MATHS PROJECT USING R PROGRAMMING LANGUAGE

SLOT: F1/TF1

SUBJECT CODE: BMAT202L COMPLEX VARIABLES

NAMES OF TEAM MEMBERS:

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AIM: ANALYSIS OF VARIOUS GENRES OF VIDEO GAMES IN A PARTICULAR YEAR

CODE:

```
mydata = read.csv(file.choose())
view(mydata)

genres = c(unique(mydata$Genre))
year = 2007

t = table(mydata$Genre)
print(t)
pie(t)


print(paste("For Year",year,sep=" "))
print("            ")

for (i in 1:length(genres)){

 y = subset(mydata,mydata$Genre==genres[i])
 z = subset(y,y$Year==2007)

 print(genres[i])
 print("           ")


 print(summary(z))

 hist(z$NA_Sales,main=paste(genres[i],"NA",sep="-"),xlab="NA_Sales",ylab="Frequency")
 hist(z$EU_Sales,main=paste(genres[i],"EU",sep="-"),xlab="EU_Sales",ylab="Frequency")
 hist(z$JP_Sales,main=paste(genres[i],"JP",sep="-"),xlab="JP_Sales",ylab="Frequency")
 hist(z$Other_Sales,main=paste(genres[i],"Other",sep="-
"),xlab="Other_Sales",ylab="Frequency")
```

```r
  hist(z$Global_Sales,main=paste(genres[i],"Global",sep="-
"),xlab="Global_Sales",ylab="Frequency")

  #NA
  print(paste("Mean of NA Sales:",mean(z$NA_Sales),sep=" "))
  print(paste("Median of NA Sales:",median(z$NA_Sales),sep=" "))
  print(paste("Standard Deviation of NA Sales:",sd(z$NA_Sales),sep=" "))
  print("_____")
  #EU
  print(paste("Mean of EU Sales:",mean(z$EU_Sales),sep=" "))
  print(paste("Median of EU Sales:",median(z$EU_Sales),sep=" "))
  print(paste("Standard Deviation of EU Sales:",sd(z$EU_Sales),sep=" "))
  print("_____")
  #JP
  print(paste("Mean of JP Sales:",mean(z$JP_Sales),sep=" "))
  print(paste("Median of JP Sales:",median(z$JP_Sales),sep=" "))
  print(paste("Standard Deviation of JP Sales:",sd(z$JP_Sales),sep=" "))
  print("_____")
  #Other
  print(paste("Mean of Other Sales:",mean(z$Other_Sales),sep=" "))
  print(paste("Median of Other Sales:",median(z$Other_Sales),sep=" "))
  print(paste("Standard Deviation of Other Sales:",sd(z$Other_Sales),sep=" "))
  print("_____")
  #Global
  print(paste("Mean of Global Sales:",mean(z$Global_Sales),sep=" "))
  print(paste("Median of Global Sales:",median(z$Global_Sales),sep=" "))
  print(paste("Standard Deviation of Global Sales:",sd(z$Global_Sales),sep=" "))
  print("_____")

  RegModel = lm(z$Global_Sales~z$JP_Sales+z$NA_Sales)
  print(RegModel)
}
```

CODE WINDOW:

```r
mydata = read.csv(file.choose())
View(mydata)

genres = c(unique(mydata$Genre))
year = 2007

t = table(mydata$Genre)
print(t)
pie(t)


print(paste("For Year",year,sep=" "))
print("                    ")

for (i in 1:length(genres)){

  y = subset(mydata,mydata$Genre==genres[i])
  z = subset(y,y$Year==2007)

  print(genres[i])
  print("                    ")


  print(summary(z))

  hist(z$NA_Sales,main=paste(genres[i],"NA",sep="-"),xlab="NA_Sales",ylab="Frequency")
  hist(z$EU_Sales,main=paste(genres[i],"EU",sep="-"),xlab="EU_Sales",ylab="Frequency")
  hist(z$JP_Sales,main=paste(genres[i],"JP",sep="-"),xlab="JP_Sales",ylab="Frequency")
  hist(z$Other_Sales,main=paste(genres[i],"Other",sep="-"),xlab="Other_Sales",ylab="Frequency")
  hist(z$Global_Sales,main=paste(genres[i],"Global",sep="-"),xlab="Global_Sales",ylab="Frequency")

  #NA
  print(paste("Mean of NA Sales:",mean(z$NA_Sales),sep=" "))
  print(paste("Median of NA Sales:",median(z$NA_Sales),sep=" "))
  print(paste("Standard Deviation of NA Sales:",sd(z$NA_Sales),sep=" "))
  print("_____")
```

```r
  #EU
  print(paste("Mean of EU Sales:",mean(z$EU_Sales),sep=" "))
  print(paste("Median of EU Sales:",median(z$EU_Sales),sep=" "))
  print(paste("Standard Deviation of EU Sales:",sd(z$EU_Sales),sep=" "))
  print("_____")
  #JP
  print(paste("Mean of JP Sales:",mean(z$JP_Sales),sep=" "))
  print(paste("Median of JP Sales:",median(z$JP_Sales),sep=" "))
  print(paste("Standard Deviation of JP Sales:",sd(z$JP_Sales),sep=" "))
  print("_____")
  #Other
  print(paste("Mean of Other Sales:",mean(z$Other_Sales),sep=" "))
  print(paste("Median of Other Sales:",median(z$Other_Sales),sep=" "))
  print(paste("Standard Deviation of Other Sales:",sd(z$Other_Sales),sep=" "))
  print("_____")
  #Global
  print(paste("Mean of Global Sales:",mean(z$Global_Sales),sep=" "))
  print(paste("Median of Global Sales:",median(z$Global_Sales),sep=" "))
  print(paste("Standard Deviation of Global Sales:",sd(z$Global_Sales),sep=" "))
  print("_____")

  RegModel = lm(z$Global_Sales~z$JP_Sales+z$NA_Sales)
  print(RegModel)
```

OUTPUT WINDOW:

```
> mydata = read.csv(file.choose())
> View(mydata)
>
> genres = c(unique(mydata$Genre))
> year = 2007
>
> t = table(mydata$Genre)
> print(t)

      Action    Adventure     Fighting         Misc     Platform       Puzzle       Racing
          51            3            8           20           34            7           20
Role-Playing      Shooter   Simulation       Sports     Strategy
          34           38            8           24            3
> pie(t)
>
>
> print(paste("For Year",year,sep=" "))
[1] "For Year 2007"
> print("                    ")
[1] "                    "
>
> for (i in 1:length(genres)){
+
+    y = subset(mydata,mydata$Genre==genres[i])
+    z = subset(y,y$Year==2007)
+
+    print(genres[i])
+    print("                   ")
+
+
+    print(summary(z))
+
+    hist(z$NA_Sales,main=paste(genres[i],"NA",sep="-"),xlab="NA_Sales",ylab="Frequency")
+    hist(z$EU_Sales,main=paste(genres[i],"EU",sep="-"),xlab="EU_Sales",ylab="Frequency")
+    hist(z$JP_Sales,main=paste(genres[i],"JP",sep="-"),xlab="JP_Sales",ylab="Frequency")
+    hist(z$Other_Sales,main=paste(genres[i],"Other",sep="-"),xlab="Other_Sales",ylab="Frequency")
```

```
+    hist(z$Global_Sales,main=paste(genres[i],"Global",sep="-"),xlab="Global_Sales",ylab="Frequency")
+
+    #NA
+    print(paste("Mean of NA Sales:",mean(z$NA_Sales),sep=" "))
+    print(paste("Median of NA Sales:",median(z$NA_Sales),sep=" "))
+    print(paste("Standard Deviation of NA Sales:",sd(z$NA_Sales),sep=" "))
+    print("_____")
+    #EU
+    print(paste("Mean of EU Sales:",mean(z$EU_Sales),sep=" "))
+    print(paste("Median of EU Sales:",median(z$EU_Sales),sep=" "))
+    print(paste("Standard Deviation of EU Sales:",sd(z$EU_Sales),sep=" "))
+    print("_____")
+    #JP
+    print(paste("Mean of JP Sales:",mean(z$JP_Sales),sep=" "))
+    print(paste("Median of JP Sales:",median(z$JP_Sales),sep=" "))
+    print(paste("Standard Deviation of JP Sales:",sd(z$JP_Sales),sep=" "))
+    print("_____")
+    #Other
+    print(paste("Mean of Other Sales:",mean(z$Other_Sales),sep=" "))
+    print(paste("Median of Other Sales:",median(z$Other_Sales),sep=" "))
+    print(paste("Standard Deviation of Other Sales:",sd(z$Other_Sales),sep=" "))
+    print("_____")
+    #Global
+    print(paste("Mean of Global Sales:",mean(z$Global_Sales),sep=" "))
+    print(paste("Median of Global Sales:",median(z$Global_Sales),sep=" "))
+    print(paste("Standard Deviation of Global Sales:",sd(z$Global_Sales),sep=" "))
+    print("_____")
+
+    RegModel = lm(z$Global_Sales~z$JP_Sales+z$NA_Sales)
+    print(RegModel)
+ }
```

```
[1] "Sports"
[1] "                        "
      Rank            Name              Platform           Year              Genre
 Min.   :14     Length:2          Length:2          Length:2          Length:2
 1st Qu.:32     Class :character  Class :character  Class :character  Class :character
 Median :50     Mode  :character  Mode  :character  Mode  :character  Mode  :character
 Mean   :50
 3rd Qu.:68
 Max.   :86
   Publisher            NA_Sales          EU_Sales          JP_Sales          Other_Sales       Global_Sales
 Length:2         Min.   :2.58     Min.   :3.900     Min.   :0.660     Min.   :0.91     Min.   : 8.06
 Class :character 1st Qu.:4.17     1st Qu.:4.933     1st Qu.:1.395     1st Qu.:1.22     1st Qu.:11.72
 Mode  :character Median :5.76     Median :5.965     Median :2.130     Median :1.53     Median :15.39
                  Mean   :5.76     Mean   :5.965     Mean   :2.130     Mean   :1.53     Mean   :15.39
                  3rd Qu.:7.35     3rd Qu.:6.997     3rd Qu.:2.865     3rd Qu.:1.84     3rd Qu.:19.05
                  Max.   :8.94     Max.   :8.030     Max.   :3.600     Max.   :2.15     Max.   :22.72
[1] "Mean of NA Sales: 5.76"
[1] "Median of NA Sales: 5.76"
[1] "Standard Deviation of NA Sales: 4.49719912834644"
[1] "_____"
[1] "Mean of EU Sales: 5.965"
[1] "Median of EU Sales: 5.965"
[1] "Standard Deviation of EU Sales: 2.92035100630044"
[1] "_____"
[1] "Mean of JP Sales: 2.13"
[1] "Median of JP Sales: 2.13"
[1] "Standard Deviation of JP Sales: 2.07889393668845"
[1] "_____"
[1] "Mean of Other Sales: 1.53"
[1] "Median of Other Sales: 1.53"
[1] "Standard Deviation of Other Sales: 0.876812408671319"
[1] "_____"
[1] "Mean of Global Sales: 15.39"
[1] "Median of Global Sales: 15.39"
[1] "Standard Deviation of Global Sales: 10.3661854121948"
```

```
[1] "_____"

Call:
lm(formula = z$Global_Sales ~ z$JP_Sales + z$NA_Sales)

Coefficients:
(Intercept)   z$JP_Sales   z$NA_Sales
      4.769        4.986           NA

[1] "Platform"
[1] "                        "
      Rank            Name              Platform           Year              Genre
 Min.   :49     Length:1          Length:1          Length:1          Length:1
 1st Qu.:49     Class :character  Class :character  Class :character  Class :character
 Median :49     Mode  :character  Mode  :character  Mode  :character  Mode  :character
 Mean   :49
 3rd Qu.:49
 Max.   :49
   Publisher            NA_Sales          EU_Sales          JP_Sales          Other_Sales       Global_Sales
 Length:1         Min.   :6.16     Min.   :3.4      Min.   :1.2      Min.   :0.76     Min.   :11.52
 Class :character 1st Qu.:6.16     1st Qu.:3.4      1st Qu.:1.2      1st Qu.:0.76     1st Qu.:11.52
 Mode  :character Median :6.16     Median :3.4      Median :1.2      Median :0.76     Median :11.52
                  Mean   :6.16     Mean   :3.4      Mean   :1.2      Mean   :0.76     Mean   :11.52
                  3rd Qu.:6.16     3rd Qu.:3.4      3rd Qu.:1.2      3rd Qu.:0.76     3rd Qu.:11.52
                  Max.   :6.16     Max.   :3.4      Max.   :1.2      Max.   :0.76     Max.   :11.52
[1] "Mean of NA Sales: 6.16"
[1] "Median of NA Sales: 6.16"
[1] "Standard Deviation of NA Sales: NA"
[1] "_____"
[1] "Mean of EU Sales: 3.4"
[1] "Median of EU Sales: 3.4"
[1] "Standard Deviation of EU Sales: NA"
[1] "_____"
[1] "Mean of JP Sales: 1.2"
[1] "Median of JP Sales: 1.2"
[1] "Standard Deviation of JP Sales: NA"
```

```
[1] "_____"
[1] "Mean of Other Sales: 0.76"
[1] "Median of Other Sales: 0.76"
[1] "Standard Deviation of Other Sales: NA"
[1] "_____"
[1] "Mean of Global Sales: 11.52"
[1] "Median of Global Sales: 11.52"
[1] "Standard Deviation of Global Sales: NA"
[1] "_____"

Call:
lm(formula = z$Global_Sales ~ z$JP_Sales + z$NA_Sales)

Coefficients:
(Intercept)   z$JP_Sales   z$NA_Sales
      11.52           NA           NA

[1] "Racing"
[1] "                                    "
       Rank           Name            Platform           Year            Genre
 Min.   : NA    Length:0          Length:0          Length:0          Length:0
 1st Qu.: NA    Class :character  Class :character  Class :character  Class :character
 Median : NA    Mode  :character  Mode  :character  Mode  :character  Mode  :character
 Mean   :NaN
 3rd Qu.: NA
 Max.   : NA
  Publisher           NA_Sales          EU_Sales          JP_Sales          Other_Sales       Global_Sales
 Length:0          Min.   : NA       Min.   : NA       Min.   : NA       Min.   : NA       Min.   : NA
 Class :character  1st Qu.: NA       1st Qu.: NA       1st Qu.: NA       1st Qu.: NA       1st Qu.: NA
 Mode  :character  Median : NA       Median : NA       Median : NA       Median : NA       Median : NA
                   Mean   :NaN       Mean   :NaN       Mean   :NaN       Mean   :NaN       Mean   :NaN
                   3rd Qu.: NA       3rd Qu.: NA       3rd Qu.: NA       3rd Qu.: NA       3rd Qu.: NA
                   Max.   : NA       Max.   : NA       Max.   : NA       Max.   : NA       Max.   : NA
```

PIE CHART:

HISTOGRAMS:

