

title

author

Resumo

abstract

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Tabela 1: P-valores associados aos testes de tendencia de deterministica

Teste	P.Valor
Cox-Stuart	0.2
Mann-Kendall	0.2

Tabela 2: Testes para sazonalidade sun

Testes	P-valor
Kruskall-Wallis (KW)	0.9
Friedman Rank Tests (FRIED)	0.5
Autocorrelação em lags Sazonais (QS)	1.0

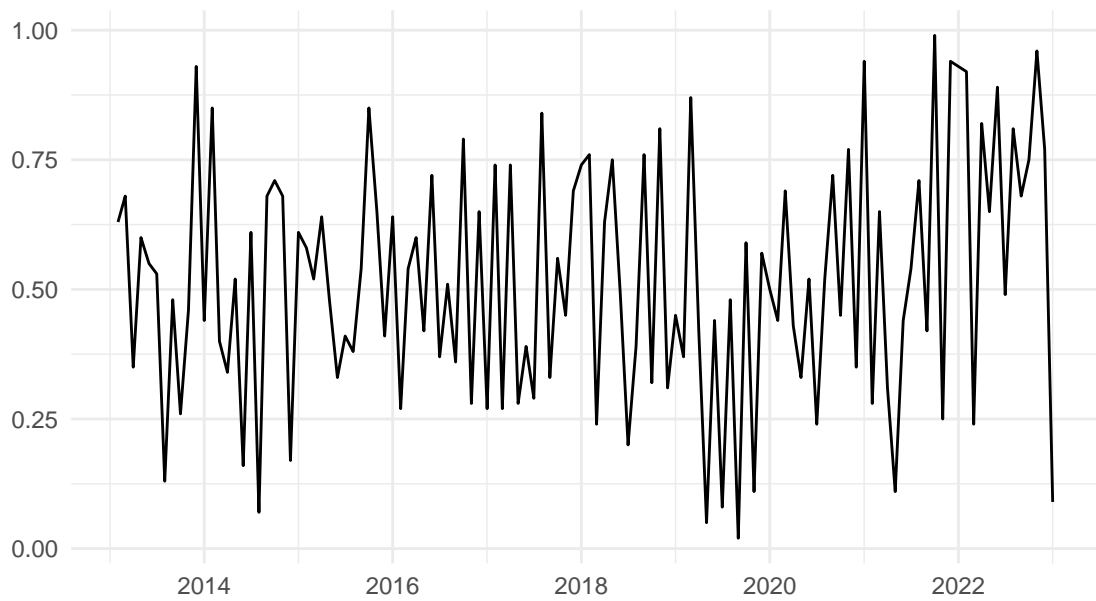


Figura 1: Distribuição do volume da Usina Hidrelétrica de Passo Fundo ao longo do tempo.

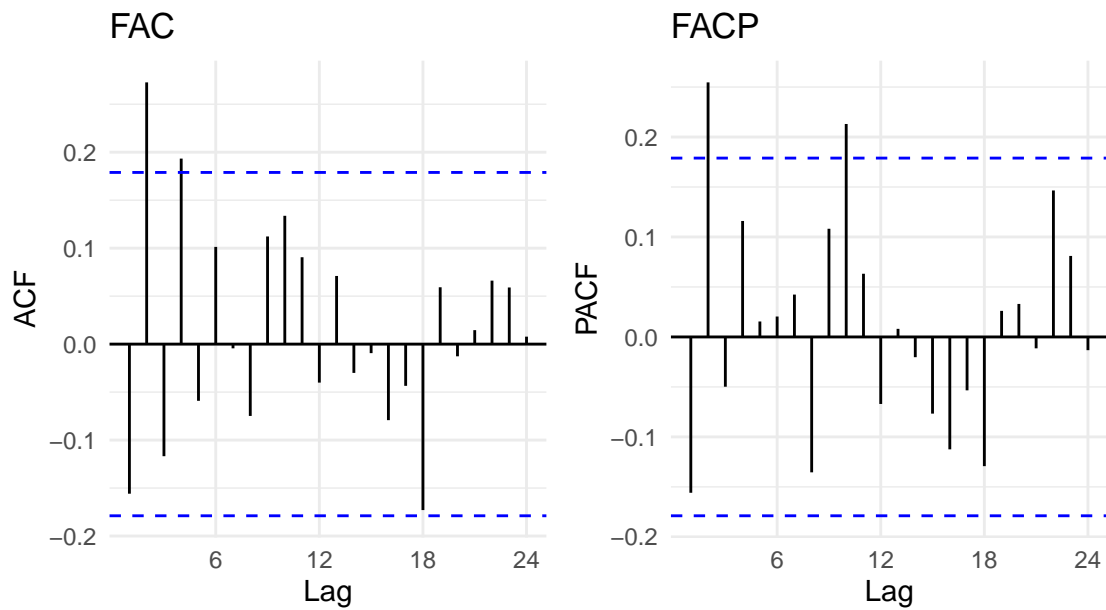


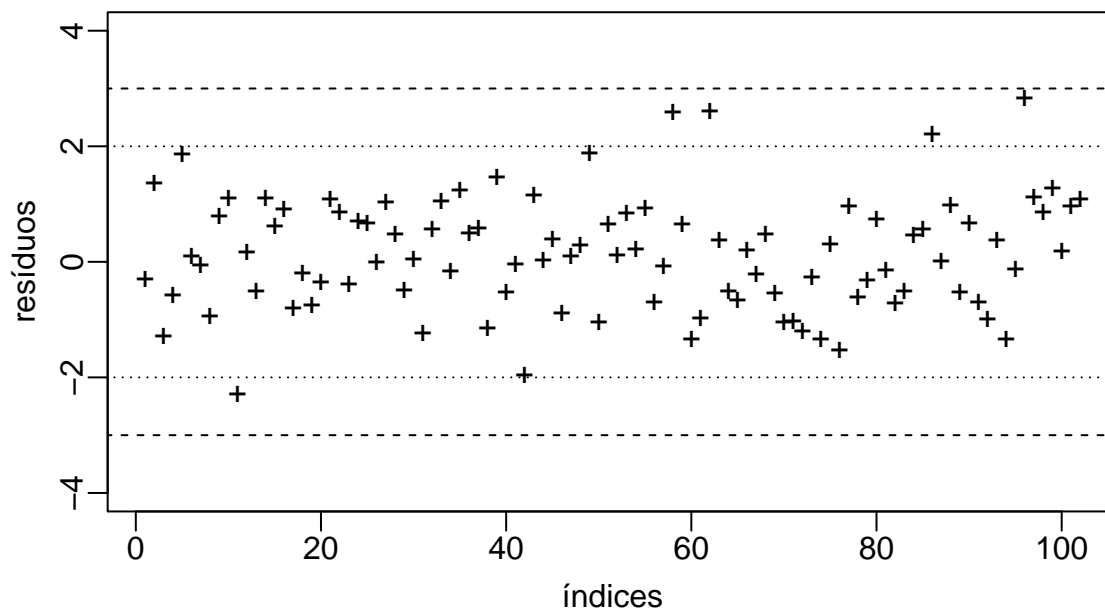
Figura 2: Funções de Autocorrelação e Autocorrelação Parcial do Volume Útil de água na Usina de Passo Fundo

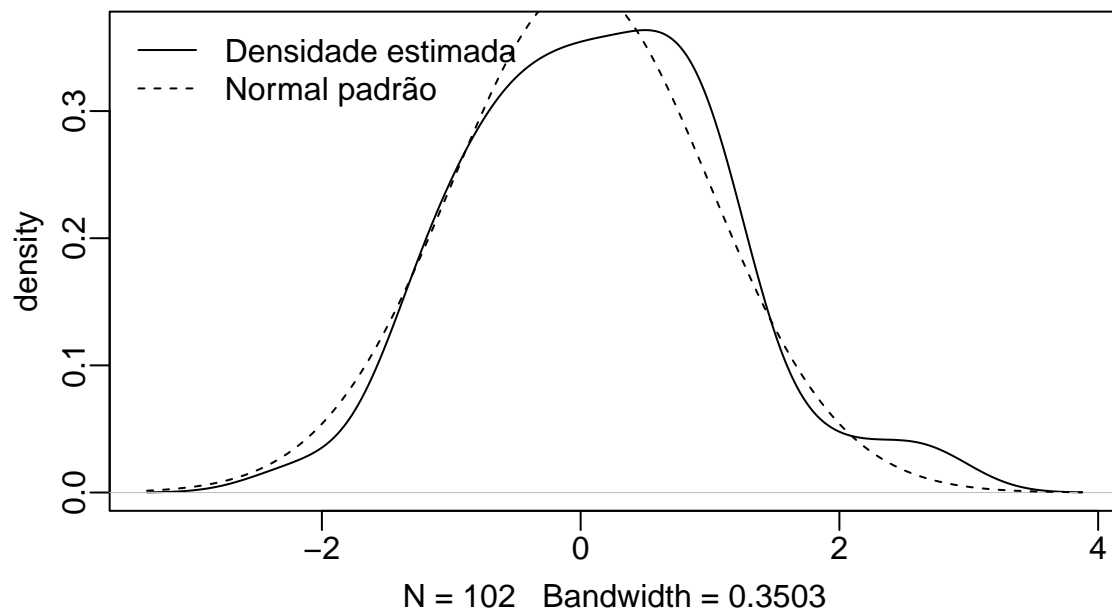
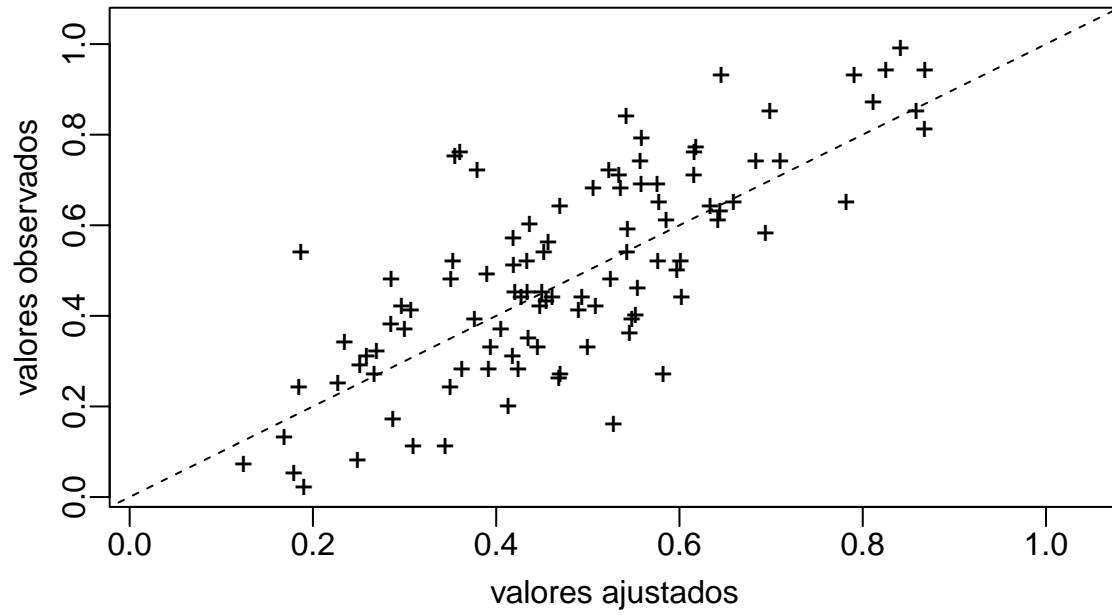
```
## [1] BARMAX model
##      Estimate Std. Error z value Pr(>|z|)
## alpha    -0.455    0.2532   1.80  0.0723
## phi1     -0.621    0.0786   7.90  0.0000
```

