

Bashair Altalhi

Project codes

#clean workplace

```
rm(list=ls())
```

#set workdirection

```
setwd("C:/Users/mb/Desktop/consumer project")
```

#convert csv

```
consumer_spending <- read_excel("consumer1.xlsx")
```

```
save(consumer_spending, file="consumer_spending.Rdata")
```

#load the dat

```
load("C:/Users/mb/Desktop/consumer project/consumer_spending.Rdata")
```

```
attach(consumer_spending)
```

```
head(consumer_spending)
```

#Variables

a summary statistics table

```
install.packages("stargazer")
```

```
library(stargazer)
```

```
stargazer(consumer, type = "text", title="summary statistics", digits=2, out="table1.txt")
```

#expected good time to buy a car

```
# regrssion
```

```
M1 <- lm(Good.time.to.Buy.Vehicles ~ Index.of.Consumer.Sentiment +  
Better.Financial.Situation.Compared.with.a.Year.Ago +  
Worse.Financial.Situation.Compared.with.a.Year.Ago +  
Same.Financial.Situation.Compared.with.a.Year.Ago+ Expected.Better.Off.financial.situation.in.a.year +  
Interest.Rates.Go.Down + Interest.Rates.Go.Up + Interest.Rates.Stay.the.Same +  
Prices.Up..DK.how.much + Prices.Down + Good.Times.financially + Bad.Times..financially + Inflation +  
Less.Unemployment + More.Unemployment + Same..Unemployment)
```

```
M2 <- lm(`Good.time.to.Buy.Vehicles` ~ `Index.of.Consumer.Sentiment` +  
`Better.Financial.Situation.Compared.with.a.Year.Ago` +  
`Worse.Financial.Situation.Compared.with.a.Year.Ago` + `Same Financial Situation Compared with a  
Year Ago` + `Expected Better Off financial situation in a year` + `Interest.Rates.Go.Down` +  
`Interest.Rates.Go.Up` + `Interest.Rates.Stay.the.Same` + `Prices.Up.by.1.2.` + `Prices.Up.by.3.4.` +  
`Prices.Up.by.5.` + `Prices.Up.by.6.9.` + `Prices.Up.by.10.14.` + `Prices.Up.by.15..` +  
`Prices.Up..DK.how.much` + `Prices.Down` + `Good.Times.financially` + `Bad.Times..financially` +  
`Inflation` + `Less.Unemployment` + `More.Unemployment` + `Same..Unemployment`)
```

```
summary(M1)
```

```
plot(M1)
```

```
summary(M2)
```

```
plot(M2, which=1)#choose which graph
```

```
#####
```

```
#nice table
```

```
stargazer(M1, type = "text", title="Regression result", digits=2, out="table1.txt")
```

```
#####
```

```
anova(M2) ## how big are the residuals
```

```
#accesses the coefficient values
```

```
coefficients(M2)
```

```
vcov(M2)
```

```
summary(fitted.values(M2))
```

```
#accesses the coefficient values
```

```
confint(M2, level=0.95)#confidence intervals
```

```
####Heteroskedasticity-consistent errors####
```

```
install.packages("zoo")
```

```
library("zoo")
```

```
install.packages("sandwich")
```

```
library("sandwich")
```

```
install.packages("lmtest")
```

```
library("lmtest")
```

```
coeftest(M2)
```

```
# plot time serie for Good.time.to.Buy.Vehicles ~ Index.of.Consumer.Sentiment
```

```
## convernt to date
```

```
rdate<- as.Date(consumer1$Year, "%m/%d/%y")
```

```
fix(rdate)
```

```
class(rdate)
```

```
# the graph
```

```
x <- `Index of Consumer Sentiment`
```

```
b<- rdate
```

```
y<- `Good time to Buy Vehicles`
```

```
c<- `Bad time to Buy Vehicles`
```

```
#add extra space to right margin of plot within frame
```

```
par(mar=c(5, 4, 4, 4) + 0.1)
```

```