Sports-NA
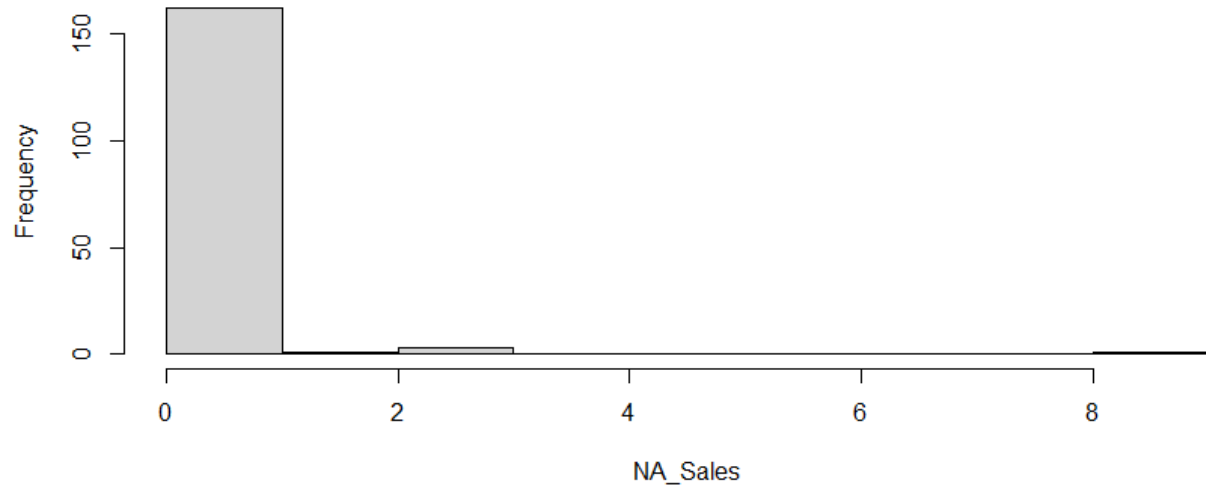
Sports-EU
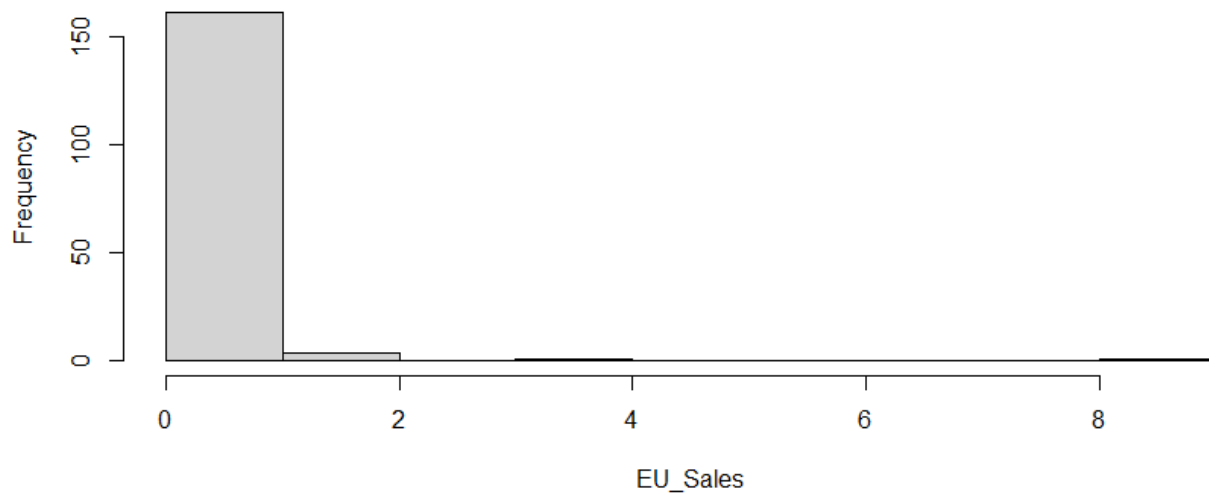
Sports-JP
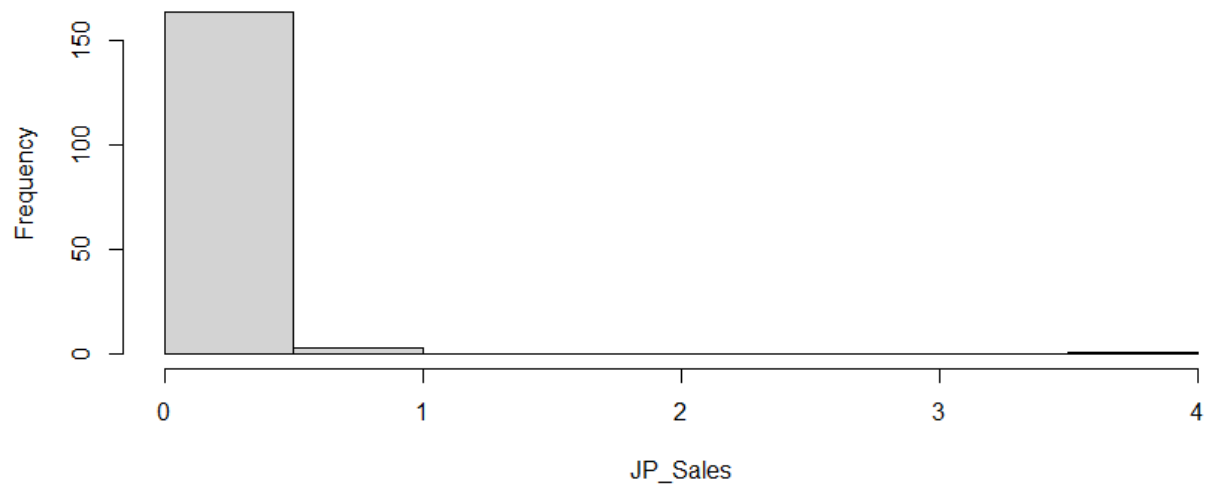
Sports-Other
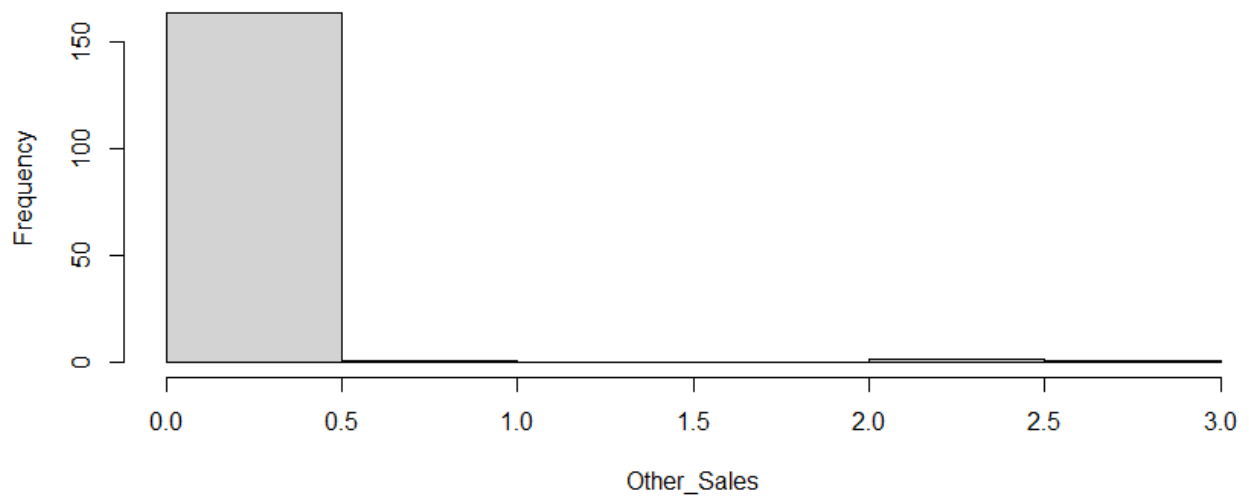
Sports-Global
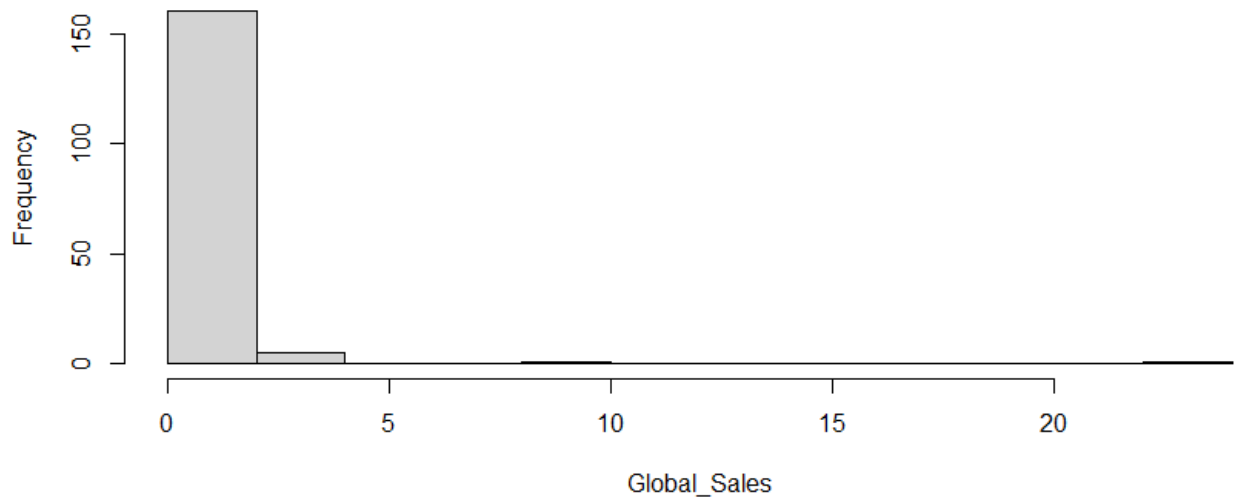
Platform-NA
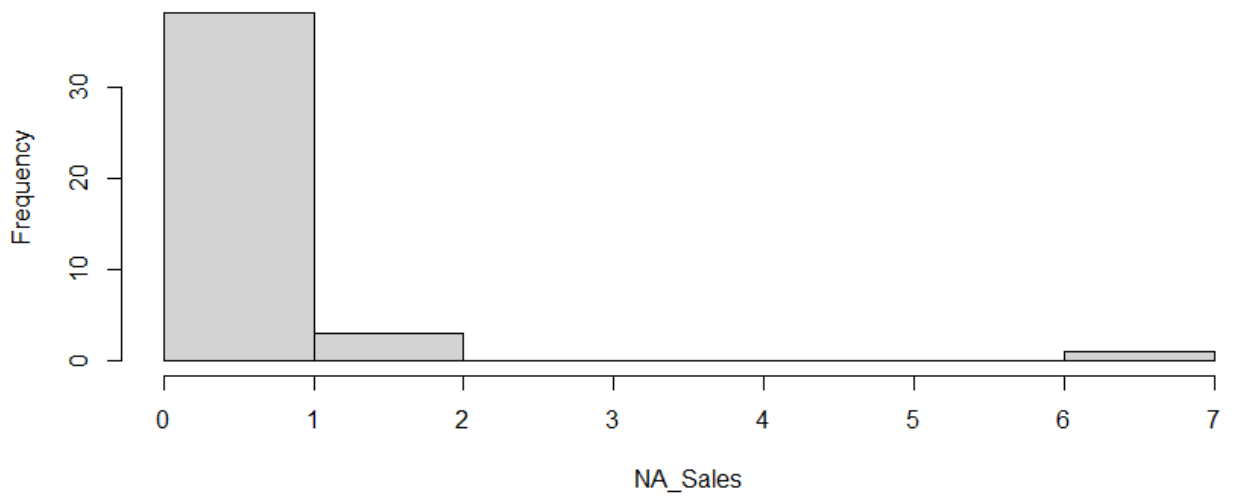
Platform-EU
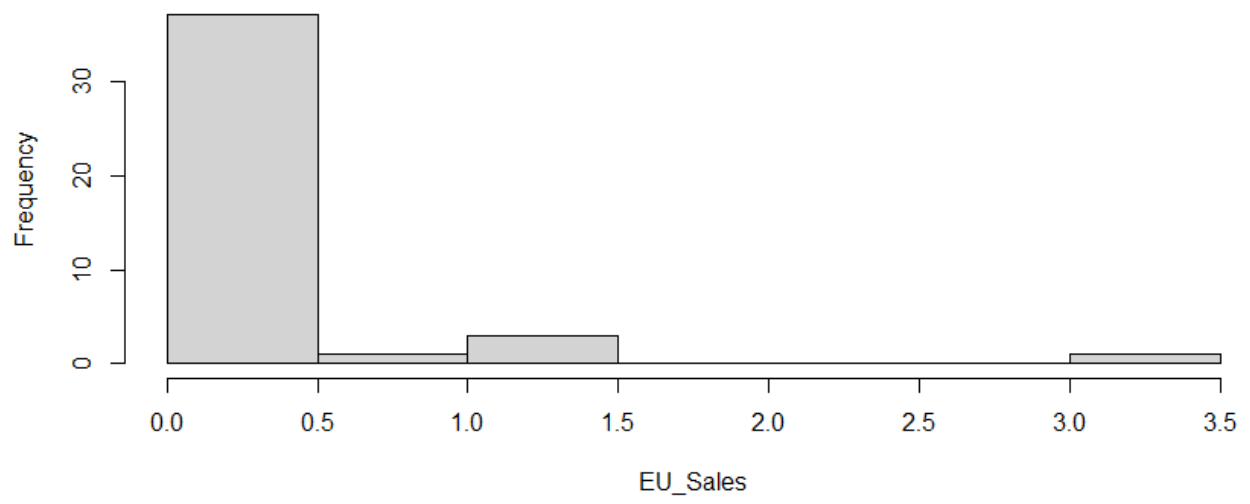
Platform-JP
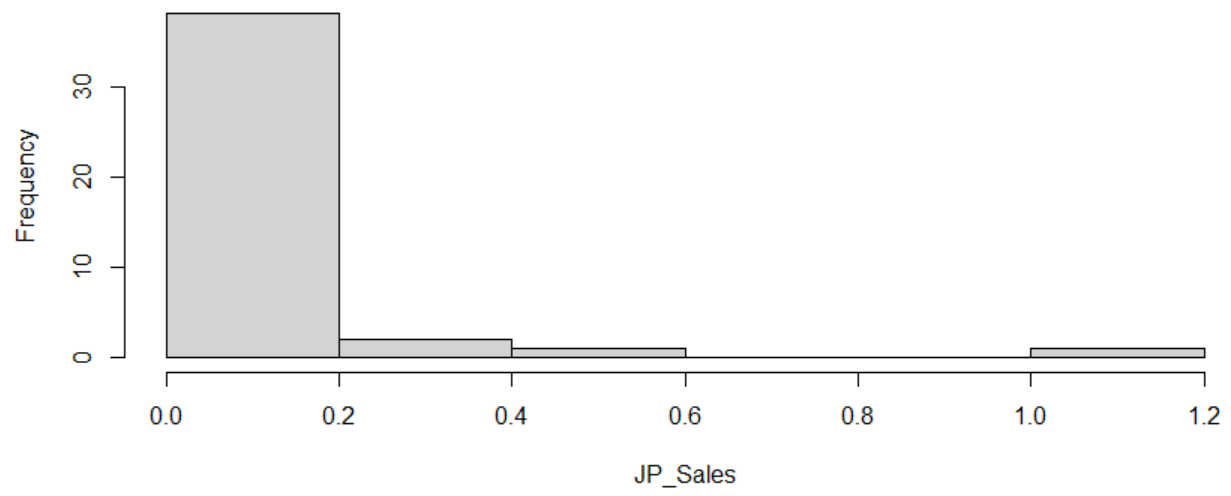
Platform-Other
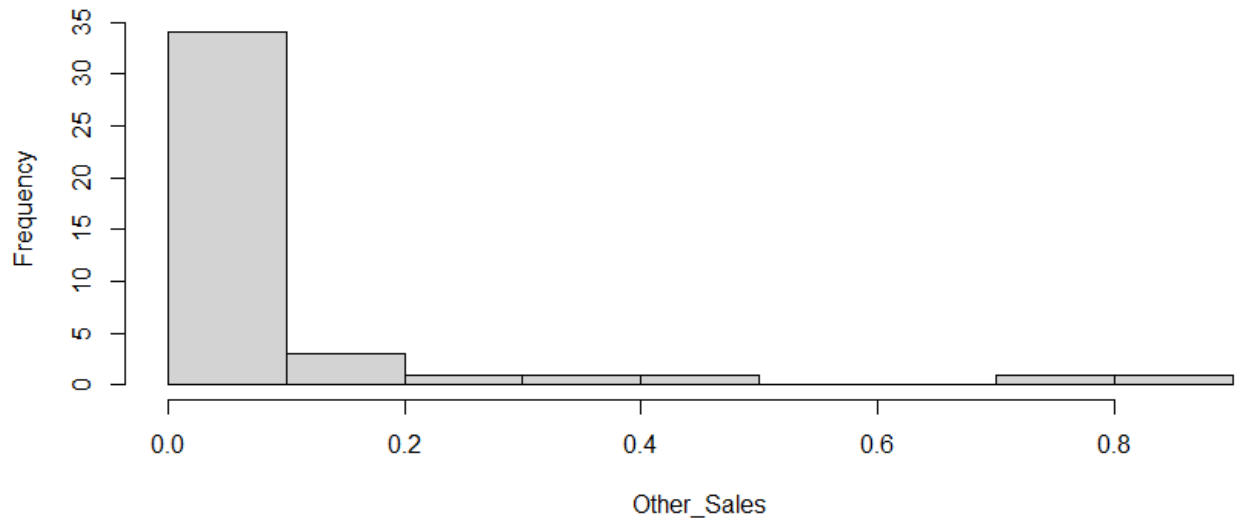
Platform-Global
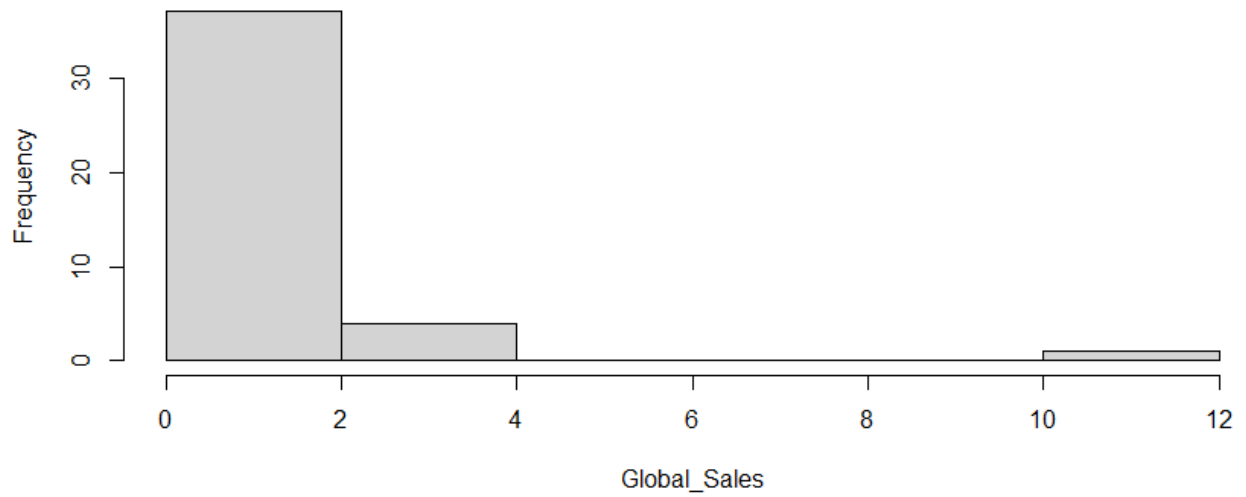
Racing-NA
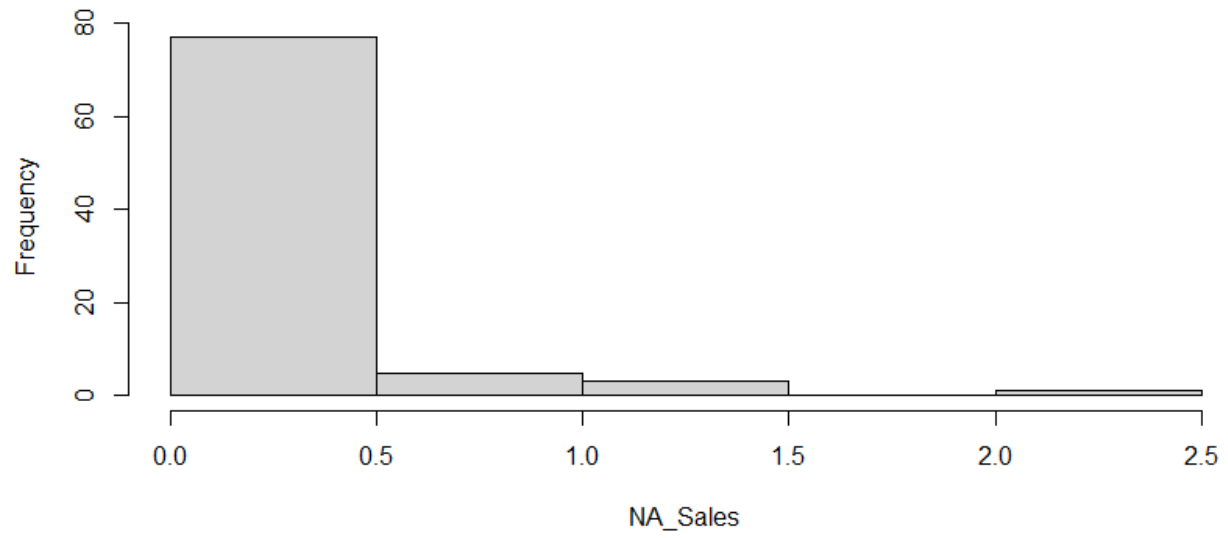
Racing-EU
