

# log transformations

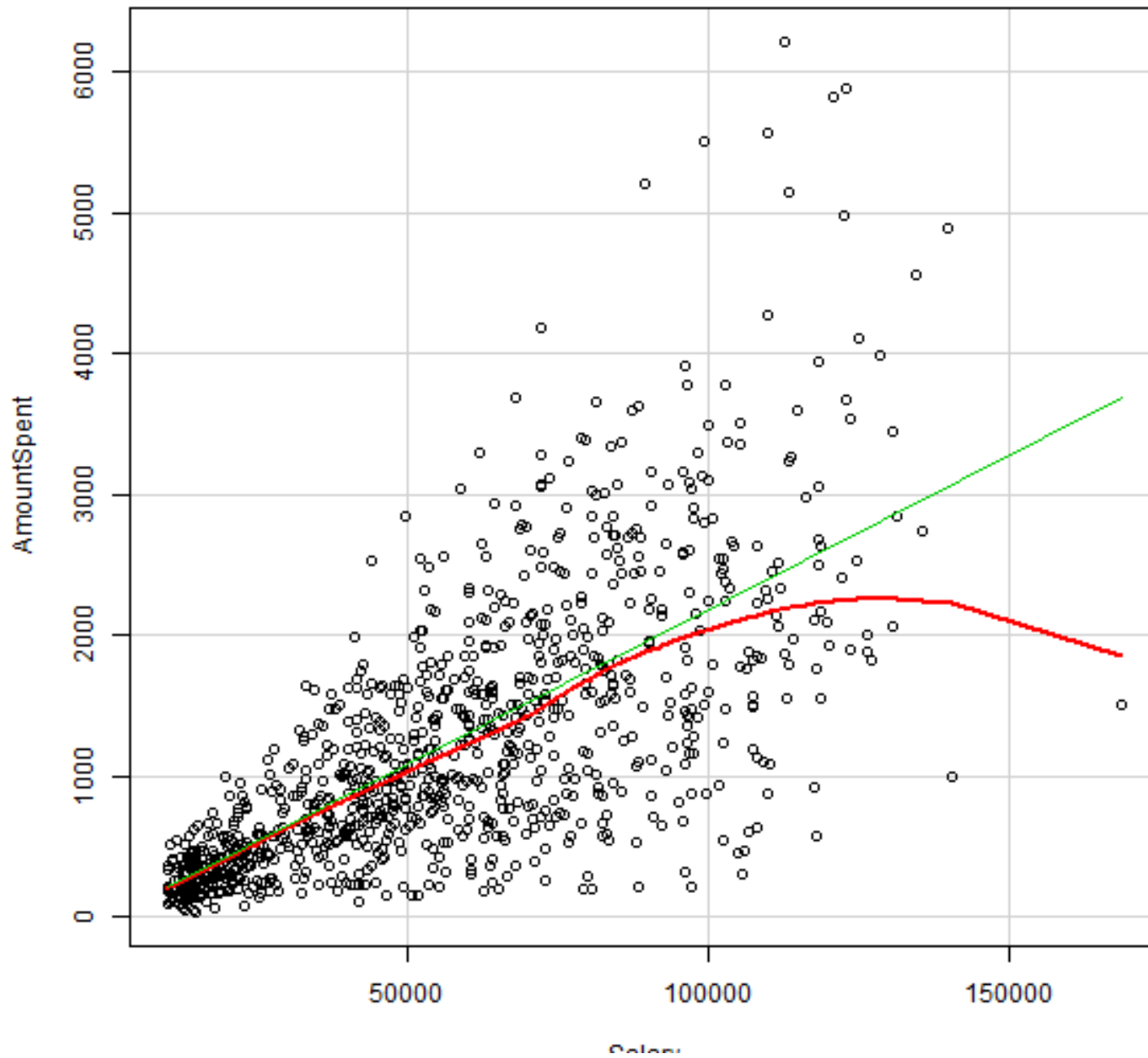
Your Name

2016-05-19

```
> setwd("C:/Users/parlar/Documents/1R/1ZLC/S2/8.Price-and-Demand-LogTransform/T2.6-Direct Marketing")
```

```
> Dataset <-  
+ read.table("C:/Users/parlar/Documents/1R/1ZLC/S2/8.Price-and-Demand-LogTransform/T2.6-Direct Marketing  
+ header=TRUE, sep=",", na.strings="NA", dec=".", strip.white=TRUE)
```

```
> scatterplot(AmountSpent~Salary, reg.line=lm, smooth=TRUE, spread=FALSE,  
+ boxplots=FALSE, span=0.5, ellipse=FALSE, levels=c(.5, .9), data=Dataset)
