Life-Expectancy-vs-BMI-According-to-WHO-Data.R

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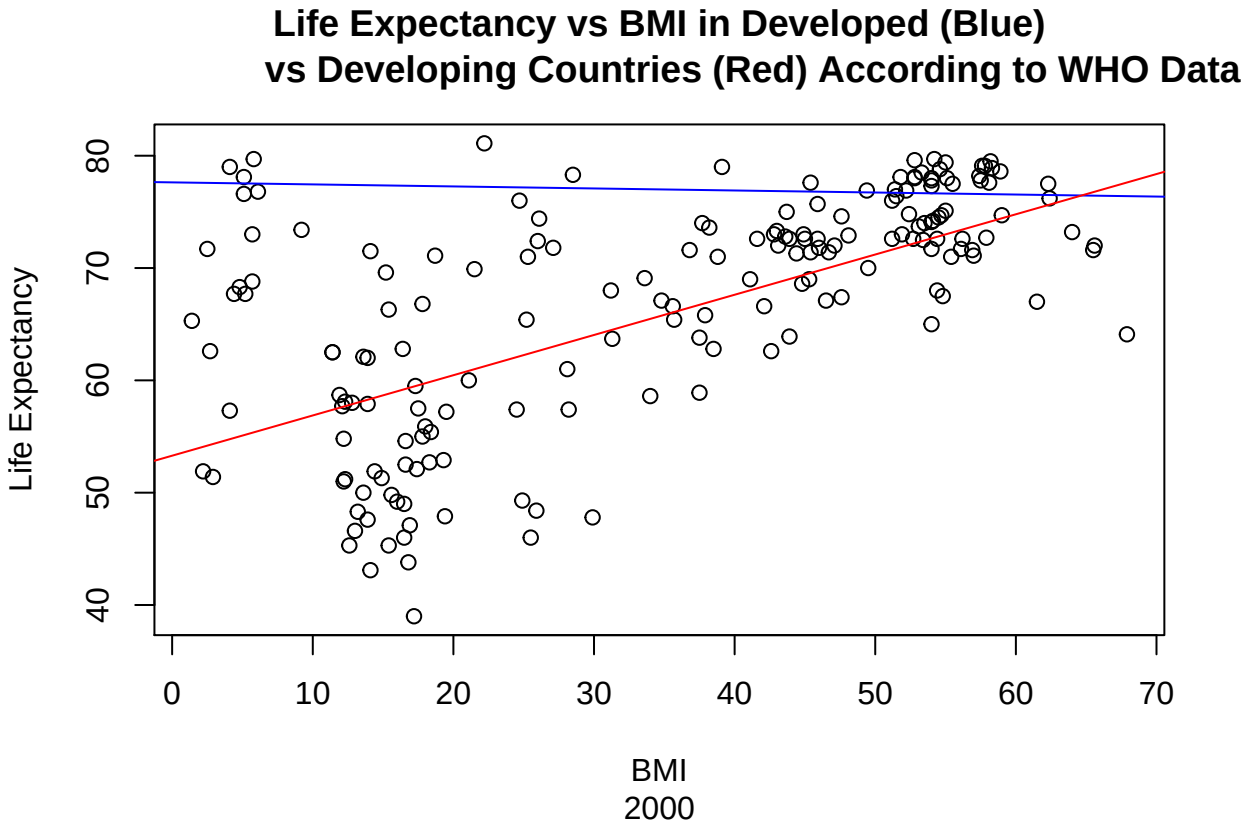
```
##Open data in RStudio
Life_Expectancy_Data <- read.csv("~/Life Expectancy Data.csv", header=TRUE)
View(Life_Expectancy_Data)

## Setup overall function to automate for the year
Lregryear <- function(m){

##Subset for chosen year
chooseyear <- function(n){
  chosendata <- subset.data.frame(Life_Expectancy_Data, Life_Expectancy_Data$Year == n)
chosendata
}

##Say we want to model data on 2015 only
data <- chooseyear(m)
data

##Subset for developing(0) or developed(1) countries
choosedevstatus <- function(a){
  if (a == 0){
    chosendata <- subset.data.frame(data, data$Status == "Developing")
  }
  else {
    chosendata <- subset.data.frame(data, data$Status == "Developed")
  }
  chosendata
}

##Split into developing & developed status for year chosen
datadeveloping <- choosedevstatus(0)
datadeveloping
datadeveloped <- choosedevstatus(1)
datadeveloped

##Let us compute the linear model
fitdeveloping <<- lm(datadeveloping$Life.expectancy ~ datadeveloping$BMI,
                     data = datadeveloping)
fitdeveloped <<- lm(datadeveloped$Life.expectancy ~ datadeveloped$BMI,
                    data = datadeveloped)
anovadeveloping <<- anova(lm(datadeveloping$Life.expectancy ~ datadeveloping$BMI,
                             data = datadeveloping))
anovadeveloped <<- anova(lm(datadeveloped$Life.expectancy ~ datadeveloped$BMI,
```

```
                              data = datadeveloped))
summdeveloping <<- summary(lm(datadeveloping$Life.expectancy ~ datadeveloping$BMI,
                              data = datadeveloping))
summdeveloped <<- summary(lm(datadeveloped$Life.expectancy ~ datadeveloped$BMI,
                              data = datadeveloped))

##Let us create a plot to visualize
{dataplot <- plot(data$BMI, data$Life.expectancy, main = "Life Expectancy vs BMI in Developed (Blue)
                  vs Developing Countries (Red) According to WHO Data", sub = m, xlab= "BMI", ylab = "Li
abline(fitdeveloped, col="blue")
abline(fitdeveloping, col="red")
}
return(c(fitdeveloping$coefficients, fitdeveloped$coefficients, dataplot))
}

##Let us create a GIF to show the plots progressing through the years
##First we need to install animation package through install.packages("animation")
library(animation)
saveGIF({for (j in 2000:2015){Lregryear(j)}}, movie.name = "Lreggif.gif")
```

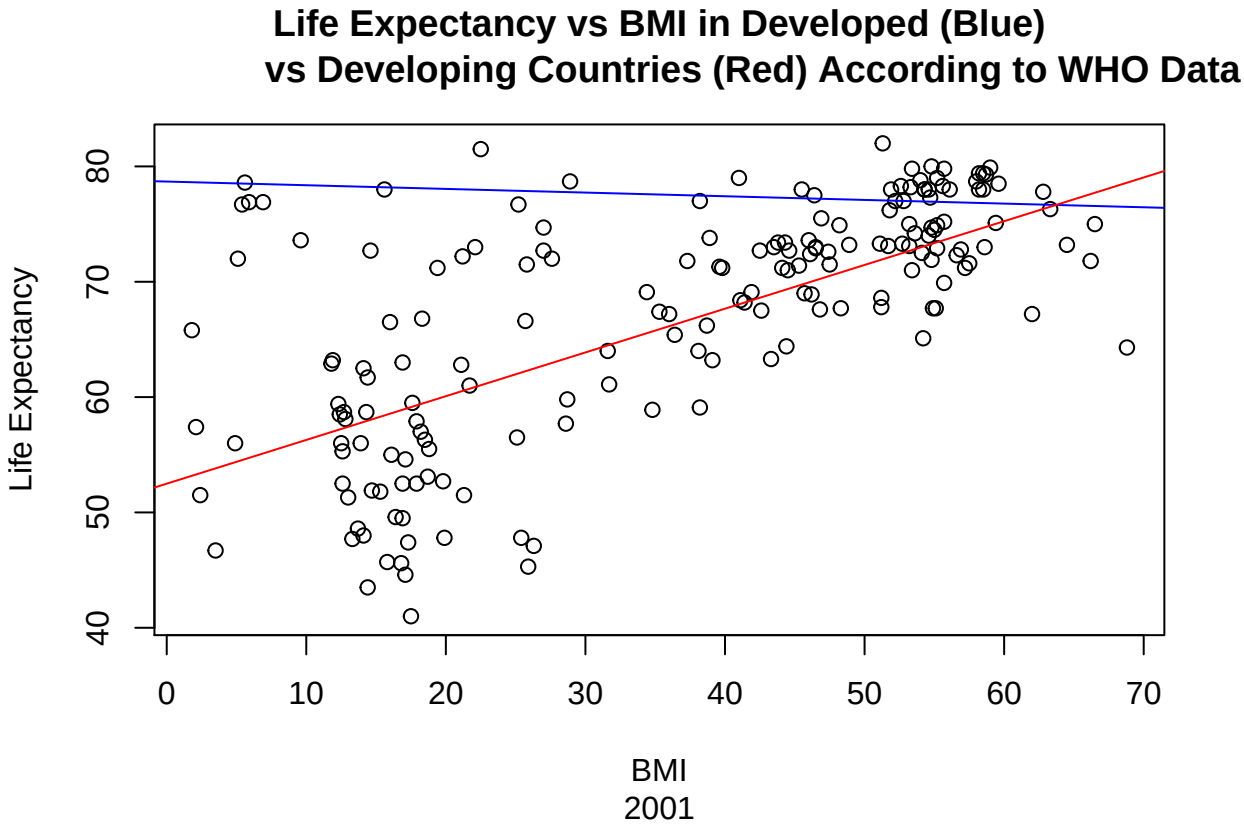
```
## Output at: Lreggif.gif
```

```
## [1] TRUE
```

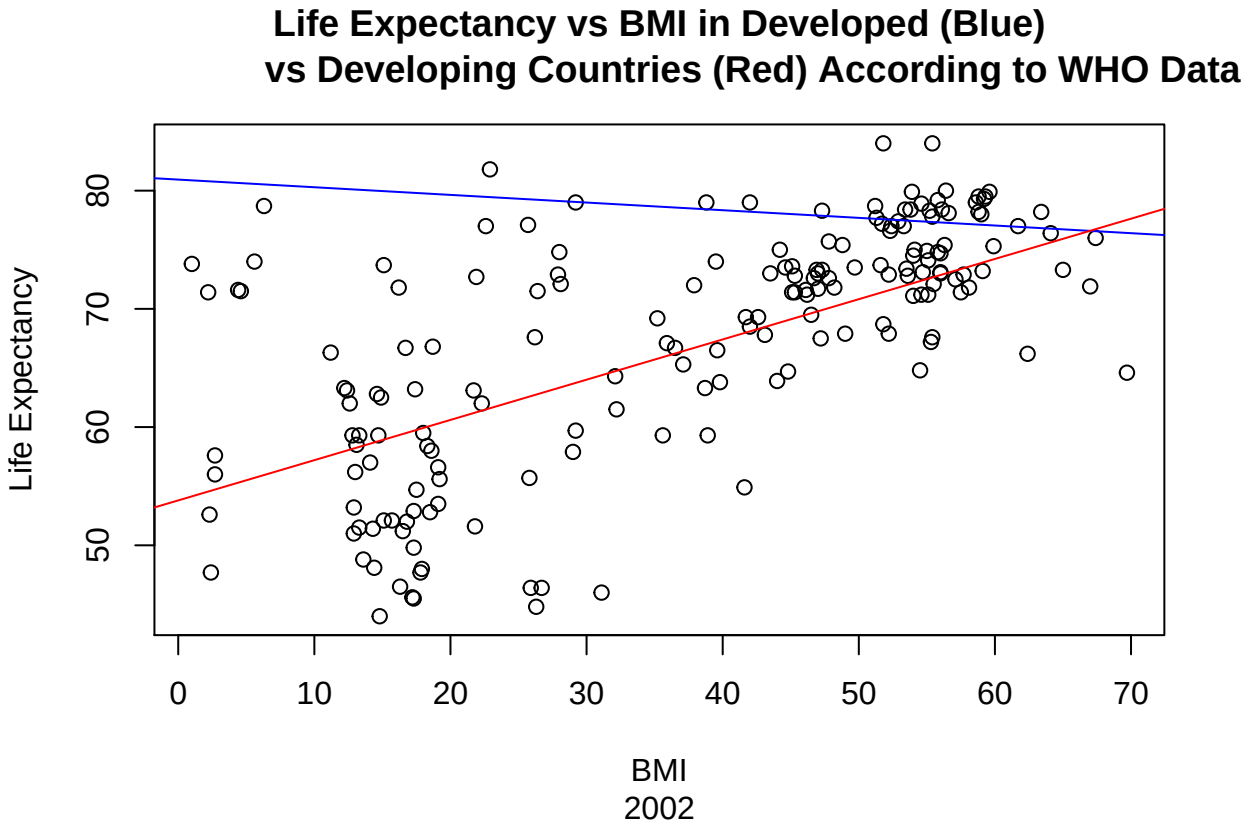
```
##Let us create  the summary function taking the year, & 0, 1 for developing, developed
##status respectively
summfunc <- function(o, p){
if (p ==0){
  datayear <- Lregryear(o)
summary(fitdeveloping)
}
else{
  datayear <- Lregryear(o)
  summary(fitdeveloped)
}
}

##Let us set up a function loop to calculate lm summary for developing=0, then developed=1
returnsumm <- function(r){
q <- 2000
while (q <= 2015){
  summtable <- summfunc(q,r)
  print(summtable)
  q <- q+1
}
}
returnsumm(0)
```



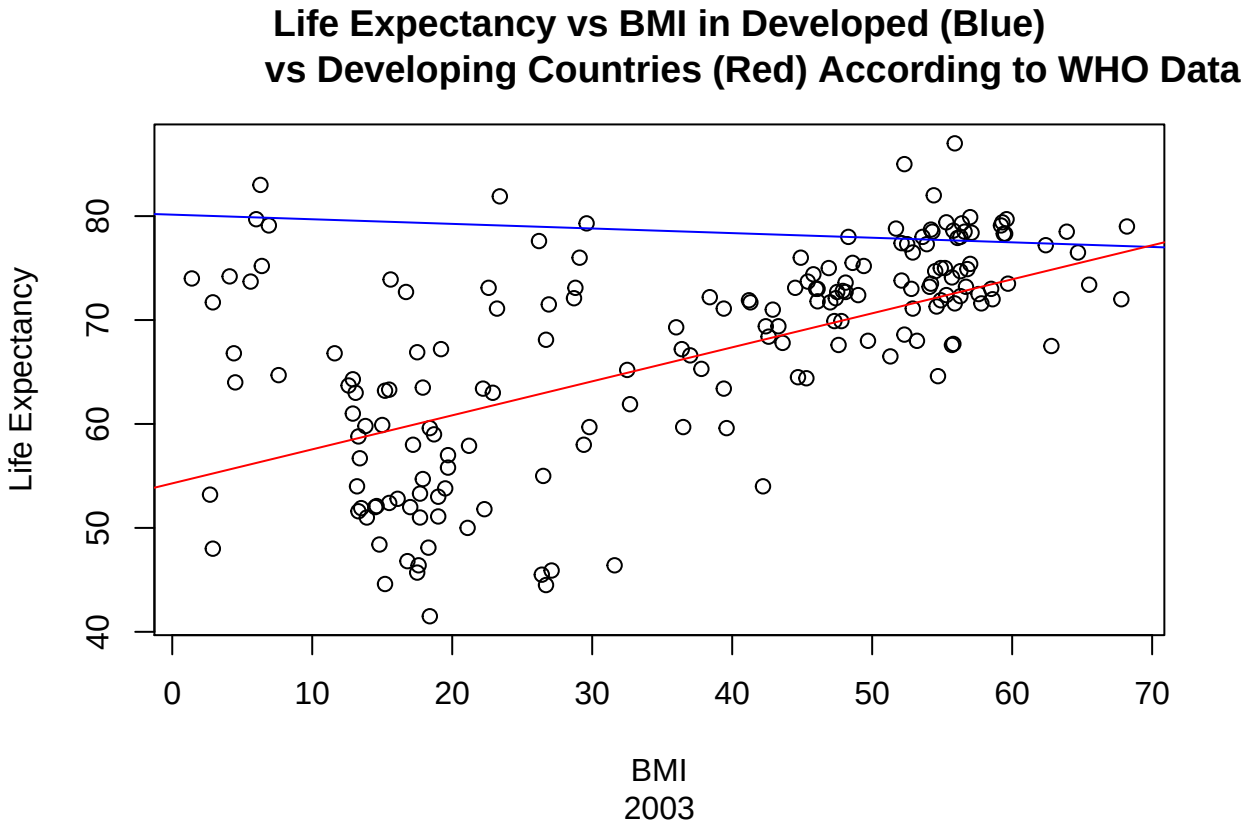

```
##
## Call:
## lm(formula = datadeveloping$Life.expectancy ~ datadeveloping$BMI,
##     data = datadeveloping)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -20.4544  -4.7903   0.5551   4.4060  24.2378
##
## Coefficients:
##                    Estimate Std. Error t value Pr(>|t|)
## (Intercept)        53.29367    1.29448   41.17   <2e-16 ***
## datadeveloping$BMI  0.35818    0.03528   10.15   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 7.707 on 147 degrees of freedom
##   (2 observations deleted due to missingness)
## Multiple R-squared:  0.4121, Adjusted R-squared:  0.4081
## F-statistic: 103.1 on 1 and 147 DF,  p-value: < 2.2e-16
```



