

6.Attachments: computer codes and a collection of computer outputs.

```
#rm(list = ls())
library(dplyr)

##
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':
##
##     filter, lag

## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union

library(mltools)
setwd("/Users/tong/Desktop/ADA/Project/wage")
wage <- read.csv("/Users/tong/Desktop/ADA/Project/wage/wagedata.csv")

#####scatter plot #####
library("PerformanceAnalytics")

## Loading required package: xts

## Loading required package: zoo

##
## Attaching package: 'zoo'

## The following objects are masked from 'package:base':
##
##     as.Date, as.Date.numeric

##
## Attaching package: 'xts'

## The following objects are masked from 'package:dplyr':
##
##     first, last

##
## Attaching package: 'PerformanceAnalytics'

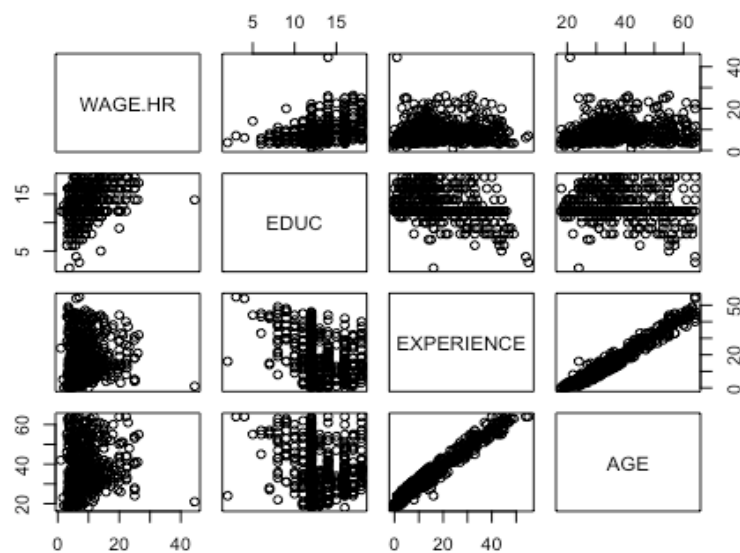
## The following object is masked from 'package:mltools':
##
##     skewness

## The following object is masked from 'package:graphics':
##
##     legend

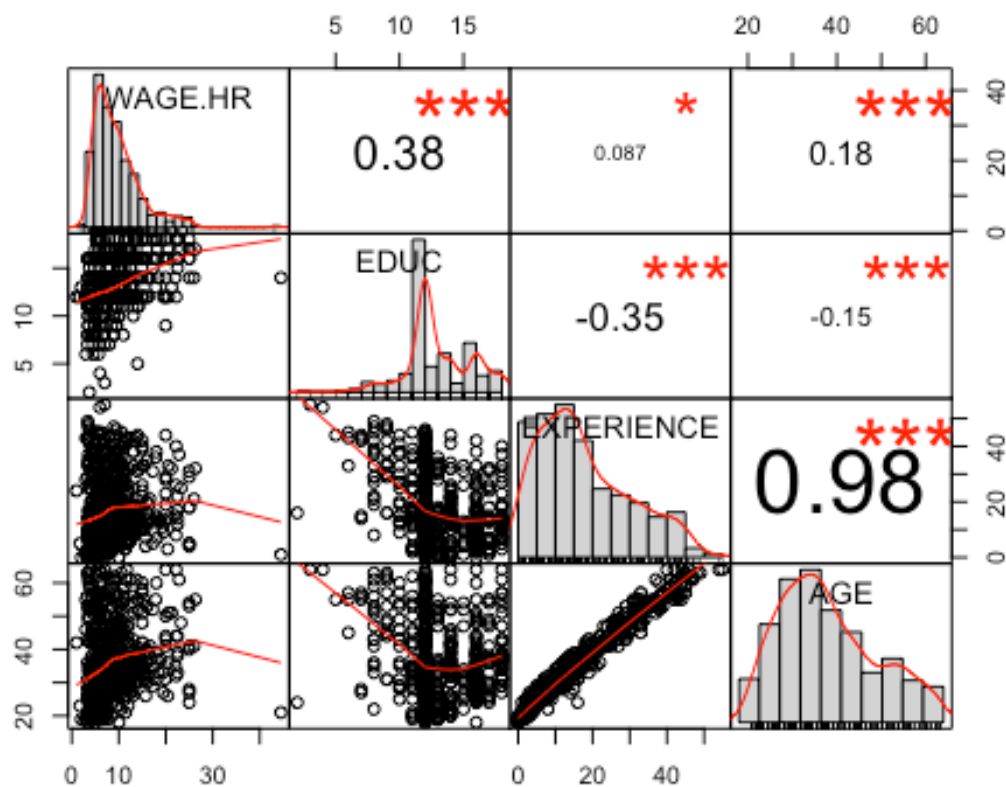
pairs(wage)
```



```
scat <- select(wage, WAGE.HR, EDUC, EXPERIENCE, AGE)
pairs(scat)
```



```
chart.Correlation(scat, histogram=TRUE, pch=19)
```



```
#####Model Compare#####
```

```
# #1#KNN
# library(DMwR)
# MSE<-NULL
# for (i in 1:10){
#   MSE_test<-NULL
#   all <- 1:534
#   for (j in 1:5){
#     temp=sample(all, 106)
#     all<- all[-temp]
#     test <- as.data.frame(wage[temp,])
#     train <- as.data.frame(wage[-temp,])
#     fit <- kNN(WAGE.HR ~ .,train,test,norm=FALSE,k=2)
#     MSE_test <- c(MSE_test, mse(as.numeric(fit),as.numeric(test$WAGE.HR))
#   )
# }
# MSE <- c(MSE, mean(MSE_test))
# }
# mean(MSE) #10171.63
```

```
#2#CART
```

```
library(rpart)
MSE<-NULL
for (i in 1:10){
  MSE_test<-NULL
  all <- 1:534
  for (j in 1:5){
    temp=sample(all, 106)
    all<- all[-temp]
    test <- as.data.frame(wage[temp,])
    train <- as.data.frame(wage[-temp,])
    fit <- rpart(WAGE.HR ~., method="poisson", data=train)
    cart <- predict(fit, test, type = c("vector"))
    MSE_test <- c(MSE_test, mse(as.numeric(cart),as.numeric(test$WAGE.HR))
  )
}
MSE <- c(MSE, mean(MSE_test)) #20.04448
}
mean(MSE) #22.6662
```

```
## [1] 22.22072
```

```
#3#SVM
```

```
library(e1071)
```

```
##
```

```
## Attaching package: 'e1071'
```

```

## The following objects are masked from 'package:PerformanceAnalytics':
##
##      kurtosis, skewness

## The following object is masked from 'package:mltools':
##
##      skewness

MSE<-NULL
for (i in 1:10){
  MSE_test<-NULL
  all <- 1:534
  for (j in 1:5){
    temp=sample(all, 106)
    all<- all[-temp]
    test <- as.data.frame(wage[temp,])
    train <- as.data.frame(wage[-temp,])
    fit <- svm(WAGE.HR ~., data=train, type = 'nu-regression')
    svm <- predict(fit, test)
    MSE_test <- c(MSE_test, mse(as.numeric(svm),as.numeric(test$WAGE.HR)) )
  }
  MSE <- c(MSE, mean(MSE_test))
}
mean(MSE)  #20.11773

## [1] 21.25065

#4#Logistic Regression
MSE<-NULL
for (i in 1:10){
  MSE_test<-NULL
  all <- 1:534
  for (j in 1:5){
    temp=sample(all, 106)
    all<- all[-temp]
    test <- as.data.frame(wage[temp,])
    train <- as.data.frame(wage[-temp,])
    fit <- glm(WAGE.HR ~., data = train, family = poisson())
    lg <- predict(fit, test[-1])
    MSE_test <- c(MSE_test, mse(as.numeric(lg),as.numeric(test$WAGE.HR)) )
  }
  MSE <- c(MSE, mean(MSE_test))
}

```

```

mean(MSE)  #74.06517

## [1] 70.79993

#5#Ridge&Lasso
library(glmnet)

## Loading required package: Matrix

## Loading required package: foreach

## Loaded glmnet 2.0-16

MSE<-NULL
for (i in 1:10){
  MSE_test<-NULL
  all <- 1:534
  for (j in 1:5){
    temp=sample(all, 106)
    all<- all[-temp]
    test <- as.data.frame(wage[temp,])
    train <- as.data.frame(wage[-temp,])
    fit <- glmnet(as.matrix(train[-1]), as.numeric(train$WAGE.HR), alpha = 1,
lambda = 0)
    RL <- predict(fit, s=50, newx = as.matrix(test[-1]))
    MSE_test <- c(MSE_test, mean(((as.numeric(RL) - as.numeric(test$WAGE.HR))
^2) )) #mse(as.numeric(RL),as.numeric(test$WAGE.HR))
  }
  MSE <- c(MSE, mean(MSE_test))
}
mean(MSE) #20.03559

## [1] 19.88757

#6#PC+Linear regression
MSE<-NULL
for (i in 1:10){
  MSE_test<-NULL
  all <- 1:534
  for (j in 1:5){
    temp=sample(all, 106)
    all<- all[-temp]
    test <- as.data.frame(wage[temp,])
    train <- as.data.frame(wage[-temp,])

    pc=princomp(train[, -1], scale. = T)
    sd = pc$sdev
    var <- sd^2/sum(sd^2)
    plot(var, xlab = "Principal Component", ylab = "Proportion of Variance Ex
plained",type = "b")
  }
}

```

```

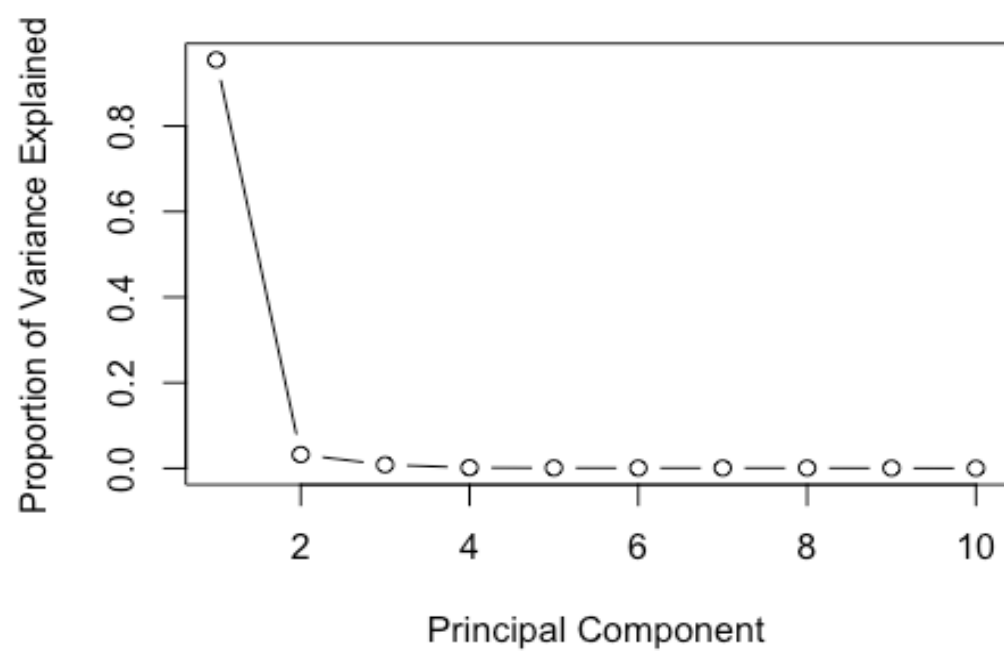
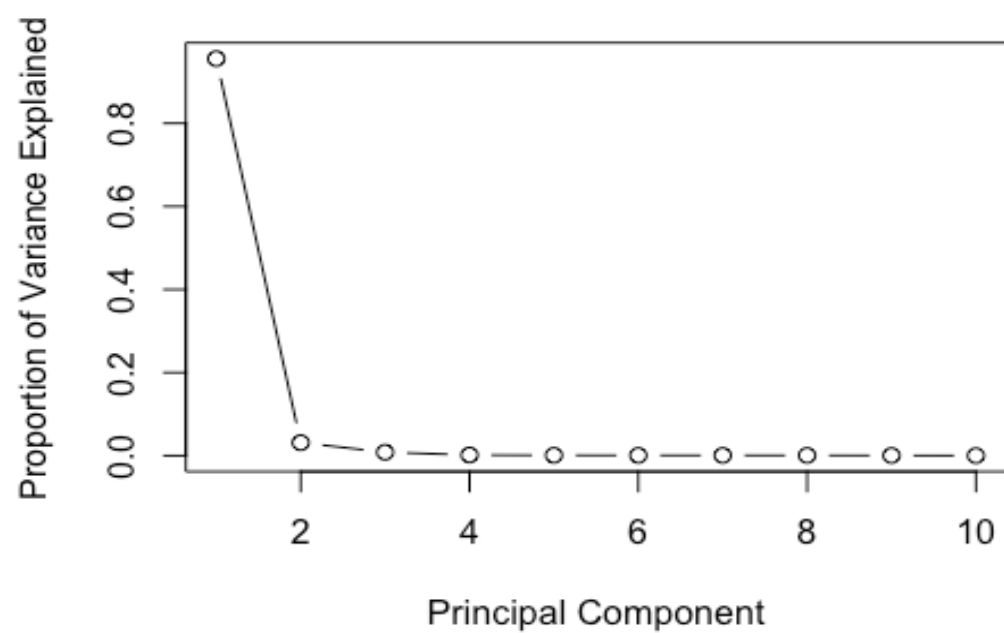
pc_train <- data.frame(WAGE.HR = train$WAGE.HR, pc$scores)[,1:11]
fit <- lm(WAGE.HR ~ ., as.data.frame(pc_train))

PC1 <- rowSums(pc$loadings[,1]*test[, -1])
PC2 <- rowSums(pc$loadings[,2]*test[, -1])
PC3 <- rowSums(pc$loadings[,3]*test[, -1])
PC4 <- rowSums(pc$loadings[,4]*test[, -1])
PC5 <- rowSums(pc$loadings[,5]*test[, -1])
PC6 <- rowSums(pc$loadings[,6]*test[, -1])
PC7 <- rowSums(pc$loadings[,7]*test[, -1])
PC8 <- rowSums(pc$loadings[,8]*test[, -1])
PC9 <- rowSums(pc$loadings[,9]*test[, -1])
PC10 <- rowSums(pc$loadings[,10]*test[, -1])
pc_test <- as.data.frame(cbind(PC1, PC2, PC3, PC4, PC5, PC6, PC7, PC8, PC9,
PC10))

pred <- fit$coefficients[1]+fit$coefficients[2]*PC1
+fit$coefficients[3]*PC2
+fit$coefficients[4]*PC3
+fit$coefficients[5]*PC4
+fit$coefficients[6]*PC5
+fit$coefficients[7]*PC6
+fit$coefficients[8]*PC7
+fit$coefficients[9]*PC8
+fit$coefficients[10]*PC9
+fit$coefficients[11]*PC10

MSE_test <- c(MSE_test, mse(pred, as.numeric(test$WAGE.HR)) )
}
MSE <- c(MSE, mean(MSE_test))
}

```




```

mean(MSE)  #28

## [1] 34.5383

MSE<-NULL
for (i in 1:10){
  MSE_test<-NULL
  all <- 1:534
  for (j in 1:5){
    temp=sample(all, 106)
    all<- all[-temp]
    test <- as.data.frame(wage[temp,])
    train <- as.data.frame(wage[-temp,])

    pc=princomp(train[, -1], scale. = T)
    sd = pc$sdev
    var <- sd^2/sum(sd^2)
    plot(var, xlab = "Principal Component", ylab = "Proportion of Variance Explained", type = "b")

    pc_train <- data.frame(WAGE.HR = train$WAGE.HR, pc$scores)[, 1:11]
    fit <- lm(WAGE.HR ~ ., as.data.frame(pc_train))

    pc_test=princomp(test[, -1], scale. = T)

    MSE_test <- c(MSE_test, sqrt(mean((test$WAGE.HR - predict(fit, data.frame(pc_test$score)))^2)))
  }
  MSE <- c(MSE, mean(MSE_test))
}

mean(MSE)  #5.381621e+29

## [1] 1.232761e+13

#7#Linear Regression (the best)
MSE<-NULL
for (i in 1:10){
  MSE_test<-NULL
  all <- 1:534
  for (j in 1:5){
    temp=sample(all, 106)
    all<- all[-temp]
    test <- as.data.frame(wage[temp,])
    train <- as.data.frame(wage[-temp,])
    fit <- lm(WAGE.HR ~ ., as.data.frame(train))
    MSE_test <- c(MSE_test, mse(predict(fit, test), as.numeric(test$WAGE.HR)))
  }
}

```

```

}
MSE <- c(MSE, mean(MSE_test)) #20.04448
}

mean(MSE) #19.97

## [1] 19.64273

#####Correlation Test#####
library(Hmisc)

## Loading required package: lattice

## Loading required package: survival

##
## Attaching package: 'survival'

## The following object is masked from 'package:rpart':
##
## solder

## Loading required package: Formula

## Loading required package: ggplot2

##
## Attaching package: 'Hmisc'

## The following object is masked from 'package:e1071':
##
## impute

## The following objects are masked from 'package:dplyr':
##
## src, summarize

## The following objects are masked from 'package:base':
##
## format.pval, units

library(corrplot)

## corrplot 0.84 loaded

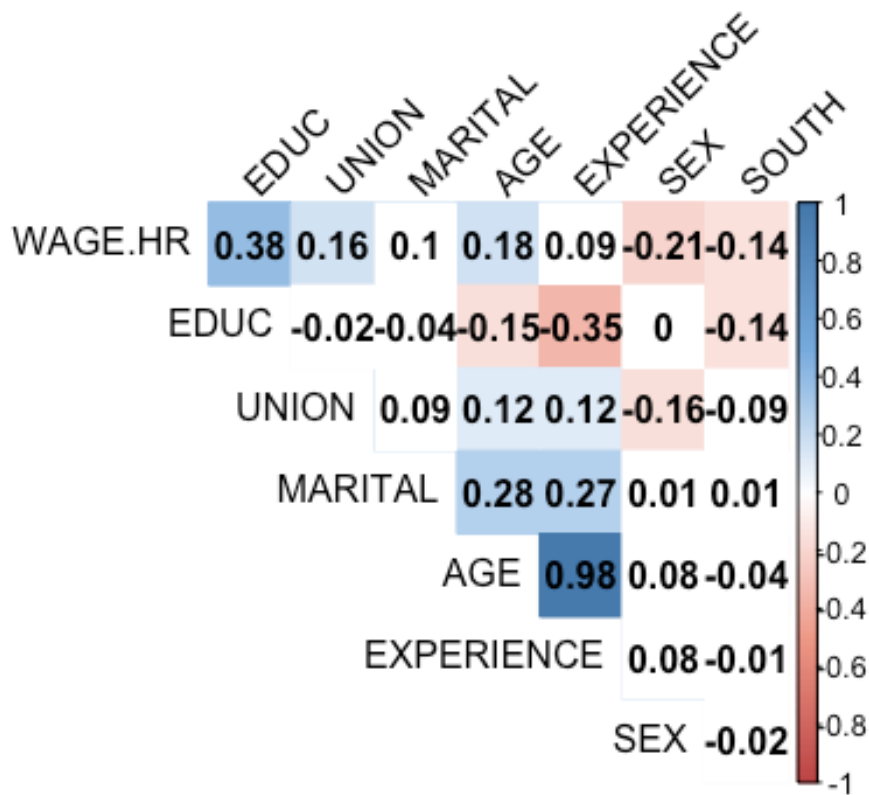
wage1 <- select(wage, WAGE.HR, AGE, EDUC, EXPERIENCE, SEX, MARITAL, SOUTH, UNION)
res <- cor(wage1, method = c("pearson"))
col <- colorRampPalette(c("#BB4444", "#EE9988", "#FFFFFF", "#77AADD", "#4477A
A"))
p.mat <- rcorr(as.matrix(wage1), type = c("pearson"))
p.mat$P[1,1] <- 0
p.mat$P[2,2] <- 0
p.mat$P[3,3] <- 0