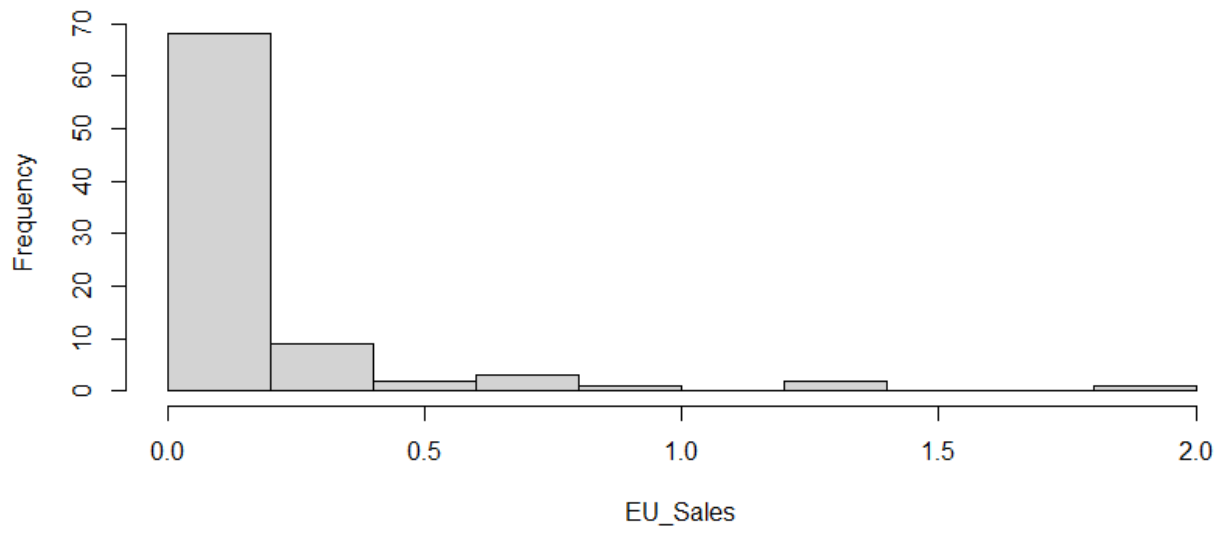
Racing-JP
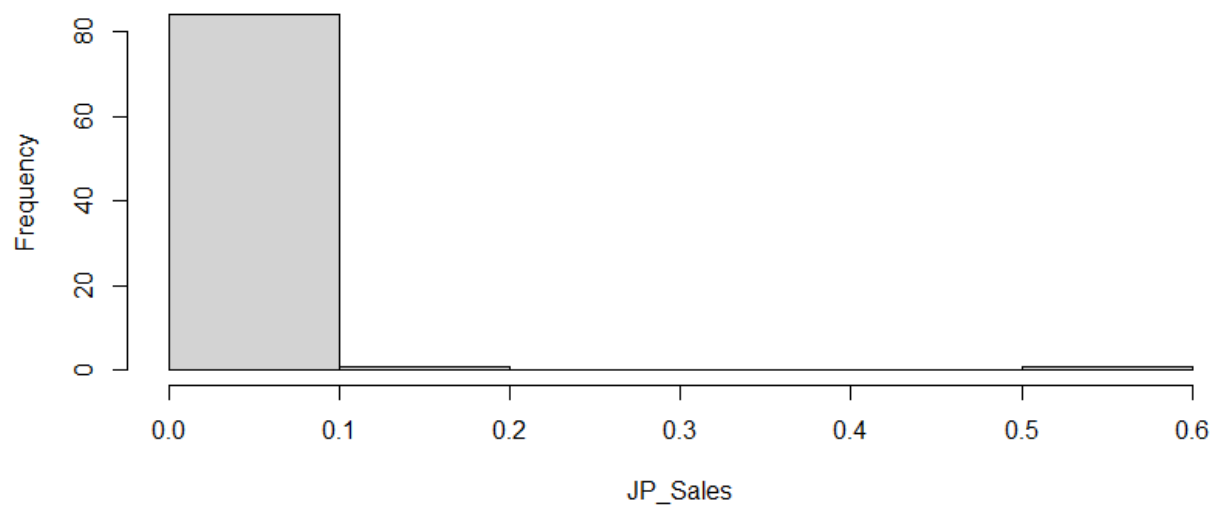
Racing-Other
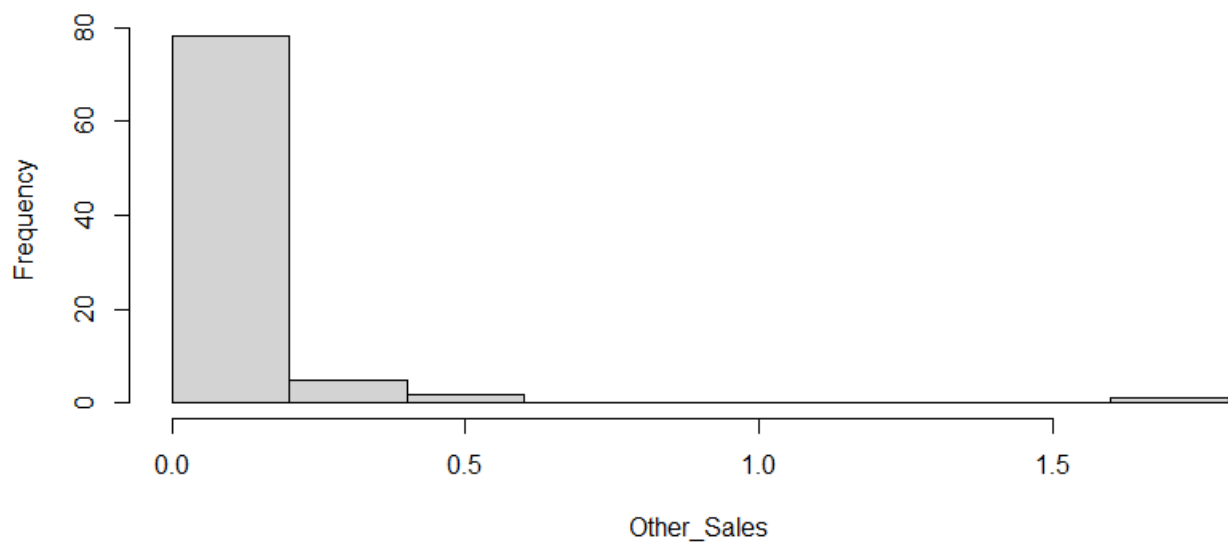
Racing-Global
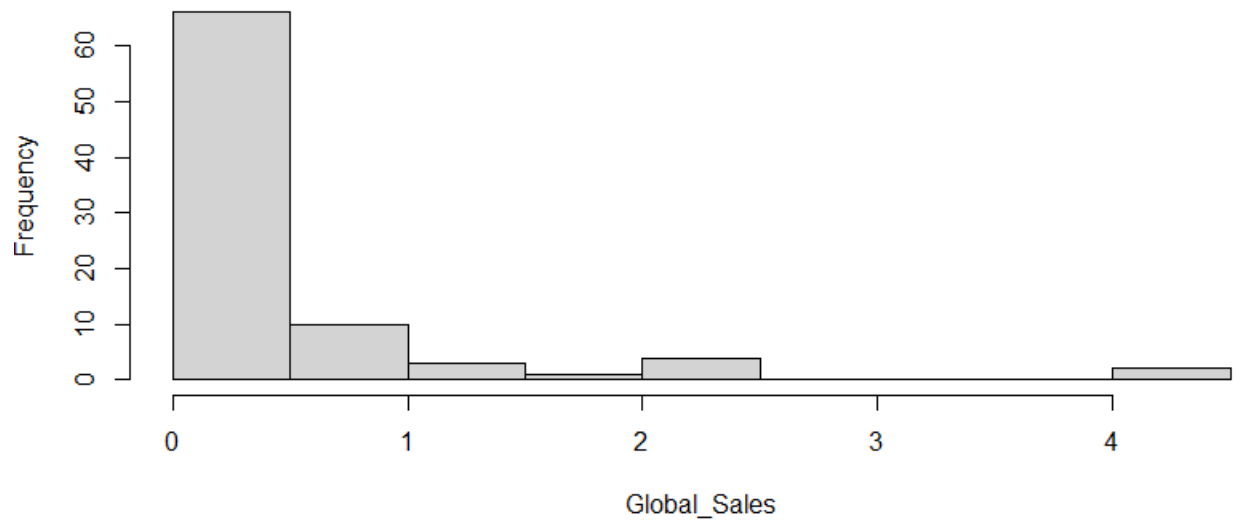
Role-Playing-NA
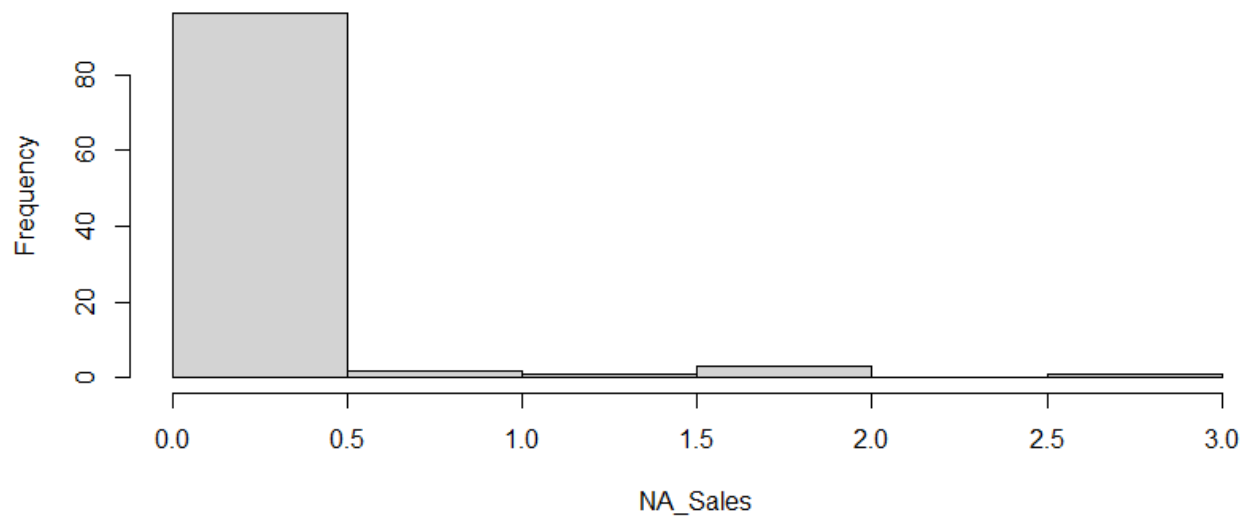
Role-Playing-EU
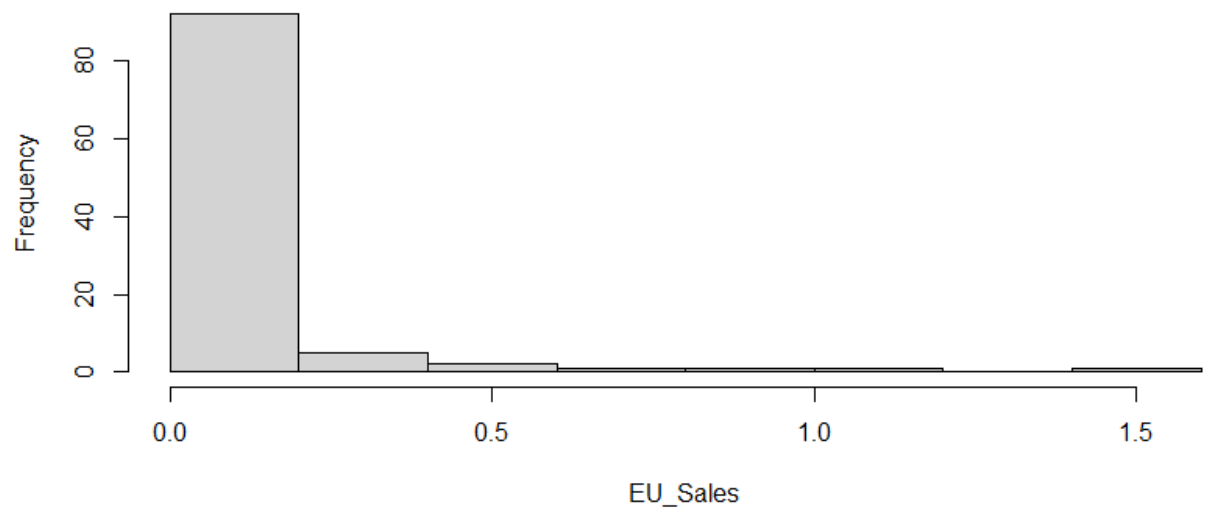
Role-Playing-JP
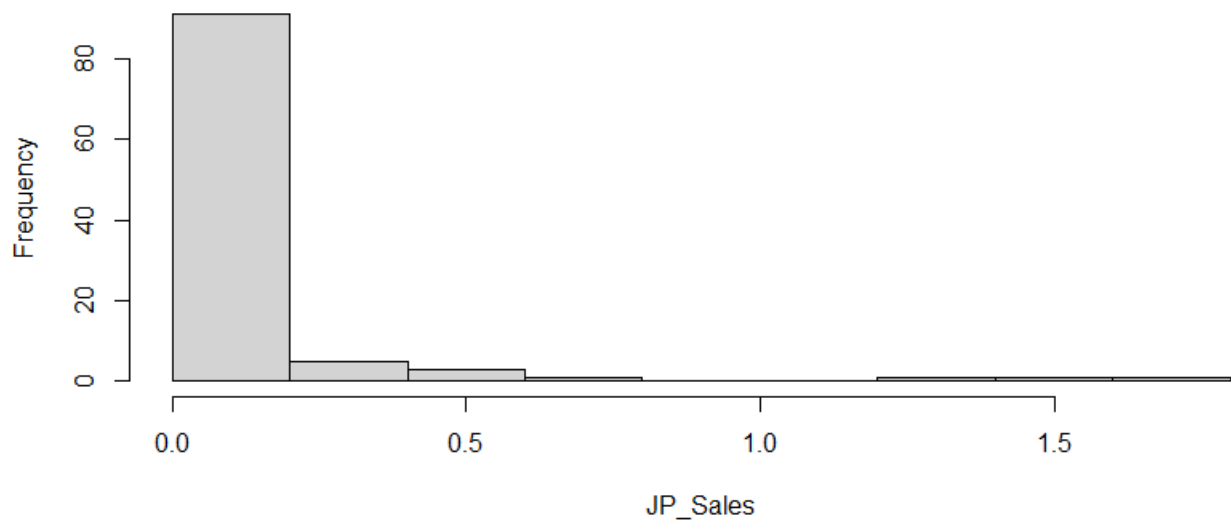
Role-Playing-Other
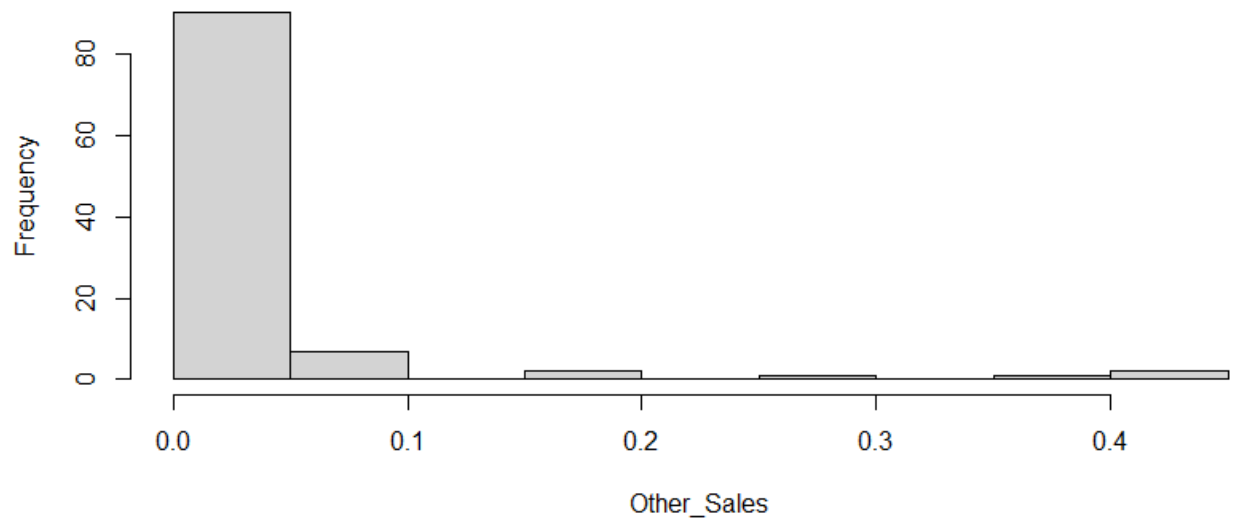
Role-Playing-Global
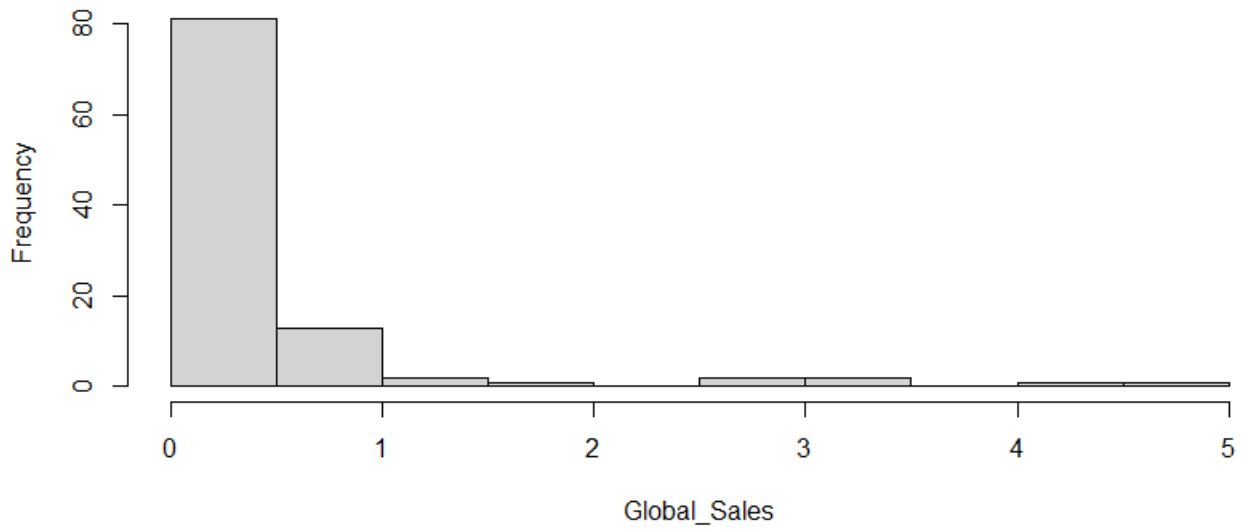
Puzzle-NA
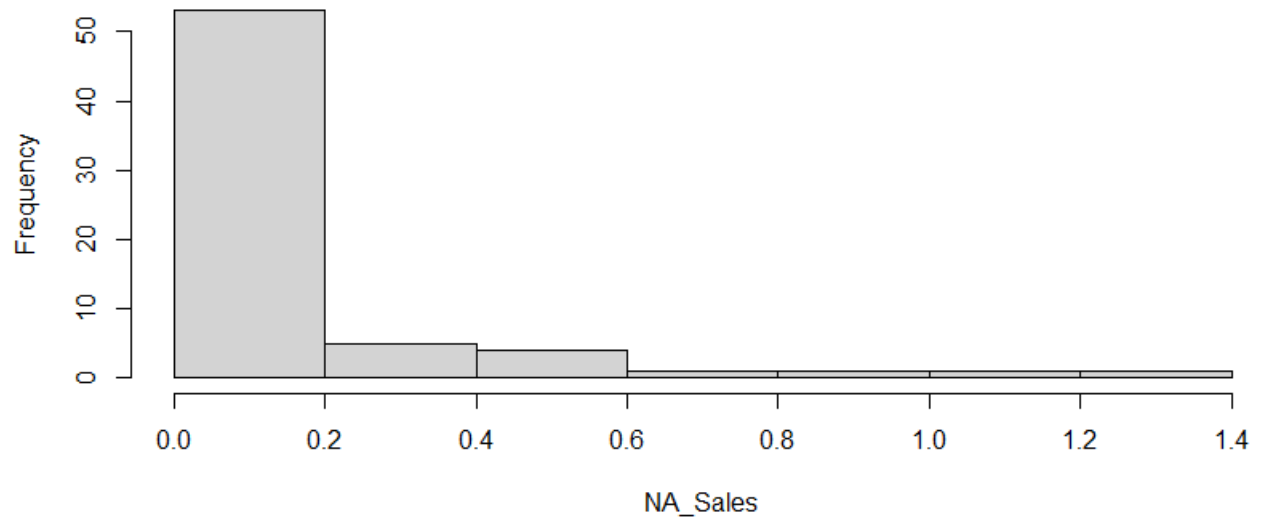
Puzzle-EU
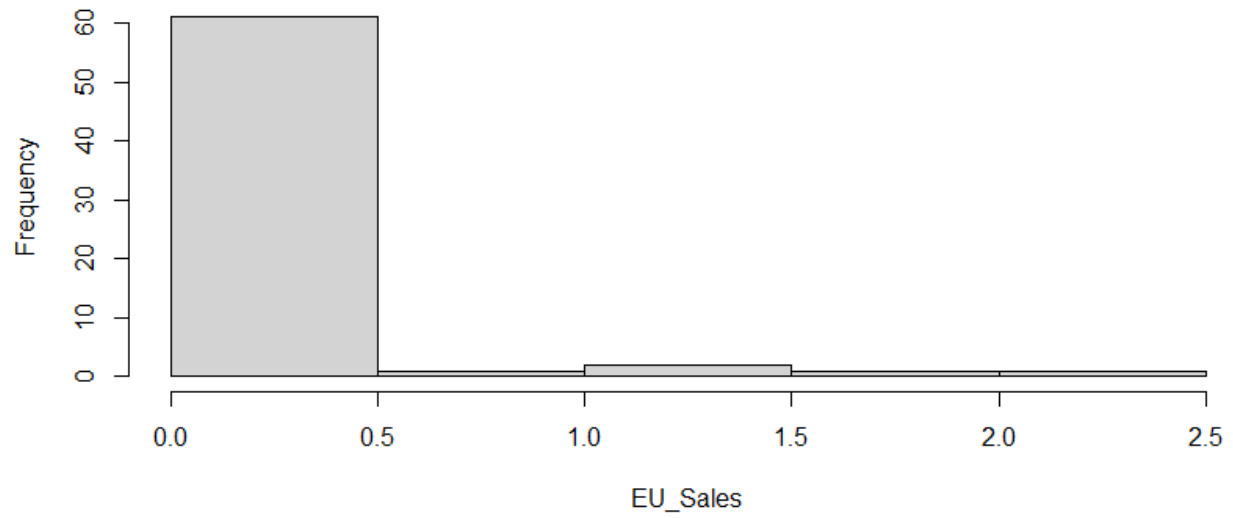
Puzzle-JP