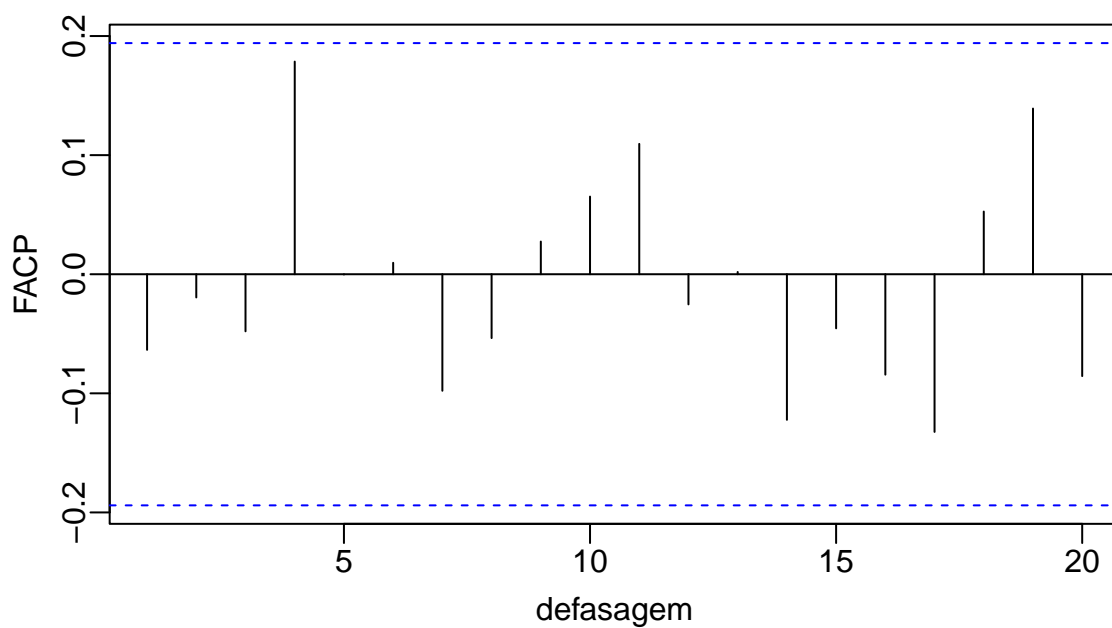
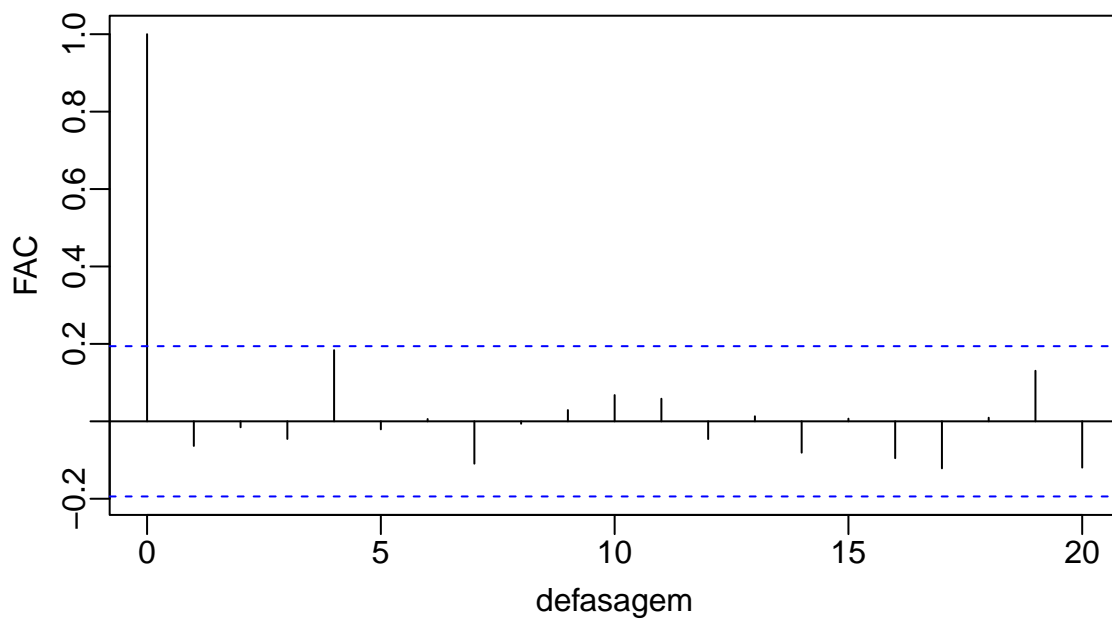
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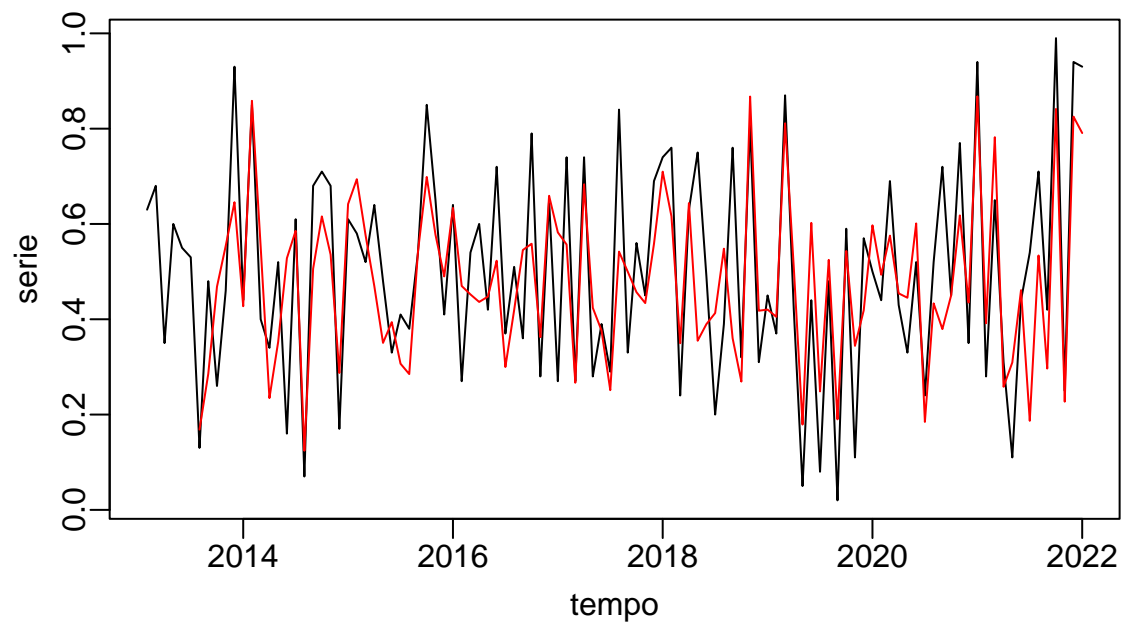
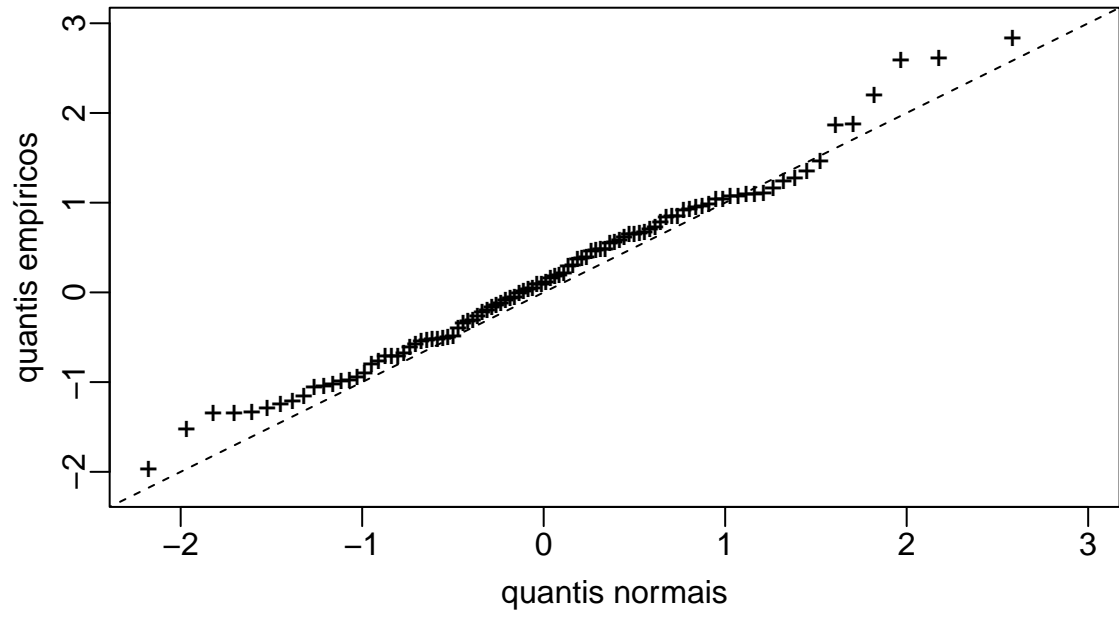
## phi2      -0.371      0.0806      4.60      0.0000
## phi3      -0.617      0.0728      8.47      0.0000
## phi4      -0.650      0.0770      8.44      0.0000
## phi5      -0.338      0.0745      4.53      0.0000
## phi6      -0.760      0.0698     10.89      0.0000
## theta1      0.448      0.1245      3.60      0.0003
## theta2      0.611      0.1343      4.55      0.0000
## theta3      0.803      0.1629      4.93      0.0000
## theta4      0.681      0.1595      4.27      0.0000
## theta5      0.531      0.1429      3.72      0.0002
## theta6      1.390      0.1321     10.52      0.0000
## precision    8.727      1.1683      7.47      0.0000
## beta1       0.377      0.0983      3.83      0.0001
## [1]
## [1] Log-likelihood: 58.6788
## [1] Number of iterations in BFGS optim: 561
## [1] AIC:      -87.3576 BIC:      -47.1256
## [1] Residuals:
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
## -2.300  -0.548   0.094   0.125   0.815   2.826