```

```

p.mat$P[4,4] <- 0
p.mat$P[5,5] <- 0
p.mat$P[6,6] <- 0
p.mat$P[7,7] <- 0
p.mat$P[8,8] <- 0
corrplot(res, method="color", col=col(200),
  type="upper", order="hclust",
  addCoef.col = "black", # Add coefficient of correlation
  tl.col="black", tl.srt=45, #Text label color and rotation
  # Combine with significance
  p.mat = p.mat$P, sig.level = 0.01, insig = "blank",
  # hide correlation coefficient on the principal diagonal
  diag=FALSE
)

```



```

cor.mtest <- function(mat, ...) {
  mat <- as.matrix(mat)
  n <- ncol(mat)
  p.mat <- matrix(NA, n, n)
  diag(p.mat) <- 0
  for (i in 1:(n - 1)) {
    for (j in (i + 1):n) {
      tmp <- cor.test(mat[, i], mat[, j], ...)
    }
  }
}

```

```

    p.mat[i, j] <- p.mat[j, i] <- tmp$p.value
  }
}
colnames(p.mat) <- rownames(p.mat) <- colnames(mat)
p.mat
}
p.mat <- cor.mtest(wage1)

col<- colorRampPalette(c("blue", "white", "red"))(20)

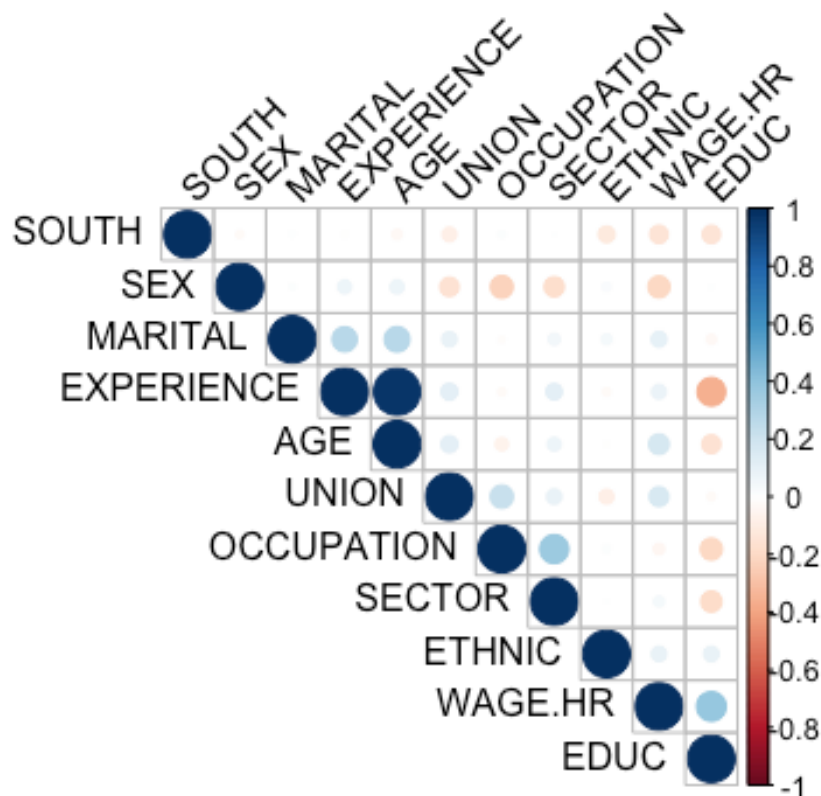
#pearson
rcorr(as.matrix(wage), type = c("pearson"))

##          WAGE.HR  EDUC SOUTH  SEX EXPERIENCE UNION  AGE ETHNIC
## WAGE.HR      1.00  0.38 -0.14 -0.21      0.09  0.16  0.18  0.09
## EDUC         0.38  1.00 -0.14  0.00     -0.35 -0.02 -0.15  0.10
## SOUTH        -0.14 -0.14  1.00 -0.02     -0.01 -0.09 -0.04 -0.11
## SEX          -0.21  0.00 -0.02  1.00      0.08 -0.16  0.08  0.03
## EXPERIENCE    0.09 -0.35 -0.01  0.08      1.00  0.12  0.98 -0.02
## UNION         0.16 -0.02 -0.09 -0.16      0.12  1.00  0.12 -0.09
## AGE          0.18 -0.15 -0.04  0.08      0.98  0.12  1.00  0.00
## ETHNIC        0.09  0.10 -0.11  0.03     -0.02 -0.09  0.00  1.00
## OCCUPATION    -0.05 -0.21  0.01 -0.22     -0.02  0.23 -0.07  0.01
## SECTOR        0.05 -0.19  0.00 -0.17      0.11  0.10  0.08  0.00
## MARITAL       0.10 -0.04  0.01  0.01      0.27  0.09  0.28  0.04
##
##          OCCUPATION SECTOR MARITAL
## WAGE.HR      -0.05  0.05  0.10
## EDUC        -0.21 -0.19 -0.04
## SOUTH        0.01  0.00  0.01
## SEX         -0.22 -0.17  0.01
## EXPERIENCE   -0.02  0.11  0.27
## UNION        0.23  0.10  0.09
## AGE         -0.07  0.08  0.28
## ETHNIC       0.01  0.00  0.04
## OCCUPATION   1.00  0.36 -0.01
## SECTOR       0.36  1.00  0.06
## MARITAL     -0.01  0.06  1.00
##
## n= 534
##
##
## P
##          WAGE.HR EDUC  SOUTH  SEX  EXPERIENCE UNION  AGE  ETHNIC
## WAGE.HR          0.0000 0.0011 0.0000 0.0443  0.0002 0.0000 0.0286
## EDUC      0.0000          0.0012 0.9627 0.0000  0.5818 0.0005 0.0265
## SOUTH    0.0011  0.0012          0.6239 0.8644  0.0463 0.3725 0.0078
## SEX      0.0000  0.9627 0.6239          0.0824  0.0003 0.0675 0.5347
## EXPERIENCE 0.0443  0.0000 0.8644 0.0824          0.0064 0.0000 0.5802
## UNION     0.0002  0.5818 0.0463 0.0003 0.0064          0.0057 0.0456
## AGE       0.0000  0.0005 0.3725 0.0675 0.0000  0.0057          0.9229

```

```
## ETHNIC      0.0286  0.0265 0.0078 0.5347 0.5802      0.0456 0.9229
## OCCUPATION  0.2577  0.0000 0.7340 0.0000 0.6156      0.0000 0.1099 0.7348
## SECTOR      0.2954  0.0000 0.9921 0.0000 0.0099      0.0268 0.0796 0.9698
## MARITAL     0.0201  0.4127 0.8805 0.7958 0.0000      0.0314 0.0000 0.3141
##
## OCCUPATION SECTOR MARITAL
## WAGE.HR     0.2577      0.2954 0.0201
## EDUC        0.0000      0.0000 0.4127
## SOUTH       0.7340      0.9921 0.8805
## SEX          0.0000      0.0000 0.7958
## EXPERIENCE  0.6156      0.0099 0.0000
## UNION        0.0000      0.0268 0.0314
## AGE          0.1099      0.0796 0.0000
## ETHNIC       0.7348      0.9698 0.3141
## OCCUPATION      0.0000 0.7930
## SECTOR          0.0000 0.1959
## MARITAL        0.7930 0.1959
```

```
res <- cor(wage, method = c("pearson"))
corrplot(res, type = "upper", order = "hclust",
          tl.col = "black", tl.srt = 45)
```



```
heatmap(x = res, col = col, symm = TRUE)
```



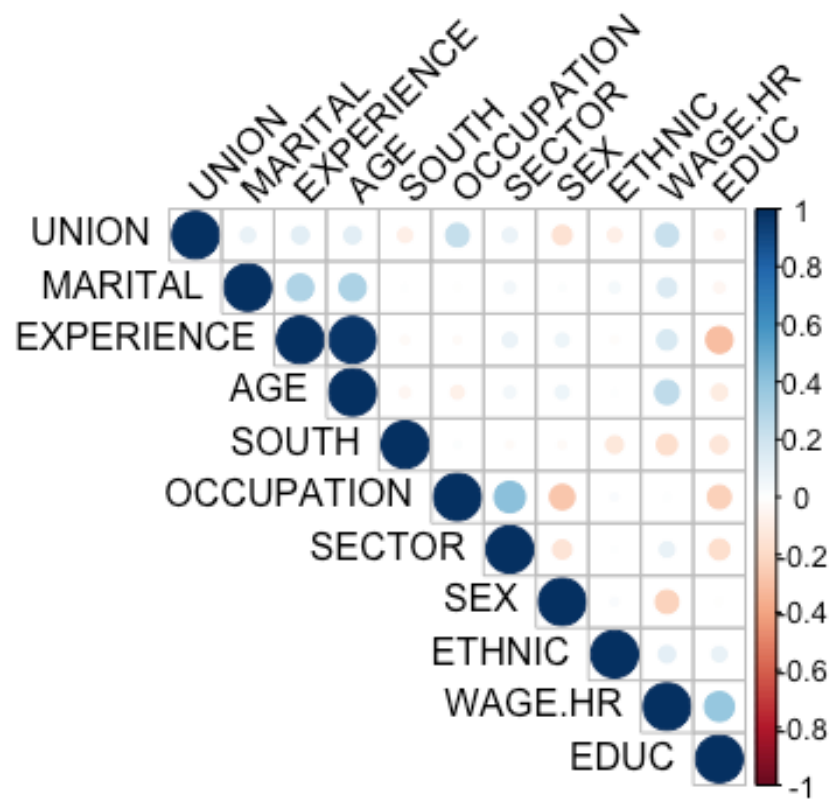
```
#spearman
```

```
rcorr(as.matrix(wage), type = c("spearman"))
```

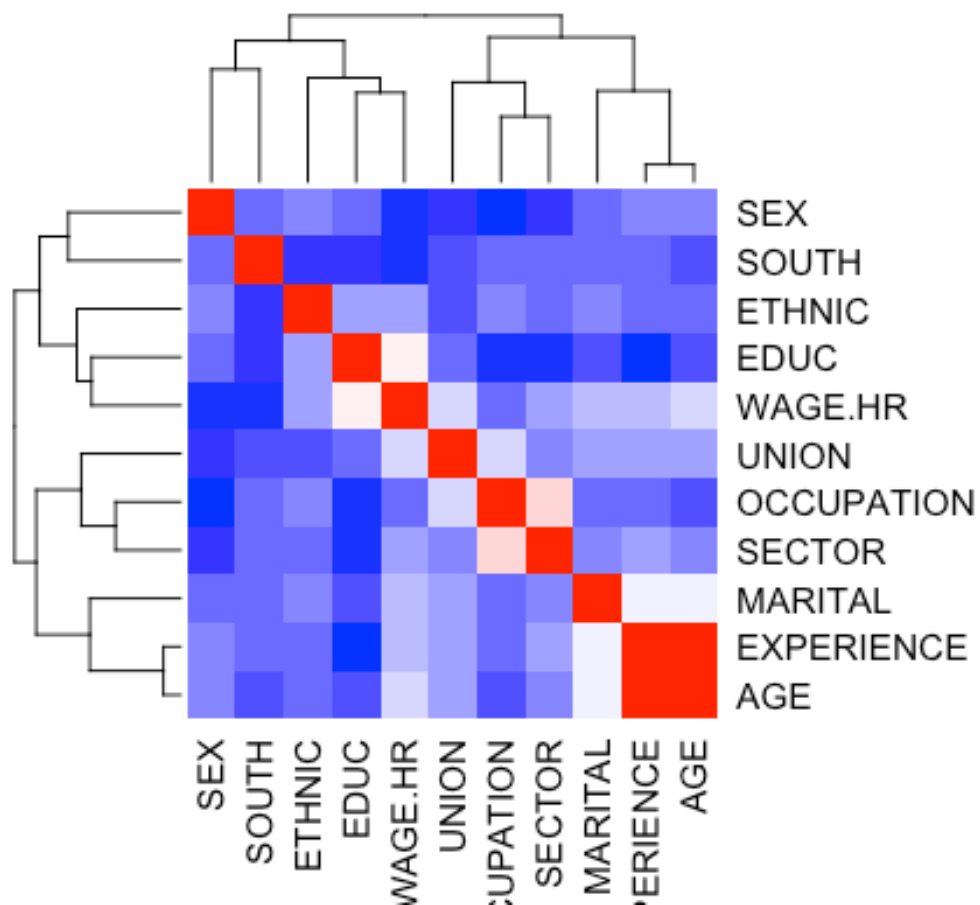
```
##          WAGE.HR  EDUC SOUTH  SEX EXPERIENCE UNION  AGE ETHNIC
## WAGE.HR      1.00  0.38 -0.18 -0.23      0.17  0.23  0.25  0.12
## EDUC         0.38  1.00 -0.13 -0.01     -0.31 -0.04 -0.11  0.09
## SOUTH       -0.18 -0.13  1.00 -0.02     -0.03 -0.09 -0.05 -0.12
## SEX          -0.23 -0.01 -0.02  1.00      0.07 -0.16  0.08  0.02
## EXPERIENCE   0.17 -0.31 -0.03  0.07      1.00  0.12  0.97 -0.02
## UNION        0.23 -0.04 -0.09 -0.16      0.12  1.00  0.12 -0.08
## AGE          0.25 -0.11 -0.05  0.08      0.97  0.12  1.00  0.00
## ETHNIC       0.12  0.09 -0.12  0.02     -0.02 -0.08  0.00  1.00
## OCCUPATION   0.01 -0.24  0.01 -0.27     -0.02  0.23 -0.07  0.02
## SECTOR       0.09 -0.18 -0.02 -0.15      0.09  0.09  0.05  0.01
## MARITAL      0.15 -0.05  0.01  0.01      0.31  0.09  0.31  0.05
##
## OCCUPATION SECTOR MARITAL
## WAGE.HR      0.01  0.09  0.15
## EDUC        -0.24 -0.18 -0.05
## SOUTH       0.01 -0.02  0.01
## SEX         -0.27 -0.15  0.01
## EXPERIENCE  -0.02  0.09  0.31
## UNION       0.23  0.09  0.09
## AGE        -0.07  0.05  0.31
```

```
## ETHNIC          0.02   0.01   0.05
## OCCUPATION      1.00   0.42  -0.01
## SECTOR          0.42   1.00   0.05
## MARITAL         -0.01   0.05   1.00
##
## n= 534
##
## P
##      WAGE.HR EDUC    SOUTH SEX    EXPERIENCE UNION  AGE    ETHNIC
## WAGE.HR          0.0000 0.0000 0.0000 0.0000    0.0000 0.0000 0.0067
## EDUC      0.0000          0.0020 0.8704 0.0000    0.3438 0.0130 0.0341
## SOUTH     0.0000  0.0020          0.6239 0.5222    0.0463 0.2770 0.0045
## SEX       0.0000  0.8704 0.6239          0.0882    0.0003 0.0828 0.5954
## EXPERIENCE 0.0000  0.0000 0.5222 0.0882          0.0042 0.0000 0.6779
## UNION     0.0000  0.3438 0.0463 0.0003 0.0042          0.0043 0.0600
## AGE       0.0000  0.0130 0.2770 0.0828 0.0000    0.0043 0.9230
## ETHNIC    0.0067  0.0341 0.0045 0.5954 0.6779    0.0600 0.9230
## OCCUPATION 0.8342  0.0000 0.7461 0.0000 0.6342    0.0000 0.0989 0.6283
## SECTOR    0.0360  0.0000 0.6356 0.0005 0.0435    0.0481 0.2049 0.8880
## MARITAL   0.0004  0.2744 0.8805 0.7958 0.0000    0.0314 0.0000 0.2799
##
##      OCCUPATION SECTOR MARITAL
## WAGE.HR  0.8342    0.0360 0.0004
## EDUC     0.0000    0.0000 0.2744
## SOUTH    0.7461    0.6356 0.8805
## SEX      0.0000    0.0005 0.7958
## EXPERIENCE 0.6342    0.0435 0.0000
## UNION    0.0000    0.0481 0.0314
## AGE      0.0989    0.2049 0.0000
## ETHNIC   0.6283    0.8880 0.2799
## OCCUPATION          0.0000 0.9043
## SECTOR    0.0000          0.2239
## MARITAL   0.9043    0.2239

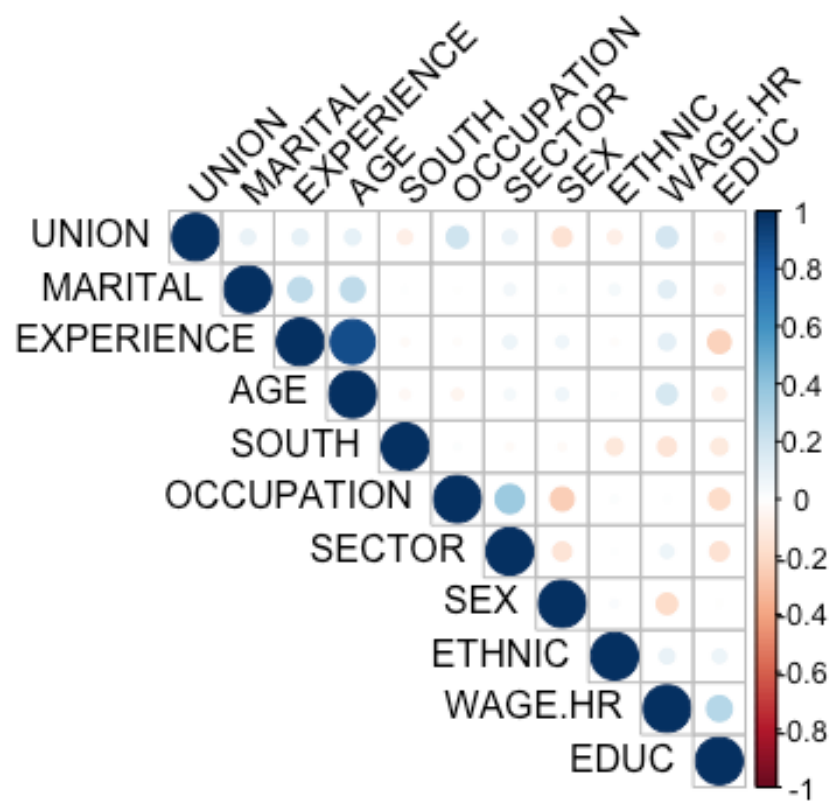
res <- cor(wage, method = c("spearman"))
corrplot(res, type = "upper", order = "hclust",
          tl.col = "black", tl.srt = 45)
```