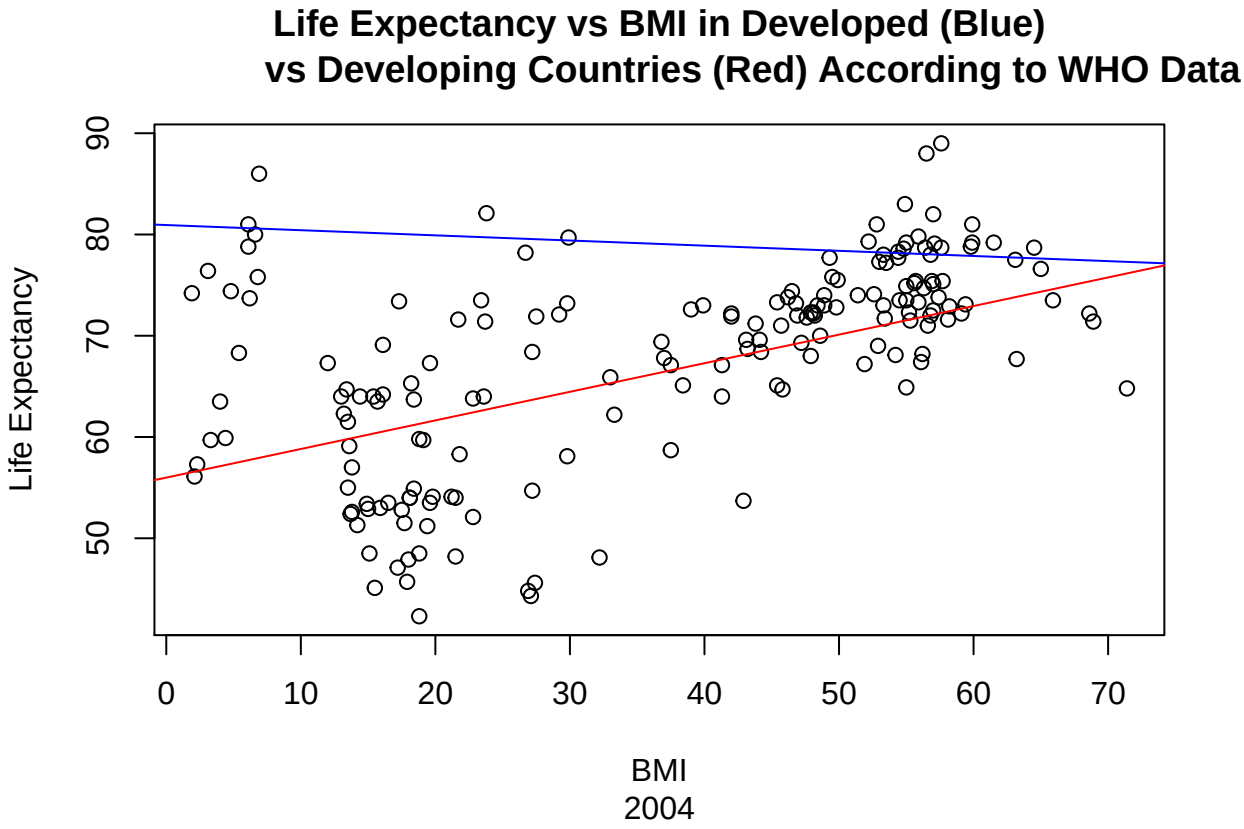

```
##
## Call:
## lm(formula = datadeveloping$Life.expectancy ~ datadeveloping$BMI,
##     data = datadeveloping)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -18.130  -4.378   0.430   4.106  22.159
##
## Coefficients:
##                    Estimate Std. Error t value Pr(>|t|)
## (Intercept)        52.49284    1.29341   40.59   <2e-16 ***
## datadeveloping$BMI  0.37927    0.03431   11.05   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 7.332 on 147 degrees of freedom
##   (2 observations deleted due to missingness)
## Multiple R-squared:  0.4539, Adjusted R-squared:  0.4502
## F-statistic: 122.2 on 1 and 147 DF,  p-value: < 2.2e-16
```



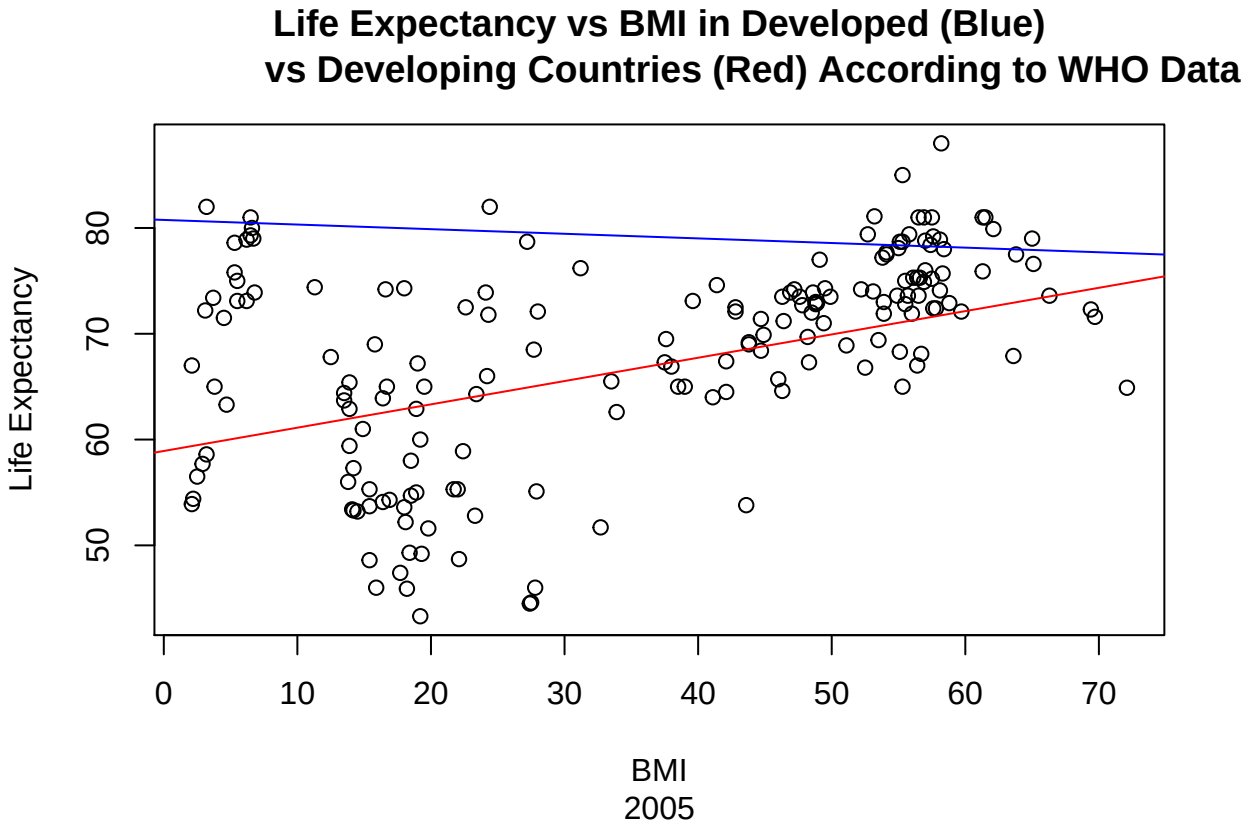

```
##
## Call:
## lm(formula = datadeveloping$Life.expectancy ~ datadeveloping$BMI,
##     data = datadeveloping)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -18.3838  -4.8748   0.6117   4.3954  19.6621
##
## Coefficients:
##                    Estimate Std. Error t value Pr(>|t|)
## (Intercept)        53.79751    1.31408  40.939   <2e-16 ***
## datadeveloping$BMI  0.34039    0.03429   9.927   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 7.524 on 147 degrees of freedom
##   (2 observations deleted due to missingness)
## Multiple R-squared:  0.4013, Adjusted R-squared:  0.3972
## F-statistic: 98.54 on 1 and 147 DF,  p-value: < 2.2e-16
```



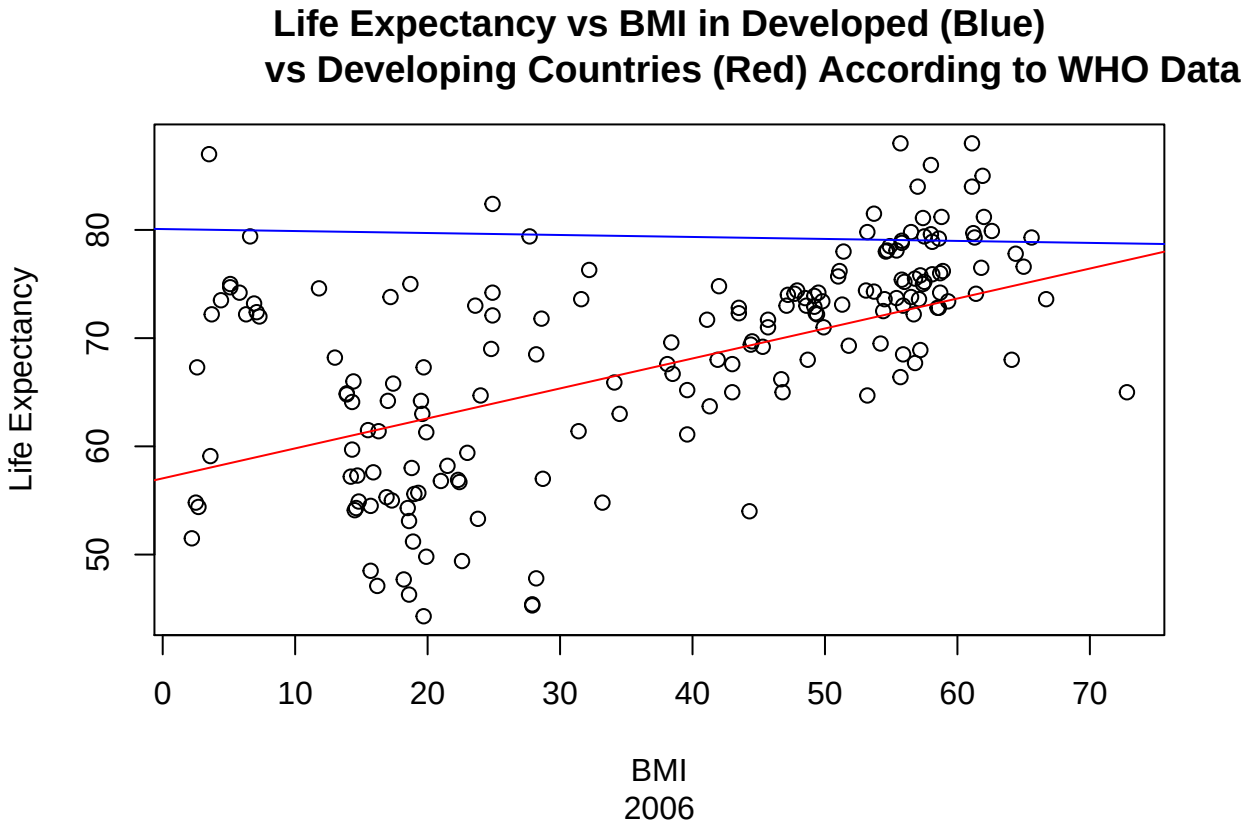

```
##
## Call:
## lm(formula = datadeveloping$Life.expectancy ~ datadeveloping$BMI,
##     data = datadeveloping)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -18.8062  -4.8447   0.7064   4.4282  23.4515
##
## Coefficients:
##                    Estimate Std. Error t value Pr(>|t|)
## (Intercept)        54.28509    1.35228  40.143  < 2e-16 ***
## datadeveloping$BMI  0.32723    0.03551   9.216 2.98e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 7.741 on 147 degrees of freedom
##   (2 observations deleted due to missingness)
## Multiple R-squared:  0.3662, Adjusted R-squared:  0.3619
## F-statistic: 84.94 on 1 and 147 DF,  p-value: 2.978e-16
```



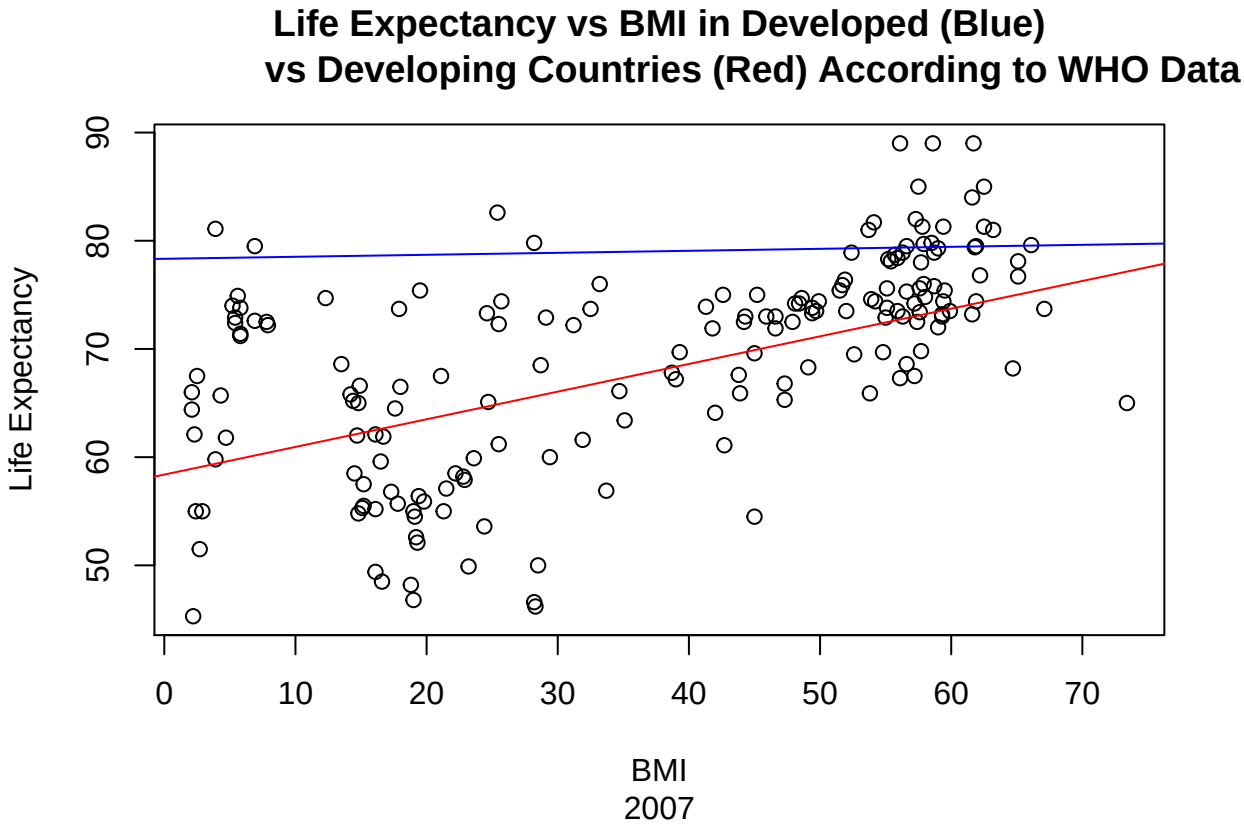

```
##
## Call:
## lm(formula = datadeveloping$Life.expectancy ~ datadeveloping$BMI,
##     data = datadeveloping)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -19.344  -4.803   1.371   4.170  23.287
##
## Coefficients:
##                    Estimate Std. Error t value Pr(>|t|)
## (Intercept)        55.99033    1.36741  40.946  < 2e-16 ***
## datadeveloping$BMI  0.28242    0.03565   7.922 5.29e-13 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 7.987 on 147 degrees of freedom
##   (2 observations deleted due to missingness)
## Multiple R-squared:  0.2992, Adjusted R-squared:  0.2944
## F-statistic: 62.76 on 1 and 147 DF,  p-value: 5.294e-13
```



