Protest Analysis

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Loading Libraries

```
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
library(tidyverse)
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.2
## --
```

```
## v ggplot2 3.5.1     v purrr   1.0.2
## v tibble  3.1.8     v stringr 1.5.1
## v tidyr   1.3.1     v forcats 0.5.2
## v readr   2.1.3
```

```
## Warning: package 'ggplot2' was built under R version 4.2.3
```

```
## Warning: package 'tidyr' was built under R version 4.2.3
```

```
## Warning: package 'stringr' was built under R version 4.2.3
```

```
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

```
library(ggplot2)
```

Import Data

```
ProtestByCity <- read.csv("/Users/aricaschuett/Documents/protest/ProtestByCity3-25.csv", row.names = NU
```

Replace NAs with 0 in Specific Columns

Cities with No Protest

```r
NoProtestCities <- ProtestByCity %>%
  filter(PostGFProtestCount == 0)
write.csv(NoProtestCities, "/Users/aricaschuett/Documents/protest/NoProtestCities3-25.csv")


summary(NoProtestCities$population)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     501     949    1883    4730    4468  617790
```

```r
summary(NoProtestCities$BlackPopPct)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
## 0.00000 0.00000 0.01253 0.08300 0.06592 1.00000
```

```r
summary(NoProtestCities$EduRate)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.    NA's
##  0.0000  0.1228  0.1876  0.2341  0.2978  1.0000       3
```

```r
summary(NoProtestCities$CollegeStudents)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     0.0    24.0    60.0   229.4   180.0 29984.0
```

```r
summary(NoProtestCities$AntiTrumpProtestPreGFCount)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  0.0000  0.0000  0.0000  0.1646  0.0000 28.0000
```

```r
summary(NoProtestCities$VictimsCount)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
## 0.00000 0.00000 0.00000 0.07843 0.00000 8.00000
```

Cities with Protest

```r
ProtestCities <- ProtestByCity %>%
  filter(PostGFProtestCount > 0)
write.csv(ProtestCities, "/Users/aricaschuett/Documents/protest/ProtestCities3-25.csv")

summary(ProtestCities$population)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     505    5263   13652   42411   36063 8419316
```

```r
summary(ProtestCities$BlackPopPct)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
## 0.00000 0.01197 0.03773 0.09974 0.11454 0.97372
```

```r
summary(ProtestCities$EduRate)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  0.0192  0.1954  0.2855  0.3287  0.4303  0.9356
```

```r
summary(ProtestCities$CollegeStudents)
```

```
##     Min.  1st Qu.   Median     Mean  3rd Qu.     Max.
```

```
##      0.0    187.8    641.5   2855.2   2219.2 469139.0
```

```
summary(ProtestCities$AntiTrumpProtestPreGFCount)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##   0.000   0.000   2.000   6.786   5.000 767.000
```

```
summary(ProtestCities$VictimsCount)
```

```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  0.0000  0.0000  0.0000  0.6675  1.0000 61.0000
```

Full Linear Models

```
m1 <- lm(PostGFProtestCount ~ population , data = ProtestByCity)
nobs(m1) #19749
```

```
## [1] 19749
```

```
summary(m1)
```

```
##
## Call:
## lm(formula = PostGFProtestCount ~ population, data = ProtestByCity)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -259.42   -0.14    0.34    0.49  519.06
##
## Coefficients:
##               Estimate Std. Error t value Pr(>|t|)
## (Intercept) -6.075e-01  5.342e-02  -11.37   <2e-16 ***
## population   1.480e-04  6.327e-07  233.97   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 7.427 on 19747 degrees of freedom
## Multiple R-squared:  0.7349, Adjusted R-squared:  0.7349
## F-statistic: 5.474e+04 on 1 and 19747 DF,  p-value: < 2.2e-16
```

```
m2 <- lm(PostGFProtestCount ~ population + BlackPop + BlackPov + CollegeEdTotal + VictimsPreGF2020, data
nobs(m2) #19749
```

```
## [1] 19749
```

```
used_data <- model.frame(m2)
dropped_obs <- anti_join(ProtestByCity, used_data, by = c("PostGFProtestCount","VictimsPreGF2020"))
summary(m2)
```

```
##
## Call:
## lm(formula = PostGFProtestCount ~ population + BlackPop + BlackPov +
##     CollegeEdTotal + VictimsPreGF2020, data = ProtestByCity)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -241.24   -0.19    0.12    0.19  388.42
```

