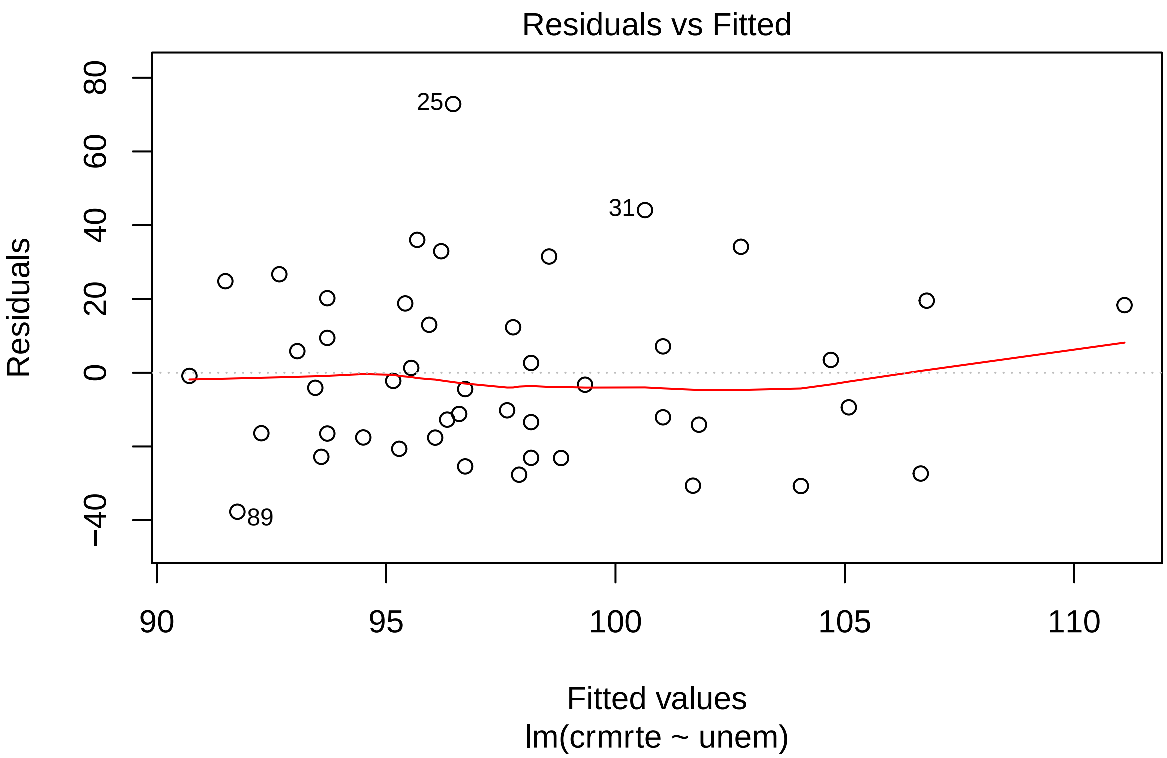
w11_async

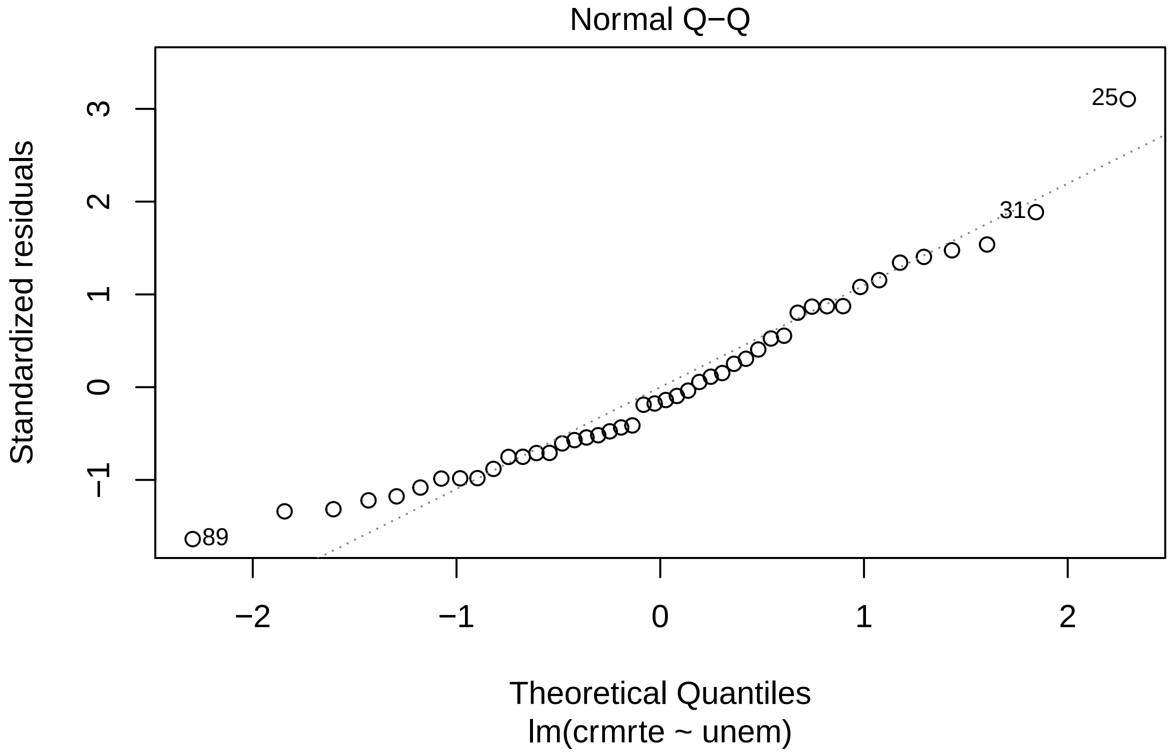
The residual-fitted plot shows a slight increase in variance in the residuals, but the Q-Q plot confirms normality of the response with a few exceptions. This is