***4 Findings***

There are many different factors that can be looked at when determining the cause of the road deaths that occur around the world. Today, we will be looking at four different factors that are most likely to be believed as the cause. Many seem to think that the maximum speed limit, number of safety standards, the amount spent on upkeeping the roads, and the amount of people on the roads are the expected causes of road deaths around the world. Although these may not be perfect, each of these different factors lead to interesting hints about what could actually be causing these accidents.

Note: The maps are incomplete due to discrepancies in the naming of countries in the two merged data files. The maps will be improved by resolving those discrepancies and paying more attention to the aesthetics and statistical breaks.

***4.1 Road Deaths and Speed Limits***

Figure 2: Top: Maps comparing maximum speed limit and rates of road death by country. Bottom: Scatter plot of speed limits versus mortality rates. Source: World Health Organization, 2013.

Without a doubt, one would believe that the maximum speed limit would be an easy indicator as to how many road deaths there are in each country. Contrary to popular belief, the maximum speed limit has a slight correlation to the amount of road deaths each country has. In other words, the faster the maximum speed limit, the less road fatalities there are in a given country!

***4.2 Road Deaths and Vehicle Safety Standards***

Figure 3: Top: Maps comparing number of vehicle safety standards and rates of road death by country.

Bottom: Scatter plot of safety standards versus mortality rates. Source: World Health Organization, 2013.

The seven different standards looked at were seatbelt laws, seatbelt anchorages, frontal impact, side impact, electronic stability control, pedestrian protection, and child seats. Each of these are designed to help the occupants of the car and those outside of the vehicle stay alive in case of a crash. The amount of safety standards that each car has, has a strong correlation to the amount of road deaths there are. As to be expected, the more safety standards a car has the less fatalities there are.

***4.3 Road Deaths and Road Infrastructure Spending***

Figure 4: Top: Maps comparing annual infrastructure spending and rates of road death by country. Bottom: Scatter plot of speed limits versus mortality rates. Sources: International Transportation Forum, Organization for Economic Co-operation and Development (2013 road investment) and World Health Organization, 2013 (road deaths).

The more money spent on the roads, the safer the roads have to be. This is because there would be less imperfections in each of the roads making it so there are no external factors that could catch the car and cause accidents to even the most cautious of drivers. With the data that is available, it is obvious that there is a high correlation between amount spent and number of road deaths.

***4.4 Road Deaths and Traffic Congestion***

Figure 5: Top: Maps comparing congestion and rates of road death by country. Bottom: Scatter plot of speed limits versus mortality rates. Sources: International Transportation Forum, Organization for Economic Co-operation and Development (2013 passenger-km), CIA World Factbook (km of road), and World Health Organization, 2013 (road deaths).

The amount of people in the country would have a decently large effect on how many deaths would occur. This is to be expected but there are always exceptions to the rule. For instance, in the given data, India has one of the highest concentrations of people but a much lower number of deaths. This is a prime example of how correlation does not equal causation but can very strongly hint at a relationship.

***4.5 Regression plot?***

Figure 6: A residual plot of the Road Mortality Factors data frame. Values “x1”, “x2”, “x3”, and “x4” correspond to speed limits, safety standards, infrastructure spending, and congestion. The plot shows that the linear model is appropriate in that there is no discernable pattern in the residuals.

I’m honestly unsure of what to put here since this doesn’t make 100% sense to me…..

***5 Conclusion***

In the end, it shows that many of the factors believed to cause or prevent accidents do exactly what they are meant to with the exception of speed limits. The information included in this report can help governments apply a standard to help regulate drivers and lower the amount of deaths in their country. This can also apply to the people themselves by helping them understand what they would need to do in order to create a better environment to drive in. If nothing else, this report shows that the number of safety standards and the amount of money spent on maintaining the roads have the highest correlation to reducing the number of fatal accidents globally.

Highlighted portions might not be necessary or I had doubts about.