EDA Armed Conflict

Jingxuan (Anna) He

Quarto

```
library(here)
```

```
here() starts at C:/Users/anna_/OneDrive/Desktop/CHL8010/armed_conflict_vc
```

```
library(tidyverse)
```

```
-- Attaching core tidyverse packages ------------------------ tidyverse 2.0.0 --
v dplyr     1.1.4     v readr     2.1.5
v forcats   1.0.0     v stringr   1.5.1
v ggplot2   3.5.1     v tibble    3.2.1
v lubridate 1.9.3     v tidyr     1.3.1
v purrr     1.0.2

-- Conflicts ------------------------------------------ tidyverse_conflicts() --
x dplyr::filter() masks stats::filter()
x dplyr::lag()    masks stats::lag()
i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to becor
```

```
finaldata <- read.csv(here("data", "finaldata.csv"), header = TRUE)
names(finaldata)
```

```
 [1] "country_name" "ISO"          "region"       "year"         "gdp1000"
 [6] "OECD"         "OECD2023"     "popdens"      "urban"        "agedep"
[11] "male_edu"     "temp"         "rainfall1000" "MatMor"       "InfMor"
[16] "NeoMor"       "Under5Mor"    "drought"      "earthquake"   "totdeath"
[21] "armconflict"
```

```r
dim(finaldata)
```

```
[1] 3720   21
```

```r
finaldata |>
dplyr::filter(country_name == "Canada")
```

```
   country_name ISO           region year  gdp1000 OECD OECD2023  popdens
1        Canada CAN Northern America 2000 24.27100    1        1 66.19704
2        Canada CAN Northern America 2001 23.82206    1        1 66.45361
3        Canada CAN Northern America 2002 24.25534    1        1 66.71112
4        Canada CAN Northern America 2003 28.30046    1        1 66.96384
5        Canada CAN Northern America 2004 32.14368    1        1 67.21715
6        Canada CAN Northern America 2005 36.38251    1        1 67.47283
7        Canada CAN Northern America 2006 40.50406    1        1 67.73674
8        Canada CAN Northern America 2007 44.65990    1        1 67.99444
9        Canada CAN Northern America 2008 46.71051    1        1 68.25765
10       Canada CAN Northern America 2009 40.87631    1        1 68.53354
11       Canada CAN Northern America 2010 47.56208    1        1 68.80739
12       Canada CAN Northern America 2011 52.22370    1        1 69.04842
13       Canada CAN Northern America 2012 52.66909    1        1 69.27604
14       Canada CAN Northern America 2013 52.63517    1        1 69.50772
15       Canada CAN Northern America 2014 50.95600    1        1 69.76876
16       Canada CAN Northern America 2015 43.59614    1        1 69.98853
17       Canada CAN Northern America 2016 42.31560    1        1 70.21484
18       Canada CAN Northern America 2017 45.12943    1        1 70.40863
19       Canada CAN Northern America 2018 46.54864    1        1 70.63614
20       Canada CAN Northern America 2019 46.32867    1        1 70.83794
      urban   agedep male_edu     temp rainfall1000 MatMor InfMor NeoMor
1  56.14335 46.34463 12.30281 5.486244    0.9971559      9    5.3    3.8
2  56.40270 45.89632 12.35258 6.469105    0.8644873     10    5.3    3.8
3  56.67093 45.46660 12.40182 5.979147    0.9460938     10    5.3    3.9
4  56.94365 45.07468 12.45053 5.416964    1.0189234     10    5.3    3.9
5  57.20020 44.67374 12.49870 5.556961    1.0008237     10    5.3    3.9
6  57.41671 44.26641 12.54635 6.187472    1.0367199     11    5.2    3.9
7  57.59143 43.96370 12.59349 6.895084    1.0917386     11    5.2    3.9
8  57.75691 43.83612 12.64015 5.900051    1.0134091     11    5.1    3.8
9  57.97905 43.85426 12.68634 5.650118    1.0693435     12    5.1    3.8
10 58.24228 43.94937 12.73207 5.398867    0.9928497     12    5.0    3.8
11 58.52809 44.13587 12.77735 6.781766    1.0379754     11    5.0    3.8
12 58.81437 44.53578 12.82218 6.269133    1.1343442     11    4.9    3.7
```

```
13 59.05573 45.18393 12.86660 7.249497    0.9747708     11    4.9    3.7
14 59.19713 45.95404 12.91059 5.954381    1.0282075     11    4.8    3.6
15 59.30361 46.75493 12.95414 5.584650    1.0377695     11    4.7    3.6
16 59.42627 47.59164 12.99723 6.436884    0.9632446     11    4.7    3.6
17 59.50521 48.41410 13.03988 7.184514    0.9677826     10    4.6    3.5
18 59.59325 49.14806 13.08210 6.539669    1.0995322     10    4.6    3.4
19 59.68433 49.80166 13.12388 6.539677    1.0991469     NA    4.5    3.3
20 59.75984 50.47739 13.16522 6.539633    1.0987523     NA    4.4    3.3
   Under5Mor drought earthquake totdeath armconflict
1        6.2       0          0       11           0
2        6.2       0          0       23           0
3        6.2       0          0        1           0
4        6.2       0          0        0           0
5        6.1       0          0        0           0
6        6.1       0          0        0           0
7        6.0       0          0        0           0
8        6.0       0          0        0           0
9        5.9       0          0        0           0
10       5.8       0          0        0           0
11       5.7       0          0        0           0
12       5.7       0          0        0           0
13       5.6       0          0        0           0
14       5.5       0          0        0           0
15       5.4       0          0        0           0
16       5.4       0          0        0           0
17       5.3       0          0        0           0
18       5.2       0          0        0           0
19       5.1       0          0        0           0
20       5.1       0          0        0           0
```

```
finaldata |>
dplyr::filter(country_name == "Ecuador")
```

```
   country_name ISO                          region year  gdp1000 OECD OECD2023
1       Ecuador ECU Latin America and the Caribbean 2000 1.451531    0        0
2       Ecuador ECU Latin America and the Caribbean 2001 1.904814    0        0
3       Ecuador ECU Latin America and the Caribbean 2002 2.184209    0        0
4       Ecuador ECU Latin America and the Caribbean 2003 2.438344    0        0
5       Ecuador ECU Latin America and the Caribbean 2004 2.703566    0        0
6       Ecuador ECU Latin America and the Caribbean 2005 3.014310    0        0
7       Ecuador ECU Latin America and the Caribbean 2006 3.340841    0        0
8       Ecuador ECU Latin America and the Caribbean 2007 3.579032    0        0
```

```
9       Ecuador ECU Latin America and the Caribbean 2008 4.260433    0        0
10      Ecuador ECU Latin America and the Caribbean 2009 4.240703    0        0
11      Ecuador ECU Latin America and the Caribbean 2010 4.640246    0        0
12      Ecuador ECU Latin America and the Caribbean 2011 5.202656    0        0
13      Ecuador ECU Latin America and the Caribbean 2012 5.678456    0        0
14      Ecuador ECU Latin America and the Caribbean 2013 6.050355    0        0
15      Ecuador ECU Latin America and the Caribbean 2014 6.374631    0        0
16      Ecuador ECU Latin America and the Caribbean 2015 6.130587    0        0
17      Ecuador ECU Latin America and the Caribbean 2016 6.079089    0        0
18      Ecuador ECU Latin America and the Caribbean 2017 6.246404    0        0
19      Ecuador ECU Latin America and the Caribbean 2018 6.321349    0        0
20      Ecuador ECU Latin America and the Caribbean 2019 6.233258    0        0
    popdens    urban   agedep male_edu     temp rainfall1000 MatMor InfMor
1  23.27432 36.19963 67.44216 7.738627 19.54855    1.4201653    122   24.7
2  23.39372 36.67994 66.57356 7.843942 19.66622    1.1667746    117   23.4
3  23.52087 37.08903 65.65488 7.949449 20.24695    1.4577981    110   22.4
4  23.58358 37.23792 64.71472 8.055240 20.05016    1.5781807    100   21.5
5  38.43743 37.39268 63.78049 8.161433 20.10136    1.0683450     94   20.7
6  38.55361 37.36968 62.86530 8.268176 19.88163    0.8555447     94   19.9
7  38.65018 37.47567 61.97042 8.375587 20.07087    1.1114502     90   19.2
8  38.76505 37.68172 61.11422 8.483729 19.49536    1.0899082     85   18.5
9  38.83977 37.67445 60.31015 8.592603 19.85711    1.6184816     82   17.7
10 38.92613 37.39437 59.55262 8.702180 20.39298    1.0870796     80   17.0
11 39.03066 37.26838 58.83793 8.812409 20.11160    1.7045703     78   16.3
12 39.09586 37.61553 58.16553 8.923172 19.86633    1.4518388     76   15.6
13 39.13343 38.00733 57.51051 9.034284 20.19000    1.7520003     71   14.9
14 39.18619 38.22511 56.84804 9.145523 19.85177    1.3735605     67   14.3
15 39.27871 38.12421 56.17001 9.256679 20.42252    1.2572257     65   13.7
16 39.38824 38.15633 55.46511 9.367582 20.95595    1.7284273     63   13.2
17 39.46201 38.45745 54.73369 9.478071 20.77476    1.3168761     61   12.8
18 39.53609 38.65993 53.99096 9.587993 20.53262    1.9544485     59   12.4
19 39.58380 38.87253 53.12249 9.697221 20.53714    1.9573265     NA   12.0
20 39.75109 39.05144 52.29278 9.805670 20.54169    1.9602443     NA   11.6
   NeoMor Under5Mor drought earthquake totdeath armconflict
1    14.1      29.5       0          0        0           0
2    13.4      28.0       0          0        0           0
3    12.7      26.6       0          0        2           0
4    12.1      25.4       0          0        0           0
5    11.6      24.4       0          0       26           1
6    11.1      23.5       0          0        0           0
7    10.6      22.6       0          0        0           0
8    10.2      21.7       0          0        0           0
9     9.7      20.8       0          0        0           0
```

