Initial Report

Replicating "Effects of international sanctions on age-specific mortality: a cross-national panel data analysis"

```
#load packages
if (!require("pacman")) install.packages("pacman")

Loading required package: pacman

pacman::p_load(haven)
```

Load Data

```
#from stata - use haven package
df1 <- read_dta("data/mortality1_r-1.dta")
df2 <- read_dta("data/un_single_age_life_t.dta")</pre>
```

Quick Summary

replicate their summary tables later

```
head(df1)
```

```
2 Afghanistan AFG
                           1961
                                      80.2 91.3
                                                               NA
                                                         NA
3 Afghanistan AFG
                           1962
                                      80.4 91.0
                                                         NA
                                                               NA
4 Afghanistan AFG
                           1963
                                      80.7 90.7
                                                         NA
                                                               NA
                                      81.2 90.4
                                                         NA
                                                               NA
5 Afghanistan AFG
                           1964
                                      82.0 90.1
6 Afghanistan AFG
                           1965
                                                         NA
                                                               NA
# i 89 more variables: agricultural_imports <dbl>, food_imports <dbl>,
    fuel_imports <dbl>, popWB <dbl>, government_effectiveness <dbl>,
```

- gdppcPWT <dbl>, un_sanctions <dbl>, un_arms <dbl>, eu_sanctions <dbl>,
- # eu_arms <dbl>, us_sanctions <dbl>, us_arms <dbl>, polity2 <dbl>,
- eusanct_sanction_us <dbl>, eusanct_sanction_un <dbl>,
- eusanct_sanction_eu <dbl>, ties_us_sanction <dbl>, ties_eu_sanction <dbl>, #
- giga_un_sanction <dbl>, giga_eu_sanction <dbl>, giga_us_sanction <dbl>, ...

dim(df1)

[1] 15182 96

head(df2)

```
# A tibble: 6 x 19
 sortorder locid year agegrpstart pop_t dea_t
                                                                        lx_t
                                                   mx_t
                                                          qx_t px_t
      <dbl> <dbl> <dbl>
                              <dbl> <dbl>
                                           <dbl> <dbl> <dbl> <dbl> <
                                                                       <dbl>
        108
               4 1950
                                  0 302. 106.
                                                 0.353 0.286 0.714 100000
1
2
        108
                4 1950
                                  1
                                     259.
                                           23.8 0.0921 0.0880 0.912
                                                                      71421.
3
        108
                4 1950
                                  2
                                    241.
                                           13.6 0.0566 0.0551 0.945
                                                                      65134.
4
                                  3 229.
                                            8.11 0.0354 0.0348 0.965
        108
                4 1950
                                                                      61547.
                                            4.99 0.0229 0.0227 0.977
5
        108
                4 1950
                                  4 218.
                                                                      59406.
        108
                4
                   1950
                                  5
                                    208.
                                            3.25 0.0156 0.0155 0.984
                                                                      58060.
# i 9 more variables: dx_t <dbl>, llx_t <dbl>, sx_t <dbl>, tx_t <dbl>,
```

ex_t <dbl>, ax_t <dbl>, mx2_t <dbl>, rmx <dbl>, countryname <chr>

dim(df2)

[1] 1708920 19

summary(df1)