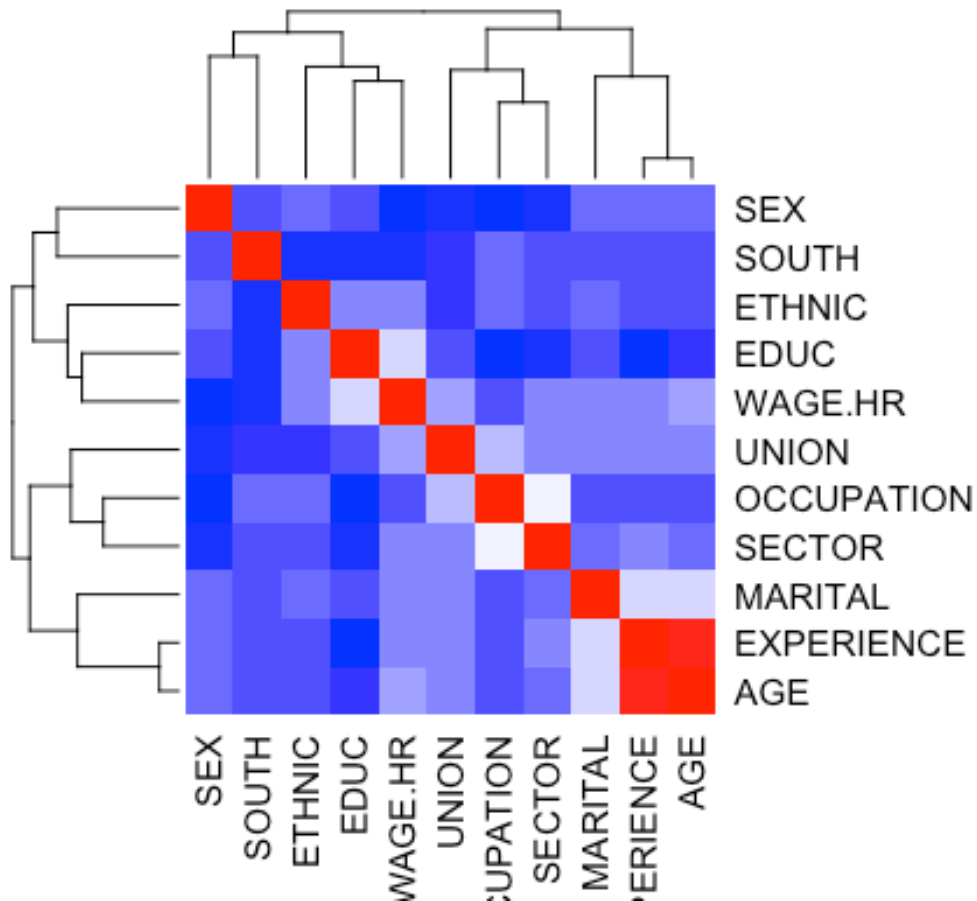
```
heatmap(x = res, col = col, symm = TRUE)
```

```
#kendall
#rcorr(as.matrix(wage), type = c("kendall"))
res <- cor(wage, method = c("kendall"))
corrplot(res, type = "upper", order = "hclust",
          tl.col = "black", tl.srt = 45)
```



```
heatmap(x = res, col = col, symm = TRUE)
```



```
#####Two-sample Test#####
wage1 <- wage
# wage1$WAGE.HR[which(wage1$WAGE.HR <5)] <- 0
# wage1$WAGE.HR[which(wage1$WAGE.HR >=20)] <- 4
# wage1$WAGE.HR[which(wage1$WAGE.HR >=15)] <- 3
# wage1$WAGE.HR[which(wage1$WAGE.HR >=10)] <- 2
# wage1$WAGE.HR[which(wage1$WAGE.HR >=5)] <- 1
#
# wage1$EXPERIENCE[which(wage1$EXPERIENCE <10)] <- 0
# wage1$EXPERIENCE[which(wage1$EXPERIENCE >=50)] <- 5
# wage1$EXPERIENCE[which(wage1$EXPERIENCE >=40)] <- 4
# wage1$EXPERIENCE[which(wage1$EXPERIENCE >=30)] <- 3
# wage1$EXPERIENCE[which(wage1$EXPERIENCE >=20)] <- 2
# wage1$EXPERIENCE[which(wage1$EXPERIENCE >=10)] <- 1
#
# wage1$AGE[which(wage1$AGE <20)] <- 1
# wage1$AGE[which(wage1$AGE >=60)] <- 6
# wage1$AGE[which(wage1$AGE >=50)] <- 5
# wage1$AGE[which(wage1$AGE >=40)] <- 4
# wage1$AGE[which(wage1$AGE >=30)] <- 3
# wage1$AGE[which(wage1$AGE >=20)] <- 2

agex <- wage1[wage1$WAGE.HR <= 10,]$AGE
```

```

agey <- wage1[wage1$WAGE.HR > 10,]$AGE

educ <- wage1[wage1$WAGE.HR <= 10,]$EDUC
eduy <- wage1[wage1$WAGE.HR > 10,]$EDUC

expx <- wage1[wage1$WAGE.HR <= 10,]$EXPERIENCE
expy <- wage1[wage1$WAGE.HR > 10,]$EXPERIENCE

sexx <- wage1[wage1$WAGE.HR <= 10,]$SEX
sexy <- wage1[wage1$WAGE.HR > 10,]$SEX

ethx <- wage1[wage1$WAGE.HR <= 10,]$ETHNIC
ethy <- wage1[wage1$WAGE.HR > 10,]$ETHNIC

marx <- wage1[wage1$WAGE.HR <= 10,]$MARITAL
mary <- wage1[wage1$WAGE.HR > 10,]$MARITAL

ocpx <- wage1[wage1$WAGE.HR <= 10,]$OCCUPATION
ocpy <- wage1[wage1$WAGE.HR > 10,]$OCCUPATION

southx <- wage1[wage1$WAGE.HR <= 10,]$SOUTH
southy <- wage1[wage1$WAGE.HR > 10,]$SOUTH

unix <- wage1[wage1$WAGE.HR <= 10,]$UNION
uniy <- wage1[wage1$WAGE.HR > 10,]$UNION

secx <- wage1[wage1$WAGE.HR <= 10,]$SECTOR
secy <- wage1[wage1$WAGE.HR > 10,]$SECTOR

#2-sample t-test
t.test(agex, agey, alternative = "less")

##
## Welch Two Sample t-test
##
## data: agex and agey
## t = -4.2774, df = 357.12, p-value = 1.215e-05
## alternative hypothesis: true difference in means is less than 0
## 95 percent confidence interval:
##      -Inf -2.710709
## sample estimates:
## mean of x mean of y
##  35.46196  39.87349

t.test(educ, eduy, alternative = "less")

##
## Welch Two Sample t-test
##
## data: educ and eduy

```

```

## t = -8.4601, df = 320.27, p-value = 4.829e-16
## alternative hypothesis: true difference in means is less than 0
## 95 percent confidence interval:
##      -Inf -1.56145
## sample estimates:
## mean of x mean of y
## 12.41576 14.35542

t.test(expx, expy, alternative = "less")

##
## Welch Two Sample t-test
##
## data: expx and expy
## t = -2.2479, df = 362.25, p-value = 0.01259
## alternative hypothesis: true difference in means is less than 0
## 95 percent confidence interval:
##      -Inf -0.6555834
## sample estimates:
## mean of x mean of y
## 17.05707 19.51807

t.test(sexx, sexy, alternative = "greater")

##
## Welch Two Sample t-test
##
## data: sexx and sexy
## t = 4.1125, df = 335.84, p-value = 2.464e-05
## alternative hypothesis: true difference in means is greater than 0
## 95 percent confidence interval:
## 0.110789      Inf
## sample estimates:
## mean of x mean of y
## 0.5163043 0.3313253

t.test(ethx, ethy, alternative = "less")

##
## Welch Two Sample t-test
##
## data: ethx and ethy
## t = -2.2093, df = 371.68, p-value = 0.01388
## alternative hypothesis: true difference in means is less than 0
## 95 percent confidence interval:
##      -Inf -0.03336215
## sample estimates:
## mean of x mean of y
## 2.657609 2.789157

t.test(marx, mary, alternative = "less")

```

```

##
## Welch Two Sample t-test
##
## data: marx and mary
## t = -2.7023, df = 347.16, p-value = 0.003612
## alternative hypothesis: true difference in means is less than 0
## 95 percent confidence interval:
##      -Inf -0.04495944
## sample estimates:
## mean of x mean of y
## 0.6195652 0.7349398

t.test(ocpx, ocpy, alternative = "greater") #rej

##
## Welch Two Sample t-test
##
## data: ocpv and ocpy
## t = 0.7182, df = 275.47, p-value = 0.2366
## alternative hypothesis: true difference in means is greater than 0
## 95 percent confidence interval:
## -0.1538314      Inf
## sample estimates:
## mean of x mean of y
## 4.184783 4.066265

t.test(southx, southy, alternative = "greater")

##
## Welch Two Sample t-test
##
## data: southx and southy
## t = 2.7068, df = 358.3, p-value = 0.003559
## alternative hypothesis: true difference in means is greater than 0
## 95 percent confidence interval:
## 0.04267817      Inf
## sample estimates:
## mean of x mean of y
## 0.3260870 0.2168675

t.test(unix, uniy, alternative = "less")

##
## Welch Two Sample t-test
##
## data: unix and uniy
## t = -3.3953, df = 258.24, p-value = 0.0003967
## alternative hypothesis: true difference in means is less than 0
## 95 percent confidence interval:
##      -Inf -0.06807801
## sample estimates:

```

```

## mean of x mean of y
## 0.1385870 0.2710843

t.test(secx, secy, alternative = "less")

##
## Welch Two Sample t-test
##
## data: secx and secy
## t = -1.8845, df = 287.89, p-value = 0.03025
## alternative hypothesis: true difference in means is less than 0
## 95 percent confidence interval:
##      -Inf -0.01228567
## sample estimates:
## mean of x mean of y
## 0.2445652 0.3433735

#wilcoxon test
wilcox.test(agex, agey, alternative = "less")

##
## Wilcoxon rank sum test with continuity correction
##
## data: agex and agey
## W = 22934, p-value = 1.983e-06
## alternative hypothesis: true location shift is less than 0

wilcox.test(edux, eduy, alternative = "less")

##
## Wilcoxon rank sum test with continuity correction
##
## data: edux and eduy
## W = 17660, p-value = 2.538e-16
## alternative hypothesis: true location shift is less than 0

wilcox.test(expx, expy, alternative = "less")

##
## Wilcoxon rank sum test with continuity correction
##
## data: expx and expy
## W = 25907, p-value = 0.002472
## alternative hypothesis: true location shift is less than 0

wilcox.test(sexx, sexy, alternative = "greater")

##
## Wilcoxon rank sum test with continuity correction
##
## data: sexx and sexy

```

```

## W = 36194, p-value = 3.649e-05
## alternative hypothesis: true location shift is greater than 0

wilcox.test(ethx, ethy, alternative = "less")

##
## Wilcoxon rank sum test with continuity correction
##
## data:  ethx and ethy
## W = 27930, p-value = 0.008399
## alternative hypothesis: true location shift is less than 0

wilcox.test(marx, mary, alternative = "less")

##
## Wilcoxon rank sum test with continuity correction
##
## data:  marx and mary
## W = 27020, p-value = 0.004745
## alternative hypothesis: true location shift is less than 0

wilcox.test(ocpx, ocpy, alternative = "greater") # NO diff

##
## Wilcoxon rank sum test with continuity correction
##
## data:  ocpv and ocpy
## W = 31038, p-value = 0.3798
## alternative hypothesis: true location shift is greater than 0

wilcox.test(southx, southy, alternative = "greater")

##
## Wilcoxon rank sum test with continuity correction
##
## data:  southx and southy
## W = 33880, p-value = 0.005143
## alternative hypothesis: true location shift is greater than 0

wilcox.test(unix, uniy, alternative = "less")

##
## Wilcoxon rank sum test with continuity correction
##
## data:  unix and uniy
## W = 26497, p-value = 0.0001136
## alternative hypothesis: true location shift is less than 0

wilcox.test(secx, secy, alternative = "less")

##
## Wilcoxon rank sum test with continuity correction

```



```
##
## data:  secx and secy
## W = 27960, p-value = 0.01636
## alternative hypothesis: true location shift is less than 0

#Kruskal-Wallis Test
kruskal.test(WAGE.HR ~ AGE, data = wage)

##
##  Kruskal-Wallis rank sum test
##
## data:  WAGE.HR by AGE
## Kruskal-Wallis chi-squared = 108.38, df = 46, p-value = 6.015e-07

kruskal.test(WAGE.HR ~ EDUC, data = wage)

##
##  Kruskal-Wallis rank sum test
##
## data:  WAGE.HR by EDUC
## Kruskal-Wallis chi-squared = 91.551, df = 16, p-value = 1.295e-12

kruskal.test(WAGE.HR ~ EXPERIENCE, data = wage)

##
##  Kruskal-Wallis rank sum test
##
## data:  WAGE.HR by EXPERIENCE
## Kruskal-Wallis chi-squared = 93.633, df = 51, p-value = 0.0002552

kruskal.test(WAGE.HR ~ SEX, data = wage)

##
##  Kruskal-Wallis rank sum test
##
## data:  WAGE.HR by SEX
## Kruskal-Wallis chi-squared = 27.864, df = 1, p-value = 1.302e-07

kruskal.test(WAGE.HR ~ ETHNIC, data = wage)

##
##  Kruskal-Wallis rank sum test
##
## data:  WAGE.HR by ETHNIC
## Kruskal-Wallis chi-squared = 10.62, df = 2, p-value = 0.004943

kruskal.test(WAGE.HR ~ MARITAL, data = wage)

##
##  Kruskal-Wallis rank sum test
##
```

```

## data: WAGE.HR by MARITAL
## Kruskal-Wallis chi-squared = 12.525, df = 1, p-value = 0.0004016

kruskal.test(WAGE.HR ~ OCCUPATION, data = wage)

##
## Kruskal-Wallis rank sum test
##
## data: WAGE.HR by OCCUPATION
## Kruskal-Wallis chi-squared = 93.126, df = 5, p-value < 2.2e-16

kruskal.test(WAGE.HR ~ SOUTH, data = wage)

##
## Kruskal-Wallis rank sum test
##
## data: WAGE.HR by SOUTH
## Kruskal-Wallis chi-squared = 17.104, df = 1, p-value = 3.538e-05

kruskal.test(WAGE.HR ~ UNION, data = wage)

##
## Kruskal-Wallis rank sum test
##
## data: WAGE.HR by UNION
## Kruskal-Wallis chi-squared = 28.003, df = 1, p-value = 1.212e-07

kruskal.test(WAGE.HR ~ SECTOR, data = wage) #rej

##
## Kruskal-Wallis rank sum test
##
## data: WAGE.HR by SECTOR
## Kruskal-Wallis chi-squared = 4.41, df = 2, p-value = 0.1102

##### Interaction Test#####
summary(aov(wage$WAGE.HR~wage$EDUC*wage$SOUTH*wage$SEX*wage$EXPERIENCE*wage$U
NION*wage$AGE*wage$ETHNIC*wage$OCCUPATION*wage$SECTOR*wage$MARITAL))

##
      Df
## wage$EDUC
      1
## wage$SOUTH
      1
## wage$SEX
      1
## wage$EXPERIENCE
      1
## wage$UNION
      1
## wage$AGE

```

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## wage$ETHNIC
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## wage$OCCUPATION
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## wage$EDUC:wage$EXPERIENCE
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## wage$SOUTH:wage$EXPERIENCE
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## wage$SEX:wage$EXPERIENCE
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## wage$EDUC:wage$UNION
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## wage$SOUTH:wage$UNION
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## wage$SEX:wage$UNION
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## wage$EXPERIENCE:wage$UNION
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## wage$EDUC:wage$AGE
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## wage$EXPERIENCE:wage$AGE
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## wage$EDUC:wage$ETHNIC
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## wage$SOUTH:wage$ETHNIC
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## wage$EXPERIENCE:wage$ETHNIC
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## wage$UNION:wage$ETHNIC
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## wage$EDUC:wage$OCCUPATION
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## wage$SEX:wage$EXPERIENCE:wage$ETHNIC:wage$OCCUPATION
1
## wage$EDUC:wage$UNION:wage$ETHNIC:wage$OCCUPATION
1
## wage$SEX:wage$UNION:wage$ETHNIC:wage$OCCUPATION
1
## wage$EXPERIENCE:wage$UNION:wage$ETHNIC:wage$OCCUPATION
1
## wage$EDUC:wage$AGE:wage$ETHNIC:wage$OCCUPATION
1
## wage$EXPERIENCE:wage$AGE:wage$ETHNIC:wage$OCCUPATION
1
## wage$EDUC:wage$SOUTH:wage$SEX:wage$SECTOR
1
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$SECTOR
```

```
1
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$SECTOR
1
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$SECTOR
1
## wage$EDUC:wage$SOUTH:wage$UNION:wage$SECTOR
1
## wage$EDUC:wage$SEX:wage$UNION:wage$SECTOR
1
## wage$EDUC:wage$EXPERIENCE:wage$UNION:wage$SECTOR
1
## wage$SOUTH:wage$EXPERIENCE:wage$UNION:wage$SECTOR
1
## wage$SEX:wage$EXPERIENCE:wage$UNION:wage$SECTOR
1
## wage$EDUC:wage$SOUTH:wage$AGE:wage$SECTOR
1
## wage$EDUC:wage$SEX:wage$AGE:wage$SECTOR
1
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$SECTOR
1
## wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$SECTOR
1
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$SECTOR
1
## wage$EDUC:wage$UNION:wage$AGE:wage$SECTOR
1
## wage$EXPERIENCE:wage$UNION:wage$AGE:wage$SECTOR
1
## wage$EDUC:wage$SOUTH:wage$ETHNIC:wage$SECTOR
1
## wage$EDUC:wage$SEX:wage$ETHNIC:wage$SECTOR
1
## wage$SOUTH:wage$SEX:wage$ETHNIC:wage$SECTOR
1
## wage$EDUC:wage$EXPERIENCE:wage$ETHNIC:wage$SECTOR
1
## wage$SOUTH:wage$EXPERIENCE:wage$ETHNIC:wage$SECTOR
1
## wage$EDUC:wage$SEX:wage$OCCUPATION:wage$SECTOR
1
## wage$SOUTH:wage$SEX:wage$OCCUPATION:wage$SECTOR
1
## wage$EDUC:wage$EXPERIENCE:wage$OCCUPATION:wage$SECTOR
1
## wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$SECTOR
1
## wage$EDUC:wage$AGE:wage$OCCUPATION:wage$SECTOR
1
## wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$SECTOR
```

```
1
## wage$EDUC:wage$SOUTH:wage$SEX:wage$MARITAL
1
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$MARITAL
1
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$MARITAL
1
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$MARITAL
1
## wage$EDUC:wage$SEX:wage$UNION:wage$MARITAL
1
## wage$EDUC:wage$EXPERIENCE:wage$UNION:wage$MARITAL
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## wage$SEX:wage$EXPERIENCE:wage$UNION:wage$MARITAL
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## wage$EDUC:wage$SOUTH:wage$AGE:wage$MARITAL
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## wage$EDUC:wage$SEX:wage$AGE:wage$MARITAL
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## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$MARITAL
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## wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$MARITAL
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## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$MARITAL
1
## wage$EDUC:wage$UNION:wage$AGE:wage$MARITAL
1
## wage$EXPERIENCE:wage$UNION:wage$AGE:wage$MARITAL
1
## wage$EDUC:wage$SOUTH:wage$ETHNIC:wage$MARITAL
1
## wage$EDUC:wage$SEX:wage$ETHNIC:wage$MARITAL
1
## wage$SOUTH:wage$SEX:wage$ETHNIC:wage$MARITAL
1
## wage$EDUC:wage$EXPERIENCE:wage$ETHNIC:wage$MARITAL
1
## wage$SOUTH:wage$EXPERIENCE:wage$ETHNIC:wage$MARITAL
1
## wage$SEX:wage$EXPERIENCE:wage$ETHNIC:wage$MARITAL
1
## wage$EDUC:wage$AGE:wage$ETHNIC:wage$MARITAL
1
## wage$EXPERIENCE:wage$AGE:wage$ETHNIC:wage$MARITAL
1
## wage$EDUC:wage$SOUTH:wage$OCCUPATION:wage$MARITAL
1
## wage$EDUC:wage$SEX:wage$OCCUPATION:wage$MARITAL
1
## wage$SOUTH:wage$SEX:wage$OCCUPATION:wage$MARITAL
```

```
1
## wage$EDUC:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
1
## wage$SOUTH:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
1
## wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
1
## wage$EDUC:wage$UNION:wage$OCCUPATION:wage$MARITAL
1
## wage$SEX:wage$UNION:wage$OCCUPATION:wage$MARITAL
1
## wage$EXPERIENCE:wage$UNION:wage$OCCUPATION:wage$MARITAL
1
## wage$EDUC:wage$AGE:wage$OCCUPATION:wage$MARITAL
1
## wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
1
## wage$EDUC:wage$ETHNIC:wage$OCCUPATION:wage$MARITAL
1
## wage$SOUTH:wage$ETHNIC:wage$OCCUPATION:wage$MARITAL
1
## wage$SEX:wage$ETHNIC:wage$OCCUPATION:wage$MARITAL
1
## wage$EXPERIENCE:wage$ETHNIC:wage$OCCUPATION:wage$MARITAL
1
## wage$EDUC:wage$SOUTH:wage$SECTOR:wage$MARITAL
1
## wage$EDUC:wage$SEX:wage$SECTOR:wage$MARITAL
1
## wage$EDUC:wage$EXPERIENCE:wage$SECTOR:wage$MARITAL
1
## wage$SOUTH:wage$EXPERIENCE:wage$SECTOR:wage$MARITAL
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## wage$SEX:wage$EXPERIENCE:wage$SECTOR:wage$MARITAL
1
## wage$EDUC:wage$AGE:wage$SECTOR:wage$MARITAL
1
## wage$EXPERIENCE:wage$AGE:wage$SECTOR:wage$MARITAL
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## wage$EDUC:wage$OCCUPATION:wage$SECTOR:wage$MARITAL
1
## wage$SEX:wage$OCCUPATION:wage$SECTOR:wage$MARITAL
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## wage$EXPERIENCE:wage$OCCUPATION:wage$SECTOR:wage$MARITAL
1
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE
1
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$ETHNIC
1
## wage$EDUC:wage$SOUTH:wage$SEX:wage$AGE:wage$ETHNIC
```