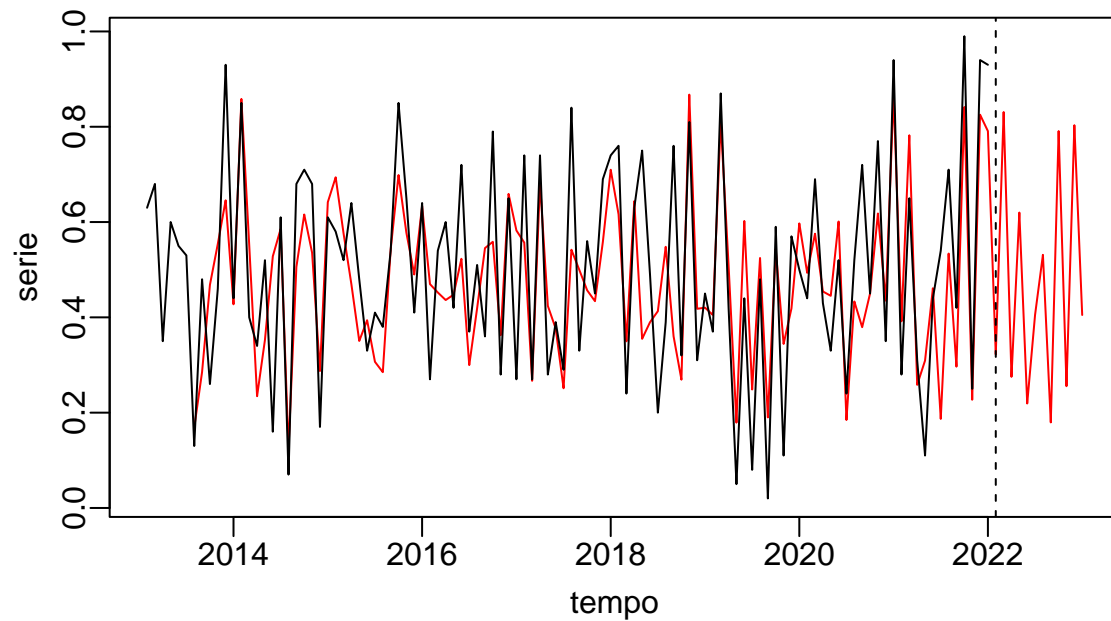
```



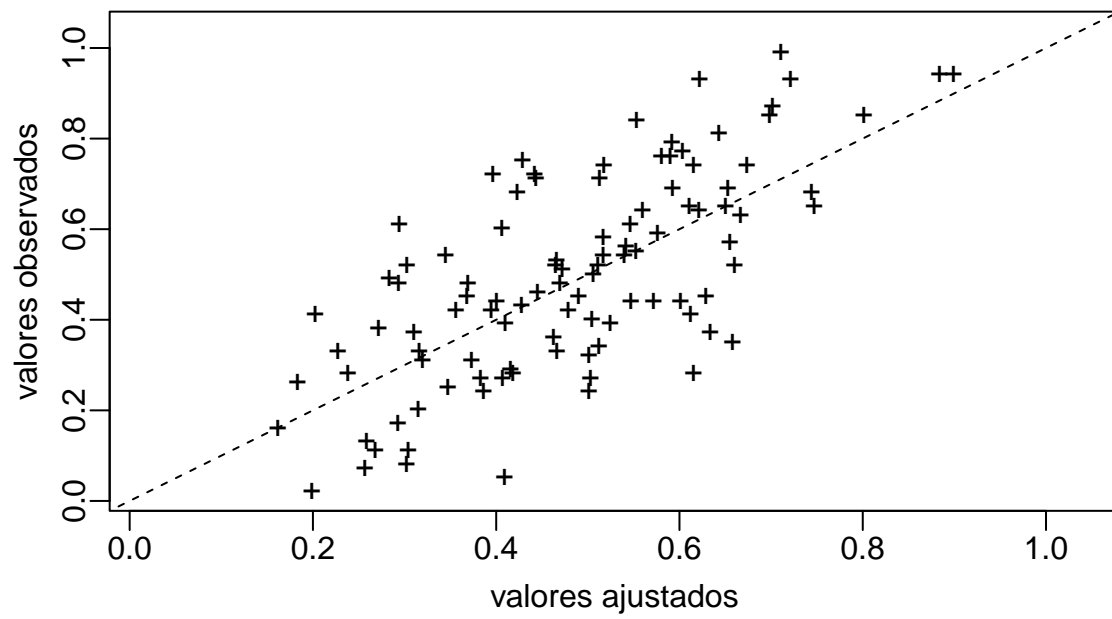
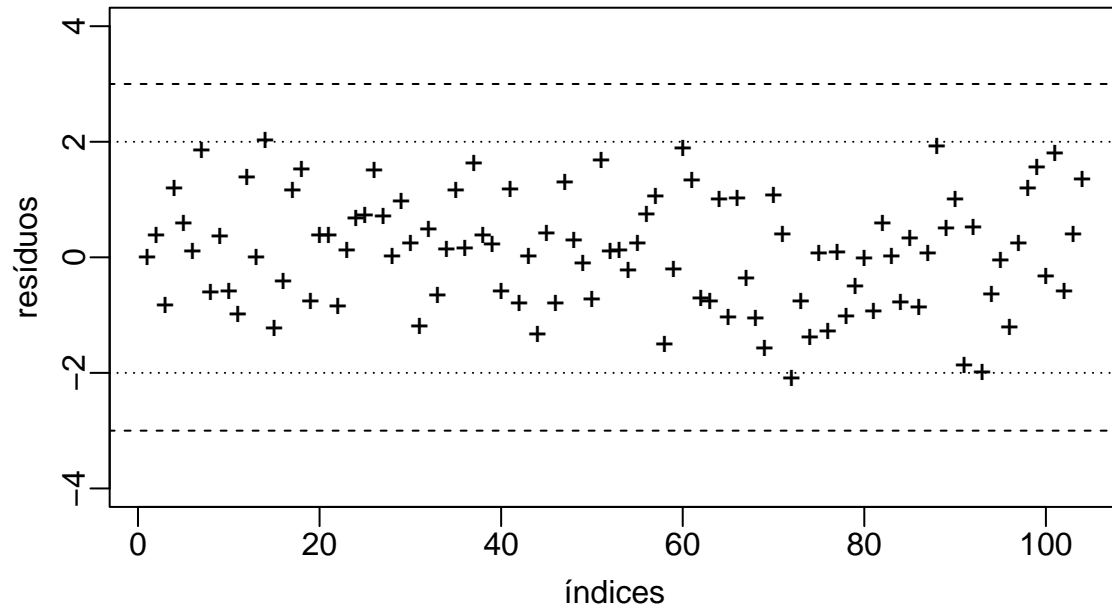


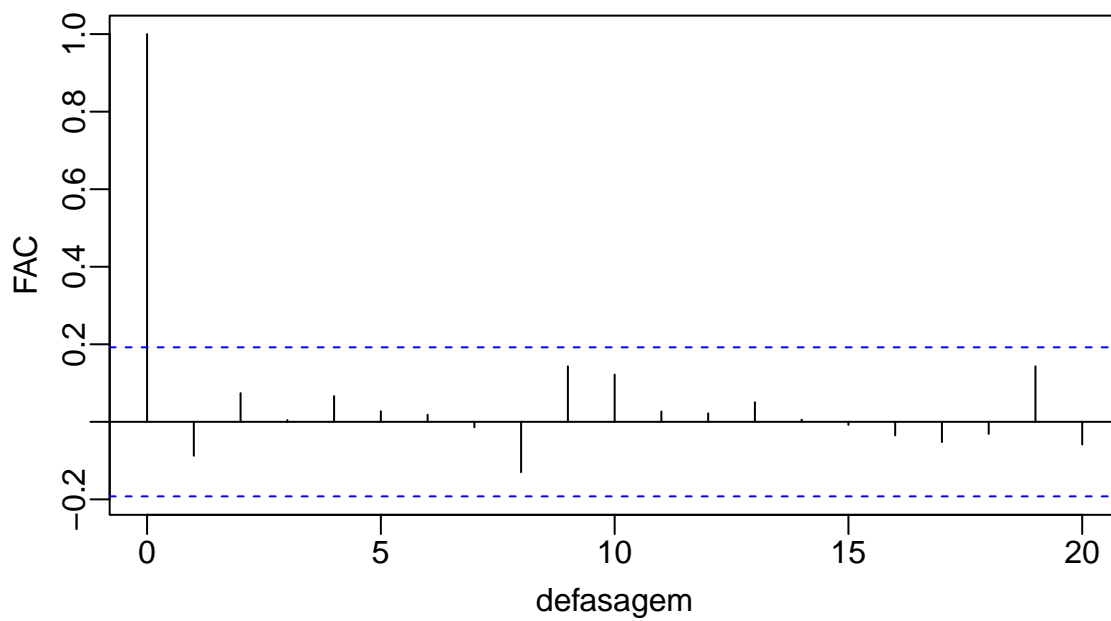