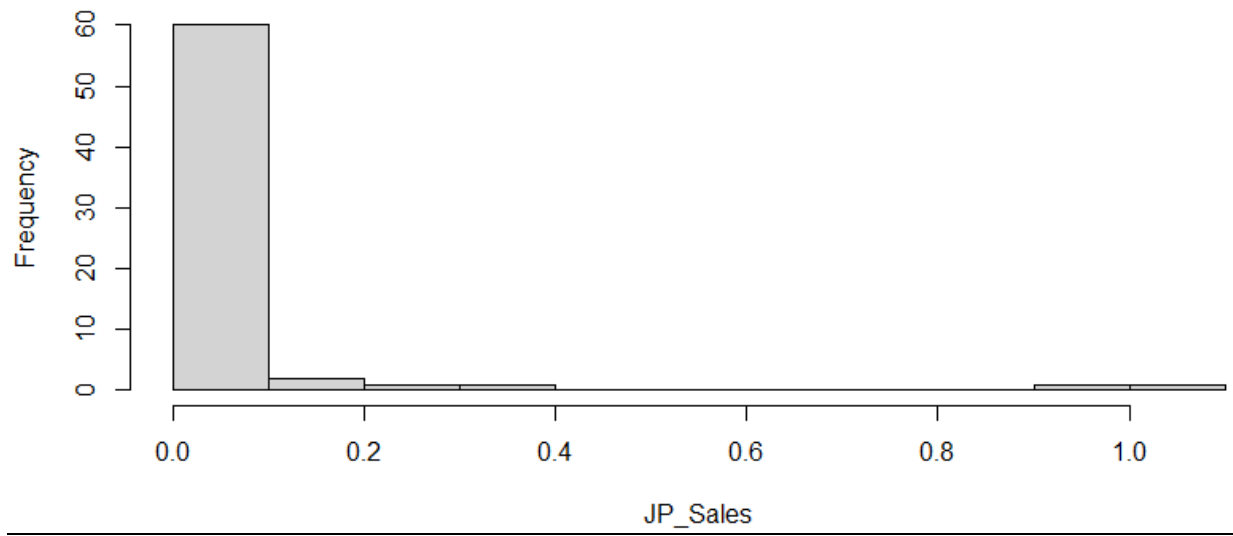
Puzzle-Other
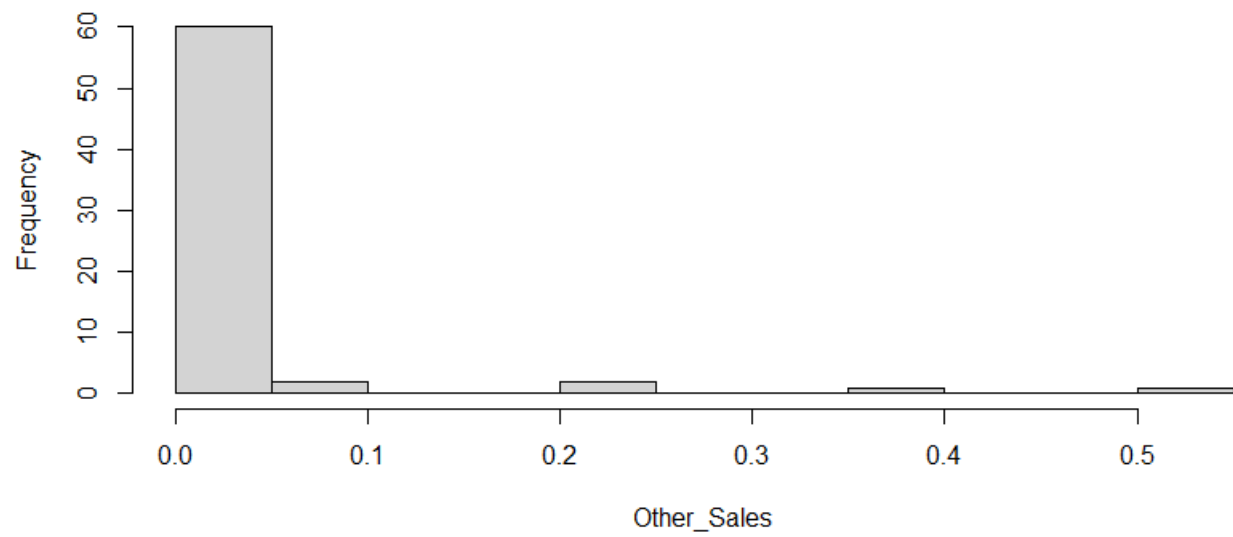
Puzzle-Global
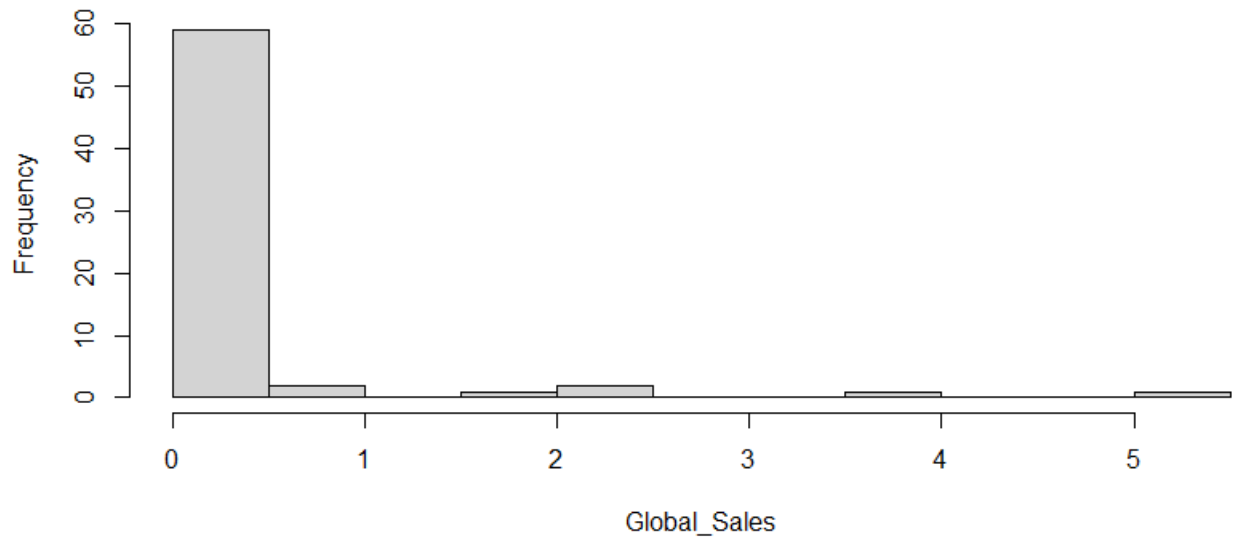
Misc-NA
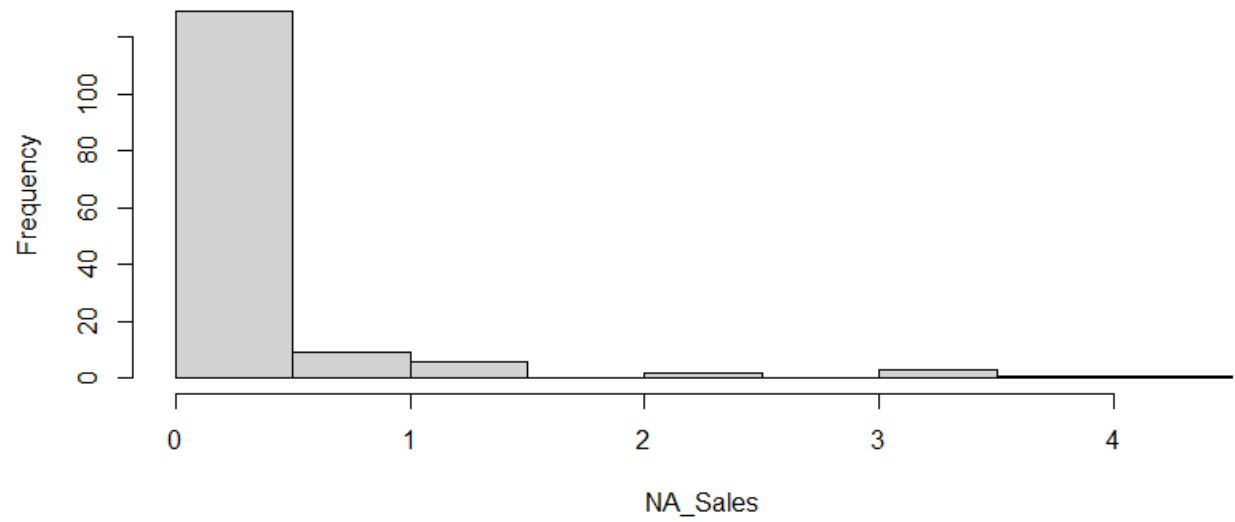
Misc-EU
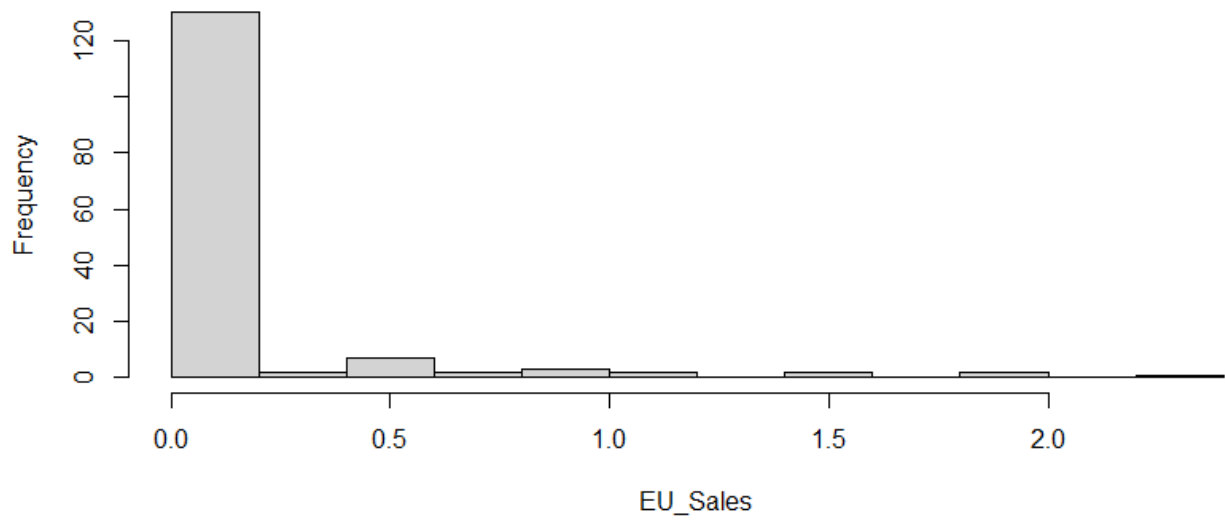
Misc-JP
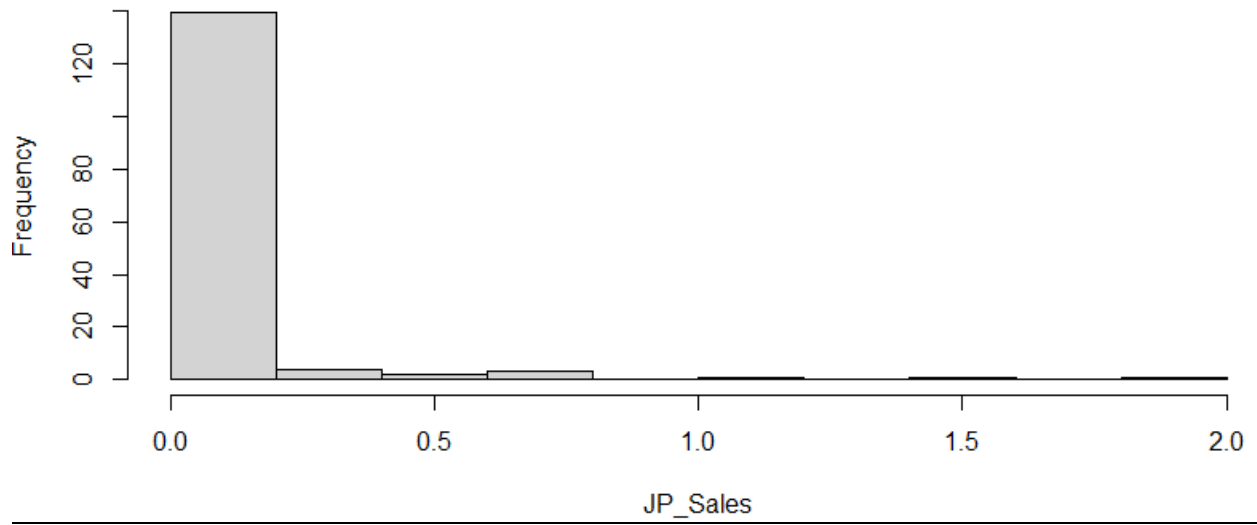
Misc-Other
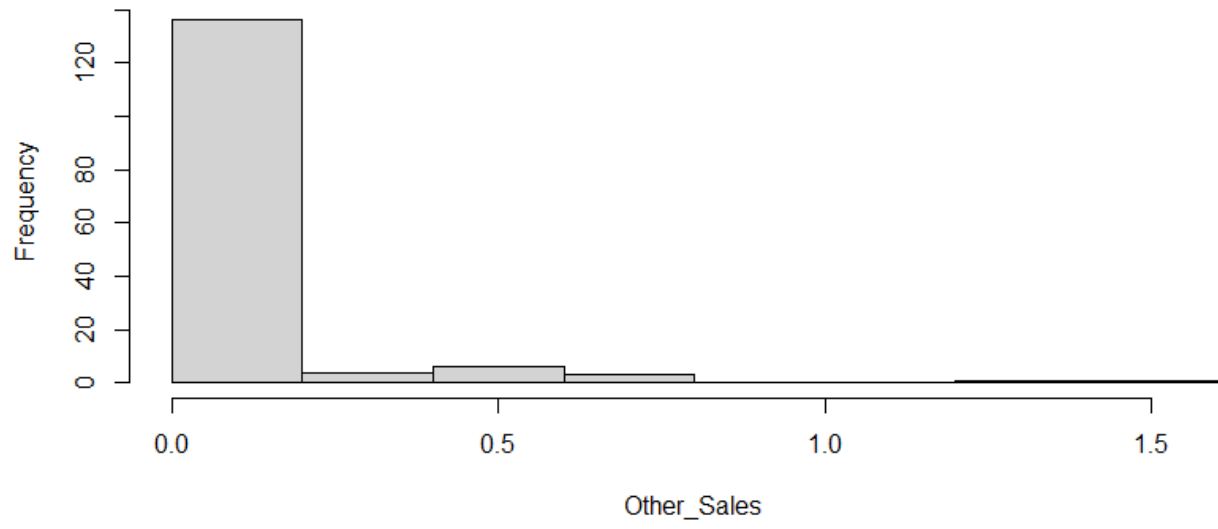
Misc-Global
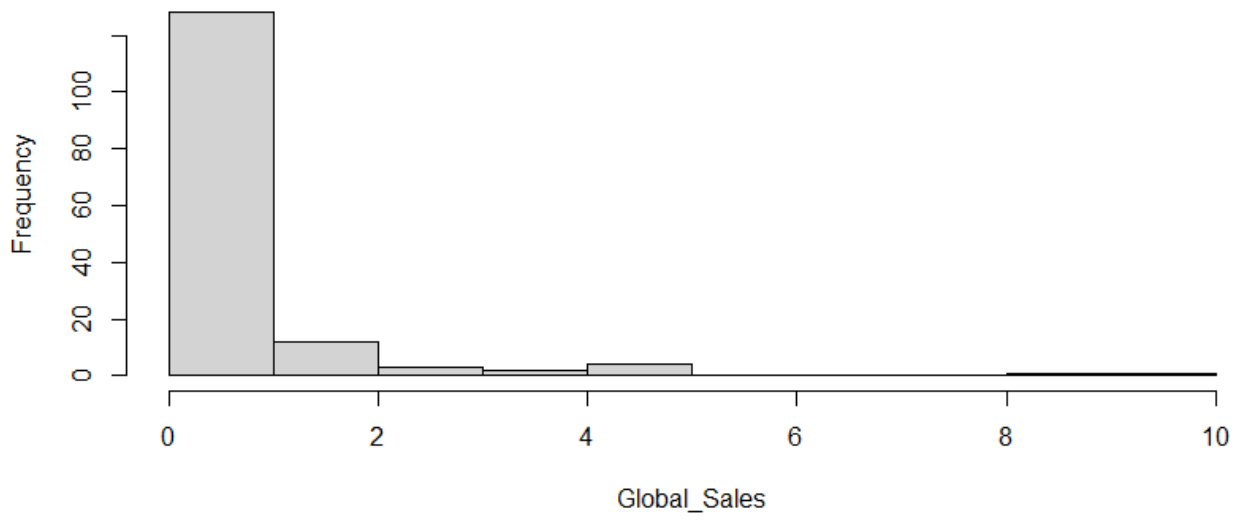
Shooter-NA
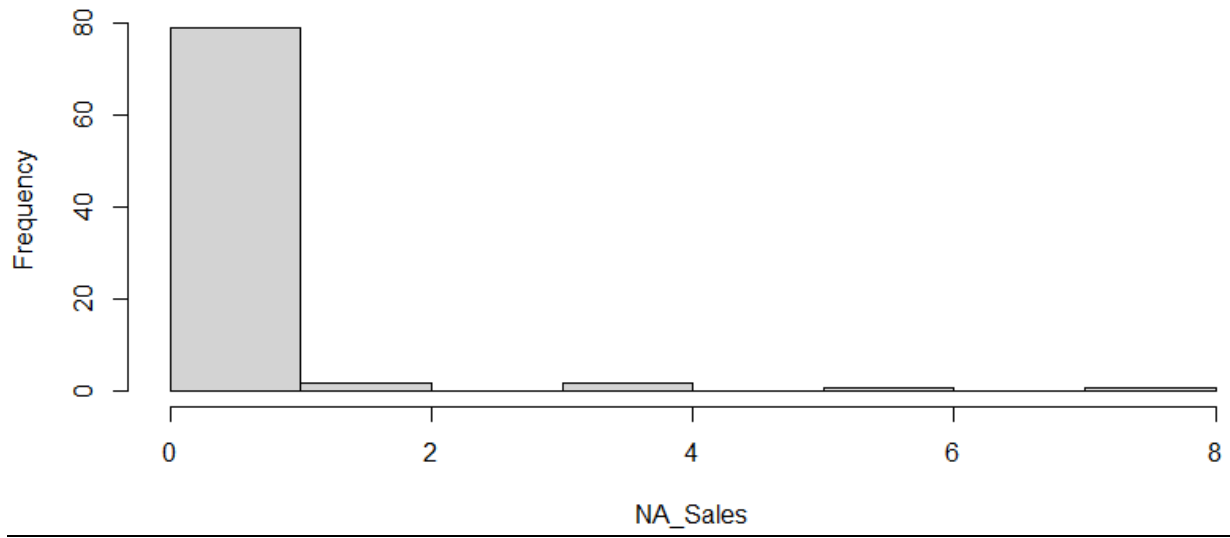
Shooter-EU
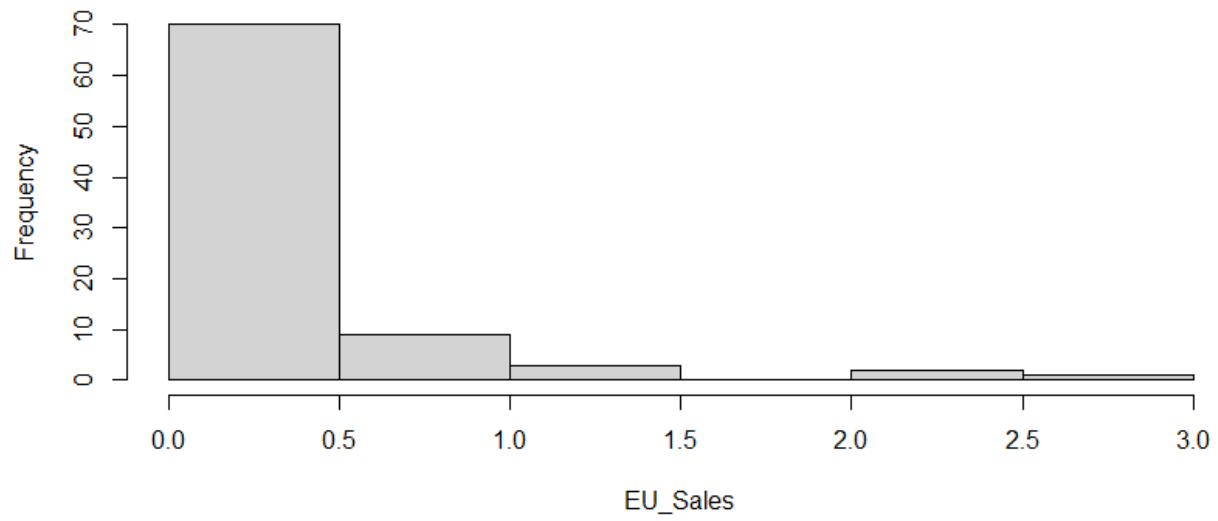
Shooter-JP
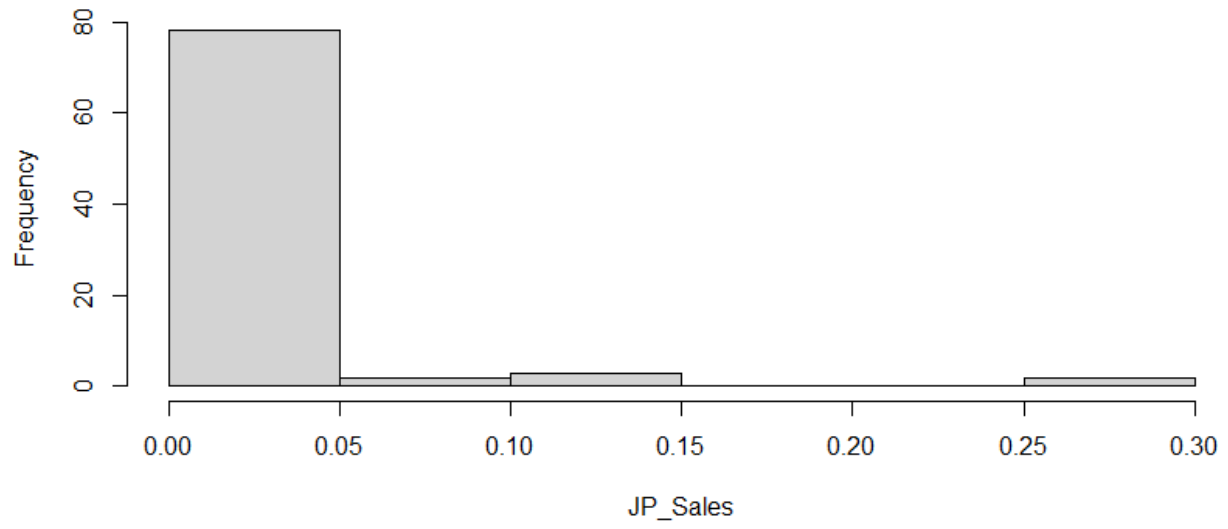
Shooter-Other
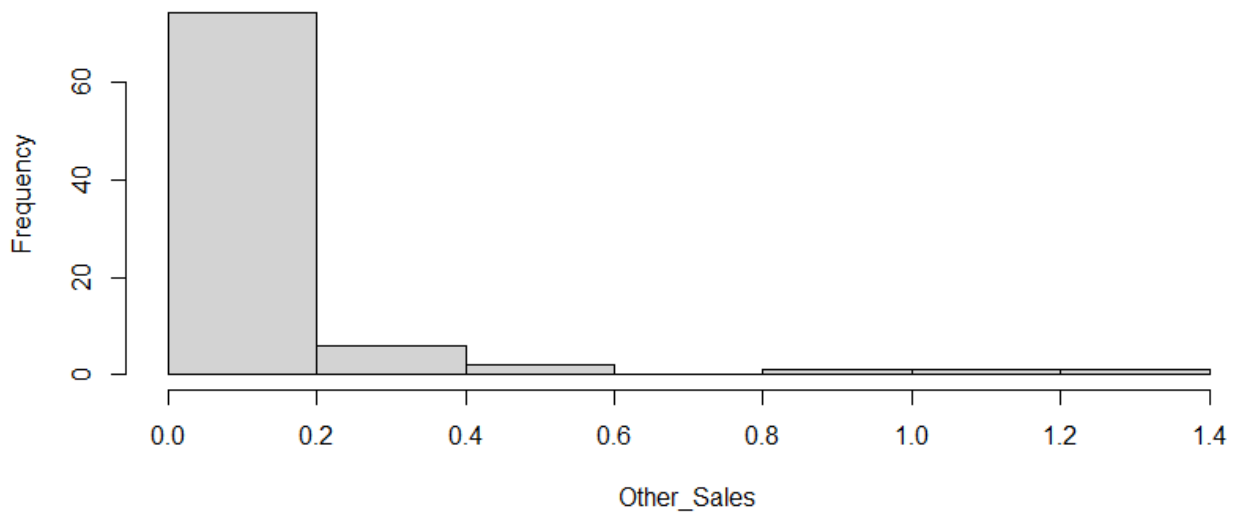
