PRÁCTICA 13. INTERPRETACIÓN RESULTADOS DEL TRAMO

?? Interprete los siguientes resultados:

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 TIME SERIES REGRESSION MODELS WITH ARIMA ERRORS, MISSING VALUES AND OUTLIERS.
                                BETA VERSION (*)

                                     BY

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                     with the programming assistance of G. CAPORELLO

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 SERIES TITLE=evtramo


 ORIGINAL SERIES

 NUMBER OF OBSERVATIONS: 411

 YEAR             1         2         3         4

 1900                                1.146     1.366
 1901           0.141     0.456    -0.638    -1.726
 1902          -2.360    -3.342    -0.725     3.443
 1903           4.907     3.246     0.844     2.090
....

MODEL PARAMETERS
 ---------------
  MQ=  4          IMEAN=  1      LAM= -1      D=  1       BD=  1
  P=  0           BP=  0         Q=  1        BQ=  1      IREG=  0
  ITRAD=  0       IEAST=  0      IDUR=  0     M= 36       QM= 24
  INCON=  0       NBACK=  0      NPRED=  8    INTERP=  2  INIT=  0
  IFILT=  2       IDENSC=  1     IROOT=  2    INIC=  3    ICONCE=  1
  ICDET=  1       IATIP=  1      IMVX=  0     IDIF=  3    PG=  0
  AIO=  0         INT1=  1       INT2= 411    RSA=  0     SEATS=  0
  VA= 3.80        TOL=  0.100E-03             PC=  0.143E+00
  NOADMISS= 1     BIAS= 1        SMTR= 0
  THTR= -0.400    RMOD=  0.500   MAXBIAS=  0.500


TH =        -0.10

BTH =        -0.10

NUMBER OF INITIAL OBS. =   5

    LAM CHANGED TO 1: SERIES HAS NEGATIVE OR ZERO VALUES


 MEAN IS NOT SIGNIFICANT:
 IMEAN CHANGED TO 0

  AUTOMATIC MODEL IDENTIFICATION BEGINS

 MODEL FINALLY CHOSEN:

  (1,0,1)(0,0,0)

 WITH MEAN

 WITHOUT TRADING DAY CORRECTION

 WITHOUT EASTER CORRECTION


 NO OUTLIERS DETECTED


 METHOD OF ESTIMATION: EXACT MAXIMUM LIKELIHOOD

 PARAMETER      ESTIMATE           STD ERROR      T RATIO   LAG

 AR1  1         -.44662          0.48024E-01       -9.30      1
 MA1  1         0.81038          0.32752E-01       24.74      1


 REGULAR AR INVERSE ROOTS ARE
 NO.     REAL P.     IMAG.P.     MODULUS    ARGUMENT      PERIOD
  1     0.44662      0.0000     0.44662      0.0000           -

 REGULAR MA INVERSE ROOTS ARE
 NO.     REAL P.     IMAG.P.     MODULUS    ARGUMENT      PERIOD
  1     -.81038      0.0000     0.81038      180.00          2.0
```

CORRELATIONS OF THE ESTIMATES

```
 1.0000    0.3911
 0.3911    1.0000
```

AIC

```
  1222.4539
```

BIC

```
     0.1612
```

FINAL VALUE OF OBJECTIVE FUNCTION:

```
              464.27
```

ITERATIONS: 1

NUMBER OF FUNCTION EVALUATIONS: 4

ESTIMATES OF REGRESSION PARAMETERS
CONCENTRATED OUT OF THE LIKELIHOOD

PARAMETER	VALUE	ST. ERROR	T VALUE
MU	0.30146	(0.17122)	1.76

COVARIANCE MATRIX OF ESTIMATORS

```
0.293E-01
```

NUMBER OF WHITE NOISE RESIDUALS 410

WHITE NOISE RESIDUALS

```
     0.3651    -0.8430     0.7697    -1.5897    -0.3920    -1.4657    -1.3110     1.6060
     2.2583     1.3357    -0.2316    -0.6249     2.0109     2.1452     0.6978     0.7509
     0.3951    -0.6757    -1.4011     0.8441     0.3784     1.3296    -0.7075    -0.2561
.......
```

TEST-STATISTICS ON RESIDUALS

```
           MEAN=  -0.0231909
       ST.DEV.=   0.0524188
       OF MEAN
       T-VALUE= -0.4424

NORMALITY TEST=   1.142        ( CHI-SQUARED(2) )