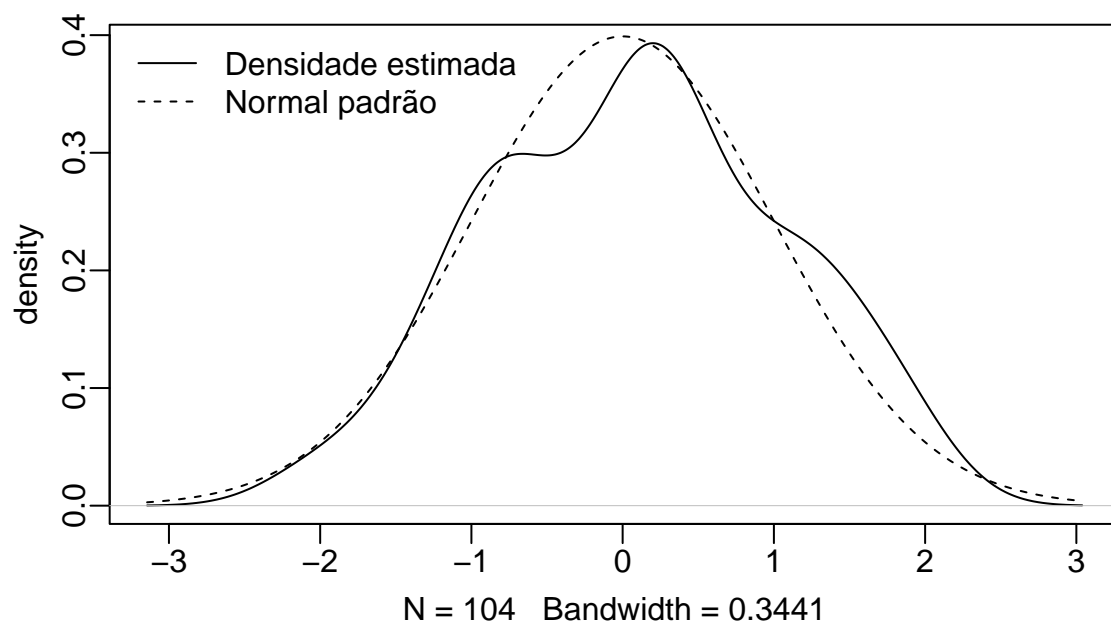


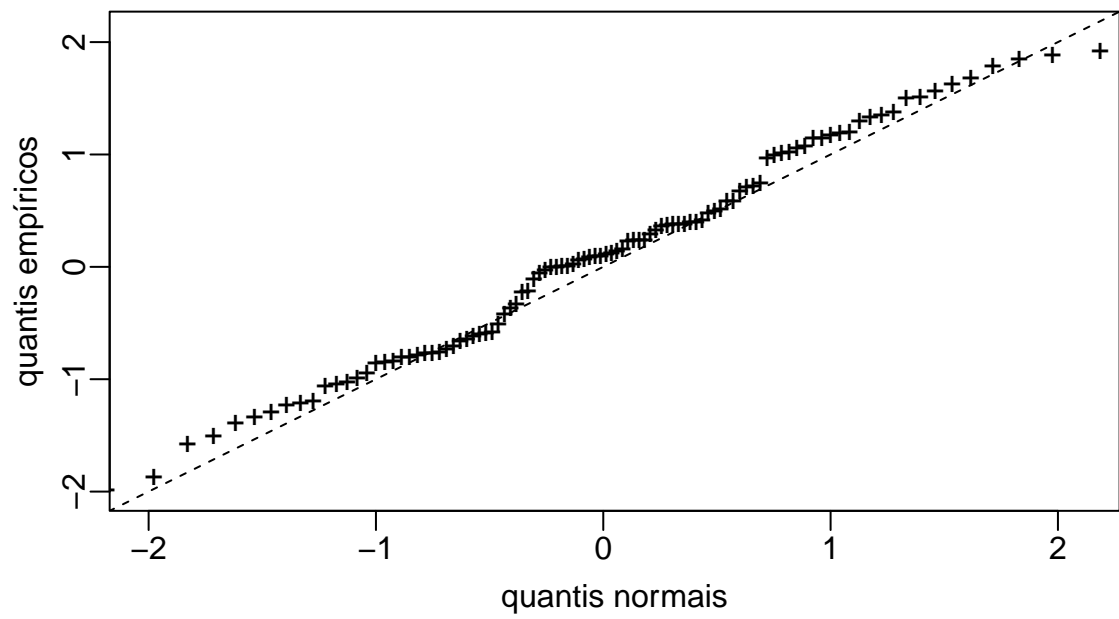
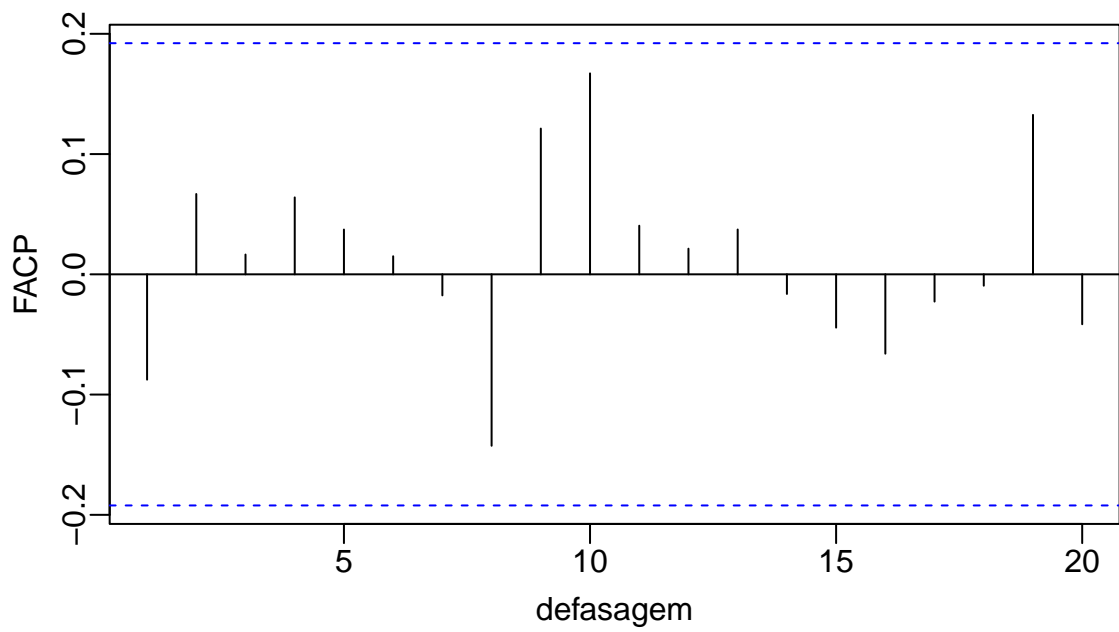


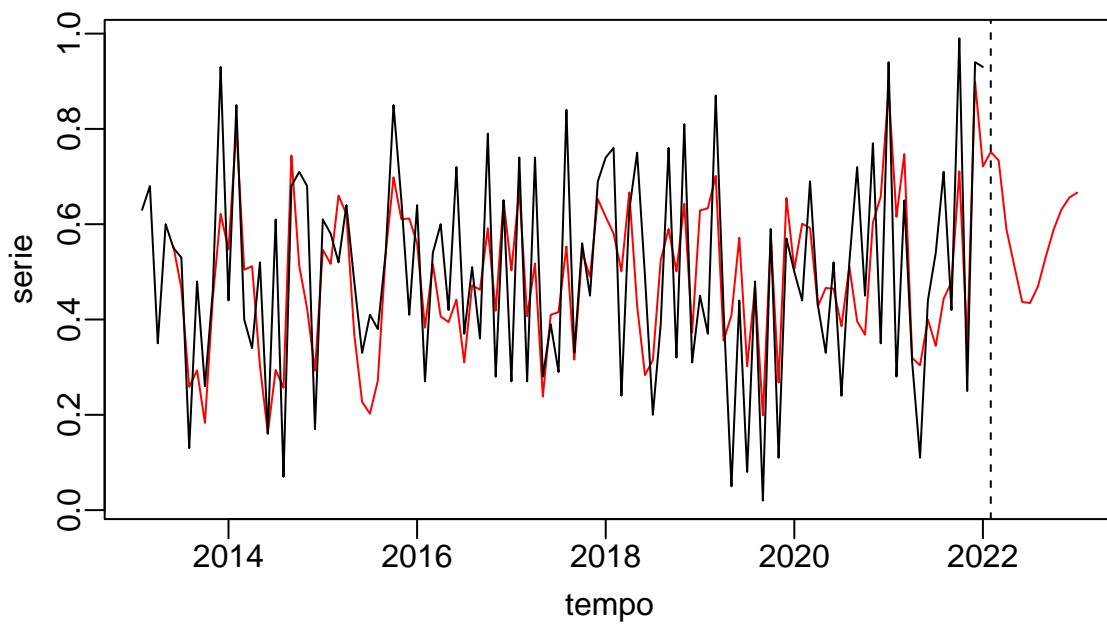
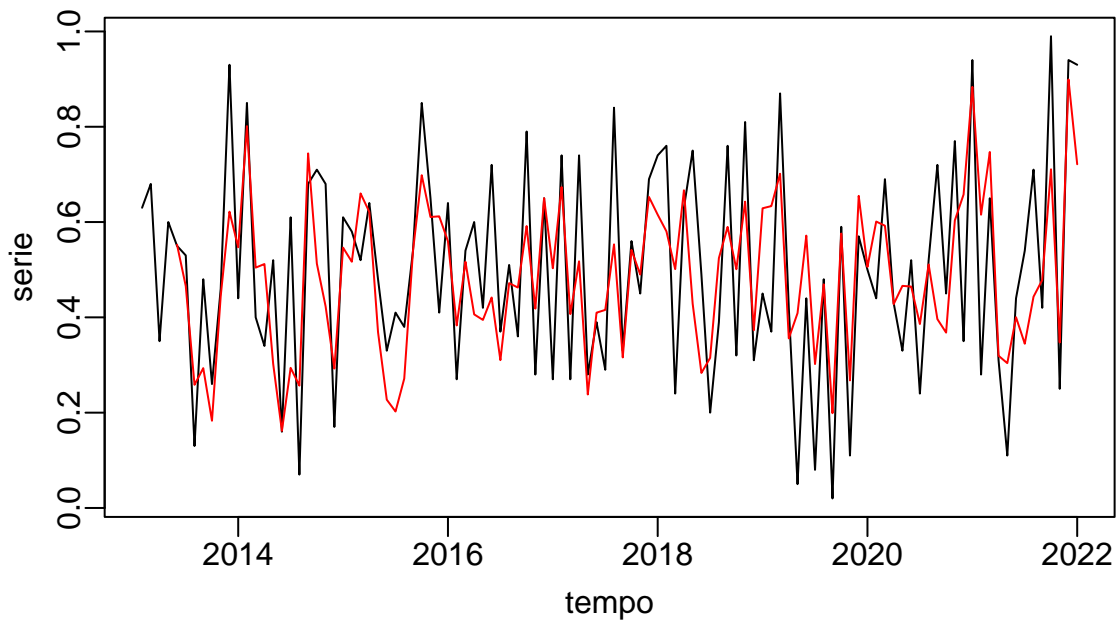