```
##
## Coefficients:
##                     Estimate Std. Error t value Pr(>|t|)
## (Intercept)      -1.626e-01  4.625e-02  -3.515 0.000441 ***
## population       -7.605e-05  3.079e-06 -24.699  < 2e-16 ***
## BlackPop          2.369e-03  2.006e-04  11.813  < 2e-16 ***
## BlackPov         -2.219e-03  2.050e-04 -10.821  < 2e-16 ***
## CollegeEdTotal    7.287e-04  1.055e-05  69.053  < 2e-16 ***
## VictimsPreGF2020 -4.464e+00  2.800e-01 -15.946  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 6.339 on 19743 degrees of freedom
## Multiple R-squared:  0.8069, Adjusted R-squared:  0.8069
## F-statistic: 1.65e+04 on 5 and 19743 DF,  p-value: < 2.2e-16
```

```
m3 <- lm(PostGFProtestCount ~ population + BlackPop + BlackPov + CollegeEdTotal + VictimsPreGF2020, data
nobs(m3) #19749
```

```
## [1] 19749
```

```
used_data <- model.frame(m3)
dropped_obs <- anti_join(ProtestByCity, used_data, by = c("PostGFProtestCount","VictimsPreGF2020"))
summary(m3)
```

```
##
## Call:
## lm(formula = PostGFProtestCount ~ population + BlackPop + BlackPov +
##     CollegeEdTotal + VictimsPreGF2020, data = ProtestByCity)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -241.24   -0.19    0.12    0.19  388.42
##
## Coefficients:
##                     Estimate Std. Error t value Pr(>|t|)
## (Intercept)      -1.626e-01  4.625e-02  -3.515 0.000441 ***
## population       -7.605e-05  3.079e-06 -24.699  < 2e-16 ***
## BlackPop          2.369e-03  2.006e-04  11.813  < 2e-16 ***
## BlackPov         -2.219e-03  2.050e-04 -10.821  < 2e-16 ***
## CollegeEdTotal    7.287e-04  1.055e-05  69.053  < 2e-16 ***
## VictimsPreGF2020 -4.464e+00  2.800e-01 -15.946  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 6.339 on 19743 degrees of freedom
## Multiple R-squared:  0.8069, Adjusted R-squared:  0.8069
## F-statistic: 1.65e+04 on 5 and 19743 DF,  p-value: < 2.2e-16
```

```
m11 <- lm(PostGFProtestCount ~ population + BlackPop + BlackPov + CollegeEdTotal + VictimCountPreGF, da
nobs(m11) #19749
```

```
## [1] 19749
```

```
summary(m11)
```

```
##
```

```
## Call:
## lm(formula = PostGFProtestCount ~ population + BlackPop + BlackPov +
##     CollegeEdTotal + VictimCountPreGF, data = ProtestByCity)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -233.64   -0.21    0.10    0.18  395.78
##
## Coefficients:
##                    Estimate Std. Error t value Pr(>|t|)
## (Intercept)      -1.683e-01  4.613e-02  -3.648 0.000265 ***
## population       -5.275e-05  3.582e-06 -14.725  < 2e-16 ***
## BlackPop          2.553e-03  2.010e-04  12.707  < 2e-16 ***
## BlackPov         -2.427e-03  2.056e-04 -11.803  < 2e-16 ***
## CollegeEdTotal    6.821e-04  1.122e-05  60.772  < 2e-16 ***
## VictimCountPreGF -1.233e+00  6.625e-02 -18.613  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 6.325 on 19743 degrees of freedom
## Multiple R-squared:  0.8078, Adjusted R-squared:  0.8077
## F-statistic: 1.659e+04 on 5 and 19743 DF,  p-value: < 2.2e-16
```

```
m12 <- lm(PostGFProtestCount ~ population + BlackPop + BlackPov + CollegeEdTotal + VictimsPreGF2020, da
nobs(m12) #19749
```

```
## [1] 19749
```

```
summary(m12)
```

```
##
## Call:
## lm(formula = PostGFProtestCount ~ population + BlackPop + BlackPov +
##     CollegeEdTotal + VictimsPreGF2020, data = ProtestByCity)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -241.24   -0.19    0.12    0.19  388.42
##
## Coefficients:
##                     Estimate Std. Error t value Pr(>|t|)
## (Intercept)       -1.626e-01  4.625e-02  -3.515 0.000441 ***
## population        -7.605e-05  3.079e-06 -24.699  < 2e-16 ***
## BlackPop           2.369e-03  2.006e-04  11.813  < 2e-16 ***
## BlackPov          -2.219e-03  2.050e-04 -10.821  < 2e-16 ***
## CollegeEdTotal     7.287e-04  1.055e-05  69.053  < 2e-16 ***
## VictimsPreGF2020 -4.464e+00  2.800e-01 -15.946  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 6.339 on 19743 degrees of freedom
## Multiple R-squared:  0.8069, Adjusted R-squared:  0.8069
## F-statistic: 1.65e+04 on 5 and 19743 DF,  p-value: < 2.2e-16
```