```



```
> RegModel.1 <- lm(AmountSpent~Salary, data=Dataset)
> summary(RegModel.1)
```

```
Call:
lm(formula = AmountSpent ~ Salary, data = Dataset)

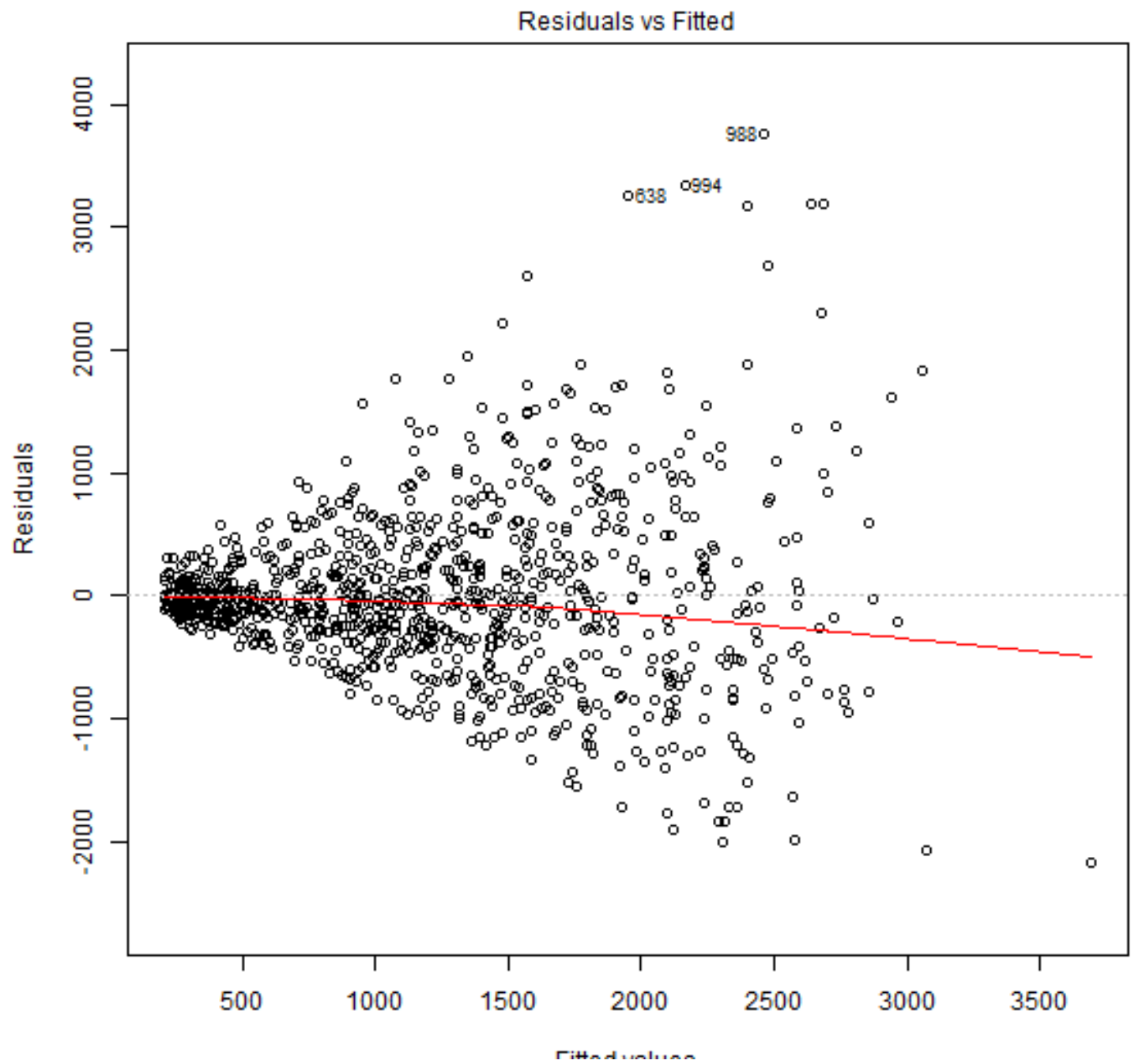
Residuals:
    Min       1Q   Median       3Q      Max
-2179.7  -315.2   -53.5    279.7   3752.9

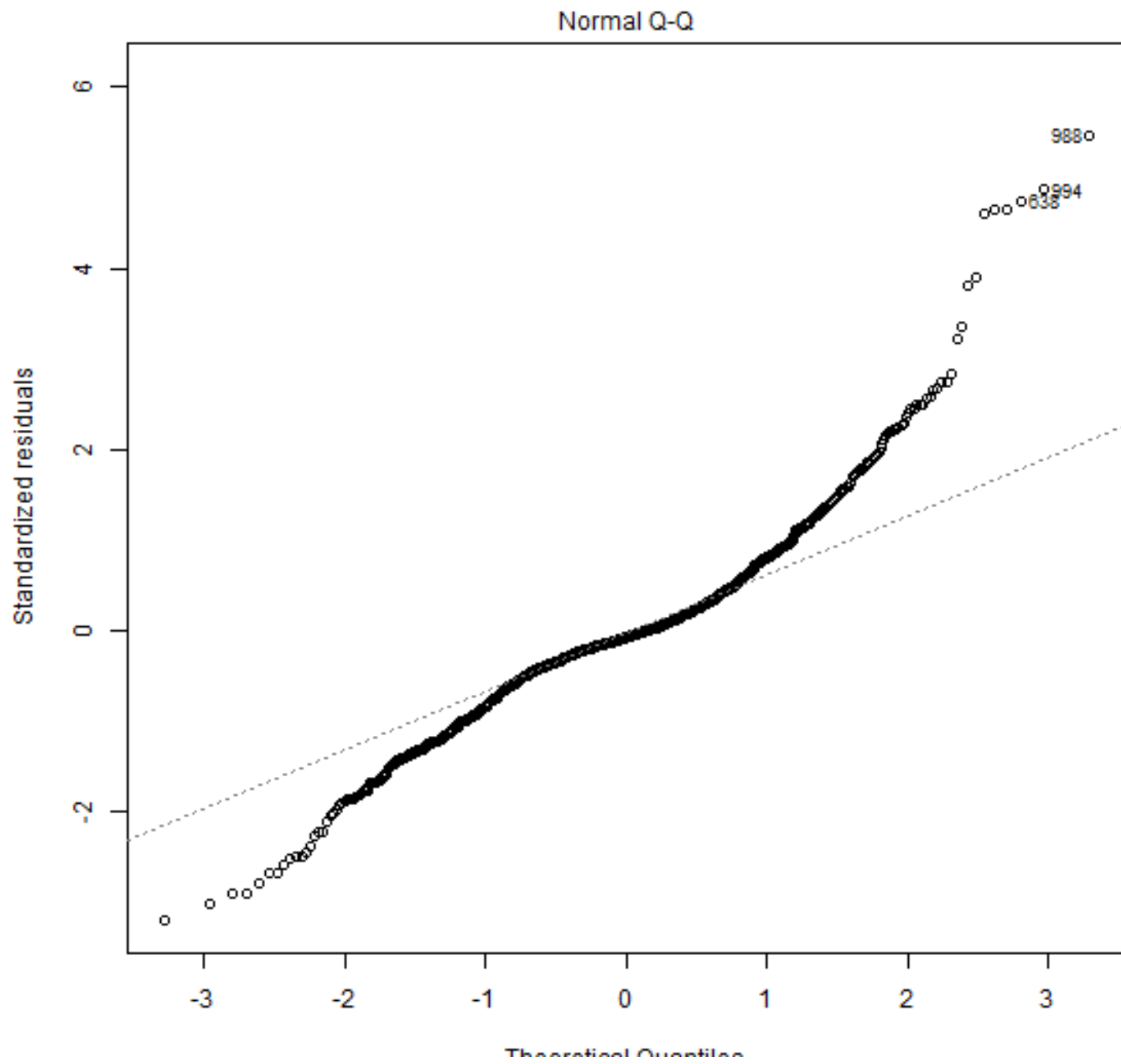
Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) -15.31783   45.37416  -0.338   0.736
Salary        0.02196    0.00071  30.930 <2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