```
## [1] BARMAX model
##      Estimate Std. Error z value Pr(>|z|)
## alpha      -0.2642    0.0942   2.80  0.0050
## phi1         1.0250    0.0550  18.64  0.0000
## phi2        -0.5477    0.0739   7.41  0.0000
## phi3        -0.3055    0.0958   3.19  0.0014
## phi4         0.1866    0.0782   2.39  0.0170
## theta1      -1.4025    0.0769  18.23  0.0000
## theta2       1.2453    0.0786  15.85  0.0000
## precision    7.3715    0.9634   7.65  0.0000
## beta1         0.0059    0.0027   2.18  0.0291
## beta2         0.4608    0.0998   4.62  0.0000
## [1]
## [1] Log-likelihood: 48.3865
## [1] Number of iterations in BFGS optim: 1502
## [1] AIC:      -76.7729  BIC:      -49.9516
## [1] Residuals:
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##      -2.112 -0.721   0.098   0.083   0.718   2.006
```



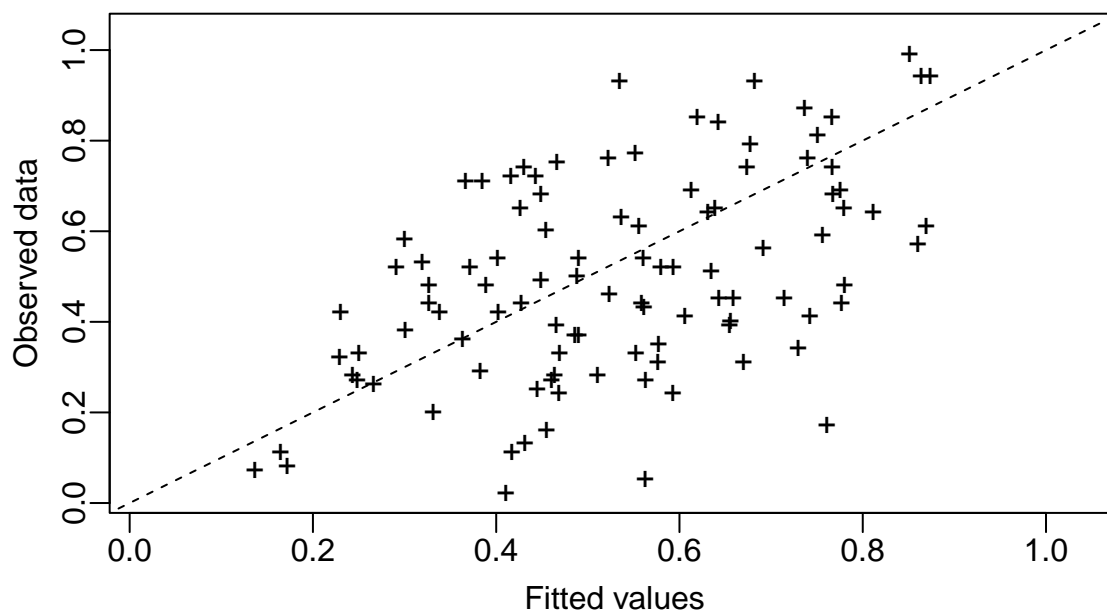
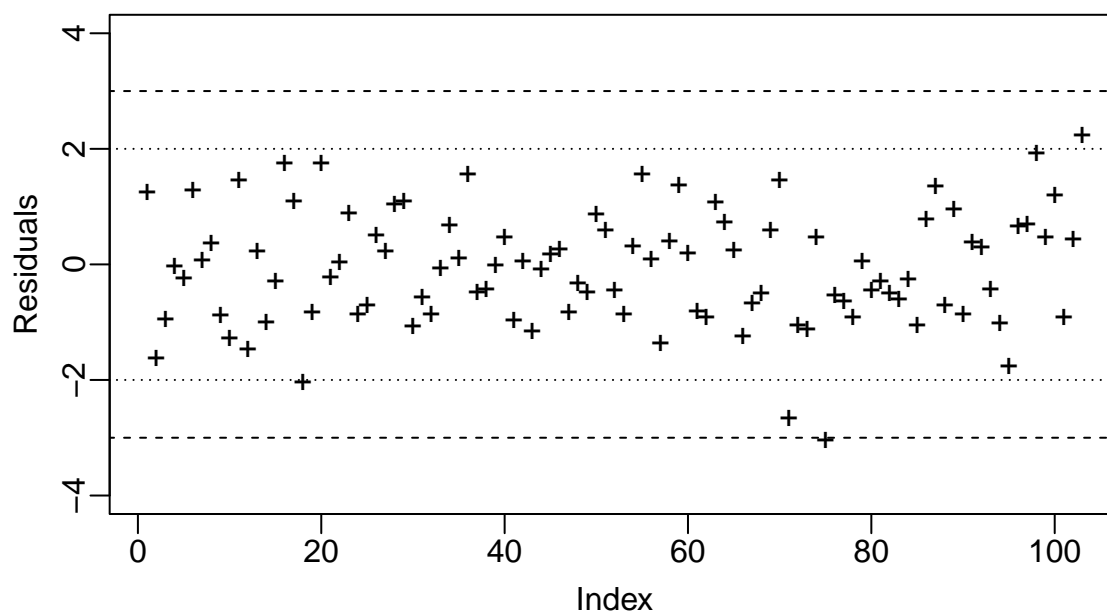


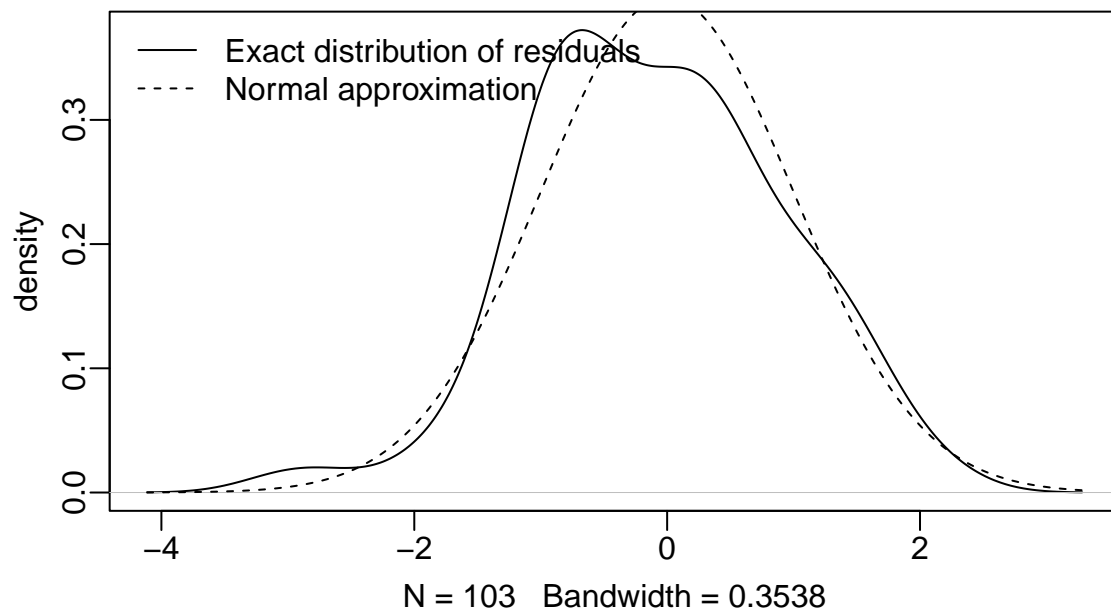
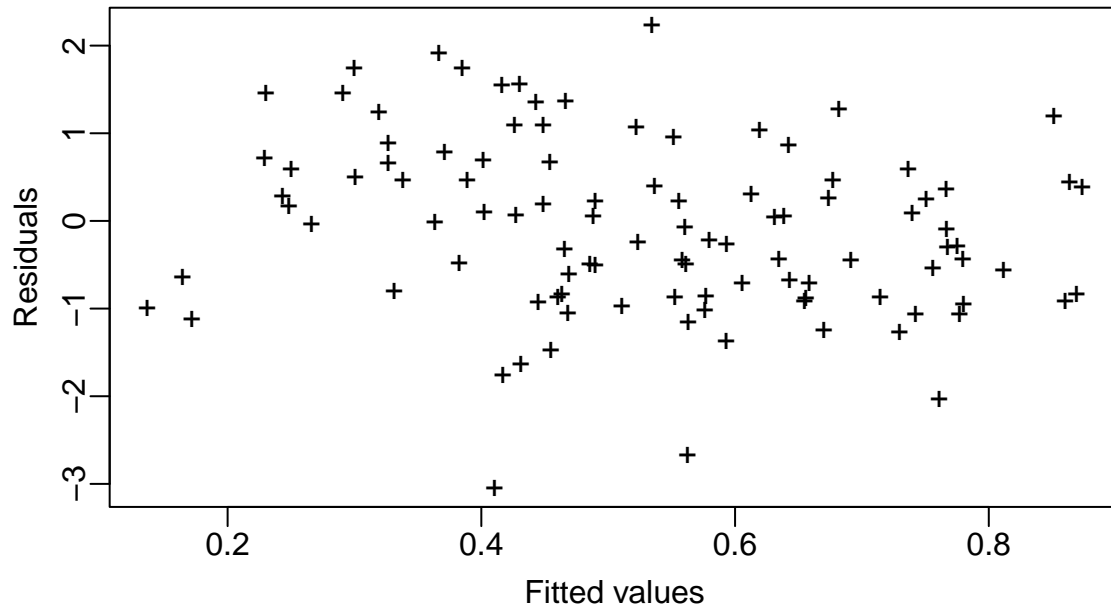


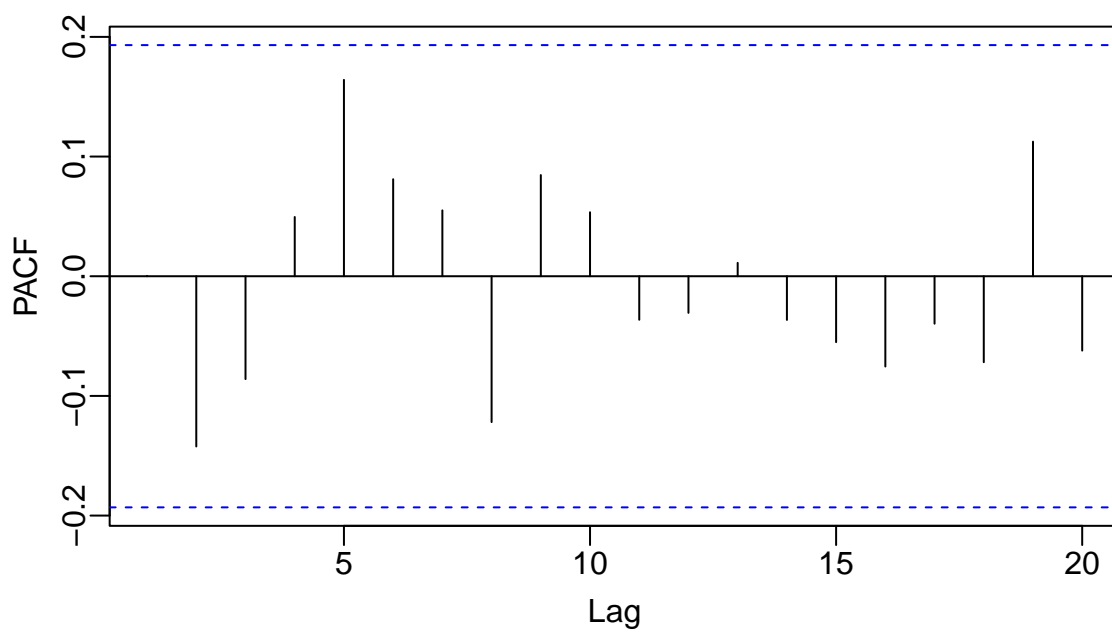