```
m13 <- lm(PostGFProtestCount ~ population + BlackPop + BlackPov + CollegeEdTotal + VictimsPreGF2020Blk,
nobs(m13) #19749
```

```
## [1] 19749
```

```
summary(m13)
```

```
##
## Call:
## lm(formula = PostGFProtestCount ~ population + BlackPop + BlackPov +
##     CollegeEdTotal + VictimsPreGF2020Blk, data = ProtestByCity)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -242.23   -0.16    0.14    0.21  381.40
##
## Coefficients:
##                       Estimate Std. Error t value Pr(>|t|)
## (Intercept)         -1.737e-01  4.627e-02  -3.754 0.000174 ***
## population          -8.953e-05  2.929e-06 -30.567  < 2e-16 ***
## BlackPop             2.418e-03  2.013e-04  12.015  < 2e-16 ***
## BlackPov            -2.247e-03  2.056e-04 -10.927  < 2e-16 ***
## CollegeEdTotal       7.603e-04  1.029e-05  73.903  < 2e-16 ***
## VictimsPreGF2020Blk -8.505e+00  5.690e-01 -14.946  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 6.344 on 19743 degrees of freedom
## Multiple R-squared:  0.8066, Adjusted R-squared:  0.8066
## F-statistic: 1.647e+04 on 5 and 19743 DF,  p-value: < 2.2e-16
```

```
m14 <- lm(PostGFProtestCount ~ population + BlackPopPct + BlackPovRate + EduRate + VictimCountPreGF, da
nobs(m14) #19749
```

```
## [1] 15388
```

```
summary(m14)
```

```
##
## Call:
## lm(formula = PostGFProtestCount ~ population + BlackPopPct +
##     BlackPovRate + EduRate + VictimCountPreGF, data = ProtestByCity)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -186.00   -0.65    0.10    0.49  510.92
##
## Coefficients:
##                     Estimate Std. Error t value Pr(>|t|)
## (Intercept)        2.083e-01  2.595e-01   0.803 0.422107
## population         1.774e-04  9.680e-07 183.265  < 2e-16 ***
## BlackPopPct        7.688e-01  3.617e-01   2.125 0.033562 *
## BlackPovRate      -9.135e-01  2.624e-01  -3.481 0.000501 ***
## EduRate            1.357e-01  3.841e-01   0.353 0.723958
## VictimCountPreGF -3.143e+00  7.414e-02 -42.388  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 7.949 on 15382 degrees of freedom
```

```
##   (4361 observations deleted due to missingness)
## Multiple R-squared:  0.7629, Adjusted R-squared:  0.7629
## F-statistic:  9901 on 5 and 15382 DF,  p-value: < 2.2e-16
```

Place with No Black People

```
m4 <- lm(PostGFProtestCount ~ population + BlackPopPct + BlackPovRate + EduRate + VictimsPreGF2020, data
nobs(m4) #15388 # drops places with no Black People
```

```
## [1] 15388
```

```
used_data <- model.frame(m4)
dropped_obs <- anti_join(ProtestByCity, used_data, by = c("PostGFProtestCount","population"))
summary(m4)
```

```
##
## Call:
## lm(formula = PostGFProtestCount ~ population + BlackPopPct +
##     BlackPovRate + EduRate + VictimsPreGF2020, data = ProtestByCity)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -232.66   -0.56    0.23    0.60  512.72
##
## Coefficients:
##                    Estimate Std. Error t value Pr(>|t|)
## (Intercept)       4.605e-02  2.682e-01   0.172 0.863678
## population        1.568e-04  7.745e-07 202.429  < 2e-16 ***
## BlackPopPct       5.211e-01  3.738e-01   1.394 0.163299
## BlackPovRate     -9.560e-01  2.712e-01  -3.524 0.000426 ***
## EduRate           5.362e-01  3.969e-01   1.351 0.176669
## VictimsPreGF2020 -9.395e+00  3.554e-01 -26.437  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 8.216 on 15382 degrees of freedom
##   (4361 observations deleted due to missingness)
## Multiple R-squared:  0.7468, Adjusted R-squared:  0.7467
## F-statistic:  9072 on 5 and 15382 DF,  p-value: < 2.2e-16
```

```
m5 <- lm(PostGFProtestCount ~ population + BlackPopPct + BlackPovRate + EduRate + BlackVictimCountPreGF
nobs(m5) #15388
```

```
## [1] 15388
```

```
summary(m5)
```

```
##
## Call:
## lm(formula = PostGFProtestCount ~ population + BlackPopPct +
##     BlackPovRate + EduRate + BlackVictimCountPreGF, data = ProtestByCity)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -232.46   -0.44    0.34    0.75  519.58
##
```