Shooter-Global
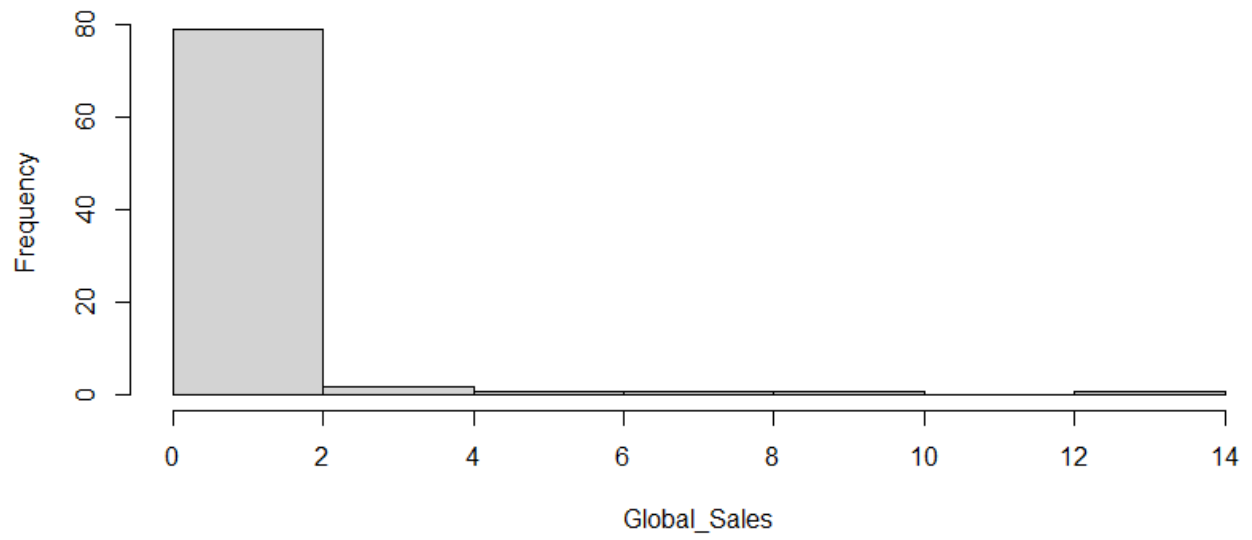
Simulation-NA
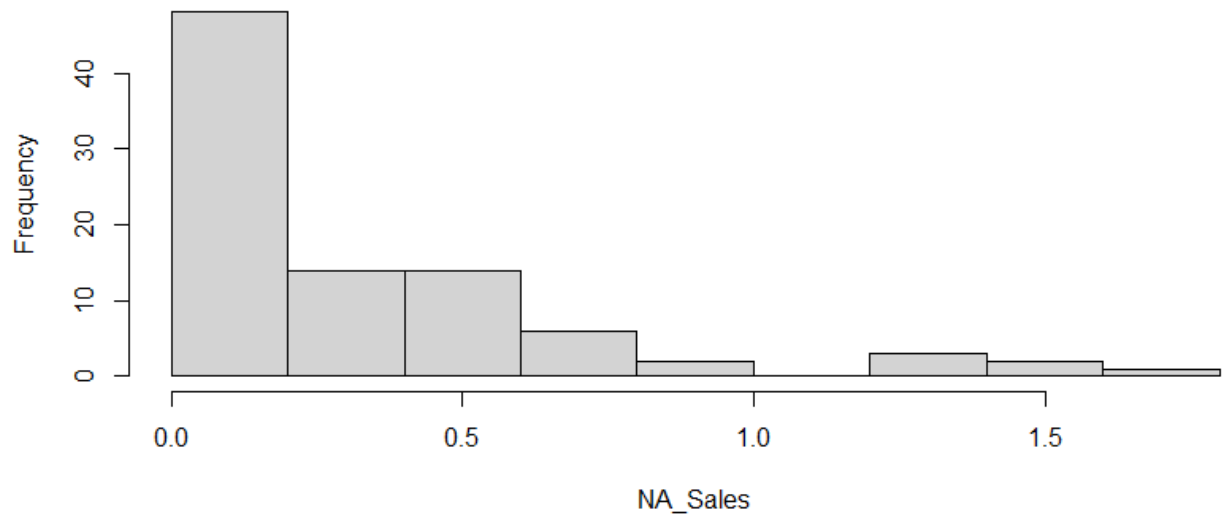
Simulation-EU
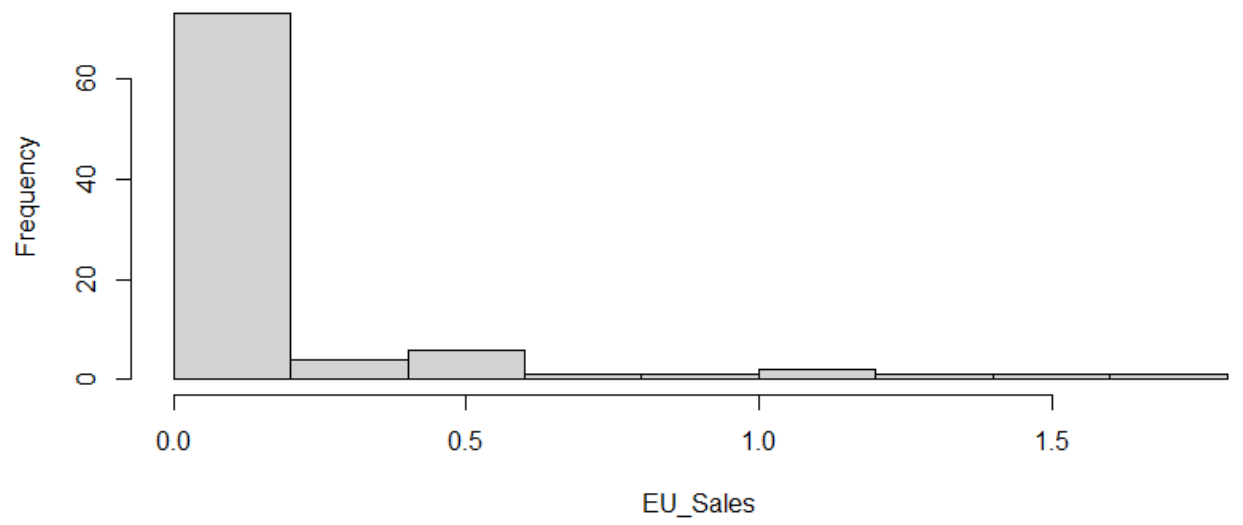
Simulation-JP
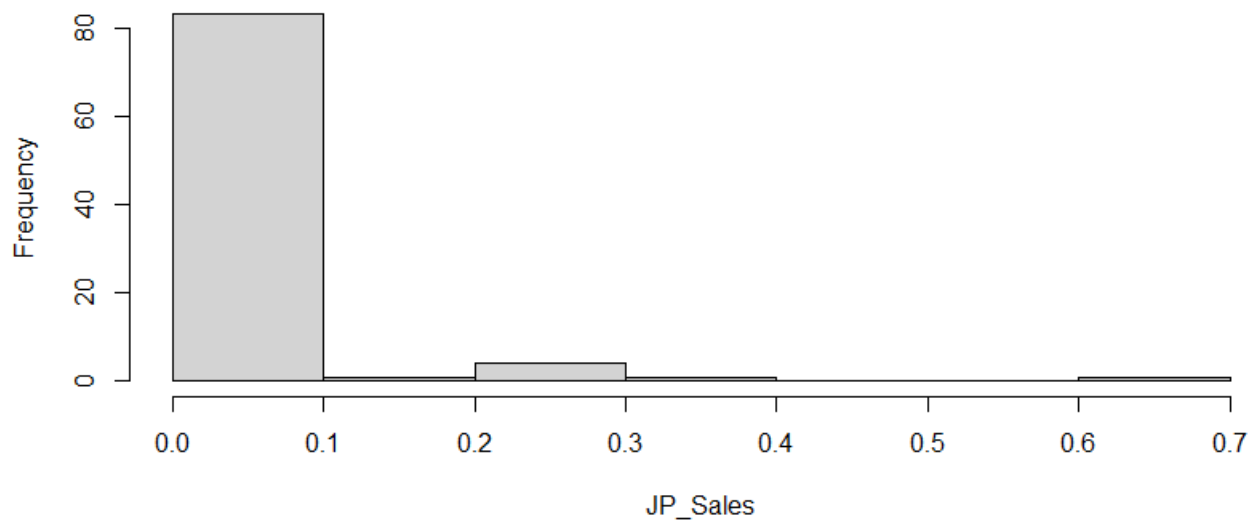
Simulation-Other
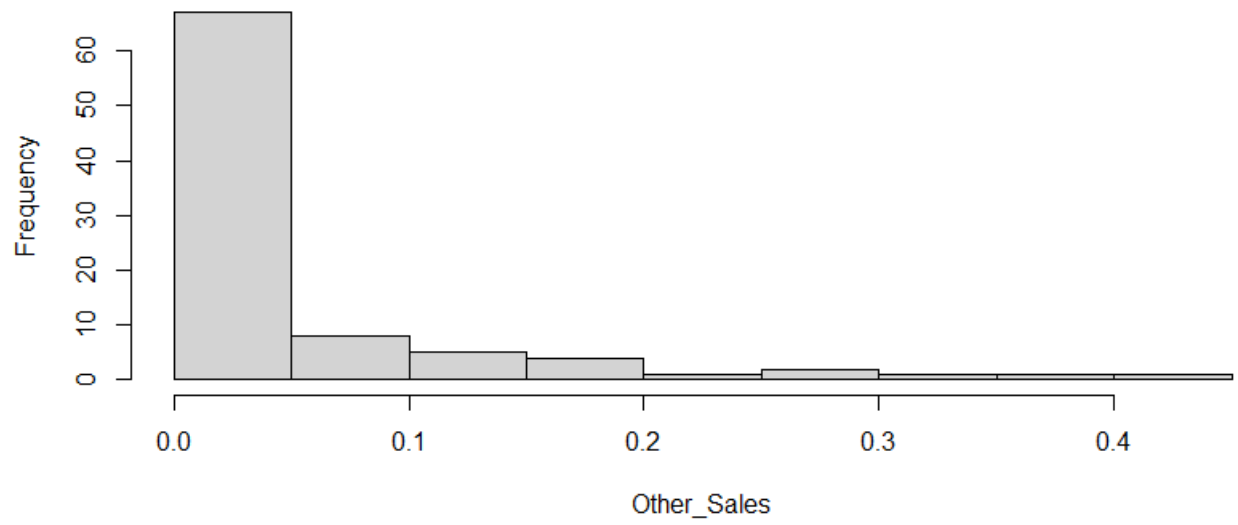
Simulation-Global
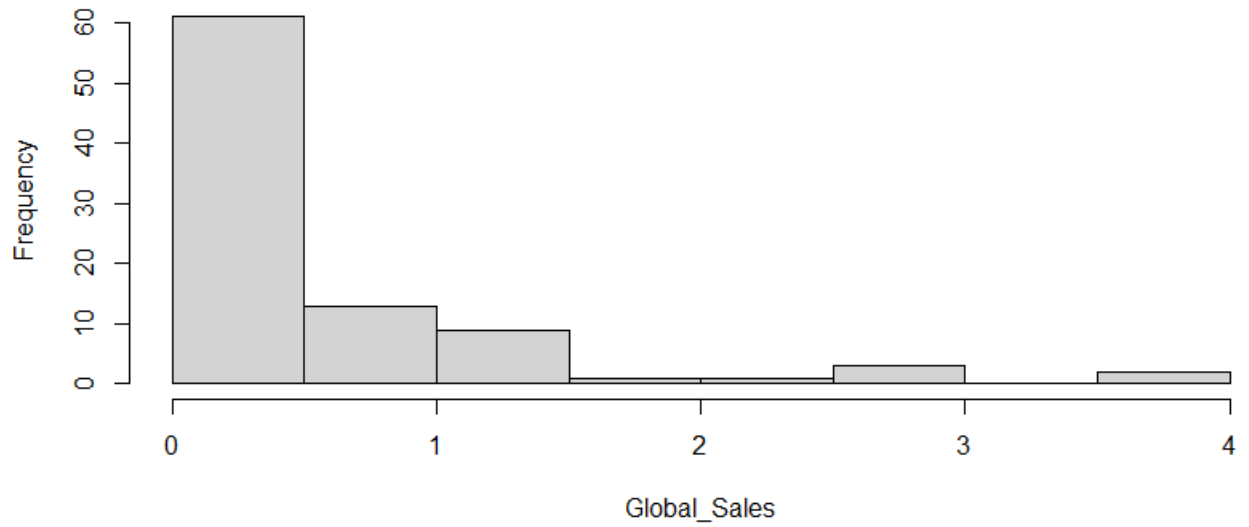
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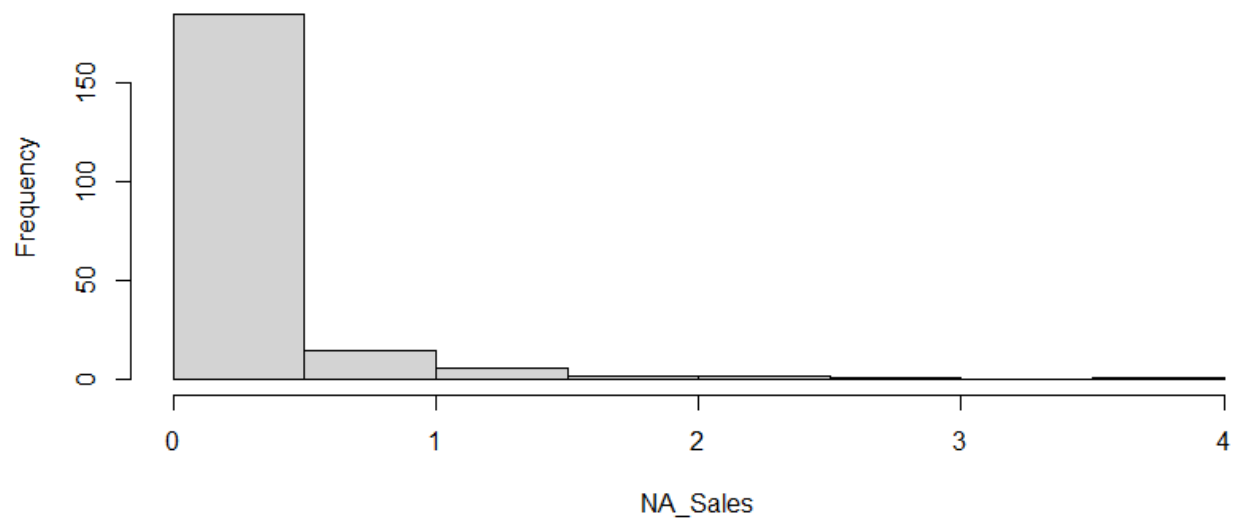
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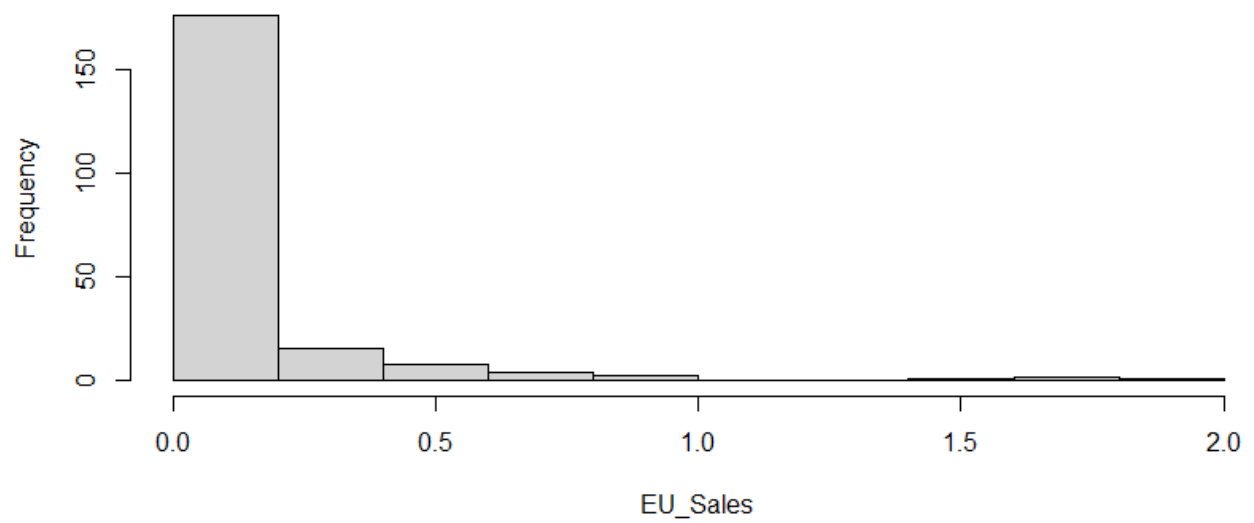
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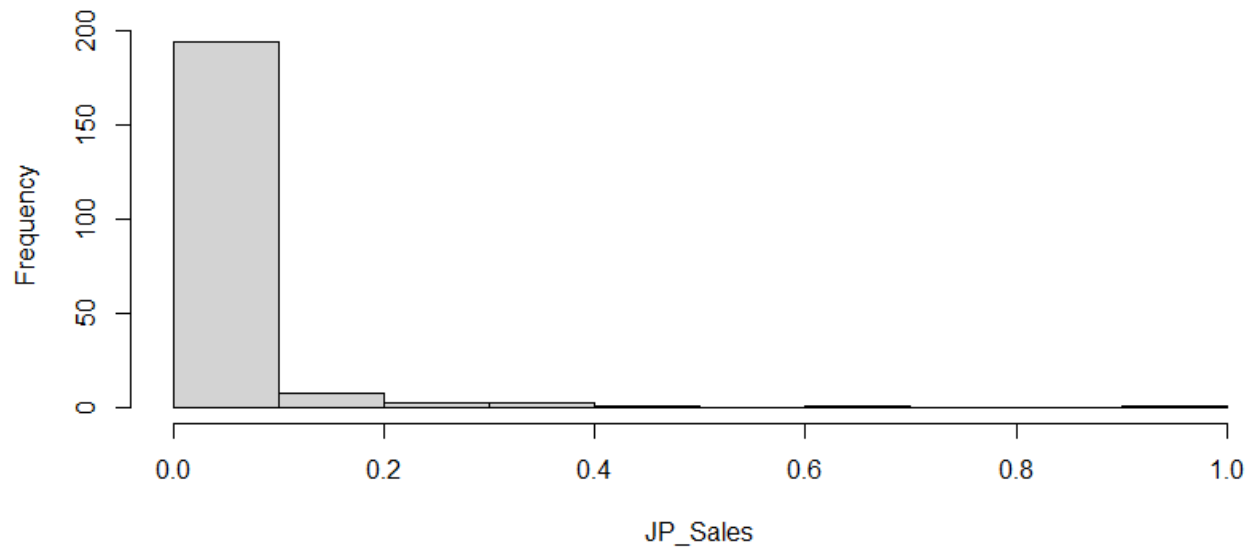