10	9.3	19.9	1	0	25	1
11	8.9	19.0	0	0	0	0
12	8.5	18.1	0	0	0	0
13	8.1	17.3	0	0	0	0
14	7.8	16.6	1	0	0	0
15	7.5	15.9	0	1	0	0
16	7.3	15.4	0	0	0	0
17	7.1	14.8	0	1	0	0
18	6.9	14.4	0	0	0	0
19	6.9	13.9	0	0	0	0
20	6.8	13.4	0	1	0	0

summaries for all variabales

```
finaldata |>
  summary()
```

```
 country_name           ISO              region              year     
 Length:3720        Length:3720        Length:3720        Min.   :2000  
 Class :character   Class :character   Class :character   1st Qu.:2005  
 Mode  :character   Mode  :character   Mode  :character   Median :2010  
                                                          Mean   :2010  
                                                          3rd Qu.:2014  
                                                          Max.   :2019  

    gdp1000              OECD          OECD2023         popdens      
 Min.   :  0.1105   Min.   :0.000   Min.   :0.0000   Min.   : 0.00  
 1st Qu.:  1.2383   1st Qu.:0.000   1st Qu.:0.0000   1st Qu.:14.79  
 Median :  4.0719   Median :0.000   Median :0.0000   Median :27.52  
 Mean   : 11.4917   Mean   :0.171   Mean   :0.1882   Mean   :30.57  
 3rd Qu.: 13.1531   3rd Qu.:0.000   3rd Qu.:0.0000   3rd Qu.:40.72  
 Max.   :123.6787   Max.   :1.000   Max.   :1.0000   Max.   :99.86  
 NA's   :62                                          NA's   :20     
     urban             agedep          male_edu          temp       
 Min.   : 0.1025   Min.   : 16.17   Min.   : 1.067   Min.   :-2.405  
 1st Qu.:17.2872   1st Qu.: 47.94   1st Qu.: 5.904   1st Qu.:12.928  
 Median :30.2535   Median : 55.51   Median : 8.368   Median :21.958  
 Mean   :30.6948   Mean   : 61.94   Mean   : 8.258   Mean   :19.625  
 3rd Qu.:41.6558   3rd Qu.: 77.11   3rd Qu.:10.849   3rd Qu.:25.869  
 Max.   :93.4135   Max.   :111.48   Max.   :14.441   Max.   :29.676  
```

```
NA's   :20                      NA's   :20       NA's   :20
 rainfall1000         MatMor          InfMor           NeoMor
Min.   :0.01993   Min.   :   2.0   Min.   :  1.60   Min.   : 0.80
1st Qu.:0.59146   1st Qu.:  17.0   1st Qu.:  7.60   1st Qu.: 4.90
Median :1.01288   Median :  66.0   Median : 18.90   Median :12.10
Mean   :1.20216   Mean   : 210.6   Mean   : 28.90   Mean   :16.18
3rd Qu.:1.68706   3rd Qu.: 299.8   3rd Qu.: 44.52   3rd Qu.:25.32
Max.   :4.71081   Max.   :2480.0   Max.   :138.10   Max.   :60.90
NA's   :20        NA's   :426      NA's   :20       NA's   :20
  Under5Mor          drought          earthquake         totdeath
Min.   :  2.00   Min.   :0.00000   Min.   :0.00000   Min.   :    0.0
1st Qu.:  9.00   1st Qu.:0.00000   1st Qu.:0.00000   1st Qu.:    0.0
Median : 22.20   Median :0.00000   Median :0.00000   Median :    0.0
Mean   : 40.50   Mean   :0.08737   Mean   :0.08333   Mean   :  361.1
3rd Qu.: 61.33   3rd Qu.:0.00000   3rd Qu.:0.00000   3rd Qu.:    2.0
Max.   :224.90   Max.   :1.00000   Max.   :1.00000   Max.   :78644.0
NA's   :20
 armconflict
Min.   :0.0000
1st Qu.:0.0000
Median :0.0000
Mean   :0.1892
3rd Qu.:0.0000
Max.   :1.0000
```

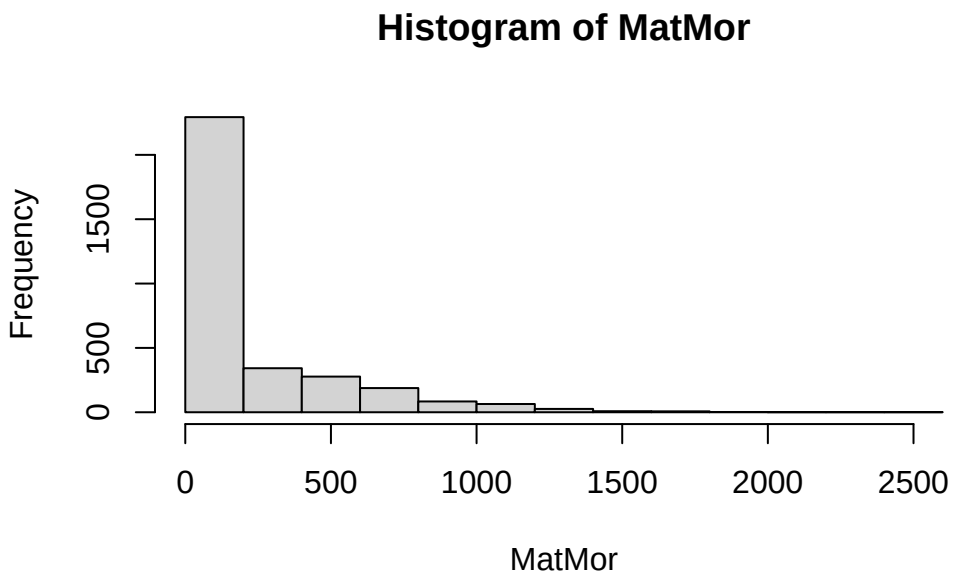
From the summary function, we are able to know which predictor has missing values. We can also see the rough distribution (skewed or normal, outliers) for continuous variables. There are 62 missing values in GDP, 20 missing values in population density, urban residence, male education, temperature, rainfall, infant mortality, neonatal mortality, and under5 mortality, and 426 missing values in maternal mortality.