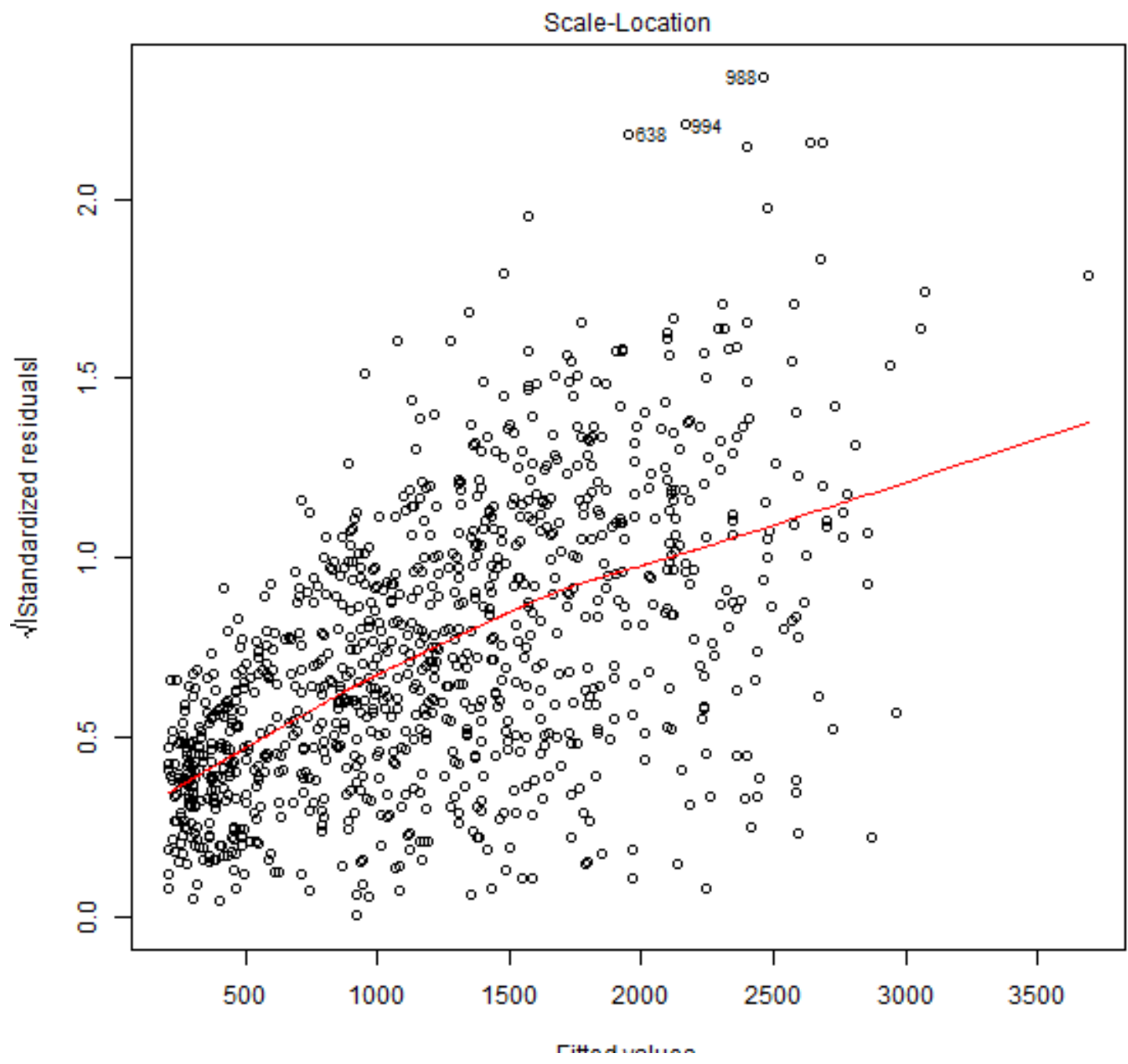
Residual standard error: 687.1 on 998 degrees of freedom
Multiple R-squared:  0.4894,    Adjusted R-squared:  0.4889
F-statistic: 956.7 on 1 and 998 DF,  p-value: < 2.2e-16
```

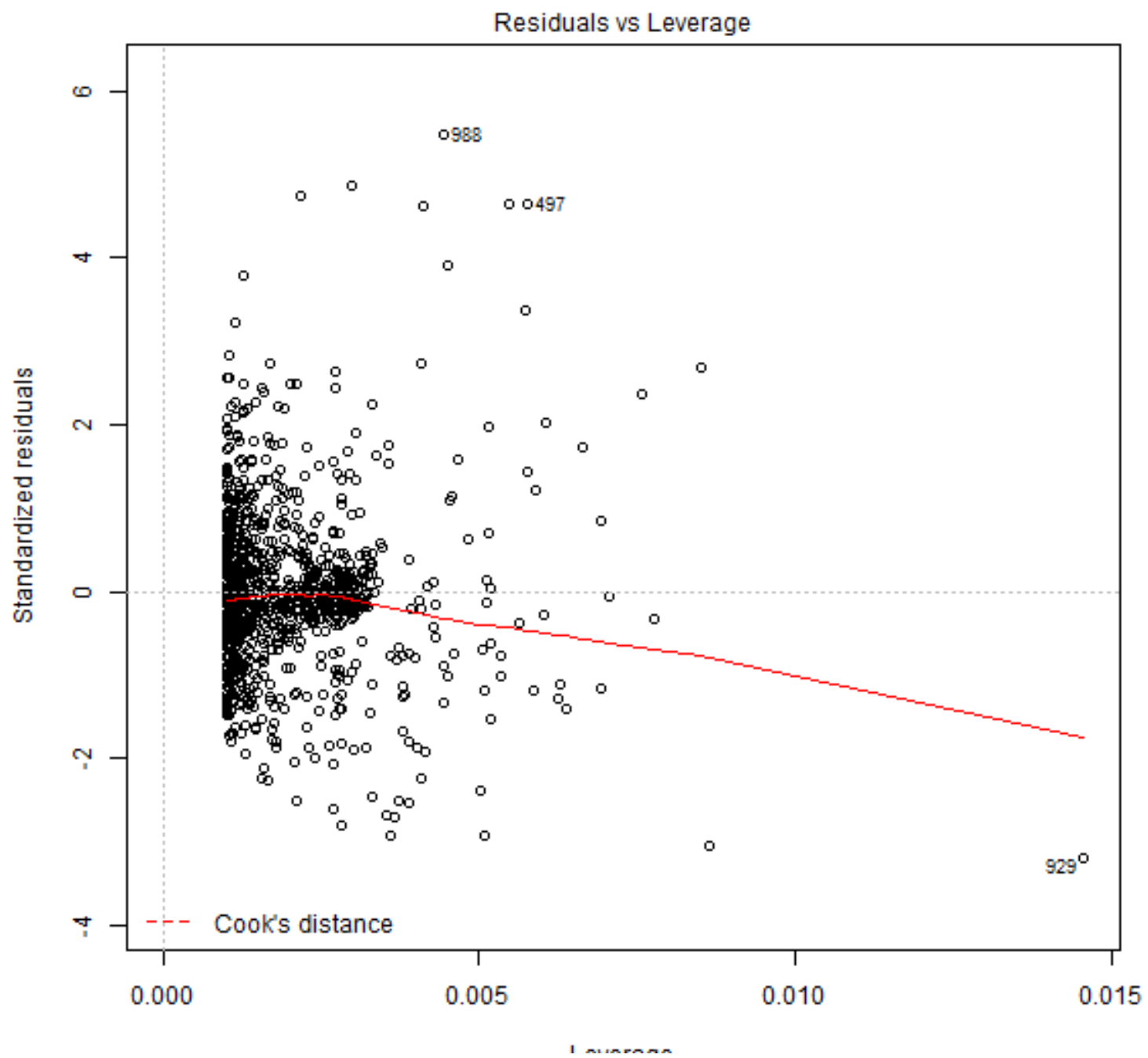
```
> oldpar <- par(oma=c(0,0,3,0), mfrow=c(2,2))
```

```
> plot(RegModel.1)
```





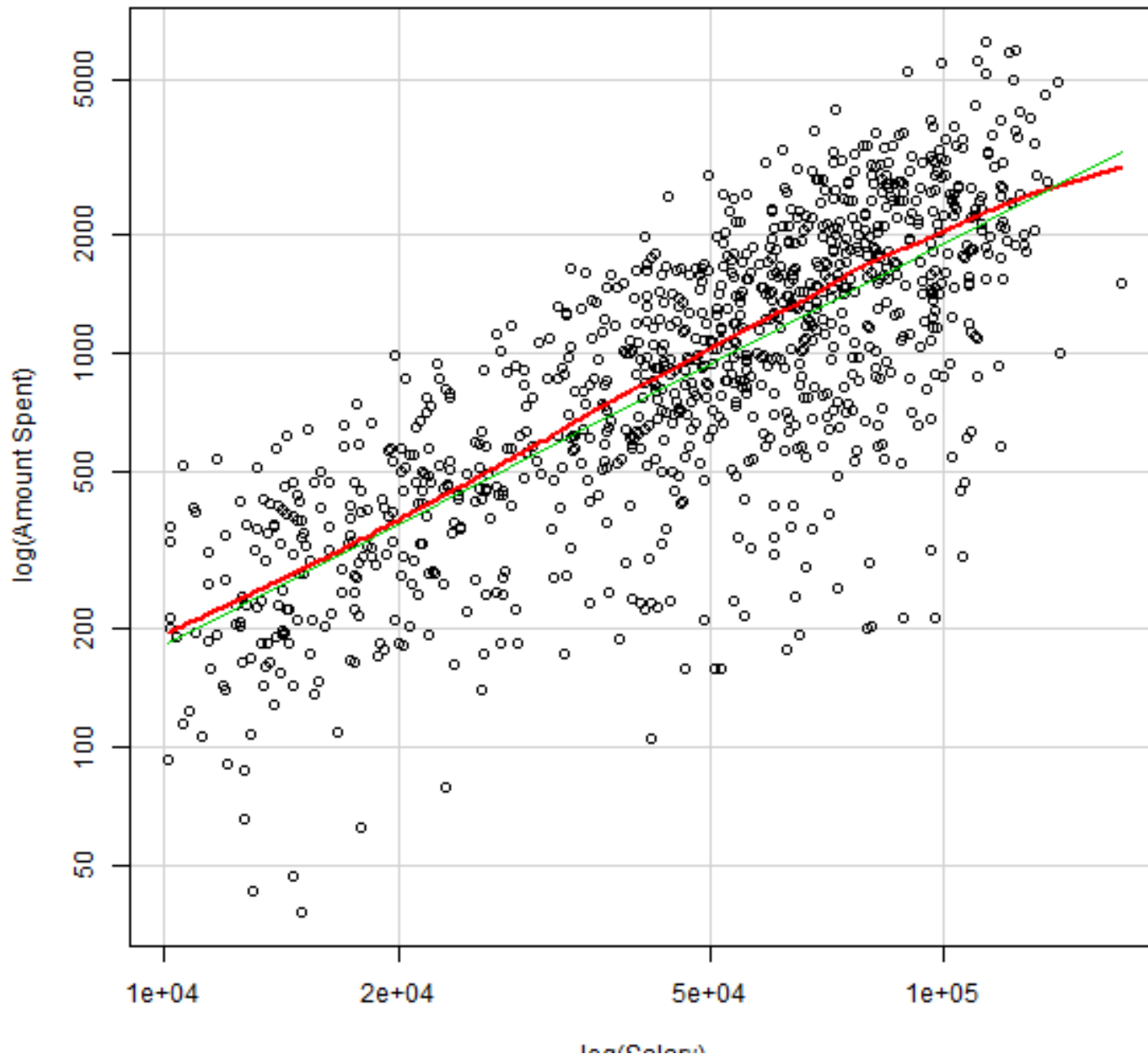




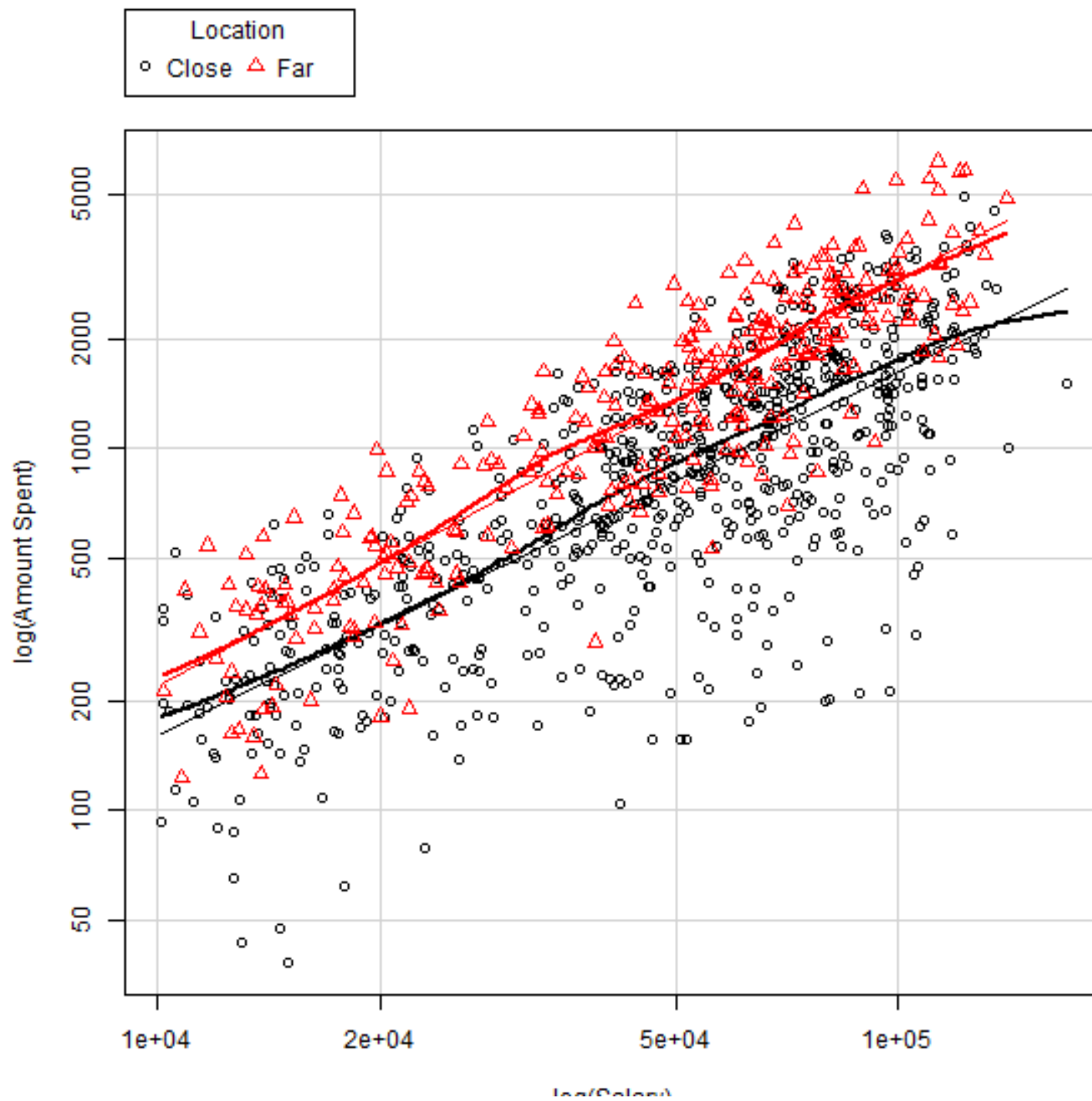
```
> par(oldpar)
```

```
> scatterplot(AmountSpent~Salary, log="xy", reg.line=lm, smooth=TRUE,  