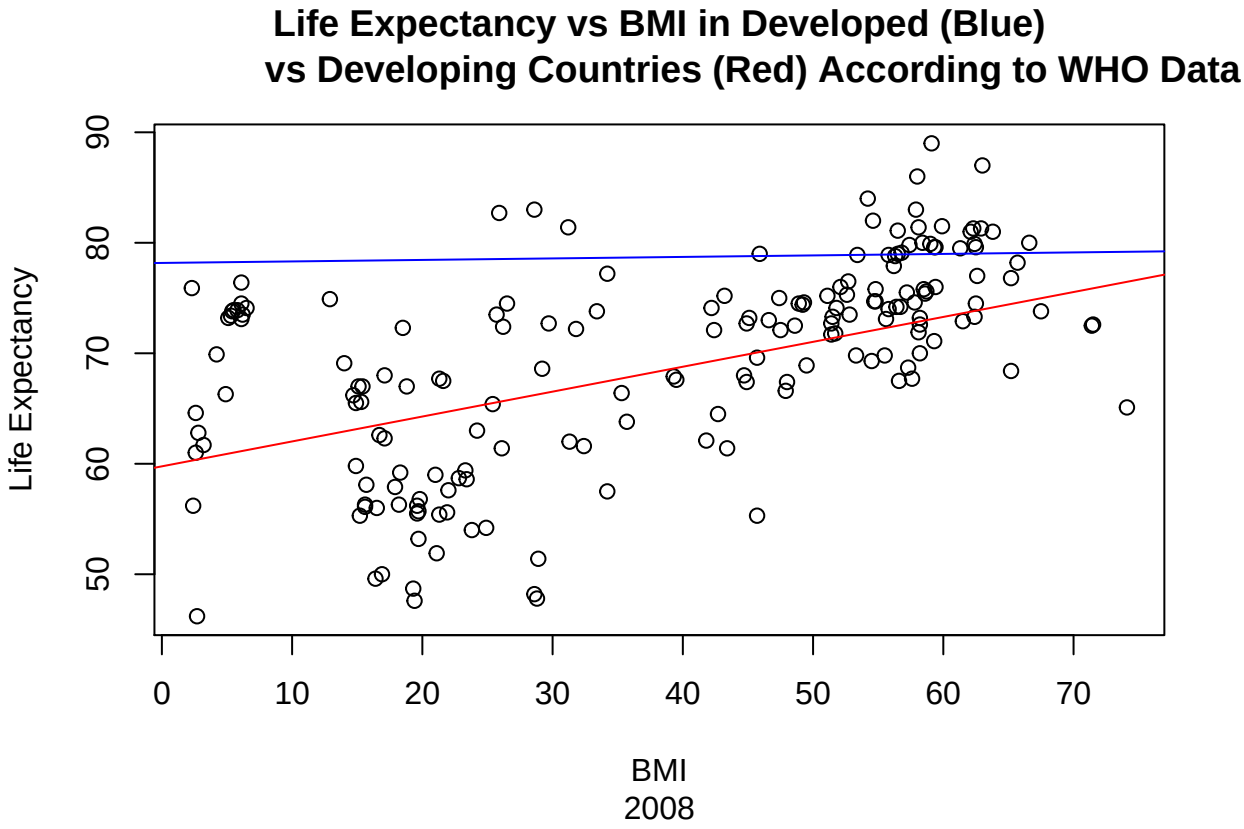

```
##
## Call:
## lm(formula = datadeveloping$Life.expectancy ~ datadeveloping$BMI,
##     data = datadeveloping)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -20.4571  -4.7483   0.9178   4.1494  19.6264
##
## Coefficients:
##                    Estimate Std. Error t value Pr(>|t|)
## (Intercept)        58.91919    1.33117  44.261  < 2e-16 ***
## datadeveloping$BMI  0.22036    0.03518   6.264 3.93e-09 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 8.267 on 147 degrees of freedom
##   (2 observations deleted due to missingness)
## Multiple R-squared:  0.2107, Adjusted R-squared:  0.2053
## F-statistic: 39.23 on 1 and 147 DF,  p-value: 3.927e-09
```



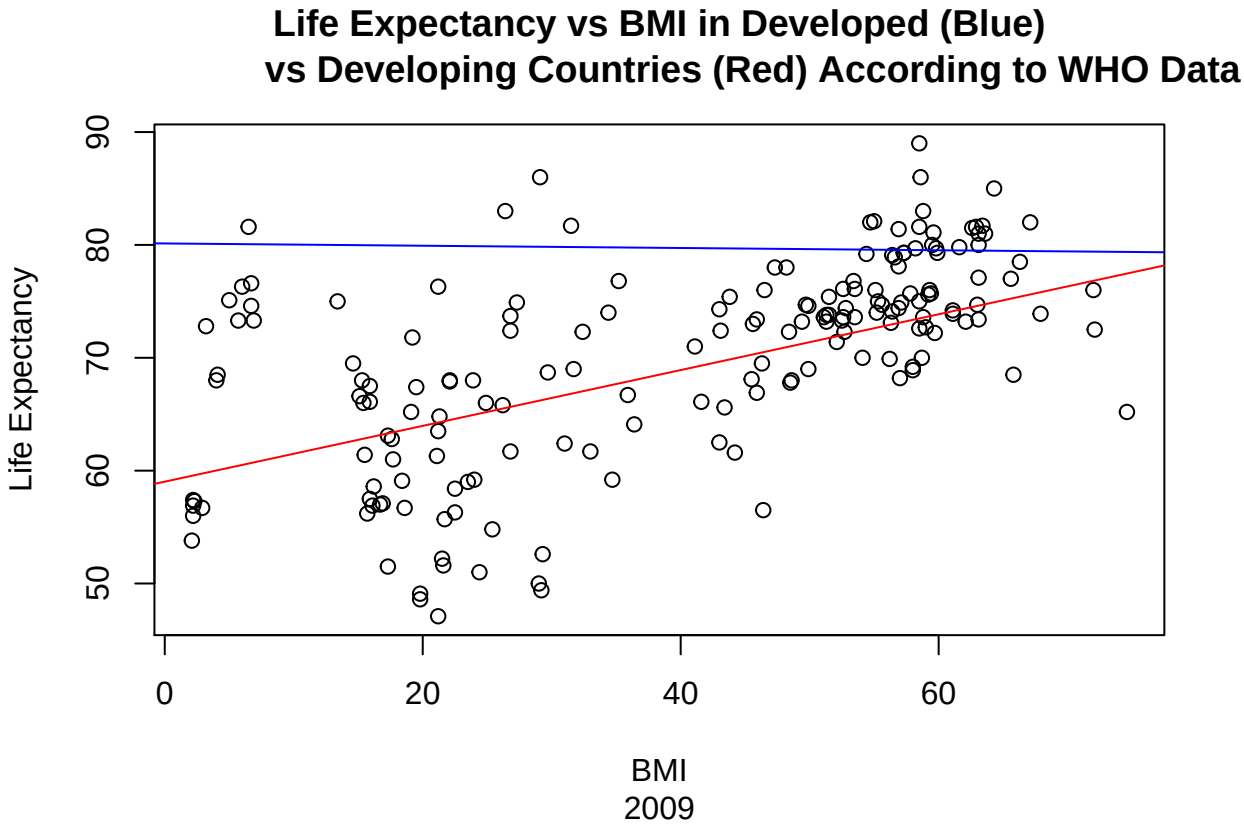

```
##
## Call:
## lm(formula = datadeveloping$Life.expectancy ~ datadeveloping$BMI,
##     data = datadeveloping)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -19.4690  -4.7805   0.5299   3.9087  16.5461
##
## Coefficients:
##                    Estimate Std. Error t value Pr(>|t|)
## (Intercept)        57.04134    1.32947  42.905  < 2e-16 ***
## datadeveloping$BMI  0.27698    0.03401   8.144  1.5e-13 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 7.678 on 147 degrees of freedom
##   (2 observations deleted due to missingness)
## Multiple R-squared:  0.3109, Adjusted R-squared:  0.3062
## F-statistic: 66.33 on 1 and 147 DF,  p-value: 1.505e-13
```



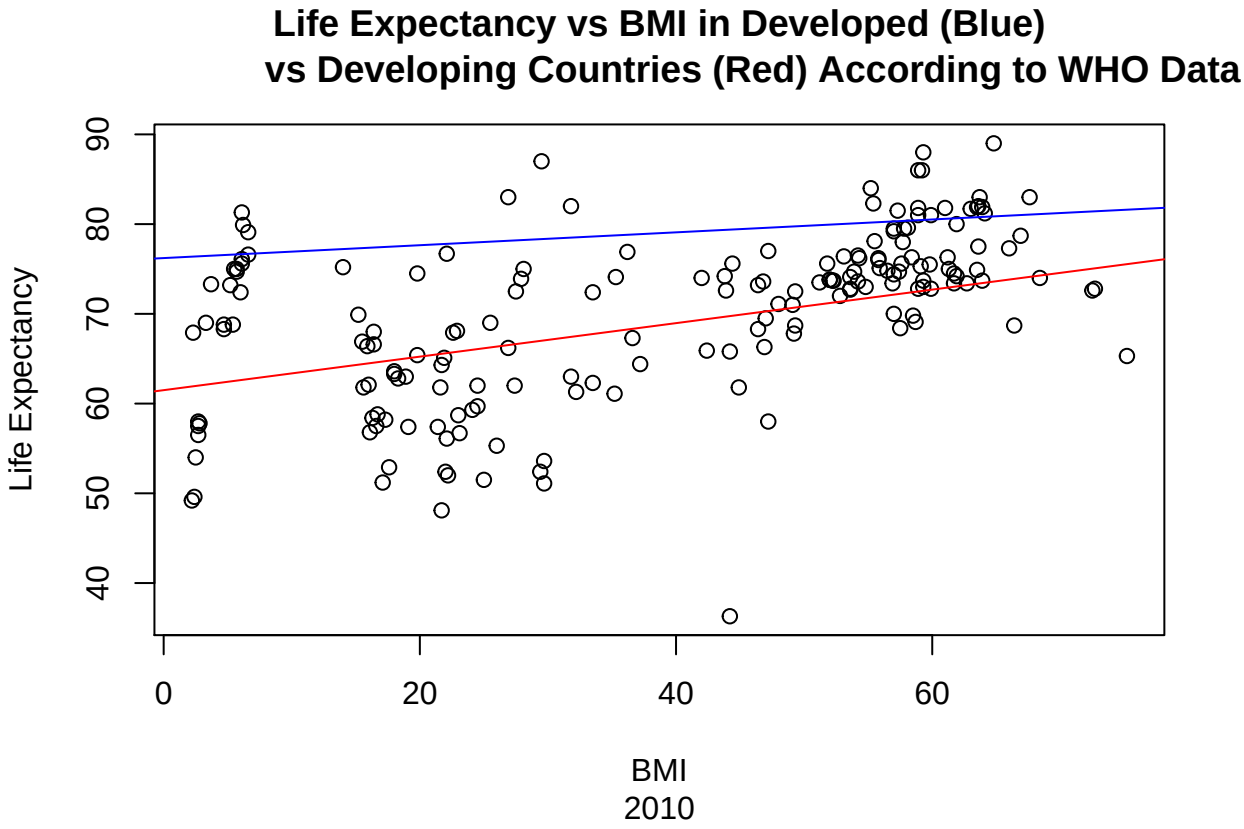

```
##
## Call:
## lm(formula = datadeveloping$Life.expectancy ~ datadeveloping$BMI,
##     data = datadeveloping)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -19.4223  -5.1777   0.8302   4.4019  15.6347
##
## Coefficients:
##                    Estimate Std. Error t value Pr(>|t|)
## (Intercept)        58.39045    1.22561  47.642  < 2e-16 ***
## datadeveloping$BMI  0.25554    0.03149   8.115 1.77e-13 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 7.517 on 147 degrees of freedom
##   (2 observations deleted due to missingness)
## Multiple R-squared:  0.3094, Adjusted R-squared:  0.3047
## F-statistic: 65.86 on 1 and 147 DF,  p-value: 1.775e-13
```



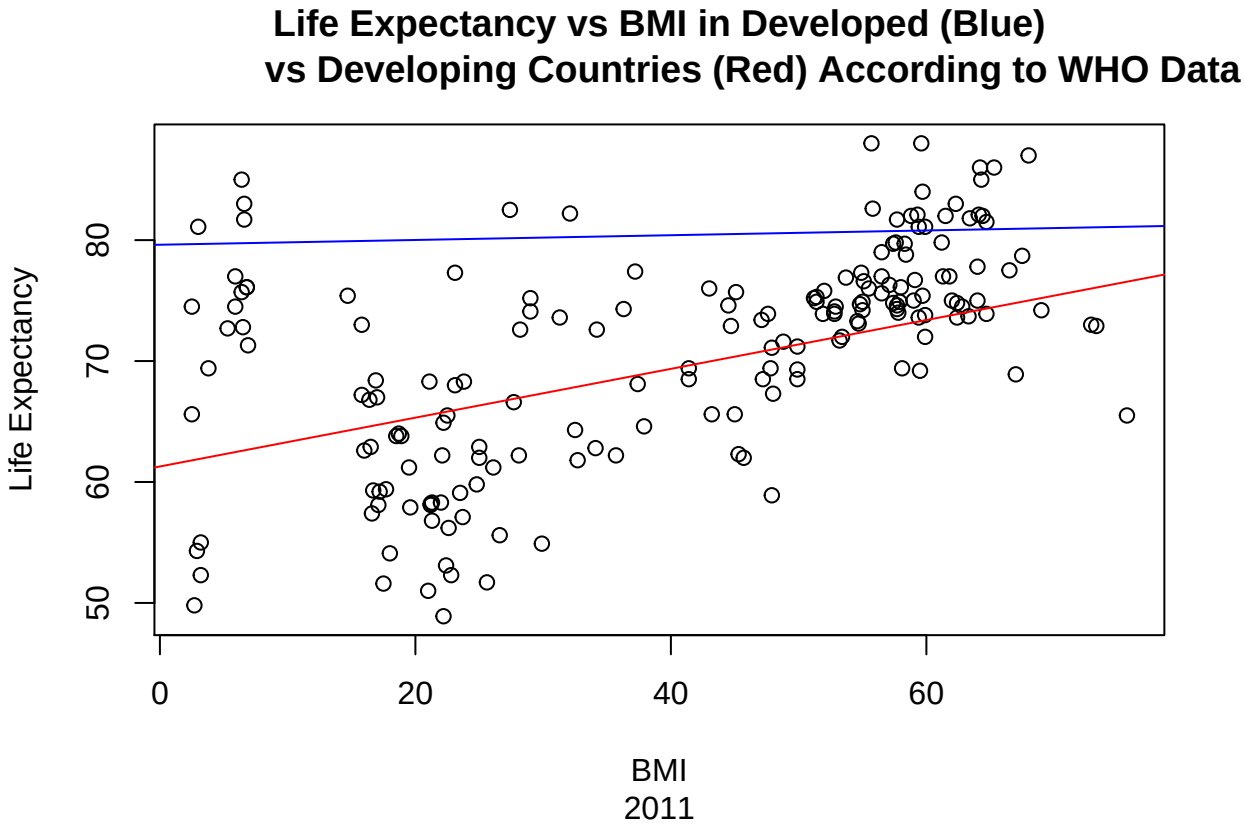

```
##
## Call:
## lm(formula = datadeveloping$Life.expectancy ~ datadeveloping$BMI,
##     data = datadeveloping)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -18.457  -5.048   1.213   4.380  16.788
##
## Coefficients:
##                    Estimate Std. Error t value Pr(>|t|)
## (Intercept)        59.76583    1.25281  47.705   <2e-16 ***
## datadeveloping$BMI  0.22539    0.03157   7.139    4e-11 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 7.548 on 147 degrees of freedom
##   (2 observations deleted due to missingness)
## Multiple R-squared:  0.2574, Adjusted R-squared:  0.2524
## F-statistic: 50.97 on 1 and 147 DF,  p-value: 4.005e-11
```