```
1
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$ETHNIC
1
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$ETHNIC
1
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$ETHNIC
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## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$OCCUPATION
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## wage$EDUC:wage$SOUTH:wage$SEX:wage$AGE:wage$OCCUPATION
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## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION
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## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION
1
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION
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## wage$EDUC:wage$EXPERIENCE:wage$UNION:wage$AGE:wage$OCCUPATION
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## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$ETHNIC:wage$OCCUPATION
1
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$ETHNIC:wage$OCCUPATION
1
## wage$EDUC:wage$SOUTH:wage$AGE:wage$ETHNIC:wage$OCCUPATION
1
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$SECTOR
1
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$SECTOR
1
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$SECTOR
1
## wage$EDUC:wage$SEX:wage$AGE:wage$OCCUPATION:wage$SECTOR
1
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$SECTOR
1
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$SECTOR
1
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$MARITAL
1
## wage$EDUC:wage$SOUTH:wage$SEX:wage$AGE:wage$MARITAL
1
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$MARITAL
1
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$MARITAL
1
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$MARITAL
1
## wage$EDUC:wage$SOUTH:wage$SEX:wage$OCCUPATION:wage$MARITAL
1
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
```

```

1
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
1
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
1
## wage$EDUC:wage$SOUTH:wage$AGE:wage$OCCUPATION:wage$MARITAL
1
## wage$EDUC:wage$SEX:wage$AGE:wage$OCCUPATION:wage$MARITAL
1
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
1
## wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
1
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
1
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$SECTOR:wage$MARITAL
1
## wage$EDUC:wage$SEX:wage$AGE:wage$SECTOR:wage$MARITAL
1
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$SECTOR:wage$MARITAL
1
## wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$SECTOR:wage$MARITAL
1
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$SECTOR:wage$MARITAL
1
## wage$EDUC:wage$SEX:wage$OCCUPATION:wage$SECTOR:wage$MARITAL
1
## wage$EDUC:wage$EXPERIENCE:wage$OCCUPATION:wage$SECTOR:wage$MARITAL
1
## wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$SECTOR:wage$MARITAL
1
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION
1
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$SECTOR
1
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$MARITAL
1
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
1
## wage$EDUC:wage$SOUTH:wage$SEX:wage$AGE:wage$OCCUPATION:wage$MARITAL
1
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
1
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
1
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
1
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wag
e$MARITAL 1
## Residuals

```

```

203
##
      Sum Sq
## wage$EDUC
      2053
## wage$SOUTH
      110
## wage$SEX
      609
## wage$EXPERIENCE
      876
## wage$UNION
      144
## wage$AGE
      2
## wage$ETHNIC
      57
## wage$OCCUPATION
      7
## wage$SECTOR
      69
## wage$MARITAL
      20
## wage$EDUC:wage$SOUTH
      110
## wage$EDUC:wage$SEX
      22
## wage$SOUTH:wage$SEX
      9
## wage$EDUC:wage$EXPERIENCE
      20
## wage$SOUTH:wage$EXPERIENCE
      32
## wage$SEX:wage$EXPERIENCE
      109
## wage$EDUC:wage$UNION
      51
## wage$SOUTH:wage$UNION
      14
## wage$SEX:wage$UNION
      0
## wage$EXPERIENCE:wage$UNION
      53
## wage$EDUC:wage$AGE
      105
## wage$EXPERIENCE:wage$AGE
      85
## wage$EDUC:wage$ETHNIC
      17
## wage$SOUTH:wage$ETHNIC

```



```

2
## wage$SEX:wage$ETHNIC
33
## wage$EXPERIENCE:wage$ETHNIC
1
## wage$UNION:wage$ETHNIC
4
## wage$EDUC:wage$OCCUPATION
6
## wage$SOUTH:wage$OCCUPATION
2
## wage$SEX:wage$OCCUPATION
0
## wage$EXPERIENCE:wage$OCCUPATION
8
## wage$UNION:wage$OCCUPATION
7
## wage$ETHNIC:wage$OCCUPATION
2
## wage$EDUC:wage$SECTOR
31
## wage$SOUTH:wage$SECTOR
14
## wage$SEX:wage$SECTOR
5
## wage$EXPERIENCE:wage$SECTOR
24
## wage$UNION:wage$SECTOR
81
## wage$ETHNIC:wage$SECTOR
20
## wage$OCCUPATION:wage$SECTOR
1
## wage$EDUC:wage$MARITAL
6
## wage$SOUTH:wage$MARITAL
28
## wage$SEX:wage$MARITAL
53
## wage$EXPERIENCE:wage$MARITAL
7
## wage$UNION:wage$MARITAL
19
## wage$ETHNIC:wage$MARITAL
10
## wage$OCCUPATION:wage$MARITAL
38
## wage$SECTOR:wage$MARITAL
8
## wage$EDUC:wage$SOUTH:wage$SEX

```

```

0
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE
34
## wage$EDUC:wage$SEX:wage$EXPERIENCE
4
## wage$SOUTH:wage$SEX:wage$EXPERIENCE
0
## wage$EDUC:wage$SOUTH:wage$UNION
150
## wage$EDUC:wage$SEX:wage$UNION
23
## wage$SOUTH:wage$SEX:wage$UNION
3
## wage$EDUC:wage$EXPERIENCE:wage$UNION
86
## wage$SOUTH:wage$EXPERIENCE:wage$UNION
8
## wage$SEX:wage$EXPERIENCE:wage$UNION
38
## wage$EDUC:wage$SOUTH:wage$AGE
8
## wage$EDUC:wage$SEX:wage$AGE
8
## wage$EDUC:wage$EXPERIENCE:wage$AGE
0
## wage$SOUTH:wage$EXPERIENCE:wage$AGE
0
## wage$SEX:wage$EXPERIENCE:wage$AGE
65
## wage$EDUC:wage$UNION:wage$AGE
39
## wage$EXPERIENCE:wage$UNION:wage$AGE
22
## wage$EDUC:wage$SOUTH:wage$ETHNIC
6
## wage$EDUC:wage$SEX:wage$ETHNIC
4
## wage$SOUTH:wage$SEX:wage$ETHNIC
7
## wage$EDUC:wage$EXPERIENCE:wage$ETHNIC
11
## wage$SOUTH:wage$EXPERIENCE:wage$ETHNIC
18
## wage$SEX:wage$EXPERIENCE:wage$ETHNIC
14
## wage$EDUC:wage$UNION:wage$ETHNIC
111
## wage$SOUTH:wage$UNION:wage$ETHNIC
8
## wage$SEX:wage$UNION:wage$ETHNIC

```

```

0
## wage$EXPERIENCE:wage$UNION:wage$ETHNIC
7
## wage$EDUC:wage$AGE:wage$ETHNIC
1
## wage$EXPERIENCE:wage$AGE:wage$ETHNIC
0
## wage$EDUC:wage$SOUTH:wage$OCCUPATION
13
## wage$EDUC:wage$SEX:wage$OCCUPATION
61
## wage$SOUTH:wage$SEX:wage$OCCUPATION
45
## wage$EDUC:wage$EXPERIENCE:wage$OCCUPATION
75
## wage$SOUTH:wage$EXPERIENCE:wage$OCCUPATION
31
## wage$SEX:wage$EXPERIENCE:wage$OCCUPATION
60
## wage$EDUC:wage$UNION:wage$OCCUPATION
17
## wage$SOUTH:wage$UNION:wage$OCCUPATION
1
## wage$SEX:wage$UNION:wage$OCCUPATION
1
## wage$EXPERIENCE:wage$UNION:wage$OCCUPATION
52
## wage$EDUC:wage$AGE:wage$OCCUPATION
0
## wage$EXPERIENCE:wage$AGE:wage$OCCUPATION
27
## wage$EDUC:wage$ETHNIC:wage$OCCUPATION
2
## wage$SOUTH:wage$ETHNIC:wage$OCCUPATION
7
## wage$SEX:wage$ETHNIC:wage$OCCUPATION
20
## wage$EXPERIENCE:wage$ETHNIC:wage$OCCUPATION
6
## wage$UNION:wage$ETHNIC:wage$OCCUPATION
42
## wage$EDUC:wage$SOUTH:wage$SECTOR
46
## wage$EDUC:wage$SEX:wage$SECTOR
0
## wage$SOUTH:wage$SEX:wage$SECTOR
4
## wage$EDUC:wage$EXPERIENCE:wage$SECTOR
0
## wage$SOUTH:wage$EXPERIENCE:wage$SECTOR

```

```

13
## wage$SEX:wage$EXPERIENCE:wage$SECTOR
19
## wage$EDUC:wage$UNION:wage$SECTOR
23
## wage$SOUTH:wage$UNION:wage$SECTOR
16
## wage$SEX:wage$UNION:wage$SECTOR
20
## wage$EXPERIENCE:wage$UNION:wage$SECTOR
0
## wage$EDUC:wage$AGE:wage$SECTOR
52
## wage$EXPERIENCE:wage$AGE:wage$SECTOR
1
## wage$EDUC:wage$ETHNIC:wage$SECTOR
0
## wage$SOUTH:wage$ETHNIC:wage$SECTOR
0
## wage$SEX:wage$ETHNIC:wage$SECTOR
1
## wage$EXPERIENCE:wage$ETHNIC:wage$SECTOR
17
## wage$UNION:wage$ETHNIC:wage$SECTOR
1
## wage$EDUC:wage$OCCUPATION:wage$SECTOR
151
## wage$SOUTH:wage$OCCUPATION:wage$SECTOR
1
## wage$SEX:wage$OCCUPATION:wage$SECTOR
4
## wage$EXPERIENCE:wage$OCCUPATION:wage$SECTOR
3
## wage$UNION:wage$OCCUPATION:wage$SECTOR
11
## wage$ETHNIC:wage$OCCUPATION:wage$SECTOR
48
## wage$EDUC:wage$SOUTH:wage$MARITAL
0
## wage$EDUC:wage$SEX:wage$MARITAL
28
## wage$SOUTH:wage$SEX:wage$MARITAL
4
## wage$EDUC:wage$EXPERIENCE:wage$MARITAL
13
## wage$SOUTH:wage$EXPERIENCE:wage$MARITAL
4
## wage$SEX:wage$EXPERIENCE:wage$MARITAL
3
## wage$EDUC:wage$UNION:wage$MARITAL

```

```

4
## wage$SOUTH:wage$UNION:wage$MARITAL
16
## wage$SEX:wage$UNION:wage$MARITAL
9
## wage$EXPERIENCE:wage$UNION:wage$MARITAL
11
## wage$EDUC:wage$AGE:wage$MARITAL
3
## wage$EXPERIENCE:wage$AGE:wage$MARITAL
66
## wage$EDUC:wage$ETHNIC:wage$MARITAL
23
## wage$SOUTH:wage$ETHNIC:wage$MARITAL
2
## wage$SEX:wage$ETHNIC:wage$MARITAL
15
## wage$EXPERIENCE:wage$ETHNIC:wage$MARITAL
3
## wage$UNION:wage$ETHNIC:wage$MARITAL
9
## wage$EDUC:wage$OCCUPATION:wage$MARITAL
4
## wage$SOUTH:wage$OCCUPATION:wage$MARITAL
1
## wage$SEX:wage$OCCUPATION:wage$MARITAL
4
## wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
1
## wage$UNION:wage$OCCUPATION:wage$MARITAL
0
## wage$ETHNIC:wage$OCCUPATION:wage$MARITAL
1
## wage$EDUC:wage$SECTOR:wage$MARITAL
9
## wage$SOUTH:wage$SECTOR:wage$MARITAL
0
## wage$SEX:wage$SECTOR:wage$MARITAL
1
## wage$EXPERIENCE:wage$SECTOR:wage$MARITAL
11
## wage$UNION:wage$SECTOR:wage$MARITAL
2
## wage$ETHNIC:wage$SECTOR:wage$MARITAL
0
## wage$OCCUPATION:wage$SECTOR:wage$MARITAL
4
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE
37
## wage$EDUC:wage$SOUTH:wage$SEX:wage$UNION

```

```
0
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$UNION
0
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$UNION
15
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$UNION
19
## wage$EDUC:wage$SOUTH:wage$SEX:wage$AGE
50
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$AGE
12
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE
88
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE
25
## wage$EDUC:wage$SOUTH:wage$UNION:wage$AGE
5
## wage$EDUC:wage$SEX:wage$UNION:wage$AGE
4
## wage$EDUC:wage$EXPERIENCE:wage$UNION:wage$AGE
24
## wage$SOUTH:wage$EXPERIENCE:wage$UNION:wage$AGE
8
## wage$SEX:wage$EXPERIENCE:wage$UNION:wage$AGE
0
## wage$EDUC:wage$SOUTH:wage$SEX:wage$ETHNIC
47
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$ETHNIC
9
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$ETHNIC
54
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$ETHNIC
10
## wage$EDUC:wage$SOUTH:wage$UNION:wage$ETHNIC
10
## wage$EDUC:wage$SEX:wage$UNION:wage$ETHNIC
7
## wage$EDUC:wage$EXPERIENCE:wage$UNION:wage$ETHNIC
4
## wage$SOUTH:wage$EXPERIENCE:wage$UNION:wage$ETHNIC
8
## wage$SEX:wage$EXPERIENCE:wage$UNION:wage$ETHNIC
36
## wage$EDUC:wage$SOUTH:wage$AGE:wage$ETHNIC
15
## wage$EDUC:wage$SEX:wage$AGE:wage$ETHNIC
0
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$ETHNIC
4
## wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$ETHNIC
```

```

0
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$ETHNIC
32
## wage$EDUC:wage$UNION:wage$AGE:wage$ETHNIC
52
## wage$EXPERIENCE:wage$UNION:wage$AGE:wage$ETHNIC
1
## wage$EDUC:wage$SOUTH:wage$SEX:wage$OCCUPATION
11
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$OCCUPATION
2
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$OCCUPATION
113
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$OCCUPATION
73
## wage$EDUC:wage$SOUTH:wage$UNION:wage$OCCUPATION
1
## wage$EDUC:wage$SEX:wage$UNION:wage$OCCUPATION
4
## wage$EDUC:wage$EXPERIENCE:wage$UNION:wage$OCCUPATION
2
## wage$SOUTH:wage$EXPERIENCE:wage$UNION:wage$OCCUPATION
0
## wage$SEX:wage$EXPERIENCE:wage$UNION:wage$OCCUPATION
0
## wage$EDUC:wage$SOUTH:wage$AGE:wage$OCCUPATION
24
## wage$EDUC:wage$SEX:wage$AGE:wage$OCCUPATION
28
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION
3
## wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION
20
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION
4
## wage$EDUC:wage$UNION:wage$AGE:wage$OCCUPATION
20
## wage$EXPERIENCE:wage$UNION:wage$AGE:wage$OCCUPATION
81
## wage$EDUC:wage$SOUTH:wage$ETHNIC:wage$OCCUPATION
11
## wage$EDUC:wage$SEX:wage$ETHNIC:wage$OCCUPATION
5
## wage$SOUTH:wage$SEX:wage$ETHNIC:wage$OCCUPATION
5
## wage$EDUC:wage$EXPERIENCE:wage$ETHNIC:wage$OCCUPATION
37
## wage$SOUTH:wage$EXPERIENCE:wage$ETHNIC:wage$OCCUPATION
0
## wage$SEX:wage$EXPERIENCE:wage$ETHNIC:wage$OCCUPATION

```

```
69
## wage$EDUC:wage$UNION:wage$ETHNIC:wage$OCCUPATION
9
## wage$SEX:wage$UNION:wage$ETHNIC:wage$OCCUPATION
5
## wage$EXPERIENCE:wage$UNION:wage$ETHNIC:wage$OCCUPATION
0
## wage$EDUC:wage$AGE:wage$ETHNIC:wage$OCCUPATION
0
## wage$EXPERIENCE:wage$AGE:wage$ETHNIC:wage$OCCUPATION
6
## wage$EDUC:wage$SOUTH:wage$SEX:wage$SECTOR
0
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$SECTOR
1
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$SECTOR
27
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$SECTOR
6
## wage$EDUC:wage$SOUTH:wage$UNION:wage$SECTOR
30
## wage$EDUC:wage$SEX:wage$UNION:wage$SECTOR
46
## wage$EDUC:wage$EXPERIENCE:wage$UNION:wage$SECTOR
1
## wage$SOUTH:wage$EXPERIENCE:wage$UNION:wage$SECTOR
2
## wage$SEX:wage$EXPERIENCE:wage$UNION:wage$SECTOR
6
## wage$EDUC:wage$SOUTH:wage$AGE:wage$SECTOR
14
## wage$EDUC:wage$SEX:wage$AGE:wage$SECTOR
36
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$SECTOR
1
## wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$SECTOR
22
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$SECTOR
0
## wage$EDUC:wage$UNION:wage$AGE:wage$SECTOR
5
## wage$EXPERIENCE:wage$UNION:wage$AGE:wage$SECTOR
0
## wage$EDUC:wage$SOUTH:wage$ETHNIC:wage$SECTOR
4
## wage$EDUC:wage$SEX:wage$ETHNIC:wage$SECTOR
6
## wage$SOUTH:wage$SEX:wage$ETHNIC:wage$SECTOR
3
## wage$EDUC:wage$EXPERIENCE:wage$ETHNIC:wage$SECTOR
```



```
0
## wage$SOUTH:wage$EXPERIENCE:wage$ETHNIC:wage$SECTOR
2
## wage$EDUC:wage$SEX:wage$OCCUPATION:wage$SECTOR
0
## wage$SOUTH:wage$SEX:wage$OCCUPATION:wage$SECTOR
43
## wage$EDUC:wage$EXPERIENCE:wage$OCCUPATION:wage$SECTOR
2
## wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$SECTOR
0
## wage$EDUC:wage$AGE:wage$OCCUPATION:wage$SECTOR
5
## wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$SECTOR
10
## wage$EDUC:wage$SOUTH:wage$SEX:wage$MARITAL
11
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$MARITAL
8
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$MARITAL
41
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$MARITAL
19
## wage$EDUC:wage$SEX:wage$UNION:wage$MARITAL
223
## wage$EDUC:wage$EXPERIENCE:wage$UNION:wage$MARITAL
1
## wage$SEX:wage$EXPERIENCE:wage$UNION:wage$MARITAL
14
## wage$EDUC:wage$SOUTH:wage$AGE:wage$MARITAL
41
## wage$EDUC:wage$SEX:wage$AGE:wage$MARITAL
1
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$MARITAL
33
## wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$MARITAL
0
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$MARITAL
8
## wage$EDUC:wage$UNION:wage$AGE:wage$MARITAL
1
## wage$EXPERIENCE:wage$UNION:wage$AGE:wage$MARITAL
9
## wage$EDUC:wage$SOUTH:wage$ETHNIC:wage$MARITAL
10
## wage$EDUC:wage$SEX:wage$ETHNIC:wage$MARITAL
0
## wage$SOUTH:wage$SEX:wage$ETHNIC:wage$MARITAL
1
## wage$EDUC:wage$EXPERIENCE:wage$ETHNIC:wage$MARITAL
```