NAMES_STD countrycode year dependency Length: 15182 Length: 15182 Min. :1960 Min. : 16.17

```
Class : character
                    Class : character
                                       1st Qu.:1975
                                                       1st Qu.: 52.04
                                       Median:1991
                                                       Median: 68.10
Mode :character
                    Mode :character
                                       Mean
                                               :1991
                                                       Mean
                                                               : 70.27
                                       3rd Qu.:2007
                                                       3rd Qu.: 88.24
                                       Max.
                                               :2022
                                                       Max.
                                                               :123.31
                                                       NA's
                                                               :1604
    rural
                   inflation
                                                      agricultural imports
                                           gini
Min.
       : 0.00
                Min.
                        : -17.640
                                     Min.
                                             :20.70
                                                      Min.
                                                             : 0.001
1st Qu.:28.03
                                     1st Qu.:31.20
                1st Qu.:
                             2.112
                                                      1st Qu.: 0.889
Median :49.39
                                     Median :35.70
                Median:
                             4.841
                                                      Median : 1.555
                            23.472
Mean
       :48.60
                Mean
                                     Mean
                                             :37.79
                                                      Mean
                                                             : 2.196
3rd Qu.:69.42
                                      3rd Qu.:43.17
                 3rd Qu.:
                            10.161
                                                      3rd Qu.: 2.639
Max.
       :97.92
                        :23773.132
                                             :65.80
                                                      Max.
                                                              :47.753
                Max.
                                     Max.
NA's
       :1700
                                             :13076
                NA's
                        :6642
                                     NA's
                                                      NA's
                                                             :7558
 food_imports
                   fuel_imports
                                       popWB
                                                        government_effectiveness
       : 0.474
                        : 0.010
                                           :4.135e+03
                                                                :-2.450
Min.
                 Min.
                                   Min.
                                                        Min.
1st Qu.: 9.147
                 1st Qu.: 6.566
                                   1st Qu.:5.141e+05
                                                        1st Qu.:-0.753
Median :13.611
                 Median :11.627
                                   Median :4.258e+06
                                                        Median :-0.157
Mean
       :14.980
                 Mean
                                   Mean
                                           :2.500e+07
                                                        Mean
                                                                :-0.013
                         :13.175
3rd Qu.:19.227
                 3rd Qu.:17.805
                                   3rd Qu.:1.375e+07
                                                        3rd Qu.: 0.736
Max.
       :62.416
                 Max.
                         :94.057
                                   Max.
                                           :1.417e+09
                                                        Max.
                                                                : 2.426
NA's
                 NA's
                                   NA's
                                                        NA's
       :7549
                         :7558
                                           :1604
                                                                :10555
   {\tt gdppcPWT}
                    un_sanctions
                                        un_arms
                                                        eu sanctions
Min.
           244.6
                   Min.
                           :0.0000
                                     Min.
                                             :0.0000
                                                       Min.
                                                               :0.0000
      :
1st Qu.: 2537.7
                    1st Qu.:0.0000
                                      1st Qu.:0.0000
                                                       1st Qu.:0.0000
                    Median :0.0000
                                     Median :0.0000
Median: 6703.3
                                                       Median :0.0000
      : 13701.7
                           :0.0334
Mean
                    Mean
                                     Mean
                                             :0.0311
                                                       Mean
                                                               :0.0531
3rd Qu.: 17496.8
                    3rd Qu.:0.0000
                                      3rd Qu.:0.0000
                                                       3rd Qu.:0.0000
       :283541.2
                           :1.0000
                                             :1.0000
Max.
                    Max.
                                     Max.
                                                       Max.
                                                               :1.0000
NA's
       :5523
                    NA's
                           :764
                                     NA's
                                             :764
                                                       NA's
                                                               :764
   eu_arms
                  us_sanctions
                                      us_arms
                                                        polity2
Min.
       :0.0000
                 Min.
                         :0.0000
                                   Min.
                                                     Min.
                                                            :-10.000
                                           :0.0000
1st Qu.:0.0000
                 1st Qu.:0.0000
                                   1st Qu.:0.0000
                                                     1st Qu.: -7.000
Median :0.0000
                 Median :0.0000
                                   Median :0.0000
                                                     Median : 2.000
Mean
       :0.0307
                 Mean
                         :0.1295
                                   Mean
                                           :0.0473
                                                     Mean
                                                            : 1.056
                                                     3rd Qu.: 8.000
3rd Qu.:0.0000
                  3rd Qu.:0.0000
                                   3rd Qu.:0.0000
Max.
       :1.0000
                 Max.
                         :1.0000
                                   Max.
                                           :1.0000
                                                     Max.
                                                             : 10.000
NA's
       :764
                 NA's
                         :764
                                   NA's
                                           :764
                                                     NA's
                                                             :6651
eusanct_sanction_us eusanct_sanction_un eusanct_sanction_eu ties_us_sanction
Min.
       :0.000
                    Min.
                            :0.000
                                         Min.
                                                 :0.000
                                                              Min.
                                                                     :0.000
1st Qu.:0.000
                     1st Qu.:0.000
                                          1st Qu.:0.000
                                                               1st Qu.:0.000
Median :0.000
                    Median : 0.000
                                         Median : 0.000
                                                              Median : 0.000
Mean
      :0.146
                    Mean
                           :0.031
                                          Mean
                                                :0.071
                                                              Mean
                                                                      :0.121
```

```
3rd Qu.:0.000
                     3rd Qu.:0.000
                                         3rd Qu.:0.000
                                                              3rd Qu.:0.000
Max.
       :1.000
                    Max.
                            :1.000
                                         Max.
                                                 :1.000
                                                              Max.
                                                                      :1.000
NA's
       :9008
                    NA's
                            :9008
                                         NA's
                                                 :9008