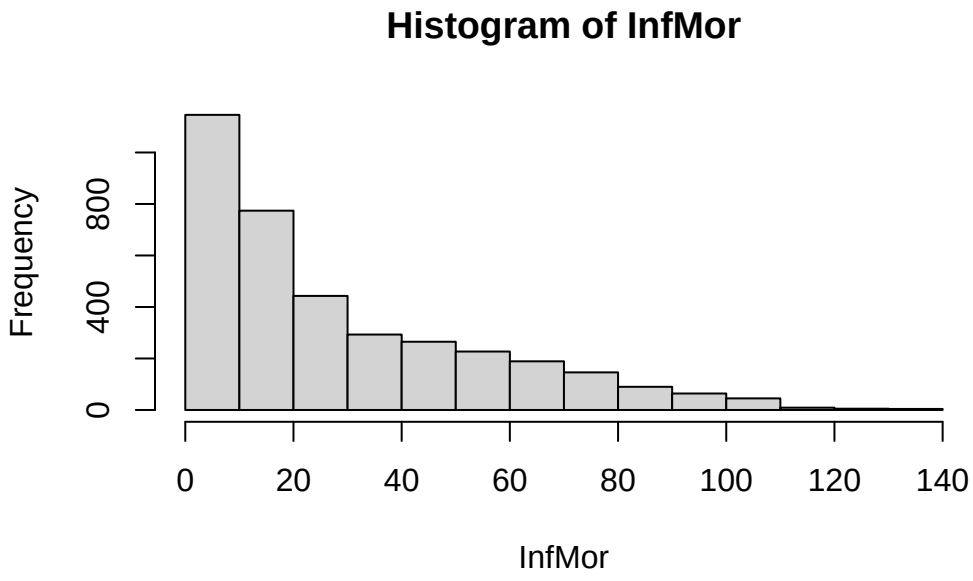
```
table(finaldata$armconflict)
```

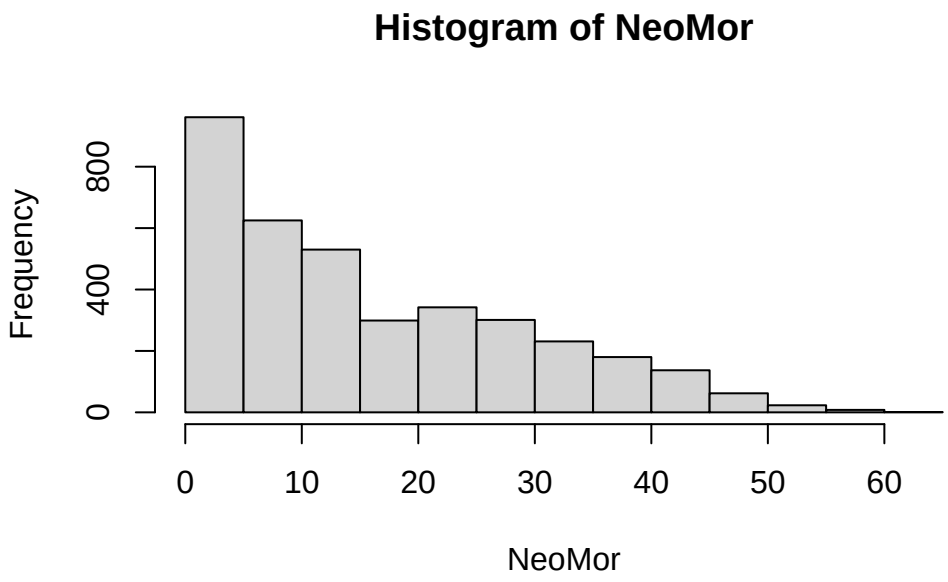
```
   0    1
3016  704
```

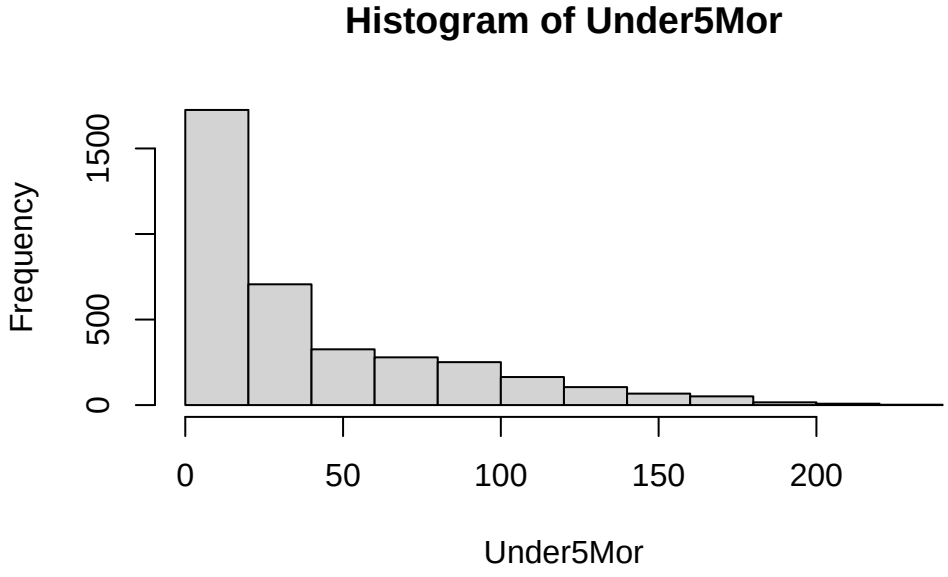
Distribution of mortality ratios

```
lapply(X=c("MatMor", "InfMor", "NeoMor", "Under5Mor"), FUN=function(s)
  hist(finaldata[, s], xlab=s, main=paste("Histogram of", s)))
```










```
[[1]]
$breaks
 [1]    0  200  400  600  800 1000 1200 1400 1600 1800 2000 2200 2400 2600
```

```
$counts
 [1] 2293  342  277  188   84   64   26    8    7    2    1    1    1

$density
 [1] 3.480571e-03 5.191257e-04 4.204614e-04 2.853673e-04 1.275046e-04
 [6] 9.714633e-05 3.946570e-05 1.214329e-05 1.062538e-05 3.035823e-06
[11] 1.517911e-06 1.517911e-06 1.517911e-06

$mids
 [1]  100  300  500  700  900 1100 1300 1500 1700 1900 2100 2300 2500

$xname
[1] "finaldata[, s]"

$equidist
[1] TRUE

attr(,"class")
[1] "histogram"

[[2]]
$breaks
 [1]   0  10  20  30  40  50  60  70  80  90 100 110 120 130 140

$counts
 [1] 1146  774  443  293  265  227  189  146   90   64   45    9    5    4

$density
 [1] 0.0309729730 0.0209189189 0.0119729730 0.0079189189 0.0071621622
 [6] 0.0061351351 0.0051081081 0.0039459459 0.0024324324 0.0017297297
[11] 0.0012162162 0.0002432432 0.0001351351 0.0001081081

$mids
 [1]   5  15  25  35  45  55  65  75  85  95 105 115 125 135

$xname
[1] "finaldata[, s]"

$equidist
[1] TRUE

attr(,"class")
```

