Final Project- Life Expectancy Estimation Analysis

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1.Introduction

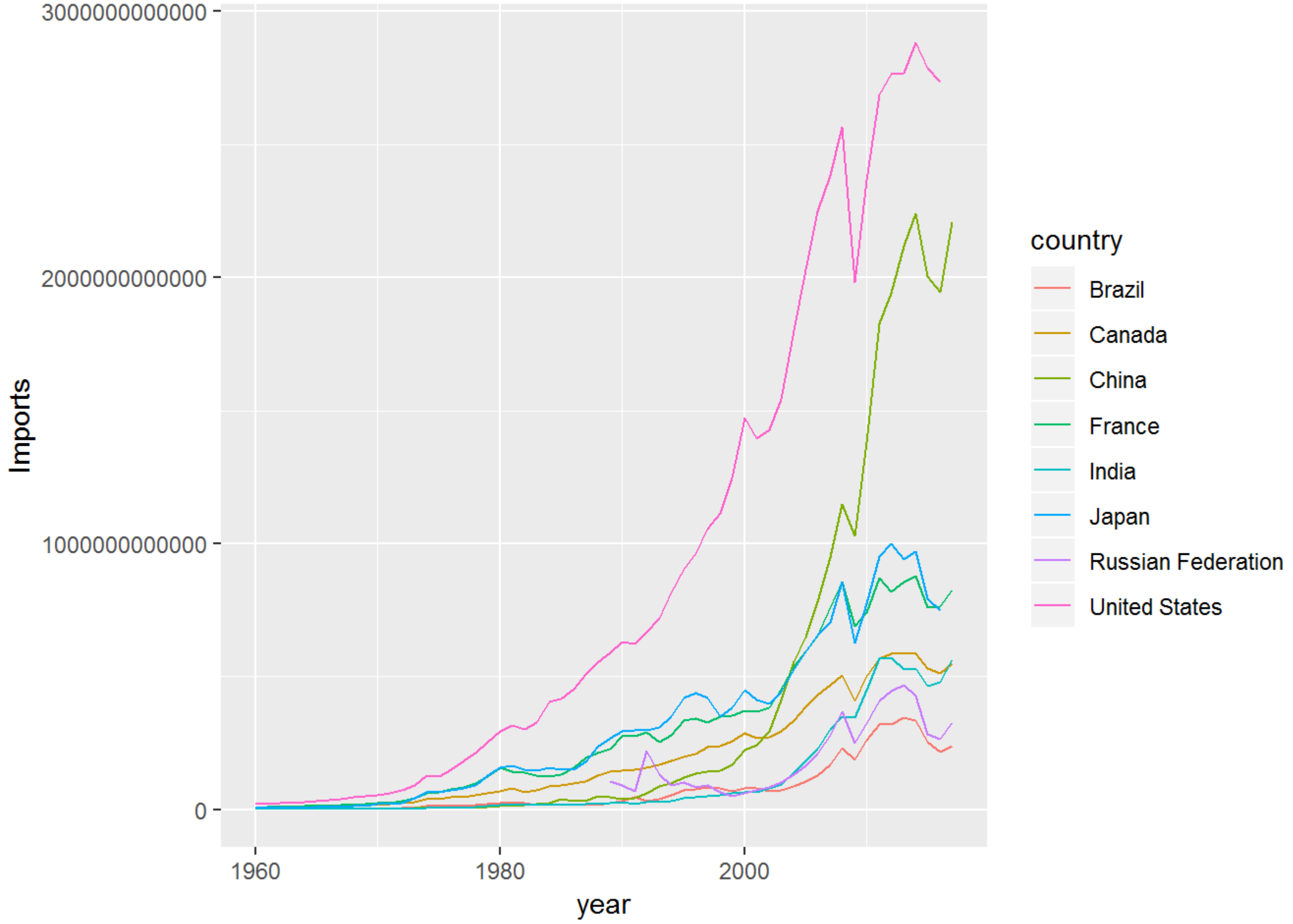
```
## -- Attaching packages --------------------------------------------------- tidyverse 1.2.1 --
```

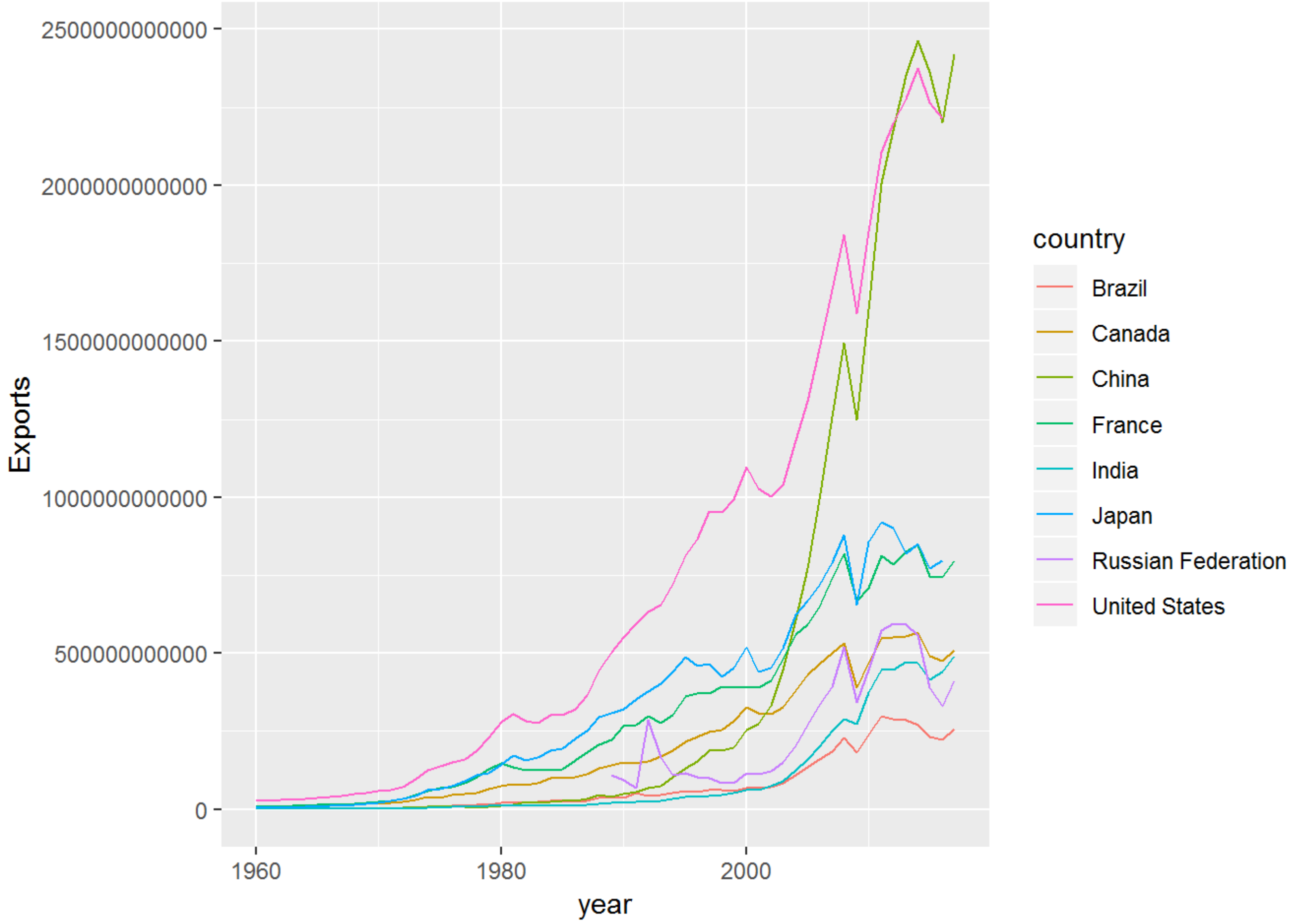
```
## v ggplot2 3.1.0       v purrr   0.3.0
## v tibble  2.0.1       v dplyr   0.8.0.1
## v tidyr   0.8.3       v stringr 1.4.0
## v readr   1.3.1       v forcats 0.4.0
```

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

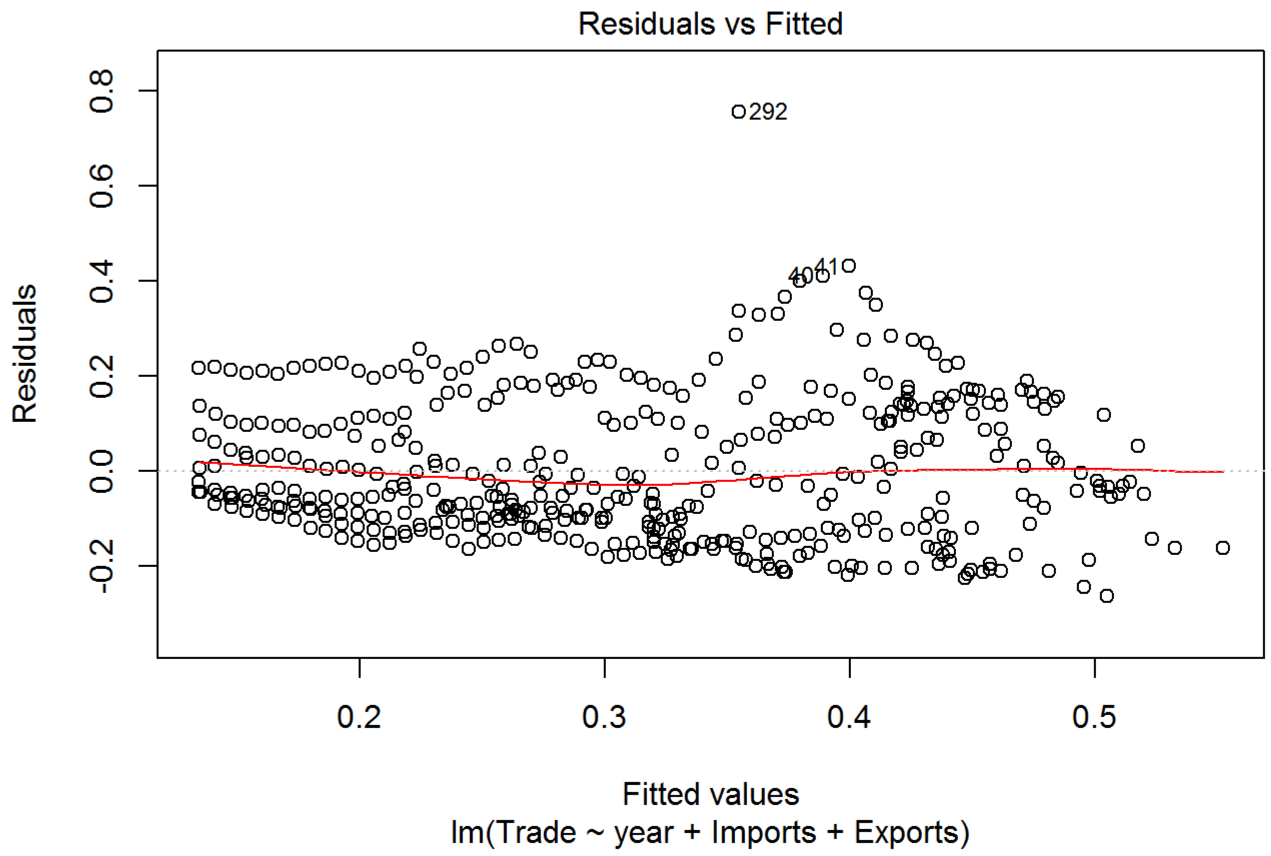
2.Data analysis on world trade file

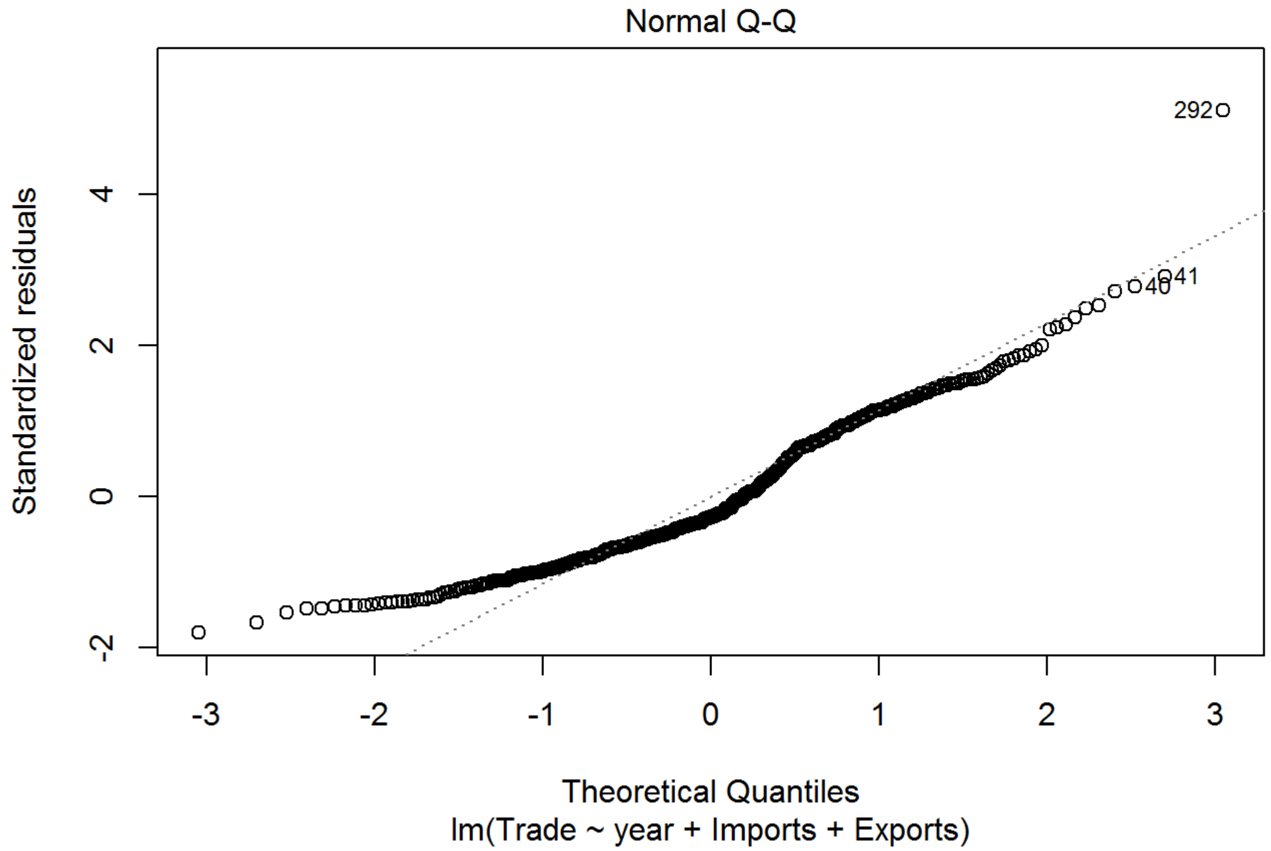
```
## Parsed with column specification:
## cols(
##   country = col_character(),
##   year = col_double(),
##   Imports = col_number(),
##   Exports = col_number(),
##   Trade = col_double()
## )
```