                                                              NA's
                                                                      :3410
ties_eu_sanction giga_un_sanction giga_eu_sanction giga_us_sanction
Min.
       :0.000
                 Min. :0.000
                                   Min.
                                          :0.000
                                                     Min.
                                                            :0.000
1st Qu.:0.000
                 1st Qu.:0.000
                                   1st Qu.:0.000
                                                     1st Qu.:0.000
Median :0.000
                 Median :0.000
                                   Median :0.000
                                                     Median :0.000
Mean
       :0.015
                 Mean
                         :0.024
                                   Mean
                                           :0.056
                                                     Mean
                                                            :0.082
3rd Qu.:0.000
                 3rd Qu.:0.000
                                   3rd Qu.:0.000
                                                     3rd Qu.:0.000
Max.
       :1.000
                 Max.
                         :1.000
                                   Max.
                                           :1.000
                                                     Max.
                                                            :1.000
NA's
       :3410
                 NA's
                                   NA's
                                                     NA's
                                                            :10382
                         :10382
                                           :10382
hse_us_sanction hse_un_sanction hse_eu_sanction
                                                     openness
       :0.000
                Min.
                        :0.000
                                 Min.
                                        :0.000
                                                  Min.
                                                         : 1.862
                                                  1st Qu.: 48.540
1st Qu.:0.000
                1st Qu.:0.000
                                 1st Qu.:0.000
Median :0.000
                Median :0.000
                                 Median :0.000
                                                  Median: 74.367
Mean
       :0.064
                Mean
                        :0.014
                                 Mean
                                        :0.003
                                                  Mean
                                                         : 84.818
3rd Qu.:0.000
                3rd Qu.:0.000
                                 3rd Qu.:0.000
                                                  3rd Qu.:106.346
                                 Max.
                                        :1.000
       :1.000
                        :1.000
                                                         :593.694
Max.
                Max.
                                                  Max.
NA's
       :4428
                NA's
                        :4428
                                 NA's
                                         :4428
                                                  NA's
                                                         :5062
                  mr wb adu f
                                    mr wb adu m
                                                      mr wb inf f
    exist
Min.
       :0.0000
                 Min.
                        : 22.07
                                   Min.
                                          : 42.59
                                                     Min. : 0.90
                                                     1st Qu.: 12.60
1st Qu.:1.0000
                 1st Qu.: 98.67
                                   1st Qu.:177.01
Median :1.0000
                 Median :153.95
                                   Median :247.00
                                                     Median : 31.00
Mean
       :0.9121
                 Mean
                         :187.68
                                   Mean
                                           :267.32
                                                     Mean
                                                            : 45.45
3rd Qu.:1.0000
                 3rd Qu.:262.12
                                   3rd Qu.:346.04
                                                     3rd Qu.: 66.62
Max.
       :1.0000
                         :997.60
                                           :999.94
                                                     Max.
                                                            :259.50
                 Max.
                                   Max.
NA's
                                                     NA's
       :764
                 NA's
                         :2502
                                   NA's
                                           :2502
                                                            :4122
mr_wb_inf_m
                  mr_wb_inf_t
                                    mr_wb_man_f
                                                      mr_wb_neo_t
      : 1.10
                 Min.
                        : 1.00
                                   Min.
                                          :
                                              0.0
                                                     Min.
                                                            : 0.70
1st Qu.: 15.50
                 1st Qu.: 14.10
                                   1st Qu.:
                                              6.0
                                                     1st Qu.: 8.00
Median: 38.10
                 Median : 34.70
                                   Median:
                                             19.0
                                                     Median: 18.40
Mean
       : 53.65
                 Mean
                         : 49.66
                                   Mean
                                          :
                                             65.8
                                                     Mean
                                                            : 22.89
3rd Qu.: 79.30
                 3rd Qu.: 73.00
                                   3rd Qu.: 50.0
                                                     3rd Qu.: 33.10
Max.
       :295.70
                 Max.
                         :278.20
                                           :2241.0
                                                            :105.30
                                   Max.
                                                     Max.
NA's
                 NA's
                                   NA's
                                                     NA's
       :4122
                         :4122
                                           :12366
                                                            :5705
                                                     mr_uns_1015_t
mr wb un5 f
                  mr wb un5 m
                                    mr_wb_un5_t
Min. : 1.60
                 Min. : 1.90
                                   Min.
                                          : 1.70
                                                     Min. : 0.1126
1st Qu.: 14.80
                 1st Qu.: 18.18
                                   1st Qu.: 16.60
                                                     1st Qu.:
                                                               1.1367
Median : 39.00
                 Median : 47.10
                                   Median : 43.60
                                                     Median:
                                                               2.4156
Mean
       : 68.99
                 Mean
                         : 77.30
                                   Mean
                                           : 74.25
                                                     Mean
                                                            : 4.8994
3rd Qu.:100.90
                 3rd Qu.:113.60
                                   3rd Qu.:108.60
                                                     3rd Qu.: 6.1288
                         :434.20
Max.
       :416.20
                 Max.
                                   Max.
                                           :429.10
                                                     Max.
                                                            :240.1053
NA's
       :4122
                 NA's
                         :4122
                                   NA's
                                           :4053
                                                     NA's
                                                            :798
```

```
mr_uns_1015_f
                   mr_uns_1015_m
                                        mr_uns_510_t
                                                           mr_uns_510_f
Min. : 0.0900
                   Min. : 0.1101
                                       Min. : 0.1295
                                                          Min. : 0.0372
1st Qu.:
          0.8791
                   1st Qu.: 1.3586
                                       1st Qu.: 1.2886
                                                          1st Qu.:
                                                                    1.0589
Median :
          1.9752
                   Median : 2.8063
                                       Median :
                                                 3.0704
                                                          Median :
                                                                     2.5567
                         : 5.1514
Mean
      : 4.6397
                   Mean
                                       Mean
                                              : 8.0188
                                                          Mean :
                                                                    7.6265
3rd Qu.:
          5.8554
                   3rd Qu.:
                             6.6610
                                       3rd Qu.:
                                                 9.8063
