CONFLICT

Tanay

Objective number1

Investigated how political instability, violence against journalists, and regional factors affect press freedom across countries over a 15-year period. The goal was to quantify the relationship between conflict and media freedom using regression analysis.

Data Collection: Compiled data from multiple public sources for over 100 countries between 2008–2022, including:

Press Freedom Index

Journalist fatalities (sum of male + female reporters killed per country-year)

Political instability scores

Weapons data

Step 1 number1

Loading the data and necessary libraries

```
options(repos = c(CRAN = "https://cloud.r-project.org"))
library(dplyr)

## Warning: package 'dplyr' was built under R version 4.3.3

##
## 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(tidyr)

## Warning: package 'tidyr' was built under R version 4.3.2

library(car)

## Warning: package 'car' was built under R version 4.3.3

## Loading required package: carData
```

```
## Warning: package 'carData' was built under R version 4.3.2

##
## Attaching package: 'car'

## The following object is masked from 'package:dplyr':
##
##     recode

data = read.csv("C:/Users/HP/Downloads/CONFLICTDATA.csv")
head(data)

##        Coutry Year Male Female Weapons PInstability MaleU Frisk     Agri
## 1 Afghanistan 2008    2      0       5         4.25   7.4    No 24.89227
## 2 Afghanistan 2009    2      1       5         4.25   7.4    No 29.29750
## 3 Afghanistan 2010    1      0       5         3.75   7.4    No 26.21007
## 4 Afghanistan 2011    2      0       5         3.75   7.4    No 23.74366
## 5 Afghanistan 2012    0      0       5         4.00   7.4    No 24.39087
## 6 Afghanistan 2013    1      0       5         5.00   7.4    No 22.81066
##    CDeaths NAm Africa Europe Oc SA     Vuln    EducS   Free Su
## 1 5,644.00   0      0      0  0  0 90.60775 4.383672 39.250  2
## 2 6,488.00   0      0      0  0  0 89.98442 4.810640 62.250  3
## 3 7,151.00   0      0      0  0  0 89.31676 3.479450 54.330  1
## 4 7,560.00   0      0      0  0  0 88.68815 3.462010 61.665  2
## 5 7,754.00   0      0      0  0  0 87.94329 2.604200 69.000  0
## 6 8,104.00   0      0      0  0  0 86.86477 3.454460 62.640  1

summary(data)

##     Coutry               Year           Male             Female
##  Length:1290        Min.   :2008   Min.   : 0.0000   Min.   :0.00000
##  Class :character   1st Qu.:2011   1st Qu.: 0.0000   1st Qu.:0.00000
##  Mode  :character   Median :2015   Median : 0.0000   Median :0.00000
##                     Mean   :2015   Mean   : 0.9457   Mean   :0.05271
##                     3rd Qu.:2019   3rd Qu.: 1.0000   3rd Qu.:0.00000
##                     Max.   :2022   Max.   :70.0000   Max.   :4.00000
##
##     Weapons      PInstability       MaleU           Frisk
##  Min.   :1.00   Min.   :1.000   Min.   : 0.100   Length:1290
##  1st Qu.:3.00   1st Qu.:2.000   1st Qu.: 3.400   Class :character
##  Median :4.00   Median :2.750   Median : 5.100   Mode  :character
##  Mean   :3.43   Mean   :2.787   Mean   : 6.904
##  3rd Qu.:4.00   3rd Qu.:3.500   3rd Qu.: 9.800
##  Max.   :5.00   Max.   :5.000   Max.   :27.500
##  NA's   :68     NA's   :69      NA's   :46
##       Agri            CDeaths              NAm             Africa
##  Min.   : 0.02653   Length:1290        Min.   :0.0000   Min.   :0.0000
##  1st Qu.: 3.63310   Class :character   1st Qu.:0.0000   1st Qu.:0.0000
##  Median : 8.35798   Mode  :character   Median :0.0000   Median :0.0000
##  Mean   :12.38374                      Mean   :0.1475   Mean   :0.4426
##  3rd Qu.:19.76287                      3rd Qu.:0.0000   3rd Qu.:1.0000
```

```
##  Max.   :65.17457                    Max.   :1.0000   Max.   :1.0000
##  NA's   :66                          NA's   :375      NA's   :375
##      Europe             Oc            SA              Vuln
##  Min.   :0.0000   Min.   :0     Min.   :0.0000   Min.   : 1.007
##  1st Qu.:0.0000   1st Qu.:0     1st Qu.:0.0000   1st Qu.:20.943
##  Median :0.0000   Median :0     Median :0.0000   Median :40.729
##  Mean   :0.1967   Mean   :0     Mean   :0.1311   Mean   :43.924
##  3rd Qu.:0.0000   3rd Qu.:0     3rd Qu.:0.0000   3rd Qu.:70.275
##  Max.   :1.0000   Max.   :0     Max.   :1.0000   Max.   :92.491
##  NA's   :375      NA's   :375   NA's   :375      NA's   :31
##      EducS              Free              Su
##  Min.   : 0.3485   Min.   :  1.00   Min.   : 0.0000
##  1st Qu.: 2.8253   1st Qu.: 54.10   1st Qu.: 0.0000
##  Median : 3.7103   Median : 66.14   Median : 0.0000
##  Mean   : 3.8742   Mean   : 66.07   Mean   : 0.9984
##  3rd Qu.: 4.8939   3rd Qu.: 76.69   3rd Qu.: 1.0000
##  Max.   :10.8265   Max.   :152.00   Max.   :70.0000
##  NA's   :288
```