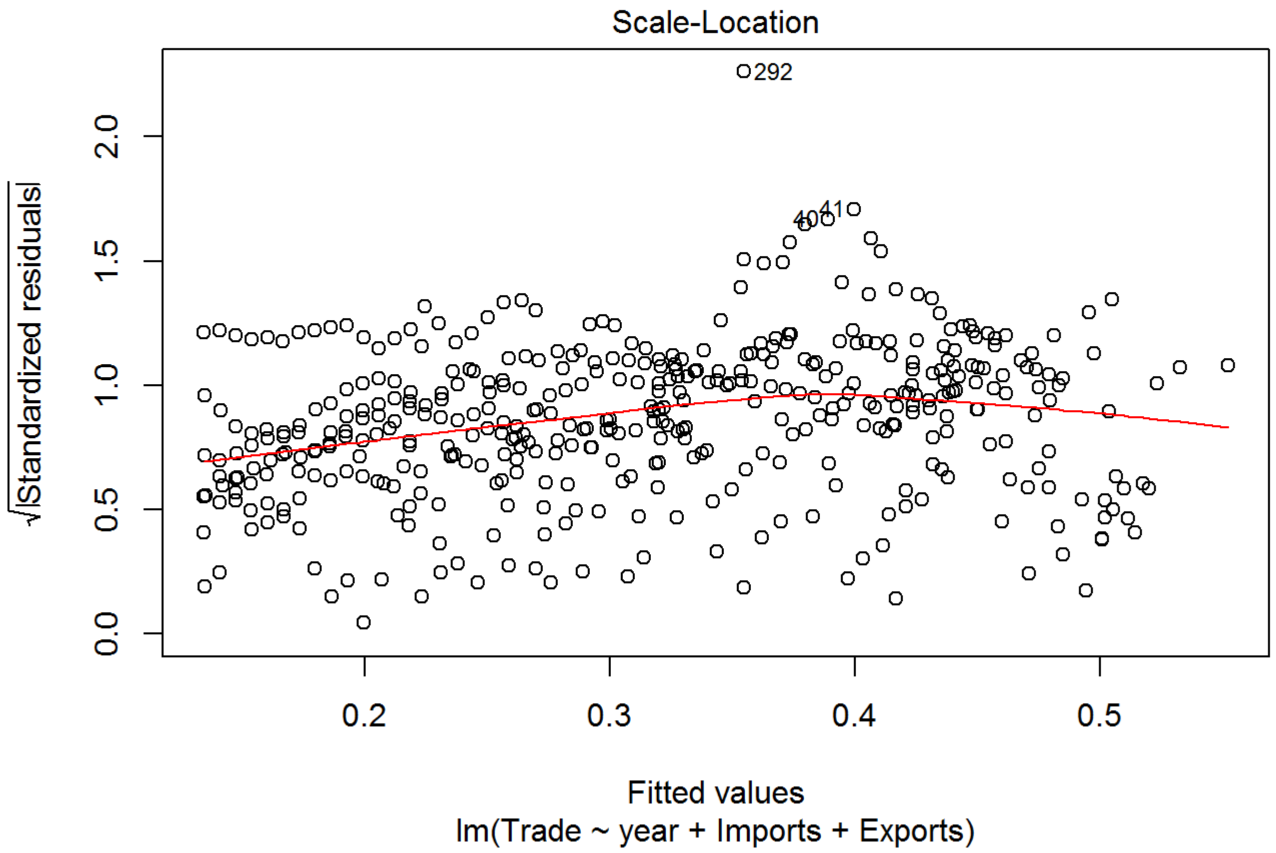

Imports
3000000000000
2000000000000
1000000000000
0
1960
1980
2000
year
country
Brazil
Canada
China
France
India
Japan
Russian Federation
United States

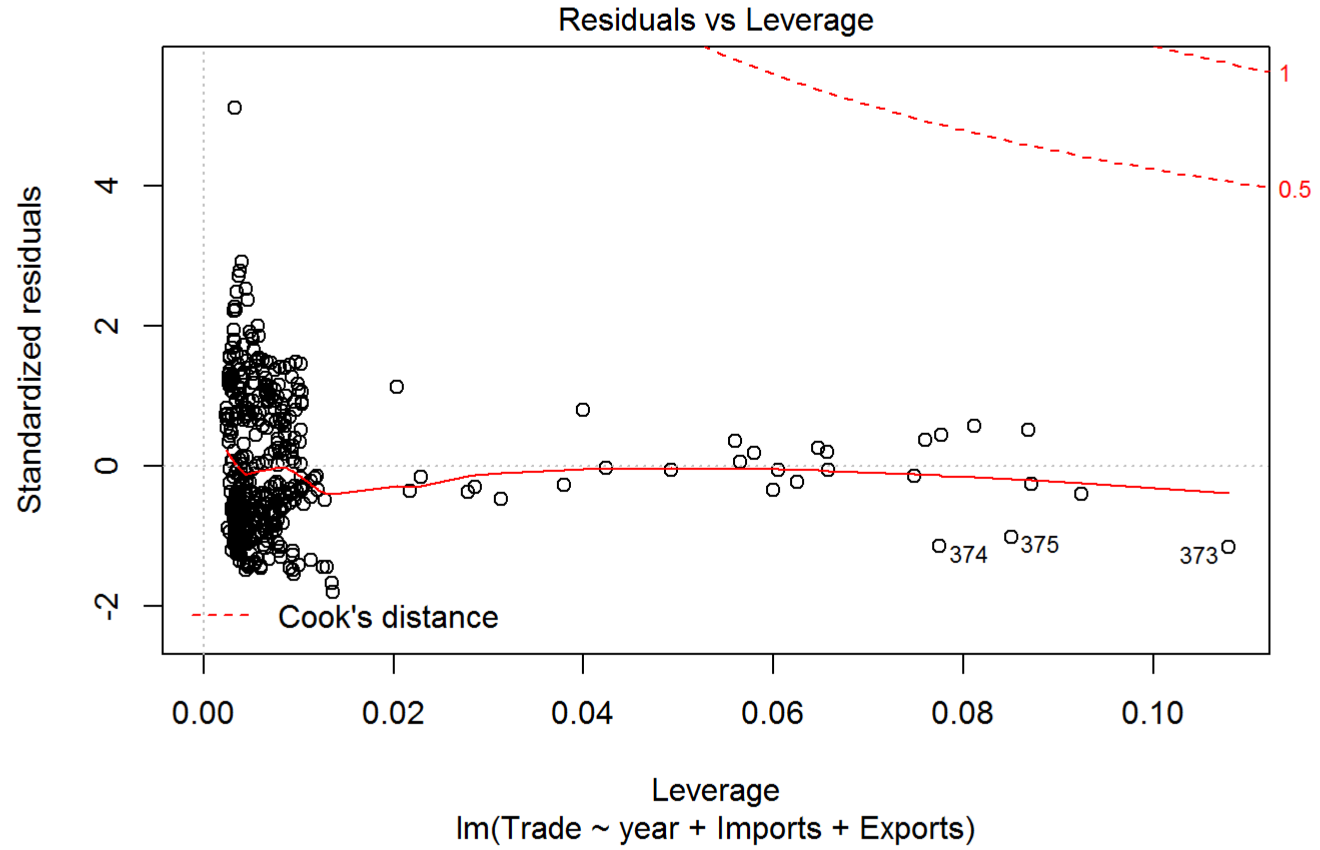

Exports
2500000000000
2000000000000
1500000000000
1000000000000
500000000000
0
1960
1980
2000
year
country
Brazil
Canada
China
France
India
Japan
Russian Federation
United States

```
## 
## Call:
## lm(formula = Trade ~ year + Imports + Exports, data = world_trade_new)
## 
## Residuals:
##      Min       1Q   Median       3Q      Max 
## -0.26512 -0.11454 -0.04055  0.11418  0.75502 
## 
## Coefficients:
##                          Estimate           Std. Error t value
## (Intercept) -12.54451799032254300   1.09000263620837612 -11.509
## year          0.00646896470629074   0.00054985246794619  11.765
## Imports      -0.00000000000027413   0.00000000000006068  -4.518
## Exports       0.00000000000025869   0.00000000000007056   3.666
##                          Pr(>|t|)    
## (Intercept) < 0.0000000000000002 ***
## year        < 0.0000000000000002 ***
## Imports                0.0000081 ***
## Exports                 0.000277 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## 
## Residual standard error: 0.1479 on 429 degrees of freedom
## Multiple R-squared:  0.3421, Adjusted R-squared:  0.3375 
## F-statistic: 74.36 on 3 and 429 DF,  p-value: < 0.00000000000000022
```


Residuals vs Fitted
Residuals
0.8
0.6
0.4
0.2
0.0
-0.2
292
40
41
0.2
0.3
0.4
0.5
Fitted values
lm(Trade ~ year + Imports + Exports)

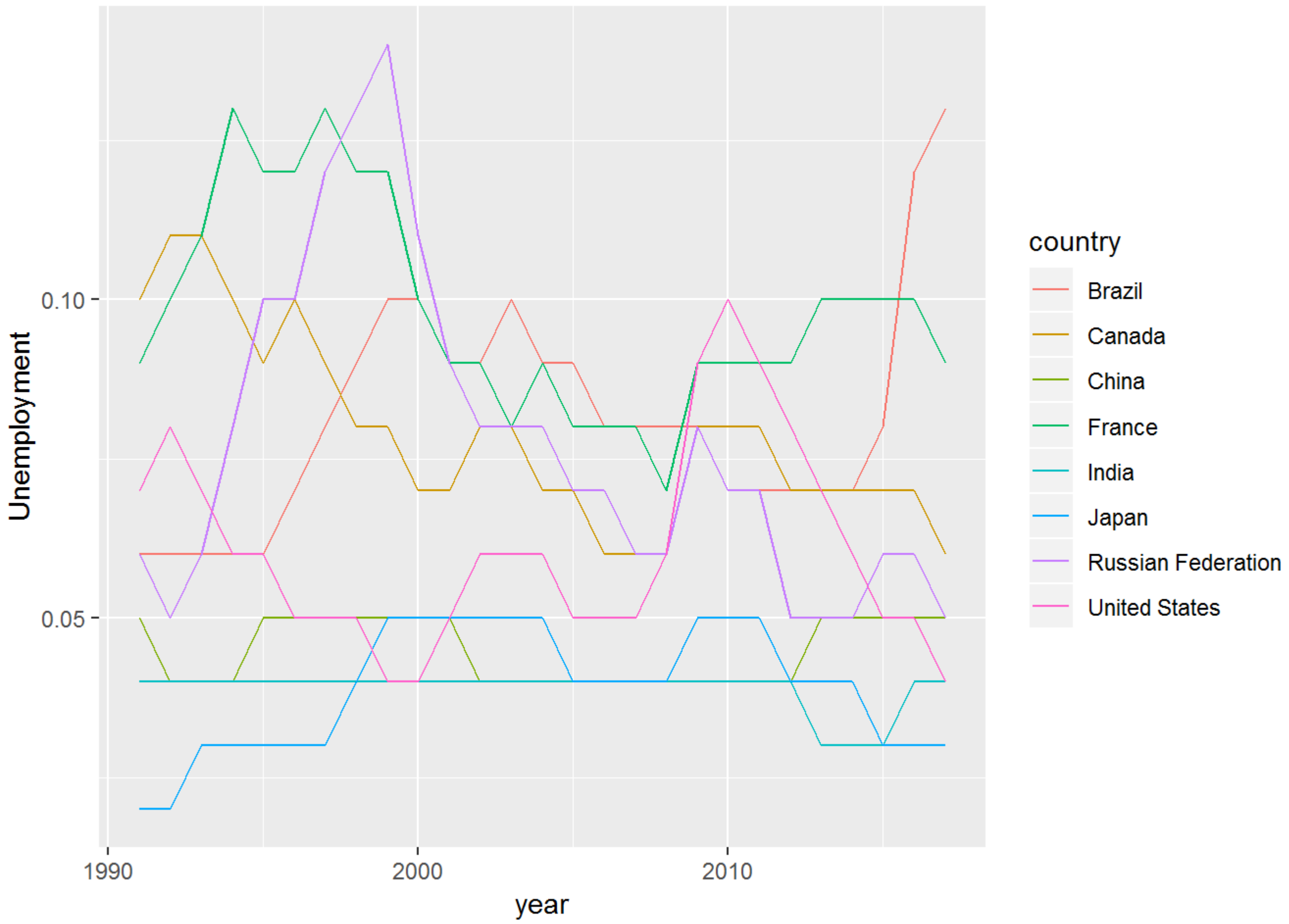

Normal Q-Q
Standardized residuals
4
2
0
-2
292
40
41
-3
-2
-1
0
1
2
3
Theoretical Quantiles
lm(Trade ~ year + Imports + Exports)

