

MA678 Midterm Report

-Health Insurance Charges

Xiang Li

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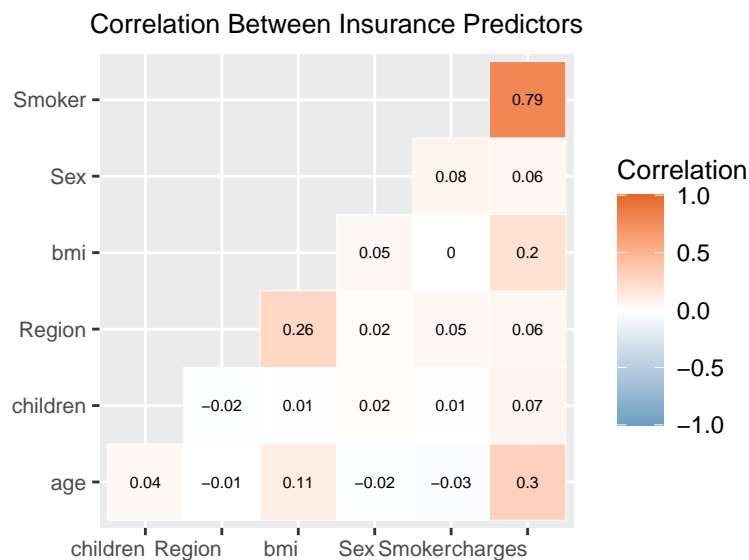
Abstract

Health insurance pays for some or all the cost of the health services you receive, like doctors' visits, hospital stays, and visits to the emergency room. It helps keep your health care costs predictable and affordable. Although being covered by your insurance, you may still have to pay amounts for health insurance, such as premium. In this report, I will analyze how the insurance charges are affected by other factors.

Introduction

Method

At first, I generated a correlation matrix to give me a basic sense of correlation between each factors.



Data Wrangling

I imported a dataset named *US Health Insurance Dataset*

Column names	Explanation
age	Age of primary beneficiary
sex	Insurance contractor gender, female / male
bmi	Body mass index
children	Number of children covered by health insurance
smoker	Smoker / Non - smoker
region	The beneficiary's residential area in the US, northeast/southeast/ southwest/northwest
charges	Individual medical costs billed by health insurance.

Exploratory Data Analysis

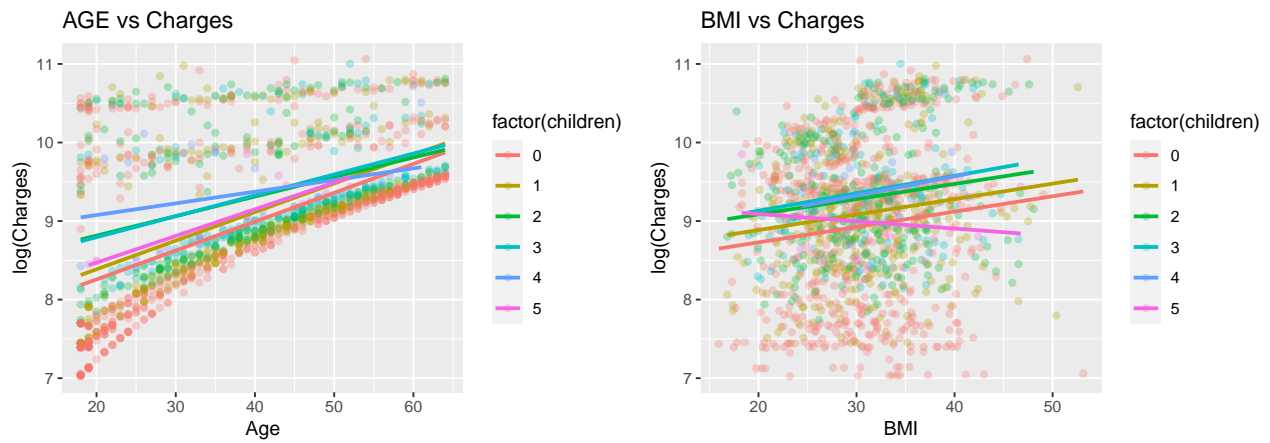


Figure 1: Relationship between age and insurance charges & bmi and insurance charges

Result

Discussion

Appendeix

According to CDC (<https://www.cdc.gov/healthyweight/assessing/index.html>), I divided bmi data to 4 groups.

BMI Data	BMI Group
$bmi \leq 18.5$	Under weight
$18.5 < bmi \leq 24.9$	Healthy weight
$25 < bmi \leq 29.9$	Over weight
$bmi \geq 30$	Obese

Here are violin plots showing the distributions of chargers and each of other factors.