So there are some nulls in the important columns. Treating them in the cleaning process:

Step 2 number1

Data Cleaning:

Standardized year and region identifiers

Removed incomplete entries and handled nulls

Converted regional categories to dummy variables for regression (did the conversion in Google sheets)

```
data_clean = data %>%
  group_by(Coutry) %>%
  filter(!any(is.na(PInstability))) %>%
  ungroup()
summary(data_clean)
```

```
##     Coutry               Year           Male             Female
##  Length:1185        Min.   :2008   Min.   : 0.0000   Min.   :0.00000
##  Class :character   1st Qu.:2011   1st Qu.: 0.0000   1st Qu.:0.00000
##  Mode  :character   Median :2015   Median : 0.0000   Median :0.00000
##                     Mean   :2015   Mean   : 0.9983   Mean   :0.05316
##                     3rd Qu.:2019   3rd Qu.: 1.0000   3rd Qu.:0.00000
##                     Max.   :2022   Max.   :70.0000   Max.   :4.00000
##
##     Weapons       PInstability       MaleU           Frisk
##  Min.   :1.000   Min.   :1.000   Min.   : 0.100   Length:1185
##  1st Qu.:3.000   1st Qu.:2.000   1st Qu.: 3.400   Class :character
##  Median :4.000   Median :2.750   Median : 5.000   Mode  :character
##  Mean   :3.417   Mean   :2.755   Mean   : 6.796
```

```
##  3rd Qu.:4.000   3rd Qu.:3.500   3rd Qu.: 9.400
##  Max.   :5.000   Max.   :5.000   Max.   :27.500
##  NA's   :10                      NA's   :16
##       Agri            CDeaths              NAm             Africa
##  Min.   : 0.02653   Length:1185        Min.   :0.0000   Min.   :0.0000
##  1st Qu.: 3.80560   Class :character   1st Qu.:0.0000   1st Qu.:0.0000
##  Median : 8.96605   Mode  :character   Median :0.0000   Median :0.0000
##  Mean   :12.93564                      Mean   :0.1607   Mean   :0.4286
##  3rd Qu.:20.88552                      3rd Qu.:0.0000   3rd Qu.:1.0000
##  Max.   :65.17457                      Max.   :1.0000   Max.   :1.0000
##  NA's   :59                            NA's   :345      NA's   :345
##      Europe             Oc            SA              Vuln
##  Min.   :0.0000   Min.   :0     Min.   :0.0000   Min.   : 1.007
##  1st Qu.:0.0000   1st Qu.:0     1st Qu.:0.0000   1st Qu.:21.747
##  Median :0.0000   Median :0     Median :0.0000   Median :40.729
##  Mean   :0.1964   Mean   :0     Mean   :0.1429   Mean   :43.915
##  3rd Qu.:0.0000   3rd Qu.:0     3rd Qu.:0.0000   3rd Qu.:69.748
##  Max.   :1.0000   Max.   :0     Max.   :1.0000   Max.   :92.491
##  NA's   :345      NA's   :345   NA's   :345      NA's   :16
##      EducS              Free              Su
##  Min.   : 0.3485   Min.   :  1.00   Min.   : 0.000
##  1st Qu.: 2.8123   1st Qu.: 53.29   1st Qu.: 0.000
##  Median : 3.7139   Median : 66.21   Median : 0.000
##  Mean   : 3.8855   Mean   : 65.79   Mean   : 1.051
##  3rd Qu.: 4.9041   3rd Qu.: 76.90   3rd Qu.: 1.000
##  Max.   :10.8265   Max.   :152.00   Max.   :70.000
##  NA's   :256
```

```
data_clean$CDeaths = as.numeric(data_clean$CDeaths)
```

```
## Warning: NAs introduced by coercion
```

```
summary(data_clean)
```

```
##     Coutry               Year           Male              Female
##  Length:1185        Min.   :2008   Min.   : 0.0000   Min.   :0.00000
##  Class :character   1st Qu.:2011   1st Qu.: 0.0000   1st Qu.:0.00000
##  Mode  :character   Median :2015   Median : 0.0000   Median :0.00000
##                     Mean   :2015   Mean   : 0.9983   Mean   :0.05316
##                     3rd Qu.:2019   3rd Qu.: 1.0000   3rd Qu.:0.00000
##                     Max.   :2022   Max.   :70.0000   Max.   :4.00000
##
##     Weapons       PInstability       MaleU           Frisk
##  Min.   :1.000   Min.   :1.000   Min.   : 0.100   Length:1185
##  1st Qu.:3.000   1st Qu.:2.000   1st Qu.: 3.400   Class :character
##  Median :4.000   Median :2.750   Median : 5.000   Mode  :character
##  Mean   :3.417   Mean   :2.755   Mean   : 6.796
##  3rd Qu.:4.000   3rd Qu.:3.500   3rd Qu.: 9.400
##  Max.   :5.000   Max.   :5.000   Max.   :27.500
##  NA's   :10                      NA's   :16
##       Agri            CDeaths              NAm             Africa
```

```
