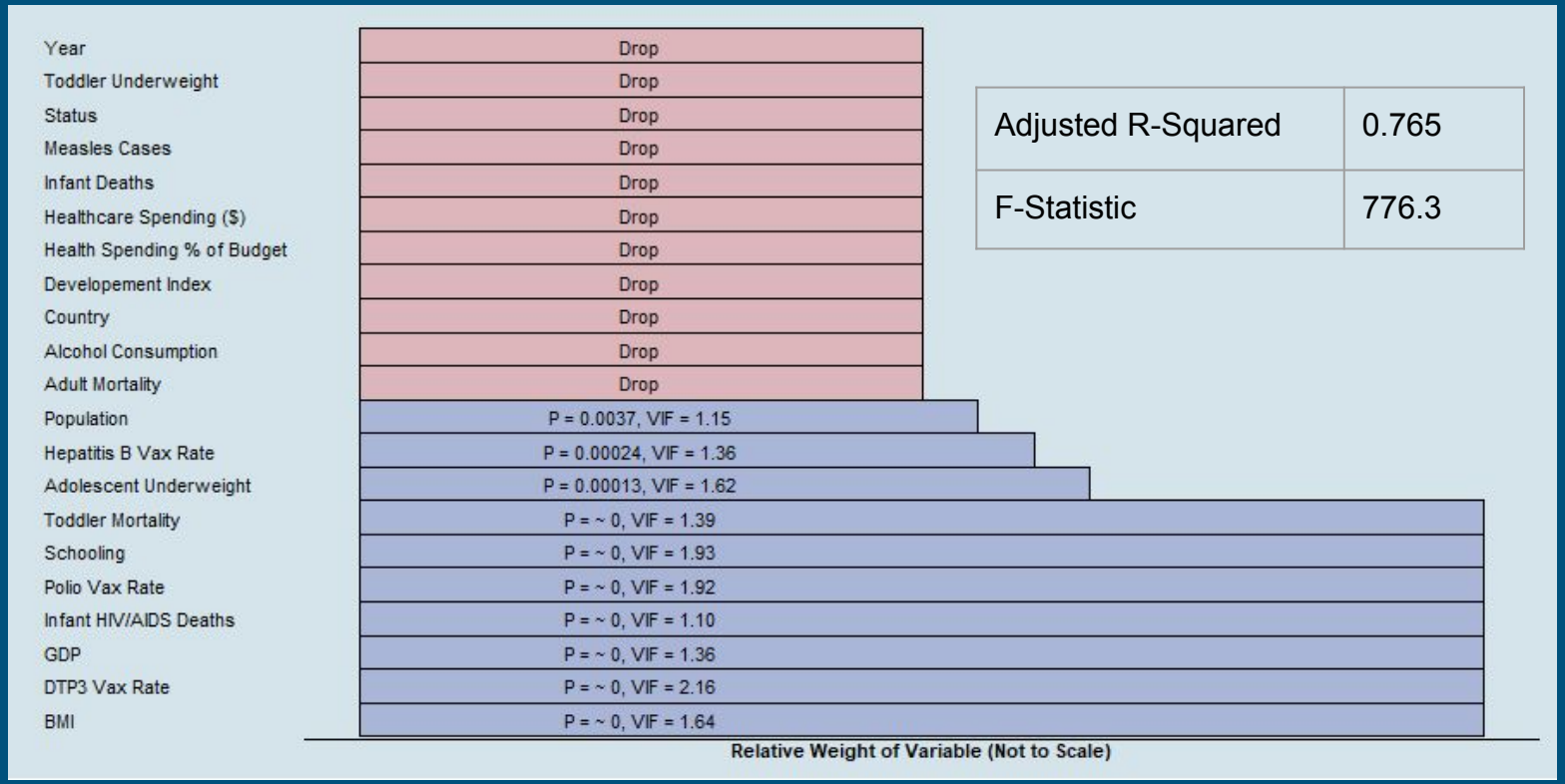


Using Reason to Simplify Model

Redundant Variables and Direct Observations of Target:

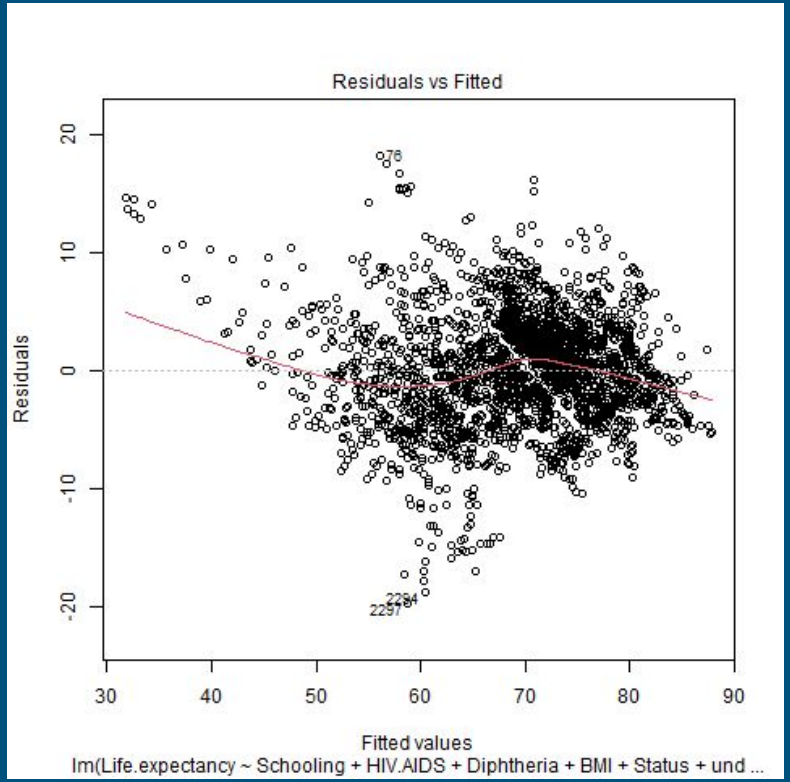
- Adult Mortality
- Infant Thinness
- Human Development Index
- Infant Mortality