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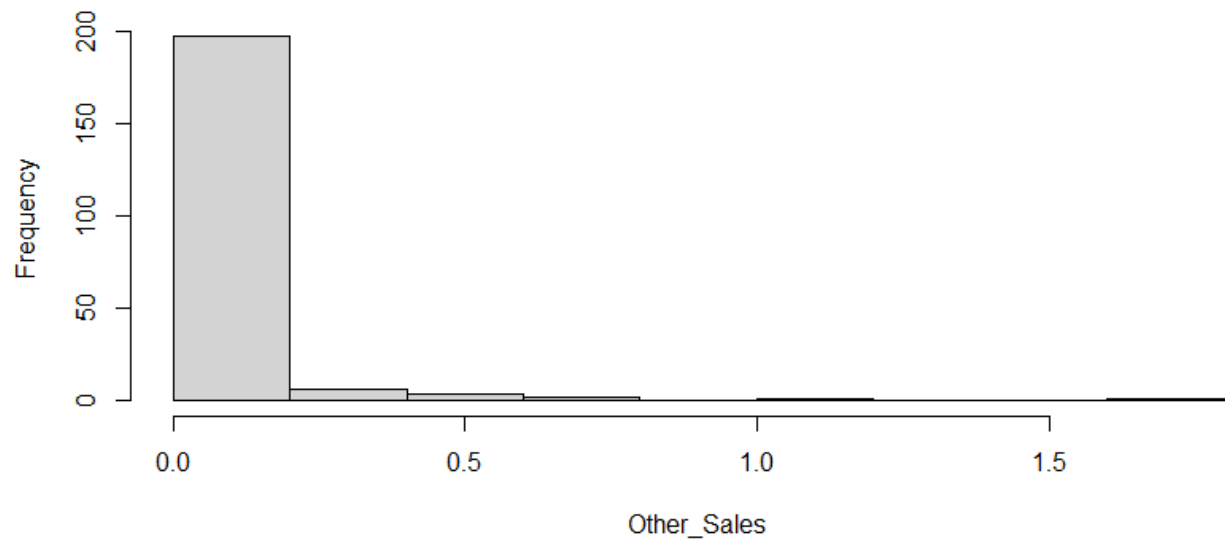
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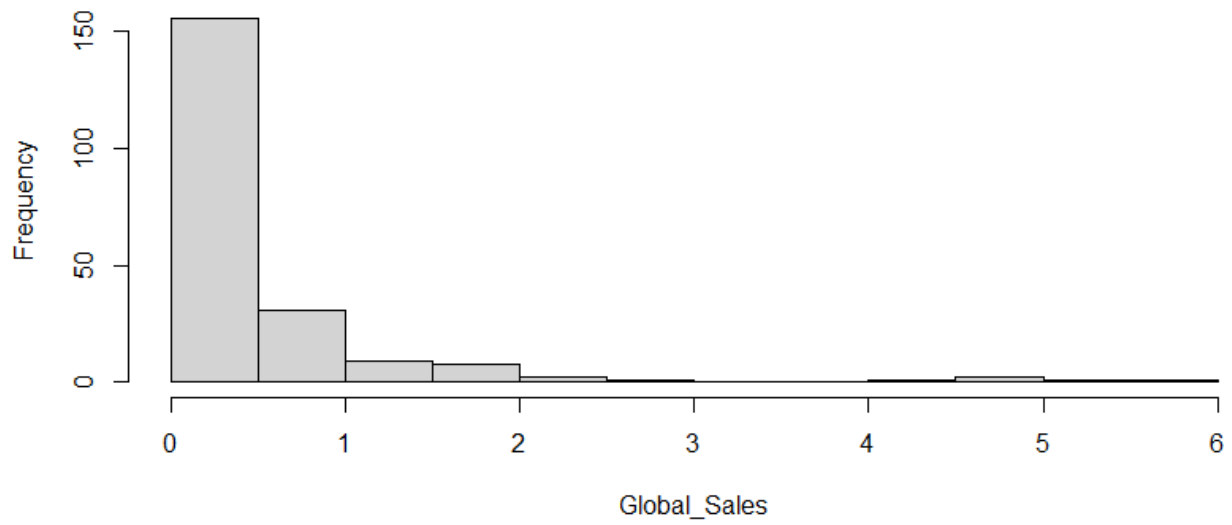
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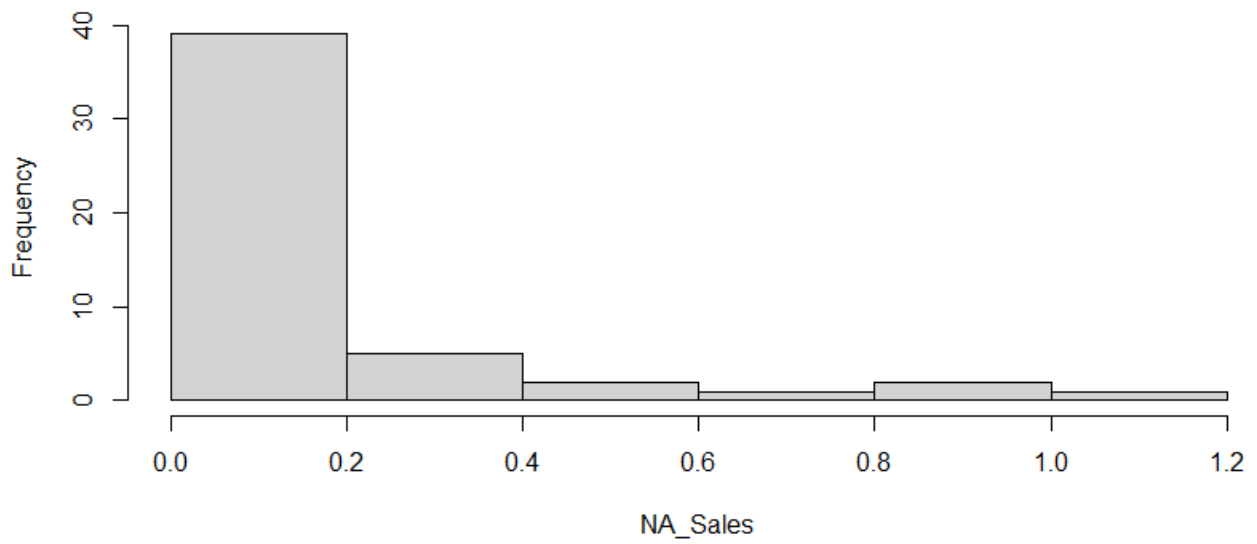
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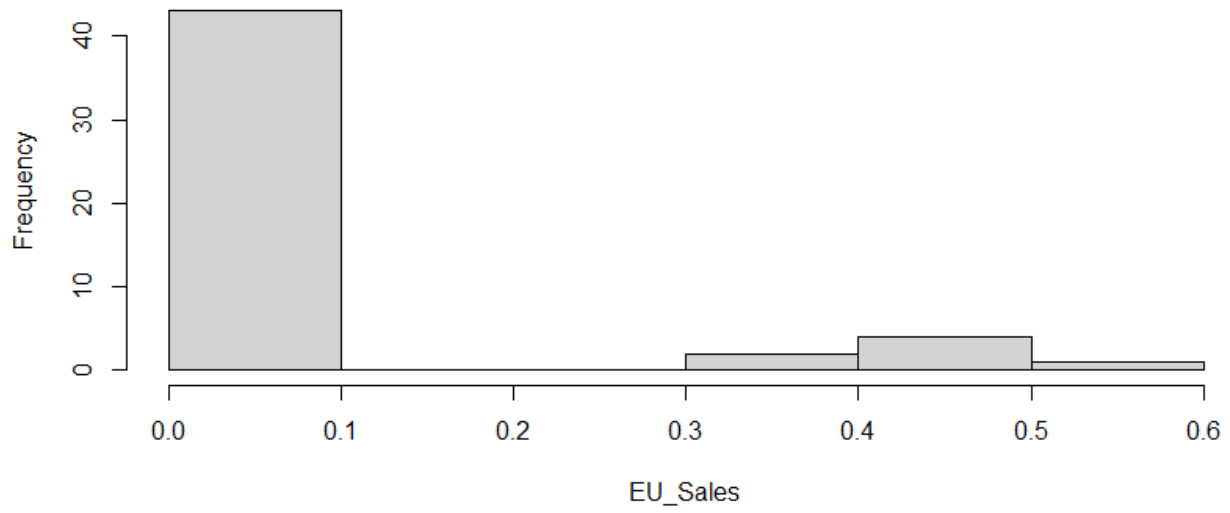
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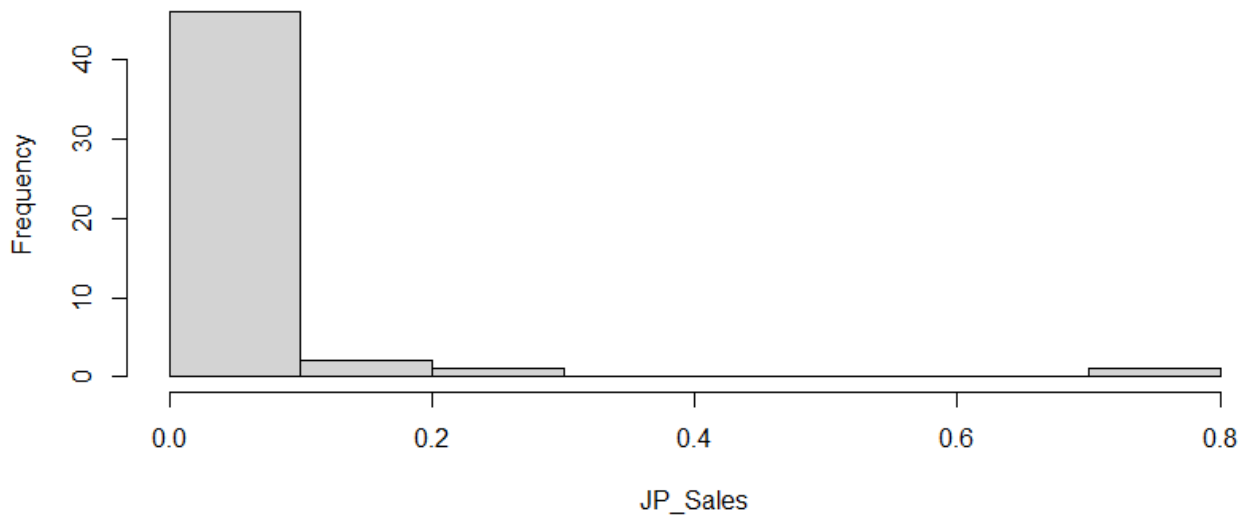
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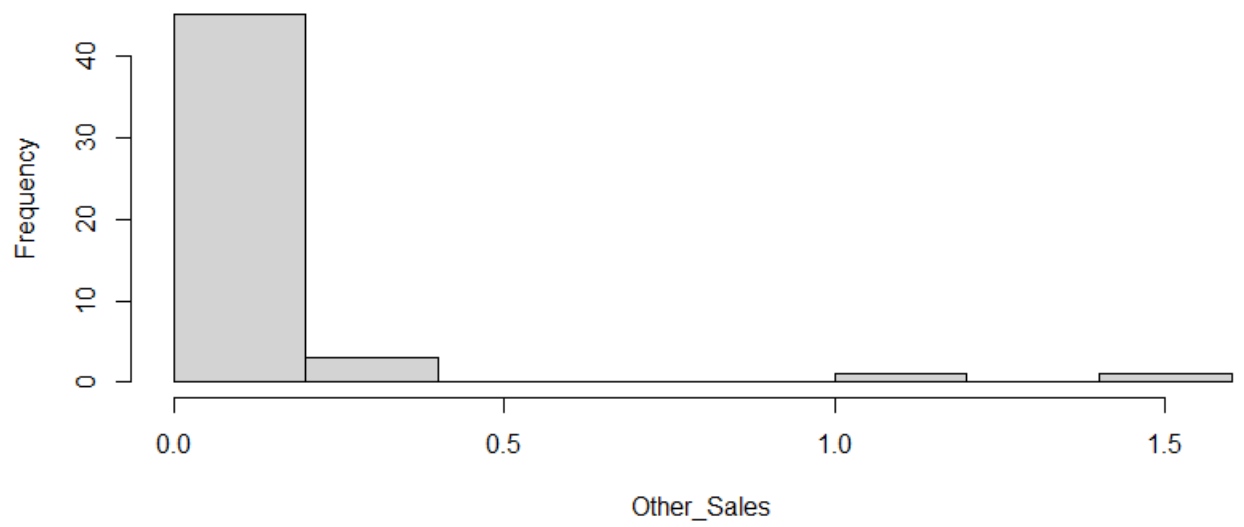