                                                          3rd Qu.:
                                                                    9.1100
Max.
       :200.6672
                   Max.
                           :277.7507
                                       Max.
                                              :238.3941
                                                          Max.
                                                                  :208.9377
NA's
       :798
                   NA's
                           :798
                                       NA's
                                              :798
                                                          NA's
                                                                  :798
                  mr uns 6080 t
                                                   mr uns 6080 m
mr_uns_510_m
                                   mr uns 6080 f
Min.
      : 0.140
                  Min.
                         :170.5
                                  Min.
                                          :124.6
                                                   Min.
                                                           :210.1
1st Qu.:
                  1st Qu.:467.5
          1.474
                                   1st Qu.:387.7
                                                   1st Qu.:549.4
          3.508
                  Median :568.2
                                   Median :502.5
Median :
                                                   Median :637.2
Mean
      : 8.401
                  Mean
                          :552.6
                                   Mean
                                          :493.2
                                                           :616.3
                                                   Mean
3rd Qu.: 10.588
                  3rd Qu.:650.2
                                   3rd Qu.:606.7
                                                   3rd Qu.:700.3
Max.
       :266.303
                  Max.
                          :995.1
                                   Max.
                                          :989.3
                                                   Max.
                                                           :998.2
NA's
       :798
                  NA's
                          :798
                                   NA's
                                          :798
                                                   NA's
                                                           :798
ln_mr_crude
                 gg_final_consumption_perc imports_share_gdp
                                                                   mort59
Min.
       :-1.160
                 Min.
                      : 0.00
                                            Min.
                                                   : 0.016
                                                                      : 0.200
                                                              Min.
1st Qu.: 1.604
                 1st Qu.: 11.21
                                            1st Qu.: 24.262
                                                               1st Qu.:
                                                                         1.100
                                            Median : 35.538
Median : 1.927
                 Median: 15.30
                                                               Median :
                                                                         2.100
      : 1.978
                                                                         5.402
Mean
                 Mean
                        : 16.27
                                            Mean
                                                   : 42.020
                                                               Mean
3rd Qu.: 2.325
                 3rd Qu.: 19.45
                                            3rd Qu.: 53.024
                                                               3rd Qu.:
                                                                         6.700
Max.
       : 4.782
                 Max.
                        :147.74
                                            Max.
                                                   :429.359
                                                               Max.
                                                                      :150.400
NA's
       :812
                 NA's
                        :6822
                                            NA's
                                                   :6452
                                                               NA's
                                                                      :8910
   mort1014
                   exports_gdp
                                         _merge
                                                      mr_wb_adu_t
Min.
       : 0.200
                  Min.
                         : 0.005
                                            :1.000
                                                     Min.
                                                            : 32.78
                                     Min.
                                     1st Qu.:3.000
                                                     1st Qu.:141.07
1st Qu.:
          1.100
                  1st Qu.: 18.183
Median :
          2.100
                  Median : 29.289
                                     Median :3.000
                                                     Median :203.49
Mean
          3.461
                          : 36.416
                                            :2.793
                  Mean
                                     Mean
                                                     Mean
                                                             :228.79
3rd Qu.: 4.400
                  3rd Qu.: 46.307
                                     3rd Qu.:3.000
                                                     3rd Qu.:301.90
Max.
       :153.600
                          :433.836
                                            :3.000
                                                     Max.
                                                             :998.76
                  Max.
                                     Max.
NA's
       :8910
                  NA's
                         :6461
                                                     NA's
                                                             :2564
global_sanctions
                   un_another
                                    us_econ_sanctions eu_econ_sanctions
Min.
       :0.0000
                 Min.
                        :0.00000
                                    Min.
                                           :0.00000
                                                      Min.
                                                              :0.00000
1st Qu.:0.0000
                                    1st Qu.:0.00000
                 1st Qu.:0.00000
                                                      1st Qu.:0.00000
Median :0.0000
                 Median :0.00000
                                    Median :0.00000
                                                      Median :0.00000
Mean
       :0.1398
                 Mean
                        :0.03148
                                    Mean
                                           :0.09221
                                                      Mean
                                                              :0.03899
3rd Qu.:0.0000
                 3rd Qu.:0.00000
                                    3rd Qu.:0.00000
                                                      3rd Qu.:0.00000
Max.
       :1.0000
                 Max.
                        :1.00000
                                    Max.
                                           :1.00000
                                                              :1.00000
                                                      Max.
un_econ_sanctions arms_sanctions
                                     military_sanctions non_econ_sanctions
       :0.00000
                          :0.00000
                                            :0.0000
                                                                :0.000
Min.
                  Min.
                                     Min.
                                                        Min.
1st Qu.:0.00000
                  1st Qu.:0.00000
                                     1st Qu.:0.0000
                                                        1st Qu.:0.000
```

```
Median: 0.00000
                   Median: 0.00000
                                      Median: 0.0000
                                                          Median : 0.000
Mean
       :0.01838
                   Mean
                          :0.07107
                                      Mean
                                             :0.0579
                                                          Mean
                                                                :0.107
3rd Qu.:0.00000
                   3rd Qu.:0.00000
                                      3rd Qu.:0.0000
                                                          3rd Qu.:0.000
Max.
       :1.00000
                   Max.
                          :1.00000
                                      Max.
                                             :1.0000
                                                          Max.
                                                                 :1.000
uni sanctions
                  us uni sanctions eu uni sanctions
                                                        uni another
Min.
       :0.0000
                  Min.
                         :0.0000
                                    Min.
                                           :0.00000
                                                       Min.
                                                              :0.00000
1st Qu.:0.0000
                  1st Qu.:0.0000
                                    1st Qu.:0.00000
                                                       1st Qu.:0.00000
Median :0.0000
                  Median :0.0000
                                    Median :0.00000
                                                       Median :0.00000
Mean
       :0.1082
                  Mean