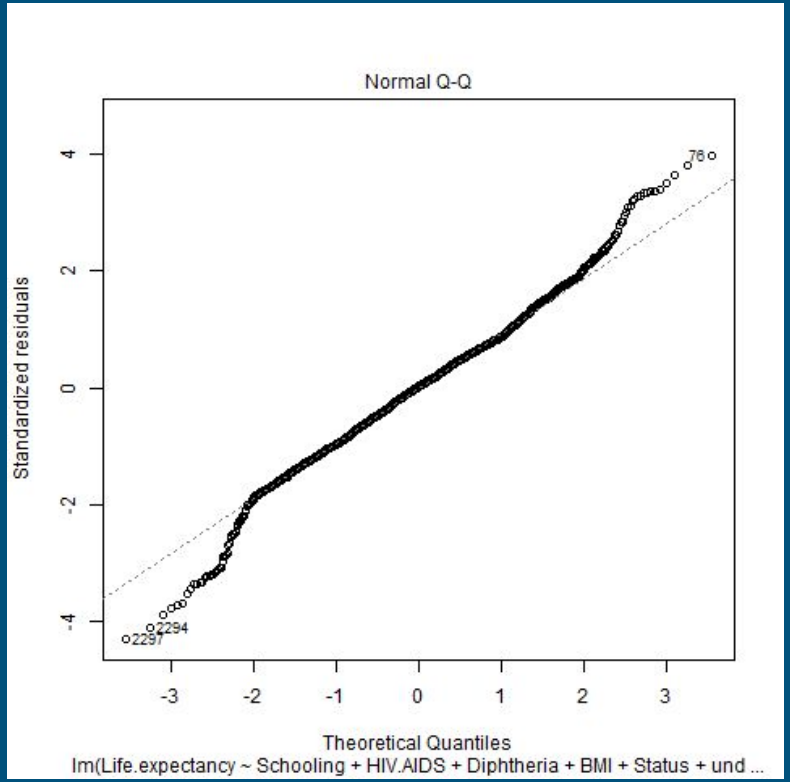
Stepwise Variable Selection



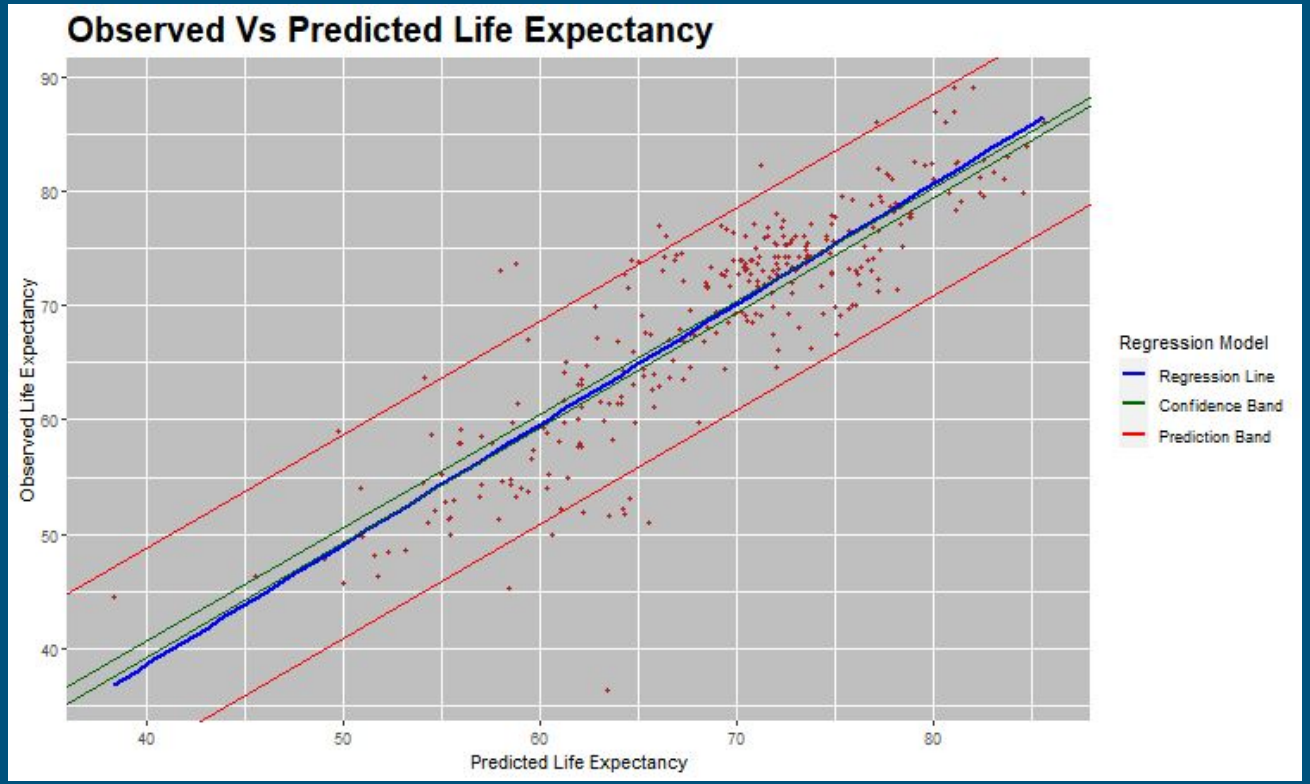
Adjusted R-Squared	0.765
F-Statistic	776.3