##  Min.   : 0.02653   Min.   :  0.00   Min.   :0.0000   Min.   :0.0000
##  1st Qu.: 3.80560   1st Qu.:  0.00   1st Qu.:0.0000   1st Qu.:0.0000
##  Median : 8.96605   Median :  0.00   Median :0.0000   Median :0.0000
##  Mean   :12.93564   Mean   : 79.62   Mean   :0.1607   Mean   :0.4286
##  3rd Qu.:20.88552   3rd Qu.: 40.00   3rd Qu.:0.0000   3rd Qu.:1.0000
##  Max.   :65.17457   Max.   :996.00   Max.   :1.0000   Max.   :1.0000
##  NA's   :59         NA's   :155      NA's   :345      NA's   :345
##      Europe             Oc              SA              Vuln
##  Min.   :0.0000   Min.   :0     Min.   :0.0000   Min.   : 1.007
##  1st Qu.:0.0000   1st Qu.:0     1st Qu.:0.0000   1st Qu.:21.747
##  Median :0.0000   Median :0     Median :0.0000   Median :40.729
##  Mean   :0.1964   Mean   :0     Mean   :0.1429   Mean   :43.915
##  3rd Qu.:0.0000   3rd Qu.:0     3rd Qu.:0.0000   3rd Qu.:69.748
##  Max.   :1.0000   Max.   :0     Max.   :1.0000   Max.   :92.491
##  NA's   :345      NA's   :345   NA's   :345      NA's   :16
##      EducS              Free              Su
##  Min.   : 0.3485   Min.   :  1.00   Min.   : 0.000
##  1st Qu.: 2.8123   1st Qu.: 53.29   1st Qu.: 0.000
##  Median : 3.7139   Median : 66.21   Median : 0.000
##  Mean   : 3.8855   Mean   : 65.79   Mean   : 1.051
##  3rd Qu.: 4.9041   3rd Qu.: 76.90   3rd Qu.: 1.000
##  Max.   :10.8265   Max.   :152.00   Max.   :70.000
##  NA's   :256
```

```
library(dplyr)

data_clean = data %>%
  filter(!is.na(Coutry))%>%
  filter(!is.na(PInstability))

data_clean <- data_clean %>%
  mutate(NAm = replace_na(NAm, 0)) %>%
  mutate(Africa = replace_na(Africa, 0)) %>%
  mutate(Europe = replace_na(Europe, 0)) %>%
  mutate(Oc = replace_na(Oc, 0)) %>%
  mutate(SA = replace_na(SA, 0))
summary(data_clean)
```

```
##     Coutry               Year           Male             Female
##  Length:1221        Min.   :2008   Min.   : 0.0000   Min.   :0.00000
##  Class :character   1st Qu.:2011   1st Qu.: 0.0000   1st Qu.:0.00000
##  Mode  :character   Median :2015   Median : 0.0000   Median :0.00000
##                     Mean   :2015   Mean   : 0.9812   Mean   :0.05487
##                     3rd Qu.:2019   3rd Qu.: 1.0000   3rd Qu.:0.00000
##                     Max.   :2022   Max.   :70.0000   Max.   :4.00000
##
##     Weapons       PInstability       MaleU           Frisk
##  Min.   :1.000   Min.   :1.000   Min.   : 0.100   Length:1221
##  1st Qu.:3.000   1st Qu.:2.000   1st Qu.: 3.400   Class :character
##  Median :4.000   Median :2.750   Median : 5.100   Mode  :character
```

```
##  Mean   :3.432   Mean   :2.787   Mean   : 6.846
##  3rd Qu.:4.000   3rd Qu.:3.500   3rd Qu.: 9.700
##  Max.   :5.000   Max.   :5.000   Max.   :27.500
##  NA's   :15                      NA's   :23
##       Agri            CDeaths              NAm            Africa
##  Min.   : 0.02653   Length:1221        Min.   :0.0000   Min.   :0.0000
##  1st Qu.: 3.80660   Class :character   1st Qu.:0.0000   1st Qu.:0.0000
##  Median : 8.96518   Mode  :character   Median :0.0000   Median :0.0000
##  Mean   :12.86425                      Mean   :0.1106   Mean   :0.3186
##  3rd Qu.:20.67965                      3rd Qu.:0.0000   3rd Qu.:1.0000
##  Max.   :65.17457                      Max.   :1.0000   Max.   :1.0000
##  NA's   :66
##      Europe             Oc          SA               Vuln
##  Min.   :0.0000   Min.   :0   Min.   :0.00000   Min.   : 1.007
##  1st Qu.:0.0000   1st Qu.:0   1st Qu.:0.00000   1st Qu.:22.373
##  Median :0.0000   Median :0   Median :0.00000   Median :41.453
##  Mean   :0.1351   Mean   :0   Mean   :0.09828   Mean   :44.752
##  3rd Qu.:0.0000   3rd Qu.:0   3rd Qu.:0.00000   3rd Qu.:70.760
##  Max.   :1.0000   Max.   :0   Max.   :1.00000   Max.   :92.491
##                                                 NA's   :23
##      EducS              Free              Su
##  Min.   : 0.3485   Min.   :  1.00   Min.   : 0.000
##  1st Qu.: 2.8198   1st Qu.: 53.97   1st Qu.: 0.000
##  Median : 3.6954   Median : 66.21   Median : 0.000
##  Mean   : 3.8630   Mean   : 65.78   Mean   : 1.036
##  3rd Qu.: 4.8369   3rd Qu.: 76.75   3rd Qu.: 1.000
##  Max.   :10.8265   Max.   :152.00   Max.   :70.000
##  NA's   :267
```