confirmed by the residuals-leverage plot which shows a few high leverage points.

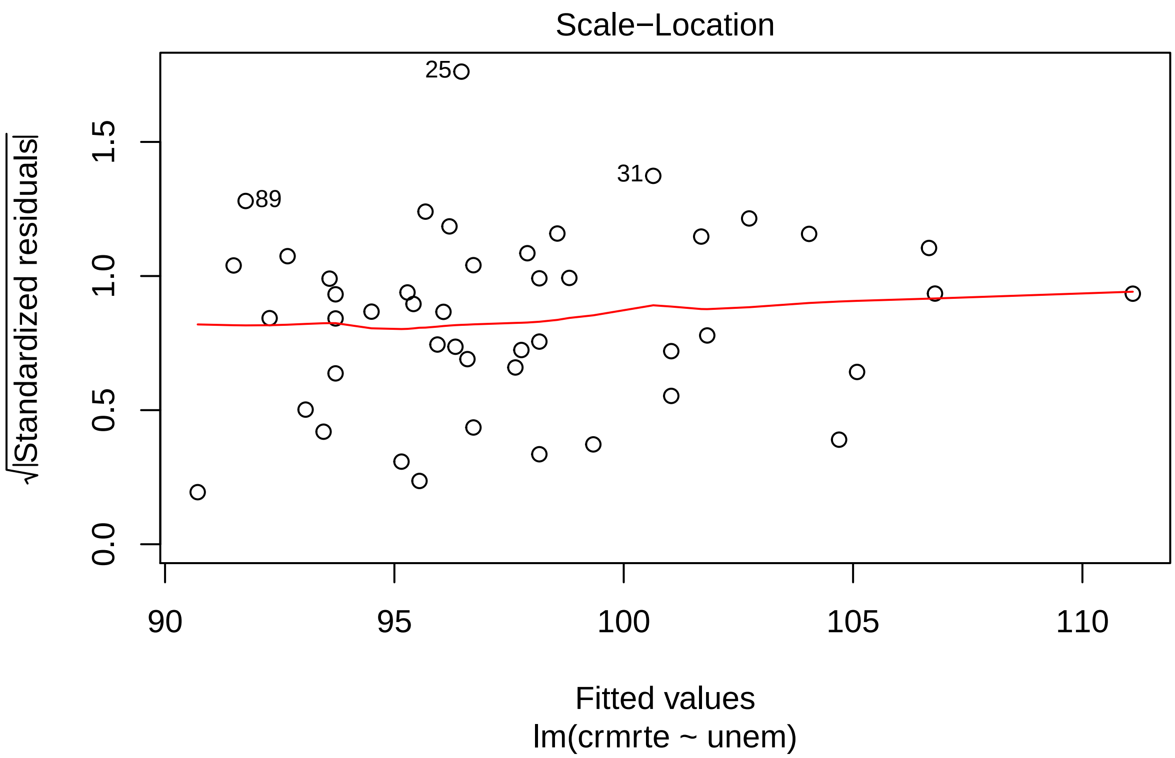
```r
# summary(crime2)

crimes.82 = crime2[crime2$year==82,]
ols.fit1 = lm(crmrte ~ unem, data = crimes.82)
summary(ols.fit1)
```