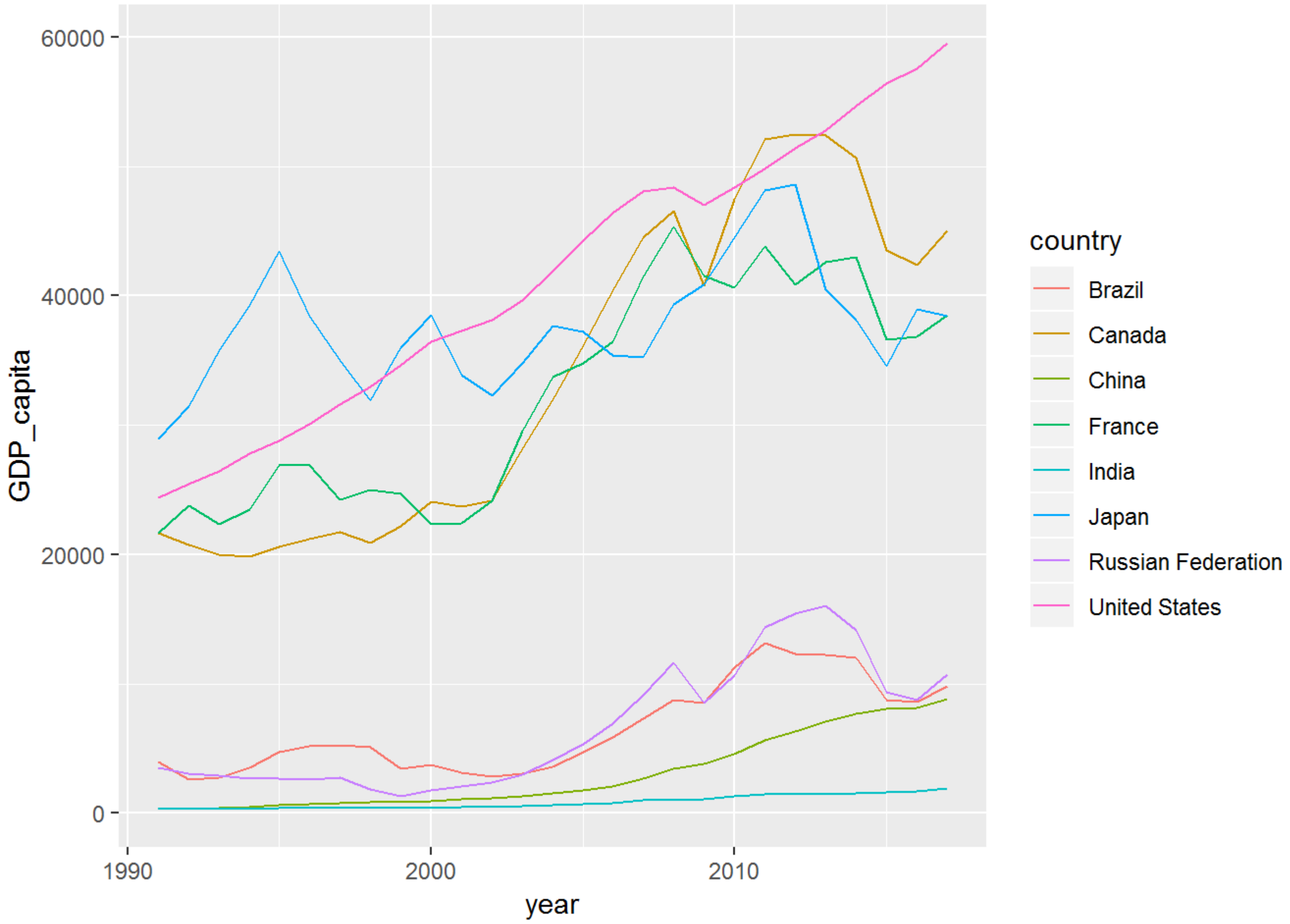

Scale-Location
√|Standardized residuals|
0.0
0.5
1.0
1.5
2.0
292
40
41
0.2
0.3
0.4
0.5
Fitted values
lm(Trade ~ year + Imports + Exports)


Residuals vs Leverage
Standardized residuals
-2
0
2
4
1
0.5
374
375
373
Cook's distance
0.00
0.02
0.04
0.06
0.08
0.10
Leverage
lm(Trade ~ year + Imports + Exports)

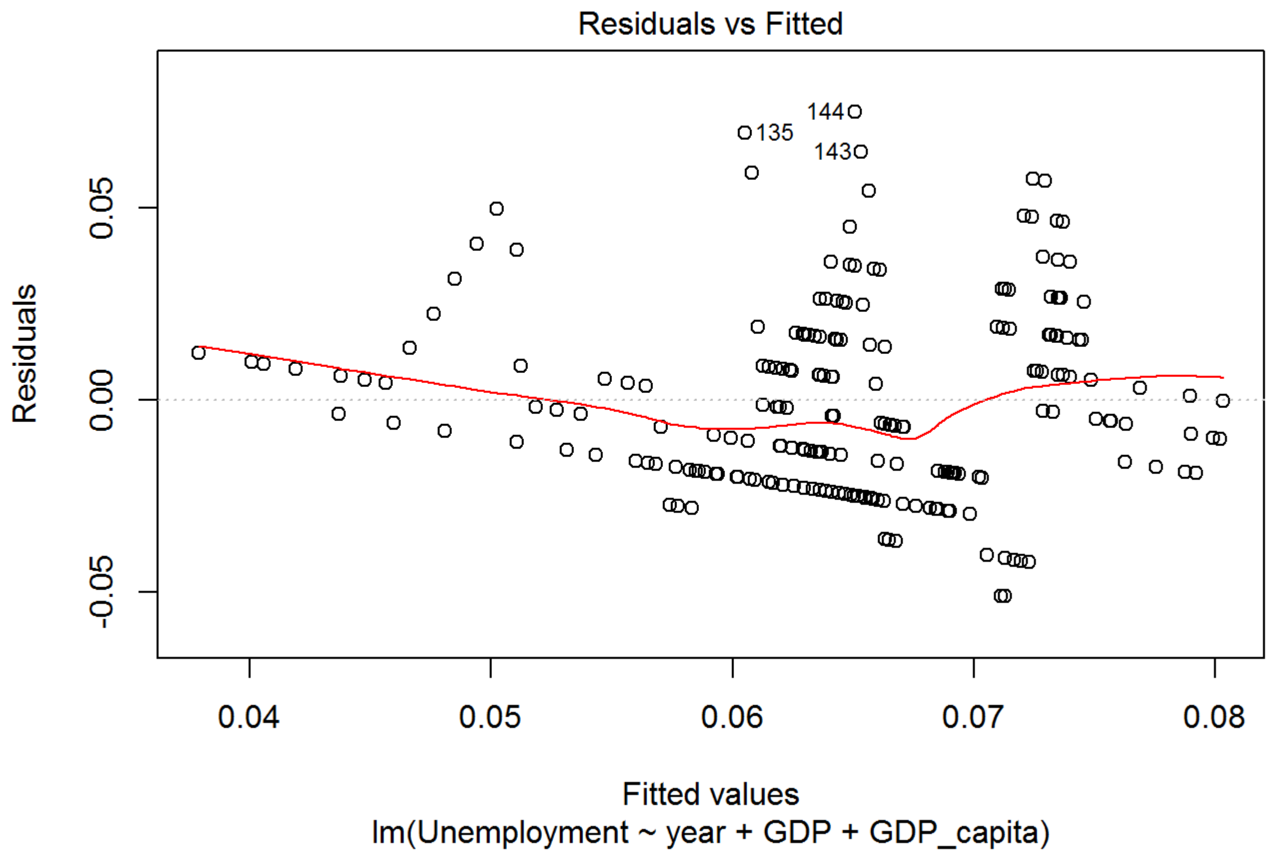
3.Data analysis on world GDP file

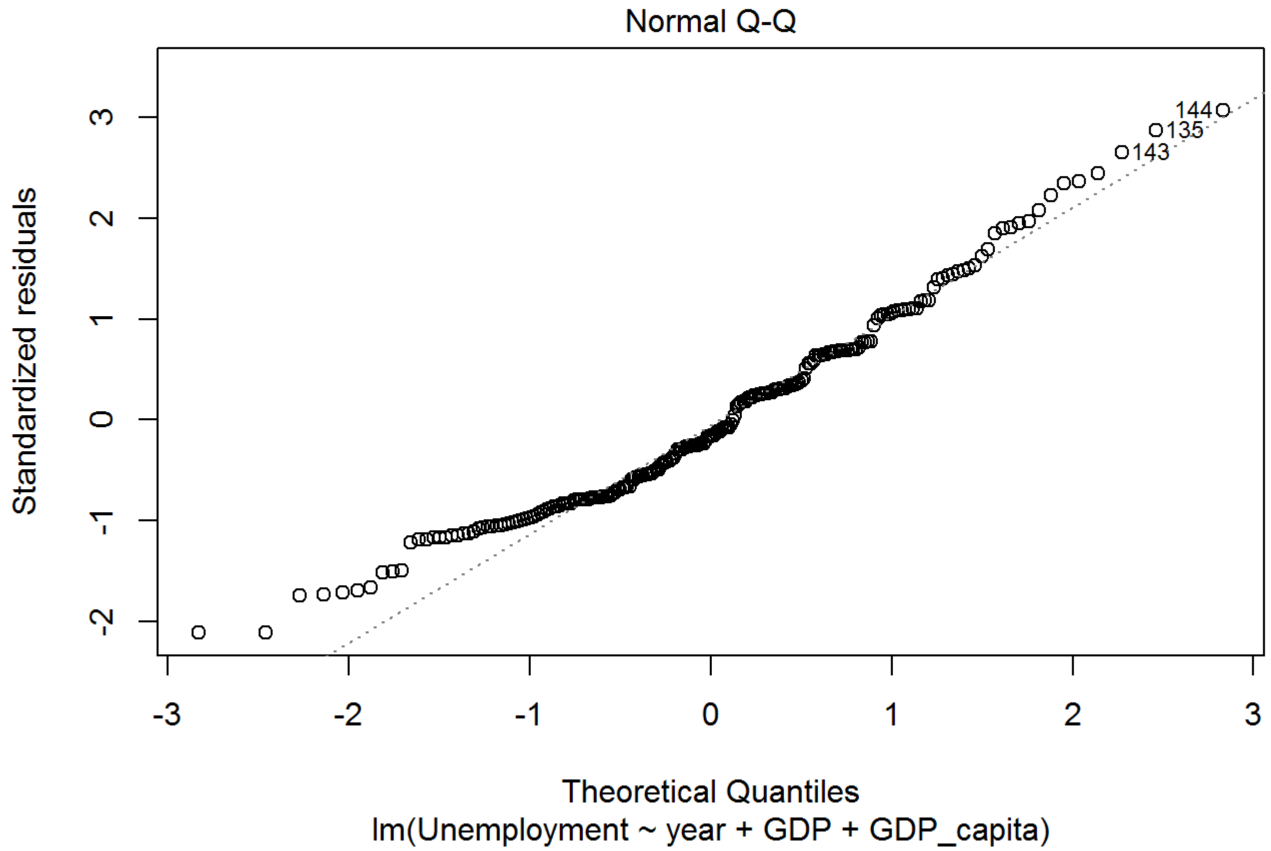
```
## Parsed with column specification:
## cols(
##   country = col_character(),
##   year = col_double(),
##   Unemployment = col_double(),
##   GDP = col_number(),
##   GDP_capita = col_number()
## )
```

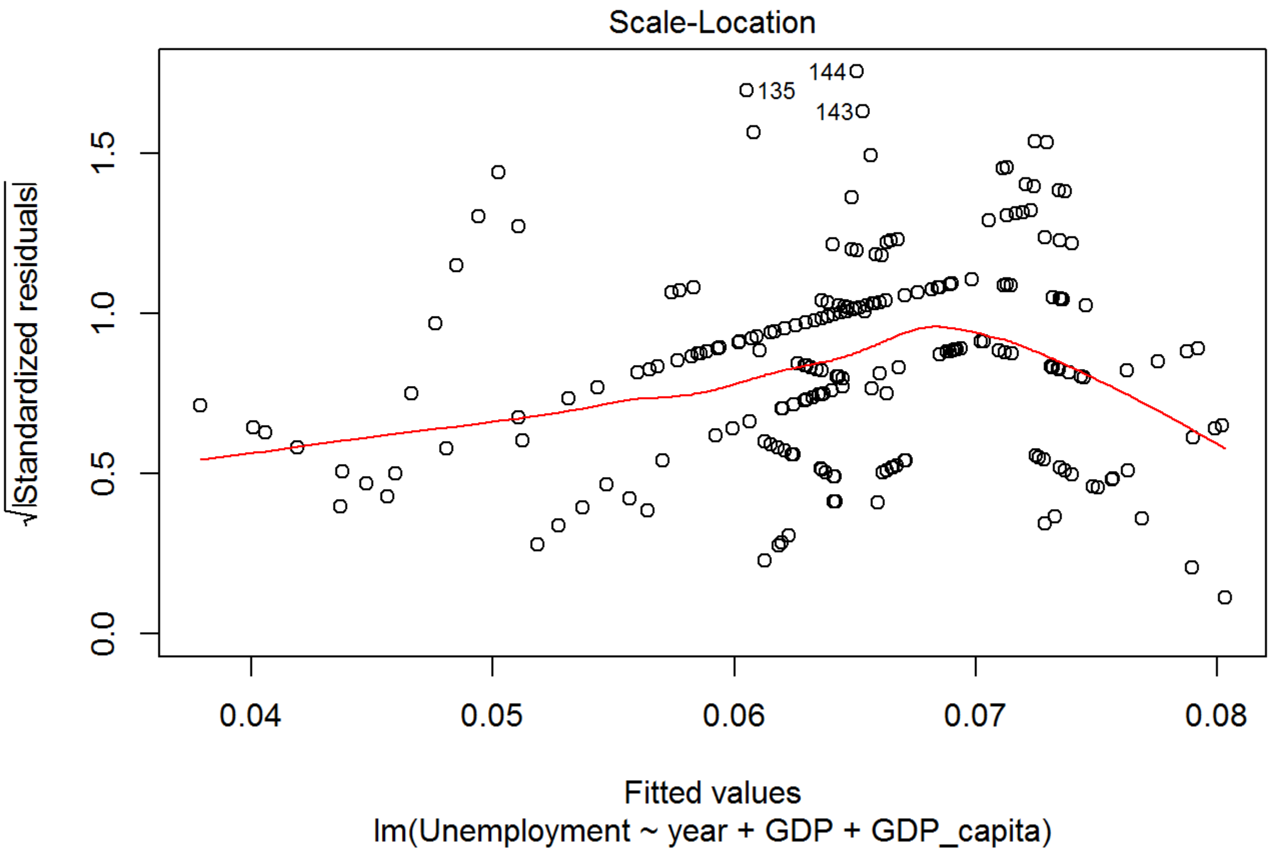

Unemployment
0.10
0.05
1990
2000
2010
year
country
Brazil
Canada
China
France
India
Japan
Russian Federation
United States