```
12
## wage$SOUTH:wage$EXPERIENCE:wage$ETHNIC:wage$MARITAL
0
## wage$SEX:wage$EXPERIENCE:wage$ETHNIC:wage$MARITAL
25
## wage$EDUC:wage$AGE:wage$ETHNIC:wage$MARITAL
55
## wage$EXPERIENCE:wage$AGE:wage$ETHNIC:wage$MARITAL
2
## wage$EDUC:wage$SOUTH:wage$OCCUPATION:wage$MARITAL
9
## wage$EDUC:wage$SEX:wage$OCCUPATION:wage$MARITAL
0
## wage$SOUTH:wage$SEX:wage$OCCUPATION:wage$MARITAL
8
## wage$EDUC:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
20
## wage$SOUTH:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
0
## wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
150
## wage$EDUC:wage$UNION:wage$OCCUPATION:wage$MARITAL
6
## wage$SEX:wage$UNION:wage$OCCUPATION:wage$MARITAL
2
## wage$EXPERIENCE:wage$UNION:wage$OCCUPATION:wage$MARITAL
27
## wage$EDUC:wage$AGE:wage$OCCUPATION:wage$MARITAL
26
## wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
28
## wage$EDUC:wage$ETHNIC:wage$OCCUPATION:wage$MARITAL
69
## wage$SOUTH:wage$ETHNIC:wage$OCCUPATION:wage$MARITAL
6
## wage$SEX:wage$ETHNIC:wage$OCCUPATION:wage$MARITAL
3
## wage$EXPERIENCE:wage$ETHNIC:wage$OCCUPATION:wage$MARITAL
8
## wage$EDUC:wage$SOUTH:wage$SECTOR:wage$MARITAL
6
## wage$EDUC:wage$SEX:wage$SECTOR:wage$MARITAL
0
## wage$EDUC:wage$EXPERIENCE:wage$SECTOR:wage$MARITAL
28
## wage$SOUTH:wage$EXPERIENCE:wage$SECTOR:wage$MARITAL
0
## wage$SEX:wage$EXPERIENCE:wage$SECTOR:wage$MARITAL
5
## wage$EDUC:wage$AGE:wage$SECTOR:wage$MARITAL
```

```
0
## wage$EXPERIENCE:wage$AGE:wage$SECTOR:wage$MARITAL
8
## wage$EDUC:wage$OCCUPATION:wage$SECTOR:wage$MARITAL
24
## wage$SEX:wage$OCCUPATION:wage$SECTOR:wage$MARITAL
24
## wage$EXPERIENCE:wage$OCCUPATION:wage$SECTOR:wage$MARITAL
51
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE
97
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$ETHNIC
18
## wage$EDUC:wage$SOUTH:wage$SEX:wage$AGE:wage$ETHNIC
11
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$ETHNIC
8
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$ETHNIC
1
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$ETHNIC
0
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$OCCUPATION
60
## wage$EDUC:wage$SOUTH:wage$SEX:wage$AGE:wage$OCCUPATION
133
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION
3
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION
0
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION
22
## wage$EDUC:wage$EXPERIENCE:wage$UNION:wage$AGE:wage$OCCUPATION
8
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$ETHNIC:wage$OCCUPATION
13
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$ETHNIC:wage$OCCUPATION
21
## wage$EDUC:wage$SOUTH:wage$AGE:wage$ETHNIC:wage$OCCUPATION
9
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$SECTOR
1
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$SECTOR
57
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$SECTOR
6
## wage$EDUC:wage$SEX:wage$AGE:wage$OCCUPATION:wage$SECTOR
10
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$SECTOR
36
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$SECTOR
```

```

1
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$MARITAL
2
## wage$EDUC:wage$SOUTH:wage$SEX:wage$AGE:wage$MARITAL
26
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$MARITAL
1
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$MARITAL
171
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$MARITAL
61
## wage$EDUC:wage$SOUTH:wage$SEX:wage$OCCUPATION:wage$MARITAL
10
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
0
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
2
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
0
## wage$EDUC:wage$SOUTH:wage$AGE:wage$OCCUPATION:wage$MARITAL
168
## wage$EDUC:wage$SEX:wage$AGE:wage$OCCUPATION:wage$MARITAL
118
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
8
## wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
3
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
13
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$SECTOR:wage$MARITAL
5
## wage$EDUC:wage$SEX:wage$AGE:wage$SECTOR:wage$MARITAL
0
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$SECTOR:wage$MARITAL
8
## wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$SECTOR:wage$MARITAL
60
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$SECTOR:wage$MARITAL
6
## wage$EDUC:wage$SEX:wage$OCCUPATION:wage$SECTOR:wage$MARITAL
0
## wage$EDUC:wage$EXPERIENCE:wage$OCCUPATION:wage$SECTOR:wage$MARITAL
48
## wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$SECTOR:wage$MARITAL
24
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION
24
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$SECTOR
18
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$MARITAL

```

```

1
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
2
## wage$EDUC:wage$SOUTH:wage$SEX:wage$AGE:wage$OCCUPATION:wage$MARITAL
4
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
1
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
6
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
12
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
6
## Residuals
3531
##
Mean Sq
## wage$EDUC
2053.3
## wage$SOUTH
110.0
## wage$SEX
609.4
## wage$EXPERIENCE
875.9
## wage$UNION
144.3
## wage$AGE
1.8
## wage$ETHNIC
57.0
## wage$OCCUPATION
7.4
## wage$SECTOR
69.4
## wage$MARITAL
19.9
## wage$EDUC:wage$SOUTH
110.5
## wage$EDUC:wage$SEX
21.6
## wage$SOUTH:wage$SEX
8.7
## wage$EDUC:wage$EXPERIENCE
20.4
## wage$SOUTH:wage$EXPERIENCE
32.0
## wage$SEX:wage$EXPERIENCE
109.1
## wage$EDUC:wage$UNION

```

```
51.0
## wage$SOUTH:wage$UNION
14.3
## wage$SEX:wage$UNION
0.0
## wage$EXPERIENCE:wage$UNION
53.4
## wage$EDUC:wage$AGE
104.6
## wage$EXPERIENCE:wage$AGE
84.8
## wage$EDUC:wage$ETHNIC
17.2
## wage$SOUTH:wage$ETHNIC
2.0
## wage$SEX:wage$ETHNIC
33.5
## wage$EXPERIENCE:wage$ETHNIC
0.9
## wage$UNION:wage$ETHNIC
4.3
## wage$EDUC:wage$OCCUPATION
6.5
## wage$SOUTH:wage$OCCUPATION
2.4
## wage$SEX:wage$OCCUPATION
0.0
## wage$EXPERIENCE:wage$OCCUPATION
8.1
## wage$UNION:wage$OCCUPATION
6.6
## wage$ETHNIC:wage$OCCUPATION
2.2
## wage$EDUC:wage$SECTOR
31.4
## wage$SOUTH:wage$SECTOR
13.8
## wage$SEX:wage$SECTOR
5.5
## wage$EXPERIENCE:wage$SECTOR
23.7
## wage$UNION:wage$SECTOR
81.1
## wage$ETHNIC:wage$SECTOR
20.0
## wage$OCCUPATION:wage$SECTOR
1.2
## wage$EDUC:wage$MARITAL
6.3
## wage$SOUTH:wage$MARITAL
```

```

28.4
## wage$SEX:wage$MARITAL
53.2
## wage$EXPERIENCE:wage$MARITAL
7.5
## wage$UNION:wage$MARITAL
18.8
## wage$ETHNIC:wage$MARITAL
9.5
## wage$OCCUPATION:wage$MARITAL
38.3
## wage$SECTOR:wage$MARITAL
7.8
## wage$EDUC:wage$SOUTH:wage$SEX
0.0
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE
34.0
## wage$EDUC:wage$SEX:wage$EXPERIENCE
3.7
## wage$SOUTH:wage$SEX:wage$EXPERIENCE
0.3
## wage$EDUC:wage$SOUTH:wage$UNION
150.3
## wage$EDUC:wage$SEX:wage$UNION
23.2
## wage$SOUTH:wage$SEX:wage$UNION
2.5
## wage$EDUC:wage$EXPERIENCE:wage$UNION
85.6
## wage$SOUTH:wage$EXPERIENCE:wage$UNION
7.9
## wage$SEX:wage$EXPERIENCE:wage$UNION
37.9
## wage$EDUC:wage$SOUTH:wage$AGE
7.8
## wage$EDUC:wage$SEX:wage$AGE
8.0
## wage$EDUC:wage$EXPERIENCE:wage$AGE
0.0
## wage$SOUTH:wage$EXPERIENCE:wage$AGE
0.0
## wage$SEX:wage$EXPERIENCE:wage$AGE
65.1
## wage$EDUC:wage$UNION:wage$AGE
39.5
## wage$EXPERIENCE:wage$UNION:wage$AGE
22.1
## wage$EDUC:wage$SOUTH:wage$ETHNIC
6.1
## wage$EDUC:wage$SEX:wage$ETHNIC

```

```

3.6
## wage$SOUTH:wage$SEX:wage$ETHNIC
7.4
## wage$EDUC:wage$EXPERIENCE:wage$ETHNIC
11.1
## wage$SOUTH:wage$EXPERIENCE:wage$ETHNIC
17.8
## wage$SEX:wage$EXPERIENCE:wage$ETHNIC
13.7
## wage$EDUC:wage$UNION:wage$ETHNIC
111.1
## wage$SOUTH:wage$UNION:wage$ETHNIC
8.5
## wage$SEX:wage$UNION:wage$ETHNIC
0.4
## wage$EXPERIENCE:wage$UNION:wage$ETHNIC
7.1
## wage$EDUC:wage$AGE:wage$ETHNIC
1.4
## wage$EXPERIENCE:wage$AGE:wage$ETHNIC
0.1
## wage$EDUC:wage$SOUTH:wage$OCCUPATION
13.2
## wage$EDUC:wage$SEX:wage$OCCUPATION
61.3
## wage$SOUTH:wage$SEX:wage$OCCUPATION
45.3
## wage$EDUC:wage$EXPERIENCE:wage$OCCUPATION
75.0
## wage$SOUTH:wage$EXPERIENCE:wage$OCCUPATION
30.7
## wage$SEX:wage$EXPERIENCE:wage$OCCUPATION
60.3
## wage$EDUC:wage$UNION:wage$OCCUPATION
16.6
## wage$SOUTH:wage$UNION:wage$OCCUPATION
1.2
## wage$SEX:wage$UNION:wage$OCCUPATION
0.9
## wage$EXPERIENCE:wage$UNION:wage$OCCUPATION
52.0
## wage$EDUC:wage$AGE:wage$OCCUPATION
0.3
## wage$EXPERIENCE:wage$AGE:wage$OCCUPATION
26.8
## wage$EDUC:wage$ETHNIC:wage$OCCUPATION
2.5
## wage$SOUTH:wage$ETHNIC:wage$OCCUPATION
7.0
## wage$SEX:wage$ETHNIC:wage$OCCUPATION

```



```
19.7
## wage$EXPERIENCE:wage$ETHNIC:wage$OCCUPATION
6.1
## wage$UNION:wage$ETHNIC:wage$OCCUPATION
42.4
## wage$EDUC:wage$SOUTH:wage$SECTOR
45.6
## wage$EDUC:wage$SEX:wage$SECTOR
0.4
## wage$SOUTH:wage$SEX:wage$SECTOR
3.7
## wage$EDUC:wage$EXPERIENCE:wage$SECTOR
0.0
## wage$SOUTH:wage$EXPERIENCE:wage$SECTOR
13.3
## wage$SEX:wage$EXPERIENCE:wage$SECTOR
18.9
## wage$EDUC:wage$UNION:wage$SECTOR
23.2
## wage$SOUTH:wage$UNION:wage$SECTOR
15.5
## wage$SEX:wage$UNION:wage$SECTOR
19.8
## wage$EXPERIENCE:wage$UNION:wage$SECTOR
0.4
## wage$EDUC:wage$AGE:wage$SECTOR
52.4
## wage$EXPERIENCE:wage$AGE:wage$SECTOR
0.7
## wage$EDUC:wage$ETHNIC:wage$SECTOR
0.0
## wage$SOUTH:wage$ETHNIC:wage$SECTOR
0.2
## wage$SEX:wage$ETHNIC:wage$SECTOR
0.6
## wage$EXPERIENCE:wage$ETHNIC:wage$SECTOR
17.4
## wage$UNION:wage$ETHNIC:wage$SECTOR
0.6
## wage$EDUC:wage$OCCUPATION:wage$SECTOR
150.9
## wage$SOUTH:wage$OCCUPATION:wage$SECTOR
0.9
## wage$SEX:wage$OCCUPATION:wage$SECTOR
3.5
## wage$EXPERIENCE:wage$OCCUPATION:wage$SECTOR
3.4
## wage$UNION:wage$OCCUPATION:wage$SECTOR
11.3
## wage$ETHNIC:wage$OCCUPATION:wage$SECTOR
```

```
47.9
## wage$EDUC:wage$SOUTH:wage$MARITAL
0.0
## wage$EDUC:wage$SEX:wage$MARITAL
27.6
## wage$SOUTH:wage$SEX:wage$MARITAL
3.9
## wage$EDUC:wage$EXPERIENCE:wage$MARITAL
13.1
## wage$SOUTH:wage$EXPERIENCE:wage$MARITAL
4.4
## wage$SEX:wage$EXPERIENCE:wage$MARITAL
2.7
## wage$EDUC:wage$UNION:wage$MARITAL
4.0
## wage$SOUTH:wage$UNION:wage$MARITAL
16.4
## wage$SEX:wage$UNION:wage$MARITAL
9.1
## wage$EXPERIENCE:wage$UNION:wage$MARITAL
11.3
## wage$EDUC:wage$AGE:wage$MARITAL
2.8
## wage$EXPERIENCE:wage$AGE:wage$MARITAL
66.5
## wage$EDUC:wage$ETHNIC:wage$MARITAL
23.1
## wage$SOUTH:wage$ETHNIC:wage$MARITAL
2.4
## wage$SEX:wage$ETHNIC:wage$MARITAL
15.2
## wage$EXPERIENCE:wage$ETHNIC:wage$MARITAL
3.0
## wage$UNION:wage$ETHNIC:wage$MARITAL
9.2
## wage$EDUC:wage$OCCUPATION:wage$MARITAL
3.6
## wage$SOUTH:wage$OCCUPATION:wage$MARITAL
1.1
## wage$SEX:wage$OCCUPATION:wage$MARITAL
4.2
## wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
0.7
## wage$UNION:wage$OCCUPATION:wage$MARITAL
0.0
## wage$ETHNIC:wage$OCCUPATION:wage$MARITAL
0.8
## wage$EDUC:wage$SECTOR:wage$MARITAL
8.9
## wage$SOUTH:wage$SECTOR:wage$MARITAL
```

```

0.3
## wage$SEX:wage$SECTOR:wage$MARITAL
0.8
## wage$EXPERIENCE:wage$SECTOR:wage$MARITAL
11.5
## wage$UNION:wage$SECTOR:wage$MARITAL
2.4
## wage$ETHNIC:wage$SECTOR:wage$MARITAL
0.1
## wage$OCCUPATION:wage$SECTOR:wage$MARITAL
3.6
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE
37.5
## wage$EDUC:wage$SOUTH:wage$SEX:wage$UNION
0.1
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$UNION
0.4
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$UNION
15.3
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$UNION
18.9
## wage$EDUC:wage$SOUTH:wage$SEX:wage$AGE
50.0
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$AGE
11.7
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE
88.0
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE
25.2
## wage$EDUC:wage$SOUTH:wage$UNION:wage$AGE
4.7
## wage$EDUC:wage$SEX:wage$UNION:wage$AGE
4.3
## wage$EDUC:wage$EXPERIENCE:wage$UNION:wage$AGE
23.8
## wage$SOUTH:wage$EXPERIENCE:wage$UNION:wage$AGE
8.2
## wage$SEX:wage$EXPERIENCE:wage$UNION:wage$AGE
0.2
## wage$EDUC:wage$SOUTH:wage$SEX:wage$ETHNIC
47.0
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$ETHNIC
8.9
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$ETHNIC
54.0
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$ETHNIC
10.4
## wage$EDUC:wage$SOUTH:wage$UNION:wage$ETHNIC
10.4
## wage$EDUC:wage$SEX:wage$UNION:wage$ETHNIC

```

```

7.2
## wage$EDUC:wage$EXPERIENCE:wage$UNION:wage$ETHNIC
4.3
## wage$SOUTH:wage$EXPERIENCE:wage$UNION:wage$ETHNIC
8.3
## wage$SEX:wage$EXPERIENCE:wage$UNION:wage$ETHNIC
36.0
## wage$EDUC:wage$SOUTH:wage$AGE:wage$ETHNIC
15.2
## wage$EDUC:wage$SEX:wage$AGE:wage$ETHNIC
0.2
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$ETHNIC
4.2
## wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$ETHNIC
0.2
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$ETHNIC
31.8
## wage$EDUC:wage$UNION:wage$AGE:wage$ETHNIC
52.3
## wage$EXPERIENCE:wage$UNION:wage$AGE:wage$ETHNIC
1.2
## wage$EDUC:wage$SOUTH:wage$SEX:wage$OCCUPATION
10.8
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$OCCUPATION
1.5
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$OCCUPATION
113.3
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$OCCUPATION
72.8
## wage$EDUC:wage$SOUTH:wage$UNION:wage$OCCUPATION
0.6
## wage$EDUC:wage$SEX:wage$UNION:wage$OCCUPATION
3.7
## wage$EDUC:wage$EXPERIENCE:wage$UNION:wage$OCCUPATION
1.9
## wage$SOUTH:wage$EXPERIENCE:wage$UNION:wage$OCCUPATION
0.1
## wage$SEX:wage$EXPERIENCE:wage$UNION:wage$OCCUPATION
0.0
## wage$EDUC:wage$SOUTH:wage$AGE:wage$OCCUPATION
24.2
## wage$EDUC:wage$SEX:wage$AGE:wage$OCCUPATION
28.1
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION
2.7
## wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION
19.9
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION
4.4
## wage$EDUC:wage$UNION:wage$AGE:wage$OCCUPATION

```

```

19.6
## wage$EXPERIENCE:wage$UNION:wage$AGE:wage$OCCUPATION
80.9
## wage$EDUC:wage$SOUTH:wage$ETHNIC:wage$OCCUPATION
10.6
## wage$EDUC:wage$SEX:wage$ETHNIC:wage$OCCUPATION
4.6
## wage$SOUTH:wage$SEX:wage$ETHNIC:wage$OCCUPATION
4.8
## wage$EDUC:wage$EXPERIENCE:wage$ETHNIC:wage$OCCUPATION
37.2
## wage$SOUTH:wage$EXPERIENCE:wage$ETHNIC:wage$OCCUPATION
0.3
## wage$SEX:wage$EXPERIENCE:wage$ETHNIC:wage$OCCUPATION
69.0
## wage$EDUC:wage$UNION:wage$ETHNIC:wage$OCCUPATION
9.5
## wage$SEX:wage$UNION:wage$ETHNIC:wage$OCCUPATION
4.5
## wage$EXPERIENCE:wage$UNION:wage$ETHNIC:wage$OCCUPATION
0.1
## wage$EDUC:wage$AGE:wage$ETHNIC:wage$OCCUPATION
0.0
## wage$EXPERIENCE:wage$AGE:wage$ETHNIC:wage$OCCUPATION
5.6
## wage$EDUC:wage$SOUTH:wage$SEX:wage$SECTOR
0.0
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$SECTOR
1.4
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$SECTOR
26.6
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$SECTOR
6.0
## wage$EDUC:wage$SOUTH:wage$UNION:wage$SECTOR
30.4
## wage$EDUC:wage$SEX:wage$UNION:wage$SECTOR
46.4
## wage$EDUC:wage$EXPERIENCE:wage$UNION:wage$SECTOR
1.2
## wage$SOUTH:wage$EXPERIENCE:wage$UNION:wage$SECTOR
2.3
## wage$SEX:wage$EXPERIENCE:wage$UNION:wage$SECTOR
6.1
## wage$EDUC:wage$SOUTH:wage$AGE:wage$SECTOR
14.0
## wage$EDUC:wage$SEX:wage$AGE:wage$SECTOR
35.6
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$SECTOR
0.9
## wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$SECTOR

```