+   spread=FALSE, boxplots=FALSE, span=0.5, ellipse=FALSE, levels=c(.5, .9),  
+   xlab="log(Salary)", ylab="log(Amount Spent)", data=Dataset)
```





```
> scatterplot(AmountSpent~Salary | Location, log="xy", reg.line=lm,  
+ smooth=TRUE, spread=FALSE, boxplots=FALSE, span=0.5, ellipse=FALSE,  
+ levels=c(.5, .9), xlab="log(Salary)", ylab="log(Amount Spent)",  
+ by.groups=TRUE, data=Dataset)
```



```
> LinearModel.2 <- lm(log(AmountSpent) ~ log(Salary), data=Dataset)
> summary(LinearModel.2)
```

```
Call:
lm(formula = log(AmountSpent) ~ log(Salary), data = Dataset)

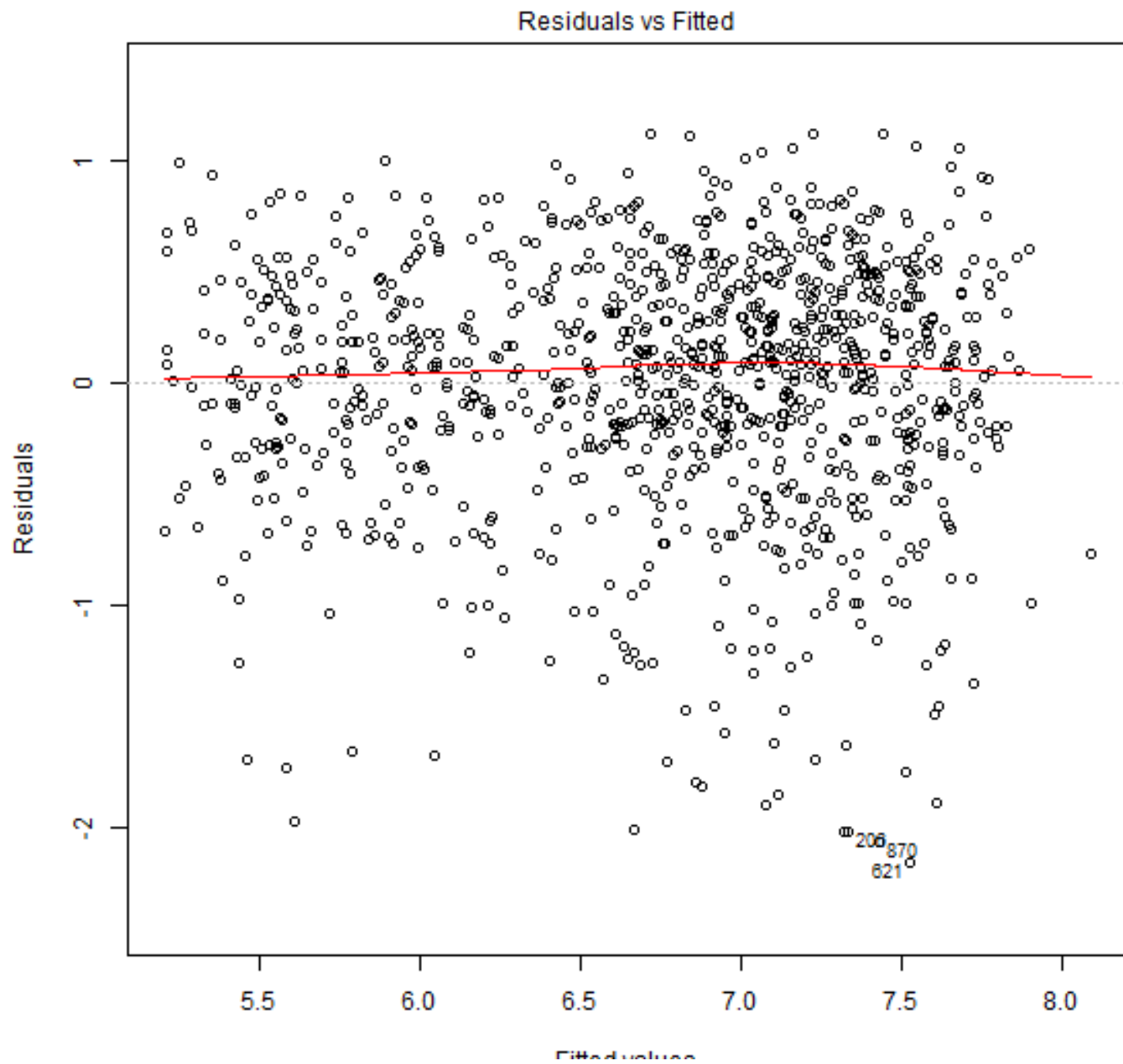
Residuals:
    Min       1Q   Median       3Q      Max
-2.16381 -0.28005  0.07409  0.40193  1.11970

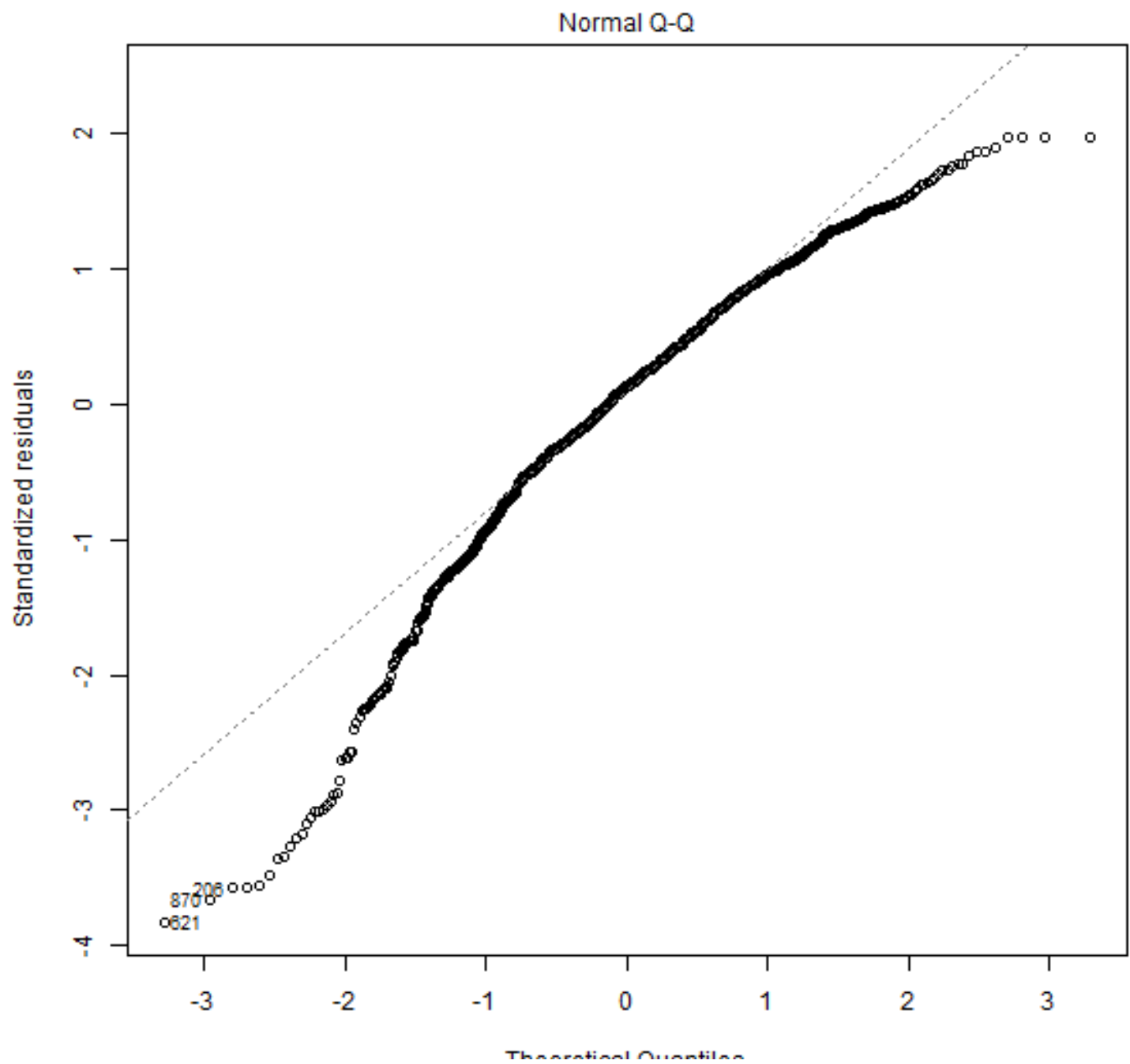
Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) -4.24279    0.29630  -14.32  <2e-16 ***
log(Salary)  1.02449    0.02751   37.24  <2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

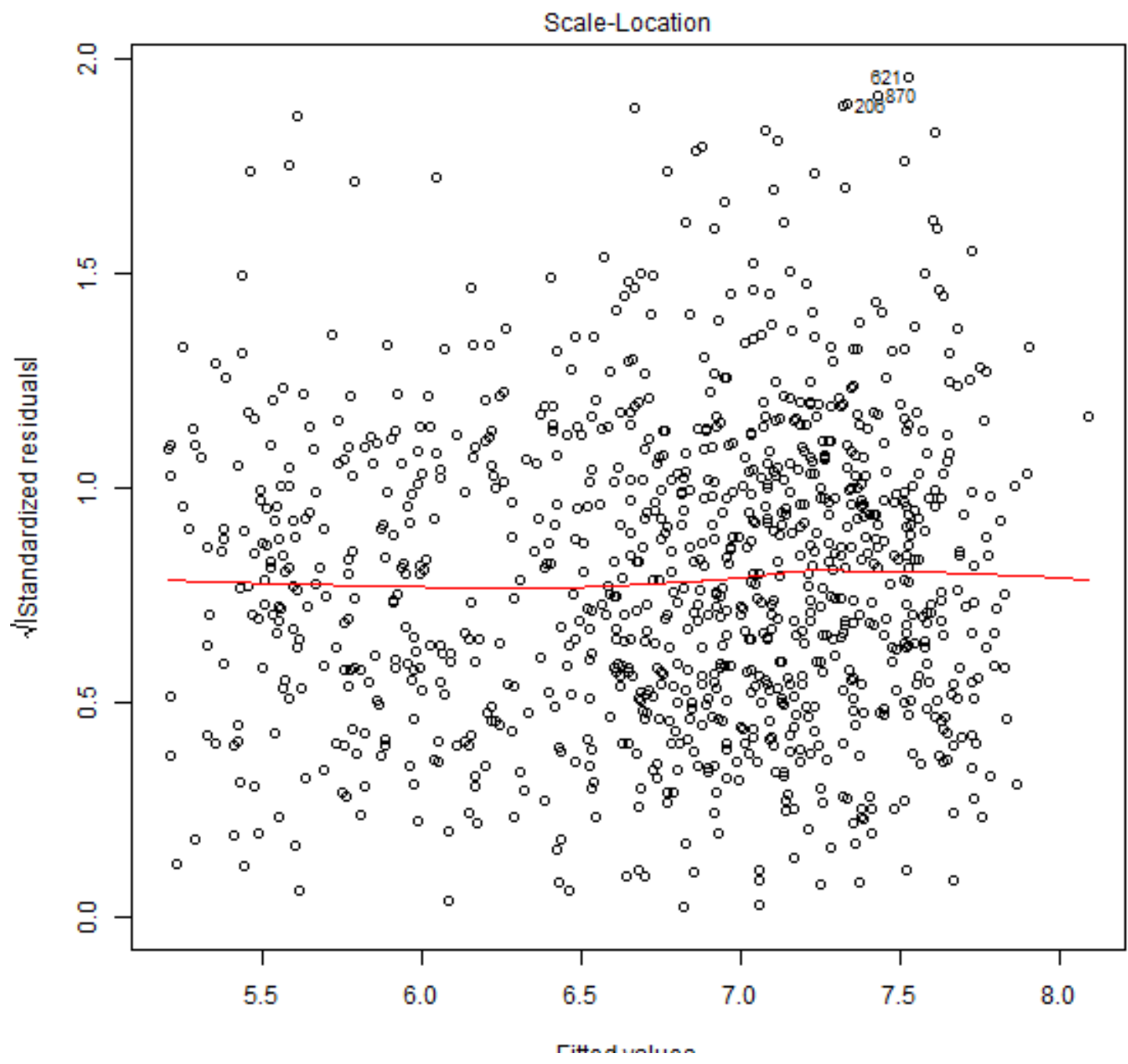
Residual standard error: 0.5666 on 998 degrees of freedom
Multiple R-squared:  0.5816,    Adjusted R-squared:  0.5811