Further Analyzing Fit of Model

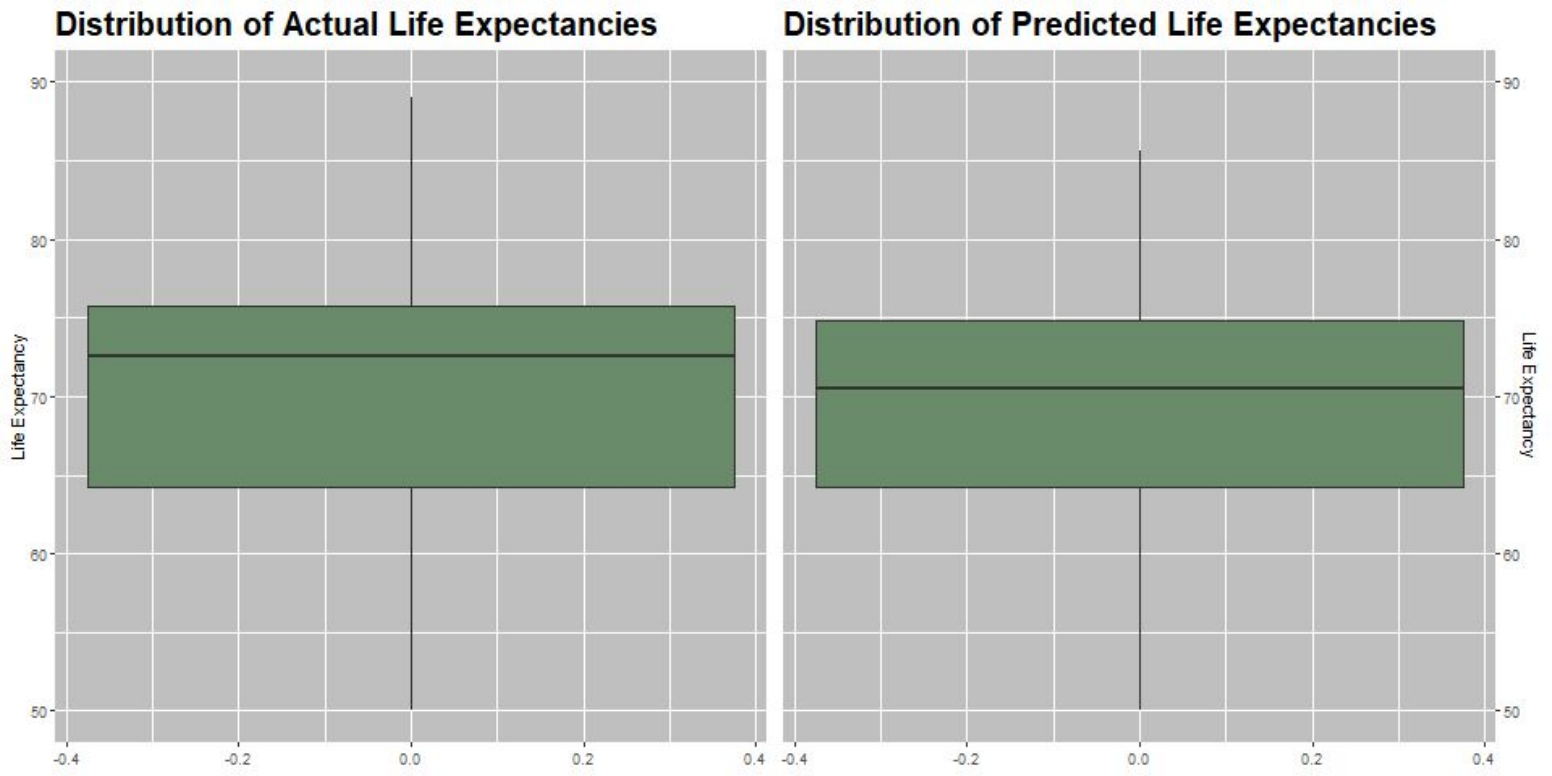




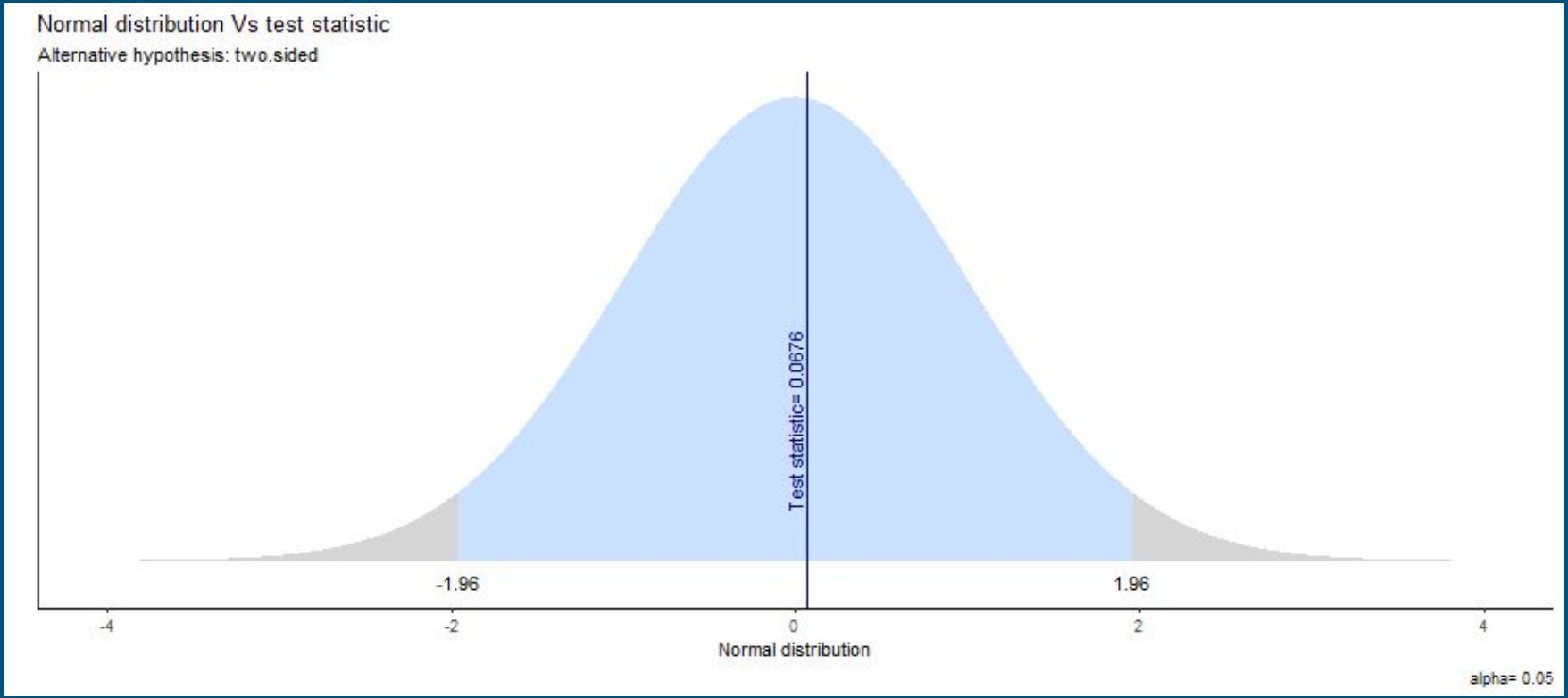
Train and Test



More Testing



2 Sample T-Test



Business Example

Finding Potential Markets for Health Insurance