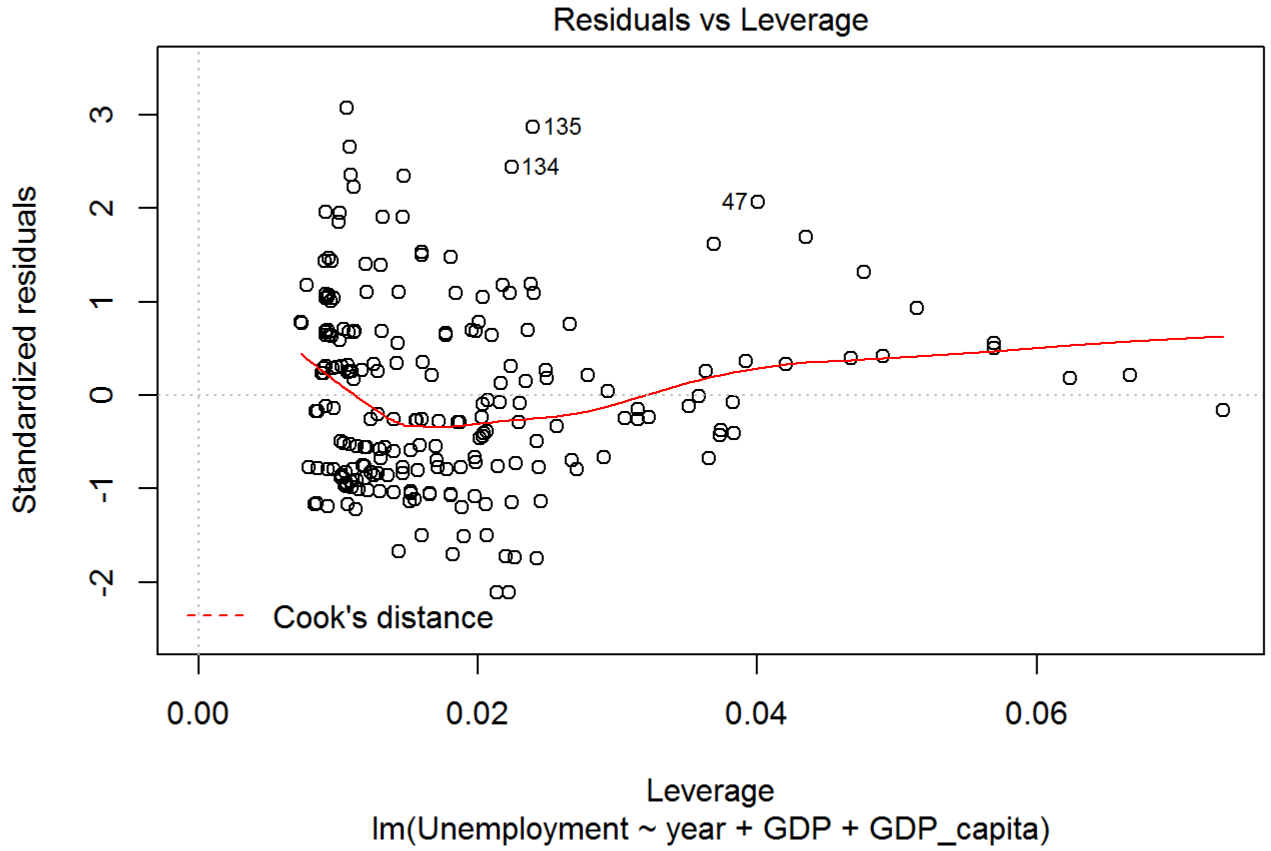

GDP_capita
60000
40000
20000
0
1990
2000
2010
year
country
Brazil
Canada
China
France
India
Japan
Russian Federation
United States

```
##
## Call:
## lm(formula = Unemployment ~ year + GDP + GDP_capita, data = world_gdp_new)
##
## Residuals:
##       Min        1Q    Median        3Q       Max
## -0.051272 -0.019052 -0.003928  0.016430  0.074939
##
## Coefficients:
##                           Estimate            Std. Error t value
## (Intercept)  0.5167571232409954307  0.4562084115615206437   1.133
## year        -0.0002260286505821016  0.0002279703929513176  -0.991
## GDP         -0.0000000000000021805  0.0000000000000004961  -4.395
## GDP_capita   0.0000004222955354609  0.0000001150199379179   3.671
##              Pr(>|t|)
## (Intercept)  0.258611
## year         0.322580
## GDP         0.0000175 ***
## GDP_capita   0.000305 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.0245 on 212 degrees of freedom
## Multiple R-squared:  0.1025, Adjusted R-squared:  0.08981
## F-statistic: 8.071 on 3 and 212 DF,  p-value: 0.00004074
```

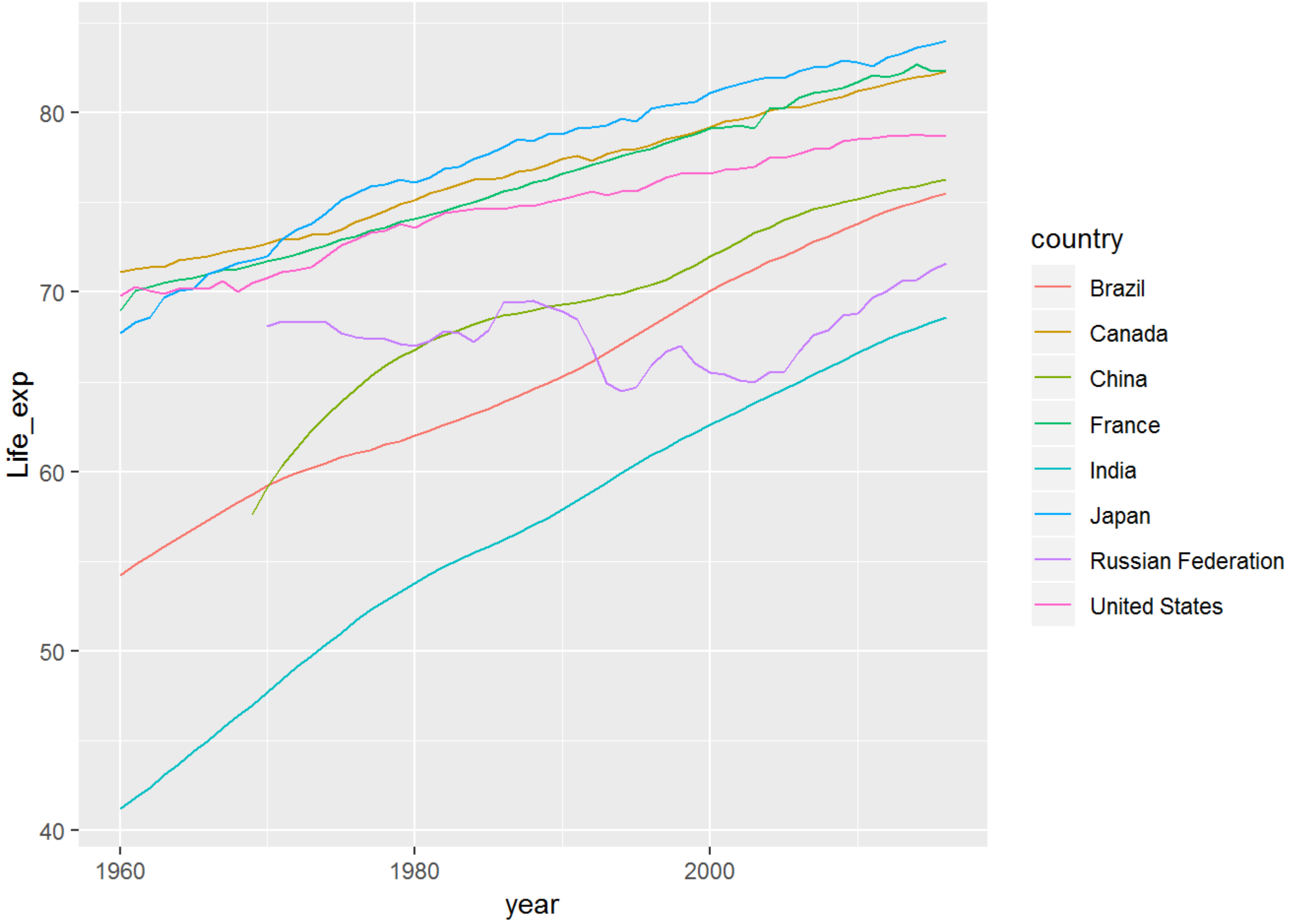

Residuals vs Fitted
Residuals
0.05
0.00
-0.05
144
135
143
0.04
0.05
0.06
0.07
0.08
Fitted values
lm(Unemployment ~ year + GDP + GDP_capita)

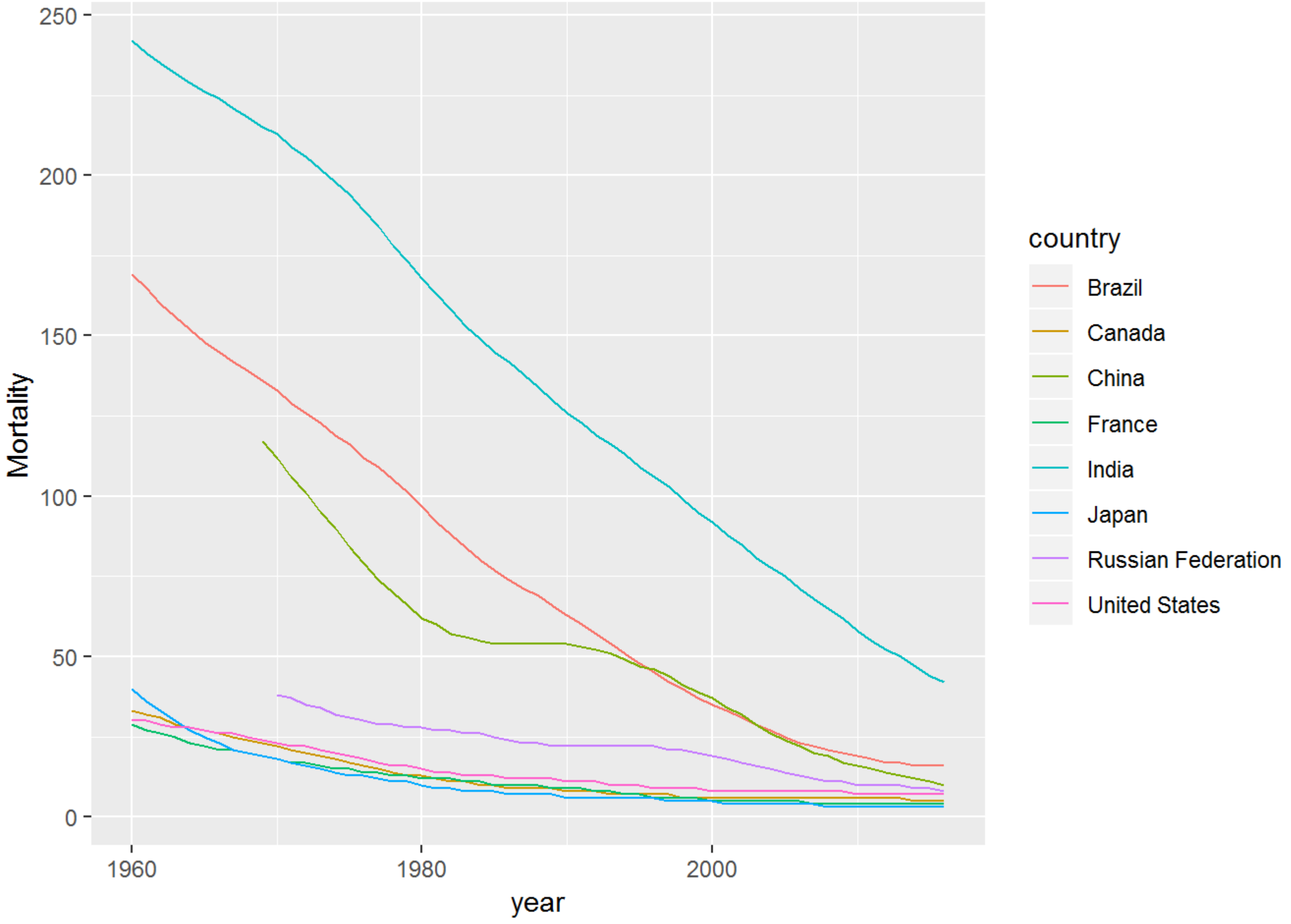

Normal Q-Q
Standardized residuals
3
2
1
0
-1
-2
144
135
143
-3
-2
-1
0
1
2
3
Theoretical Quantiles
lm(Unemployment ~ year + GDP + GDP_capita)


Scale-Location
√|Standardized residuals|
0.0
0.5
1.0
1.5
0.04
0.05
0.06
0.07
0.08
135
144
143
Fitted values
lm(Unemployment ~ year + GDP + GDP_capita)

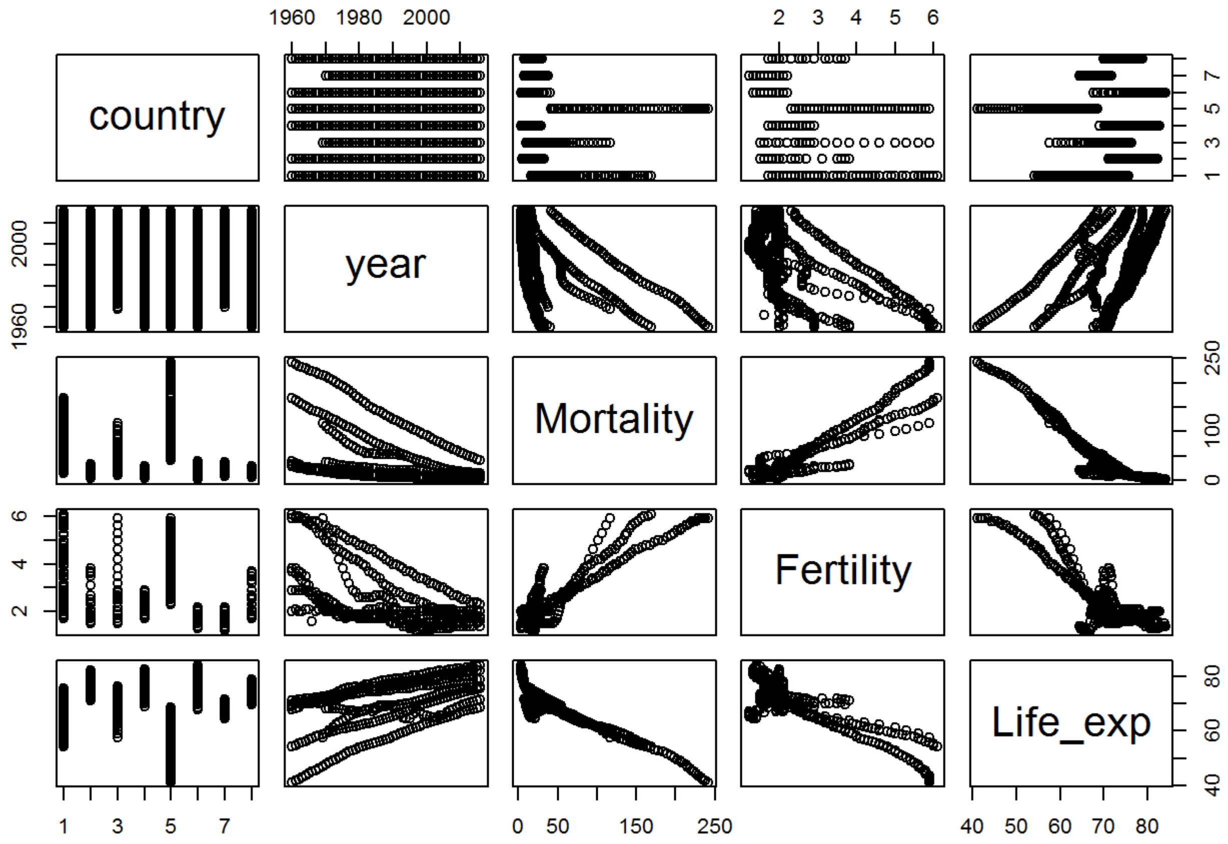

Residuals vs Leverage
Standardized residuals
-2
-1
0
1
2
3
0.00
0.02
0.04
0.06
135
134
47
Cook's distance
Leverage
lm(Unemployment ~ year + GDP + GDP_capita)