                         :0.0988
                                    Mean
                                           :0.03148
                                                       Mean
                                                              :0.07522
3rd Qu.:0.0000
                  3rd Qu.:0.0000
                                    3rd Qu.:0.00000
                                                       3rd Qu.:0.00000
       :1.0000
                         :1.0000
                                           :1.00000
                                                              :1.00000
Max.
                  Max.
                                    Max.
                                                       Max.
non arms sanctions arms mil sanctions non arms mil sanctions
       :0.0000
                    Min.
                           :0.00000
                                        Min.
                                               :0.0000
1st Qu.:0.0000
                    1st Qu.:0.00000
                                        1st Qu.:0.0000
Median :0.0000
                    Median :0.00000
                                        Median :0.0000
Mean
       :0.1313
                           :0.08846
                                        Mean
                                               :0.1235
                    Mean
3rd Qu.:0.0000
                    3rd Qu.:0.00000
                                        3rd Qu.:0.0000
Max.
       :1.0000
                    Max.
                           :1.00000
                                        Max.
                                               :1.0000
uni_arms_sanctions comprehensiveness comprehensiveness2
                                                                war
       :0.00000
                    Min.
                           : 0.0000
                                       Min.
                                              :0.0000
                                                           Min.
                                                                   :0.0000
1st Qu.:0.00000
                    1st Qu.: 0.0000
                                       1st Qu.:0.0000
                                                           1st Qu.:0.0000
Median :0.00000
                    Median : 0.0000
                                       Median :0.0000
                                                           Median :0.0000
       :0.04156
                           : 0.5695
Mean
                    Mean
                                       Mean
                                              :0.2825
                                                           Mean
                                                                   :0.1153
3rd Qu.:0.00000
                    3rd Qu.: 0.0000
                                       3rd Qu.:0.0000
                                                           3rd Qu.:0.0000
Max.
       :1.00000
                    Max.
                           :17.0000
                                       Max.
                                              :6.0000
                                                           Max.
                                                                   :1.0000
                    NA's
                           :764
                                       NA's
                                              :764
                      ccode
                                econ_sanctions
                                                  uni_econ_sanctions
     eysf
Min.
       : 0.361
                  Min.
                            1
                                        :0.0000
                                                          :0.00000
                         :
                                Min.
                                                  Min.
1st Qu.: 8.570
                  1st Qu.: 61
                                1st Qu.:0.0000
                                                  1st Qu.:0.00000
Median :11.553
                  Median:121
                                Median :0.0000
                                                  Median :0.00000
Mean
       :11.083
                  Mean
                         :121
                                Mean
                                        :0.1061
                                                  Mean
                                                          :0.09373
                                 3rd Qu.:0.0000
3rd Qu.:13.845
                  3rd Qu.:181
                                                  3rd Qu.:0.00000
Max.
       :23.484
                  Max.
                         :241
                                Max.
                                        :1.0000
                                                  Max.
                                                          :1.00000
NA's
       :6957
ln dependency
                    ln rural
                                      ln_eysf
                                                       lgdppcPWT
Min.
       :2.783
                        :-3.912
                                          :-1.019
                                                            : 5.500
                Min.
                                  Min.
                                                     Min.
                                                     1st Qu.: 7.839
1st Qu.:3.952
                 1st Qu.: 3.425
                                   1st Qu.: 2.148
Median :4.221
                Median : 3.926
                                  Median : 2.447
                                                     Median: 8.810
       :4.207
                        : 3.736
                                          : 2.298
                                                           : 8.807
Mean
                Mean
                                   Mean
                                                     Mean
3rd Qu.:4.480
                 3rd Qu.: 4.251
                                   3rd Qu.: 2.628
                                                     3rd Qu.: 9.770
```

```
Max.
       :4.815
                        : 4.584
                                          : 3.156
                                                            :12.555
                Max.
                                  Max.
                                                    Max.
       :1604
NA's
                                  NA's
                                                    NA's
                NA's
                        :2155
                                          :6957
                                                            :5523
     idum
                 ln_mr_wb_neo_t
                                   ln_mr_wb_inf_t
                                                    ln_mr_wb_un5_t
Min.
       :0.0000
                 Min.
                         :-0.357
                                   Min.
                                           :0.000
                                                    Min.
                                                            :0.531
                 1st Qu.: 2.079
1st Qu.:0.0000
                                   1st Qu.:2.646
                                                    1st Qu.:2.809
Median :1.0000
                 Median : 2.912
                                   Median :3.547
                                                    Median :3.775
Mean
       :0.5602
                 Mean
                         : 2.730
                                   Mean
                                           :3.408
                                                    Mean
                                                            :3.698
                 3rd Qu.: 3.500
3rd Qu.:1.0000
                                   3rd Qu.:4.290
                                                    3rd Qu.:4.688
Max.
       :1.0000
                 Max.
                         : 4.657
                                           :5.628
                                                            :6.062
                                   Max.
                                                    Max.
                 NA's
                                                    NA's
                         :5705
                                   NA's
                                           :4122
                                                            :4053
ln_mr_uns_510_t
                  ln_mr_uns_1015_t
                                     ln_mr_wb_adu_t
                                                      ln_mr_uns_6080_t
Min. :-2.0443
                  Min.
                          :-2.1839
                                     Min.
                                            :3.490
                                                      Min.
                                                             :5.138
1st Qu.: 0.2536
                   1st Qu.: 0.1281
                                     1st Qu.:4.949
                                                      1st Qu.:6.147
Median : 1.1218
                  Median: 0.8820
                                     Median :5.316
                                                      Median :6.343
       : 1.2424
Mean
                  Mean
                          : 0.9563
                                     Mean
                                             :5.296
                                                      Mean
                                                              :6.284
3rd Qu.: 2.2830
                   3rd Qu.: 1.8130
                                      3rd Qu.:5.710
                                                      3rd Qu.:6.477
Max.
       : 5.4739
                  Max.
                          : 5.4811
                                     Max.
                                             :6.907
                                                      Max.
                                                              :6.903
NA's
       :798
                  NA's
                          :798
                                     NA's
                                             :2564
                                                      NA's
                                                              :798
  ln_polity2
Min. :-3.045
1st Qu.:-1.658
Median :-0.480
Mean
       :-0.851
3rd Qu.:-0.100
Max.
       : 0.000
NA's
       :6651
```