What are we looking for?

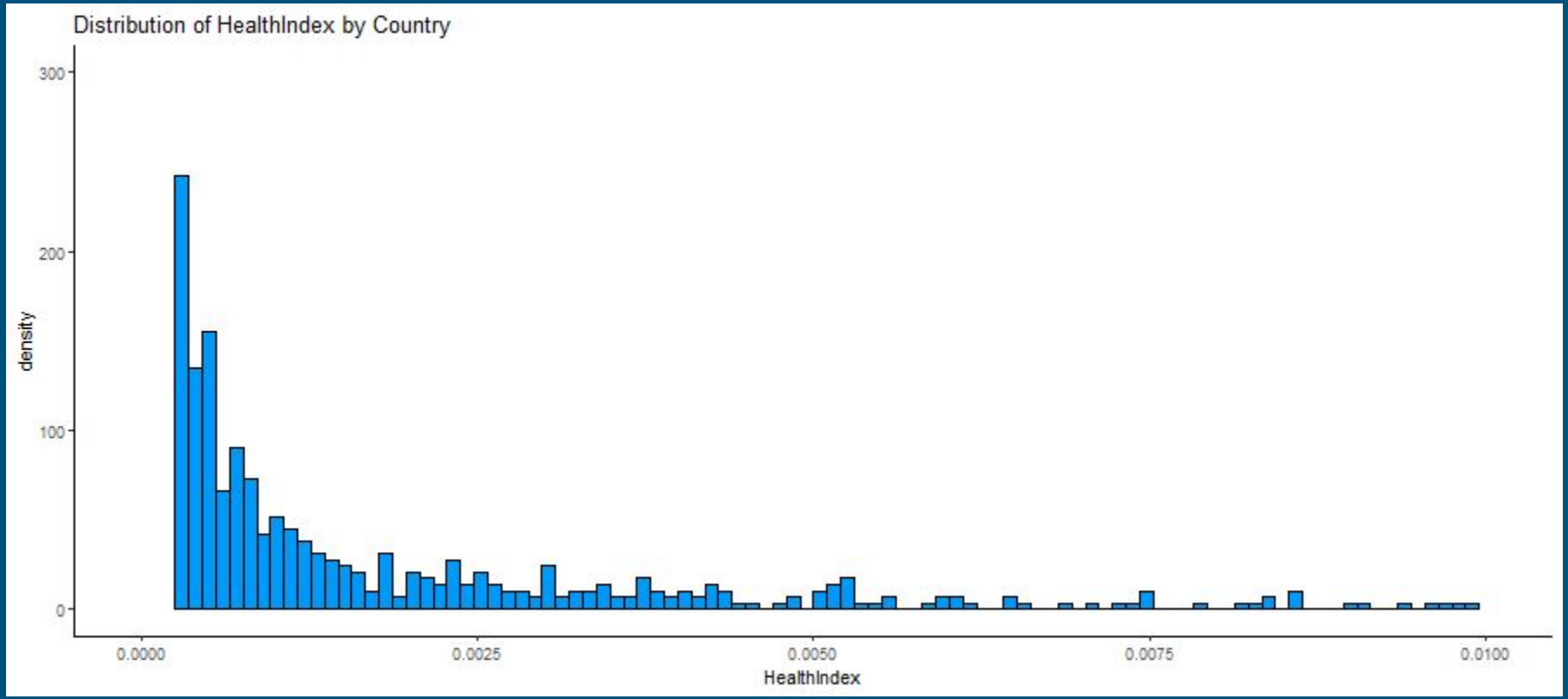
Attributes of best countries for this

- High Life Expectancy
- Low government expenditure on health
- High vaccination rates
- Low alcohol consumption