4.Data analysis on world population file


Life_exp
80
70
60
50
40
1960
1980
2000
year
country
Brazil
Canada
China
France
India
Japan
Russian Federation
United States


Mortality
250
200
150
100
50
0
1960
1980
2000
year
country
Brazil
Canada
China
France
India
Japan
Russian Federation
United States

```
## 
## Call:
## lm(formula = Life_exp ~ year + Mortality + Fertility, data = world_population_new1)
## 
## Residuals:
##     Min      1Q  Median      3Q     Max 
## -9.3926 -1.4884  0.2681  1.8346  6.0111 
## 
## Coefficients:
##                Estimate  Std. Error t value            Pr(>|t|)    
## (Intercept) -112.682662   21.797139  -5.170         0.000000359 ***
## year           0.093622    0.010800   8.669 < 0.0000000000000002 ***
## Mortality     -0.171972    0.007327 -23.470 < 0.0000000000000002 ***
## Fertility      1.747014    0.350226   4.988         0.000000884 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## 
## Residual standard error: 2.927 on 433 degrees of freedom
## Multiple R-squared:  0.881,  Adjusted R-squared:  0.8802 
## F-statistic:  1068 on 3 and 433 DF,  p-value: < 0.00000000000000022
```

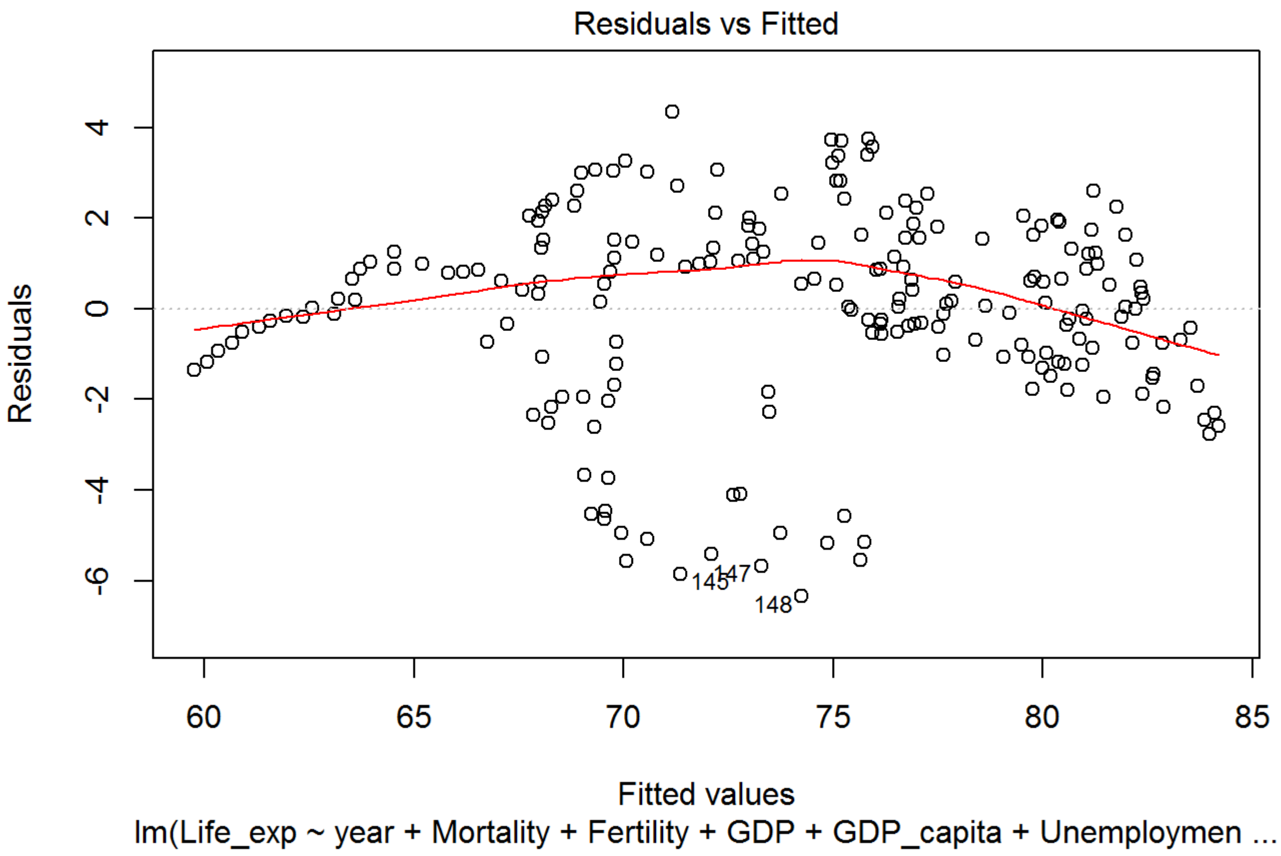


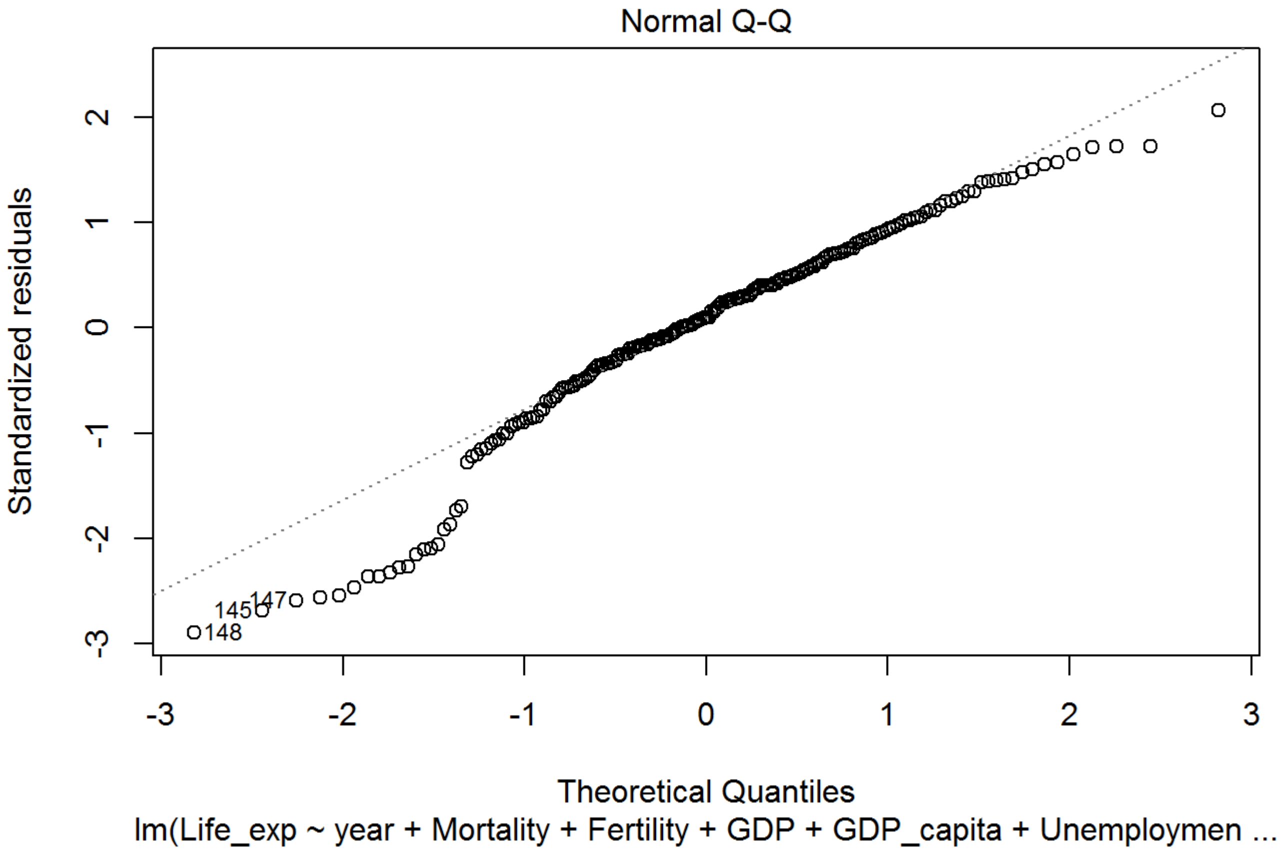
5. Merging all three tables

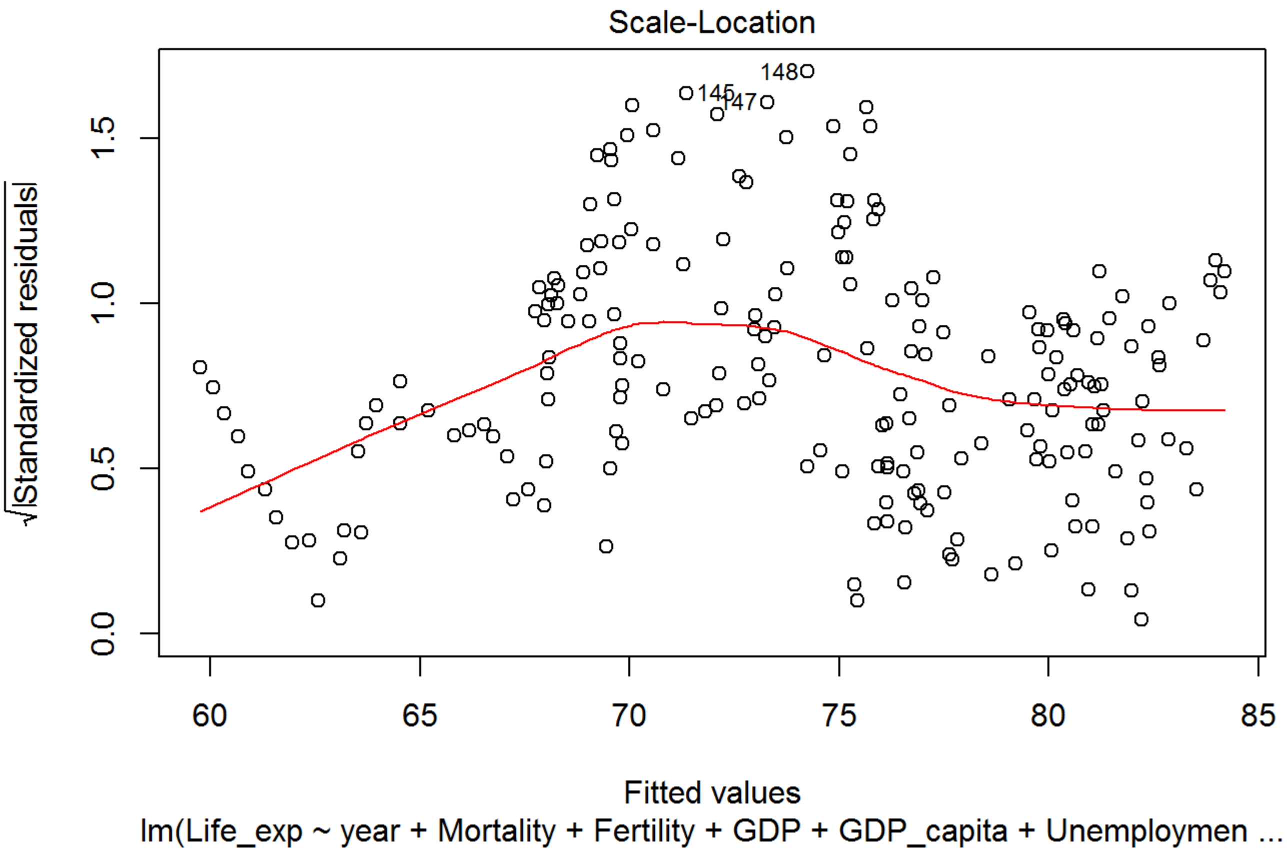
```
## Joining, by = c("country", "year")
## Joining, by = c("country", "year")
```

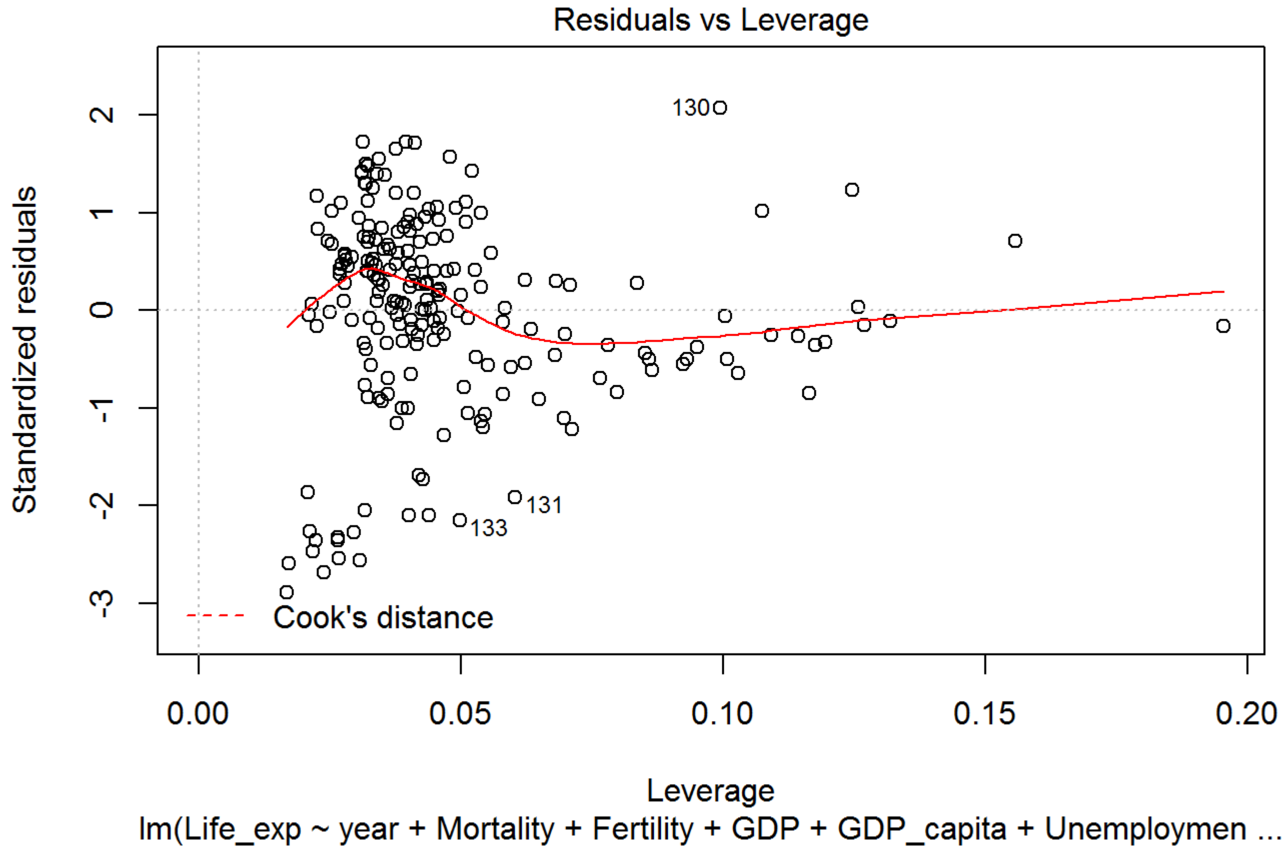
6. Run regression on merged file

```
## 
## Call:
## lm(formula = Life_exp ~ year + Mortality + Fertility + GDP + 
##     GDP_capita + Unemployment + Imports + Exports + Trade, data = world_final)
## 
## Residuals:
##     Min      1Q  Median      3Q     Max 
## -6.3481 -1.0345  0.2104  1.4554  4.3436 
## 
## Coefficients:
##                          Estimate           Std. Error t value
## (Intercept)  190.5560858655312018  56.0717262777693151   3.398
## year          -0.0562934498222768   0.0278649824551405  -2.020
## Mortality     -0.1344590330423817   0.0191194056067424  -7.033
## Fertility      0.0988381101883995   0.6775933747615330   0.146
## GDP           -0.0000000000014903   0.0000000000002477  -6.017
## GDP_capita     0.0002404214464975   0.0000158487754040  15.170
## Unemployment -25.2711300875059024   8.2741169304071551  -3.054
## Imports        0.0000000000034447   0.0000000000022495   1.531
## Exports        0.0000000000046678   0.0000000000014520   3.215
## Trade         -8.3697531883892680   1.5563258272946050  -5.378
##                          Pr(>|t|)    
## (Intercept)              0.000819 ***
## year                     0.044708 *  
## Mortality         0.0000000000322 ***
## Fertility                0.884175    
## GDP               0.0000000084382 ***
## GDP_capita   < 0.0000000000000002 ***
## Unemployment             0.002567 ** 
## Imports                  0.127289    
## Exports                  0.001524 ** 
## Trade             0.0000002112166 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## 
## Residual standard error: 2.211 on 198 degrees of freedom
## Multiple R-squared:  0.8874, Adjusted R-squared:  0.8822 
## F-statistic: 173.3 on 9 and 198 DF,  p-value: < 0.00000000000000022
```