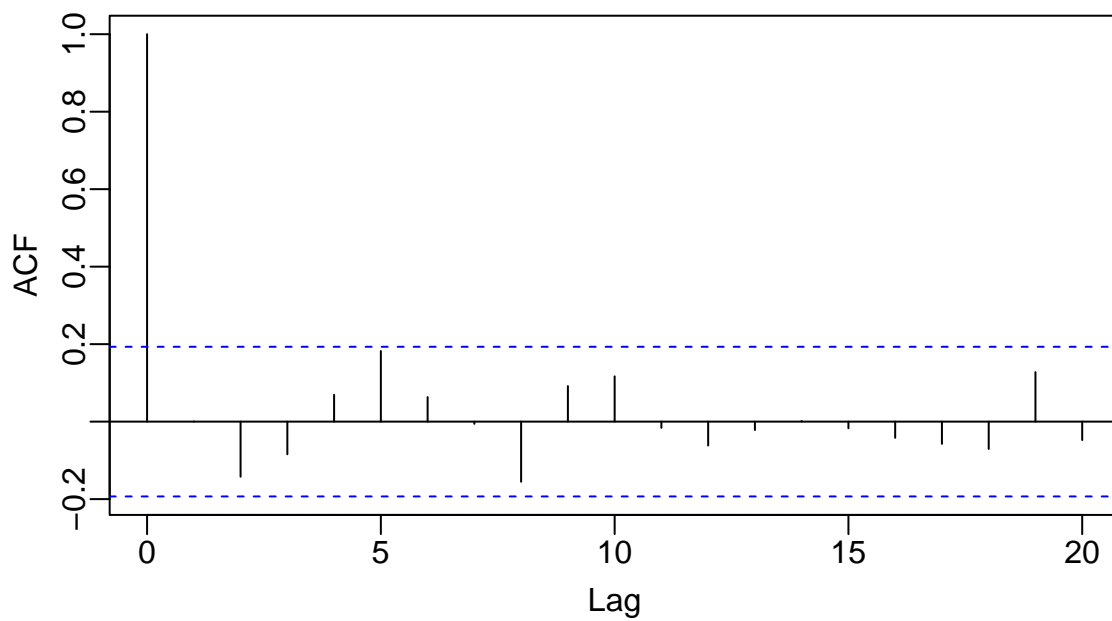


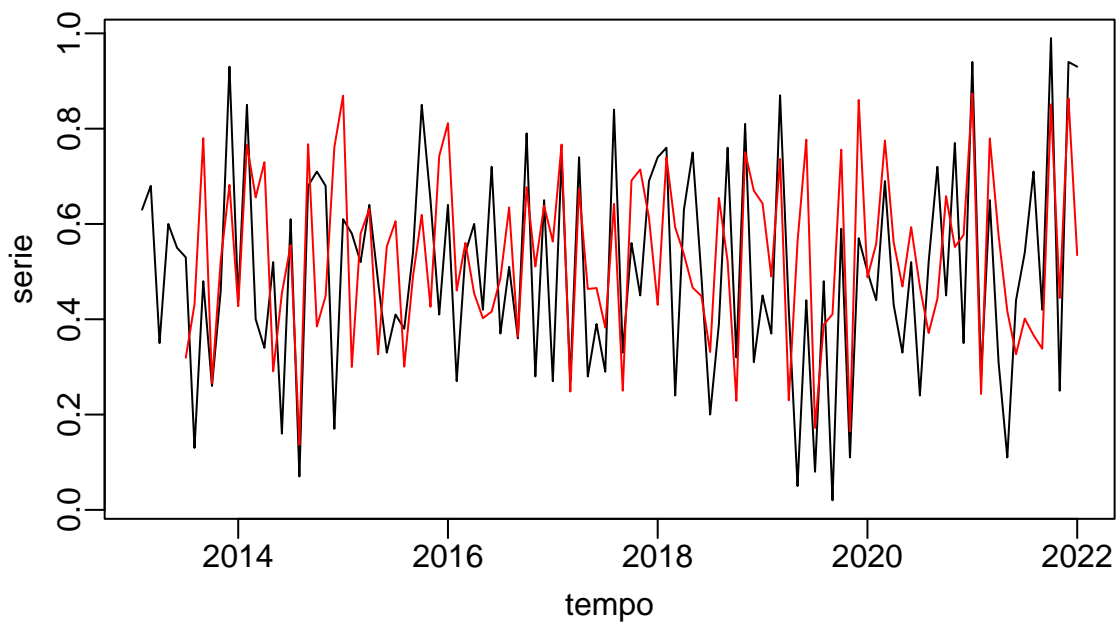
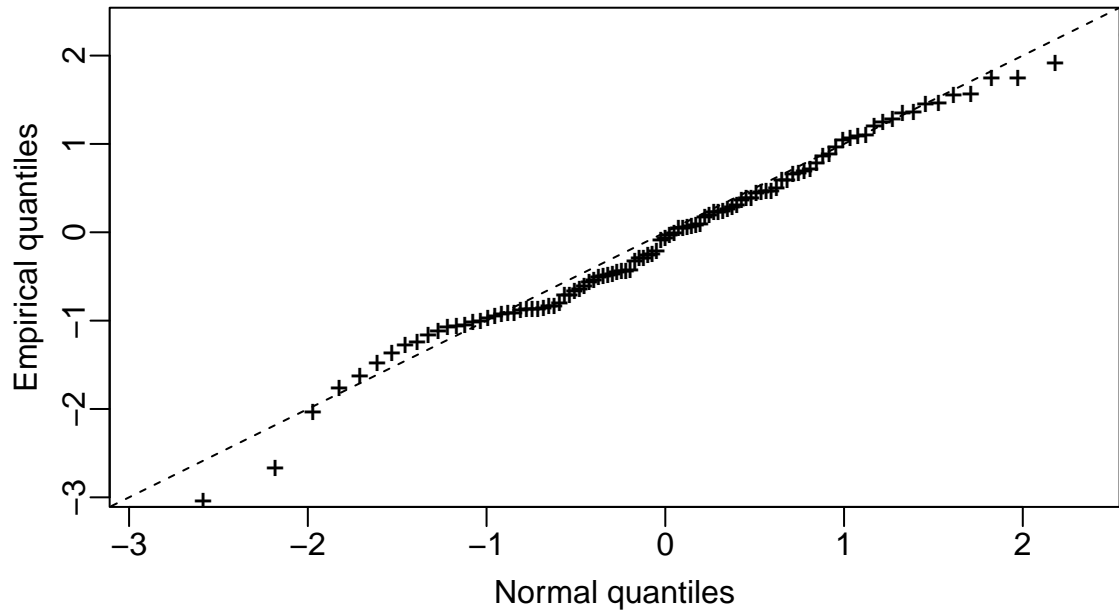
##	Estimate	Std. Error	z value	Pr(> z)
## alpha	0.127	0.0961	1.32	0.1878
## phi3	0.626	0.0620	10.10	0.0000
## phi5	-0.493	0.0677	7.28	0.0000
## theta1	-0.183	0.0771	2.37	0.0177
## theta2	0.450	0.0793	5.67	0.0000
## theta3	-0.782	0.0523	14.96	0.0000
## theta4	0.381	0.1004	3.80	0.0001
## precision	2.095	0.2171	9.65	0.0000
## beta1	0.408	0.1562	2.61	0.0090

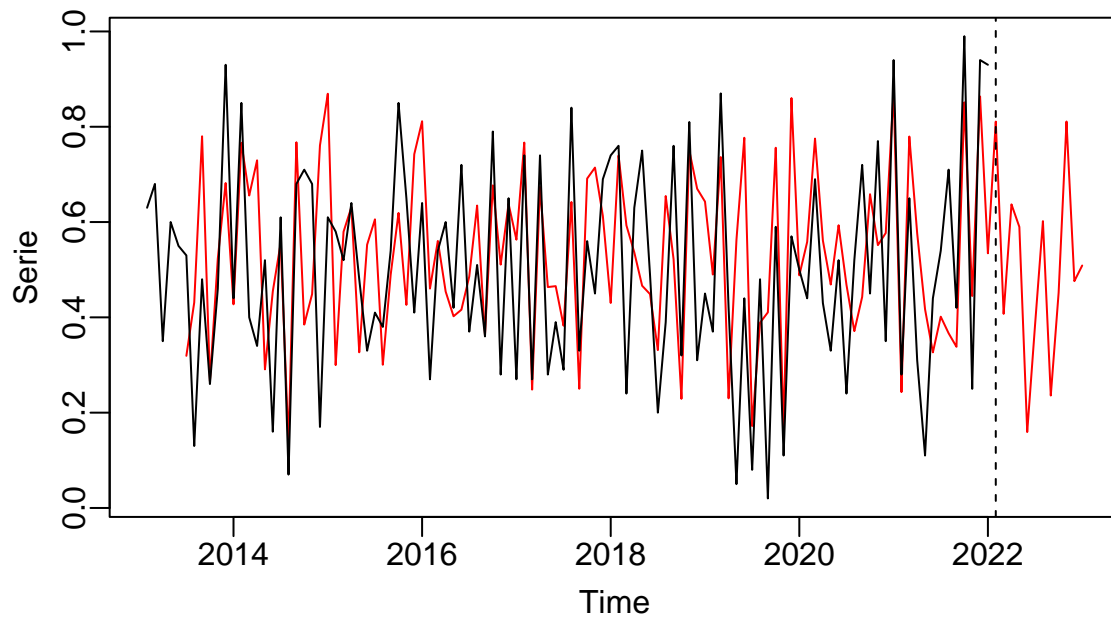
```
## [1]
## [1] Log-likelihood: 23.7941
## [1] Number of iterations in BFGS optim: 169
## [1] AIC:      -31.8984  SIC:      -7.7592  HQ:      -36.0046
## [1] Residuals:
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
## -3.052 -0.856 -0.079 -0.086  0.581  2.221
```



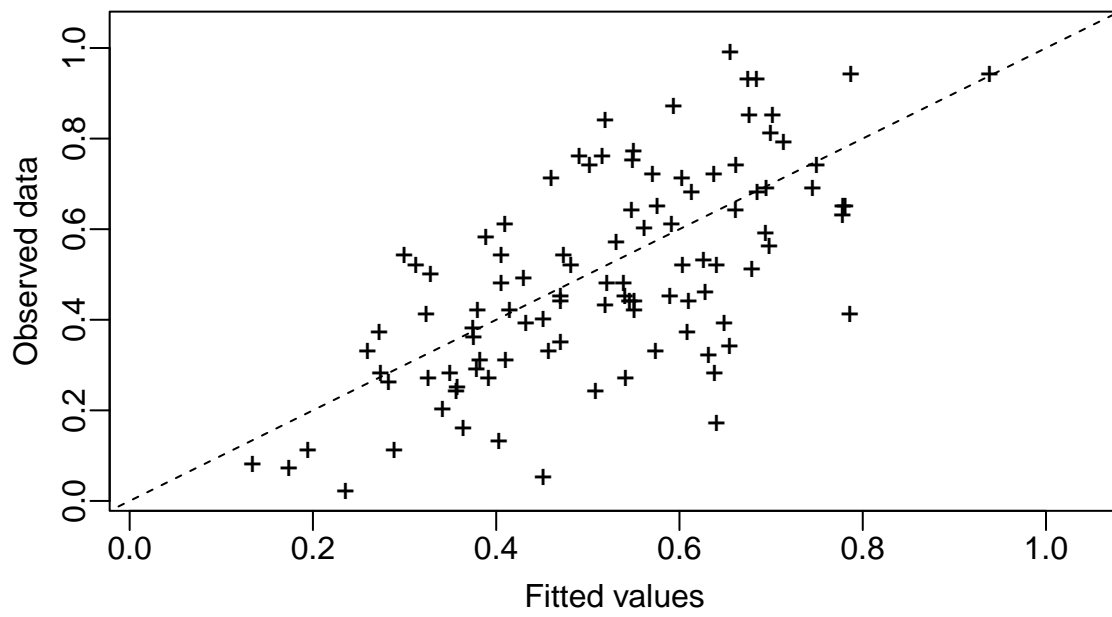
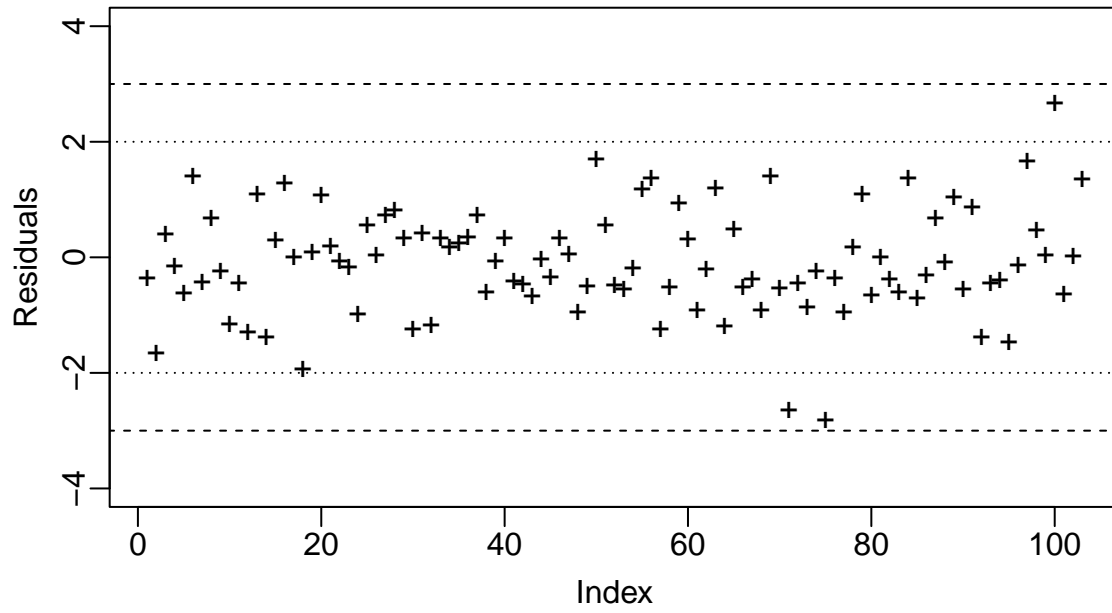


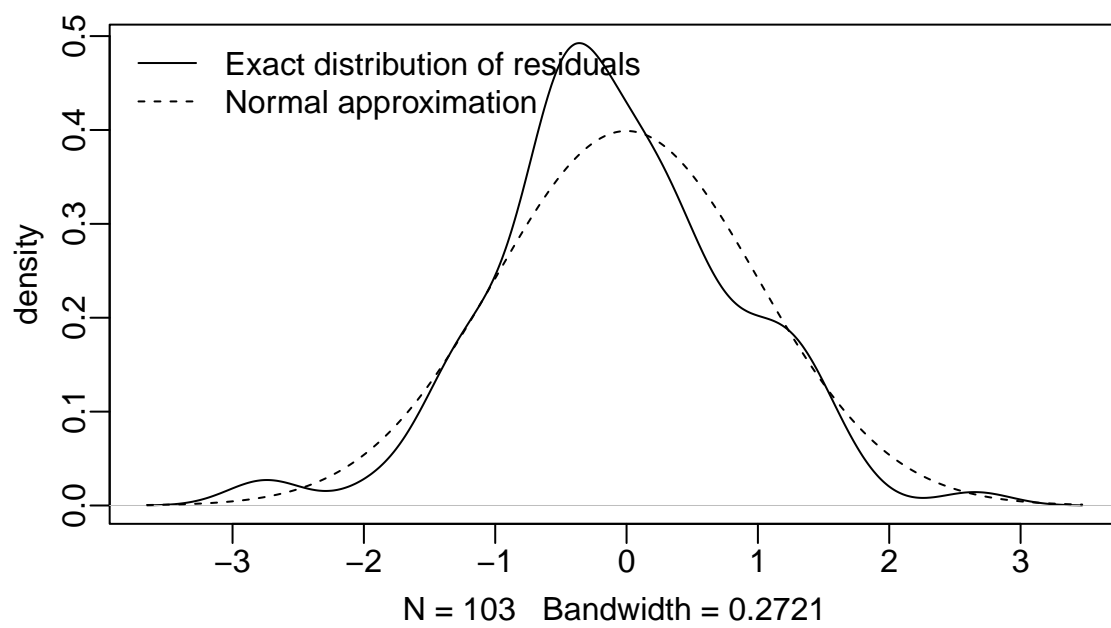
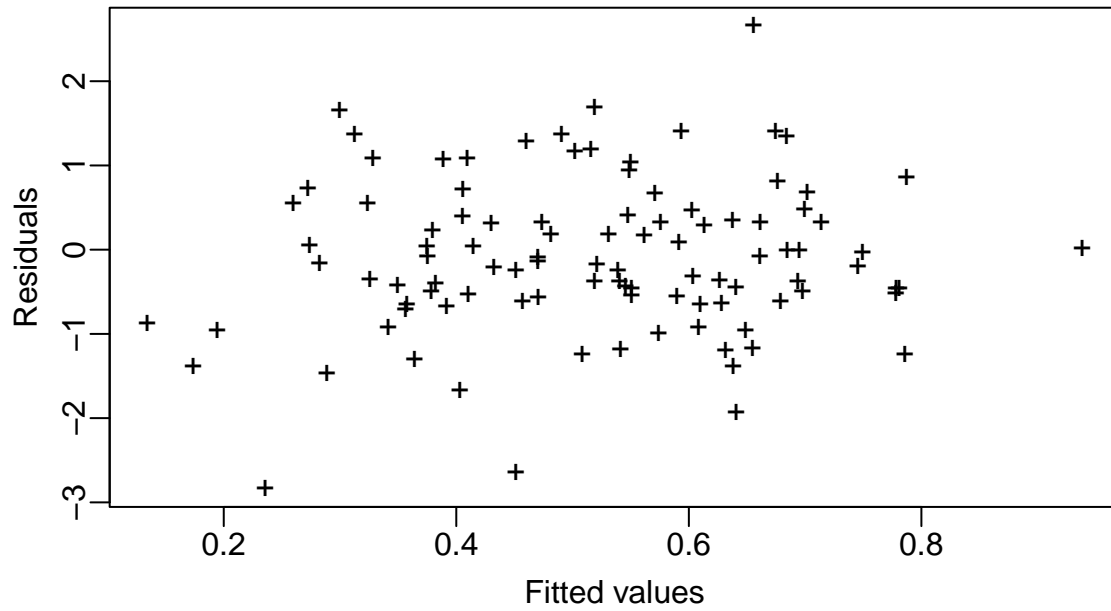