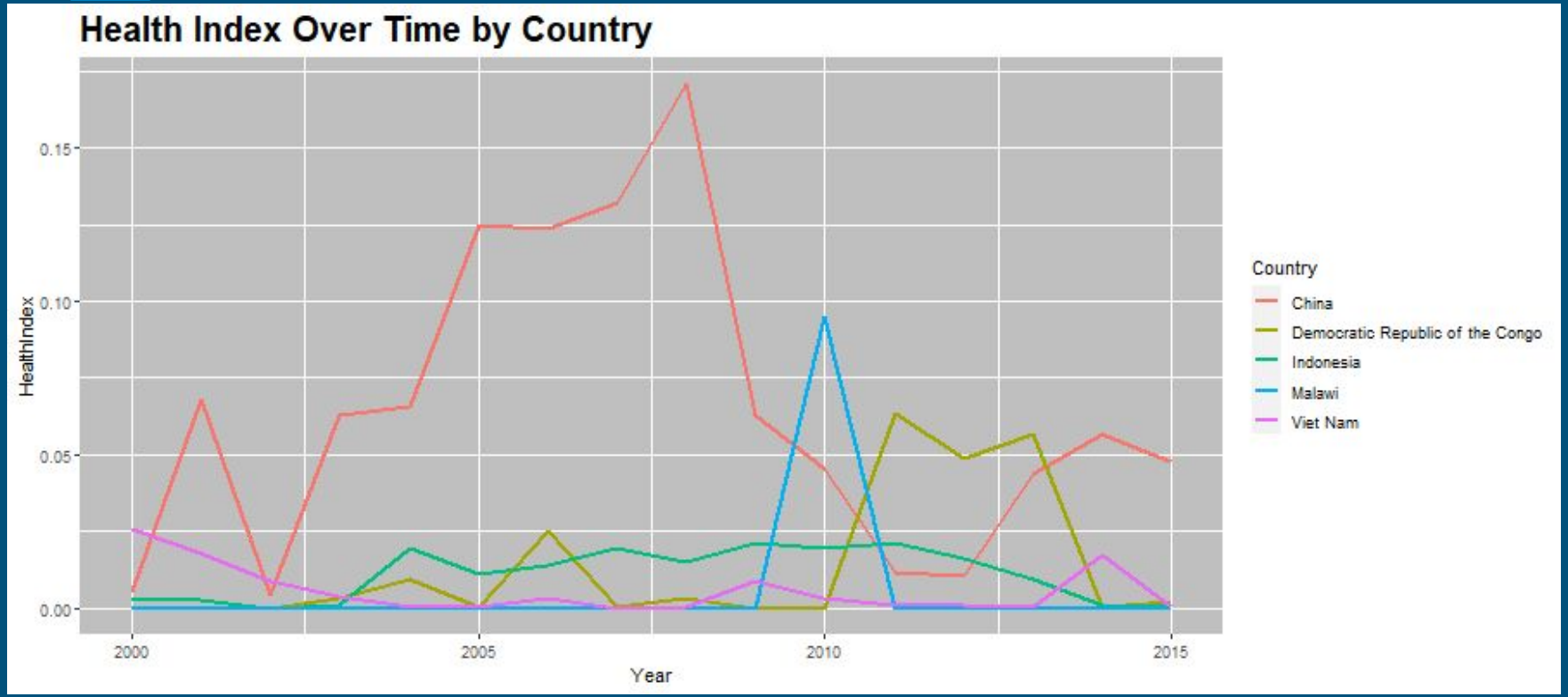
How to do this

- Engineer a feature: Health Metric 0-1
- Scale all Relevant Variables
- Multiply All Variables

Health Metric Distribution



Top 5 Highest Average Health Index



Using a Predictive Model to Guage Life Expectancy

With More Time...

- Incorporate Variable Weight to Health Index Metric
- Include Health Index Metric into Shiny App
- Add more Predictor Variables to Shiny App
- Add a table to compare different countries' demographics in Shiny App