```

22.3
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$SECTOR
0.4
## wage$EDUC:wage$UNION:wage$AGE:wage$SECTOR
4.9
## wage$EXPERIENCE:wage$UNION:wage$AGE:wage$SECTOR
0.0
## wage$EDUC:wage$SOUTH:wage$ETHNIC:wage$SECTOR
4.2
## wage$EDUC:wage$SEX:wage$ETHNIC:wage$SECTOR
6.0
## wage$SOUTH:wage$SEX:wage$ETHNIC:wage$SECTOR
2.7
## wage$EDUC:wage$EXPERIENCE:wage$ETHNIC:wage$SECTOR
0.0
## wage$SOUTH:wage$EXPERIENCE:wage$ETHNIC:wage$SECTOR
2.3
## wage$EDUC:wage$SEX:wage$OCCUPATION:wage$SECTOR
0.3
## wage$SOUTH:wage$SEX:wage$OCCUPATION:wage$SECTOR
42.6
## wage$EDUC:wage$EXPERIENCE:wage$OCCUPATION:wage$SECTOR
2.2
## wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$SECTOR
0.3
## wage$EDUC:wage$AGE:wage$OCCUPATION:wage$SECTOR
5.3
## wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$SECTOR
9.8
## wage$EDUC:wage$SOUTH:wage$SEX:wage$MARITAL
11.1
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$MARITAL
7.6
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$MARITAL
41.4
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$MARITAL
19.1
## wage$EDUC:wage$SEX:wage$UNION:wage$MARITAL
223.1
## wage$EDUC:wage$EXPERIENCE:wage$UNION:wage$MARITAL
1.5
## wage$SEX:wage$EXPERIENCE:wage$UNION:wage$MARITAL
14.3
## wage$EDUC:wage$SOUTH:wage$AGE:wage$MARITAL
40.9
## wage$EDUC:wage$SEX:wage$AGE:wage$MARITAL
0.6
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$MARITAL
32.7
## wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$MARITAL

```

```

0.1
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$MARITAL
8.0
## wage$EDUC:wage$UNION:wage$AGE:wage$MARITAL
0.8
## wage$EXPERIENCE:wage$UNION:wage$AGE:wage$MARITAL
9.0
## wage$EDUC:wage$SOUTH:wage$ETHNIC:wage$MARITAL
10.4
## wage$EDUC:wage$SEX:wage$ETHNIC:wage$MARITAL
0.5
## wage$SOUTH:wage$SEX:wage$ETHNIC:wage$MARITAL
0.9
## wage$EDUC:wage$EXPERIENCE:wage$ETHNIC:wage$MARITAL
12.0
## wage$SOUTH:wage$EXPERIENCE:wage$ETHNIC:wage$MARITAL
0.4
## wage$SEX:wage$EXPERIENCE:wage$ETHNIC:wage$MARITAL
24.6
## wage$EDUC:wage$AGE:wage$ETHNIC:wage$MARITAL
54.8
## wage$EXPERIENCE:wage$AGE:wage$ETHNIC:wage$MARITAL
2.3
## wage$EDUC:wage$SOUTH:wage$OCCUPATION:wage$MARITAL
8.5
## wage$EDUC:wage$SEX:wage$OCCUPATION:wage$MARITAL
0.4
## wage$SOUTH:wage$SEX:wage$OCCUPATION:wage$MARITAL
8.1
## wage$EDUC:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
20.0
## wage$SOUTH:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
0.0
## wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
150.1
## wage$EDUC:wage$UNION:wage$OCCUPATION:wage$MARITAL
5.7
## wage$SEX:wage$UNION:wage$OCCUPATION:wage$MARITAL
1.5
## wage$EXPERIENCE:wage$UNION:wage$OCCUPATION:wage$MARITAL
26.8
## wage$EDUC:wage$AGE:wage$OCCUPATION:wage$MARITAL
26.1
## wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
28.0
## wage$EDUC:wage$ETHNIC:wage$OCCUPATION:wage$MARITAL
69.3
## wage$SOUTH:wage$ETHNIC:wage$OCCUPATION:wage$MARITAL
6.4
## wage$SEX:wage$ETHNIC:wage$OCCUPATION:wage$MARITAL

```

2.9
wage\$EXPERIENCE:wage\$ETHNIC:wage\$OCCUPATION:wage\$MARITAL
8.2
wage\$EDUC:wage\$SOUTH:wage\$SECTOR:wage\$MARITAL
5.9
wage\$EDUC:wage\$SEX:wage\$SECTOR:wage\$MARITAL
0.4
wage\$EDUC:wage\$EXPERIENCE:wage\$SECTOR:wage\$MARITAL
28.4
wage\$SOUTH:wage\$EXPERIENCE:wage\$SECTOR:wage\$MARITAL
0.4
wage\$SEX:wage\$EXPERIENCE:wage\$SECTOR:wage\$MARITAL
4.5
wage\$EDUC:wage\$AGE:wage\$SECTOR:wage\$MARITAL
0.0
wage\$EXPERIENCE:wage\$AGE:wage\$SECTOR:wage\$MARITAL
7.5
wage\$EDUC:wage\$OCCUPATION:wage\$SECTOR:wage\$MARITAL
24.5
wage\$SEX:wage\$OCCUPATION:wage\$SECTOR:wage\$MARITAL
24.2
wage\$EXPERIENCE:wage\$OCCUPATION:wage\$SECTOR:wage\$MARITAL
50.8
wage\$EDUC:wage\$SOUTH:wage\$SEX:wage\$EXPERIENCE:wage\$AGE
96.8
wage\$EDUC:wage\$SOUTH:wage\$SEX:wage\$EXPERIENCE:wage\$ETHNIC
18.0
wage\$EDUC:wage\$SOUTH:wage\$SEX:wage\$AGE:wage\$ETHNIC
11.5
wage\$EDUC:wage\$SOUTH:wage\$EXPERIENCE:wage\$AGE:wage\$ETHNIC
7.9
wage\$EDUC:wage\$SEX:wage\$EXPERIENCE:wage\$AGE:wage\$ETHNIC
1.5
wage\$SOUTH:wage\$SEX:wage\$EXPERIENCE:wage\$AGE:wage\$ETHNIC
0.2
wage\$EDUC:wage\$SOUTH:wage\$SEX:wage\$EXPERIENCE:wage\$OCCUPATION
59.6
wage\$EDUC:wage\$SOUTH:wage\$SEX:wage\$AGE:wage\$OCCUPATION
133.3
wage\$EDUC:wage\$SOUTH:wage\$EXPERIENCE:wage\$AGE:wage\$OCCUPATION
2.7
wage\$EDUC:wage\$SEX:wage\$EXPERIENCE:wage\$AGE:wage\$OCCUPATION
0.5
wage\$SOUTH:wage\$SEX:wage\$EXPERIENCE:wage\$AGE:wage\$OCCUPATION
22.0
wage\$EDUC:wage\$EXPERIENCE:wage\$UNION:wage\$AGE:wage\$OCCUPATION
7.6
wage\$EDUC:wage\$SOUTH:wage\$EXPERIENCE:wage\$ETHNIC:wage\$OCCUPATION
12.9
wage\$EDUC:wage\$SEX:wage\$EXPERIENCE:wage\$ETHNIC:wage\$OCCUPATION


```

21.3
## wage$EDUC:wage$SOUTH:wage$AGE:wage$ETHNIC:wage$OCCUPATION
9.3
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$SECTOR
0.6
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$SECTOR
56.6
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$SECTOR
6.1
## wage$EDUC:wage$SEX:wage$AGE:wage$OCCUPATION:wage$SECTOR
10.2
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$SECTOR
36.0
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$SECTOR
1.0
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$MARITAL
1.7
## wage$EDUC:wage$SOUTH:wage$SEX:wage$AGE:wage$MARITAL
26.2
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$MARITAL
1.5
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$MARITAL
171.0
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$MARITAL
61.4
## wage$EDUC:wage$SOUTH:wage$SEX:wage$OCCUPATION:wage$MARITAL
10.1
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
0.0
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
2.1
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
0.3
## wage$EDUC:wage$SOUTH:wage$AGE:wage$OCCUPATION:wage$MARITAL
167.8
## wage$EDUC:wage$SEX:wage$AGE:wage$OCCUPATION:wage$MARITAL
117.9
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
8.5
## wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
3.4
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
13.4
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$SECTOR:wage$MARITAL
5.1
## wage$EDUC:wage$SEX:wage$AGE:wage$SECTOR:wage$MARITAL
0.4
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$SECTOR:wage$MARITAL
7.7
## wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$SECTOR:wage$MARITAL

```

```

        60.5
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$SECTOR:wage$MARITAL
        6.2
## wage$EDUC:wage$SEX:wage$OCCUPATION:wage$SECTOR:wage$MARITAL
        0.0
## wage$EDUC:wage$EXPERIENCE:wage$OCCUPATION:wage$SECTOR:wage$MARITAL
        48.3
## wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$SECTOR:wage$MARITAL
        24.0
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION
        24.1
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$SECTOR
        18.1
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$MARITAL
        1.3
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
        1.7
## wage$EDUC:wage$SOUTH:wage$SEX:wage$AGE:wage$OCCUPATION:wage$MARITAL
        4.4
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
        1.5
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
        5.8
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
        11.7
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
        5.7
## Residuals
        17.4
##
        F value
## wage$EDUC
        118.062
## wage$SOUTH
        6.322
## wage$SEX
        35.040
## wage$EXPERIENCE
        50.364
## wage$UNION
        8.295
## wage$AGE
        0.102
## wage$ETHNIC
        3.280
## wage$OCCUPATION
        0.428
## wage$SECTOR
        3.992
## wage$MARITAL

```

```
1.144
## wage$EDUC:wage$SOUTH
6.353
## wage$EDUC:wage$SEX
1.243
## wage$SOUTH:wage$SEX
0.499
## wage$EDUC:wage$EXPERIENCE
1.172
## wage$SOUTH:wage$EXPERIENCE
1.838
## wage$SEX:wage$EXPERIENCE
6.270
## wage$EDUC:wage$UNION
2.933
## wage$SOUTH:wage$UNION
0.823
## wage$SEX:wage$UNION
0.000
## wage$EXPERIENCE:wage$UNION
3.068
## wage$EDUC:wage$AGE
6.013
## wage$EXPERIENCE:wage$AGE
4.877
## wage$EDUC:wage$ETHNIC
0.989
## wage$SOUTH:wage$ETHNIC
0.116
## wage$SEX:wage$ETHNIC
1.925
## wage$EXPERIENCE:wage$ETHNIC
0.052
## wage$UNION:wage$ETHNIC
0.245
## wage$EDUC:wage$OCCUPATION
0.373
## wage$SOUTH:wage$OCCUPATION
0.138
## wage$SEX:wage$OCCUPATION
0.000
## wage$EXPERIENCE:wage$OCCUPATION
0.466
## wage$UNION:wage$OCCUPATION
0.380
## wage$ETHNIC:wage$OCCUPATION
0.125
## wage$EDUC:wage$SECTOR
1.803
## wage$SOUTH:wage$SECTOR
```

```

0.792
## wage$SEX:wage$SECTOR
0.314
## wage$EXPERIENCE:wage$SECTOR
1.362
## wage$UNION:wage$SECTOR
4.661
## wage$ETHNIC:wage$SECTOR
1.152
## wage$OCCUPATION:wage$SECTOR
0.066
## wage$EDUC:wage$MARITAL
0.361
## wage$SOUTH:wage$MARITAL
1.635
## wage$SEX:wage$MARITAL
3.057
## wage$EXPERIENCE:wage$MARITAL
0.430
## wage$UNION:wage$MARITAL
1.079
## wage$ETHNIC:wage$MARITAL
0.546
## wage$OCCUPATION:wage$MARITAL
2.202
## wage$SECTOR:wage$MARITAL
0.447
## wage$EDUC:wage$SOUTH:wage$SEX
0.002
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE
1.953
## wage$EDUC:wage$SEX:wage$EXPERIENCE
0.212
## wage$SOUTH:wage$SEX:wage$EXPERIENCE
0.018
## wage$EDUC:wage$SOUTH:wage$UNION
8.640
## wage$EDUC:wage$SEX:wage$UNION
1.337
## wage$SOUTH:wage$SEX:wage$UNION
0.146
## wage$EDUC:wage$EXPERIENCE:wage$UNION
4.924
## wage$SOUTH:wage$EXPERIENCE:wage$UNION
0.453
## wage$SEX:wage$EXPERIENCE:wage$UNION
2.180
## wage$EDUC:wage$SOUTH:wage$AGE
0.449
## wage$EDUC:wage$SEX:wage$AGE

```

```

0.461
## wage$EDUC:wage$EXPERIENCE:wage$AGE
0.001
## wage$SOUTH:wage$EXPERIENCE:wage$AGE
0.000
## wage$SEX:wage$EXPERIENCE:wage$AGE
3.745
## wage$EDUC:wage$UNION:wage$AGE
2.268
## wage$EXPERIENCE:wage$UNION:wage$AGE
1.268
## wage$EDUC:wage$SOUTH:wage$ETHNIC
0.352
## wage$EDUC:wage$SEX:wage$ETHNIC
0.210
## wage$SOUTH:wage$SEX:wage$ETHNIC
0.423
## wage$EDUC:wage$EXPERIENCE:wage$ETHNIC
0.639
## wage$SOUTH:wage$EXPERIENCE:wage$ETHNIC
1.022
## wage$SEX:wage$EXPERIENCE:wage$ETHNIC
0.787
## wage$EDUC:wage$UNION:wage$ETHNIC
6.387
## wage$SOUTH:wage$UNION:wage$ETHNIC
0.486
## wage$SEX:wage$UNION:wage$ETHNIC
0.025
## wage$EXPERIENCE:wage$UNION:wage$ETHNIC
0.410
## wage$EDUC:wage$AGE:wage$ETHNIC
0.083
## wage$EXPERIENCE:wage$AGE:wage$ETHNIC
0.008
## wage$EDUC:wage$SOUTH:wage$OCCUPATION
0.760
## wage$EDUC:wage$SEX:wage$OCCUPATION
3.524
## wage$SOUTH:wage$SEX:wage$OCCUPATION
2.607
## wage$EDUC:wage$EXPERIENCE:wage$OCCUPATION
4.314
## wage$SOUTH:wage$EXPERIENCE:wage$OCCUPATION
1.764
## wage$SEX:wage$EXPERIENCE:wage$OCCUPATION
3.466
## wage$EDUC:wage$UNION:wage$OCCUPATION
0.952
## wage$SOUTH:wage$UNION:wage$OCCUPATION

```

```
0.068
## wage$SEX:wage$UNION:wage$OCCUPATION
0.049
## wage$EXPERIENCE:wage$UNION:wage$OCCUPATION
2.989
## wage$EDUC:wage$AGE:wage$OCCUPATION
0.018
## wage$EXPERIENCE:wage$AGE:wage$OCCUPATION
1.542
## wage$EDUC:wage$ETHNIC:wage$OCCUPATION
0.143
## wage$SOUTH:wage$ETHNIC:wage$OCCUPATION
0.401
## wage$SEX:wage$ETHNIC:wage$OCCUPATION
1.131
## wage$EXPERIENCE:wage$ETHNIC:wage$OCCUPATION
0.350
## wage$UNION:wage$ETHNIC:wage$OCCUPATION
2.440
## wage$EDUC:wage$SOUTH:wage$SECTOR
2.624
## wage$EDUC:wage$SEX:wage$SECTOR
0.024
## wage$SOUTH:wage$SEX:wage$SECTOR
0.214
## wage$EDUC:wage$EXPERIENCE:wage$SECTOR
0.000
## wage$SOUTH:wage$EXPERIENCE:wage$SECTOR
0.763
## wage$SEX:wage$EXPERIENCE:wage$SECTOR
1.089
## wage$EDUC:wage$UNION:wage$SECTOR
1.336
## wage$SOUTH:wage$UNION:wage$SECTOR
0.893
## wage$SEX:wage$UNION:wage$SECTOR
1.139
## wage$EXPERIENCE:wage$UNION:wage$SECTOR
0.022
## wage$EDUC:wage$AGE:wage$SECTOR
3.015
## wage$EXPERIENCE:wage$AGE:wage$SECTOR
0.041
## wage$EDUC:wage$ETHNIC:wage$SECTOR
0.000
## wage$SOUTH:wage$ETHNIC:wage$SECTOR
0.012
## wage$SEX:wage$ETHNIC:wage$SECTOR
0.033
## wage$EXPERIENCE:wage$ETHNIC:wage$SECTOR
```

```
0.999
## wage$UNION:wage$ETHNIC:wage$SECTOR
0.032
## wage$EDUC:wage$OCCUPATION:wage$SECTOR
8.677
## wage$SOUTH:wage$OCCUPATION:wage$SECTOR
0.051
## wage$SEX:wage$OCCUPATION:wage$SECTOR
0.202
## wage$EXPERIENCE:wage$OCCUPATION:wage$SECTOR
0.194
## wage$UNION:wage$OCCUPATION:wage$SECTOR
0.648
## wage$ETHNIC:wage$OCCUPATION:wage$SECTOR
2.752
## wage$EDUC:wage$SOUTH:wage$MARITAL
0.002
## wage$EDUC:wage$SEX:wage$MARITAL
1.589
## wage$SOUTH:wage$SEX:wage$MARITAL
0.227
## wage$EDUC:wage$EXPERIENCE:wage$MARITAL
0.751
## wage$SOUTH:wage$EXPERIENCE:wage$MARITAL
0.255
## wage$SEX:wage$EXPERIENCE:wage$MARITAL
0.157
## wage$EDUC:wage$UNION:wage$MARITAL
0.230
## wage$SOUTH:wage$UNION:wage$MARITAL
0.943
## wage$SEX:wage$UNION:wage$MARITAL
0.525
## wage$EXPERIENCE:wage$UNION:wage$MARITAL
0.648
## wage$EDUC:wage$AGE:wage$MARITAL
0.159
## wage$EXPERIENCE:wage$AGE:wage$MARITAL
3.821
## wage$EDUC:wage$ETHNIC:wage$MARITAL
1.329
## wage$SOUTH:wage$ETHNIC:wage$MARITAL
0.136
## wage$SEX:wage$ETHNIC:wage$MARITAL
0.872
## wage$EXPERIENCE:wage$ETHNIC:wage$MARITAL
0.173
## wage$UNION:wage$ETHNIC:wage$MARITAL
0.529
## wage$EDUC:wage$OCCUPATION:wage$MARITAL
```

```
0.206
## wage$SOUTH:wage$OCCUPATION:wage$MARITAL
0.065
## wage$SEX:wage$OCCUPATION:wage$MARITAL
0.244
## wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
0.043
## wage$UNION:wage$OCCUPATION:wage$MARITAL
0.002
## wage$ETHNIC:wage$OCCUPATION:wage$MARITAL
0.049
## wage$EDUC:wage$SECTOR:wage$MARITAL
0.510
## wage$SOUTH:wage$SECTOR:wage$MARITAL
0.016
## wage$SEX:wage$SECTOR:wage$MARITAL
0.044
## wage$EXPERIENCE:wage$SECTOR:wage$MARITAL
0.660
## wage$UNION:wage$SECTOR:wage$MARITAL
0.135
## wage$ETHNIC:wage$SECTOR:wage$MARITAL
0.007
## wage$OCCUPATION:wage$SECTOR:wage$MARITAL
0.208
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE
2.155
## wage$EDUC:wage$SOUTH:wage$SEX:wage$UNION
0.008
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$UNION
0.022
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$UNION
0.880
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$UNION
1.087
## wage$EDUC:wage$SOUTH:wage$SEX:wage$AGE
2.874
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$AGE
0.673
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE
5.062
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE
1.448
## wage$EDUC:wage$SOUTH:wage$UNION:wage$AGE
0.271
## wage$EDUC:wage$SEX:wage$UNION:wage$AGE
0.249
## wage$EDUC:wage$EXPERIENCE:wage$UNION:wage$AGE
1.366
## wage$SOUTH:wage$EXPERIENCE:wage$UNION:wage$AGE
```



```

0.469
## wage$SEX:wage$EXPERIENCE:wage$UNION:wage$AGE
0.011
## wage$EDUC:wage$SOUTH:wage$SEX:wage$ETHNIC
2.700
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$ETHNIC
0.512
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$ETHNIC
3.107
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$ETHNIC
0.598
## wage$EDUC:wage$SOUTH:wage$UNION:wage$ETHNIC
0.599
## wage$EDUC:wage$SEX:wage$UNION:wage$ETHNIC
0.417
## wage$EDUC:wage$EXPERIENCE:wage$UNION:wage$ETHNIC
0.250
## wage$SOUTH:wage$EXPERIENCE:wage$UNION:wage$ETHNIC
0.478
## wage$SEX:wage$EXPERIENCE:wage$UNION:wage$ETHNIC
2.068
## wage$EDUC:wage$SOUTH:wage$AGE:wage$ETHNIC
0.872
## wage$EDUC:wage$SEX:wage$AGE:wage$ETHNIC
0.011
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$ETHNIC
0.239
## wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$ETHNIC
0.010
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$ETHNIC
1.829
## wage$EDUC:wage$UNION:wage$AGE:wage$ETHNIC
3.008
## wage$EXPERIENCE:wage$UNION:wage$AGE:wage$ETHNIC
0.071
## wage$EDUC:wage$SOUTH:wage$SEX:wage$OCCUPATION
0.618
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$OCCUPATION
0.088
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$OCCUPATION
6.515
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$OCCUPATION
4.188
## wage$EDUC:wage$SOUTH:wage$UNION:wage$OCCUPATION
0.033
## wage$EDUC:wage$SEX:wage$UNION:wage$OCCUPATION
0.213
## wage$EDUC:wage$EXPERIENCE:wage$UNION:wage$OCCUPATION
0.111
## wage$SOUTH:wage$EXPERIENCE:wage$UNION:wage$OCCUPATION

```