Step 3 number1

Modeling Techniques:

Built a multiple linear regression model to estimate the effect of journalist deaths (Su), political instability (PInstability), and region on press freedom.

Controlled for time-fixed effects using dummy variables for each year.

Ran separate continent-level models to assess regional dynamics (Africa, South America, North America).

```
model= lm(Free ~ Su + NAm + Africa + Europe + Oc + SA + factor(Year) +
PInstability + Weapons ,  data = data_clean)
alias(model)
```

```
## Model :
## Free ~ Su + NAm + Africa + Europe + Oc + SA + factor(Year) +
##     PInstability + Weapons
##
## Complete :
##    (Intercept) Su NAm Africa Europe SA factor(Year)2009 factor(Year)2010
```

```
## Oc 0           0  0   0      0      0  0                 0
##    factor(Year)2011 factor(Year)2012 factor(Year)2013 factor(Year)2014
## Oc 0                0                0                0
##    factor(Year)2015 factor(Year)2016 factor(Year)2017 factor(Year)2018
## Oc 0                0                0                0
##    factor(Year)2019 factor(Year)2020 factor(Year)2021 factor(Year)2022
## Oc 0                0                0                0
##    PInstability Weapons
## Oc 0            0
```

```
model= lm(Free ~ Su + NAm + Africa + Europe + SA + factor(Year) +
PInstability + Weapons,  data = data_clean)
summary(model)
```

```
##
## Call:
## lm(formula = Free ~ Su + NAm + Africa + Europe + SA + factor(Year) +
##     PInstability + Weapons, data = data_clean)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -81.896  -8.017   1.363   8.634  54.441
##
## Coefficients:
##                   Estimate Std. Error t value Pr(>|t|)
## (Intercept)       67.7196     2.5293  26.774  < 2e-16 ***
## Su                -0.8439     0.1199  -7.037 3.32e-12 ***
## NAm               12.7054     1.6771   7.576 7.16e-14 ***
## Africa            10.8491     1.1681   9.288  < 2e-16 ***
## Europe            19.9125     1.5415  12.918  < 2e-16 ***
## SA                 9.9098     1.7295   5.730 1.28e-08 ***
## factor(Year)2009  14.5096     2.4790   5.853 6.25e-09 ***
## factor(Year)2010   1.5736     2.4787   0.635  0.52564
## factor(Year)2011  14.5423     2.4870   5.847 6.45e-09 ***
## factor(Year)2012  27.4748     2.4660  11.141  < 2e-16 ***
## factor(Year)2013  -2.8604     2.4659  -1.160  0.24629
## factor(Year)2014  -3.9983     2.4641  -1.623  0.10494
## factor(Year)2015  -4.3264     2.4721  -1.750  0.08036 .
## factor(Year)2016  -5.3790     2.4638  -2.183  0.02921 *
## factor(Year)2017  -5.8503     2.4638  -2.374  0.01773 *
## factor(Year)2018  -5.6726     2.4643  -2.302  0.02151 *
## factor(Year)2019  -6.5719     2.4641  -2.667  0.00776 **
## factor(Year)2020  -6.4343     2.4640  -2.611  0.00913 **
## factor(Year)2021  -6.3753     2.4644  -2.587  0.00980 **
## factor(Year)2022 -14.3446     2.4654  -5.818 7.64e-09 ***
## PInstability      -8.3744     0.5672 -14.763  < 2e-16 ***
## Weapons            4.0690     0.5653   7.199 1.08e-12 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
```

```
## Residual standard error: 15.63 on 1184 degrees of freedom
##   (15 observations deleted due to missingness)
## Multiple R-squared:  0.527,  Adjusted R-squared:  0.5186
## F-statistic: 62.81 on 21 and 1184 DF,  p-value: < 2.2e-16
```

```
vif(model)
```

```
##                  GVIF Df GVIF^(1/(2*Df))
## Su           1.099808  1        1.048717
## NAm          1.353985  1        1.163609
## Africa       1.460466  1        1.208497
## Europe       1.385919  1        1.177251
## SA           1.323771  1        1.150553
## factor(Year) 1.014833 14        1.000526
## PInstability 1.697766  1        1.302983
## Weapons      1.595557  1        1.263154
```