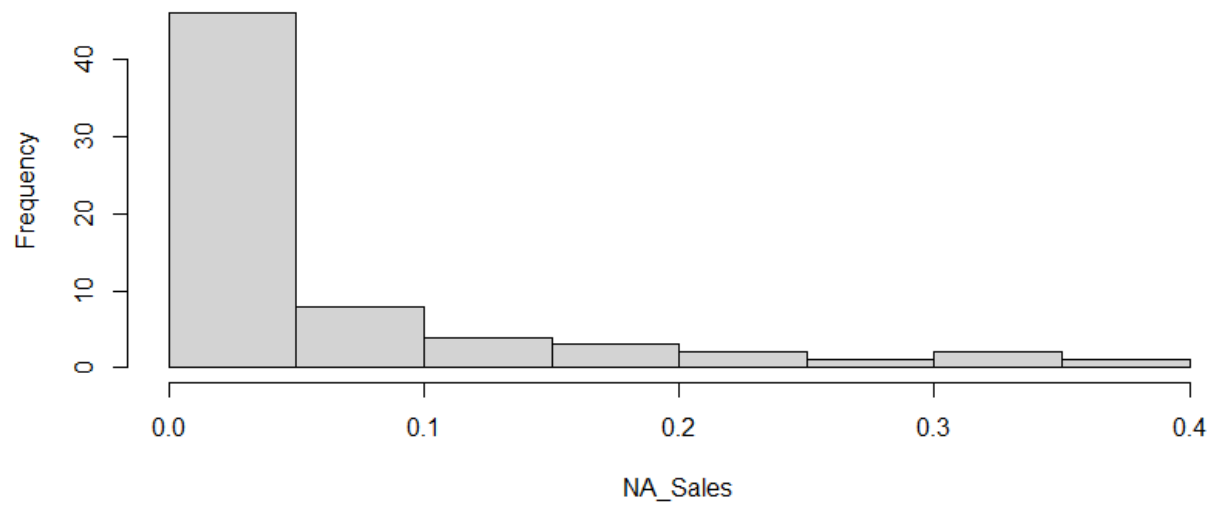**Fighting-Global**
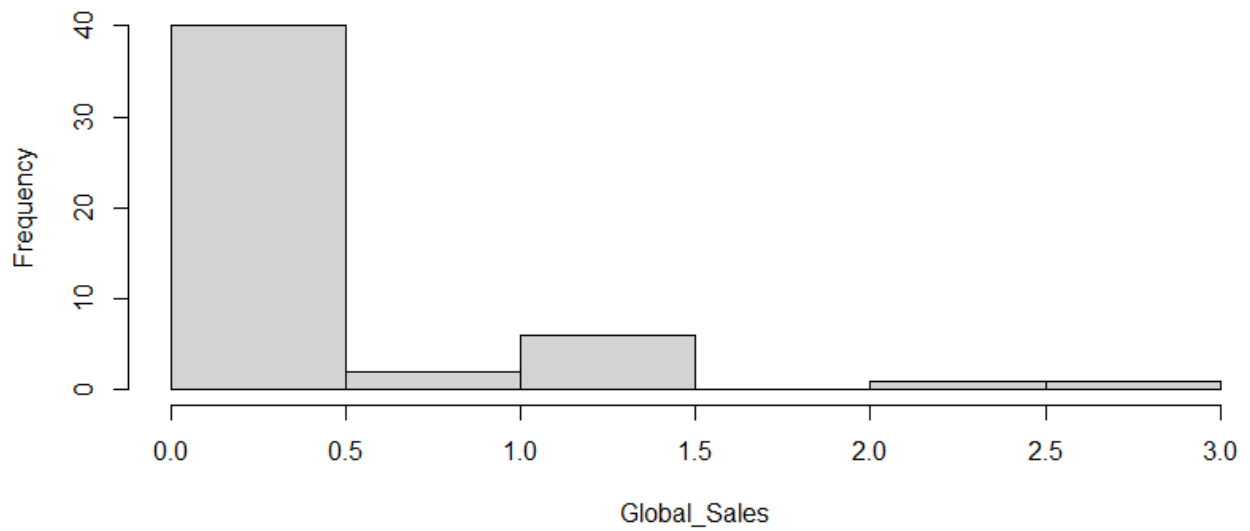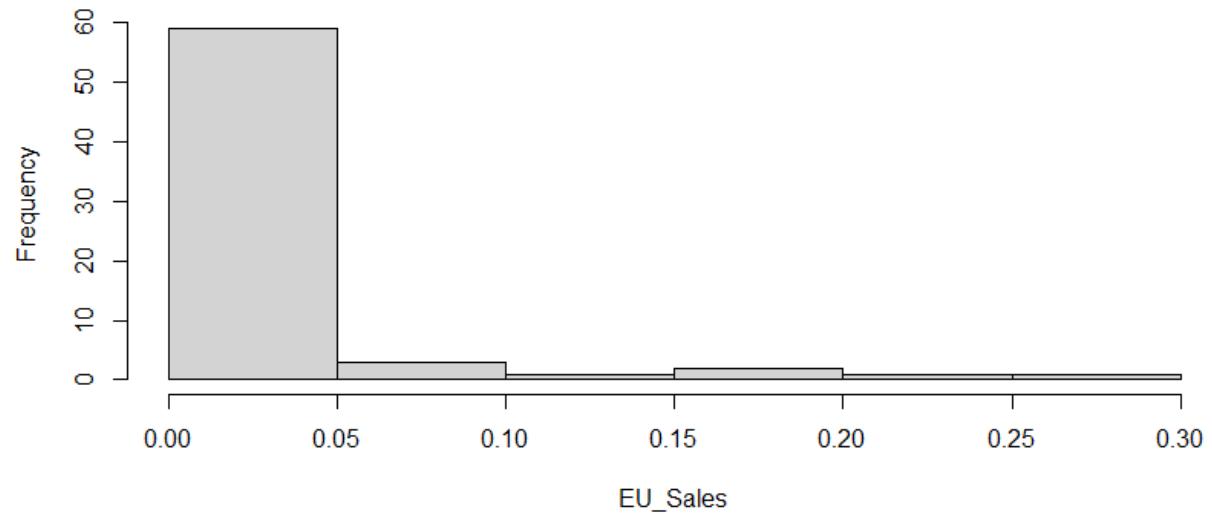
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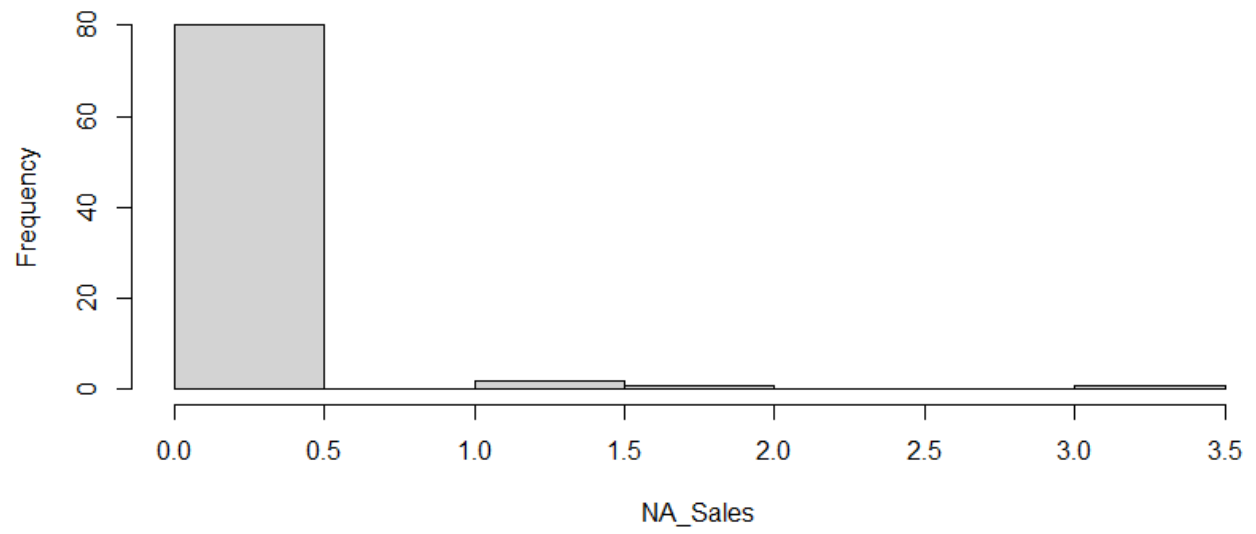
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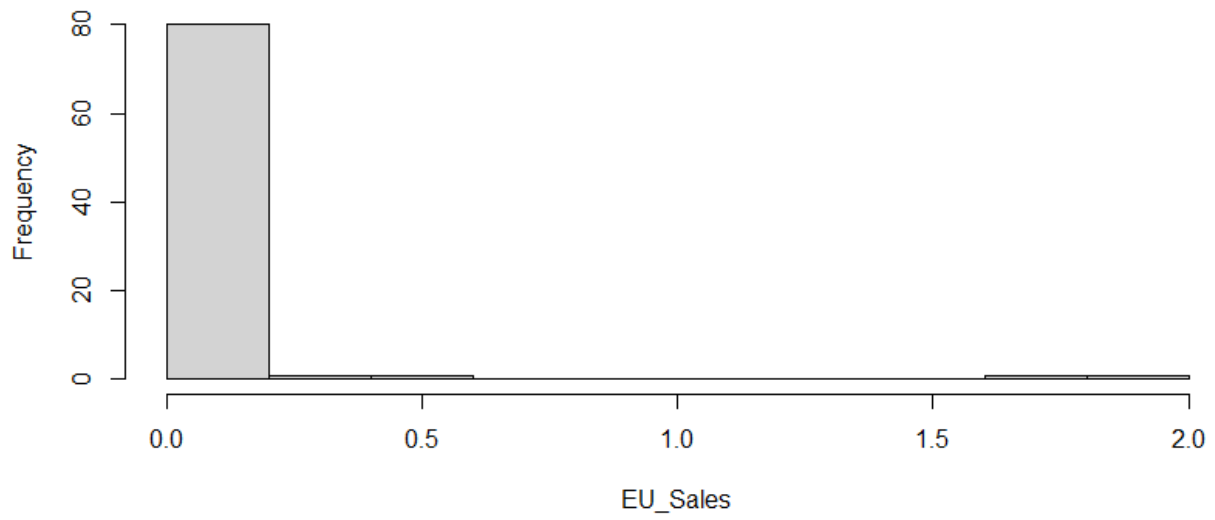
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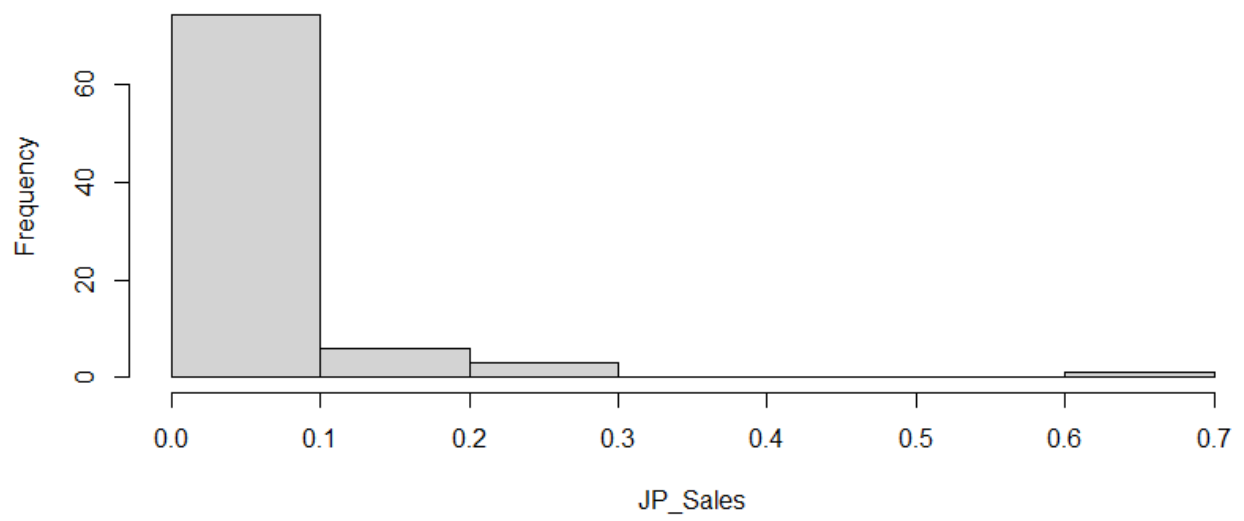
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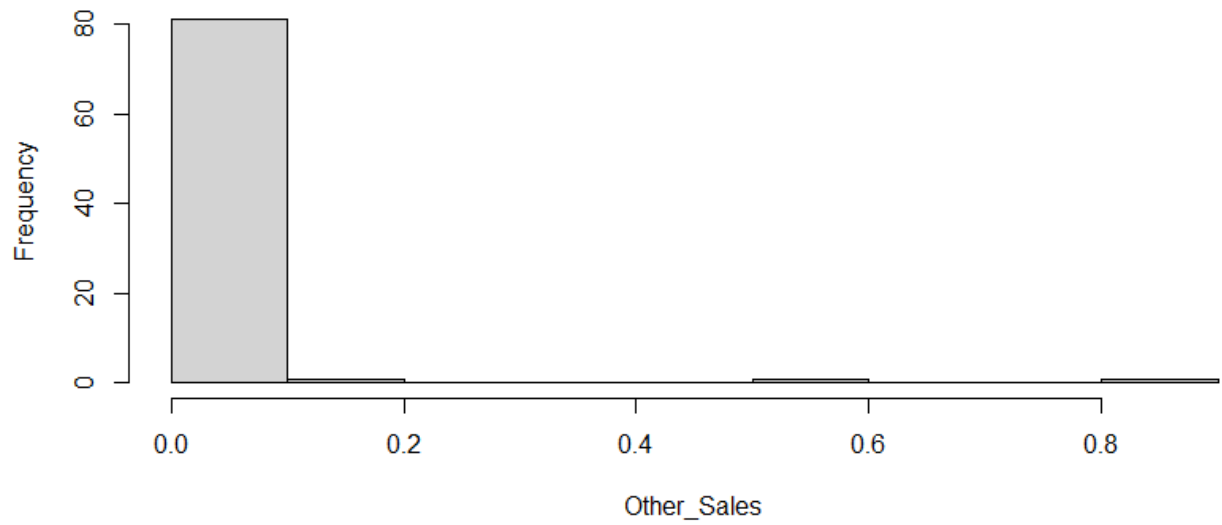
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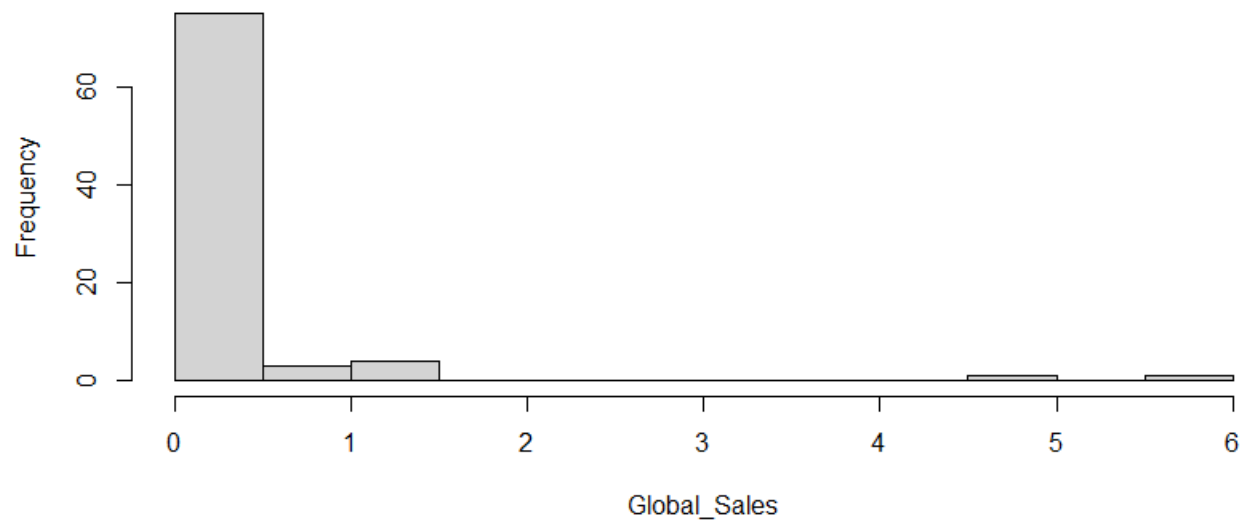
Strategy-NA