summary(df2)

sortorder	locid	year	agegrpstar	t
Min. : 29.0	Min. : 4.0	Min. :1950	Min. : 0	
1st Qu.: 93.0	1st Qu.:222.0	1st Qu.:1968	1st Qu.: 25	
Median :158.0	Median :442.0	Median :1986	Median : 50	
Mean :158.5	Mean :441.6	Mean :1986	Mean : 50	
3rd Qu.:224.0	3rd Qu.:660.0	3rd Qu.:2003	3rd Qu.: 75	
Max. :290.0	Max. :894.0	Max. :2021	Max. :100	
pop_t	dea_t	m	k_t	qx_t
Min. : 0.0	00 Min. :	0.000 Min.	:0.0000124	Min. :0.0000124
1st Qu.: 0.6	18 1st Qu.:	0.009 1st Qu	.:0.0026074	1st Qu.:0.0026040
Median: 11.3	06 Median:	0.128 Median	:0.0109663	Median :0.0109063
Mean : 211.0	15 Mean :	2.139 Mean	:0.0736058	Mean :0.0698517

```
3rd Qu.:
          85.534
                   3rd Qu.:
                              0.787
                                      3rd Qu.:0.0728814
                                                         3rd Qu.:0.0702824
                                            :1.0000000
Max.
      :29753.559
                   Max.
                          :3954.196
                                      Max.
                                                         Max.
                                                                :1.0000000
                                      dx_t
    px_t
                     lx_t
                                                      llx_t
Min. :0.0000
                Min. :
                             0
                                 Min. :
                                             0.0
                                                  Min. :
                                                  1st Qu.:35895
1st Qu.:0.9297
                1st Qu.: 37128
                                 1st Qu.: 183.1
Median :0.9891
                Median : 75832
                                Median :
                                          559.5
                                                  Median :75339
Mean
      :0.9301
                Mean
                       : 63361
                                 Mean
                                       : 990.1
                                                  Mean
                                                         :62860
3rd Qu.:0.9974
                3rd Qu.: 92705
                                 3rd Qu.: 1500.1
                                                  3rd Qu.:92473
                                        :40064.3
Max.
      :1.0000
               Max.
                       :100000
                                 Max.
                                                  Max.
                                                         :99928
    sx_t
                     tx_t
                                       ex_t
                                                       ax_t
                                  Min. : 1.000
Min.
      :0.3333
                Min.
                                                  Min.
                                                         :0.05276
1st Qu.:0.9329
                1st Qu.: 306447
                                  1st Qu.: 7.996
                                                  1st Qu.:0.50000
Median :0.9892
                Median :1872510
                                  Median :24.385
                                                  Median :0.50000
Mean
      :0.9380
                Mean
                       :2367200
                                  Mean
                                        :28.058
                                                  Mean
                                                         :0.51054
                3rd Qu.:4022194
3rd Qu.:0.9974
                                  3rd Qu.:45.427
                                                  3rd Qu.:0.50000
Max.
      :1.0000
                Max.
                       :8654244
                                  Max.
                                        :86.542
                                                  Max.
                                                         :4.31864
                               countryname
   mx2 t
                    rmx
Min. :0.000
               Min.
                      :0.000
                               Length: 1708920
1st Qu.:0.002
               1st Qu.:0.994
                               Class : character
Median :0.010
               Median :1.000
                              Mode : character
Mean
      :0.067
                      :0.957
               Mean
3rd Qu.:0.063
               3rd Qu.:1.003
Max.
      :3.000
               Max. :3.740
NA's
       :21858
               NA's
                      :21858
```

