

09_19_25_Activity

An Analysis on Driver Deaths in Great Britain Before and After Seat Belt Legislation

https://github.com/stoutphoenix/class_09_19_25

This document provides an insight on driver deaths in Great Britain from 1969 to 1984. The primary focus of our data is how driver deaths may have decreased after mandatory seat belt legislation went into effect in 1982.

```
# Load dataset
df <- data.frame(as.matrix(Seatbelts),date = time(Seatbelts))
summary(df)
```

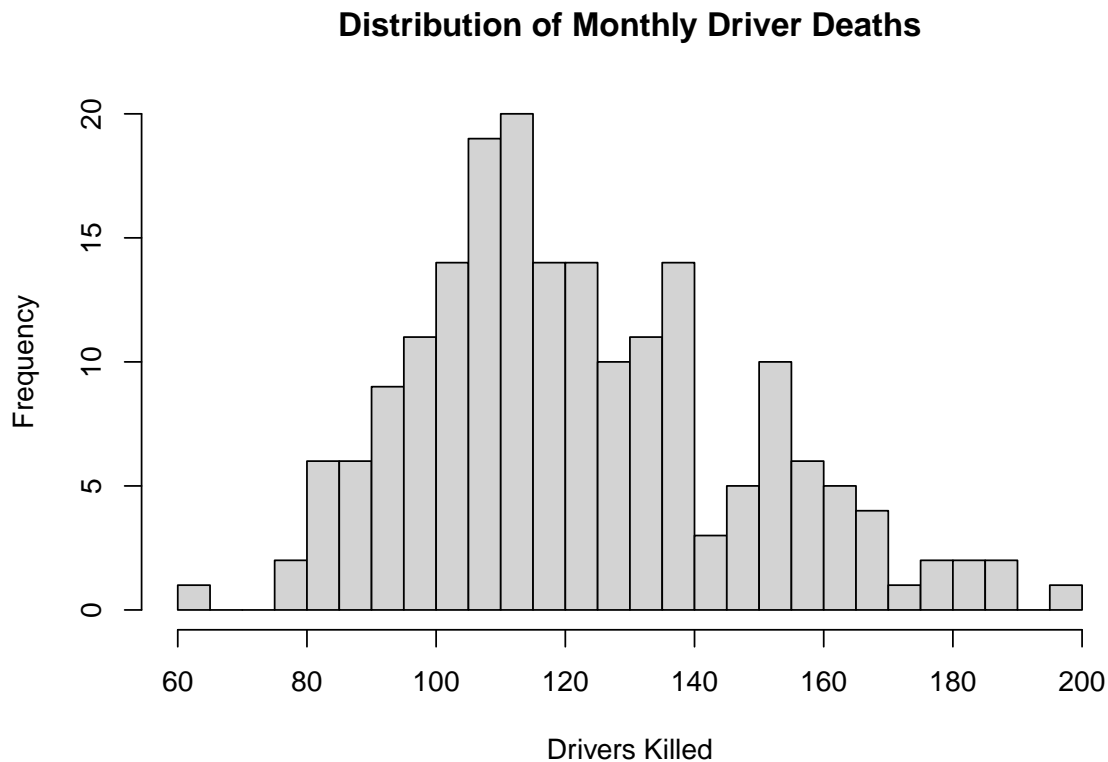
DriversKilled	drivers	front	rear
Min. : 60.0	Min. :1057	Min. : 426.0	Min. :224.0
1st Qu.:104.8	1st Qu.:1462	1st Qu.: 715.5	1st Qu.:344.8
Median :118.5	Median :1631	Median : 828.5	Median :401.5
Mean :122.8	Mean :1670	Mean : 837.2	Mean :401.2
3rd Qu.:138.0	3rd Qu.:1851	3rd Qu.: 950.8	3rd Qu.:456.2
Max. :198.0	Max. :2654	Max. :1299.0	Max. :646.0

kms	PetrolPrice	VanKilled	law
Min. : 7685	Min. :0.08118	Min. : 2.000	Min. :0.0000
1st Qu.:12685	1st Qu.:0.09258	1st Qu.: 6.000	1st Qu.:0.0000
Median :14987	Median :0.10448	Median : 8.000	Median :0.0000
Mean :14994	Mean :0.10362	Mean : 9.057	Mean :0.1198
3rd Qu.:17202	3rd Qu.:0.11406	3rd Qu.:12.000	3rd Qu.:0.0000
Max. :21626	Max. :0.13303	Max. :17.000	Max. :1.0000

date
Min. :1969
1st Qu.:1973
Median :1977
Mean :1977

3rd Qu.:1981
Max. :1985

```
hist(df$DriversKilled, breaks = 20, xlab='Drivers Killed',  
      ylab= 'Frequency', main='Distribution of Monthly Driver Deaths')
```