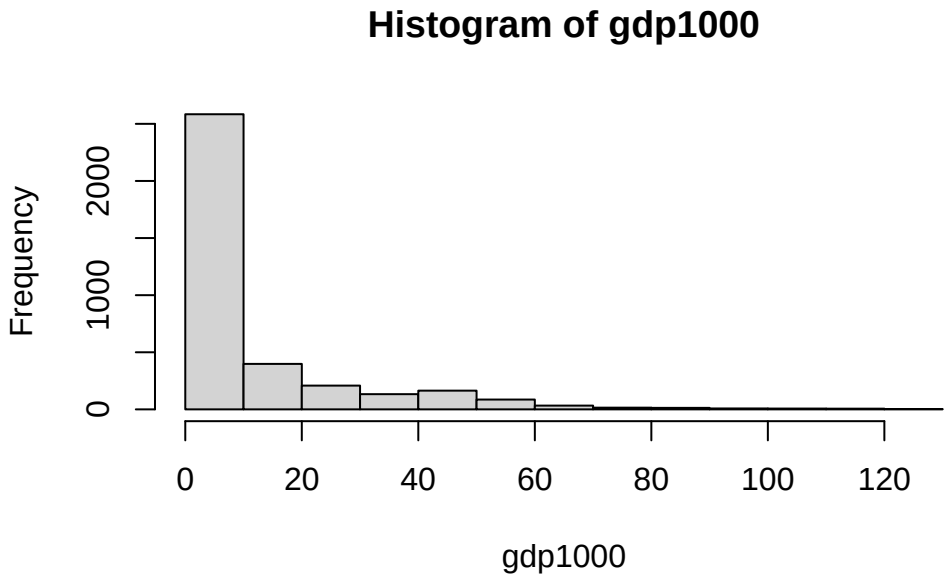
```
[1] "histogram"

[[3]]
$breaks
 [1]  0  5 10 15 20 25 30 35 40 45 50 55 60 65

$counts
 [1] 961 625 530 299 342 301 231 180 137  62  23   8   1

$density
 [1] 5.194595e-02 3.378378e-02 2.864865e-02 1.616216e-02 1.848649e-02
 [6] 1.627027e-02 1.248649e-02 9.729730e-03 7.405405e-03 3.351351e-03
[11] 1.243243e-03 4.324324e-04 5.405405e-05

$mids
 [1]  2.5  7.5 12.5 17.5 22.5 27.5 32.5 37.5 42.5 47.5 52.5 57.5 62.5

$xname
[1] "finaldata[, s]"

$equidist
[1] TRUE

attr(,"class")
[1] "histogram"

[[4]]
$breaks
 [1]   0  20  40  60  80 100 120 140 160 180 200 220 240

$counts
 [1] 1725  706  326  279  251  164  105   67   51   16    8    2

$density
 [1] 2.331081e-02 9.540541e-03 4.405405e-03 3.770270e-03 3.391892e-03
 [6] 2.216216e-03 1.418919e-03 9.054054e-04 6.891892e-04 2.162162e-04
[11] 1.081081e-04 2.702703e-05

$mids
 [1]  10  30  50  70  90 110 130 150 170 190 210 230

$xname
[1] "finaldata[, s]"
```

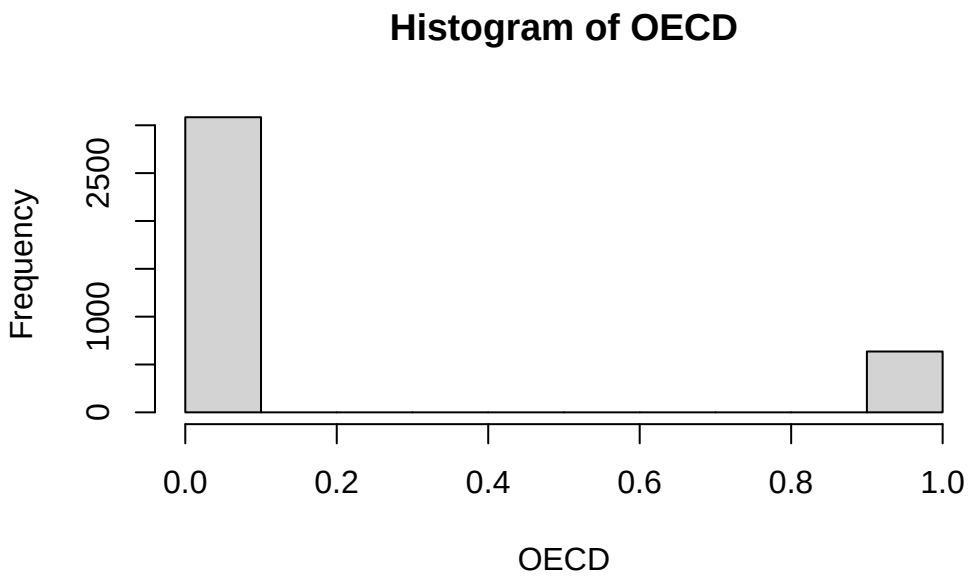
```
$equidist
[1] TRUE

attr(,"class")
[1] "histogram"
```

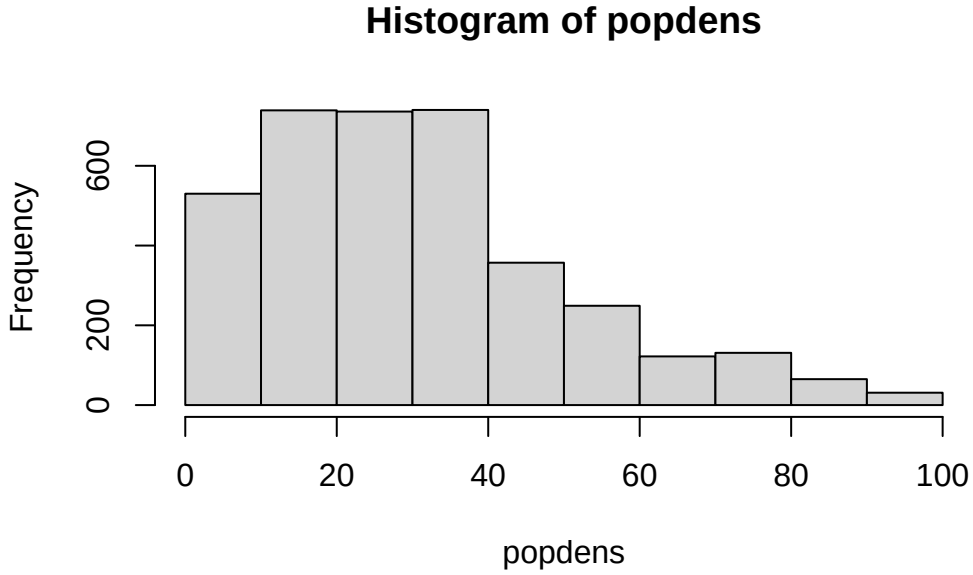
By scanning the distribution of 4 types of mortality ratios, I find except MatMor, all other three types are roughly concentrated below 50. The ranges of the ratios are below 200. However, MatMor spans from 0 and 2480, and most of the data concentrated in the first bar. Also, the empty area on the tail shows it may have outliers.