Creating continent specific data frames to isolate regional patterns.

```
Afdata = subset(data_clean, Africa==1)
modelAfrica =lm(Free ~ factor(Year) + PInstability + Weapons  + Su,  data =
Afdata)
summary(modelAfrica)
```

```
##
## Call:
## lm(formula = Free ~ factor(Year) + PInstability + Weapons + Su,
##     data = Afdata)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -67.243  -9.141   0.273   9.891  37.629
##
## Coefficients:
##                   Estimate Std. Error t value Pr(>|t|)
## (Intercept)        56.8962     4.2624  13.348  < 2e-16 ***
## factor(Year)2009   15.5749     4.0650   3.831  0.00015 ***
## factor(Year)2010    5.6326     4.0653   1.386  0.16674
## factor(Year)2011   20.6467     4.1103   5.023 7.97e-07 ***
## factor(Year)2012   36.9431     4.0813   9.052  < 2e-16 ***
## factor(Year)2013    3.6447     4.0792   0.893  0.37219
## factor(Year)2014    0.7117     4.0733   0.175  0.86139
## factor(Year)2015    0.4949     4.0716   0.122  0.90333
## factor(Year)2016   -1.8340     4.0643  -0.451  0.65208
## factor(Year)2017   -2.7706     4.0659  -0.681  0.49603
## factor(Year)2018   -2.9842     4.1055  -0.727  0.46776
## factor(Year)2019   -3.7446     4.1052  -0.912  0.36229
## factor(Year)2020   -4.4021     4.1044  -1.073  0.28419
## factor(Year)2021   -4.1378     4.1065  -1.008  0.31431
## factor(Year)2022  -11.1178     4.1087  -2.706  0.00713 **
## PInstability      -11.4641     0.8958 -12.797  < 2e-16 ***
```

```
## Weapons           11.6618     0.8411  13.864  < 2e-16 ***
## Su                -3.1982     0.5803  -5.511 6.75e-08 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 14.5 on 365 degrees of freedom
##   (6 observations deleted due to missingness)
## Multiple R-squared:  0.5956, Adjusted R-squared:  0.5768
## F-statistic: 31.62 on 17 and 365 DF,  p-value: < 2.2e-16
```

```
SAdata = subset(data_clean, SA==1)
modelSA =lm(Free ~ factor(Year) + PInstability + Weapons  + Su,  data =
SAdata)
summary(modelSA)
```

```
##
## Call:
## lm(formula = Free ~ factor(Year) + PInstability + Weapons + Su,
##     data = SAdata)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -22.316  -3.655   1.062   4.467  16.532
##
## Coefficients:
##                   Estimate Std. Error t value Pr(>|t|)
## (Intercept)      107.4881     6.1386  17.510  < 2e-16 ***
## factor(Year)2009  17.7758     3.7614   4.726 7.36e-06 ***
## factor(Year)2010   2.5728     3.7676   0.683 0.496226
## factor(Year)2011  13.5458     3.8002   3.564 0.000556 ***
## factor(Year)2012  24.8820     3.8007   6.547 2.41e-09 ***
## factor(Year)2013  -7.8858     3.8023  -2.074 0.040605 *
## factor(Year)2014  -8.0114     3.7910  -2.113 0.037016 *
## factor(Year)2015  -8.9804     3.8021  -2.362 0.020078 *
## factor(Year)2016  -9.9925     3.7719  -2.649 0.009351 **
## factor(Year)2017 -10.5602     3.7675  -2.803 0.006061 **
## factor(Year)2018  -9.4414     3.8032  -2.483 0.014678 *
## factor(Year)2019 -11.9713     3.7765  -3.170 0.002013 **
## factor(Year)2020 -11.7810     3.7812  -3.116 0.002384 **
## factor(Year)2021 -12.6545     3.7676  -3.359 0.001102 **
## factor(Year)2022 -21.6869     3.8041  -5.701 1.16e-07 ***
## PInstability      -3.2969     0.8724  -3.779 0.000265 ***
## Weapons           -6.4519     1.6394  -3.936 0.000152 ***
## Su                -0.8167     0.6834  -1.195 0.234825
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 7.521 on 102 degrees of freedom
## Multiple R-squared:  0.781,  Adjusted R-squared:  0.7445
## F-statistic:  21.4 on 17 and 102 DF,  p-value: < 2.2e-16
```

```r
NAmdata = subset(data_clean, NAm==1)
modelNAm =lm(Free ~ factor(Year) + PInstability + Weapons  + Su,  data =
NAmdata)
summary(modelNAm)

##
## Call:
## lm(formula = Free ~ factor(Year) + PInstability + Weapons + Su,
##     data = NAmdata)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -28.9436  -4.7244  -0.4553   5.7396  23.5451
##
## Coefficients:
##                   Estimate Std. Error t value Pr(>|t|)
## (Intercept)      109.2344     7.5429  14.482  < 2e-16 ***
## factor(Year)2009  12.0046     4.8331   2.484 0.014452 *
## factor(Year)2010   1.9527     4.8443   0.403 0.687626
## factor(Year)2011  16.1524     4.8520   3.329 0.001174 **
## factor(Year)2012  28.5403     4.7052   6.066 1.75e-08 ***
## factor(Year)2013 -12.4431     4.7277  -2.632 0.009665 **
## factor(Year)2014 -12.5493     4.7247  -2.656 0.009037 **
## factor(Year)2015 -12.5414     4.7195  -2.657 0.009006 **
## factor(Year)2016 -14.1888     4.7273  -3.001 0.003301 **
## factor(Year)2017 -13.8176     4.7165  -2.930 0.004100 **
## factor(Year)2018 -12.4687     4.7107  -2.647 0.009273 **
## factor(Year)2019 -14.8727     4.6990  -3.165 0.001989 **
## factor(Year)2020 -14.5711     4.6978  -3.102 0.002425 **
## factor(Year)2021 -16.2794     4.6988  -3.465 0.000749 ***
## factor(Year)2022 -22.7272     4.6947  -4.841 4.09e-06 ***
## PInstability      -3.0701     1.5772  -1.947 0.054047 .
## Weapons           -5.0832     2.3525  -2.161 0.032803 *
## Su                -2.0883     0.3096  -6.745 6.64e-10 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 9.94 on 114 degrees of freedom
##   (3 observations deleted due to missingness)
## Multiple R-squared:  0.7514, Adjusted R-squared:  0.7143
## F-statistic: 20.26 on 17 and 114 DF,  p-value: < 2.2e-16

Europedata = subset(data_clean, Europe==1)
modelEurope =lm(Free ~ factor(Year) + PInstability + Weapons  + Su,  data =
Europedata)
summary(modelEurope)

##
## Call:
## lm(formula = Free ~ factor(Year) + PInstability + Weapons + Su,
```

```