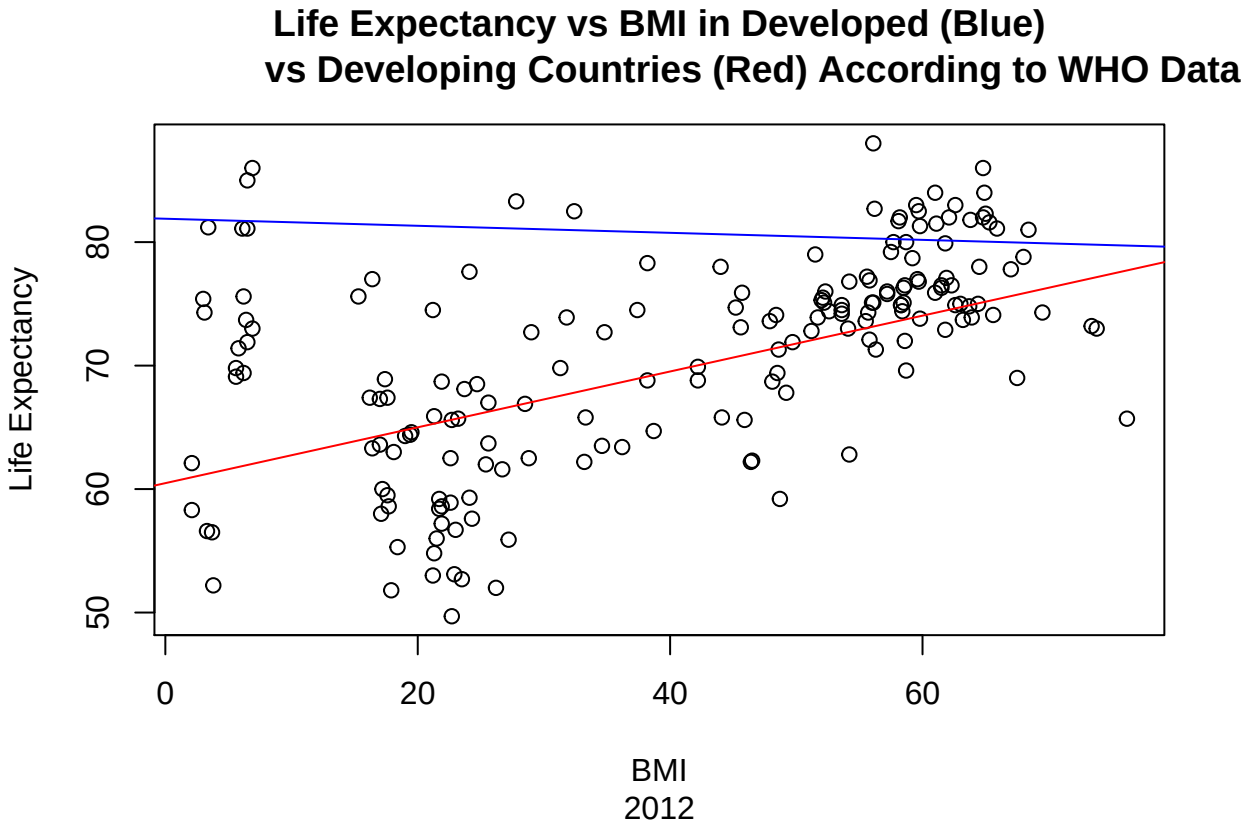

```
##
## Call:
## lm(formula = datadeveloping$Life.expectancy ~ datadeveloping$BMI,
##     data = datadeveloping)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -17.165  -4.152   1.134   3.843  19.782
##
## Coefficients:
##                    Estimate Std. Error t value Pr(>|t|)
## (Intercept)        59.02436    1.20253  49.083  < 2e-16 ***
## datadeveloping$BMI  0.24719    0.02917   8.475 2.26e-14 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 6.887 on 147 degrees of freedom
##   (2 observations deleted due to missingness)
## Multiple R-squared:  0.3282, Adjusted R-squared:  0.3237
## F-statistic: 71.83 on 1 and 147 DF,  p-value: 2.258e-14
```



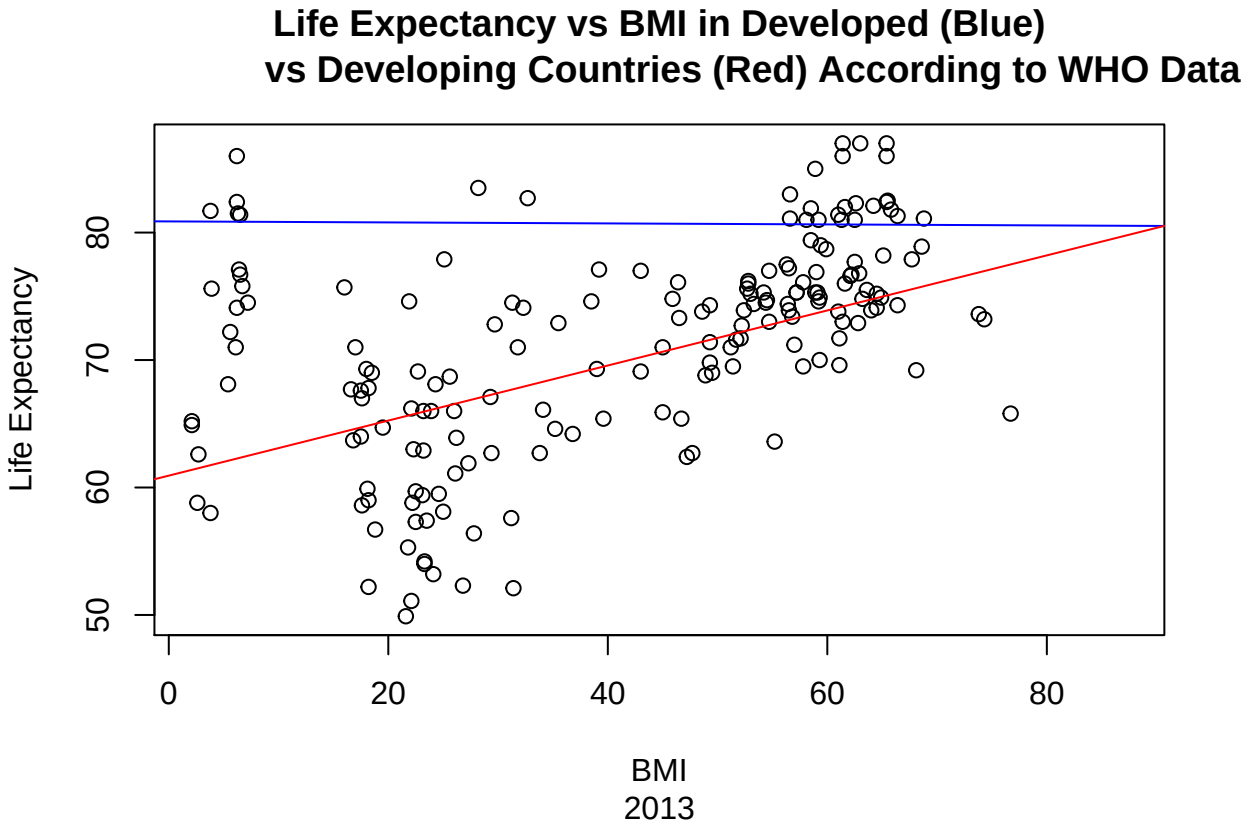

```
##
## Call:
## lm(formula = datadeveloping$Life.expectancy ~ datadeveloping$BMI,
##     data = datadeveloping)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -33.449  -4.217   1.131   4.526  19.996
##
## Coefficients:
##                    Estimate Std. Error t value Pr(>|t|)
## (Intercept)        61.49431    1.26180  48.735  < 2e-16 ***
## datadeveloping$BMI  0.18676    0.03113   5.999 1.48e-08 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 7.764 on 147 degrees of freedom
##   (2 observations deleted due to missingness)
## Multiple R-squared:  0.1967, Adjusted R-squared:  0.1912
## F-statistic: 35.99 on 1 and 147 DF,  p-value: 1.478e-08
```



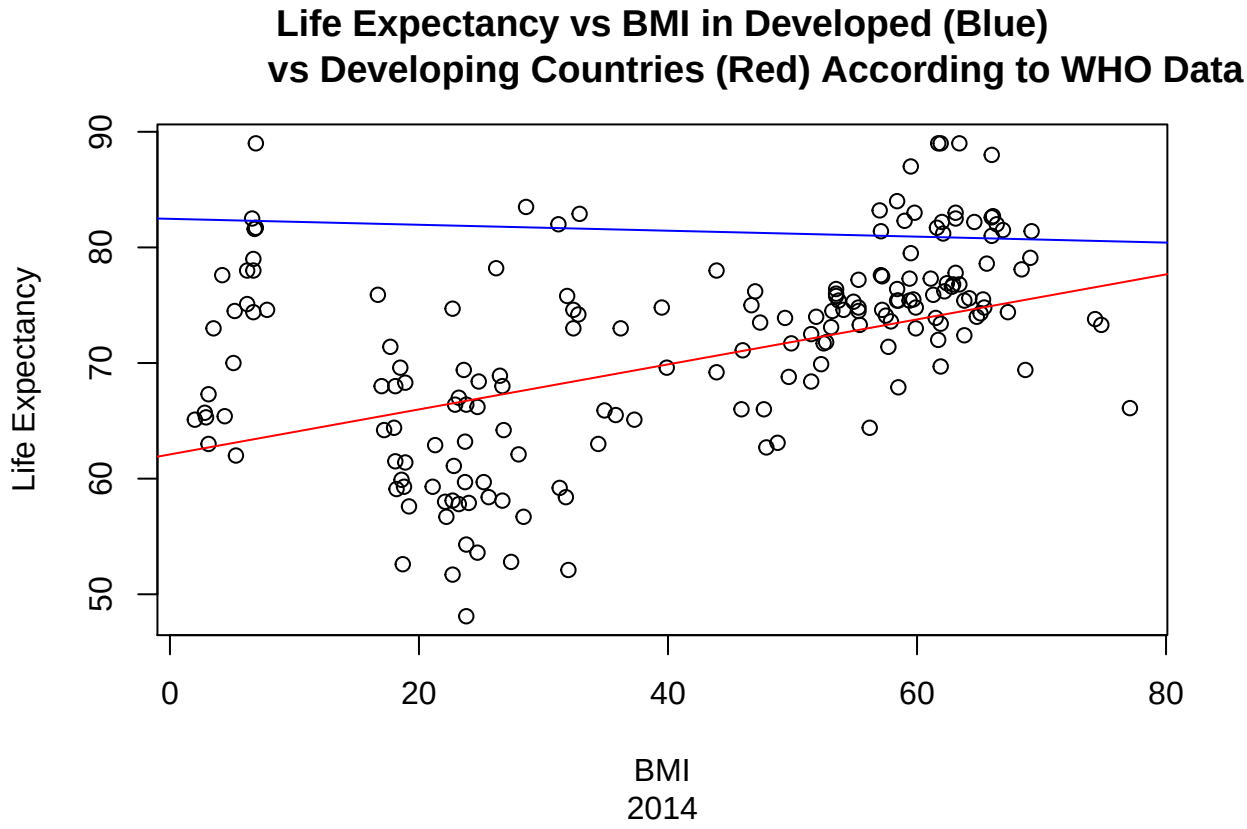

```
##
## Call:
## lm(formula = datadeveloping$Life.expectancy ~ datadeveloping$BMI,
##     data = datadeveloping)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -16.8626  -4.7642   0.4286   3.7070  20.3858
##
## Coefficients:
##                    Estimate Std. Error t value Pr(>|t|)
## (Intercept)        61.28214    1.21916  50.266  < 2e-16 ***
## datadeveloping$BMI  0.20182    0.02934   6.878 1.62e-10 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 7.104 on 147 degrees of freedom
##   (2 observations deleted due to missingness)
## Multiple R-squared:  0.2435, Adjusted R-squared:  0.2383
## F-statistic: 47.31 on 1 and 147 DF,  p-value: 1.617e-10
```



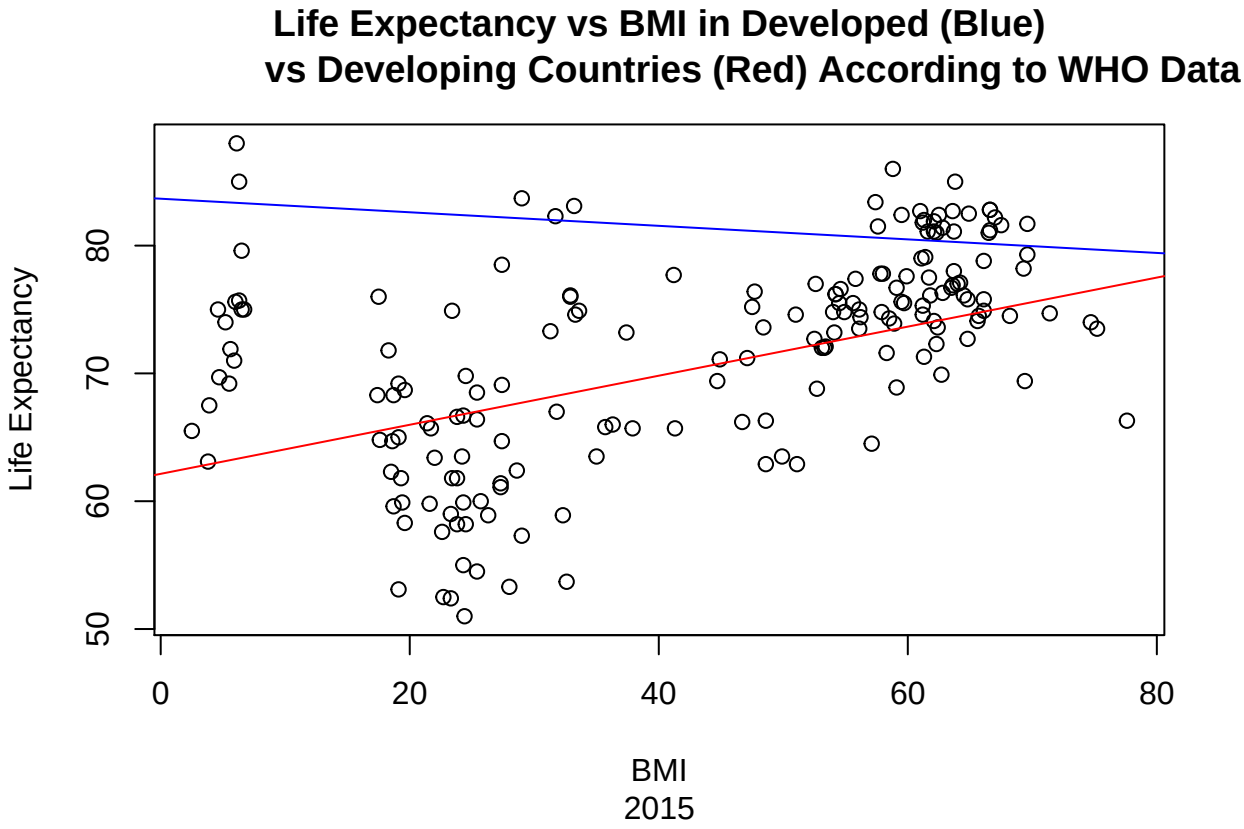

```
##
## Call:
## lm(formula = datadeveloping$Life.expectancy ~ datadeveloping$BMI,
##     data = datadeveloping)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -15.9110  -4.4901   0.2902   3.2585  19.9522
##
## Coefficients:
##                    Estimate Std. Error t value Pr(>|t|)
## (Intercept)        60.47911    1.13199  53.427  < 2e-16 ***
## datadeveloping$BMI  0.22608    0.02648   8.537 1.58e-14 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 6.457 on 147 degrees of freedom
##   (2 observations deleted due to missingness)
## Multiple R-squared:  0.3315, Adjusted R-squared:  0.3269
## F-statistic: 72.88 on 1 and 147 DF,  p-value: 1.579e-14
```




```
##
## Call:
## lm(formula = datadeveloping$Life.expectancy ~ datadeveloping$BMI,
##     data = datadeveloping)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -15.6969  -3.9155   0.3374   3.6644  19.9476
##
## Coefficients:
##                    Estimate Std. Error t value Pr(>|t|)
## (Intercept)        60.93164    1.17519  51.848  < 2e-16 ***
## datadeveloping$BMI  0.21598    0.02691   8.026 2.95e-13 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 6.442 on 147 degrees of freedom
##   (12 observations deleted due to missingness)
## Multiple R-squared:  0.3047, Adjusted R-squared:    0.3
## F-statistic: 64.42 on 1 and 147 DF,  p-value: 2.947e-13
```