F-statistic: 1387 on 1 and 998 DF,  p-value: < 2.2e-16
```

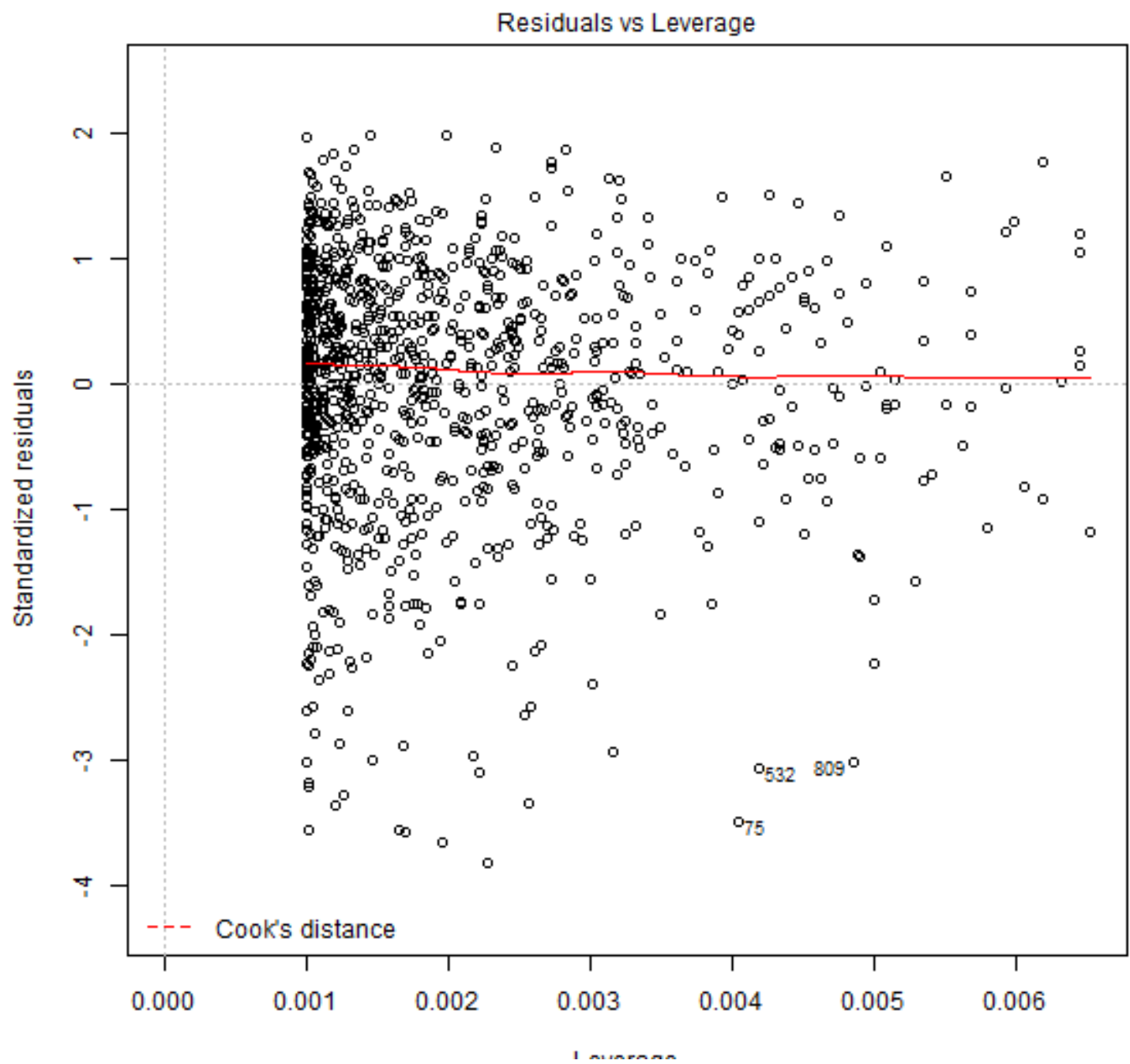
```
> oldpar <- par(oma=c(0,0,3,0), mfrow=c(2,2))
```

```
> plot(LinearModel.2)
```





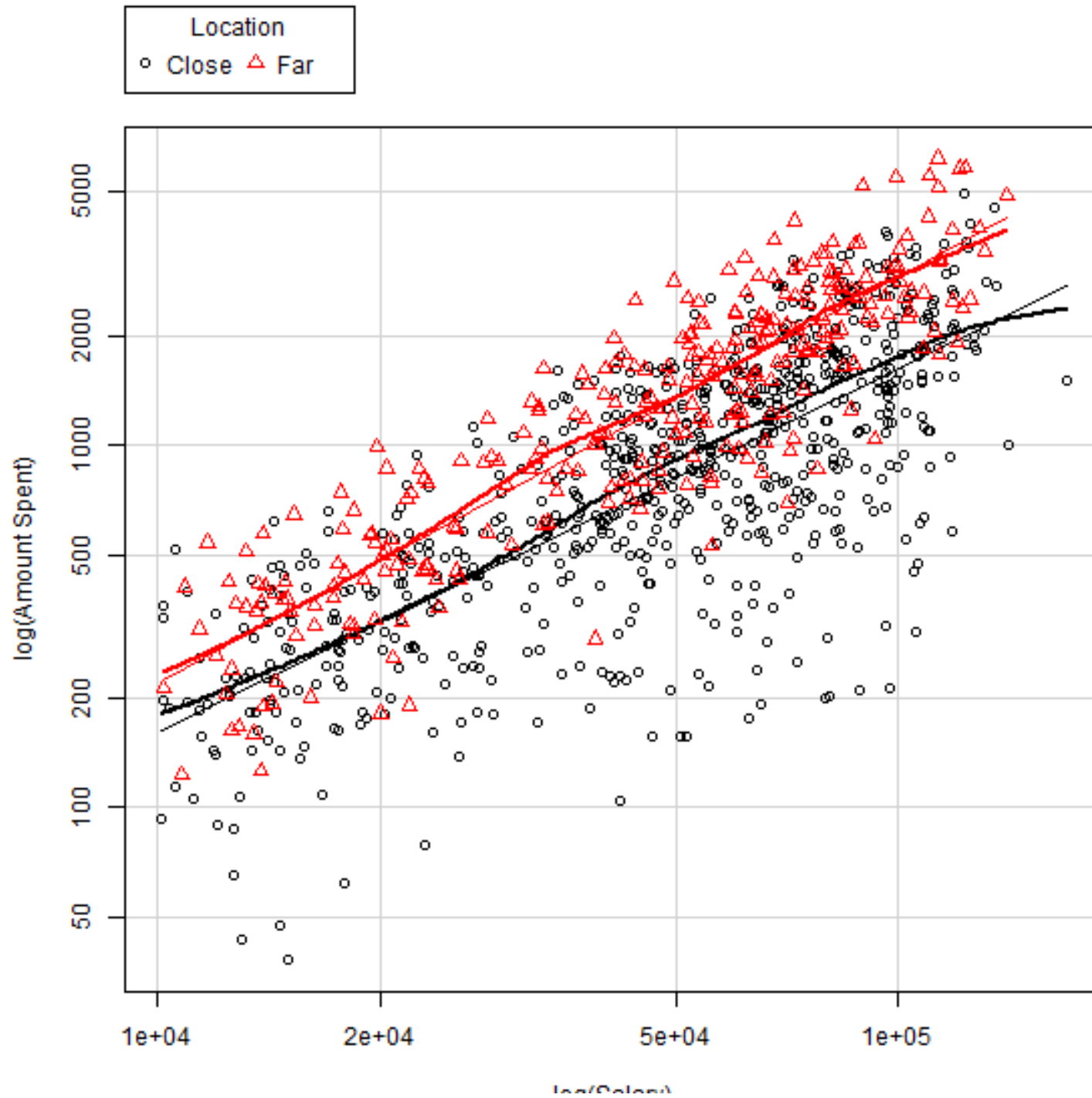






```
> par(oldpar)
```

```
> scatterplot(AmountSpent~Salary | Location, log="xy", reg.line=lm,  
+ smooth=TRUE, spread=FALSE, boxplots=FALSE, span=0.5, ellipse=FALSE,  
+ levels=c(.5, .9), xlab="log(Salary)", ylab="log(Amount Spent)",  
+ by.groups=TRUE, data=Dataset)
```



```