This histogram shows us the distribution of monthly driver deaths from 1969 to 1984. From the data summary we know the mean of this distribution is 122.8. Next we will see how advances in car safety technology and legislation may have decreased the number of monthly driver deaths over time.

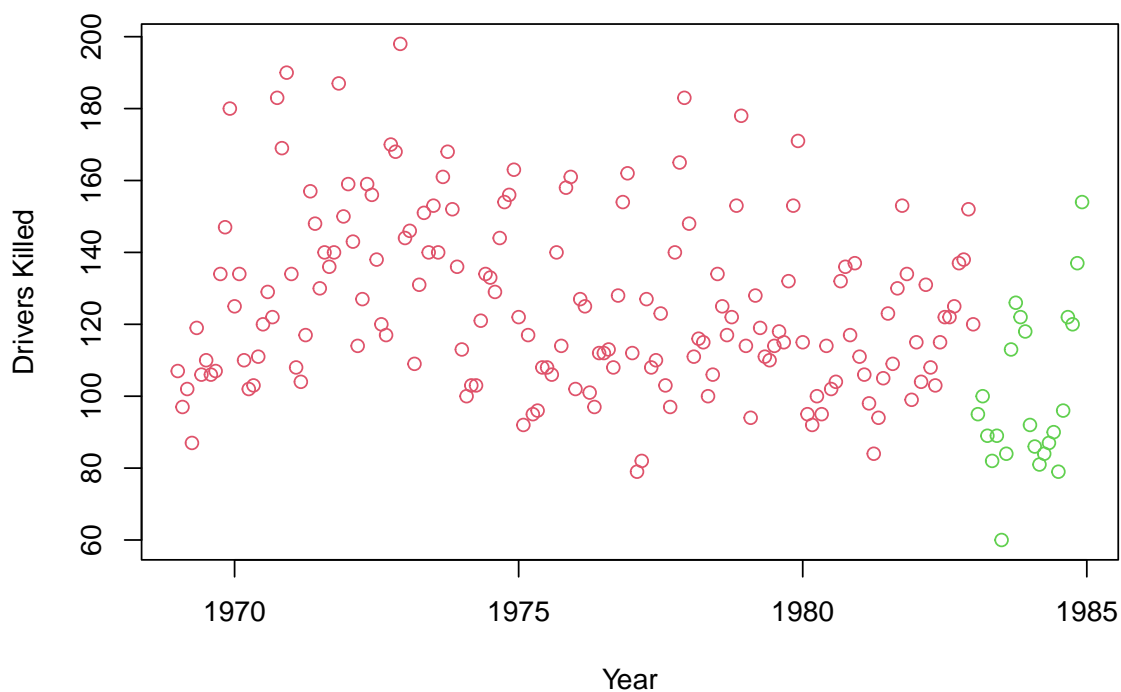
```
plot(df$date, df$DriversKilled, xlab='Year',  
      ylab='Drivers Killed', main='Driver Deaths in Great Britain')
```



An interesting aspect of this data set is it captures the year seat belts became mandatory by law in Great Britain (1983). We can visualize this by coloring points differently in our plot.

```
plot(df$date, df$DriversKilled, col = (df$law +2), ylab="Drivers Killed",  
      xlab= 'Year', main='Driver Deaths in Great Britain')
```

Driver Deaths in Great Britain



```
mean(df$DriversKilled[df$date>=1983])
```

```
[1] 101.0833
```

```
mean(df$DriversKilled[df$date<1983])
```

```
[1] 125.9048
```

While the mean of the deaths lower after the law goes into effect, there is too much noise and variation to decisively tell. Further analysis would be required to determine statistically significant correlation.