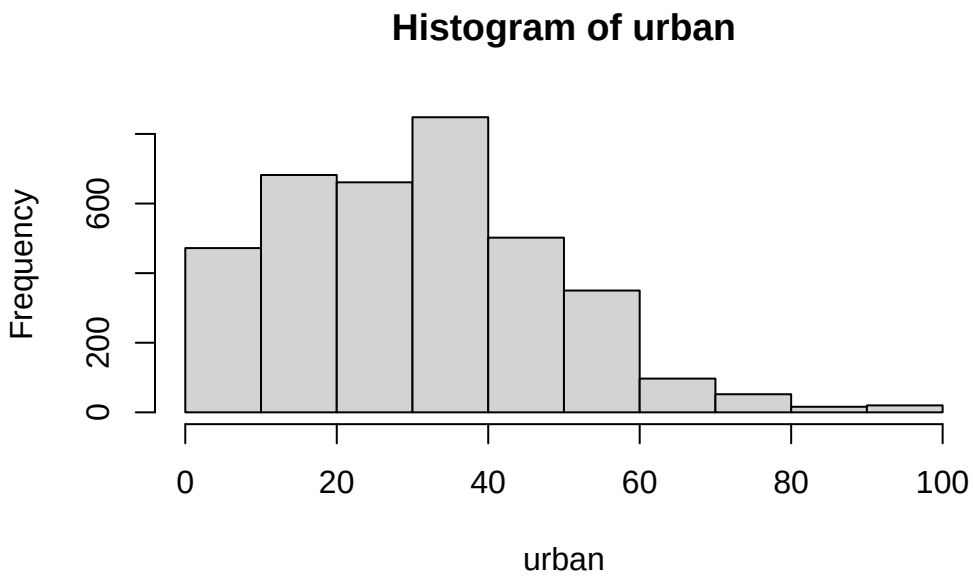
Distributions of 10 covariates

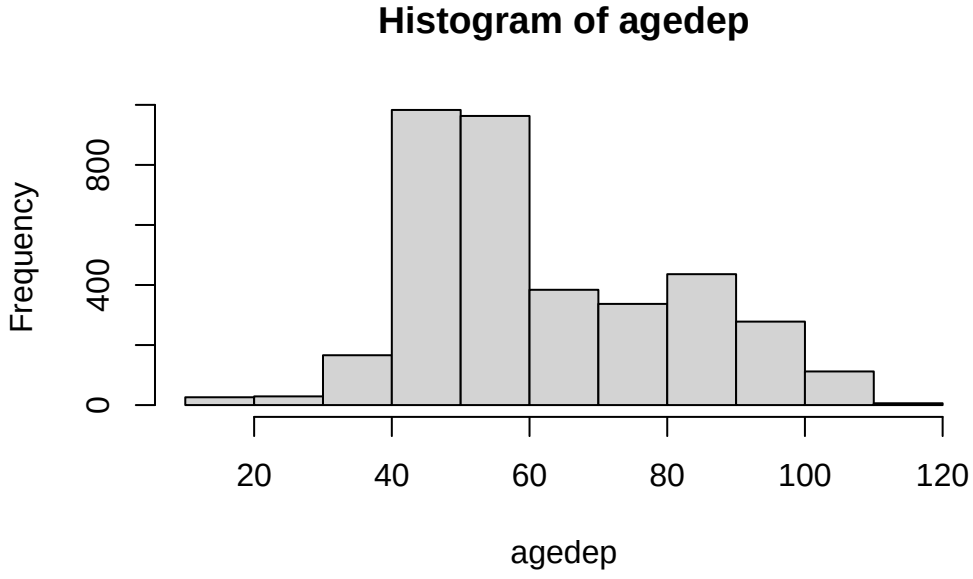
```
lapply(X=c("gdp1000", "OECD", "popdens", "urban", "agedep", "male_edu", "temp",
           "rainfall1000", "drought", "earthquake"), FUN=function(s)
  hist(finaldata[, s], xlab=s, main=paste("Histogram of", s)))
```