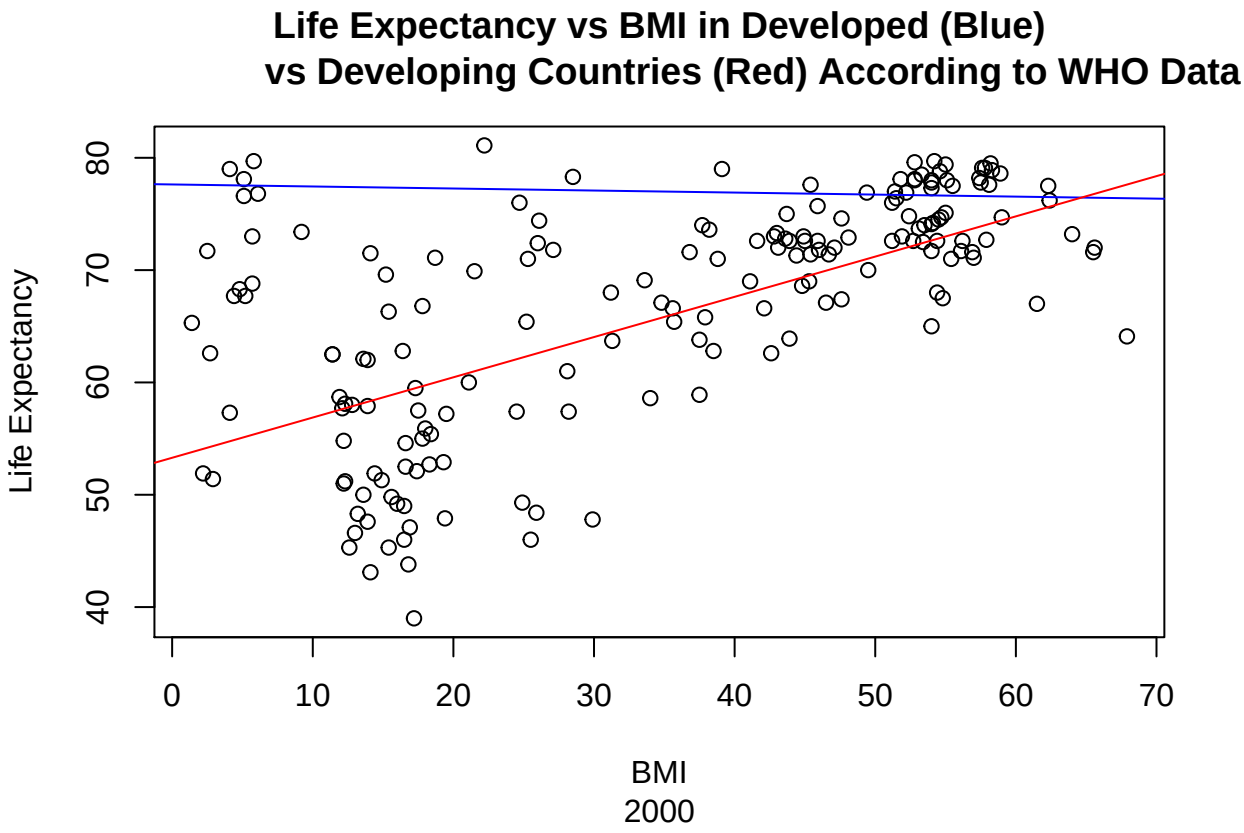



```
##
## Call:
## lm(formula = datadeveloping$Life.expectancy ~ datadeveloping$BMI,
##     data = datadeveloping)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -18.6281  -4.2552   0.6702   3.4923  15.5995
##
## Coefficients:
##                    Estimate Std. Error t value Pr(>|t|)
## (Intercept)        62.09671    1.19100  52.138   <2e-16 ***
## datadeveloping$BMI  0.19460    0.02726   7.139    4e-11 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 6.752 on 147 degrees of freedom
##   (2 observations deleted due to missingness)
## Multiple R-squared:  0.2575, Adjusted R-squared:  0.2524
## F-statistic: 50.97 on 1 and 147 DF,  p-value: 4e-11
```

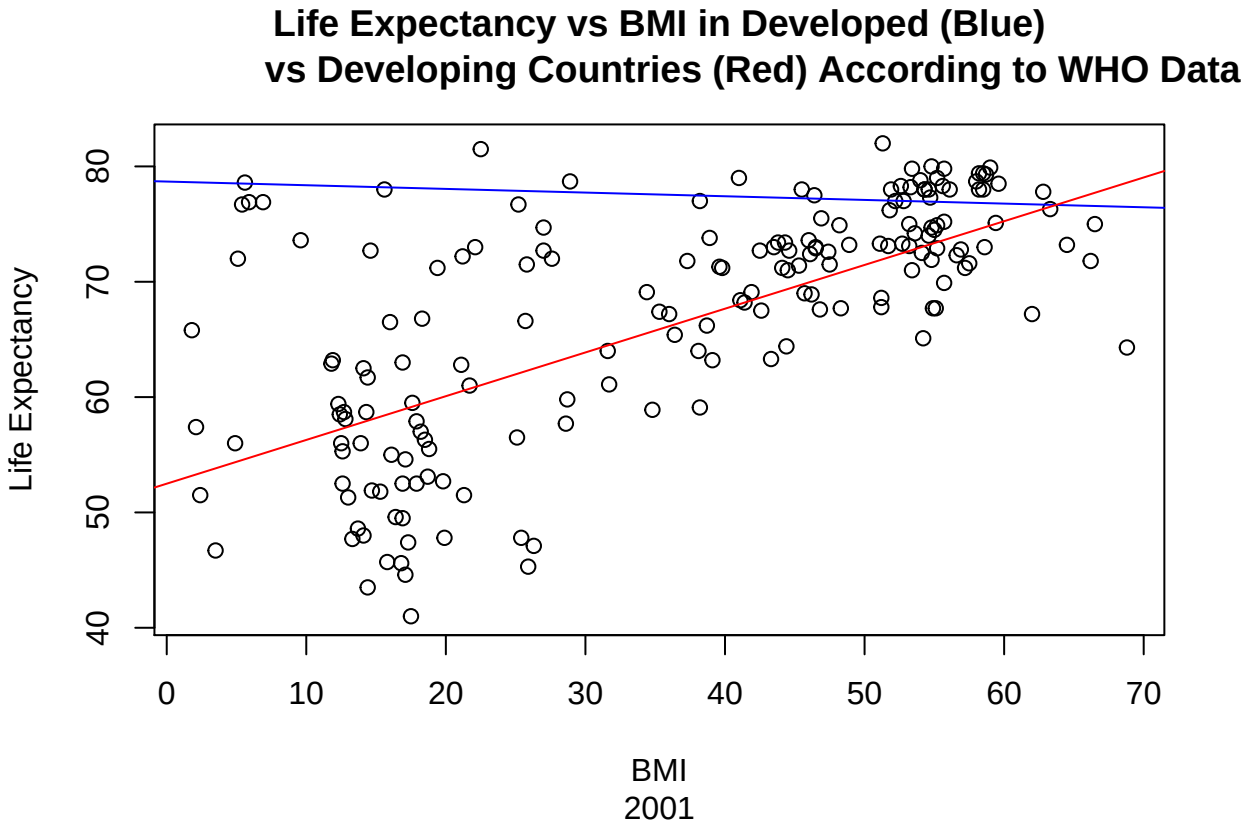



```
##
## Call:
## lm(formula = datadeveloping$Life.expectancy ~ datadeveloping$BMI,
##     data = datadeveloping)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -15.8252  -4.2769   0.4525   3.9407  16.2107
##
## Coefficients:
##                    Estimate Std. Error t value Pr(>|t|)
## (Intercept)        62.14161    1.16831  53.189  < 2e-16 ***
## datadeveloping$BMI  0.19195    0.02613   7.347 1.29e-11 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 6.406 on 147 degrees of freedom
##   (2 observations deleted due to missingness)
## Multiple R-squared:  0.2686, Adjusted R-squared:  0.2636
## F-statistic: 53.98 on 1 and 147 DF,  p-value: 1.292e-11
```

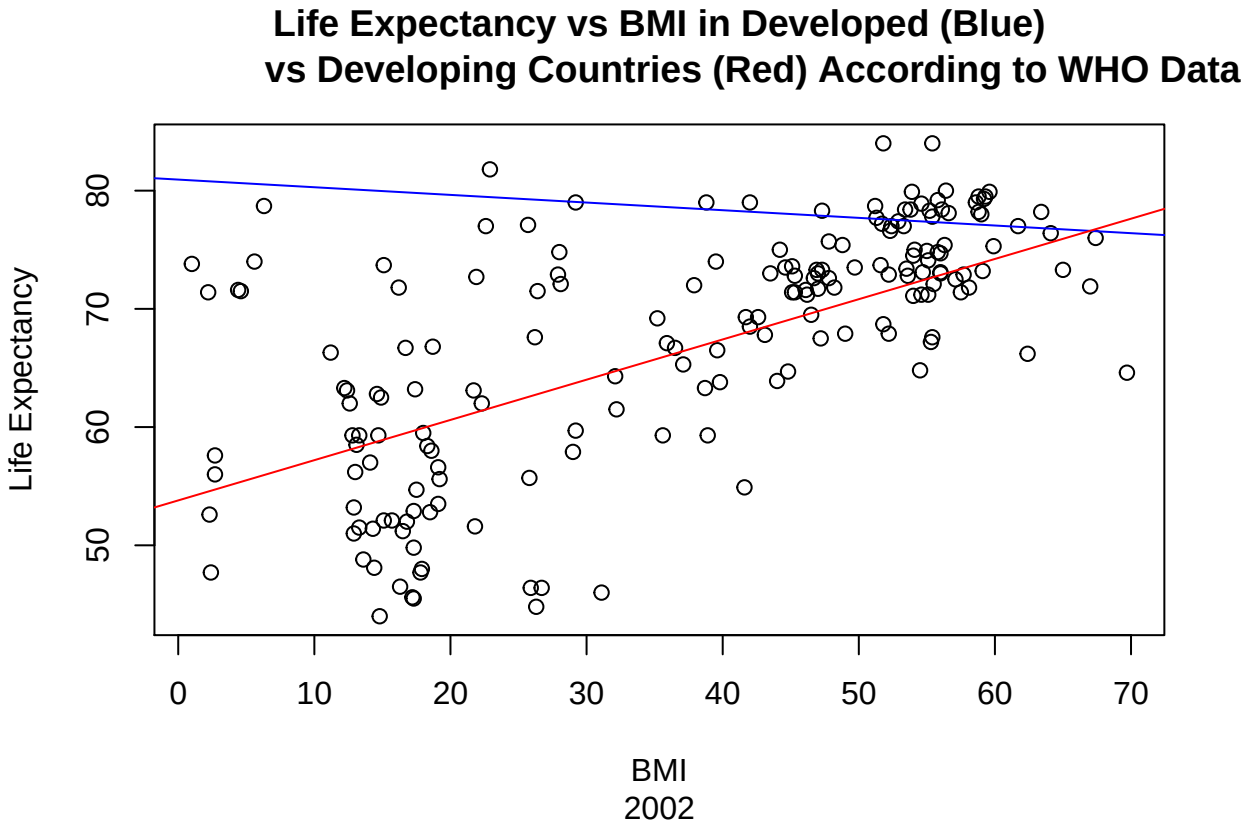
```
returnsumm(1)
```



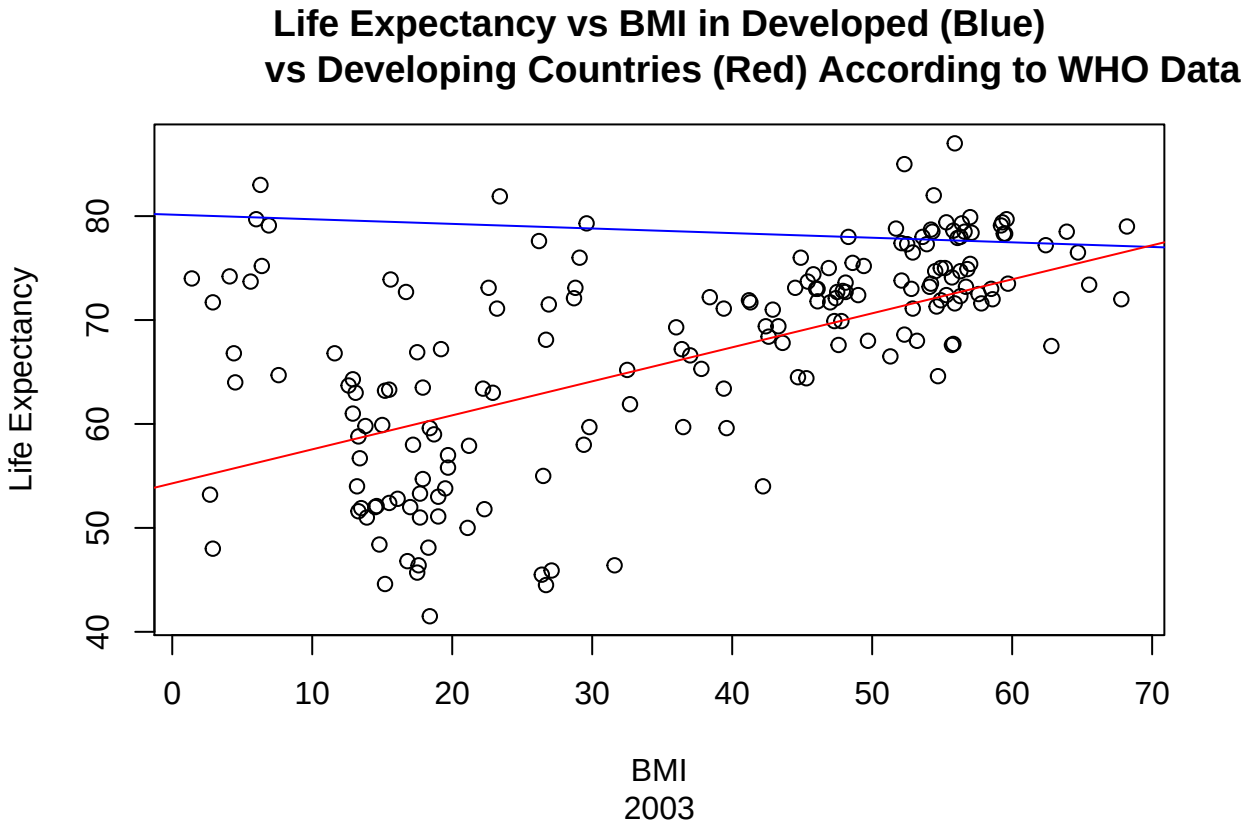

```
##
## Call:
## lm(formula = datadeveloped$Life.expectancy ~ datadeveloped$BMI,
##     data = datadeveloped)
##
## Residuals:
##    Min     1Q Median     3Q    Max
## -5.626 -1.166  1.011  1.887  3.874
##
## Coefficients:
##                   Estimate Std. Error t value Pr(>|t|)
## (Intercept)       77.62649    1.28042  60.626   <2e-16 ***
## datadeveloped$BMI -0.01806    0.02596  -0.696    0.492
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 2.767 on 30 degrees of freedom
## Multiple R-squared:  0.01588,    Adjusted R-squared:  -0.01692
## F-statistic: 0.4842 on 1 and 30 DF,  p-value: 0.4919
```