```
## Coefficients:
##                           Estimate Std. Error t value Pr(>|t|)
## (Intercept)           -4.644e-02  2.728e-01  -0.170 0.864857
## population             1.564e-04  9.660e-07 161.925  < 2e-16 ***
## BlackPopPct            8.434e-01  3.834e-01   2.200 0.027835 *
## BlackPovRate          -1.045e+00  2.759e-01  -3.787 0.000153 ***
## EduRate                5.772e-01  4.037e-01   1.430 0.152773
## BlackVictimCountPreGF -2.203e+00  1.747e-01 -12.606  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 8.358 on 15382 degrees of freedom
##   (4361 observations deleted due to missingness)
## Multiple R-squared:  0.738,  Adjusted R-squared:  0.7379
## F-statistic:  8664 on 5 and 15382 DF,  p-value: < 2.2e-16
```

```
m6 <- lm(PostGFProtestCount ~ population + BlackPopPct + BlackPovRate + EduRate + BlackVictimCountPreGF
nobs(m6) #15388
```

```
## [1] 15388
```

```
summary(m6)
```

```
##
## Call:
## lm(formula = PostGFProtestCount ~ population + BlackPopPct +
##     BlackPovRate + EduRate + BlackVictimCountPreGF, data = ProtestByCity)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -232.46   -0.44    0.34    0.75  519.58
##
## Coefficients:
##                           Estimate Std. Error t value Pr(>|t|)
## (Intercept)           -4.644e-02  2.728e-01  -0.170 0.864857
## population             1.564e-04  9.660e-07 161.925  < 2e-16 ***
## BlackPopPct            8.434e-01  3.834e-01   2.200 0.027835 *
## BlackPovRate          -1.045e+00  2.759e-01  -3.787 0.000153 ***
## EduRate                5.772e-01  4.037e-01   1.430 0.152773
## BlackVictimCountPreGF -2.203e+00  1.747e-01 -12.606  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 8.358 on 15382 degrees of freedom
##   (4361 observations deleted due to missingness)
## Multiple R-squared:  0.738,  Adjusted R-squared:  0.7379
## F-statistic:  8664 on 5 and 15382 DF,  p-value: < 2.2e-16
```

```
m7 <- lm(PostGFProtestCount ~ population + BlackPopPct + BlackPovRate + EduRate + AntiTrumpProtestPreGF
nobs(m7) #15388
```

```
## [1] 15388
```

```
summary(m7) #controling for anti-trump protests makes the education rate go negative.
```

```
##
## Call:
```

```
## lm(formula = PostGFProtestCount ~ population + BlackPopPct +
##     BlackPovRate + EduRate + AntiTrumpProtestPreGFCount + BlackVictimCountPreGF,
##     data = ProtestByCity)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -154.63   -0.14    0.42    0.77  337.78
##
## Coefficients:
##                               Estimate Std. Error t value Pr(>|t|)
## (Intercept)                  7.404e-02  2.139e-01   0.346   0.7293
## population                   8.912e-05  1.022e-06  87.234  < 2e-16 ***
## BlackPopPct                  7.663e-01  3.006e-01   2.549   0.0108 *
## BlackPovRate                -4.803e-01  2.164e-01  -2.219   0.0265 *
## EduRate                     -2.207e+00  3.178e-01  -6.945 3.94e-12 ***
## AntiTrumpProtestPreGFCount   6.894e-01  7.023e-03  98.164  < 2e-16 ***
## BlackVictimCountPreGF       -4.495e+00  1.390e-01 -32.340  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 6.554 on 15381 degrees of freedom
##   (4361 observations deleted due to missingness)
## Multiple R-squared:  0.8389, Adjusted R-squared:  0.8388
## F-statistic: 1.335e+04 on 6 and 15381 DF,  p-value: < 2.2e-16
```

```
m15 <- lm(PostGFProtestCount ~ population + BlackPopPct + BlackPovRate + EduRate + BlackVictimCountPreGF
nobs(m15) #15388
```

```
## [1] 15388
```

```
summary(m15)
```

```
##
## Call:
## lm(formula = PostGFProtestCount ~ population + BlackPopPct +
##     BlackPovRate + EduRate + BlackVictimCountPreGF, data = ProtestByCity)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -232.46   -0.44    0.34    0.75  519.58
##
## Coefficients:
##                            Estimate Std. Error t value Pr(>|t|)
## (Intercept)              -4.644e-02  2.728e-01  -0.170 0.864857
## population                1.564e-04  9.660e-07 161.925  < 2e-16 ***
## BlackPopPct               8.434e-01  3.834e-01   2.200 0.027835 *
## BlackPovRate             -1.045e+00  2.759e-01  -3.787 0.000153 ***
## EduRate                   5.772e-01  4.037e-01   1.430 0.152773
## BlackVictimCountPreGF -2.203e+00  1.747e-01 -12.606  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 8.358 on 15382 degrees of freedom
##   (4361 observations deleted due to missingness)
## Multiple R-squared:  0.738,  Adjusted R-squared:  0.7379
```