Residuals vs Fitted
Residuals
4
2
0
-2
-4
-6
60
65
70
75
80
85
145
147
148
Fitted values
lm(Life_exp ~ year + Mortality + Fertility + GDP + GDP_capita + Unemploymen ...


Normal Q-Q
Standardized residuals
2
1
0
-1
-2
-3
-3
-2
-1
0
1
2
3
145
147
148
Theoretical Quantiles
lm(Life_exp ~ year + Mortality + Fertility + GDP + GDP_capita + Unemploymen ...


Scale-Location
√|Standardized residuals|
0.0
0.5
1.0
1.5
148
145
147
60
65
70
75
80
85
Fitted values
lm(Life_exp ~ year + Mortality + Fertility + GDP + GDP_capita + Unemploymen ...


Residuals vs Leverage
Standardized residuals
-3
-2
-1
0
1
2
130
131
133
Cook's distance
0.00
0.05
0.10
0.15
0.20
Leverage
lm(Life_exp ~ year + Mortality + Fertility + GDP + GDP_capita + Unemploymen ...

7. Remove outliers

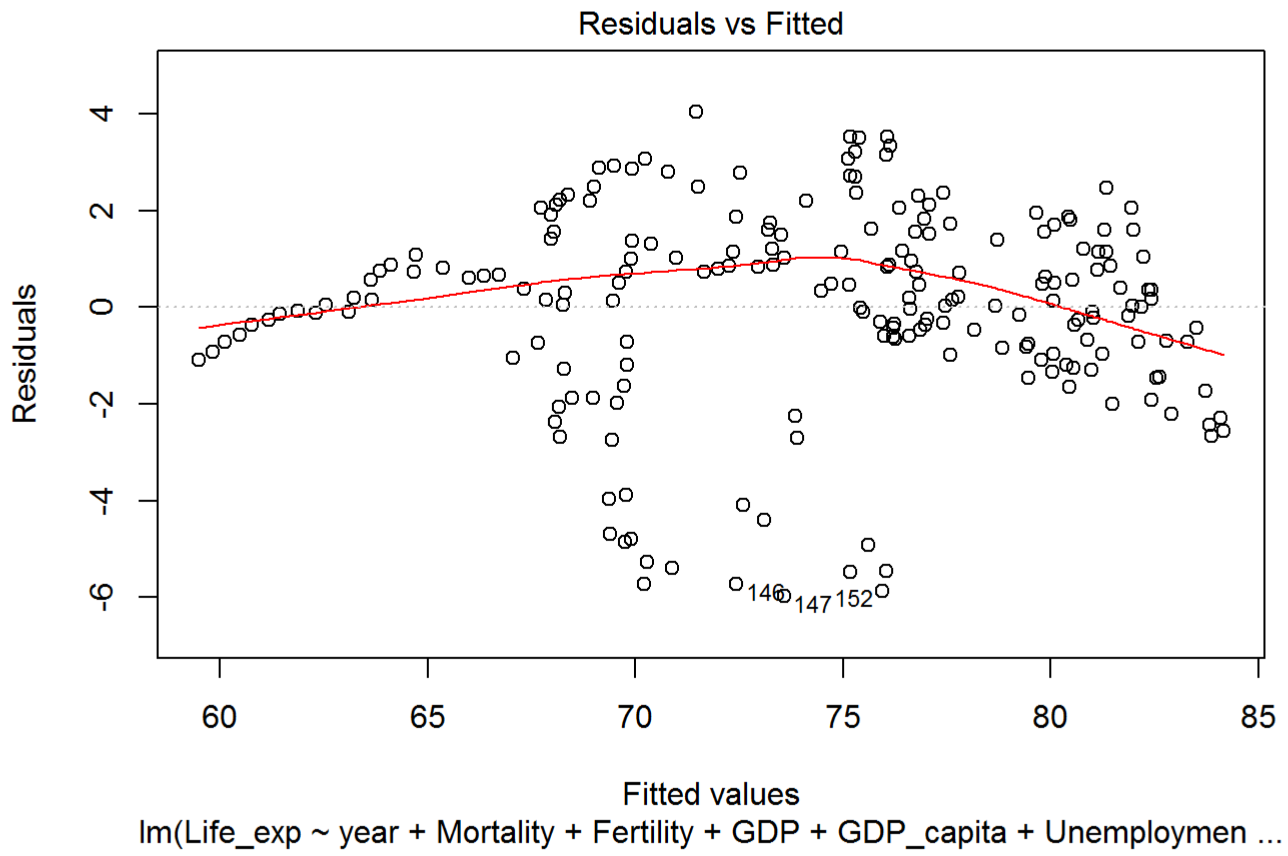
```
##                country year Mortality Fertility Life_exp Unemployment
## 145 Russian Federation 2005        14       1.3     65.5         0.07
##              GDP GDP_capita      Imports      Exports Trade
## 145 764017107992       5323 164341474452 268957446508  0.57
```

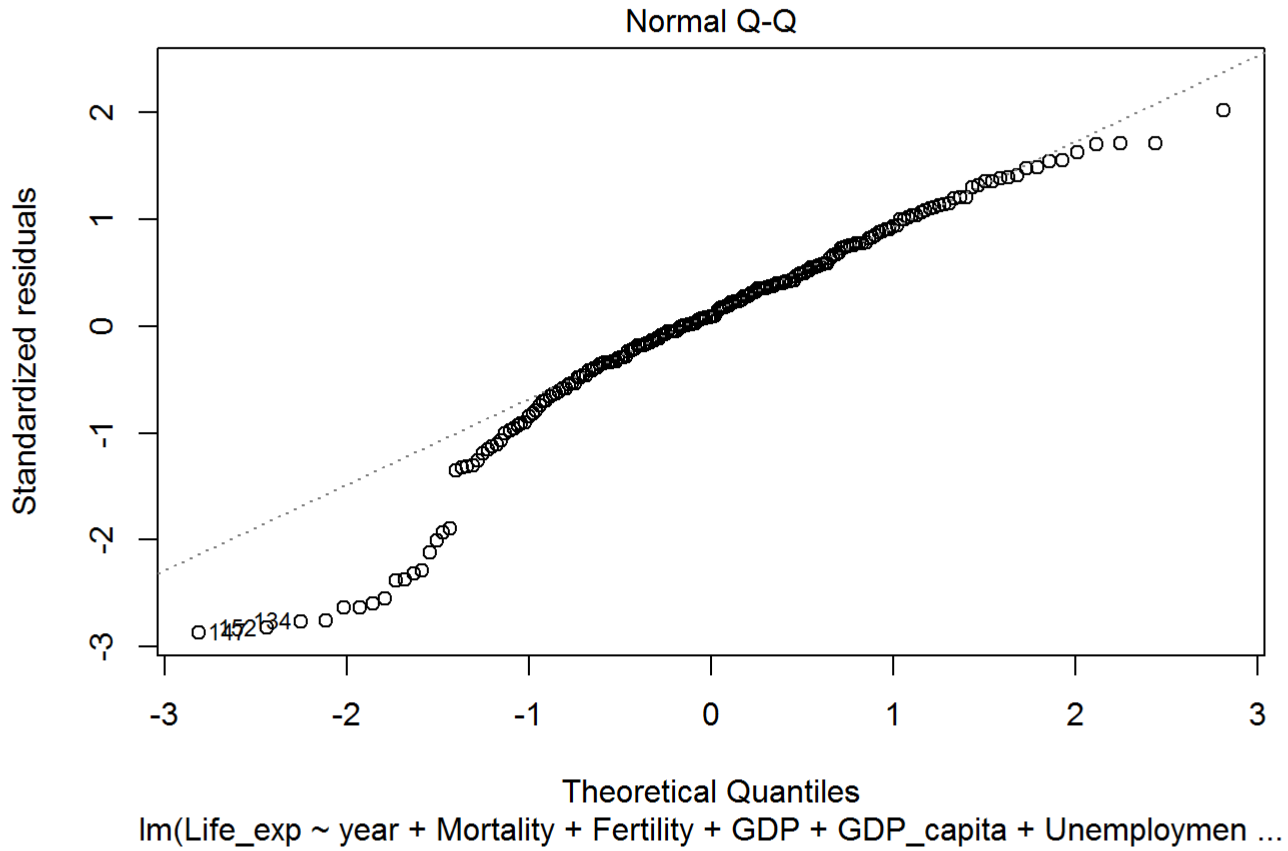
```
##                country year Mortality Fertility Life_exp Unemployment
## 147 Russian Federation 2007        12       1.4     67.6         0.06
##               GDP GDP_capita      Imports      Exports Trade
## 147 1299705247686       9101 279983425069 392044033025  0.52
```

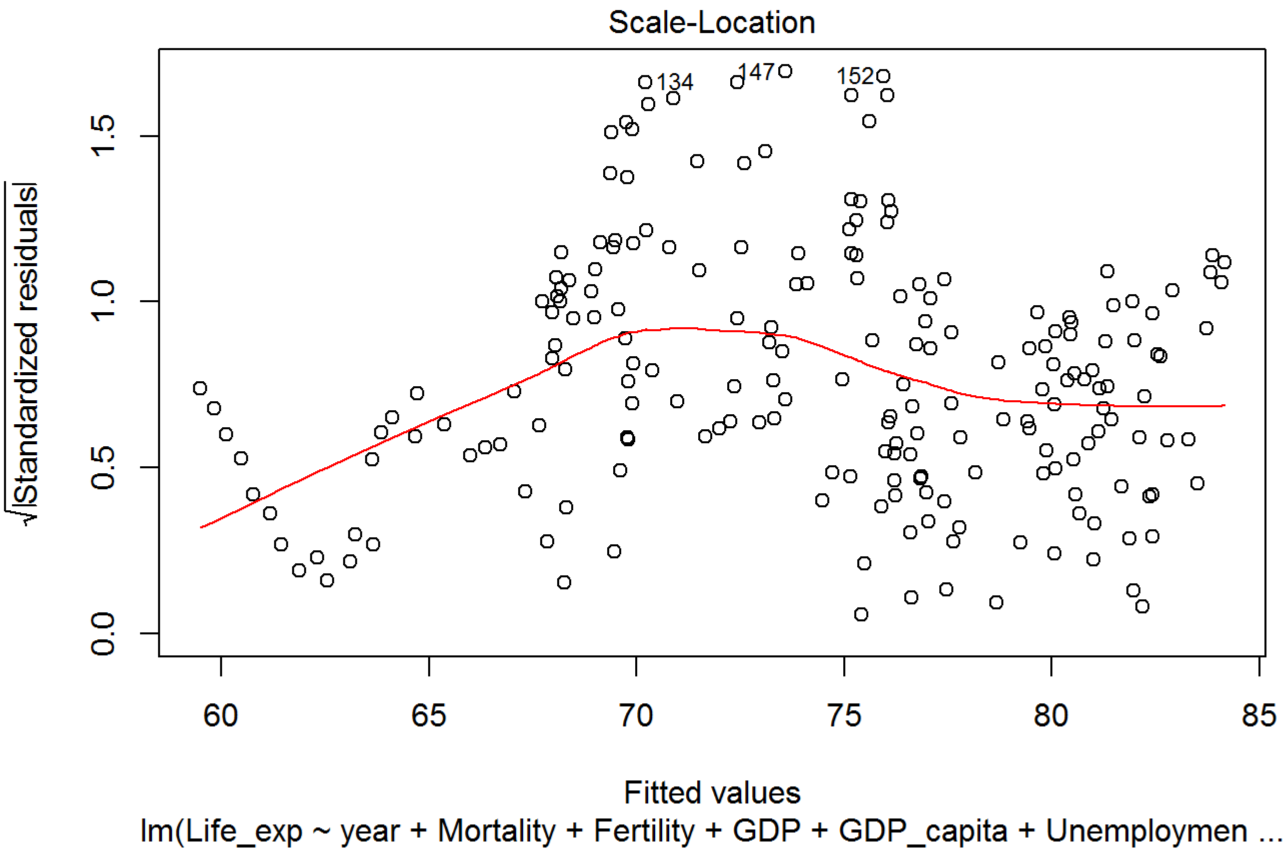
```
##                country year Mortality Fertility Life_exp Unemployment
## 148 Russian Federation 2008        11       1.5     67.9         0.06
##               GDP GDP_capita      Imports      Exports Trade
## 148 1660844408500      11635 366597057084 520003701781  0.53
```