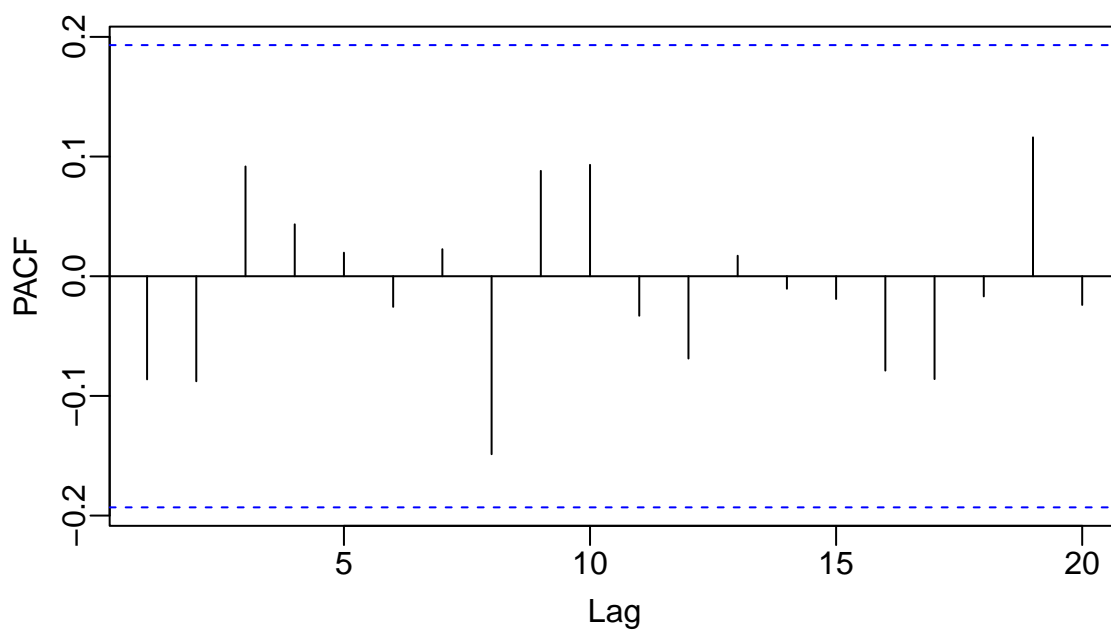
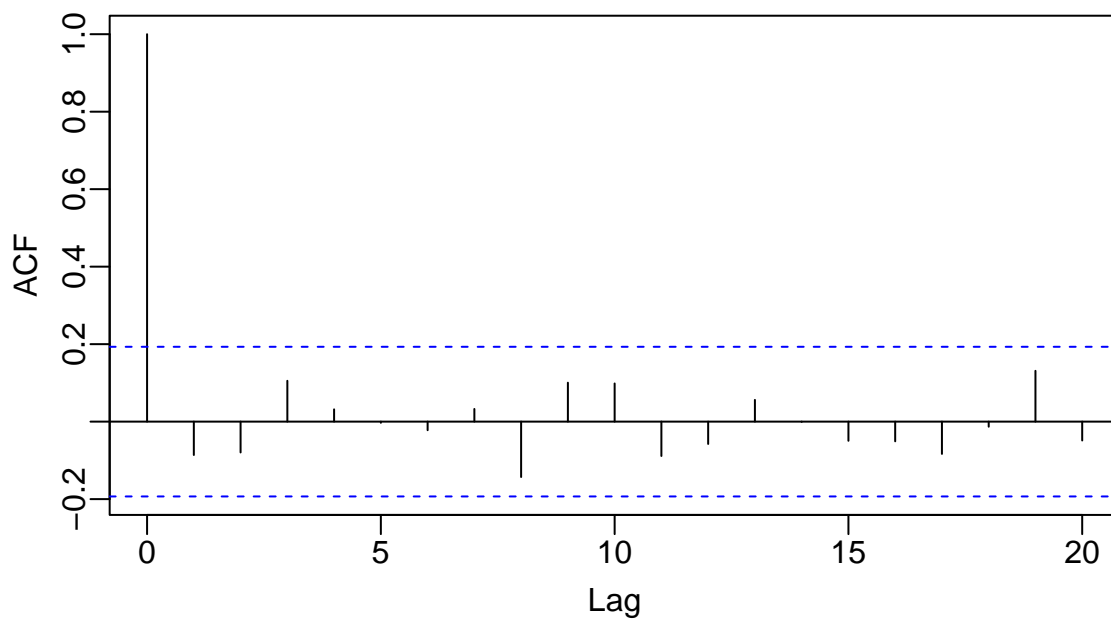


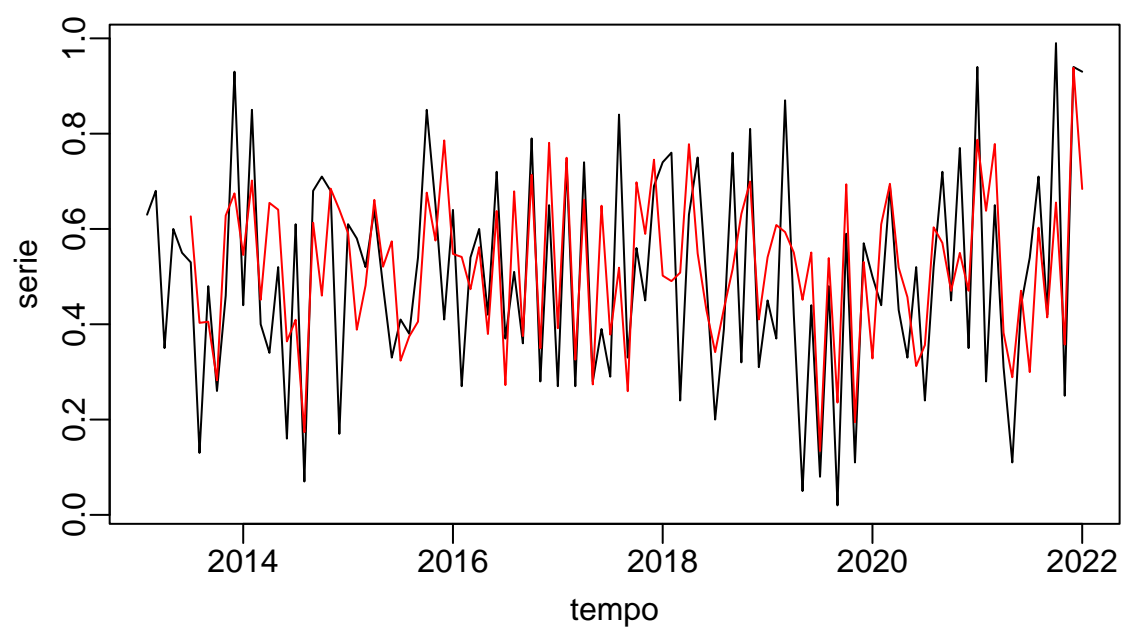
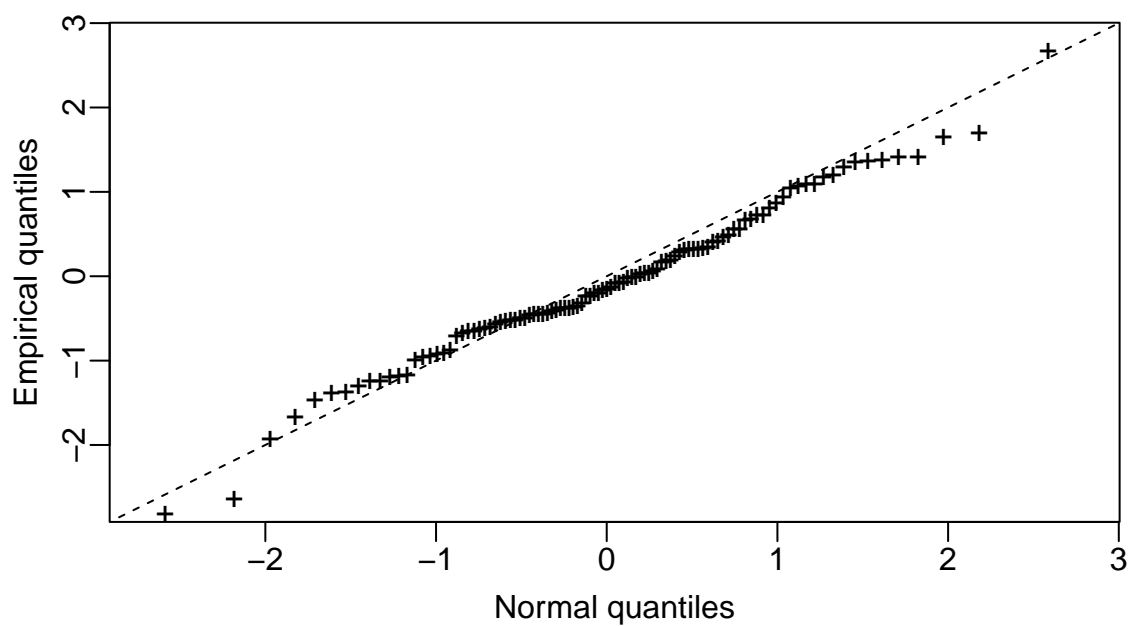


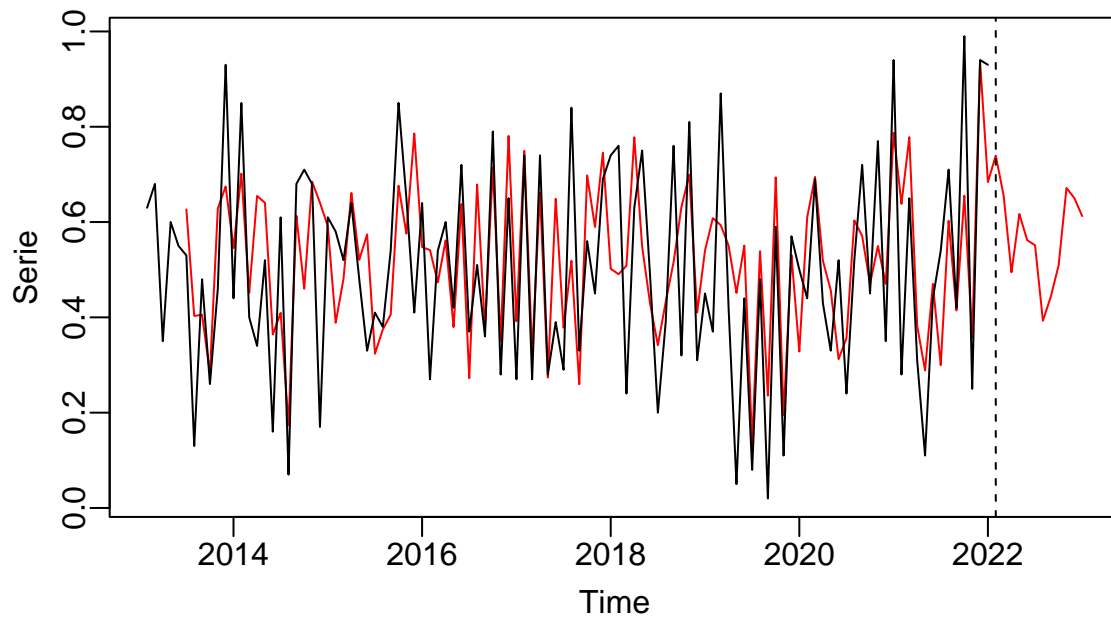
```
##           Estimate Std. Error z value Pr(>|z|)
## alpha      0.242     0.2113    1.14  0.2529
## phi1     -0.284     0.0450    6.32  0.0000
## phi2      0.173     0.0661    2.62  0.0087
## phi3     -0.847     0.0270   31.42  0.0000
## phi5      0.385     0.0688    5.59  0.0000
## theta1     0.191     0.0644    2.96  0.0030
## theta2     0.203     0.0666    3.05  0.0023
## theta3     1.185     0.0628   18.86  0.0000
## precision  2.308     0.2504    9.22  0.0000
## beta1      0.313     0.1132    2.77  0.0056
## [1]
## [1] Log-likelihood: 38.4556
## [1] Number of iterations in BFGS optim: 527
## [1] AIC:      -60.6448 SIC:      -33.8235 HQ:      -65.2072
## [1] Residuals:
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
## -2.835 -0.594 -0.165 -0.095  0.429  2.653
```









1 Section name