```
## F-statistic:  8664 on 5 and 15382 DF,  p-value: < 2.2e-16
```

```
ProtestByCity$PoliceDeathsRate <- ProtestByCity$VictimCountPreGF/ProtestByCity$population
ProtestByCity$BlackVictimsRate <- ProtestByCity$BlackVictimCountPreGF/ProtestByCity$population

m16 <- lm(PostGFProtestCount ~ population + BlackPopPct + BlackPovRate + EduRate + PoliceDeathsRate, da
nobs(m16) #15388
```

```
## [1] 15388
```

```
summary(m16)
```

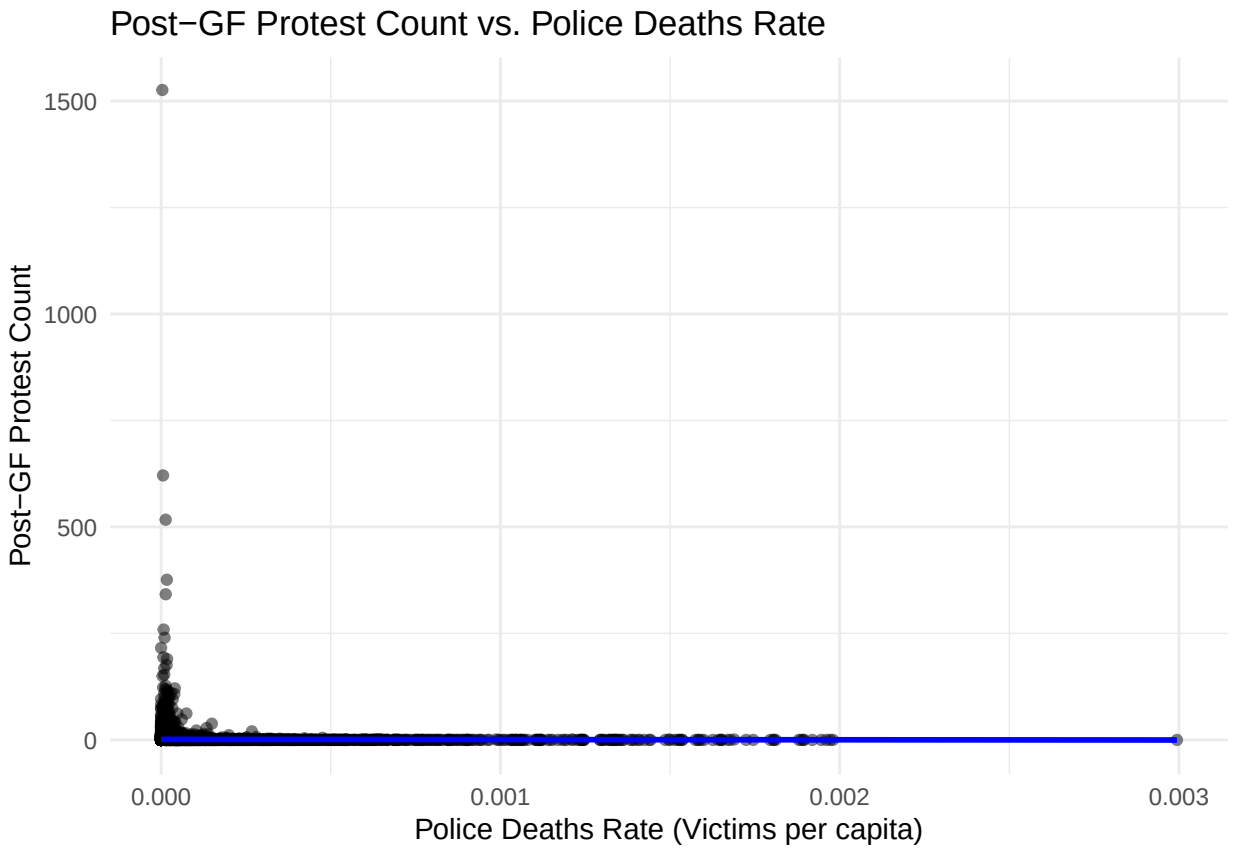
```
##
## Call:
## lm(formula = PostGFProtestCount ~ population + BlackPopPct +
##     BlackPovRate + EduRate + PoliceDeathsRate, data = ProtestByCity)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -259.76   -0.41    0.38    0.74  518.86
##
## Coefficients:
##                     Estimate Std. Error t value Pr(>|t|)
## (Intercept)      -4.263e-03  2.748e-01  -0.016 0.987623
## population        1.483e-04  7.199e-07 205.935  < 2e-16 ***
## BlackPopPct       1.973e-01  3.821e-01   0.516 0.605631
## BlackPovRate     -1.039e+00  2.773e-01  -3.748 0.000179 ***
## EduRate           6.027e-01  4.065e-01   1.483 0.138191
## PoliceDeathsRate  4.561e+02  6.126e+02   0.744 0.456591
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 8.401 on 15382 degrees of freedom
##   (4361 observations deleted due to missingness)
## Multiple R-squared:  0.7353, Adjusted R-squared:  0.7352
## F-statistic:  8544 on 5 and 15382 DF,  p-value: < 2.2e-16
```

Scatter Plots

Scatter Plot of Protest Count vs. Police Deaths Rate