```

0.008
## wage$SEX:wage$EXPERIENCE:wage$UNION:wage$OCCUPATION
0.000
## wage$EDUC:wage$SOUTH:wage$AGE:wage$OCCUPATION
1.392
## wage$EDUC:wage$SEX:wage$AGE:wage$OCCUPATION
1.614
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION
0.156
## wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION
1.143
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION
0.254
## wage$EDUC:wage$UNION:wage$AGE:wage$OCCUPATION
1.128
## wage$EXPERIENCE:wage$UNION:wage$AGE:wage$OCCUPATION
4.654
## wage$EDUC:wage$SOUTH:wage$ETHNIC:wage$OCCUPATION
0.611
## wage$EDUC:wage$SEX:wage$ETHNIC:wage$OCCUPATION
0.266
## wage$SOUTH:wage$SEX:wage$ETHNIC:wage$OCCUPATION
0.275
## wage$EDUC:wage$EXPERIENCE:wage$ETHNIC:wage$OCCUPATION
2.140
## wage$SOUTH:wage$EXPERIENCE:wage$ETHNIC:wage$OCCUPATION
0.016
## wage$SEX:wage$EXPERIENCE:wage$ETHNIC:wage$OCCUPATION
3.967
## wage$EDUC:wage$UNION:wage$ETHNIC:wage$OCCUPATION
0.545
## wage$SEX:wage$UNION:wage$ETHNIC:wage$OCCUPATION
0.260
## wage$EXPERIENCE:wage$UNION:wage$ETHNIC:wage$OCCUPATION
0.008
## wage$EDUC:wage$AGE:wage$ETHNIC:wage$OCCUPATION
0.002
## wage$EXPERIENCE:wage$AGE:wage$ETHNIC:wage$OCCUPATION
0.320
## wage$EDUC:wage$SOUTH:wage$SEX:wage$SECTOR
0.002
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$SECTOR
0.082
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$SECTOR
1.527
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$SECTOR
0.348
## wage$EDUC:wage$SOUTH:wage$UNION:wage$SECTOR
1.748
## wage$EDUC:wage$SEX:wage$UNION:wage$SECTOR

```

```
2.666
## wage$EDUC:wage$EXPERIENCE:wage$UNION:wage$SECTOR
0.068
## wage$SOUTH:wage$EXPERIENCE:wage$UNION:wage$SECTOR
0.135
## wage$SEX:wage$EXPERIENCE:wage$UNION:wage$SECTOR
0.352
## wage$EDUC:wage$SOUTH:wage$AGE:wage$SECTOR
0.804
## wage$EDUC:wage$SEX:wage$AGE:wage$SECTOR
2.045
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$SECTOR
0.050
## wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$SECTOR
1.281
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$SECTOR
0.022
## wage$EDUC:wage$UNION:wage$AGE:wage$SECTOR
0.281
## wage$EXPERIENCE:wage$UNION:wage$AGE:wage$SECTOR
0.001
## wage$EDUC:wage$SOUTH:wage$ETHNIC:wage$SECTOR
0.240
## wage$EDUC:wage$SEX:wage$ETHNIC:wage$SECTOR
0.347
## wage$SOUTH:wage$SEX:wage$ETHNIC:wage$SECTOR
0.154
## wage$EDUC:wage$EXPERIENCE:wage$ETHNIC:wage$SECTOR
0.003
## wage$SOUTH:wage$EXPERIENCE:wage$ETHNIC:wage$SECTOR
0.131
## wage$EDUC:wage$SEX:wage$OCCUPATION:wage$SECTOR
0.018
## wage$SOUTH:wage$SEX:wage$OCCUPATION:wage$SECTOR
2.451
## wage$EDUC:wage$EXPERIENCE:wage$OCCUPATION:wage$SECTOR
0.128
## wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$SECTOR
0.015
## wage$EDUC:wage$AGE:wage$OCCUPATION:wage$SECTOR
0.307
## wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$SECTOR
0.562
## wage$EDUC:wage$SOUTH:wage$SEX:wage$MARITAL
0.636
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$MARITAL
0.435
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$MARITAL
2.383
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$MARITAL
```

```
1.097
## wage$EDUC:wage$SEX:wage$UNION:wage$MARITAL
12.826
## wage$EDUC:wage$EXPERIENCE:wage$UNION:wage$MARITAL
0.084
## wage$SEX:wage$EXPERIENCE:wage$UNION:wage$MARITAL
0.824
## wage$EDUC:wage$SOUTH:wage$AGE:wage$MARITAL
2.349
## wage$EDUC:wage$SEX:wage$AGE:wage$MARITAL
0.036
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$MARITAL
1.880
## wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$MARITAL
0.004
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$MARITAL
0.461
## wage$EDUC:wage$UNION:wage$AGE:wage$MARITAL
0.045
## wage$EXPERIENCE:wage$UNION:wage$AGE:wage$MARITAL
0.517
## wage$EDUC:wage$SOUTH:wage$ETHNIC:wage$MARITAL
0.599
## wage$EDUC:wage$SEX:wage$ETHNIC:wage$MARITAL
0.027
## wage$SOUTH:wage$SEX:wage$ETHNIC:wage$MARITAL
0.052
## wage$EDUC:wage$EXPERIENCE:wage$ETHNIC:wage$MARITAL
0.687
## wage$SOUTH:wage$EXPERIENCE:wage$ETHNIC:wage$MARITAL
0.025
## wage$SEX:wage$EXPERIENCE:wage$ETHNIC:wage$MARITAL
1.413
## wage$EDUC:wage$AGE:wage$ETHNIC:wage$MARITAL
3.151
## wage$EXPERIENCE:wage$AGE:wage$ETHNIC:wage$MARITAL
0.133
## wage$EDUC:wage$SOUTH:wage$OCCUPATION:wage$MARITAL
0.492
## wage$EDUC:wage$SEX:wage$OCCUPATION:wage$MARITAL
0.022
## wage$SOUTH:wage$SEX:wage$OCCUPATION:wage$MARITAL
0.464
## wage$EDUC:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
1.148
## wage$SOUTH:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
0.000
## wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
8.628
## wage$EDUC:wage$UNION:wage$OCCUPATION:wage$MARITAL
```

0.330
wage\$SEX:wage\$UNION:wage\$OCCUPATION:wage\$MARITAL
0.089
wage\$EXPERIENCE:wage\$UNION:wage\$OCCUPATION:wage\$MARITAL
1.540
wage\$EDUC:wage\$AGE:wage\$OCCUPATION:wage\$MARITAL
1.501
wage\$EXPERIENCE:wage\$AGE:wage\$OCCUPATION:wage\$MARITAL
1.609
wage\$EDUC:wage\$ETHNIC:wage\$OCCUPATION:wage\$MARITAL
3.983
wage\$SOUTH:wage\$ETHNIC:wage\$OCCUPATION:wage\$MARITAL
0.366
wage\$SEX:wage\$ETHNIC:wage\$OCCUPATION:wage\$MARITAL
0.165
wage\$EXPERIENCE:wage\$ETHNIC:wage\$OCCUPATION:wage\$MARITAL
0.469
wage\$EDUC:wage\$SOUTH:wage\$SECTOR:wage\$MARITAL
0.341
wage\$EDUC:wage\$SEX:wage\$SECTOR:wage\$MARITAL
0.021
wage\$EDUC:wage\$EXPERIENCE:wage\$SECTOR:wage\$MARITAL
1.631
wage\$SOUTH:wage\$EXPERIENCE:wage\$SECTOR:wage\$MARITAL
0.026
wage\$SEX:wage\$EXPERIENCE:wage\$SECTOR:wage\$MARITAL
0.259
wage\$EDUC:wage\$AGE:wage\$SECTOR:wage\$MARITAL
0.001
wage\$EXPERIENCE:wage\$AGE:wage\$SECTOR:wage\$MARITAL
0.432
wage\$EDUC:wage\$OCCUPATION:wage\$SECTOR:wage\$MARITAL
1.408
wage\$SEX:wage\$OCCUPATION:wage\$SECTOR:wage\$MARITAL
1.394
wage\$EXPERIENCE:wage\$OCCUPATION:wage\$SECTOR:wage\$MARITAL
2.922
wage\$EDUC:wage\$SOUTH:wage\$SEX:wage\$EXPERIENCE:wage\$AGE
5.567
wage\$EDUC:wage\$SOUTH:wage\$SEX:wage\$EXPERIENCE:wage\$ETHNIC
1.037
wage\$EDUC:wage\$SOUTH:wage\$SEX:wage\$AGE:wage\$ETHNIC
0.659
wage\$EDUC:wage\$SOUTH:wage\$EXPERIENCE:wage\$AGE:wage\$ETHNIC
0.452
wage\$EDUC:wage\$SEX:wage\$EXPERIENCE:wage\$AGE:wage\$ETHNIC
0.084
wage\$SOUTH:wage\$SEX:wage\$EXPERIENCE:wage\$AGE:wage\$ETHNIC
0.013
wage\$EDUC:wage\$SOUTH:wage\$SEX:wage\$EXPERIENCE:wage\$OCCUPATION

3.427

wage\$EDUC:wage\$SOUTH:wage\$SEX:wage\$AGE:wage\$OCCUPATION
7.664

wage\$EDUC:wage\$SOUTH:wage\$EXPERIENCE:wage\$AGE:wage\$OCCUPATION
0.157

wage\$EDUC:wage\$SEX:wage\$EXPERIENCE:wage\$AGE:wage\$OCCUPATION
0.026

wage\$SOUTH:wage\$SEX:wage\$EXPERIENCE:wage\$AGE:wage\$OCCUPATION
1.266

wage\$EDUC:wage\$EXPERIENCE:wage\$UNION:wage\$AGE:wage\$OCCUPATION
0.437

wage\$EDUC:wage\$SOUTH:wage\$EXPERIENCE:wage\$ETHNIC:wage\$OCCUPATION
0.742

wage\$EDUC:wage\$SEX:wage\$EXPERIENCE:wage\$ETHNIC:wage\$OCCUPATION
1.225

wage\$EDUC:wage\$SOUTH:wage\$AGE:wage\$ETHNIC:wage\$OCCUPATION
0.536

wage\$EDUC:wage\$SOUTH:wage\$EXPERIENCE:wage\$AGE:wage\$SECTOR
0.035

wage\$EDUC:wage\$SEX:wage\$EXPERIENCE:wage\$AGE:wage\$SECTOR
3.256

wage\$EDUC:wage\$SEX:wage\$EXPERIENCE:wage\$OCCUPATION:wage\$SECTOR
0.353

wage\$EDUC:wage\$SEX:wage\$AGE:wage\$OCCUPATION:wage\$SECTOR
0.587

wage\$EDUC:wage\$EXPERIENCE:wage\$AGE:wage\$OCCUPATION:wage\$SECTOR
2.067

wage\$SEX:wage\$EXPERIENCE:wage\$AGE:wage\$OCCUPATION:wage\$SECTOR
0.055

wage\$EDUC:wage\$SOUTH:wage\$SEX:wage\$EXPERIENCE:wage\$MARITAL
0.098

wage\$EDUC:wage\$SOUTH:wage\$SEX:wage\$AGE:wage\$MARITAL
1.504

wage\$EDUC:wage\$SOUTH:wage\$EXPERIENCE:wage\$AGE:wage\$MARITAL
0.084

wage\$EDUC:wage\$SEX:wage\$EXPERIENCE:wage\$AGE:wage\$MARITAL
9.830

wage\$SOUTH:wage\$SEX:wage\$EXPERIENCE:wage\$AGE:wage\$MARITAL
3.528

wage\$EDUC:wage\$SOUTH:wage\$SEX:wage\$OCCUPATION:wage\$MARITAL
0.582

wage\$EDUC:wage\$SOUTH:wage\$EXPERIENCE:wage\$OCCUPATION:wage\$MARITAL
0.000

wage\$EDUC:wage\$SEX:wage\$EXPERIENCE:wage\$OCCUPATION:wage\$MARITAL
0.123

wage\$SOUTH:wage\$SEX:wage\$EXPERIENCE:wage\$OCCUPATION:wage\$MARITAL
0.019

wage\$EDUC:wage\$SOUTH:wage\$AGE:wage\$OCCUPATION:wage\$MARITAL
9.648

wage\$EDUC:wage\$SEX:wage\$AGE:wage\$OCCUPATION:wage\$MARITAL

```

        6.780
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
    0.487
## wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
    0.196
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
    0.771
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$SECTOR:wage$MARITAL
    0.291
## wage$EDUC:wage$SEX:wage$AGE:wage$SECTOR:wage$MARITAL
    0.021
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$SECTOR:wage$MARITAL
    0.444
## wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$SECTOR:wage$MARITAL
    3.477
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$SECTOR:wage$MARITAL
    0.358
## wage$EDUC:wage$SEX:wage$OCCUPATION:wage$SECTOR:wage$MARITAL
    0.000
## wage$EDUC:wage$EXPERIENCE:wage$OCCUPATION:wage$SECTOR:wage$MARITAL
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    1.380
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION
    1.383
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$SECTOR
    1.039
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$MARITAL
    0.072
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
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## wage$EDUC:wage$SOUTH:wage$SEX:wage$AGE:wage$OCCUPATION:wage$MARITAL
    0.251
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    0.084
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
    0.332
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
    0.675
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wag
e$MARITAL    0.328
## Residuals

##
        Pr(>F)
## wage$EDUC
    < 2e-16
## wage$SOUTH
    0.012700
## wage$SEX

```

```
1.36e-08
## wage$EXPERIENCE
2.09e-11
## wage$UNION
0.004403
## wage$AGE
0.749333
## wage$ETHNIC
0.071621
## wage$OCCUPATION
0.513823
## wage$SECTOR
0.047059
## wage$MARITAL
0.286150
## wage$EDUC:wage$SOUTH
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## wage$EDUC:wage$SEX
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## wage$SOUTH:wage$SEX
0.480885
## wage$EDUC:wage$EXPERIENCE
0.280213
## wage$SOUTH:wage$EXPERIENCE
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## wage$SEX:wage$EXPERIENCE
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## wage$EDUC:wage$UNION
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## wage$SOUTH:wage$UNION
0.365511
## wage$SEX:wage$UNION
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## wage$EXPERIENCE:wage$UNION
0.081376
## wage$EDUC:wage$AGE
0.015043
## wage$EXPERIENCE:wage$AGE
0.028336
## wage$EDUC:wage$ETHNIC
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## wage$SOUTH:wage$ETHNIC
0.733448
## wage$SEX:wage$ETHNIC
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## wage$EXPERIENCE:wage$ETHNIC
0.819740
## wage$UNION:wage$ETHNIC
0.621473
## wage$EDUC:wage$OCCUPATION
```



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0.542251
## wage$SOUTH:wage$OCCUPATION
0.710692
## wage$SEX:wage$OCCUPATION
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## wage$EXPERIENCE:wage$OCCUPATION
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## wage$UNION:wage$OCCUPATION
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## wage$ETHNIC:wage$OCCUPATION
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## wage$SOUTH:wage$SECTOR
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## wage$SEX:wage$SECTOR
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## wage$ETHNIC:wage$SECTOR
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## wage$OCCUPATION:wage$SECTOR
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## wage$SEX:wage$MARITAL
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## wage$EDUC:wage$SOUTH:wage$UNION
```

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## wage$EDUC:wage$SOUTH:wage$SEX:wage$AGE
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0.564837
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0.412337
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wag
e$MARITAL 0.567261
## Residuals

##

## wage$EDUC
***
## wage$SOUTH
*
## wage$SEX
***
## wage$EXPERIENCE
***
## wage$UNION
**
## wage$AGE

## wage$ETHNIC
.
## wage$OCCUPATION

## wage$SECTOR
*
## wage$MARITAL

## wage$EDUC:wage$SOUTH
*
## wage$EDUC:wage$SEX

## wage$SOUTH:wage$SEX

## wage$EDUC:wage$EXPERIENCE

## wage$SOUTH:wage$EXPERIENCE

## wage$SEX:wage$EXPERIENCE
*
## wage$EDUC:wage$UNION
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## wage$SOUTH:wage$UNION

## wage$SEX:wage$UNION

## wage$EXPERIENCE:wage$UNION
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## wage$EDUC:wage$AGE
      *
## wage$EXPERIENCE:wage$AGE
      *
## wage$EDUC:wage$ETHNIC
## wage$SOUTH:wage$ETHNIC
## wage$SEX:wage$ETHNIC
## wage$EXPERIENCE:wage$ETHNIC
## wage$UNION:wage$ETHNIC
## wage$EDUC:wage$OCCUPATION
## wage$SOUTH:wage$OCCUPATION
## wage$SEX:wage$OCCUPATION
## wage$EXPERIENCE:wage$OCCUPATION
## wage$UNION:wage$OCCUPATION
## wage$ETHNIC:wage$OCCUPATION
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## wage$SOUTH:wage$SECTOR
## wage$SEX:wage$SECTOR
## wage$EXPERIENCE:wage$SECTOR
## wage$UNION:wage$SECTOR
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## wage$ETHNIC:wage$SECTOR
## wage$OCCUPATION:wage$SECTOR
## wage$EDUC:wage$MARITAL
## wage$SOUTH:wage$MARITAL
## wage$SEX:wage$MARITAL
      .
## wage$EXPERIENCE:wage$MARITAL

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## wage$UNION:wage$MARITAL

## wage$ETHNIC:wage$MARITAL

## wage$OCCUPATION:wage$MARITAL

## wage$SECTOR:wage$MARITAL

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## wage$EDUC:wage$SOUTH:wage$EXPERIENCE

## wage$EDUC:wage$SEX:wage$EXPERIENCE

## wage$SOUTH:wage$SEX:wage$EXPERIENCE

## wage$EDUC:wage$SOUTH:wage$UNION
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## wage$EDUC:wage$SEX:wage$UNION

## wage$SOUTH:wage$SEX:wage$UNION

## wage$EDUC:wage$EXPERIENCE:wage$UNION
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## wage$SOUTH:wage$EXPERIENCE:wage$UNION

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## wage$EDUC:wage$SOUTH:wage$AGE

## wage$EDUC:wage$SEX:wage$AGE

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## wage$EDUC:wage$UNION:wage$AGE

## wage$EXPERIENCE:wage$UNION:wage$AGE

## wage$EDUC:wage$SOUTH:wage$ETHNIC

## wage$EDUC:wage$SEX:wage$ETHNIC

## wage$SOUTH:wage$SEX:wage$ETHNIC

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## wage$SOUTH:wage$EXPERIENCE:wage$ETHNIC
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## wage$SOUTH:wage$EXPERIENCE:wage$OCCUPATION
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## wage$SEX:wage$UNION:wage$OCCUPATION
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  .
## wage$EDUC:wage$AGE:wage$OCCUPATION
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## wage$SOUTH:wage$ETHNIC:wage$OCCUPATION
## wage$SEX:wage$ETHNIC:wage$OCCUPATION
```



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## wage$UNION:wage$ETHNIC:wage$OCCUPATION
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## wage$EDUC:wage$SEX:wage$SECTOR
## wage$SOUTH:wage$SEX:wage$SECTOR
## wage$EDUC:wage$EXPERIENCE:wage$SECTOR
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## wage$SEX:wage$UNION:wage$SECTOR
## wage$EXPERIENCE:wage$UNION:wage$SECTOR
## wage$EDUC:wage$AGE:wage$SECTOR
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## wage$EDUC:wage$OCCUPATION:wage$SECTOR
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## wage$SOUTH:wage$OCCUPATION:wage$SECTOR
## wage$SEX:wage$OCCUPATION:wage$SECTOR
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## wage$UNION:wage$OCCUPATION:wage$SECTOR
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## wage$ETHNIC:wage$OCCUPATION:wage$SECTOR
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## wage$EDUC:wage$SEX:wage$MARITAL
## wage$SOUTH:wage$SEX:wage$MARITAL
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## wage$SEX:wage$EXPERIENCE:wage$MARITAL
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## wage$EXPERIENCE:wage$UNION:wage$MARITAL
## wage$EDUC:wage$AGE:wage$MARITAL
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## wage$UNION:wage$OCCUPATION:wage$MARITAL
## wage$ETHNIC:wage$OCCUPATION:wage$MARITAL
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## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE
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## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE
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## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$MARITAL
## wage$EDUC:wage$SEX:wage$UNION:wage$MARITAL
```