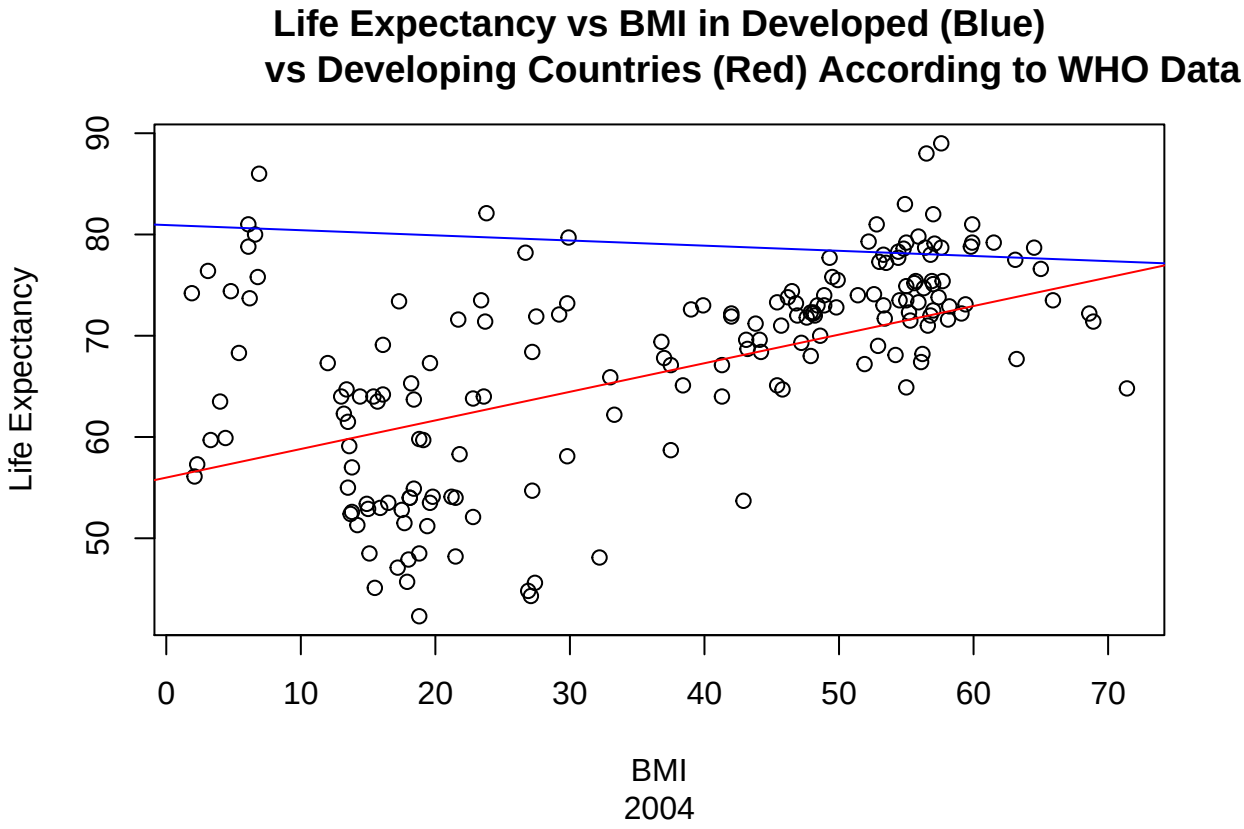

```
##
## Call:
## lm(formula = datadeveloped$Life.expectancy ~ datadeveloped$BMI,
##     data = datadeveloped)
##
## Residuals:
##    Min     1Q Median     3Q    Max
## -7.013 -1.623  1.009  1.742  4.947
##
## Coefficients:
##                   Estimate Std. Error t value Pr(>|t|)
## (Intercept)       78.68737    1.70035  46.277   <2e-16 ***
## datadeveloped$BMI -0.03185    0.03306  -0.964    0.343
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 2.952 on 30 degrees of freedom
## Multiple R-squared:  0.03002,    Adjusted R-squared:  -0.002317
## F-statistic: 0.9283 on 1 and 30 DF,  p-value: 0.343
```



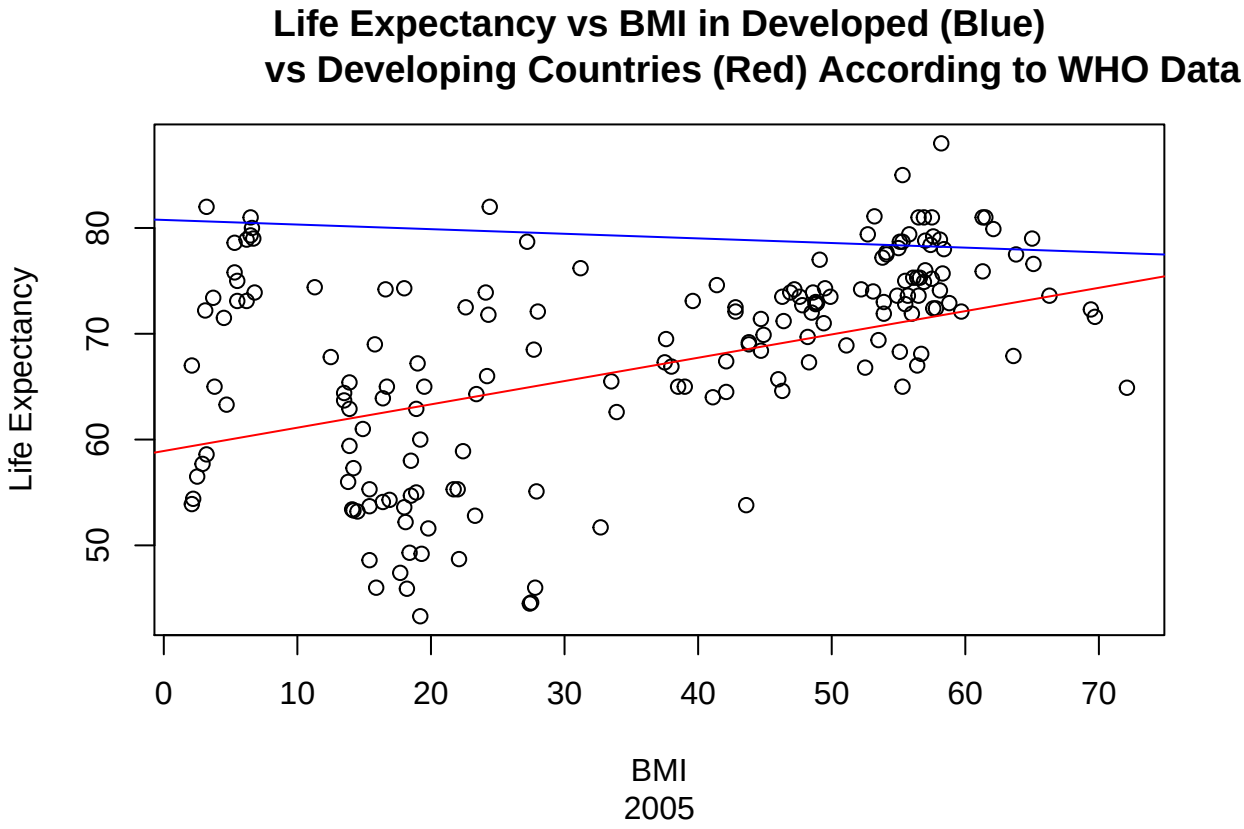

```
##
## Call:
## lm(formula = datadeveloped$Life.expectancy ~ datadeveloped$BMI,
##     data = datadeveloped)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -5.8111 -1.7735  0.4735  1.4035  6.6529
##
## Coefficients:
##                   Estimate Std. Error t value Pr(>|t|)
## (Intercept)       80.93505    2.49949  32.381   <2e-16 ***
## datadeveloped$BMI -0.06476    0.04669  -1.387    0.176
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 3.005 on 30 degrees of freedom
## Multiple R-squared:  0.06028,    Adjusted R-squared:  0.02896
## F-statistic: 1.924 on 1 and 30 DF,  p-value: 0.1756
```



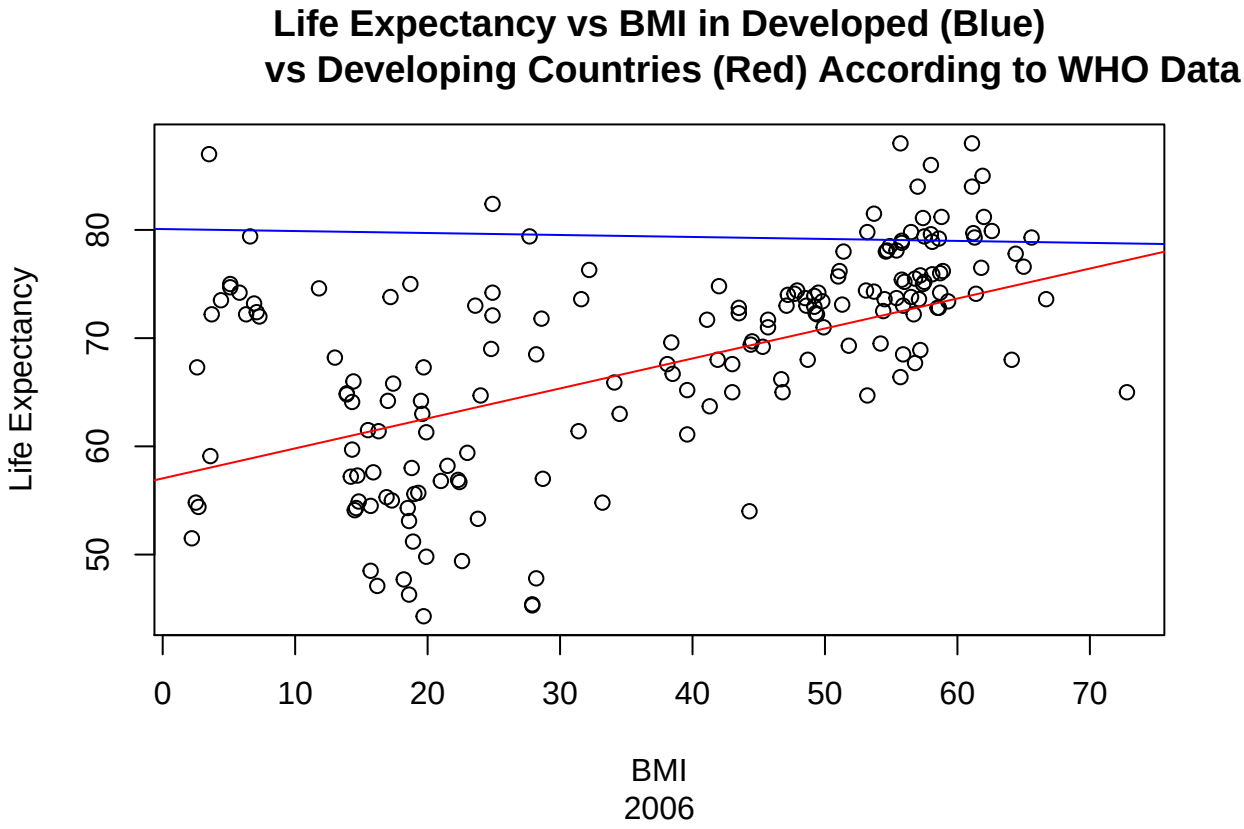

```
##
## Call:
## lm(formula = datadeveloped$Life.expectancy ~ datadeveloped$BMI,
##     data = datadeveloped)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -6.6890 -1.7013  0.6245  1.3291  9.3442
##
## Coefficients:
##                   Estimate Std. Error t value Pr(>|t|)
## (Intercept)       80.13898    2.09233  38.301   <2e-16 ***
## datadeveloped$BMI -0.04442    0.04028  -1.103    0.279
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 3.601 on 30 degrees of freedom
## Multiple R-squared:  0.03897,    Adjusted R-squared:  0.006937
## F-statistic: 1.217 on 1 and 30 DF,  p-value: 0.2788
```



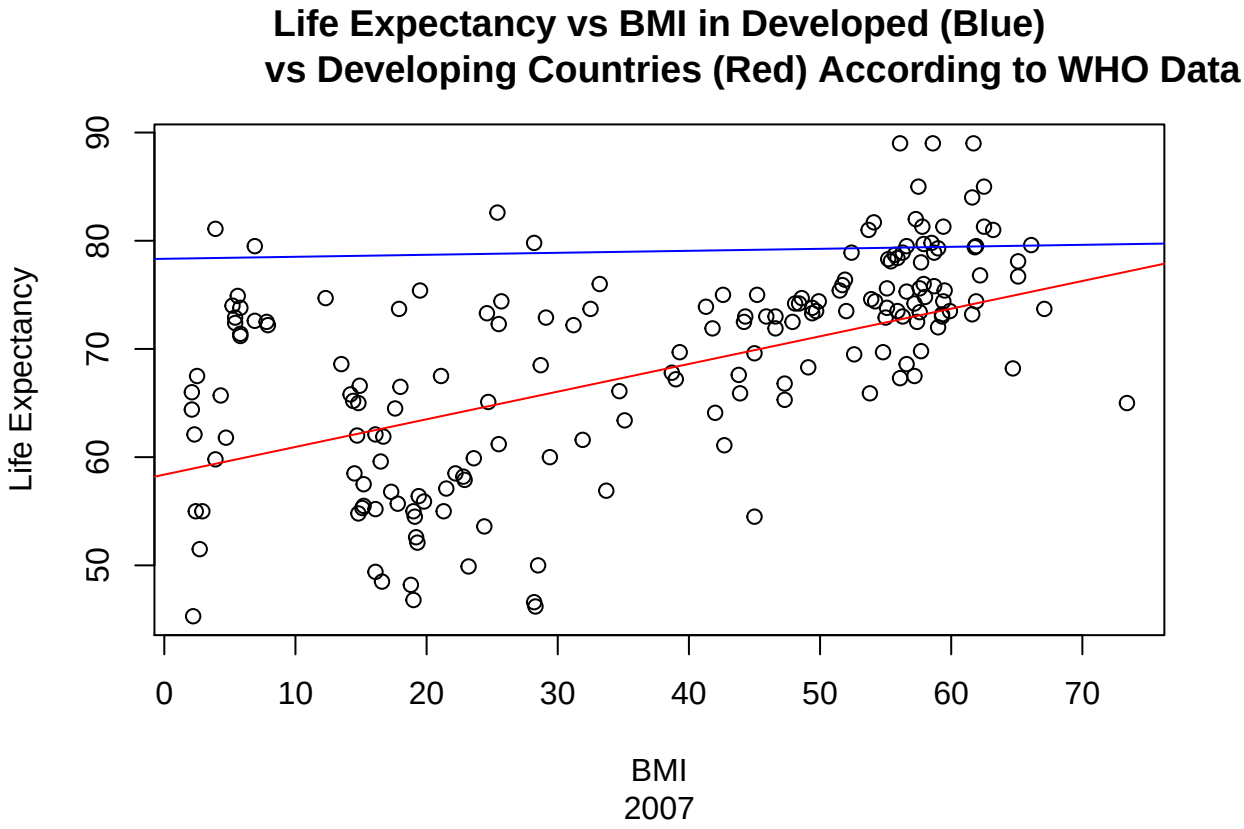

```
##
## Call:
## lm(formula = datadeveloped$Life.expectancy ~ datadeveloped$BMI,
##     data = datadeveloped)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -7.0498 -2.7838  0.3744  1.4784 11.0011
##
## Coefficients:
##                   Estimate Std. Error t value Pr(>|t|)
## (Intercept)       80.93232    2.51057  32.237   <2e-16 ***
## datadeveloped$BMI -0.05093    0.04780  -1.065    0.295
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 4.321 on 30 degrees of freedom
## Multiple R-squared:  0.03646,    Adjusted R-squared:  0.004339
## F-statistic: 1.135 on 1 and 30 DF,  p-value: 0.2952
```