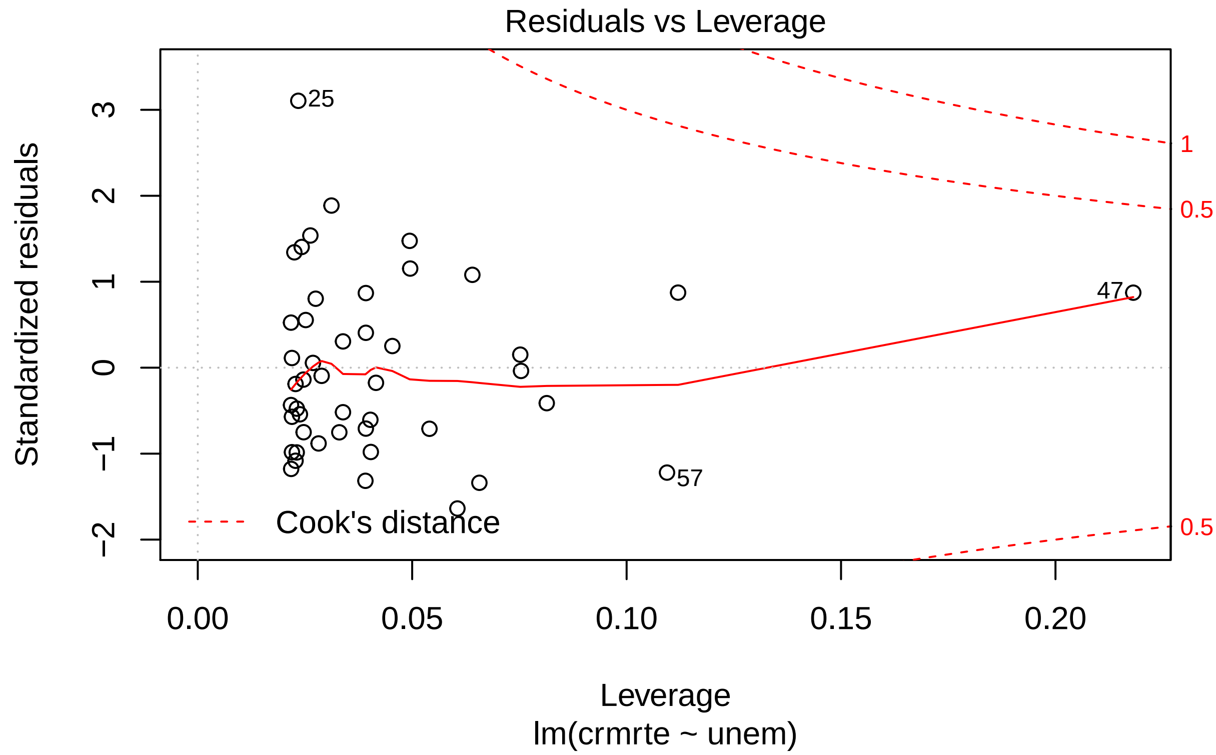
```
##
## Call:
## lm(formula = crmrte ~ unem, data = crimes.82)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -37.693 -17.292  -3.671  16.994  72.854
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)   84.569     10.904   7.756 9.07e-10 ***
## unem           1.307      1.027   1.272     0.21
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 23.74 on 44 degrees of freedom
## Multiple R-squared:  0.03549,    Adjusted R-squared:  0.01357
## F-statistic: 1.619 on 1 and 44 DF,  p-value: 0.2099
```

```r
plot(ols.fit1)
```


Residuals vs Fitted
Residuals
80
60
40
20
0
−40
25
31
89
90
95
100
105
110
Fitted values
lm(crmrte ~ unem)


Normal Q−Q
Standardized residuals
3
2
1
0
−1
25
31
89
−2
−1
0
1
2
Theoretical Quantiles
lm(crmrte ~ unem)


Scale−Location
√|Standardized residuals|
0.0
0.5
1.0
1.5
90
95
100
105
110
25
31
89
Fitted values
lm(crmrte ~ unem)


Residuals vs Leverage
Standardized residuals
−2
−1
0
1
2
3
0.00
0.05
0.10
0.15
0.20
25
47
57
1
0.5
0.5
Cook's distance
Leverage
lm(crmrte ~ unem)