```
p1 <- ggplot(ProtestByCity, aes(x = PoliceDeathsRate, y = PostGFProtestCount)) +
  geom_point(alpha = 0.5) +
  geom_smooth(method = "lm", se = TRUE, color = "blue") +
  labs(title = "Post-GF Protest Count vs. Police Deaths Rate",
       x = "Police Deaths Rate (Victims per capita)",
       y = "Post-GF Protest Count") +
  theme_minimal()
p1
```

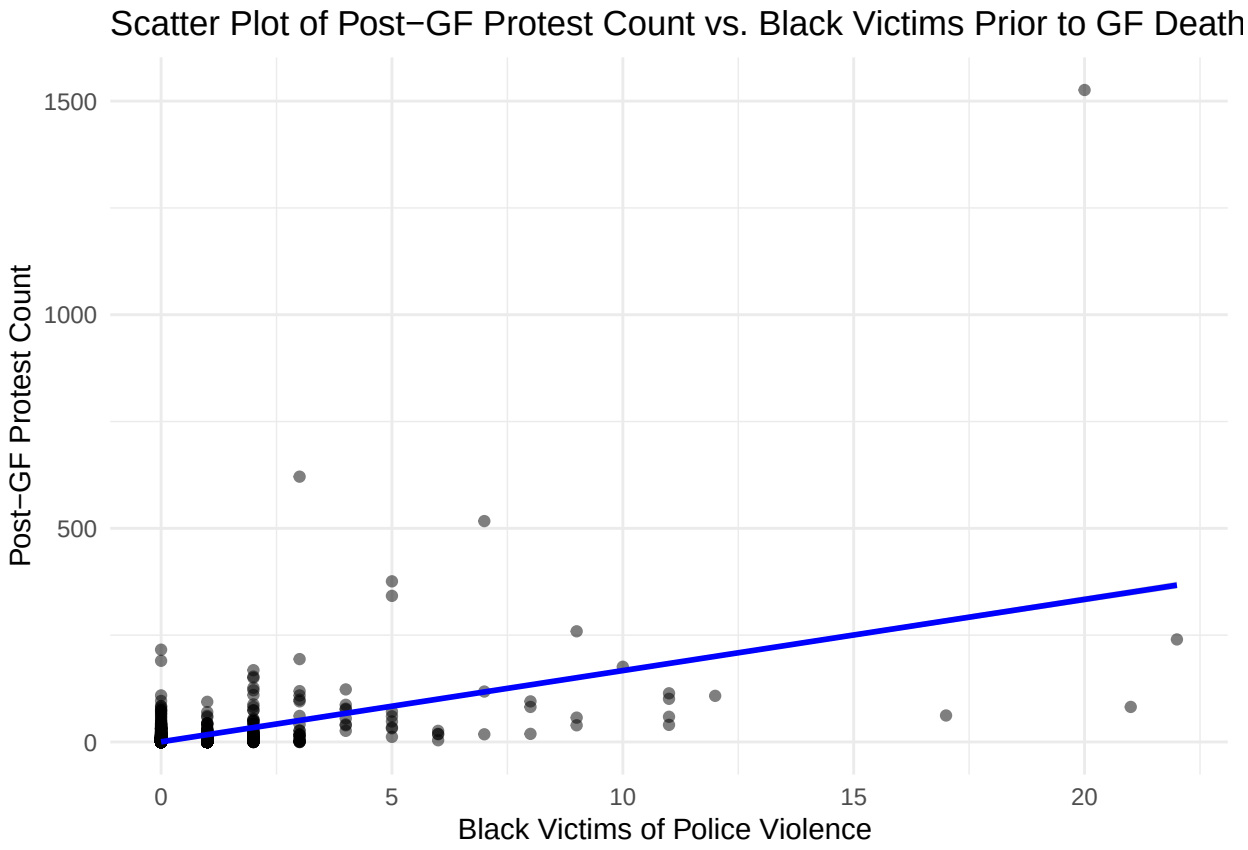
```
## `geom_smooth()` using formula = 'y ~ x'
```



Post-GF Protest Count vs. Black Victims