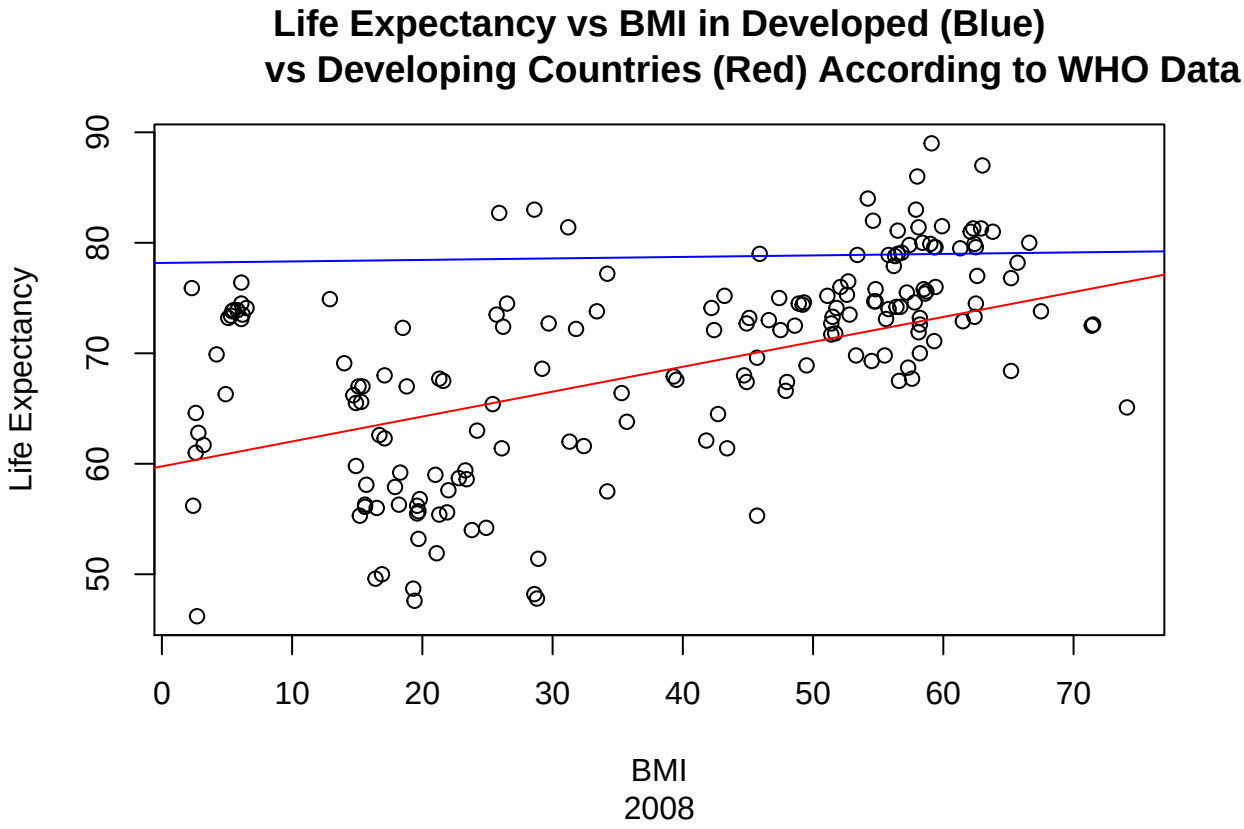

```
##
## Call:
## lm(formula = datadeveloped$Life.expectancy ~ datadeveloped$BMI,
##     data = datadeveloped)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -6.5088 -1.7387  0.3479  1.4969  9.7788
##
## Coefficients:
##                   Estimate Std. Error t value Pr(>|t|)
## (Intercept)       80.76004    1.78453  45.256   <2e-16 ***
## datadeveloped$BMI -0.04362    0.03377  -1.292    0.206
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 3.412 on 30 degrees of freedom
## Multiple R-squared:  0.05269,    Adjusted R-squared:  0.02111
## F-statistic: 1.669 on 1 and 30 DF,  p-value: 0.2063
```



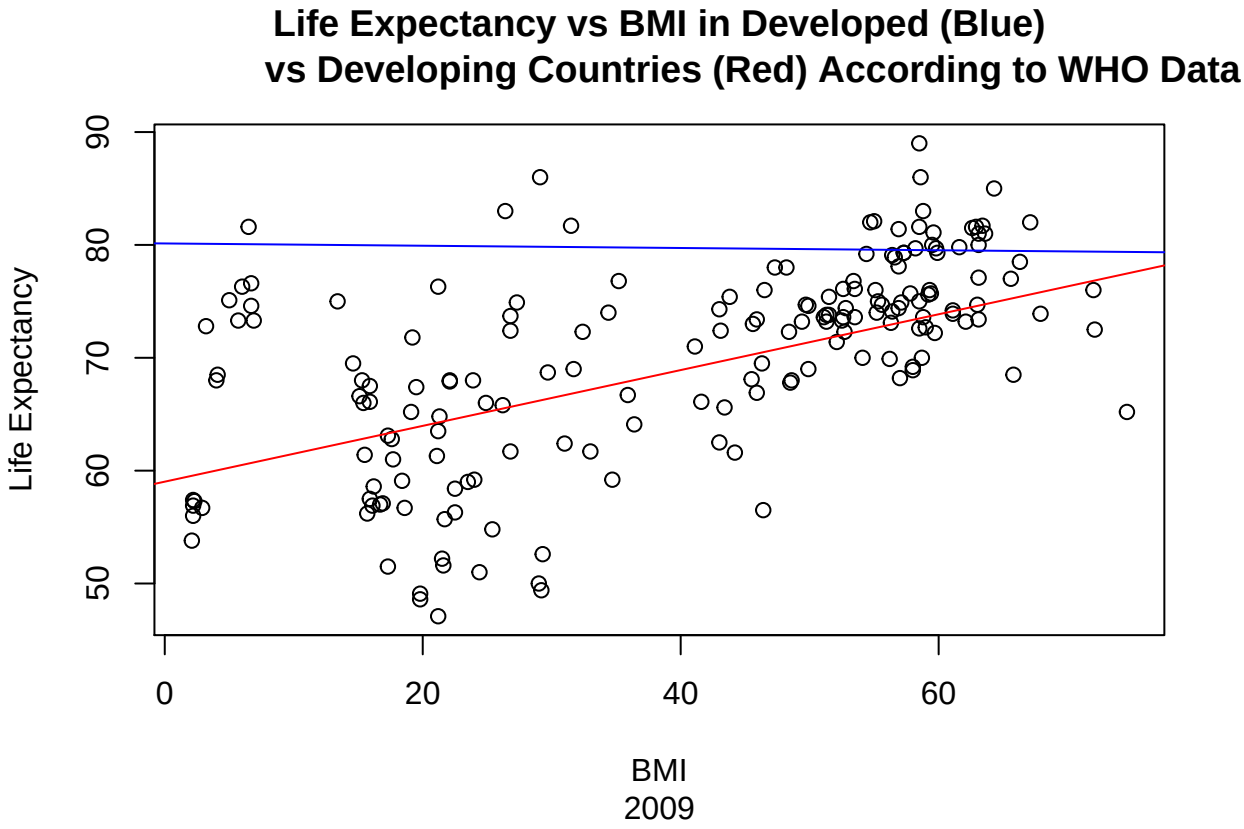

```
##
## Call:
## lm(formula = datadeveloped$Life.expectancy ~ datadeveloped$BMI,
##     data = datadeveloped)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -7.7639 -2.5905  0.1393  2.0997  9.0359
##
## Coefficients:
##                   Estimate Std. Error t value Pr(>|t|)
## (Intercept)       80.07888    2.36898  33.803   <2e-16 ***
## datadeveloped$BMI -0.01824    0.04352  -0.419    0.678
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 4.013 on 30 degrees of freedom
## Multiple R-squared:  0.005825,   Adjusted R-squared:  -0.02731
## F-statistic: 0.1758 on 1 and 30 DF,  p-value: 0.678
```



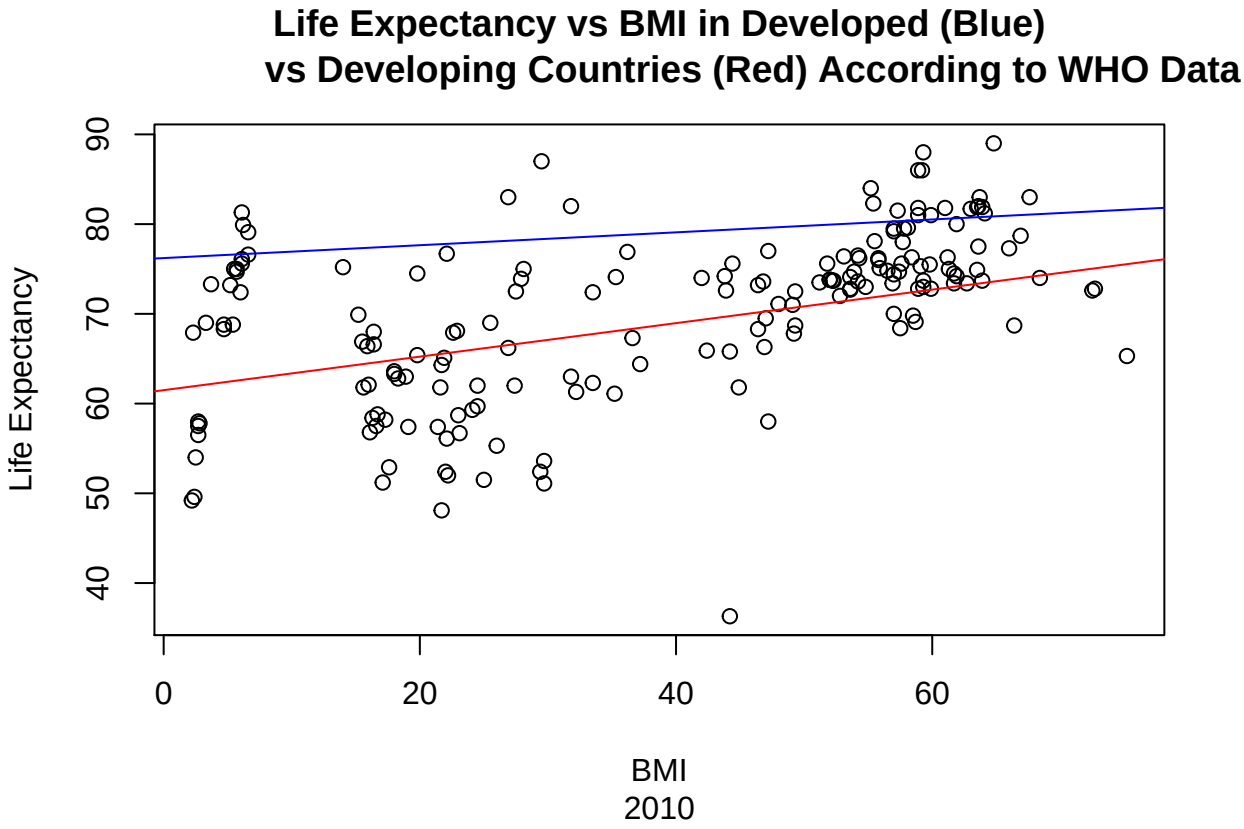

```
##
## Call:
## lm(formula = datadeveloped$Life.expectancy ~ datadeveloped$BMI,
##     data = datadeveloped)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -7.4205 -1.7446  0.0862  1.8795  9.6330
##
## Coefficients:
##                    Estimate Std. Error t value Pr(>|t|)
## (Intercept)       78.33250    2.42841  32.257   <2e-16 ***
## datadeveloped$BMI  0.01844    0.04419   0.417    0.679
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 4.083 on 30 degrees of freedom
## Multiple R-squared:  0.00577,    Adjusted R-squared:  -0.02737
## F-statistic: 0.1741 on 1 and 30 DF,  p-value: 0.6795
```



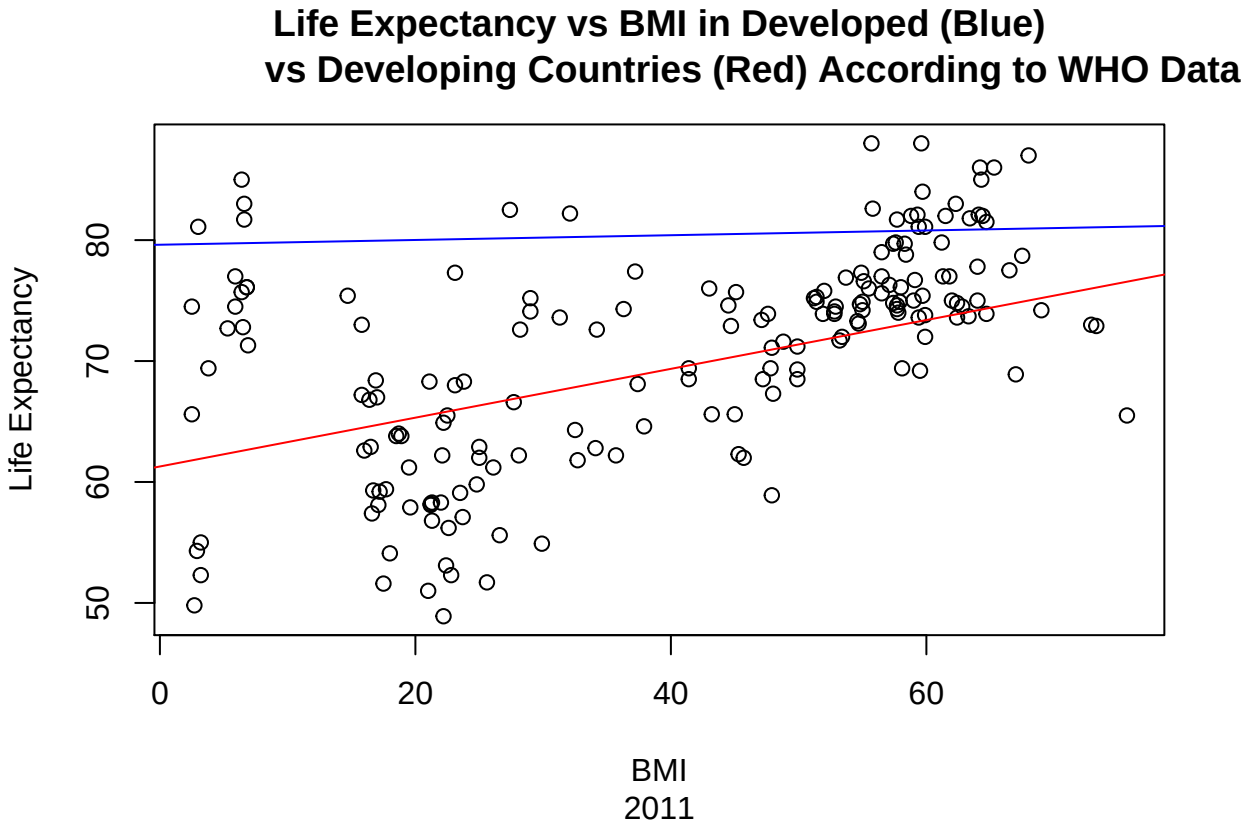

```
##
## Call:
## lm(formula = datadeveloped$Life.expectancy ~ datadeveloped$BMI,
##     data = datadeveloped)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -7.8827 -2.2668  0.7084  2.3157  7.0350
##
## Coefficients:
##                   Estimate Std. Error t value Pr(>|t|)
## (Intercept)       78.17550    3.09847  25.230   <2e-16 ***
## datadeveloped$BMI  0.01361    0.05457   0.249    0.805
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 3.678 on 30 degrees of freedom
## Multiple R-squared:  0.00207,    Adjusted R-squared:  -0.03119
## F-statistic: 0.06223 on 1 and 30 DF,  p-value: 0.8047
```



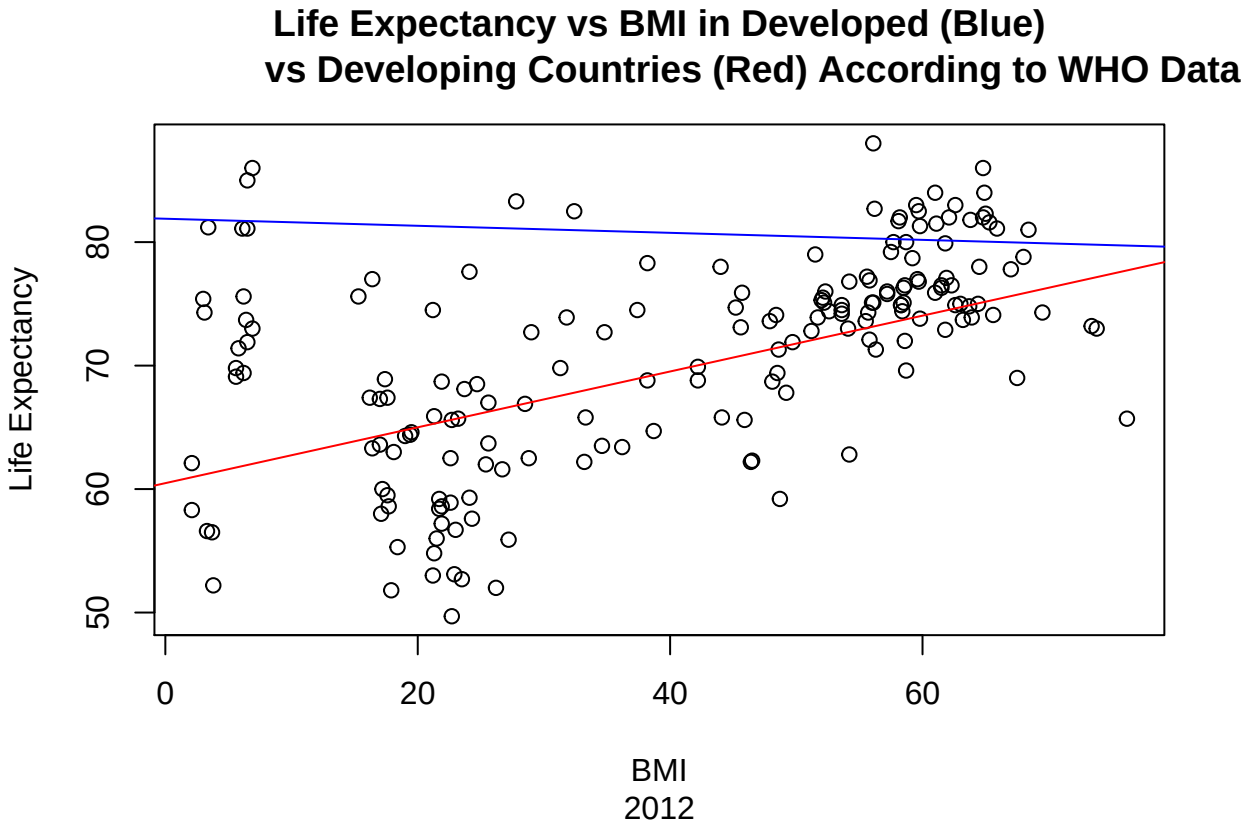

```
##
## Call:
## lm(formula = datadeveloped$Life.expectancy ~ datadeveloped$BMI,
##     data = datadeveloped)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -7.3306 -2.7399  0.3779  2.2597  9.4573
##
## Coefficients:
##                   Estimate Std. Error t value Pr(>|t|)
## (Intercept)       80.13063    2.73735  29.273   <2e-16 ***
## datadeveloped$BMI -0.01005    0.04859  -0.207    0.838
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 4.069 on 30 degrees of freedom
## Multiple R-squared:  0.001424,   Adjusted R-squared:  -0.03186
## F-statistic: 0.04278 on 1 and 30 DF,  p-value: 0.8375
```



