

Question 7

If we imagine a plot of the data, we think it will resemble $f(x) = 1/x$. Quickly decreasing at first, then slowly, then plateauing. We think: theft, battery, assault, narcotics, and homicide will affect the demand whereas deceptive practice, burglary, and criminal trespassing will be somewhat or completely independent. We came up with this list because we think all crimes that're committed near the bike station will have a much stronger effect on the demand for bikes. Theft, battery, assault, narcotics, and homicide will make the renter feel more concerned about their personal safety. This will decrease their willingness to go to the station and rent a bike. The other crimes wouldn't occur near the bike station. For this reason, we think they won't have much of an effect on bike rentals.

Some crimes may have association. For example, a theft may escalate to an assault or even homicide because the person being stolen from might try to defend themselves and get hurt. Another example could be; someone taking narcotics would logically be more likely to be involved more crimes of any type. Some might be independent because there's no way for the situation to escalate. For example, deceptive practice probably won't be related to theft, homicide, or criminal trespassing.

The actual results could be different. We are thinking logically. People renting bikes won't have perfect information, think perfectly logically, and we have preconceived notions about people we don't understand. There are many other factors besides crime that affect bike demand such as geography, weather, etc. We aren't accounting for any of these.