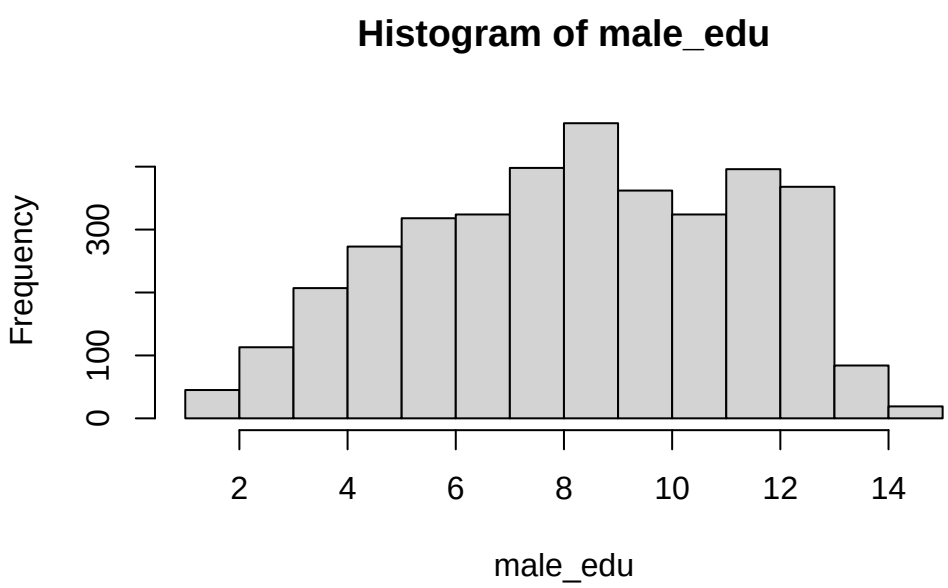


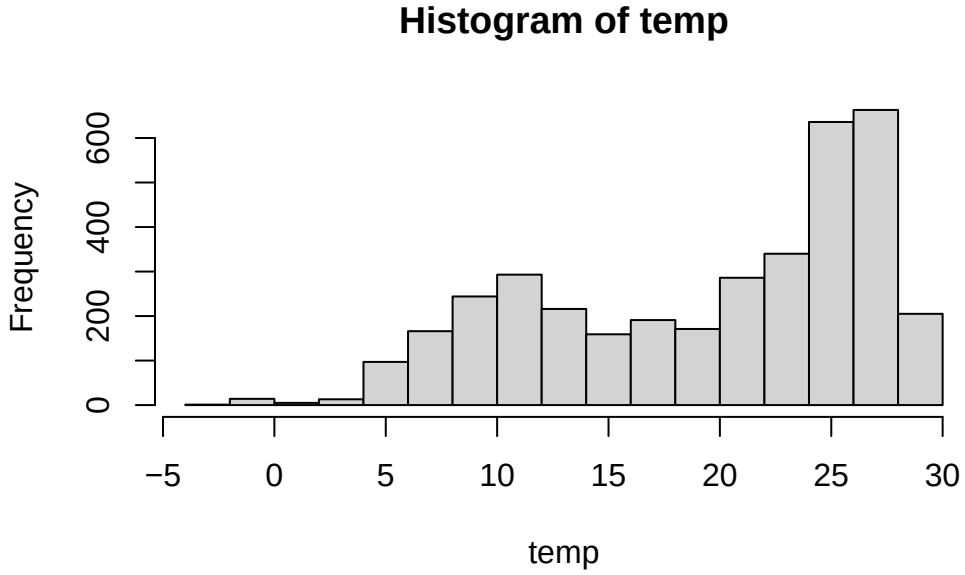

Histogram of OECD
Frequency
0
1000
2500
0.0
0.2
0.4
0.6
0.8
1.0
OECD

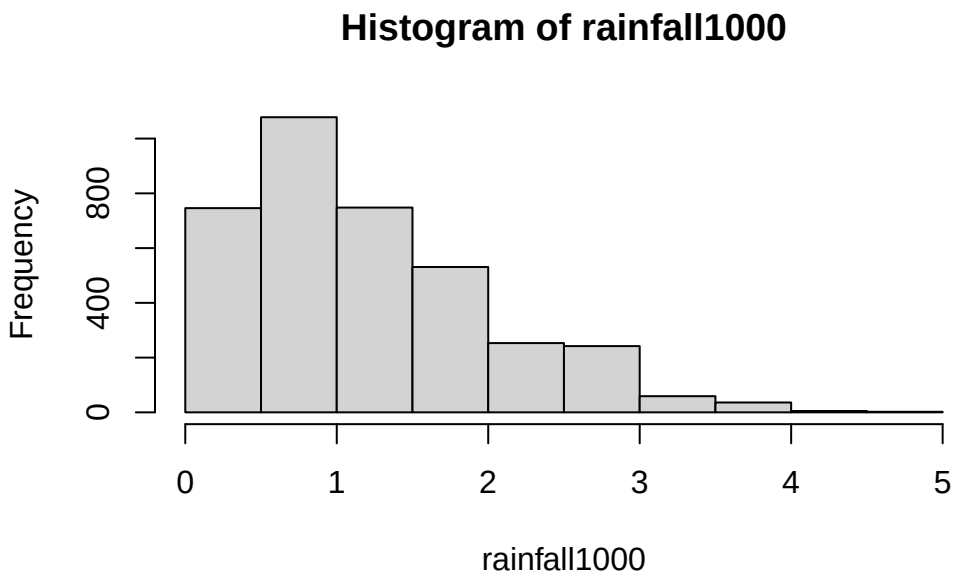

Histogram of popdens
Frequency
0
200
600
0
20
40
60
80
100
popdens

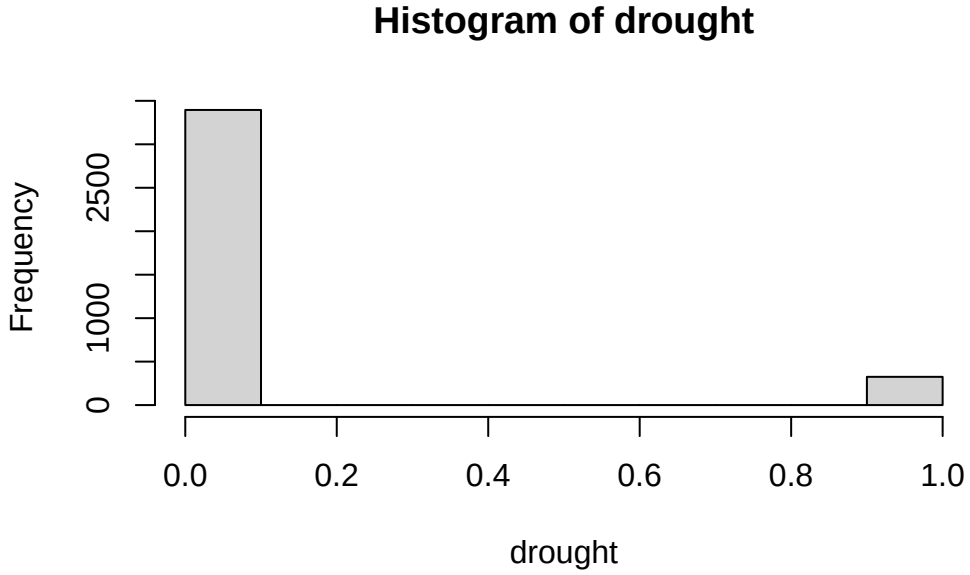

Histogram of urban
Frequency
0
200
600
0
20
40
60
80
100
urban

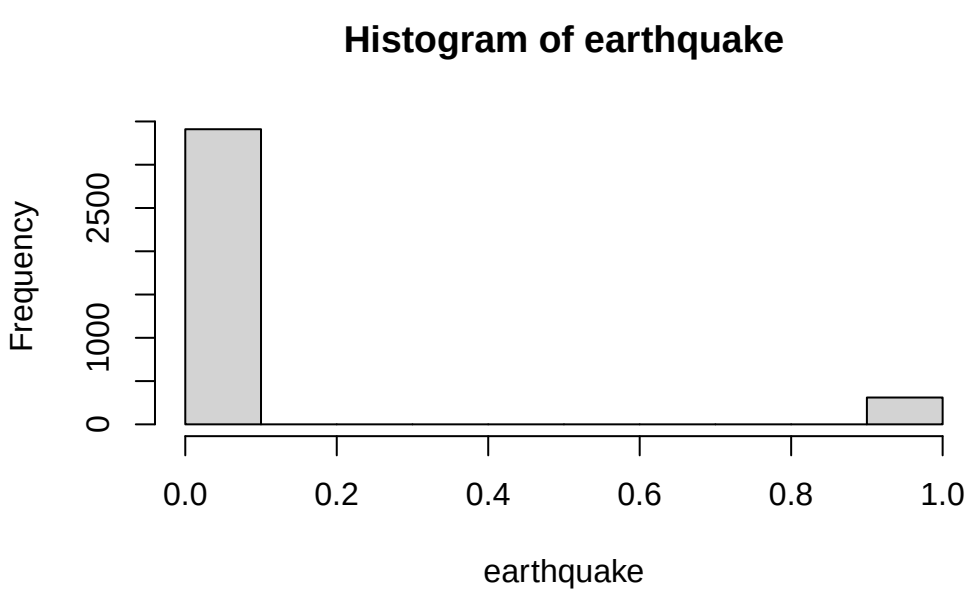

Histogram of agedep
Frequency
0
400
800
20
40
60
80
100
120
agedep


Histogram of male_edu
Frequency
0
100
300
2
4
6
8
10
12
14
male_edu


Histogram of temp
Frequency
0
200
400
600
−5
0
5
10
15
20
25
30
temp


Histogram of rainfall1000
Frequency
0
400
800
0
1
2
3
4
5
rainfall1000


Histogram of drought
Frequency
0
1000
2500
0.0
0.2
0.4
0.6
0.8
1.0
drought




```
[[1]]
$breaks
 [1]   0  10  20  30  40  50  60  70  80  90 100 110 120 130

$counts
 [1] 2584  398  208  133  164   86   33   15   13    8    7    6    3

$density
 [1] 7.063969e-02 1.088026e-02 5.686167e-03 3.635867e-03 4.483324e-03
 [6] 2.351011e-03 9.021323e-04 4.100601e-04 3.553855e-04 2.186987e-04
[11] 1.913614e-04 1.640241e-04 8.201203e-05

$mids
 [1]   5  15  25  35  45  55  65  75  85  95 105 115 125

$xname
[1] "finaldata[, s]"

$equidist
[1] TRUE

attr(,"class")
[1] "histogram"
```

```
[[2]]
$breaks
 [1] 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0

$counts
 [1] 3084    0    0    0    0    0    0    0    0  636

$density
 [1] 8.290323 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000 0.000000
 [9] 0.000000 1.709677

$mids
 [1] 0.05 0.15 0.25 0.35 0.45 0.55 0.65 0.75 0.85 0.95

$xname
[1] "finaldata[, s]"

$equidist
[1] TRUE

attr(,"class")
[1] "histogram"

[[3]]
$breaks
 [1]   0  10  20  30  40  50  60  70  80  90 100

$counts
 [1] 530 739 736 740 357 249 122 131  65  31

$density
 [1] 0.0143243243 0.0199729730 0.0198918919 0.0200000000 0.0096486486
 [6] 0.0067297297 0.0032972973 0.0035405405 0.0017567568 0.0008378378

$mids
 [1]  5 15 25 35 45 55 65 75 85 95

$xname
[1] "finaldata[, s]"

$equidist
[1] TRUE
```

```
attr(,"class")
[1] "histogram"

[[4]]
$breaks
 [1]   0  10  20  30  40  50  60  70  80  90 100

$counts
 [1] 472 682 661 848 502 350  97  52  16  20

$density
 [1] 0.0127567568 0.0184324324 0.0178648649 0.0229189189 0.0135675676
 [6] 0.0094594595 0.0026216216 0.0014054054 0.0004324324 0.0005405405

$mids
 [1]  5 15 25 35 45 55 65 75 85 95

$xname
[1] "finaldata[, s]"

$equidist
[1] TRUE

attr(,"class")
[1] "histogram"

[[5]]
$breaks
 [1]  10  20  30  40  50  60  70  80  90 100 110 120

$counts
 [1]  26  29 166 983 963 384 337 436 278 112   6

$density
 [1] 0.0006989247 0.0007795699 0.0044623656 0.0264247312 0.0258870968
 [6] 0.0103225806 0.0090591398 0.0117204301 0.0074731183 0.0030107527
[11] 0.0001612903

$mids
 [1]  15  25  35  45  55  65  75  85  95 105 115

$xname
```

```
[1] "finaldata[, s]"

$equidist
[1] TRUE

attr(,"class")
[1] "histogram"

[[6]]
$breaks
 [1]  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15

$counts
 [1]  45 113 207 273 318 324 398 469 362 324 396 368  84  19

$density
 [1] 0.012162162 0.030540541 0.055945946 0.073783784 0.085945946 0.087567568
 [7] 0.107567568 0.126756757 0.097837838 0.087567568 0.107027027 0.099459459
[13] 0.022702703 0.005135135

$mids
 [1]  1.5  2.5  3.5  4.5  5.5  6.5  7.5  8.5  9.5 10.5 11.5 12.5 13.5 14.5

$xname
[1] "finaldata[, s]"

$equidist
[1] TRUE

attr(,"class")
[1] "histogram"

[[7]]
$breaks
 [1] -4 -2  0  2  4  6  8 10 12 14 16 18 20 22 24 26 28 30

$counts
 [1]   1  14   5  13  97 166 244 293 216 159 191 171 286 340 636 663 205

$density
 [1] 0.0001351351 0.0018918919 0.0006756757 0.0017567568 0.0131081081
 [6] 0.0224324324 0.0329729730 0.0395945946 0.0291891892 0.0214864865
[11] 0.0258108108 0.0231081081 0.0386486486 0.0459459459 0.0859459459
```