```
## [1] NA
## [1] 0.0258
## [1] 0.0437
## [1] 0.029
## [1] 0.0427
## [1] NA
## [1] 0.348
## [1] 0.738
## [1] 0.541
## [1] 0.737
## [1] 0.199
## [1] 0.0975
## [1] 0.0902
## [1] 0.103
## [1] 0.0932
## [1] 0.847
```

```
## [1] 0.925

## [1] 0.722

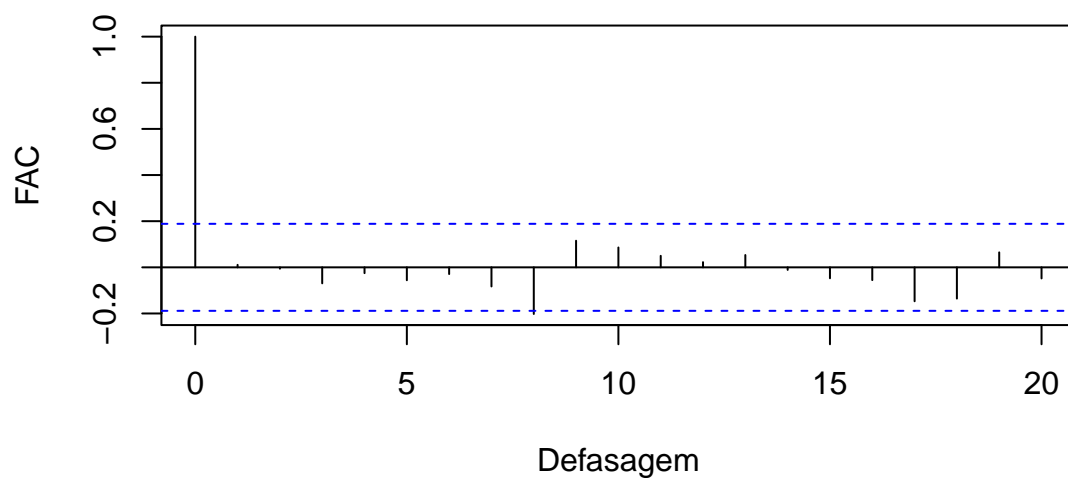
## [1] 0.86

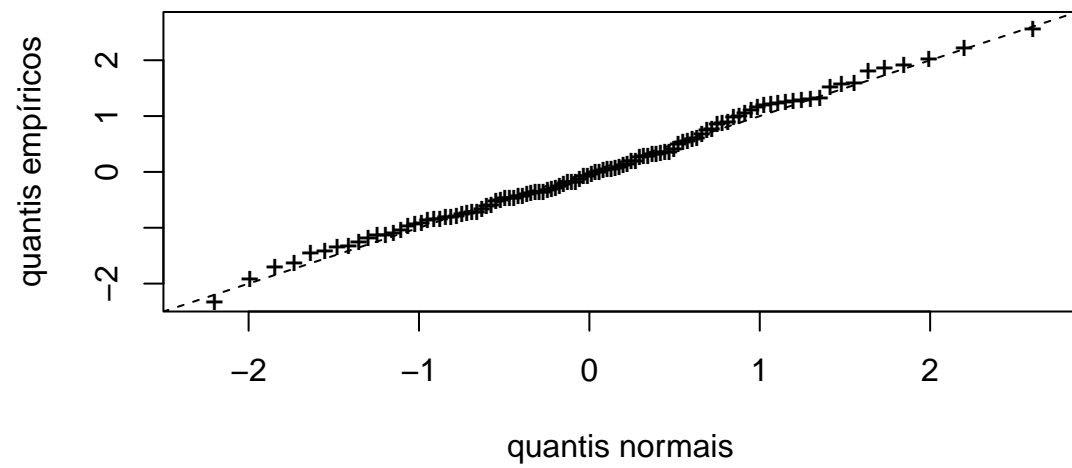
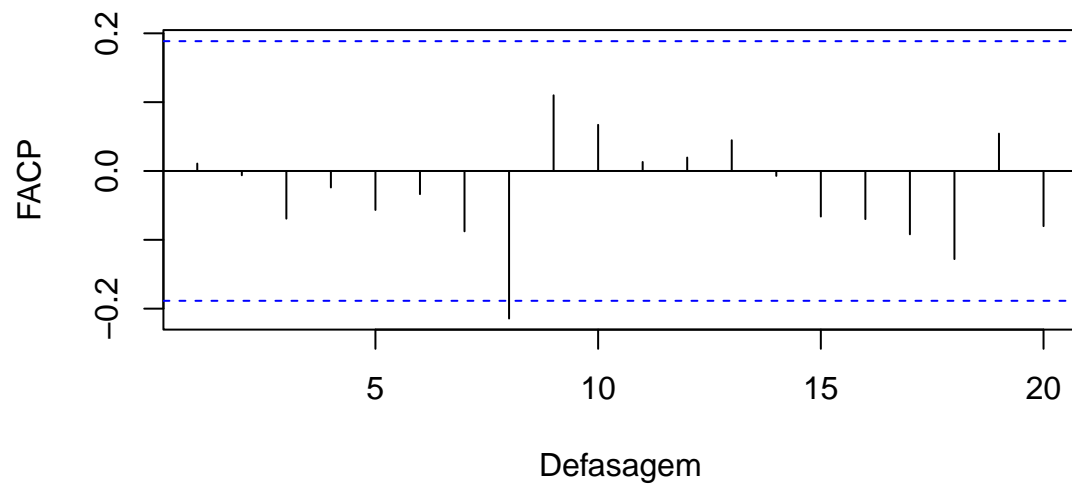
## [1] 0.773

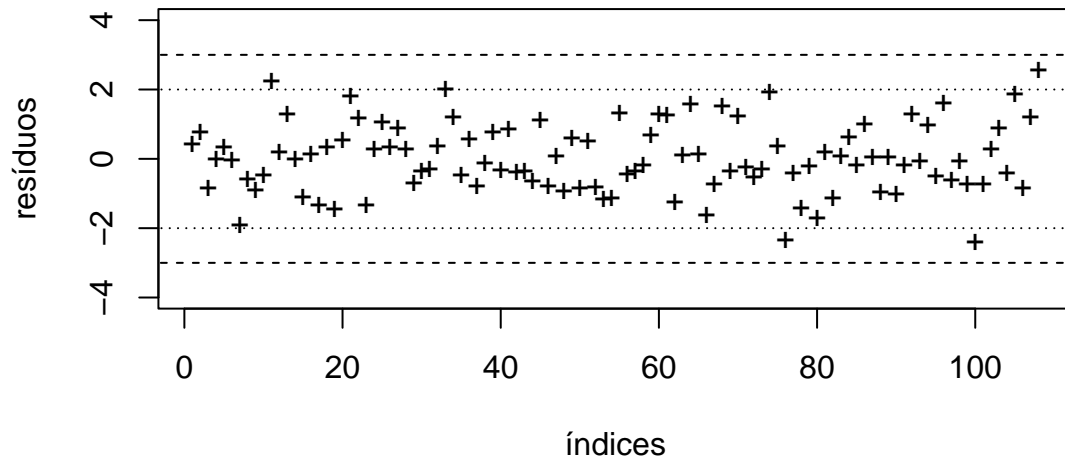
## # A tibble: 5 x 5
##   Modelo      'EQM TREINO' 'MAPE TREINO' 'EQM TESTE' 'MAPE TESTE'
##   <chr>      <dbl>      <dbl>      <dbl>      <dbl>
## 1 ARMA(2,0)    0.0427    0.737    0.0932    0.773
## 2 BARMA(6,6)    NA         NA      0.199    0.847
## 3 BARMA(4,2)    0.0258    0.348    0.0975    0.925
## 4 KARMA(5,4)    0.0437    0.738    0.0902    0.722
## 5 KARMA(5,3)    0.0437    0.541    0.103    0.860

##
## Augmented Dickey-Fuller Test
##
## data:  resi_padrao1
## Dickey-Fuller = -5, Lag order = 4, p-value = 0.01
## alternative hypothesis: stationary

##
## Shapiro-Wilk normality test
##
## data:  resi_padrao1
## W = 1, p-value = 0.8
```







```
##
##  Shapiro-Wilk normality test
##
## data:  res
## W = 1, p-value = 0.2

##
##  Augmented Dickey-Fuller Test
##
## data:  res
## Dickey-Fuller = -4, Lag order = 4, p-value = 0.01
## alternative hypothesis: stationary

##
##  Box-Ljung test
##
## data:  res
## X-squared = 24, df = 20, p-value = 0.2
```