> LinearModel.3 <- lm(log(AmountSpent) ~ log(Salary) +Location, data=Dataset)
> summary(LinearModel.3)
```

```
Call:
lm(formula = log(AmountSpent) ~ log(Salary) + Location, data = Dataset)
```

```
Residuals:
```

```
      Min       1Q   Median       3Q      Max
-2.0336 -0.2707  0.0598  0.3380  1.1581
```

```
Coefficients:
```

```
              Estimate Std. Error t value Pr(>|t|)
(Intercept)   -4.54246    0.27396  -16.58  <2e-16 ***
log(Salary)    1.03925    0.02537   40.96  <2e-16 ***
Location[T.Far] 0.48632    0.03642   13.35  <2e-16 ***
```

```
---
```

```
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

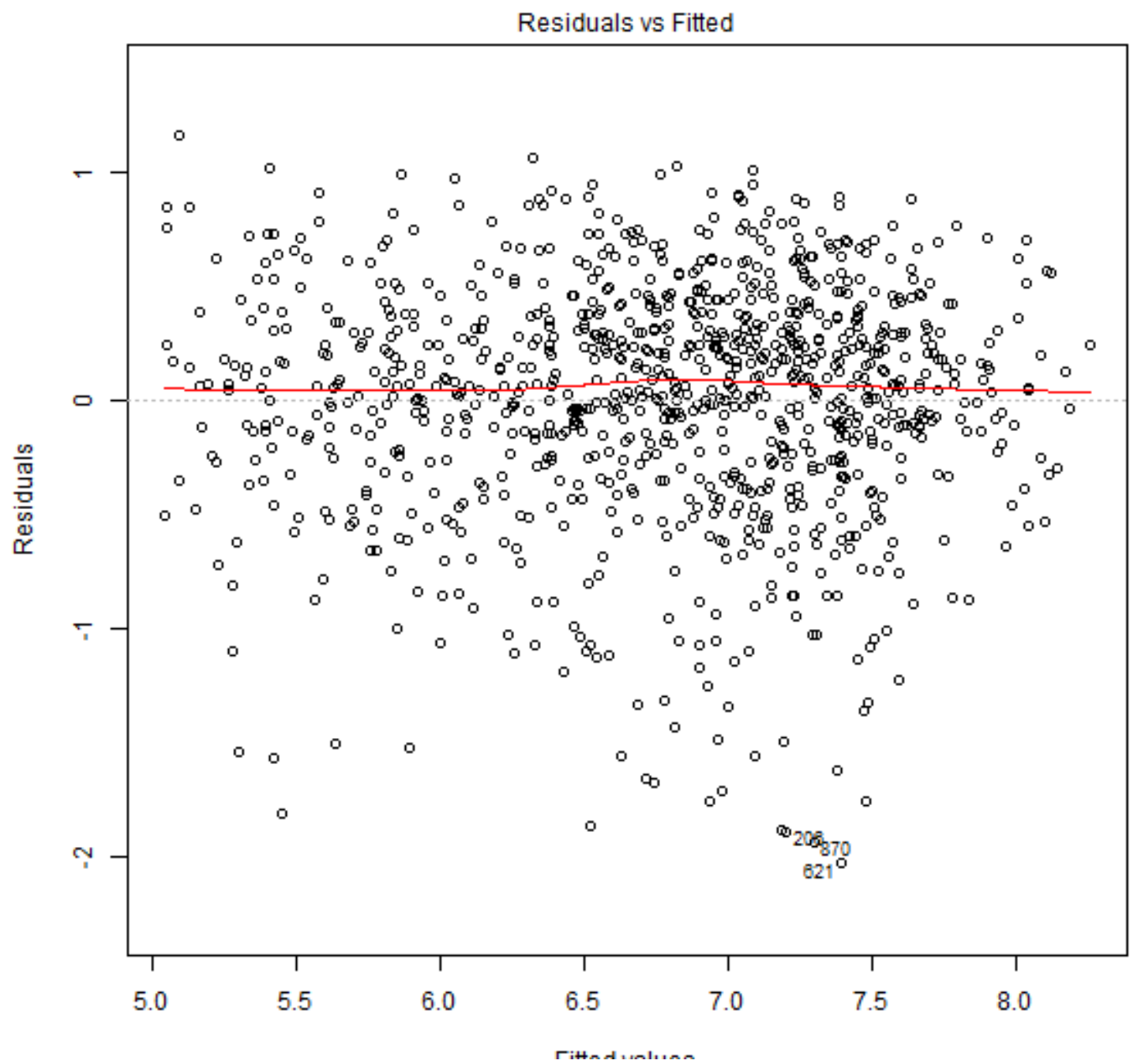
```
Residual standard error: 0.5221 on 997 degrees of freedom
```

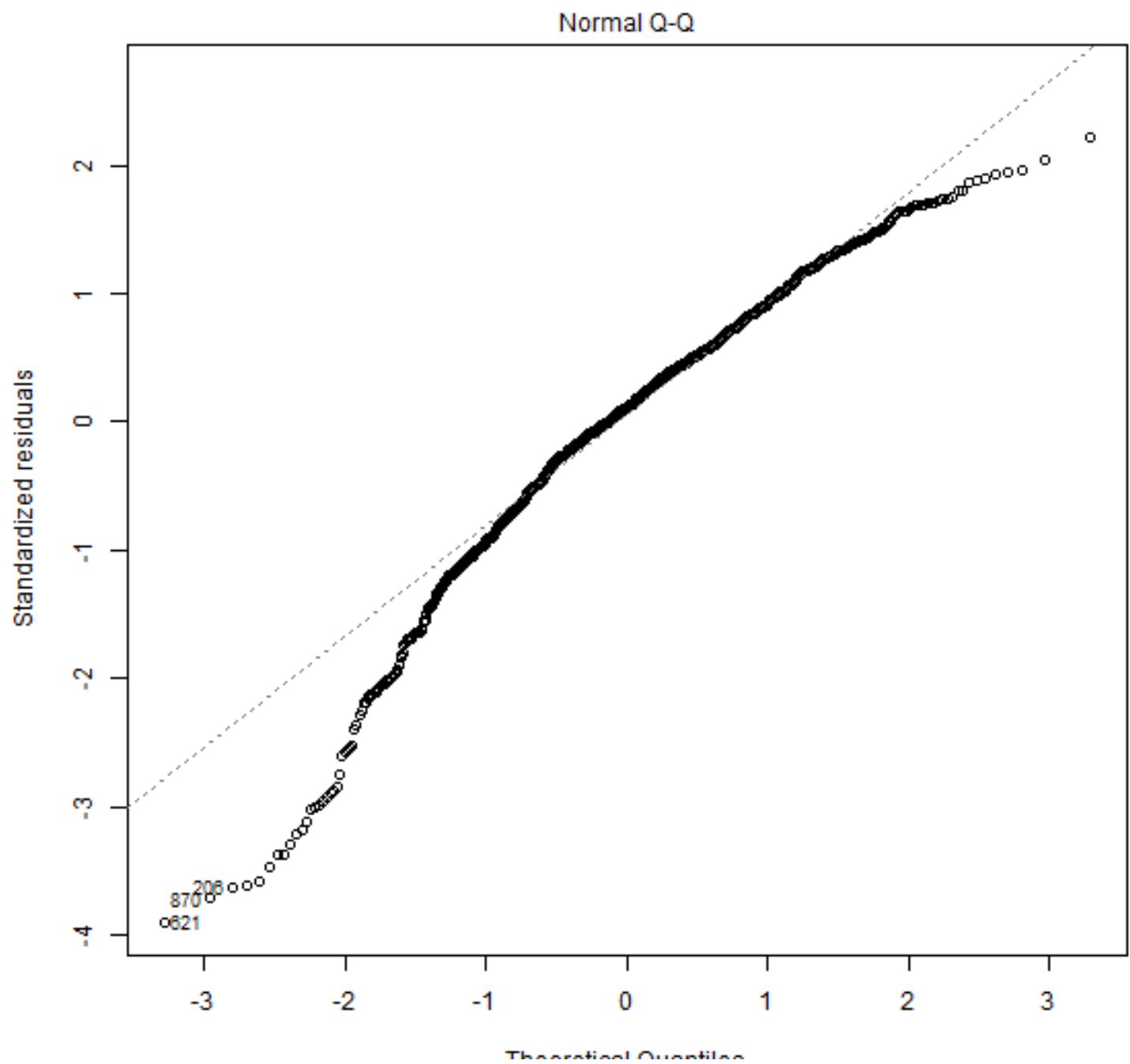
```
Multiple R-squared:  0.645, Adjusted R-squared:  0.6443
```

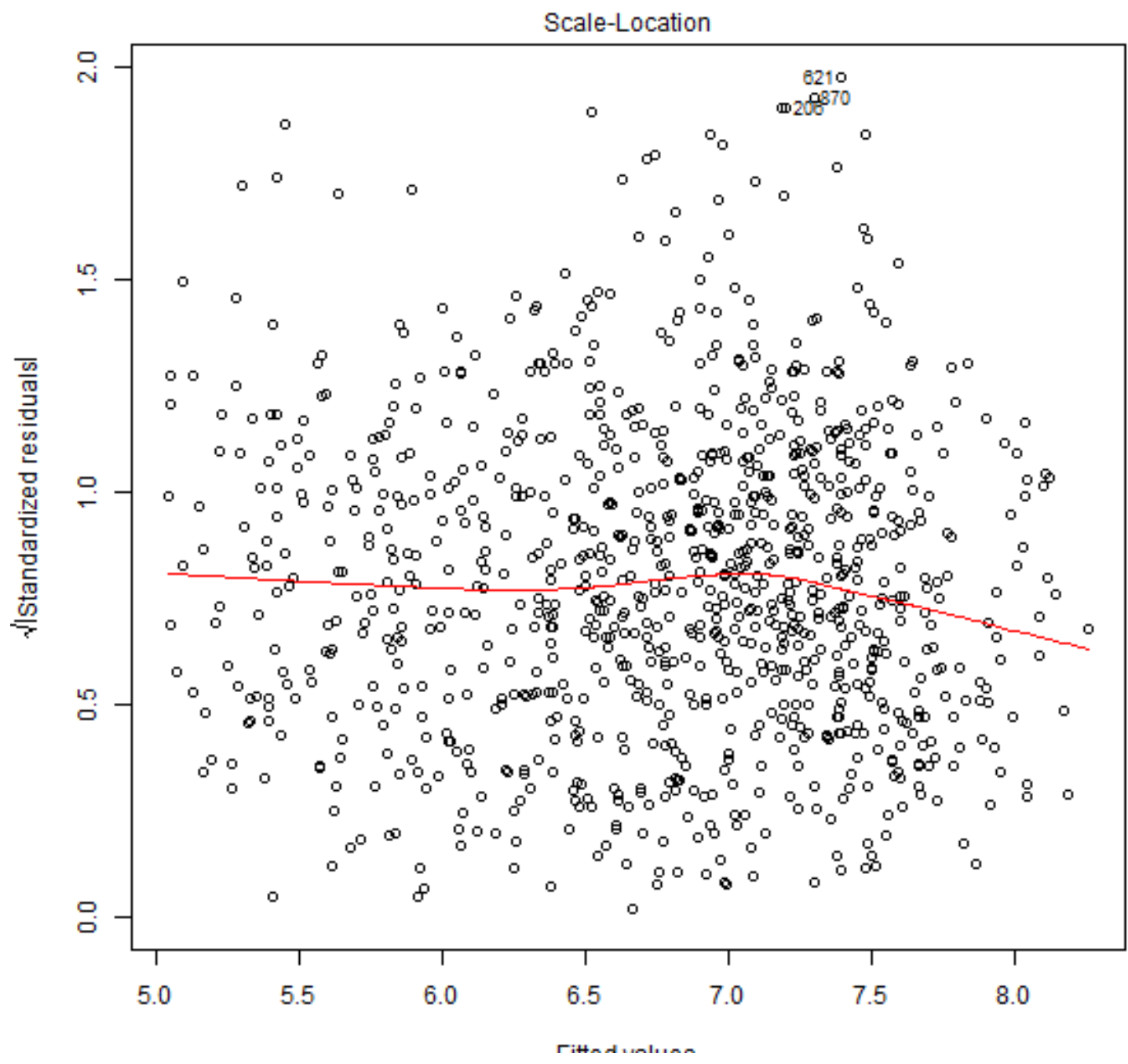
```
F-statistic: 905.9 on 2 and 997 DF, p-value: < 2.2e-16
```

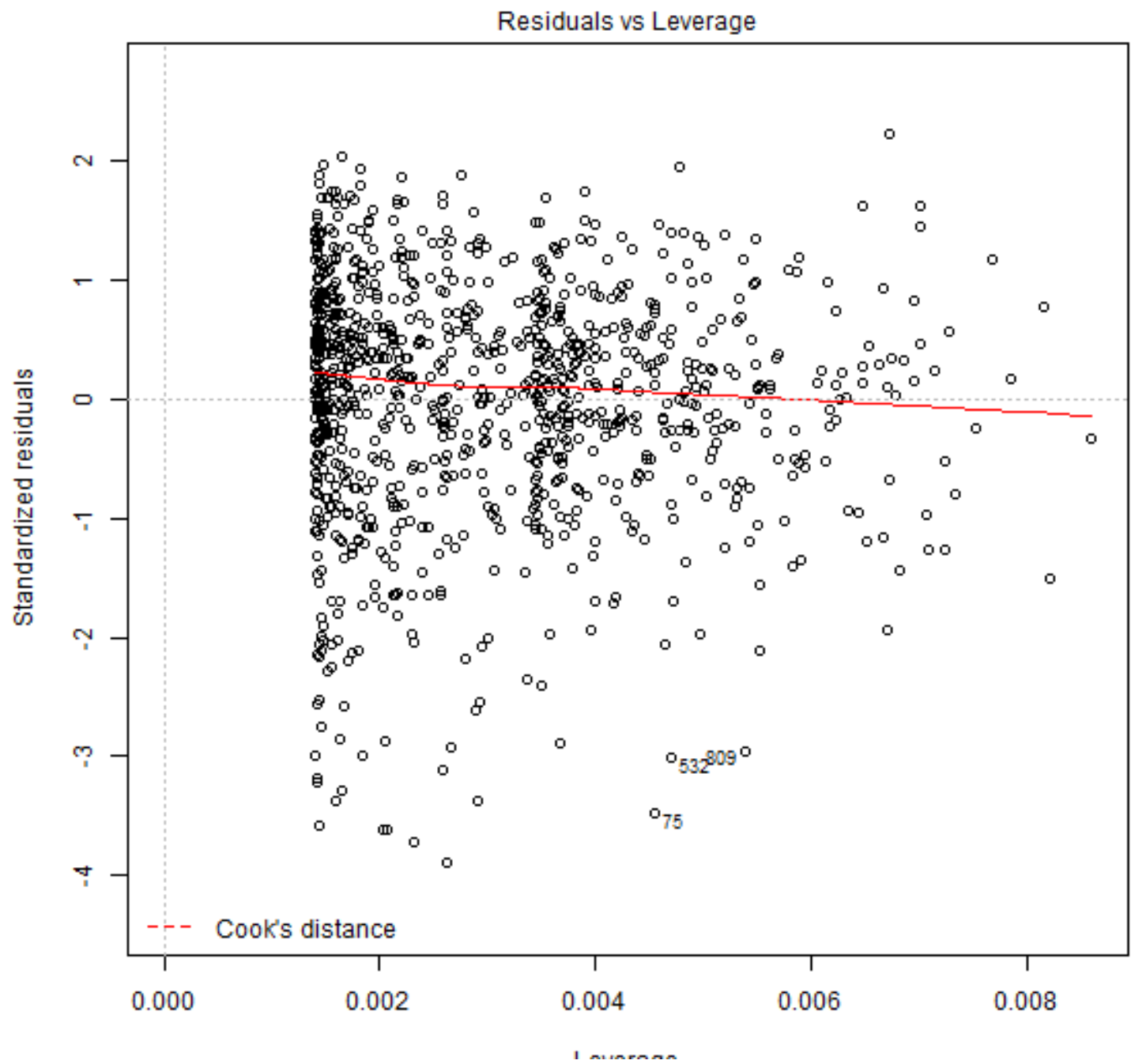
```
> oldpar <- par(oma=c(0,0,3,0), mfrow=c(2,2))
```

```
> plot(LinearModel.3)
```









```
> par(oldpar)
```