View column labels

Several columns are labeled with variable descriptions

```
#get labels
df1_labels <- lapply(df1, function(x) attributes(x)$label)
df2_labels <- lapply(df2, function(x) attributes(x)$label)

#print non-null labels
print("DF1 Labels:")</pre>
```

```
[1] "DF1 Labels:"
```

\$countrycode [1] "CountryCode" \$dependency [1] "Dependency ratio" \$rural [1] "Rural population" \$inflation [1] "Inflation, consumer prices (annual %) [FP.CPI.TOTL.ZG]" \$gini [1] "Gini index [SI.POV.GINI]" \$agricultural_imports [1] "Agricultural raw materials imports (% of merchandise imports) [TM.VAL.AGRI.ZS.UN" \$food_imports [1] "Food imports (% of merchandise imports) [TM.VAL.FOOD.ZS.UN]" \$fuel_imports [1] "Fuel imports (% of merchandise imports) [TM.VAL.FUEL.ZS.UN]" \$popWB [1] "Population, total" \$government_effectiveness [1] "Government Effectiveness: Estimate [GE.EST]" \$gdppcPWT [1] "Expenditure-side real GDP at chained PPPs (in mil. 2017US\$) per habitant" \$un sanctions [1] "UN sanctions" \$un arms [1] "1 if the country is subjected to arms sanctions imposed by UN O otherwise"

print(df1_labels[!sapply(df1_labels, is.null)])

\$eu_sanctions

[1] "1 if the country is subjected to sanctions imposed by EU 0 otherwise"

\$eu_arms

[1] "1 if the country is subjected to arms sanctions imposed by EU 0 otherwise"

\$us sanctions

[1] "US sanctions"

\$us_arms

[1] "1 if the country is subjected to arms sanctions imposed by US 0 otherwise"

\$polity2

[1] "Democracy"