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## wage$EDUC:wage$EXPERIENCE:wage$UNION:wage$MARITAL
## wage$SEX:wage$EXPERIENCE:wage$UNION:wage$MARITAL
## wage$EDUC:wage$SOUTH:wage$AGE:wage$MARITAL
## wage$EDUC:wage$SEX:wage$AGE:wage$MARITAL
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$MARITAL
## wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$MARITAL
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$MARITAL
## wage$EDUC:wage$UNION:wage$AGE:wage$MARITAL
## wage$EXPERIENCE:wage$UNION:wage$AGE:wage$MARITAL
## wage$EDUC:wage$SOUTH:wage$ETHNIC:wage$MARITAL
## wage$EDUC:wage$SEX:wage$ETHNIC:wage$MARITAL
## wage$SOUTH:wage$SEX:wage$ETHNIC:wage$MARITAL
## wage$EDUC:wage$EXPERIENCE:wage$ETHNIC:wage$MARITAL
## wage$SOUTH:wage$EXPERIENCE:wage$ETHNIC:wage$MARITAL
## wage$SEX:wage$EXPERIENCE:wage$ETHNIC:wage$MARITAL
## wage$EDUC:wage$AGE:wage$ETHNIC:wage$MARITAL
.
## wage$EXPERIENCE:wage$AGE:wage$ETHNIC:wage$MARITAL
## wage$EDUC:wage$SOUTH:wage$OCCUPATION:wage$MARITAL
## wage$EDUC:wage$SEX:wage$OCCUPATION:wage$MARITAL
## wage$SOUTH:wage$SEX:wage$OCCUPATION:wage$MARITAL
## wage$EDUC:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
## wage$SOUTH:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
## wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
**
## wage$EDUC:wage$UNION:wage$OCCUPATION:wage$MARITAL
```

```

## wage$SEX:wage$UNION:wage$OCCUPATION:wage$MARITAL
## wage$EXPERIENCE:wage$UNION:wage$OCCUPATION:wage$MARITAL
## wage$EDUC:wage$AGE:wage$OCCUPATION:wage$MARITAL
## wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
## wage$EDUC:wage$ETHNIC:wage$OCCUPATION:wage$MARITAL
*
## wage$SOUTH:wage$ETHNIC:wage$OCCUPATION:wage$MARITAL
## wage$SEX:wage$ETHNIC:wage$OCCUPATION:wage$MARITAL
## wage$EXPERIENCE:wage$ETHNIC:wage$OCCUPATION:wage$MARITAL
## wage$EDUC:wage$SOUTH:wage$SECTOR:wage$MARITAL
## wage$EDUC:wage$SEX:wage$SECTOR:wage$MARITAL
## wage$EDUC:wage$EXPERIENCE:wage$SECTOR:wage$MARITAL
## wage$SOUTH:wage$EXPERIENCE:wage$SECTOR:wage$MARITAL
## wage$SEX:wage$EXPERIENCE:wage$SECTOR:wage$MARITAL
## wage$EDUC:wage$AGE:wage$SECTOR:wage$MARITAL
## wage$EXPERIENCE:wage$AGE:wage$SECTOR:wage$MARITAL
## wage$EDUC:wage$OCCUPATION:wage$SECTOR:wage$MARITAL
## wage$SEX:wage$OCCUPATION:wage$SECTOR:wage$MARITAL
## wage$EXPERIENCE:wage$OCCUPATION:wage$SECTOR:wage$MARITAL
.
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE
*
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$ETHNIC
## wage$EDUC:wage$SOUTH:wage$SEX:wage$AGE:wage$ETHNIC
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$ETHNIC
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$ETHNIC
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$ETHNIC

```



```
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$OCCUPATION
.
## wage$EDUC:wage$SOUTH:wage$SEX:wage$AGE:wage$OCCUPATION
**
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION
## wage$EDUC:wage$EXPERIENCE:wage$UNION:wage$AGE:wage$OCCUPATION
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$ETHNIC:wage$OCCUPATION
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$ETHNIC:wage$OCCUPATION
## wage$EDUC:wage$SOUTH:wage$AGE:wage$ETHNIC:wage$OCCUPATION
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$SECTOR
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$SECTOR
.
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$SECTOR
## wage$EDUC:wage$SEX:wage$AGE:wage$OCCUPATION:wage$SECTOR
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$SECTOR
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$SECTOR
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$MARITAL
## wage$EDUC:wage$SOUTH:wage$SEX:wage$AGE:wage$MARITAL
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$MARITAL
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$MARITAL
**
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$MARITAL
.
## wage$EDUC:wage$SOUTH:wage$SEX:wage$OCCUPATION:wage$MARITAL
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
```

```

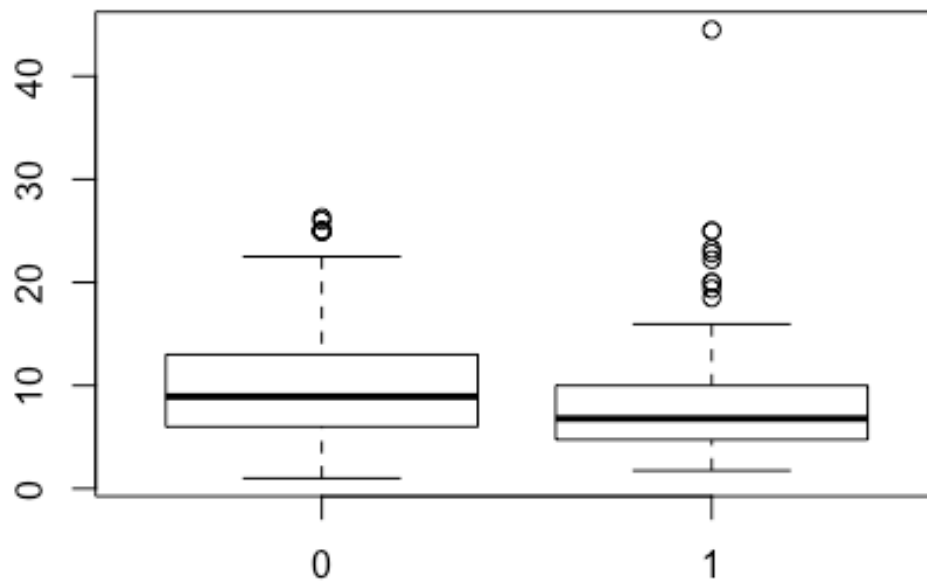
## wage$EDUC:wage$SOUTH:wage$AGE:wage$OCCUPATION:wage$MARITAL
##
## wage$EDUC:wage$SEX:wage$AGE:wage$OCCUPATION:wage$MARITAL
##
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
##
## wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
##
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
##
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$SECTOR:wage$MARITAL
##
## wage$EDUC:wage$SEX:wage$AGE:wage$SECTOR:wage$MARITAL
##
## wage$EDUC:wage$EXPERIENCE:wage$AGE:wage$SECTOR:wage$MARITAL
##
## wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$SECTOR:wage$MARITAL
##
## wage$SEX:wage$EXPERIENCE:wage$AGE:wage$SECTOR:wage$MARITAL
##
## wage$EDUC:wage$SEX:wage$OCCUPATION:wage$SECTOR:wage$MARITAL
##
## wage$EDUC:wage$EXPERIENCE:wage$OCCUPATION:wage$SECTOR:wage$MARITAL
##
## wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$SECTOR:wage$MARITAL
##
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION
##
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$SECTOR
##
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$MARITAL
##
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$OCCUPATION:wage$MARITAL
##
## wage$EDUC:wage$SOUTH:wage$SEX:wage$AGE:wage$OCCUPATION:wage$MARITAL
##
## wage$EDUC:wage$SOUTH:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
##
## wage$EDUC:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
##
## wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
##
## wage$EDUC:wage$SOUTH:wage$SEX:wage$EXPERIENCE:wage$AGE:wage$OCCUPATION:wage$MARITAL
## Residuals
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

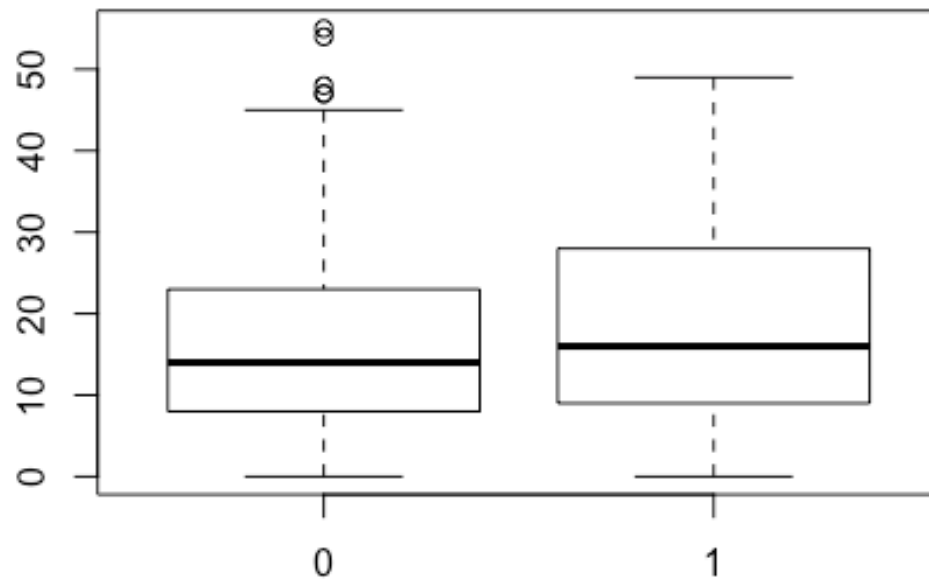
```
##### 2x2 Contingency Table #####
```

```
#box plot
```

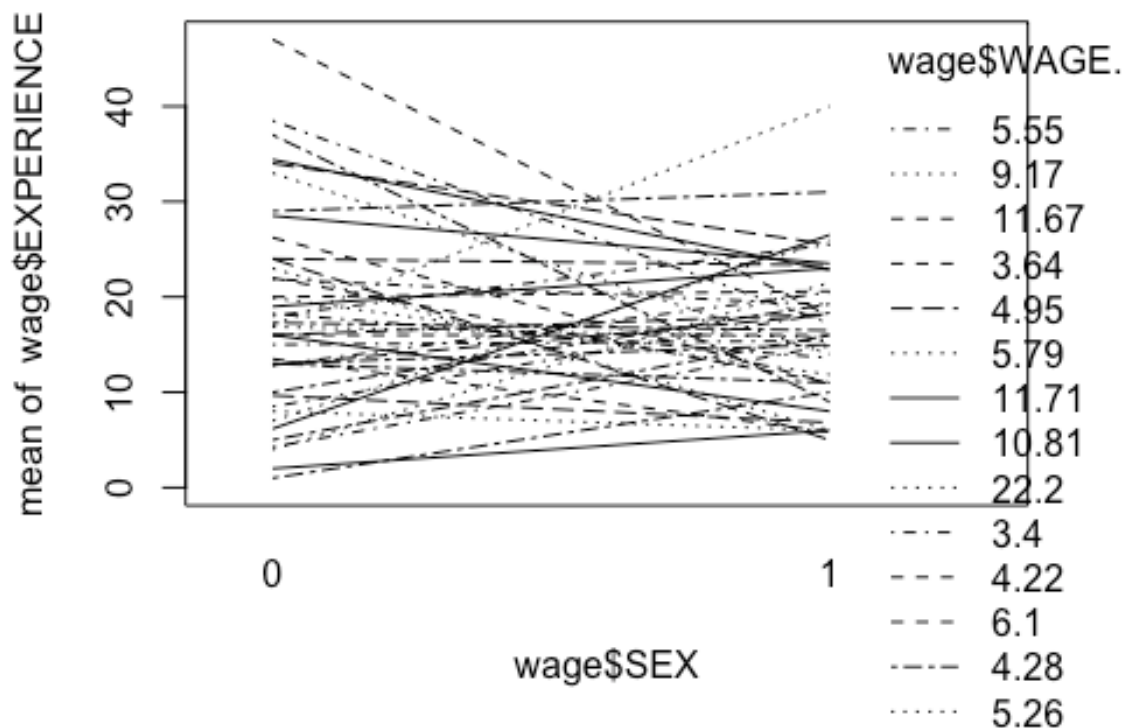
```
boxplot(wage$WAGE.HR~wage$SEX)      #male has higher wage
```



```
boxplot(wage$EXPERIENCE~wage$SEX)  #female have more experience
```



```
#interaction plot  
interaction.plot(wage$SEX, wage$WAGE.HR, wage$EXPERIENCE)
```



```
#           wage
#male

##Male  with same exp have higher salary
median(wage$EXPERIENCE) #15

## [1] 15

low_exp <- wage[which(wage$EXPERIENCE<10),]
med_exp <- wage[which(wage$EXPERIENCE>=10),]
med_exp <- wage[which(med_exp$EXPERIENCE<20),]
high_exp <- wage[which(wage$EXPERIENCE>=20),]

low_exp_male <- wage[which(low_exp$SEX==0),]
low_exp_wag <- wage[which(low_exp$WAGE.HR>=10),]
low_exp_wag_male <- wage[which(low_exp_wag$SEX==0),]

sex_wage_low_exp <- rbind(
  c(nrow(low_exp_wag_male) , (nrow(low_exp_male)- nrow(low_exp_wag_male) )
  ),
  c((nrow(low_exp_wag) -nrow(low_exp_wag_male) ) , (nrow(low_exp)-nrow(
low_exp_wag_male )- (nrow(low_exp_male)- nrow(low_exp_wag_male) ) - (nrow(l
ow_exp_wag) -nrow(low_exp_wag_male) )))
```

```

)
chisq.test(sex_wage_low_exp) # => fail rej => #male no more wage on Low exp

##
## Pearson's Chi-squared test with Yates' continuity correction
##
## data: sex_wage_low_exp
## X-squared = 0.5574, df = 1, p-value = 0.4553

fisher.test(sex_wage_low_exp)

##
## Fisher's Exact Test for Count Data
##
## data: sex_wage_low_exp
## p-value = 0.4113
## alternative hypothesis: true odds ratio is not equal to 1
## 95 percent confidence interval:
## 0.6089234 3.8884046
## sample estimates:
## odds ratio
## 1.496192

med_exp_male <- wage[which(med_exp$SEX==0),]
med_exp_wag <- wage[which(med_exp$WAGE.HR>=10),]
med_exp_wag_male <- wage[which(med_exp_wag$SEX==0),]

sex_wage_med_exp <- rbind(
  c(nrow(med_exp_wag_male) , (nrow(med_exp_male)- nrow(med_exp_wag_male) )
  ),
  c((nrow(med_exp_wag) -nrow(med_exp_wag_male) ), (nrow(med_exp)-nrow(
med_exp_wag_male )- (nrow(med_exp_male)- nrow(med_exp_wag_male) ) - (nrow(m
ed_exp_wag) -nrow(med_exp_wag_male) )))
)
chisq.test(sex_wage_med_exp) # => fail rej => #male have no more wage on med
exp

##
## Pearson's Chi-squared test with Yates' continuity correction
##
## data: sex_wage_med_exp
## X-squared = 10.259, df = 1, p-value = 0.00136

fisher.test(sex_wage_med_exp)

##
## Fisher's Exact Test for Count Data
##
## data: sex_wage_med_exp
## p-value = 0.0008527
## alternative hypothesis: true odds ratio is not equal to 1

```

```

## 95 percent confidence interval:
## 1.559930 7.701829
## sample estimates:
## odds ratio
## 3.362689

high_exp_male <- wage[which(high_exp$SEX==0),]
high_exp_wag <- wage[which(high_exp$WAGE.HR>=10),]
high_exp_wag_male <- wage[which(high_exp_wag$SEX==0),]

sex_wage_high_exp <- rbind(
  c(nrow(high_exp_wag_male) , (nrow(high_exp_male)- nrow(high_exp_wag_male)
  ) ),
  c((nrow(high_exp_wag) -nrow(high_exp_wag_male) ), (nrow(high_exp)-nr
ow(high_exp_wag_male) - (nrow(high_exp_male)- nrow(high_exp_wag_male) ) - (
nrow(high_exp_wag) -nrow(high_exp_wag_male) )))
)
chisq.test(sex_wage_high_exp) # => rej => #male have more wage on high exp

##
## Pearson's Chi-squared test with Yates' continuity correction
##
## data: sex_wage_high_exp
## X-squared = 44.592, df = 1, p-value = 2.427e-11

fisher.test(sex_wage_high_exp)

##
## Fisher's Exact Test for Count Data
##
## data: sex_wage_high_exp
## p-value = 4.141e-12
## alternative hypothesis: true odds ratio is not equal to 1
## 95 percent confidence interval:
## 4.596244 20.969335
## sample estimates:
## odds ratio
## 9.549676

exp <- wage$EXPERIENCE
for (i in 1:534){
  if (exp[i] <10) {
    exp[i]=-1
  } else if (exp[i] >=20){
    exp[i]=1
  } else {
    exp[i]=0
  }
}

wag <- wage$WAGE.HR

```

```

for (i in 1:534){
  if (wag[i] <10) {
    wag[i]=0
  } else {
    wag[i]=1
  }
}

wage <- cbind(wage, as.factor(exp),as.factor(wag))
mytable<-xtabs(~as.factor(wag)+as.factor(exp)+SEX,data=wage)
mantelhaen.test(mytable)

##
## Cochran-Mantel-Haenszel test
##
## data: mytable
## Cochran-Mantel-Haenszel M^2 = 27.142, df = 2, p-value = 1.277e-06
#p-value = 1.277e-06 => Male with same exp have higher salary

#####Final Model Compare#####

#excluding occupation & sector
wage2 <- select(wage, WAGE.HR, EDUC,SOUTH,SEX,EXPERIENCE,UNION, AGE, ETHNIC,MARITAL)
MSE<-NULL
for (i in 1:10){
  MSE_test<-NULL
  all <- 1:534
  for (j in 1:5){
    temp=sample(all, 106)
    all<- all[-temp]
    test <- as.data.frame(wage2[temp,])
    train <- as.data.frame(wage2[-temp,])
    fit <- lm(WAGE.HR ~ .,as.data.frame(train))
    MSE_test <- c(MSE_test, mse(predict(fit, test),as.numeric(test$WAGE.HR))
  )
  }
  MSE <- c(MSE, mean(MSE_test))
}

sqrt(mean(MSE)) #4.454213

## [1] 4.431773

# Interaction Test (excluding Ethnic, Occupation, and Marital)
wage3 <- select(wage, WAGE.HR, EDUC,SOUTH,SEX,EXPERIENCE,UNION,SECTOR, AGE)

```



```

wage3 <- as.data.frame(cbind(wage3, wage$EXPERIENCE*wage$AGE, wage$EXPERIENCE*
wage$SEX, wage$EDUC*wage$AGE))
MSE<-NULL
for (i in 1:10){
  MSE_test<-NULL
  all <- 1:534
  for (j in 1:5){
    temp=sample(all, 106)
    all<- all[-temp]
    test <- as.data.frame(wage3[temp,])
    train <- as.data.frame(wage3[-temp,])
    fit <- lm(WAGE.HR ~., as.data.frame(train))
    MSE_test <- c(MSE_test, mse(predict(fit, test), as.numeric(test$WAGE.HR))
  )
  }
  MSE <- c(MSE, mean(MSE_test))
}
sqrt(mean(MSE)) #4.263132
## [1] 4.43405

```