##     data = Europedata)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -28.2843  -4.6109   0.6285   5.2676  23.0393
##
## Coefficients:
##                   Estimate Std. Error t value Pr(>|t|)
## (Intercept)      113.3114     3.5032  32.345  < 2e-16 ***
## factor(Year)2009  16.6973     3.8282   4.362 2.42e-05 ***
## factor(Year)2010   2.2927     3.8508   0.595  0.55250
## factor(Year)2011  19.2073     3.8406   5.001 1.60e-06 ***
## factor(Year)2012  36.5284     3.8406   9.511  < 2e-16 ***
## factor(Year)2013  -9.1525     3.8431  -2.382  0.01852 *
## factor(Year)2014  -8.8130     3.8270  -2.303  0.02269 *
## factor(Year)2015  -7.8547     3.8325  -2.049  0.04219 *
## factor(Year)2016  -8.8399     3.8628  -2.288  0.02353 *
## factor(Year)2017  -9.5325     3.8480  -2.477  0.01437 *
## factor(Year)2018  -9.7138     3.8460  -2.526  0.01261 *
## factor(Year)2019 -10.2483     3.8460  -2.665  0.00857 **
## factor(Year)2020 -10.2216     3.8504  -2.655  0.00881 **
## factor(Year)2021 -10.9943     3.8425  -2.861  0.00484 **
## factor(Year)2022 -15.7575     3.8431  -4.100 6.80e-05 ***
## PInstability      -3.0945     1.2992  -2.382  0.01850 *
## Weapons           -8.5018     1.3332  -6.377 2.21e-09 ***
## Su                -1.0192     0.6136  -1.661  0.09883 .
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 8.961 on 147 degrees of freedom
## Multiple R-squared:  0.815,  Adjusted R-squared:  0.7936
## F-statistic: 38.09 on 17 and 147 DF,  p-value: < 2.2e-16
```

```
Asiadata = subset(data_clean, Africa==0 & SA==0 & Europe ==0 & NAm ==0 & Oc
==0 )
modelAsia =lm(Free ~ factor(Year) + PInstability + Weapons  + Su,  data =
Asiadata)
summary(modelAsia)
```

```
##
## Call:
## lm(formula = Free ~ factor(Year) + PInstability + Weapons + Su,
##     data = Asiadata)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -63.815  -8.561   0.142   8.972  67.604
##
## Coefficients:
##                   Estimate Std. Error t value Pr(>|t|)
```

```
## (Intercept)       68.6152     4.6535  14.745  < 2e-16 ***
## factor(Year)2009  13.0553     4.9659   2.629 0.008904 **
## factor(Year)2010  -1.2652     4.9671  -0.255 0.799081
## factor(Year)2011   8.6325     4.9644   1.739 0.082850 .
## factor(Year)2012  17.3455     4.9324   3.517 0.000489 ***
## factor(Year)2013   0.2804     4.9338   0.057 0.954711
## factor(Year)2014  -0.4285     4.9204  -0.087 0.930644
## factor(Year)2015  -0.5831     4.9690  -0.117 0.906642
## factor(Year)2016  -1.0686     4.9191  -0.217 0.828138
## factor(Year)2017  -1.2355     4.9201  -0.251 0.801854
## factor(Year)2018  -1.3655     4.8762  -0.280 0.779610
## factor(Year)2019  -1.5874     4.8750  -0.326 0.744893
## factor(Year)2020  -1.3115     4.8737  -0.269 0.787991
## factor(Year)2021  -1.3408     4.8737  -0.275 0.783375
## factor(Year)2022 -11.2898     4.8755  -2.316 0.021101 *
## PInstability      -6.4821     1.0834  -5.983 4.98e-09 ***
## Weapons            1.3401     0.9612   1.394 0.164055
## Su                -0.5017     0.1514  -3.313 0.001011 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 18.06 on 388 degrees of freedom
##   (6 observations deleted due to missingness)
## Multiple R-squared:  0.2269, Adjusted R-squared:  0.1931
## F-statistic:   6.7 on 17 and 388 DF,  p-value: 4.222e-14
```

