

# Quantile regression

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```
#Reg for a given year

quantiles <- seq(0.1, 0.9, by = 0.1)
eulfs_small_year <- subset(eulfs_small, refyear == 2013)

# Initialise a list to stock the results
results <- list()

# Loop on each quantile
for (q in quantiles) {
  # Adjust the quant reg model
  rq_model <- rq(hwactual ~ sex, data = eulfs_small_year, tau = q)

  # Stock the results in the list
  results[[as.character(q)]] <- summary(rq_model)
}

## Warning in summary.rq(rq_model): 3217 non-positive fis
## Warning in rq.fit.br(x, y, tau = tau, ...): Solution may be nonunique
## Warning in summary.rq(rq_model): 3542 non-positive fis
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# Print the results for each quantile
for (q in quantiles) {
  cat("Quantile:", q, "\n")
  print(results[[as.character(q)]])
}

## Quantile: 0.1
##
## Call: rq(formula = hwactual ~ sex, tau = q, data = eulfs_small_year)
##
## tau: [1] 0.1
##
## Coefficients:
##          Value          Std. Error    t value    Pr(>|t|)
## (Intercept) 1.200000e+01  7.866092e+29  0.000000e+00  1.000000e+00
```

```

## sex          -6.000000e+00  7.866092e+29  0.000000e+00  1.000000e+00
## Quantile: 0.2
##
## Call: rq(formula = hwactual ~ sex, tau = q, data = eulfs_small_year)
##
## tau: [1] 0.2
##
## Coefficients:
##           Value      Std. Error t value  Pr(>|t|)
## (Intercept)  40.00000    2.50999   15.93633   0.00000
## sex        -12.00000    1.61086   -7.44942   0.00000
## Quantile: 0.3
##
## Call: rq(formula = hwactual ~ sex, tau = q, data = eulfs_small_year)
##
## tau: [1] 0.3
##
## Coefficients:
##           Value      Std. Error t value  Pr(>|t|)
## (Intercept)  50.00000    1.39170   35.92730   0.00000
## sex        -13.00000    0.98055  -13.25782   0.00000
## Quantile: 0.4
##
## Call: rq(formula = hwactual ~ sex, tau = q, data = eulfs_small_year)
##
## tau: [1] 0.4
##
## Coefficients:
##           Value      Std. Error t value  Pr(>|t|)
## (Intercept)  49.00000    0.56203   87.18432   0.00000
## sex         -9.00000    0.47832  -18.81592   0.00000
## Quantile: 0.5
##
## Call: rq(formula = hwactual ~ sex, tau = q, data = eulfs_small_year)
##
## tau: [1] 0.5
##
## Coefficients:
##           Value      Std. Error t value  Pr(>|t|)
## (Intercept)  4.300000e+01  4.542310e+29  0.000000e+00  1.000000e+00
## sex        -3.000000e+00  2.271155e+29  0.000000e+00  1.000000e+00
## Quantile: 0.6
##
## Call: rq(formula = hwactual ~ sex, tau = q, data = eulfs_small_year)
##
## tau: [1] 0.6
##
## Coefficients:
##           Value      Std. Error t value  Pr(>|t|)
## (Intercept)  4.000000e+01  8.912595e+29  0.000000e+00  1.000000e+00
## sex          0.000000e+00  4.456298e+29  0.000000e+00  1.000000e+00
## Quantile: 0.7
##
## Call: rq(formula = hwactual ~ sex, tau = q, data = eulfs_small_year)

```

```
##
## tau: [1] 0.7
##
## Coefficients:
##           Value      Std. Error  t value      Pr(>|t|)
## (Intercept) 4.000000e+01 6.693178e+30 0.000000e+00 1.000000e+00
## sex         0.000000e+00 6.693178e+30 0.000000e+00 1.000000e+00
## Quantile: 0.8
##
## Call: rq(formula = hwactual ~ sex, tau = q, data = eulfs_small_year)
##
## tau: [1] 0.8
##
## Coefficients:
##           Value      Std. Error  t value      Pr(>|t|)
## (Intercept) 5.000000e+01 1.904915e+33 0.000000e+00 1.000000e+00
## sex        -5.000000e+00 1.904915e+33 0.000000e+00 1.000000e+00
## Quantile: 0.9
##
## Call: rq(formula = hwactual ~ sex, tau = q, data = eulfs_small_year)
##
## tau: [1] 0.9
##
## Coefficients:
##           Value      Std. Error t value      Pr(>|t|)
## (Intercept) 55.00000  0.79855    68.87505 0.00000
## sex        -5.00000  0.64035   -7.80824 0.00000
```

```
# Load the xtable library
library(xtable)

# Regressions for a given year
quantiles <- seq(0.1, 0.9, by = 0.1)
eulfs_small_year <- subset(eulfs_small, refyear == 2013)

# Initialize a list to store the results
results <- list()

# Loop over each quantile
for (q in quantiles) {
  # Fit the quantile regression model
  rq_model <- rq(hwactual ~ sex, data = eulfs_small_year, tau = q)

  # Store the results in the list
  results[[as.character(q)]] <- summary(rq_model)
}
```

```
## Warning in summary.rq(rq_model): 3217 non-positive fis
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```

```

## Warning in summary.rq(rq_model): 3217 non-positive fis
# Convert the results to LaTeX using xtable
table_data <- NULL
for (q in quantiles) {
  table_data <- rbind(table_data, c(q, results[[as.character(q)]]$coef[,1]))
}
colnames(table_data) <- c("Quantile", "Intercept", "sex")

# Convert to xtable object
xtable_data <- xtable(table_data)

# Print the LaTeX code for the table
xtable_data

## % latex table generated in R 4.3.2 by xtable 1.8-4 package
## % Mon Apr 1 10:21:24 2024
## \begin{table}[ht]
## \centering
## \begin{tabular}{rrrr}
## \hline
## & Quantile & Intercept & sex \\
## \hline
## 1 & 0.10 & 12.00 & -6.00 \\
## 2 & 0.20 & 40.00 & -12.00 \\
## 3 & 0.30 & 50.00 & -13.00 \\
## 4 & 0.40 & 49.00 & -9.00 \\
## 5 & 0.50 & 43.00 & -3.00 \\
## 6 & 0.60 & 40.00 & 0.00 \\
## 7 & 0.70 & 40.00 & 0.00 \\
## 8 & 0.80 & 50.00 & -5.00 \\
## 9 & 0.90 & 55.00 & -5.00 \\
## \hline
## \end{tabular}
## \end{table}

#trying for make the tables in latex
#quantiles <- seq(0.1, 0.9, by = 0.1)

#results <- list()

#for (q in quantiles) {
#  # Ajust the quantile reg model
#  #rq_model <- rq(hwactual ~ sex, data = eulfs_small, tau = q)

#  # Stock the results in the list
#  #results[[as.character(q)]] <- summary(rq_model)
#}

# Create an xtable (LaTeX)
#table_data <- NULL
#for (q in quantiles) {
#  #table_data <- rbind(table_data, c(q, results[[as.character(q)]]$coef[,1]))
#}

```

```
#colnames(table_data) <- c("Quantile", "Intercept", "sex")

# Convert in xtable
#xtable_data <- xtable(table_data)

# LaTeX code for the table
#print(xtable_data, include.rownames = FALSE)
```