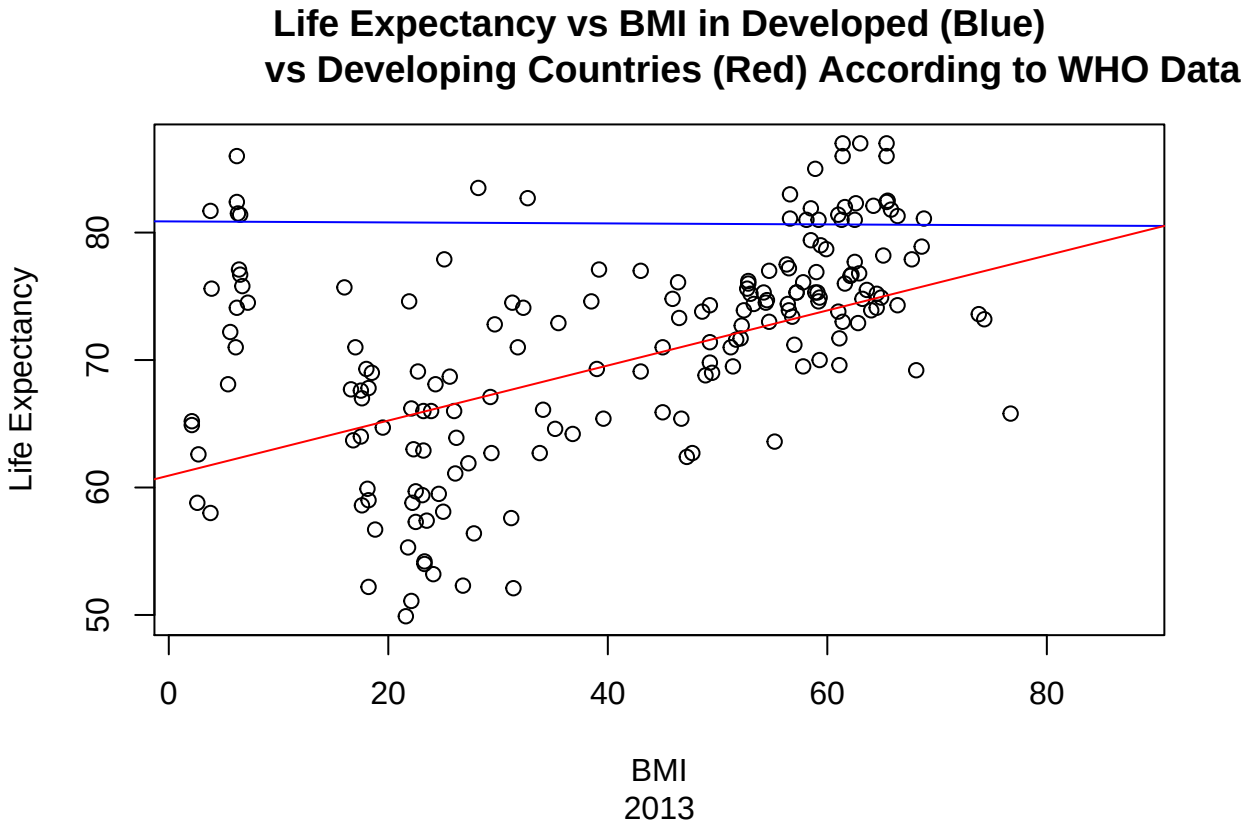

```
##
## Call:
## lm(formula = datadeveloped$Life.expectancy ~ datadeveloped$BMI,
##     data = datadeveloped)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -7.6365 -2.5507  0.5277  1.9836  8.1406
##
## Coefficients:
##                    Estimate Std. Error t value Pr(>|t|)
## (Intercept)       76.21488    2.83262  26.906   <2e-16 ***
## datadeveloped$BMI  0.07167    0.04982   1.439    0.161
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 4.205 on 30 degrees of freedom
## Multiple R-squared:  0.06453,    Adjusted R-squared:  0.03334
## F-statistic: 2.069 on 1 and 30 DF,  p-value: 0.1606
```



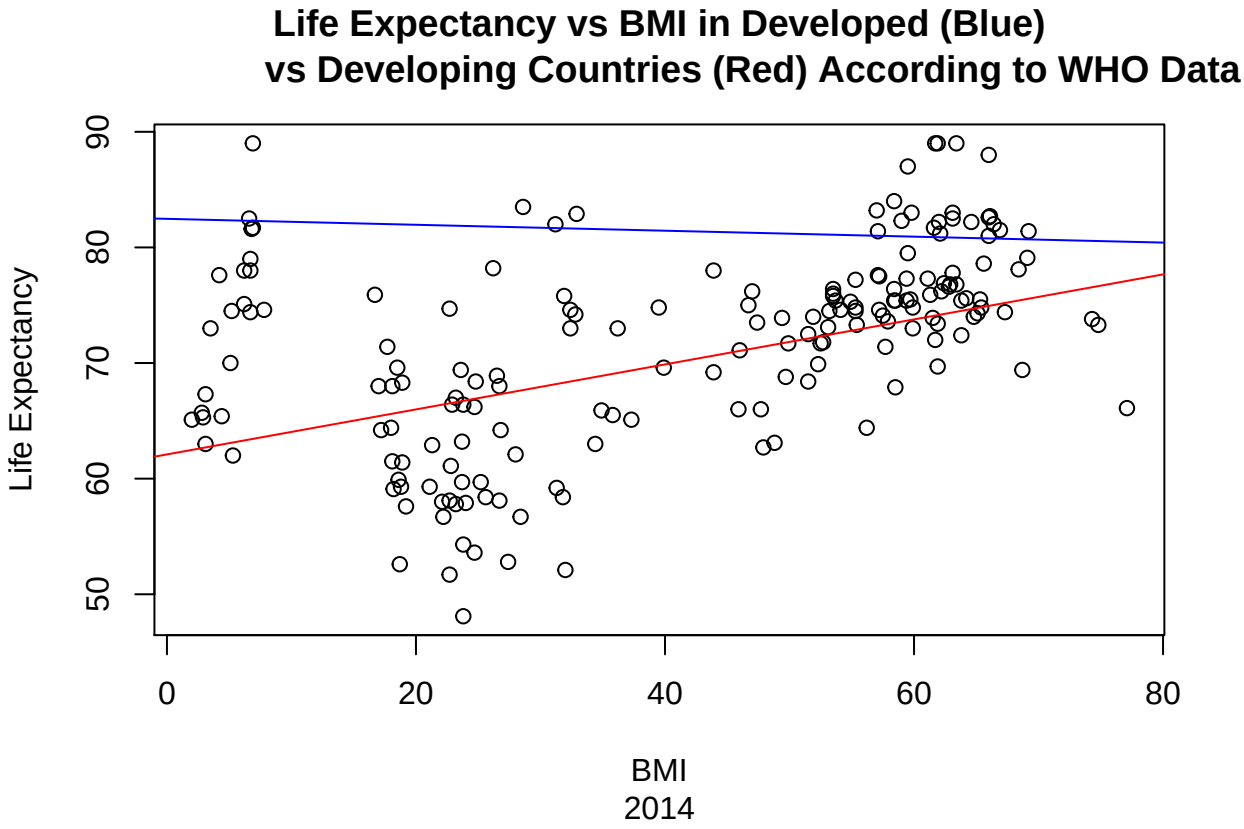

```
##
## Call:
## lm(formula = datadeveloped$Life.expectancy ~ datadeveloped$BMI,
##     data = datadeveloped)
##
## Residuals:
##    Min     1Q Median     3Q    Max
## -7.185 -3.262  1.033  2.204  7.288
##
## Coefficients:
##                   Estimate Std. Error t value Pr(>|t|)
## (Intercept)       79.61801    2.92427  27.227   <2e-16 ***
## datadeveloped$BMI  0.01965    0.05095   0.386    0.703
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 4.329 on 30 degrees of freedom
## Multiple R-squared:  0.004931,   Adjusted R-squared:  -0.02824
## F-statistic: 0.1487 on 1 and 30 DF,  p-value: 0.7025
```



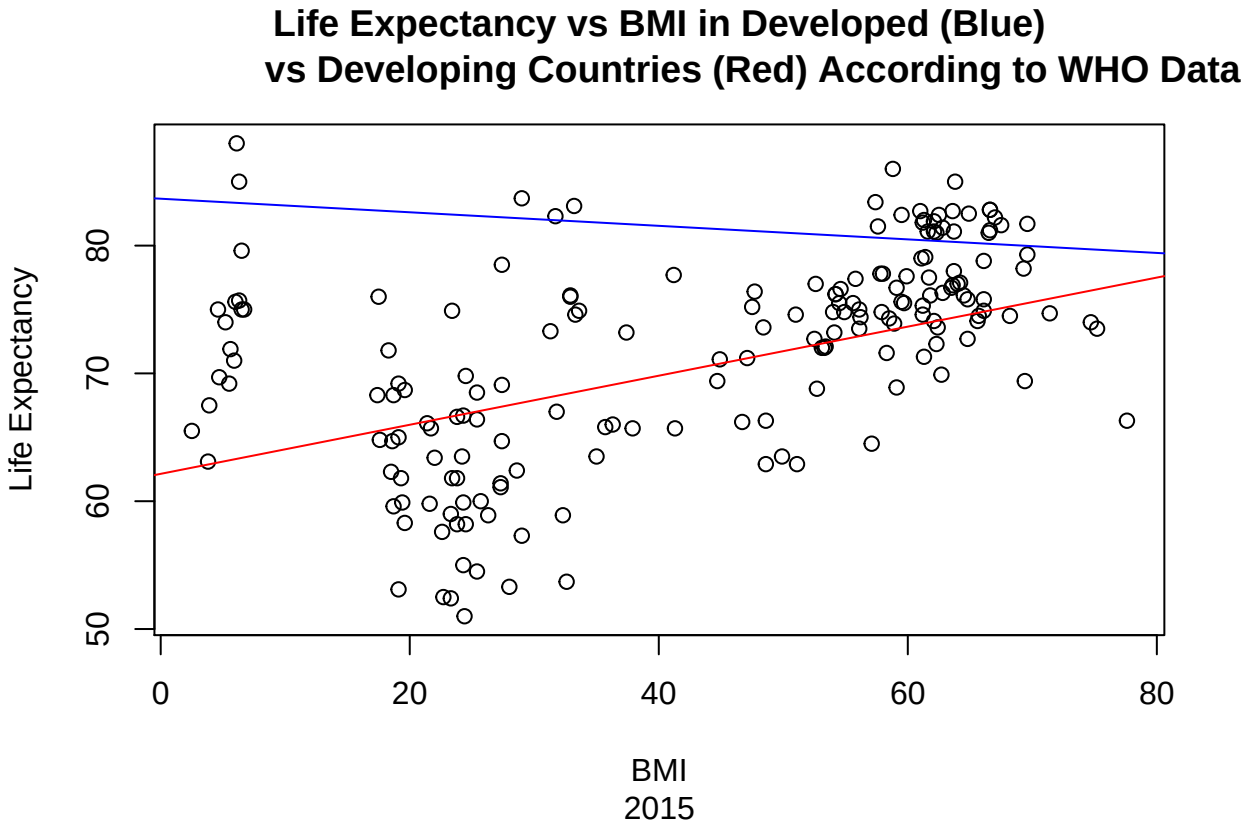

```
##
## Call:
## lm(formula = datadeveloped$Life.expectancy ~ datadeveloped$BMI,
##     data = datadeveloped)
##
## Residuals:
##    Min     1Q Median     3Q    Max
## -8.697 -2.298  1.099  2.272  7.706
##
## Coefficients:
##                   Estimate Std. Error t value Pr(>|t|)
## (Intercept)       81.89365    1.79682  45.577   <2e-16 ***
## datadeveloped$BMI -0.02852    0.03272  -0.871     0.39
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 3.836 on 30 degrees of freedom
## Multiple R-squared:  0.02468,    Adjusted R-squared:  -0.007826
## F-statistic: 0.7593 on 1 and 30 DF,  p-value: 0.3905
```




```
##
## Call:
## lm(formula = datadeveloped$Life.expectancy ~ datadeveloped$BMI,
##     data = datadeveloped)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -7.6352 -2.5482  0.5984  1.8987  6.3806
##
## Coefficients:
##                     Estimate Std. Error t value Pr(>|t|)
## (Intercept)       80.876809   1.665288  48.566   <2e-16 ***
## datadeveloped$BMI -0.003936   0.030551  -0.129    0.898
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 3.872 on 30 degrees of freedom
## Multiple R-squared:  0.0005528,  Adjusted R-squared:  -0.03276
## F-statistic: 0.01659 on 1 and 30 DF,  p-value: 0.8984
```




```
##
## Call:
## lm(formula = datadeveloped$Life.expectancy ~ datadeveloped$BMI,
##     data = datadeveloped)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -7.8988 -2.4017  0.5514  1.8503  8.1579
##
## Coefficients:
##                   Estimate Std. Error t value Pr(>|t|)
## (Intercept)       82.47088    1.96801  41.906   <2e-16 ***
## datadeveloped$BMI -0.02569    0.03512  -0.731     0.47
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 4.193 on 30 degrees of freedom
## Multiple R-squared:  0.01752,    Adjusted R-squared:  -0.01523
## F-statistic: 0.5349 on 1 and 30 DF,  p-value: 0.4702
```




```
##
## Call:
## lm(formula = datadeveloped$Life.expectancy ~ datadeveloped$BMI,
##     data = datadeveloped)
##
## Residuals:
##    Min     1Q Median     3Q    Max
## -8.313 -1.595  1.128  1.764  5.450
##
## Coefficients:
##                   Estimate Std. Error t value Pr(>|t|)
## (Intercept)       83.66792    1.95086  42.888   <2e-16 ***
## datadeveloped$BMI -0.05303    0.03329  -1.593    0.122
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 3.378 on 30 degrees of freedom
## Multiple R-squared:  0.07799,    Adjusted R-squared:  0.04726
## F-statistic: 2.538 on 1 and 30 DF,  p-value: 0.1216
```

```
##Conclusions:
##There seems to be a difference in the relation between BMI and Life Expectancy
##depending on whether the WHO classifies the country as Developed or Developing.
##Note that for Developed countries, BMI is not appropriate to use for regression
##estimation as the significance from the linear regression summary is not an
```

```
##acceptable level of significance.
##However, for Developing countries, BMI does seem to be an appropriate predictor
##for Life Expectancy from the linear regression summary with the highest level
##of significance.
##Finally, we must also note that while BMI is a good predictor for Life
##Expectancy in Developing countries, having an intercept and BMI alone does not
##suffice to create sufficient linear regression model, since the R-squared
##values (non-adjusted & adjusted) are under 0.5 for every year; this means that
##there is probably another predictor or set of predictors that we need for the
##linear regression model to be more precise.
```