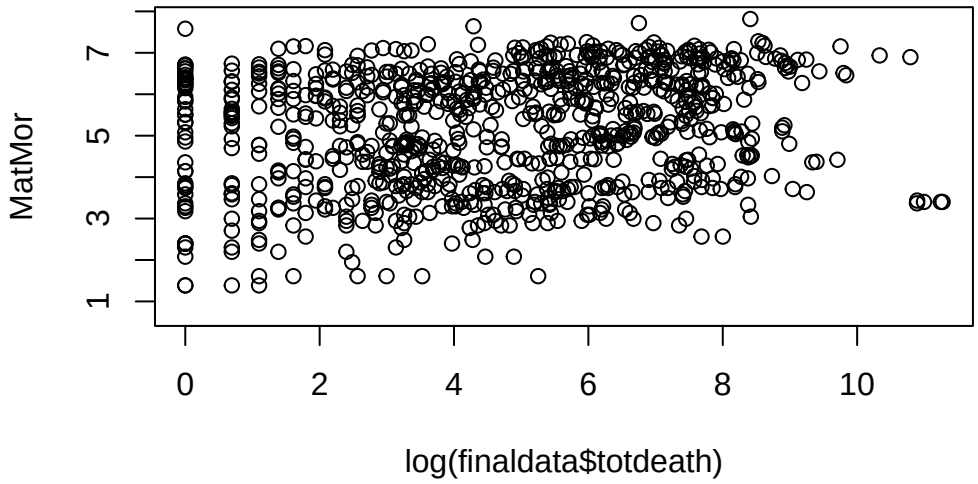
```
[16] 0.0895945946 0.0277027027

$mids
 [1] -3 -1  1  3  5  7  9 11 13 15 17 19 21 23 25 27 29

$xname
[1] "finaldata[, s]"

$equidist
[1] TRUE

attr(,"class")
[1] "histogram"

[[8]]
$breaks
 [1] 0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0

$counts
 [1]  746 1078  748  531  253  242   59   36    5    2

$density
 [1] 0.403243243 0.582702703 0.404324324 0.287027027 0.136756757 0.130810811
 [7] 0.031891892 0.019459459 0.002702703 0.001081081

$mids
 [1] 0.25 0.75 1.25 1.75 2.25 2.75 3.25 3.75 4.25 4.75

$xname
[1] "finaldata[, s]"

$equidist
[1] TRUE

attr(,"class")
[1] "histogram"

[[9]]
$breaks
 [1] 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0

$counts
 [1] 3395    0    0    0    0    0    0    0    0  325
```

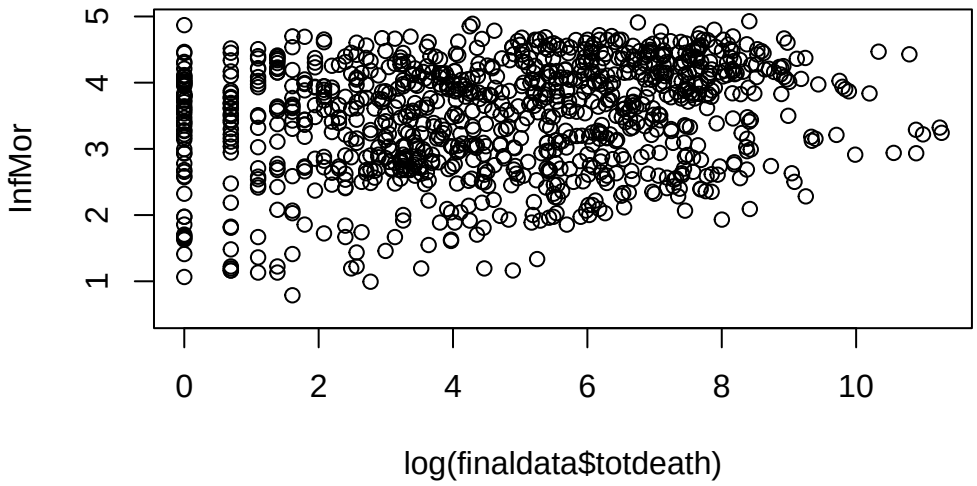
```
$density
 [1] 9.1263441 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000
 [8] 0.0000000 0.0000000 0.8736559

$mids
 [1] 0.05 0.15 0.25 0.35 0.45 0.55 0.65 0.75 0.85 0.95

$xname
[1] "finaldata[, s]"

$equidist
[1] TRUE

attr(,"class")
[1] "histogram"

[[10]]
$breaks
 [1] 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0

$counts
 [1] 3410    0    0    0    0    0    0    0    0  310

$density
 [1] 9.1666667 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000 0.0000000
 [8] 0.0000000 0.0000000 0.8333333

$mids
 [1] 0.05 0.15 0.25 0.35 0.45 0.55 0.65 0.75 0.85 0.95

$xname
[1] "finaldata[, s]"

$equidist
[1] TRUE

attr(,"class")
[1] "histogram"
```

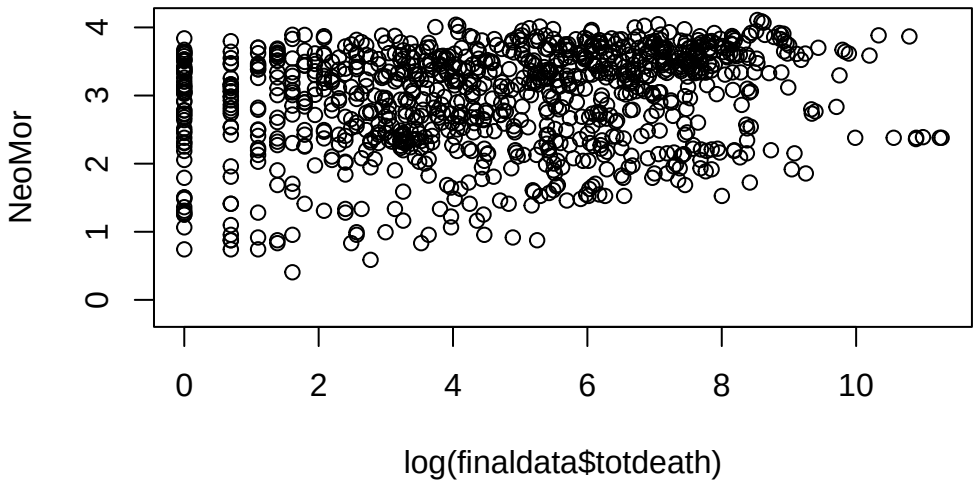
The distribution of GDP is skewed to the right, and the empty area on the right tail may show outliers of the variable. Most of the continuous variables are not normally distributed.

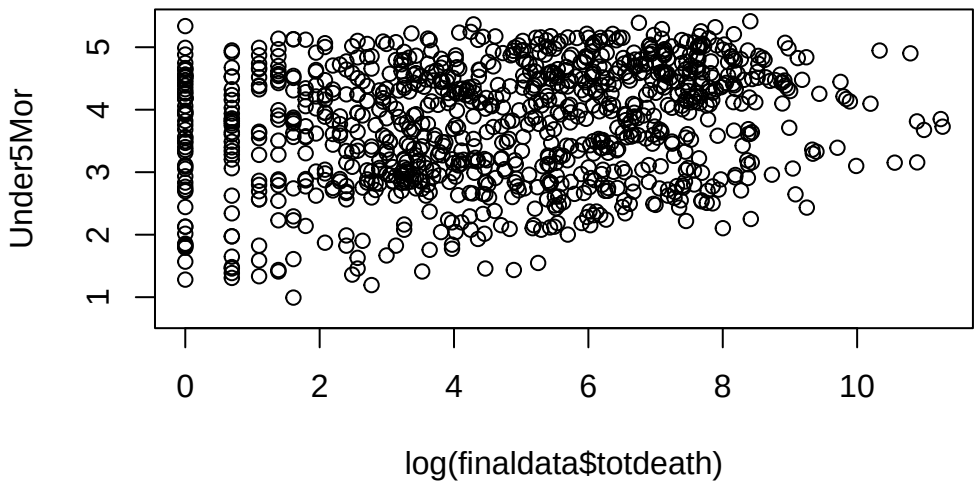
mortality rates vs total death

```
mor <- c("MatMor", "InfMor", "NeoMor", "Under5Mor")
for (i in 1:4) {
  plot(log(finaldata$totdeath), log(finaldata[[mor[i]]]), ylab=mor[i])
}
```