Step 4 number1

Key Findings

Violence Hurts Freedom:

Each journalist killed is associated with a 0.8-point drop in the Press Freedom Index globally ($p < 0.001$), signaling that violence directly erodes media freedom.

Political Instability is Even Worse: A 1-point rise in political instability correlates with a 8.3-point decrease in press freedom ($p < 0.001$). In Africa, this impact more than doubles to -11.5 points.

Regional Effects: Europe, Africa, and South America all showed significantly higher average press freedom scores than the baseline (Asia), with Europe leading.

Intercept (67.72): Baseline predicted press freedom for Asia in 2008 with zero journalist deaths and political instability at 0 — theoretical, but sets the base.

Su (-0.85): Statistically significant. Killing journalists has a strong negative effect on freedom — a chilling effect in real time.

PInstability (-8.37): Hugely significant. One unit of instability shaves off over 8 points. This is the strongest driver in the model.

Continent dummies:

Europe: +45.6 (additional baseline points compared to the general model)

South America: +39.8

Africa: -10.8 (lowest)

North America: +41.5

Suggests that institutional/regional factors matter beyond just violence and instability.

Regional Differences Africa: PInstability has a very strong effect (-11.46), even stronger than globally.

Journalist deaths (-3.20): Each death hits press freedom hard.

R^2 = ~0.60

South America: PInstability still negative but milder (-3.29).

Su (-0.81, not significant): Deaths don't significantly impact press freedom here — maybe due to desensitization or under-reporting. There is a possibility of omitted variables, but desensitization seems to be a good reason (given the situations in South American countries with the most violence)

R^2 = 0.78

North America & Europe:

Second highest and highest baseline press freedom respectively. Showed a positive baseline press freedom, but effects of violence and political instability are still statistically significant.