```
p1 <- ggplot(ProtestByCity, aes(x = BlackVictimCountPreGF, y = PostGFProtestCount)) +
  geom_point(alpha = 0.5) +
  geom_smooth(method = "lm", se = TRUE, color = "blue") +
  labs(title = "Scatter Plot of Post-GF Protest Count vs. Black Victims Prior to GF Death",
       x = "Black Victims of Police Violence ",
       y = "Post-GF Protest Count") +
  theme_minimal()
p1
```

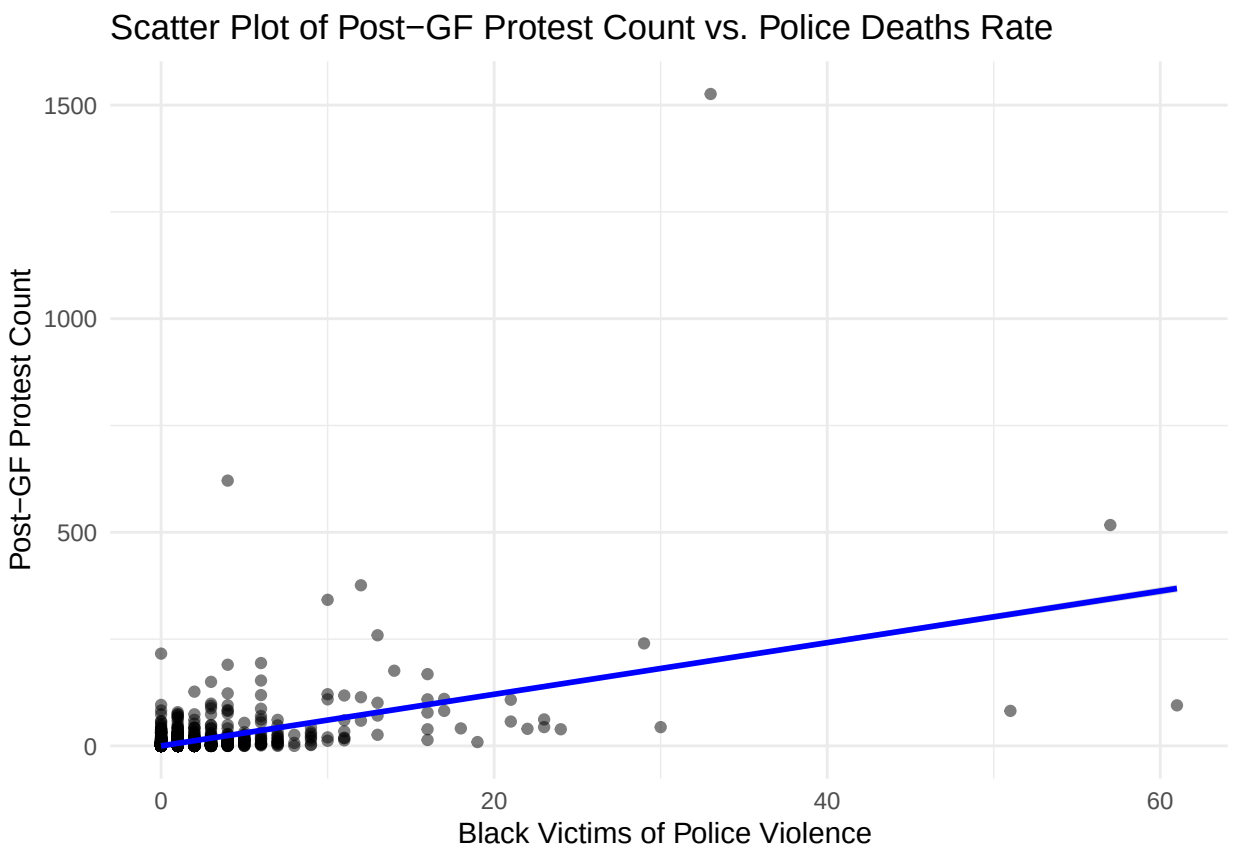
```
## `geom_smooth()` using formula = 'y ~ x'
```



Post-GF Protest Count vs. Victims Count