InfMor
1
2
3
4
5
0
2
4
6
8
10
log(finaldata$totdeath)


NeoMor
0
1
2
3
4
0
2
4
6
8
10
log(finaldata$totdeath)

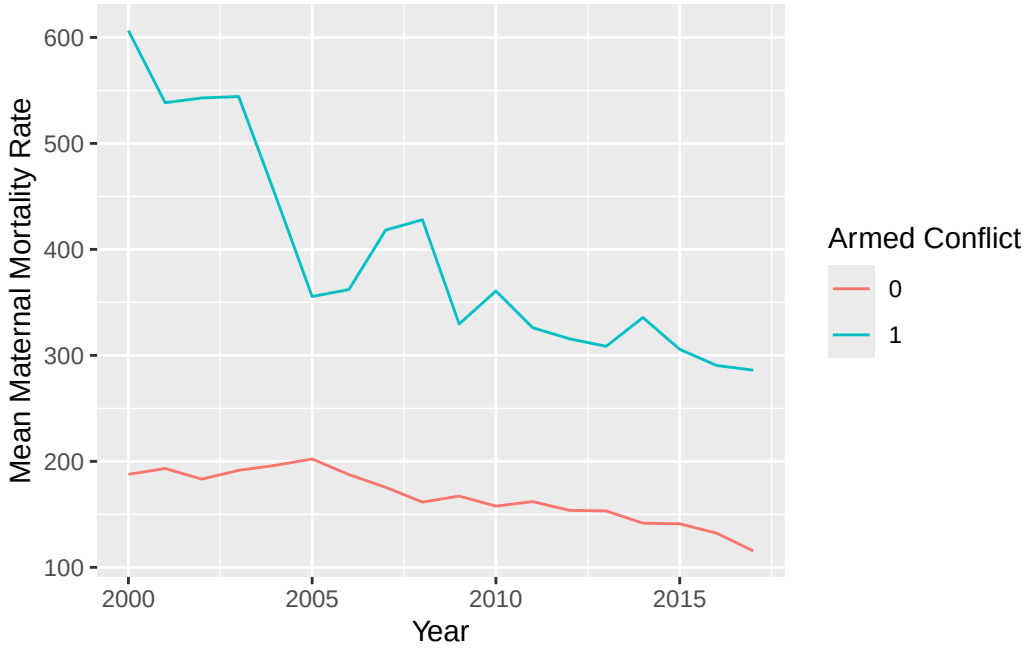


Since the original range was too wide, I applied log transformation on x and y axis. There's no obvious trend between mortality rates and total death.

Mortality rate ove time by armed conflict

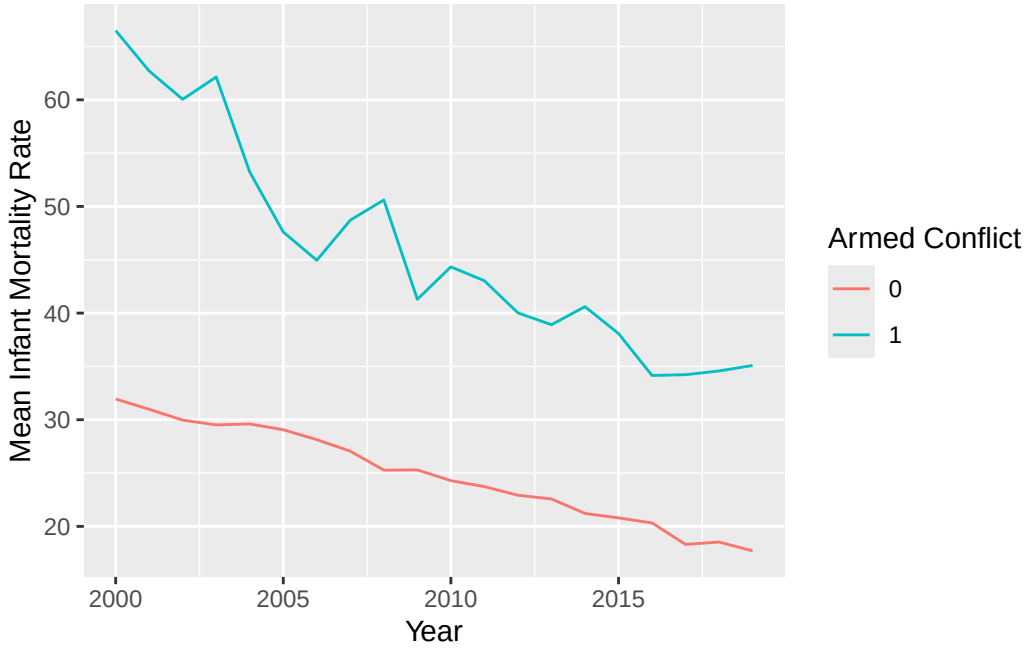
```
ggplot(finaldata, aes(x = year, y = MatMor, color = factor(armconflict))) +
  geom_line(stat = "summary", fun = "mean") +
  labs(x = "Year", y = "Mean Maternal Mortality Rate", color = "Armed Conflict")
```

```
Warning: Removed 426 rows containing non-finite outside the scale range
(`stat_summary()`).
```



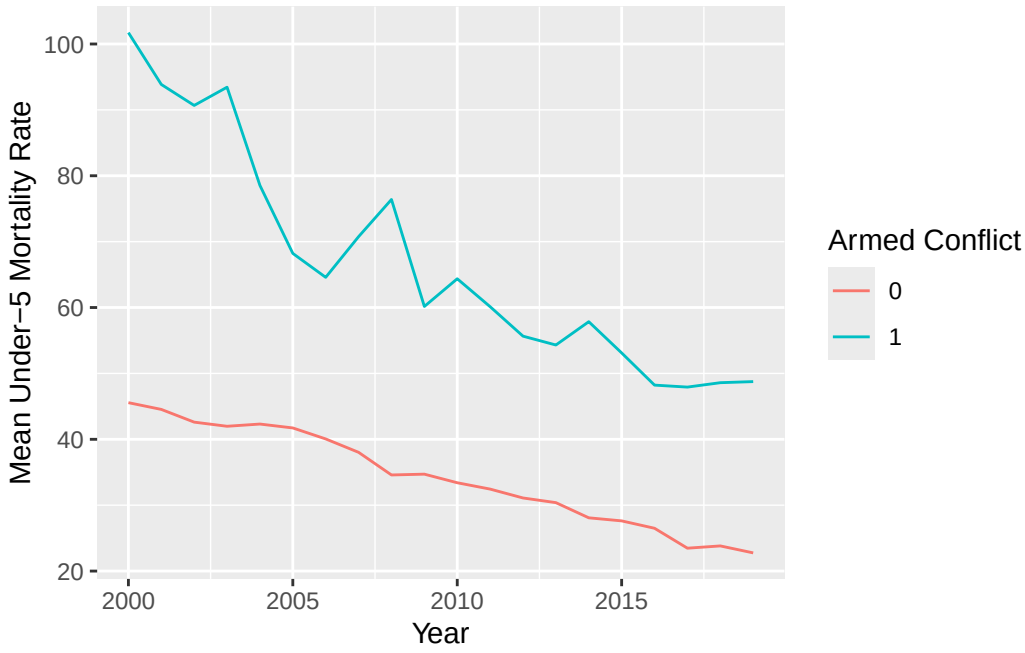

```
ggplot(finaldata, aes(x = year, y = InfMor, color = factor(armconflict))) +
  geom_line(stat = "summary", fun = "mean") +
  labs(x = "Year", y = "Mean Infant Mortality Rate", color = "Armed Conflict")
```

```
Warning: Removed 20 rows containing non-finite outside the scale range
(`stat_summary()`).
```




```
ggplot(finaldata, aes(x = year, y = Under5Mor, color = factor(armconflict))) +
  geom_line(stat = "summary", fun = "mean") +
  labs(x = "Year", y = "Mean Under-5 Mortality Rate", color = "Armed Conflict")
```

```
Warning: Removed 20 rows containing non-finite outside the scale range
(`stat_summary()`).
```



The three mortality rates show decreasing trends over year for both armed conflict and non armed conflict cases, which may indicate improved health care systems.