\$eusanct_sanction_us

[1] "Dummy variable. 1 if the country is subjected to any form of sanctions imposed b"

\$eusanct_sanction_un

[1] "Dummy variable. 1 if the country is subjected to any form of sanctions imposed b"

\$eusanct_sanction_eu

[1] "Dummy variable. 1 if the country is subjected to any form of sanctions imposed b"

\$ties_us_sanction

[1] "Dummy variable. 1 if the country is subjected to any form of sanctions imposed b"

\$ties_eu_sanction

[1] "Dummy variable. 1 if the European Union threatened to sanction a country in a gi"

\$giga_un_sanction

[1] "Dummy variable. 1 if the country is subjected to any form of sanctions imposed b"

\$giga_eu_sanction

[1] "Dummy variable. 1 if the country is subjected to any form of sanctions imposed b"

\$giga_us_sanction

[1] "Dummy variable. 1 if the country is subjected to any form of sanctions imposed b"

\$hse_us_sanction

[1] "Dummy variable. 1 if the country is subjected to any form of sanctions imposed b"

\$hse_un_sanction

[1] "Dummy variable. 1 if the country is subjected to any form of sanctions imposed b"

```
$hse_eu_sanction
[1] "Dummy variable. 1 if the country is subjected to any form of sanctions imposed b"
$openness
[1] "Openness"
$exist
[1] "Dummy variable. 1 if a country existed in a given year. 0 otherwise."
$mr_wb_adu_f
[1] "Mortality Rate adult, females"
$mr_wb_adu_m
[1] "Mortality Rate adult, males"
$mr_wb_inf_f
[1] "Mortality Rate infants, females"
$mr_wb_inf_m
[1] "Mortality Rate infants, males"
$mr_wb_inf_t
[1] "Infant mortality"
$mr_wb_man_f
[1] "Maternal mortality"
$mr_wb_neo_t
[1] "Neonatal mortality"
$mr_wb_un5_f
[1] "Mortality Rate under5, females"
$mr_wb_un5_m
[1] "Mortality Rate under5, males"
$mr_wb_un5_t
[1] "Under-5 mortality"
$mr_uns_1015_t
[1] "Mortality Rate 5-15 year. Total"
```

```
$mr_uns_1015_f
[1] "Mortality Rate 5-15 year. Female"
$mr_uns_1015_m
[1] "Mortality Rate 5-15 year. Male"
$mr_uns_510_t
[1] "Mortality Rate 5-15 year. Total"
$mr_uns_510_f
[1] "Mortality Rate 5-15 year. Female"
$mr_uns_510_m
[1] "Mortality Rate 5-15 year. Male"
$mr_uns_6080_t
[1] "Mortality Rate 60-80 year. Total"
$mr_uns_6080_f
[1] "Mortality Rate 60-80 year. Female"
$mr_uns_6080_m
[1] "Mortality Rate 60-80 year. Male"
$gg_final_consumption_perc
[1] "General government final consumption expenditure (% of GDP) [NE.CON.GOVT.ZS]"
$imports_share_gdp
[1] "Imports of goods and services (% of GDP) [NE.IMP.GNFS.ZS]"
$mort59
[1] "Child mortality"
$mort1014
[1] "Adolescent mortality"
$exports gdp
[1] "Exports of goods and services (% of GDP)"
$`_merge`
[1] "Matching result from merge"
$mr_wb_adu_t
```

[1] "Adult mortality"

\$global_sanctions

[1] "Any sanctions"

\$un_another

[1] "Other UN sanctions"

\$un_econ_sanctions

[1] "UN economic sanctions"

\$non_econ_sanctions

[1] "Non-economic sanctions"

\$uni_sanctions

[1] "Unilateral sanctions"

\$us_uni_sanctions

[1] "US unilateral sanct"

\$eu_uni_sanctions

[1] "EU unilateral sanct"

\$uni_another

[1] "Other unilateral sanct"

\$war

[1] "War"

\$eysf

[1] "Female schooling"

\$ccode

[1] "group(NAMES_STD)"

\$econ_sanctions

[1] "Economic sanctions"

\$uni_econ_sanctions

[1] "Unilateral econ sanct"

\$lgdppcPWT

[1] "Log per capita income"

```
print("DF2 Labels:")
[1] "DF2 Labels:"
print(df2_labels[!sapply(df2_labels, is.null)])
$sortorder
[1] "SortOrder"
$locid
[1] "LocID"
$year
[1] "Time"
$agegrpstart
[1] "AgeGrpStart"
$pop_t
[1] "PopTotal"
$dea_t
[1] "DeathTotal"
$11x_t
[1] "Lx"
$sx_t
[1] "Sx"
$tx_t
[1] "Tx"
```