Strategy-EU
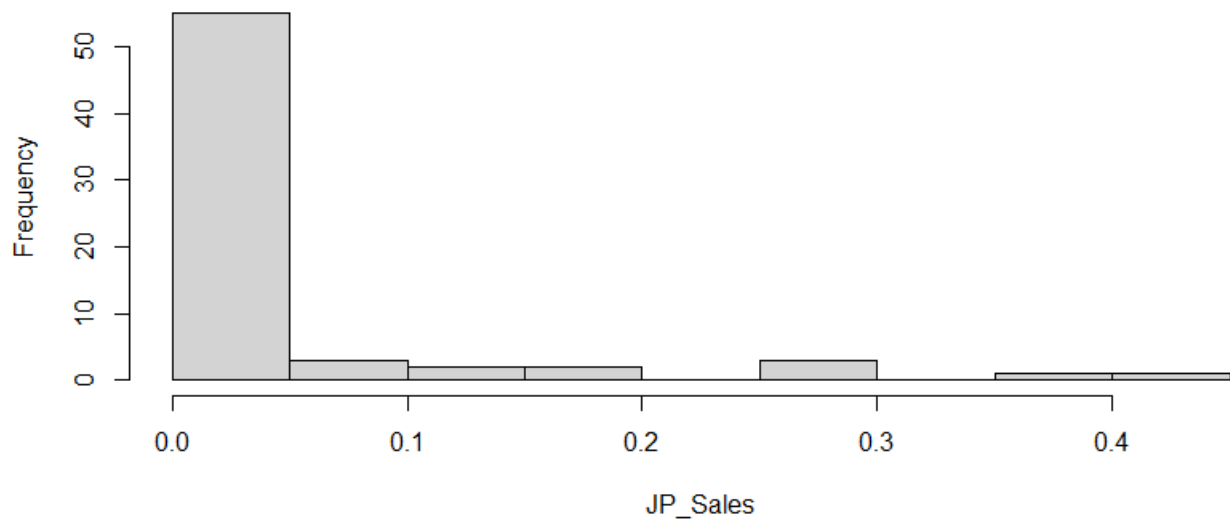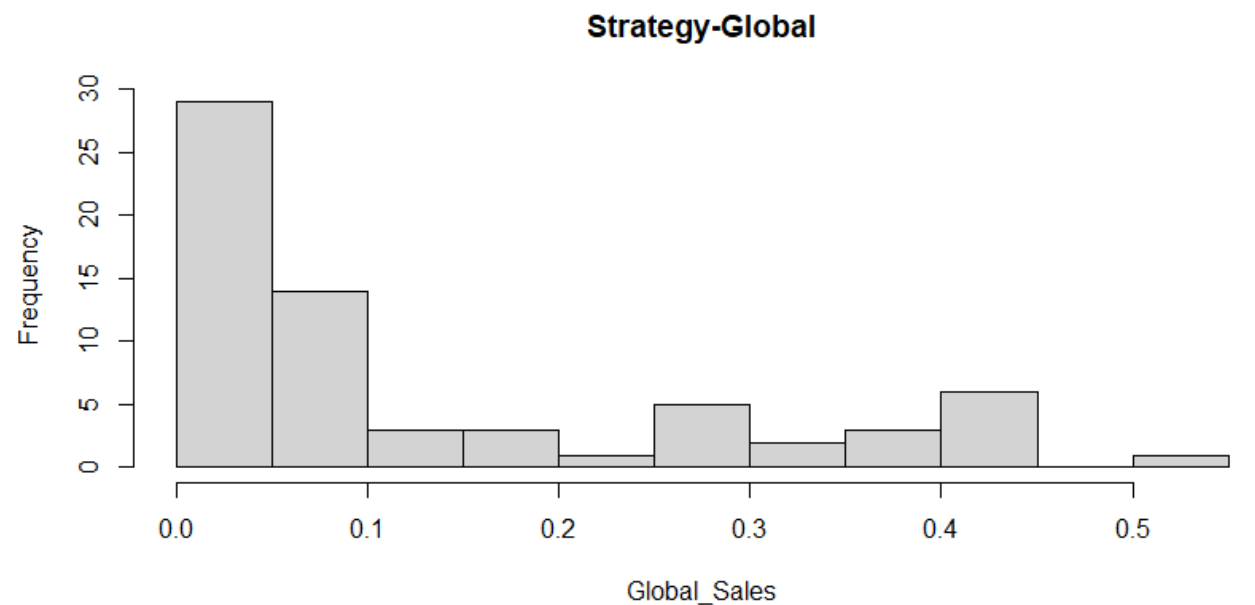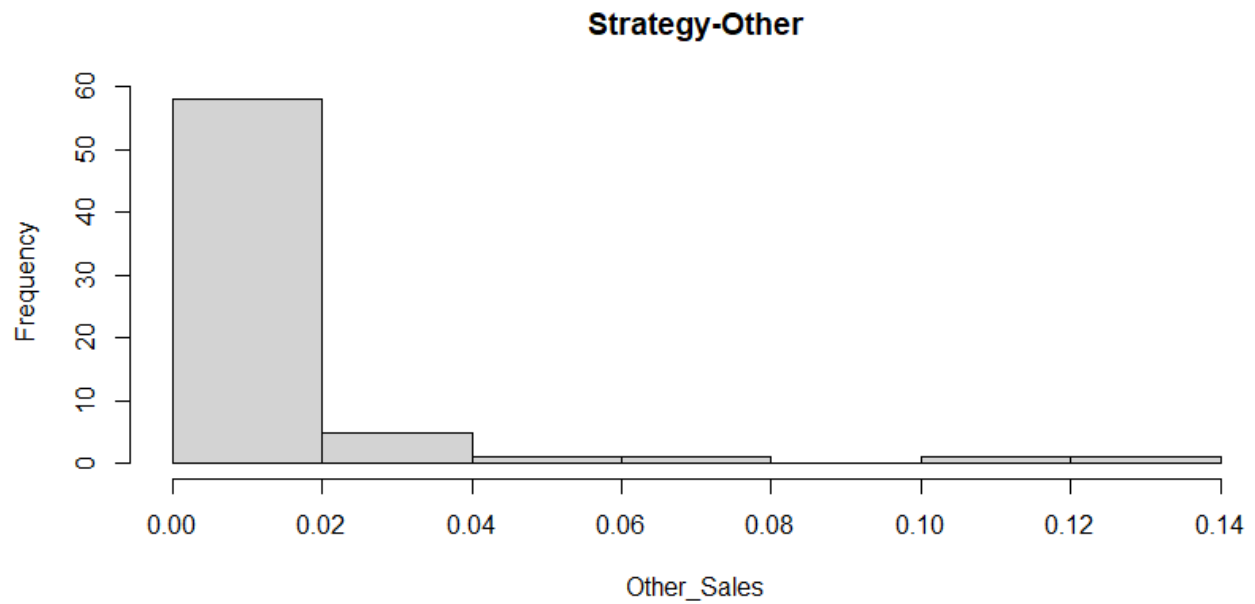
Strategy-JP

Strategy-Other

Strategy-Global

CONCLUSION:

From the pie chart we can conclude that the sales of **Action** games is more than any other genres of games followed by **Sports** and **MISC**

From the histogram we can check the sales of all genres of the games in the NA Region, EU Region , JP Region, Global Region and Other Region according to the sales in millions.