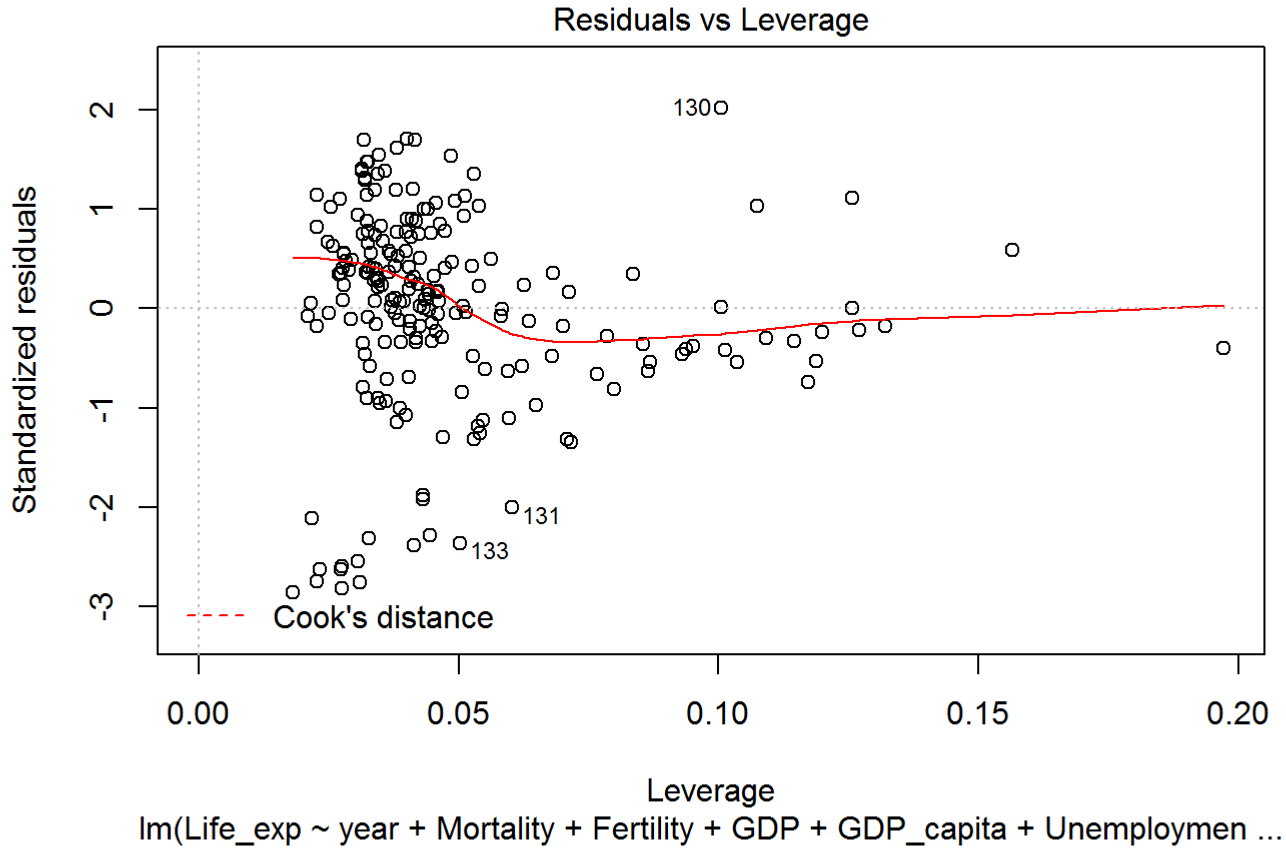
8. Run regression after removing outliers

```
## 
## Call:
## lm(formula = Life_exp ~ year + Mortality + Fertility + GDP + 
##     GDP_capita + Unemployment + Imports + Exports + Trade, data = world_final1)
## 
## Residuals:
##     Min      1Q  Median      3Q     Max 
## -5.9798 -0.8347  0.1843  1.3763  4.0373 
## 
## Coefficients:
##                          Estimate          Std. Error t value
## (Intercept)  164.1000829194836399  53.6777054428390556   3.057
## year          -0.0430606164613111   0.0266767678324724  -1.614
## Mortality     -0.1373821681891240   0.0182299877591978  -7.536
## Fertility      0.1233863368643090   0.6461745724629087   0.191
## GDP           -0.0000000000013921   0.0000000000002366  -5.883
## GDP_capita     0.0002334251974594   0.0000151564488882  15.401
## Unemployment -25.6323259421471974   7.8765483346237541  -3.254
## Imports        0.0000000000026430   0.0000000000021475   1.231
## Exports        0.0000000000048618   0.0000000000013830   3.515
## Trade         -7.7789035929090673   1.4863711981100036  -5.233
##                          Pr(>|t|)    
## (Intercept)              0.002548 ** 
## year                     0.108109    
## Mortality       0.00000000000178 ***
## Fertility                0.848764    
## GDP             0.00000001724119 ***
## GDP_capita   < 0.0000000000000002 ***
## Unemployment             0.001340 ** 
## Imports                  0.219911    
## Exports                  0.000546 ***
## Trade           0.00000042795218 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## 
## Residual standard error: 2.104 on 195 degrees of freedom
## Multiple R-squared:  0.8978, Adjusted R-squared:  0.893 
## F-statistic: 190.3 on 9 and 195 DF,  p-value: < 0.00000000000000022
```


Residuals vs Fitted
Residuals
4
2
0
-2
-4
-6
146
147
152
60
65
70
75
80
85
Fitted values
lm(Life_exp ~ year + Mortality + Fertility + GDP + GDP_capita + Unemploymen ...


Normal Q-Q
Standardized residuals
2
1
0
-1
-2
-3
147
152
134
-3
-2
-1
0
1
2
3
Theoretical Quantiles
lm(Life_exp ~ year + Mortality + Fertility + GDP + GDP_capita + Unemploymen ...


Scale-Location
√|Standardized residuals|
0.0
0.5
1.0
1.5
134
147
152
60
65
70
75
80
85
Fitted values
lm(Life_exp ~ year + Mortality + Fertility + GDP + GDP_capita + Unemploymen ...


Residuals vs Leverage
Standardized residuals
-3
-2
-1
0
1
2
130
131
133
Cook's distance
0.00
0.05
0.10
0.15
0.20
Leverage
lm(Life_exp ~ year + Mortality + Fertility + GDP + GDP_capita + Unemploymen ...

9. Best subset regression

```
##    country               year        Mortality        Fertility    
##  Length:205         Min.   :1991   Min.   :  3.00   Min.   :1.200  
##  Class :character   1st Qu.:1997   1st Qu.:  6.00   1st Qu.:1.500  
##  Mode  :character   Median :2003   Median : 10.00   Median :1.800  
##                     Mean   :2003   Mean   : 22.86   Mean   :1.903  
##                     3rd Qu.:2010   3rd Qu.: 29.00   3rd Qu.:2.000  
##                     Max.   :2016   Max.   :123.00   Max.   :4.000  
##     Life_exp      Unemployment          GDP            
##  Min.   :58.40   Min.   :0.02000   Min.   :  195905767669  
##  1st Qu.:69.40   1st Qu.:0.04000   1st Qu.:  734547898221  
##  Median :75.80   Median :0.06000   Median : 1660287965660  
##  Mean   :74.35   Mean   :0.06498   Mean   : 3379975208960  
##  3rd Qu.:79.50   3rd Qu.:0.08000   3rd Qu.: 4515264514430  
##  Max.   :84.00   Max.   :0.14000   Max.   :18624475000000  
##    GDP_capita       Imports                Exports           
##  Min.   :  298   Min.   :  22887476747   Min.   :  22875165149  
##  1st Qu.: 2695   1st Qu.: 151757004451   1st Qu.: 168142004496  
##  Median :20017   Median : 351430953969   Median : 391450612675  
##  Mean   :20220   Mean   : 582045744234   Mean   : 556174712331  
##  3rd Qu.:36450   3rd Qu.: 719974000000   3rd Qu.: 720939000000  
##  Max.   :57589   Max.   :2883157000000   Max.   :2462839435100  
##      Trade       
##  Min.   :0.1600  
##  1st Qu.:0.2500  
##  Median :0.3800  
##  Mean   :0.4067  
##  3rd Qu.:0.5500  
##  Max.   :1.1100  
## Subset selection object
## Call: regsubsets.formula(Life_exp ~ year + Mortality + Fertility + 
##     GDP + GDP_capita + Unemployment + Imports + Exports + Trade, 
##     data = world_final1)
## 9 Variables  (and intercept)
##              Forced in Forced out
## year             FALSE      FALSE
## Mortality        FALSE      FALSE
## Fertility        FALSE      FALSE
## GDP              FALSE      FALSE
## GDP_capita       FALSE      FALSE
## Unemployment     FALSE      FALSE
## Imports          FALSE      FALSE
## Exports          FALSE      FALSE
## Trade            FALSE      FALSE
## 1 subsets of each size up to 8
## Selection Algorithm: exhaustive
##          year Mortality Fertility GDP GDP_capita Unemployment Imports
## 1  ( 1 ) " "  " "       " "       " " "*"        " "          " "    
## 2  ( 1 ) " "  "*"       " "       " " "*"        " "          " "    
## 3  ( 1 ) " "  "*"       " "       "*" "*"        " "          " "    
## 4  ( 1 ) " "  "*"       " "       " " "*"        " "          "*"    
## 5  ( 1 ) " "  "*"       " "       "*" "*"        " "          " "    
## 6  ( 1 ) " "  "*"       " "       "*" "*"        "*"          " "    
## 7  ( 1 ) "*"  "*"       " "       "*" "*"        "*"          " "    
## 8  ( 1 ) "*"  "*"       " "       "*" "*"        "*"          "*"    
##          Exports Trade
## 1  ( 1 ) " "     " "  
## 2  ( 1 ) " "     " "  
## 3  ( 1 ) " "     " "  
## 4  ( 1 ) "*"     " "  
## 5  ( 1 ) "*"     "*"  
## 6  ( 1 ) "*"     "*"  
## 7  ( 1 ) "*"     "*"  
## 8  ( 1 ) "*"     "*"
```

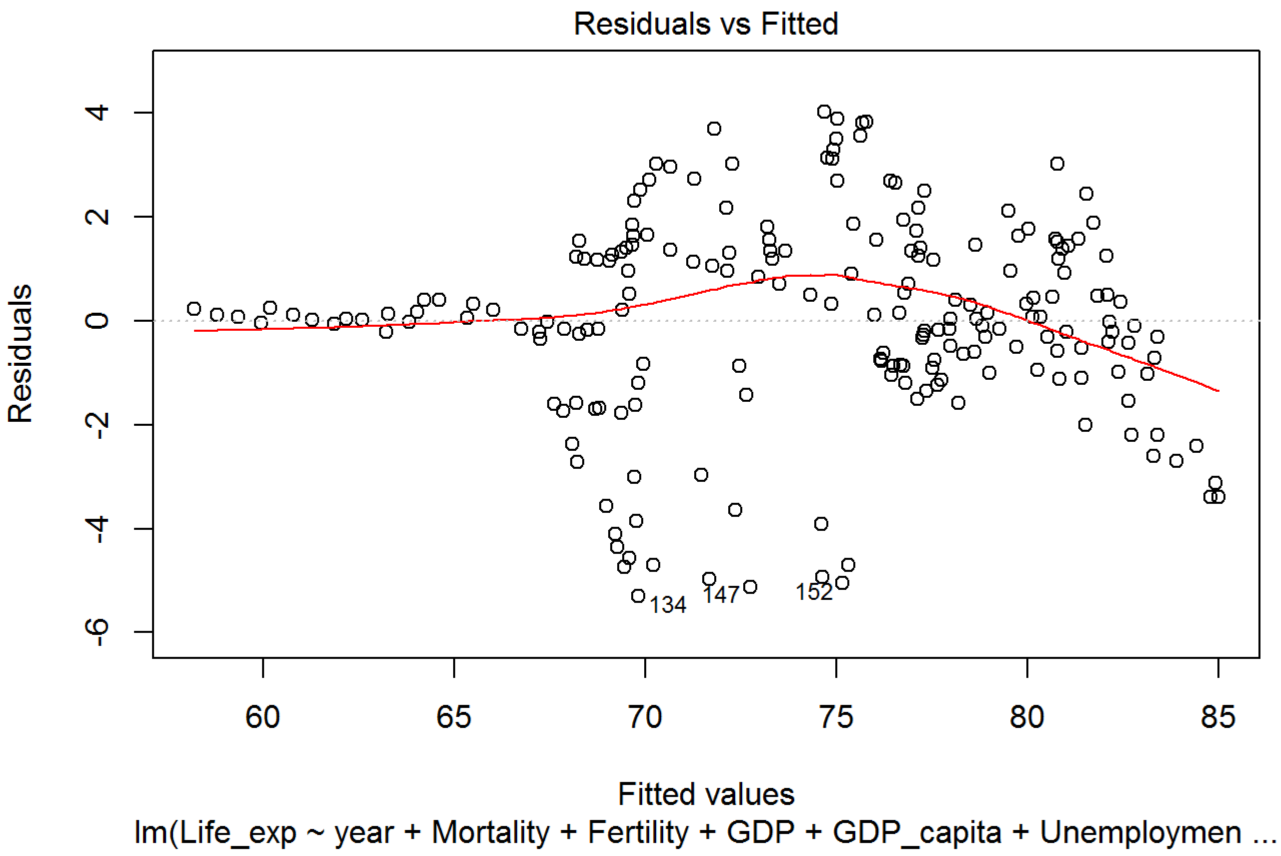
```
##   Adj.R2 CP BIC
## 1      8  6   6
```