```
p2 <- ggplot(ProtestByCity, aes(x = VictimsCount, y = PostGFProtestCount)) +
  geom_point(alpha = 0.5) +
  geom_smooth(method = "lm", se = TRUE, color = "blue") +
  labs(title = "Scatter Plot of Post-GF Protest Count vs. Police Deaths Rate",
       x = "Black Victims of Police Violence ",
       y = "Post-GF Protest Count") +
  theme_minimal()
p2
```

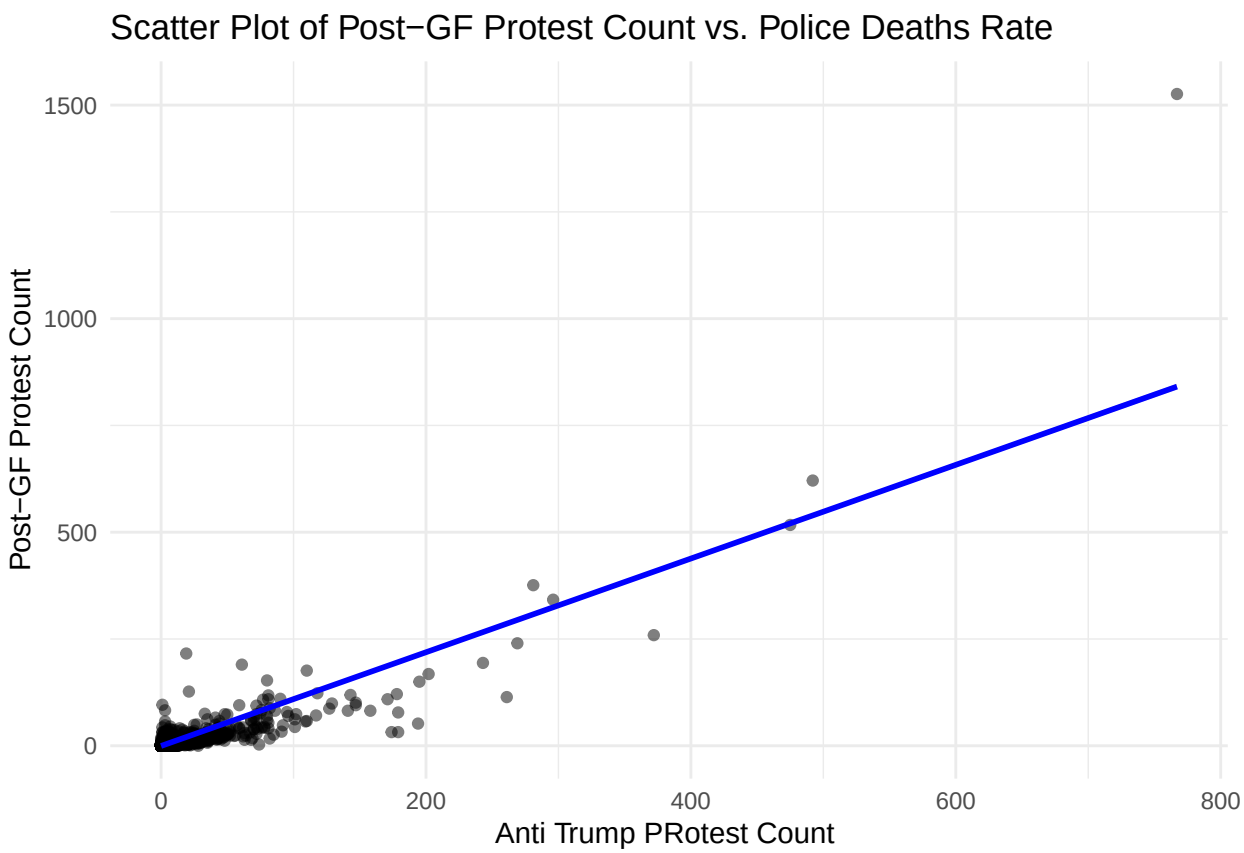
```
## `geom_smooth()` using formula = 'y ~ x'
```



Post-GF Protest Count vs. Anti-Trump Protest Count

```
p3 <- ggplot(ProtestByCity, aes(x = AntiTrumpProtestPreGFCount, y = PostGFProtestCount)) +
  geom_point(alpha = 0.5) +
  geom_smooth(method = "lm", se = TRUE, color = "blue") +
  labs(title = "Scatter Plot of Post-GF Protest Count vs. Police Deaths Rate",
       x = "Anti Trump PRotest Count ",
       y = "Post-GF Protest Count") +
  theme_minimal()
p3
```

```
## `geom_smooth()` using formula = 'y ~ x'
```


Scatter Plot of Post−GF Protest Count vs. Police Deaths Rate
Post−GF Protest Count
1500
1000
500
0
0
200
400
600
800
Anti Trump PRotest Count