# Plot first set of data and draw its axis
```

```
plot(consumer1$`Index of Consumer Sentiment`~rdate, type="l", col="BLACK", axes=FALSE,  
xlab="Date", ylab="Index of consumer sentiment",
```

```
main="Consumer Expectation about Future Condatons to Buy a Veiche")
```

```
box()
```

```
axis (1,b,format(b,"%m/%y"))
```

```
axis(2, ylim=c(min(x),max(x)),col="black")
```

```
# Allow a second plot on the same graph
```

```
par(new=T)
```

```
# Plot the second plot and put axis scale on right
```

```
plot(y, xlab="", ylab="", ylim=c(min(y),max(y)), axes=F,
```

```
type="line", col="red")
```

```
mtext("Good time",side=4,col="red",line=2.5)
```

```
axis(4, ylim=c(min(y),max(y)), col="red",col.axis="red")
```

```
# Add Legend
```

```
legend(01/97,55 ,legend=c("CSI", "Good time"),text.col=c("black", "red"),lty=c(1,1),lwd=c(2.5,2.5),  
col=c("black", "red"))
```

```
legend(01/97,55 ,legend=c("CSI", "Good time"),text.col=c("black", "red"), lty=1:1, cex=0.6,lwd=c(2.5,2.5),  
col=c("black", "red"))
```

```
#####
```

```
## regression *bad time to buy a vehicle)
```

```
M3<- lm(`Bad.time.to.Buy.Vehicles` ~ `Index.of.Consumer.Sentiment` +  
`Better.Financial.Situation.Compared.with.a.Year.Ago` +  
`Worse.Financial.Situation.Compared.with.a.Year.Ago` + `Same Financial Situation Compared with a  
Year Ago` + `Expected Better Off financial situation in a year` + `Interest.Rates.Go.Down` +  
`Interest.Rates.Go.Up` + `Interest.Rates.Stay.the.Same` + `Prices.Up.by.1.2.` + `Prices.Up.by.3.4.` +  
`Prices.Up.by.5.` + `Prices.Up.by.6.9.` + `Prices.Up.by.10.14.` + `Prices.Up.by.15..` +  
`Prices.Up..DK.how.much` + `Prices.Down` + `Good.Times.financially` + `Bad.Times..financially` +  
`Inflation` + `Less.Unemployment` + `More.Unemployment` + `Same..Unemployment`)
```

```
summary(M3)
```

```
plot(M3)
```

```
#nice table
```

```
stargazer(M3, type = "text", title="Regression result", digits=2, out="table1.txt")
```

```
##*****
```

```
anova(M3) ## how big are the residuals
```

```
#accesses the coefficient values
```

```
coefficients(M3)
```

```
vcov(M3)
```

```
summary(fitted.values(M3))
```

```
#accesses the coefficient values
```

```
confint(M3, level=0.95)#confidence intervals
```

```
##`Bad time to Buy Vehicles`
```

```
#add extra space to right margin of plot within frame
```

```
par(mar=c(5, 4, 4, 4) + 0.1)
```

```
# Plot first set of data and draw its axis
```

```
plot(consumer1$`Index of Consumer Sentiment` ~rdate, type="l", col="BLACK", axes=FALSE,  
xlab="Date", ylab="Index of consumer sentiment",
```

```
main="Consumer Expectation about Future Condations to Buy a Veiche")
```

```
box()
```

```
axis(1,b,format(b,"%m/%y"))
```

```
axis(2, ylim=c(min(x),max(x)),col="black")
```

```
# Allow a second plot on the same graph
```

```
par(new=T)
```

```
# Plot the second plot and put axis scale on right
```

```
plot(c, xlab="", ylab="", ylim=c(min(c),max(c)), axes=F,
```

```
type="line", col="blue")
```

```
mtext("Bad time",side=4,col="blue",line=2.5)
```

```
axis(4, ylim=c(min(y),max(y)), col="blue",col.axis="blue")
```

```
# Add Legend
```

```
legend(04/16,20 ,legend=c("CSI", "Bad time"),text.col=c("black", "blue"), lty=1:1, cex=0.6,lwd=c(2.5,2.5),  
col=c("black", "blue"))
```