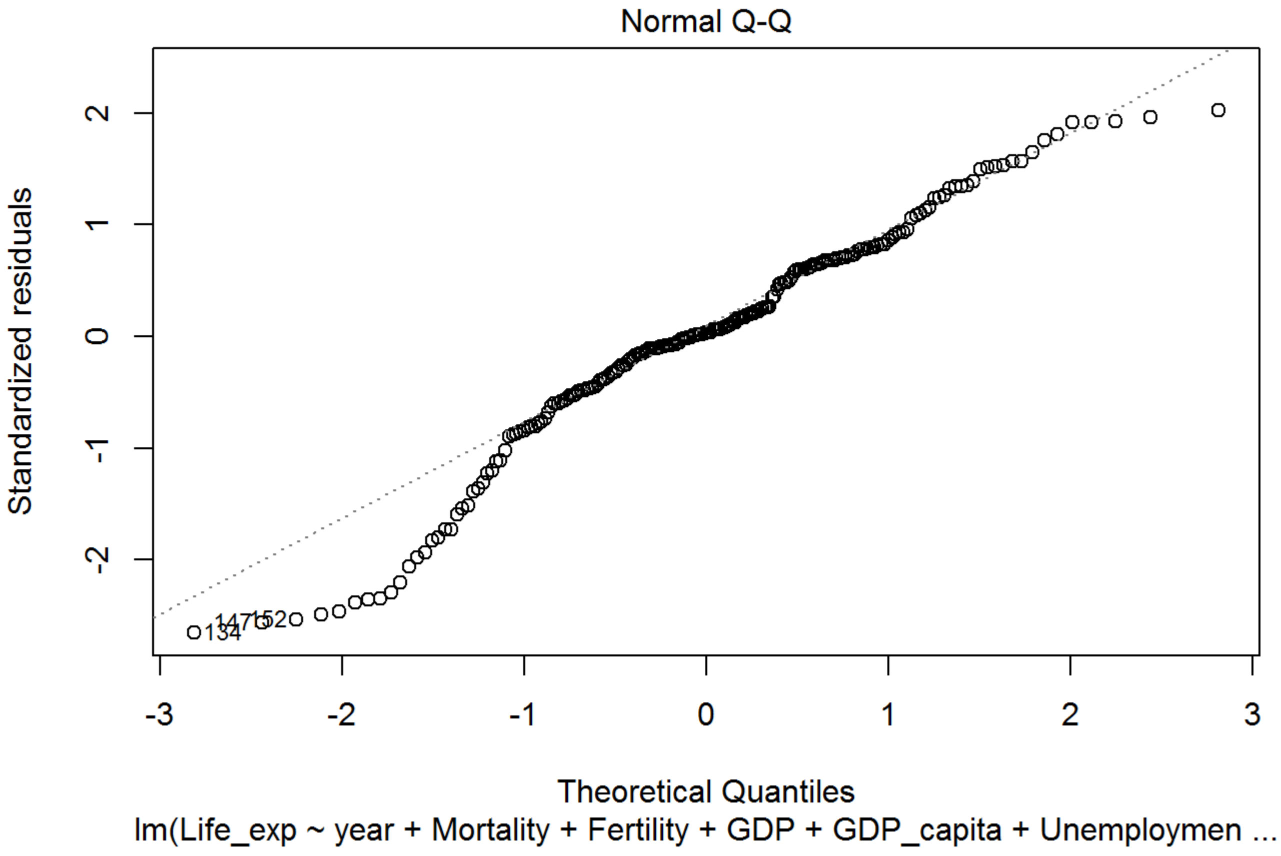
10. Best subset regression analysis

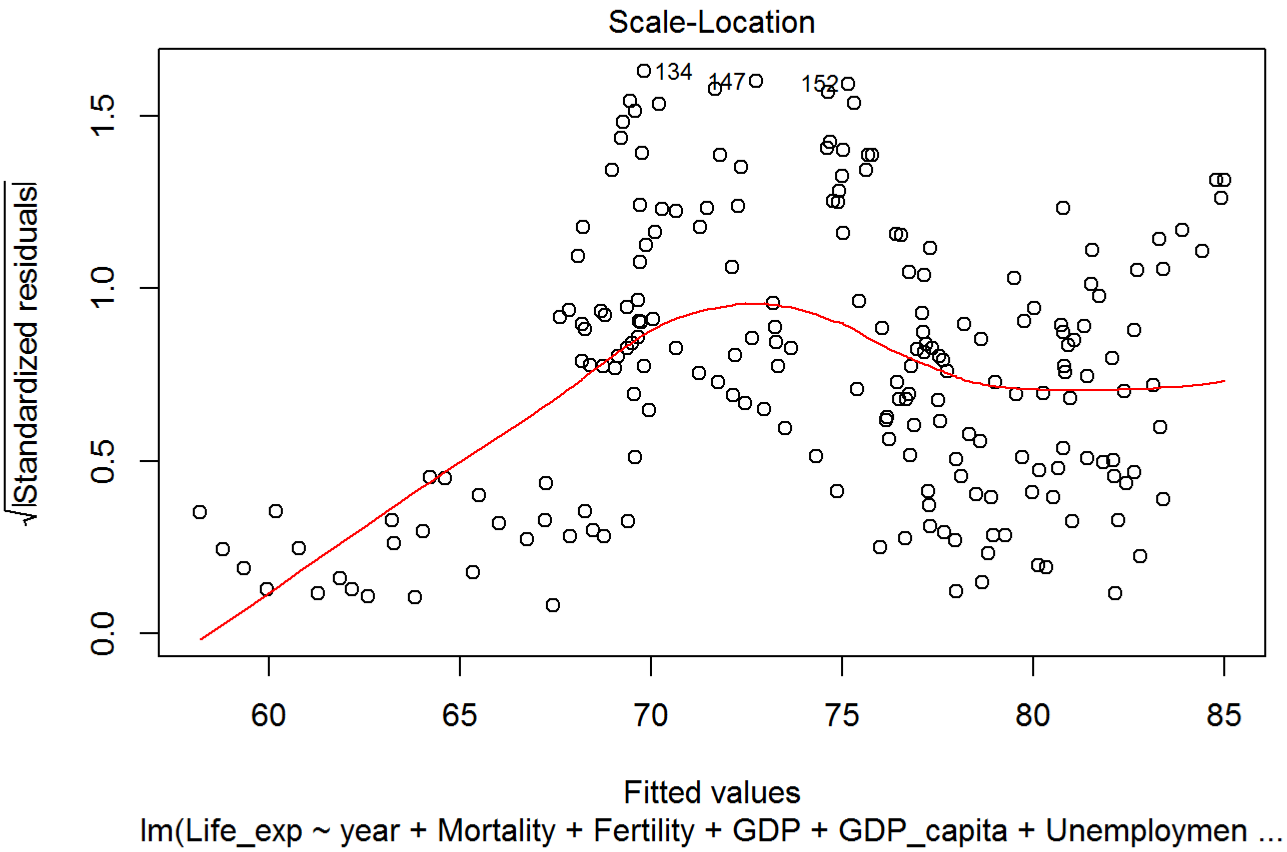
```
## 
## Call:
## lm(formula = Life_exp ~ Mortality + GDP + GDP_capita + Unemployment + 
##     Exports + Trade, data = world_final1)
## 
## Residuals:
##     Min      1Q  Median      3Q     Max 
## -6.1471 -0.7207  0.2438  1.2675  3.6566 
## 
## Coefficients:
##                         Estimate          Std. Error t value
## (Intercept)   77.0048866684559812   0.8287658115865543  92.915
## Mortality     -0.1262318703637217   0.0084126505594981 -15.005
## GDP           -0.0000000000011012   0.0000000000001165  -9.455
## GDP_capita     0.0002369463845649   0.0000130141161464  18.207
## Unemployment -20.0243579229795294   6.7562695933817745  -2.964
## Exports        0.0000000000058363   0.0000000000007460   7.824
## Trade         -6.8363684668103151   1.2006568893771445  -5.694
##                         Pr(>|t|)    
## (Intercept)  < 0.0000000000000002 ***
## Mortality    < 0.0000000000000002 ***
## GDP          < 0.0000000000000002 ***
## GDP_capita   < 0.0000000000000002 ***
## Unemployment              0.00341 ** 
## Exports        0.000000000000301 ***
## Trade          0.000000044349033 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## 
## Residual standard error: 2.105 on 198 degrees of freedom
## Multiple R-squared:  0.8961, Adjusted R-squared:  0.8929 
## F-statistic: 284.6 on 6 and 198 DF,  p-value: < 0.00000000000000022
```

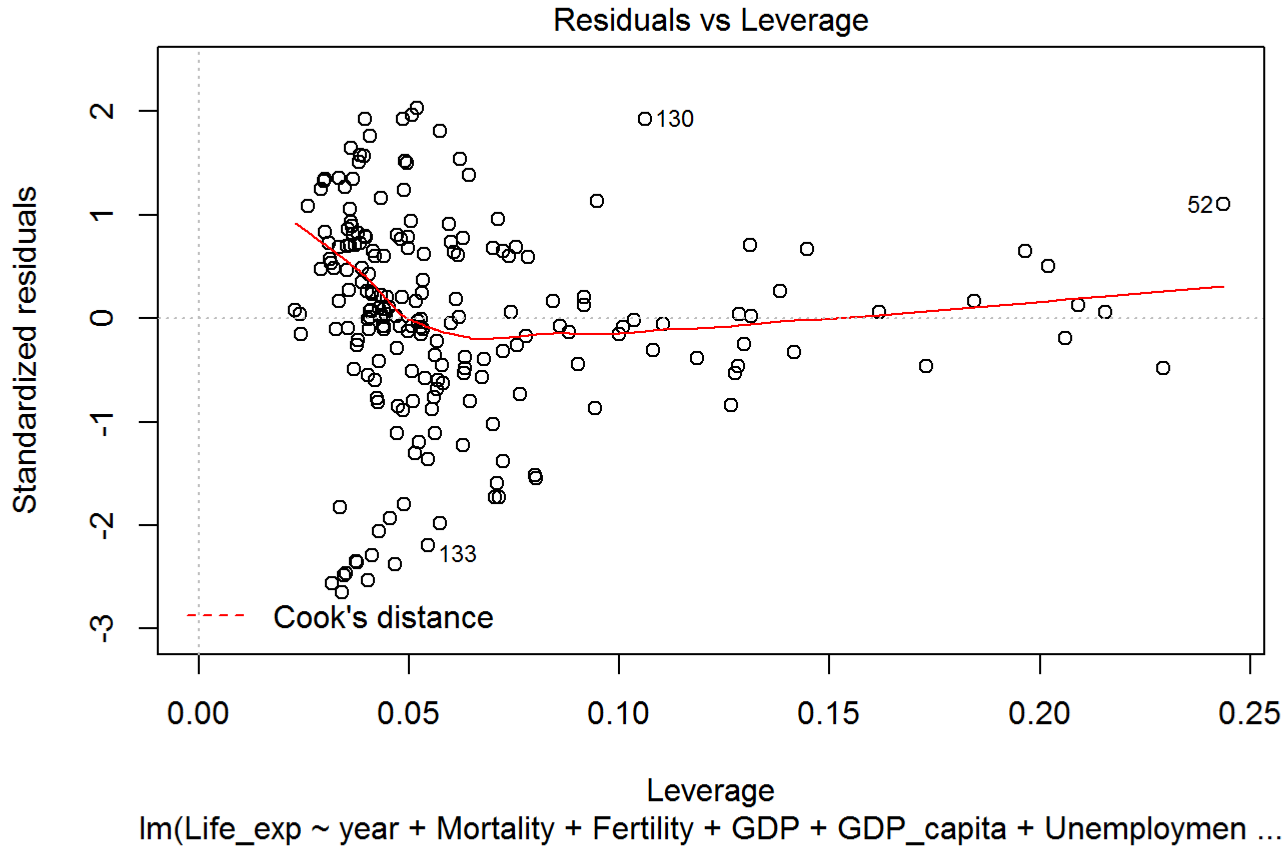
11. Interaction Effects

```
##
## Call:
## lm(formula = Life_exp ~ year + Mortality + Fertility + GDP + 
##     GDP_capita + Unemployment + Imports + Exports + Trade + (Mortality:Fertility) + 
##     (Imports:Exports) + (GDP:GDP_capita), data = world_final1)
##
## Residuals:
##     Min      1Q  Median      3Q     Max 
## -5.3062 -0.9031  0.0677  1.3378  4.0214 
##
## Coefficients:
##                                             Estimate
## (Intercept)         146.8725661804992341785691678524
## year                 -0.0365046781543425027938276628
## Mortality            -0.0130972877014524976407860990
## Fertility            -0.1589333462850445188863091062
## GDP                  -0.0000000000007691814269256995
## GDP_capita            0.0002939737291619568329559264
## Unemployment        -10.1526682609102714138771261787
## Imports               0.0000000000029143770346812612
## Exports               0.0000000000041933674949460033
## Trade                -6.6183743318951844258890560013
## Mortality:Fertility  -0.0249602193569374367076996180
## Imports:Exports      -0.0000000000000000000000004474
## GDP:GDP_capita       -0.0000000000000000099677020242
##                                           Std. Error t value
## (Intercept)          53.5438525894610322097832977306   2.743
## year                  0.0266005126244921660805253794  -1.372
## Mortality             0.0432149607933211346577628831  -0.303
## Fertility             0.7767547332983560925967481126  -0.205
## GDP                   0.0000000000003124670767226541  -2.462
## GDP_capita            0.0000247386571932429841398637  11.883
## Unemployment          8.9421049735574538175342240720  -1.135
## Imports               0.0000000000024997670800029518   1.166
## Exports               0.0000000000022243478888512911   1.885
## Trade                 1.5265572535844182944231306465  -4.335
## Mortality:Fertility   0.0108960955423224627180989188  -2.291
## Imports:Exports       0.0000000000000000000000005694  -0.786
## GDP:GDP_capita        0.0000000000000000041455866371  -2.404
##                                 Pr(>|t|)    
## (Intercept)                      0.00666 ** 
## year                             0.17156    
## Mortality                        0.76216    
## Fertility                        0.83809    
## GDP                              0.01471 *  
## GDP_capita          < 0.0000000000000002 ***
## Unemployment                     0.25763    
## Imports                          0.24512    
## Exports                          0.06091 .  
## Trade                          0.0000235 ***
## Mortality:Fertility              0.02306 *  
## Imports:Exports                  0.43295    
## GDP:GDP_capita                   0.01715 *  
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 2.035 on 192 degrees of freedom
## Multiple R-squared:  0.9058, Adjusted R-squared:    0.9
## F-statistic: 153.9 on 12 and 192 DF,  p-value: < 0.00000000000000022
```


Residuals vs Fitted
Residuals
4
2
0
-2
-4
-6
60
65
70
75
80
85
Fitted values
lm(Life_exp ~ year + Mortality + Fertility + GDP + GDP_capita + Unemploymen ...
134
147
152


Normal Q-Q
Standardized residuals
2
1
0
-1
-2
-3
-2
-1
0
1
2
3
Theoretical Quantiles
lm(Life_exp ~ year + Mortality + Fertility + GDP + GDP_capita + Unemploymen ...
134
147
152


Scale-Location
√|Standardized residuals|
0.0
0.5
1.0
1.5
134
147
152
60
65
70
75
80
85
Fitted values
lm(Life_exp ~ year + Mortality + Fertility + GDP + GDP_capita + Unemploymen ...


Residuals vs Leverage
Standardized residuals
-3
-2
-1
0
1
2
130
52
133
Cook's distance
0.00
0.05
0.10
0.15
0.20
0.25
Leverage
lm(Life_exp ~ year + Mortality + Fertility + GDP + GDP_capita + Unemploymen ...

12. Which model is better? (ANOVA test: best subset vs interaction)

```
## Analysis of Variance Table
## 
## Model 1: Life_exp ~ Mortality + GDP + GDP_capita + Unemployment + Exports + 
##     Trade
## Model 2: Life_exp ~ year + Mortality + Fertility + GDP + GDP_capita + 
##     Unemployment + Imports + Exports + Trade + (Mortality:Fertility) + 
##     (Imports:Exports) + (GDP:GDP_capita)
##   Res.Df    RSS Df Sum of Sq      F   Pr(>F)   
## 1    198 877.66                                
## 2    192 795.38  6    82.282 3.3104 0.004005 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```