      SKEWNESS= -0.1287          ( SE =  0.1210 )
      KURTOSIS=  2.9747          ( SE =  0.2419 )

SUM OF SQUARES=    462.1142

 DURBIN-WATSON=  2.0084

STANDARD ERROR=    1.064252
OF RESID.
 MSE OF RESID.=    1.132633
```

AUTOCORRELATIONS

	-0.0055	0.0052	0.0345	-0.0083	-0.0205	0.0593	0.0010	-0.0054	-0.0373	-0.0059	0.0204	-0.0885
SE	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494
Q	0.01	0.02	0.52	0.55	0.72	2.19	2.19	2.20	2.79	2.80	2.98	6.30
PV	-1.00	-1.00	0.47	0.76	0.87	0.70	0.82	0.90	0.90	0.95	0.97	0.79
	-0.0032	-0.0125	-0.0037	-0.0702	0.0250	-0.0412	0.0194	-0.0544	-0.1321	-0.0370	0.0526	0.0543
SE	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494
Q	6.31	6.37	6.38	8.49	8.76	9.49	9.65	10.94	18.51	19.11	20.32	21.61
PV	0.85	0.90	0.93	0.86	0.89	0.89	0.92	0.90	0.49	0.51	0.50	0.48
	0.0655	-0.0391	-0.0592	-0.0796	-0.0759	0.0279	-0.0624	0.0418	0.0385	-0.0008	-0.0484	0.0019
SE	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494
Q	23.49	24.16	25.71	28.51	31.06	31.41	33.14	33.93	34.59	34.59	35.64	35.65
PV	0.43	0.45	0.42	0.33	0.27	0.30	0.27	0.28	0.30	0.35	0.34	0.39

LJUNG-BOX Q VALUE OF ORDER 16 IS 8.49 AND IF RESIDUALS ARE RANDOM IT SHOULD BE DISTRIBUTED AS CHI-SQUARED(14)

PARTIAL AUTOCORRELATIONS

	-0.0055	0.0052	0.0346	-0.0080	-0.0210	0.0580	0.0024	-0.0047	-0.0419	-0.0058	0.0239	-0.0896
SE	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494
	-0.0049	-0.0141	0.0071	-0.0708	0.0188	-0.0320	0.0241	-0.0562	-0.1426	-0.0334	0.0585	0.0625
SE	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494
	0.0559	-0.0478	-0.0513	-0.0948	-0.0838	0.0054	-0.0623	0.0469	0.0303	-0.0005	-0.0444	-0.0200
SE	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494	0.0494

APPROXIMATE TEST OF RUNS ON RESIDUALS

```
 NUM.DATA= 410
```

```
  NUM.(+)= 205
  NUM.(-)= 205
 NUM.RUNS= 212
  T-VALUE=  0.5934

APPROXIMATE TEST OF RUNS ON AUTOCORRELATION FUNCTION
----------------------------------------------------
 NUM.DATA=  36
  NUM.(+)=  18
  NUM.(-)=  18
 NUM.RUNS=  22
  T-VALUE=  1.0146


SQUARED RESIDUALS:
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AUTOCORRELATIONS
----------------
     0.0513  -0.0280  -0.0845  -0.0510   0.0269  -0.0600   0.0650  -0.0550   0.0440   0.0328  -0.0630  -0.0212
SE   0.0494   0.0494   0.0494   0.0494   0.0494   0.0494   0.0494   0.0494   0.0494   0.0494   0.0494   0.0494
Q      1.09     1.41     4.38     5.46     5.76     7.27     9.04    10.31    11.12    11.58    13.25    13.44
PV    -1.00    -1.00     0.04     0.07     0.12     0.12     0.11     0.11     0.13     0.17     0.15     0.20
    -0.0180   0.0052  -0.0486   0.0086  -0.0553   0.0025   0.0002   0.0770   0.0768  -0.0932  -0.0364  -0.0590
SE   0.0494   0.0494   0.0494   0.0494   0.0494   0.0494   0.0494   0.0494   0.0494   0.0494   0.0494   0.0494
Q     13.58    13.59    14.60    14.64    15.95    15.95    15.95    18.52    21.09    24.87    25.45    26.97
PV     0.26     0.33     0.33     0.40     0.39     0.46     0.53     0.42     0.33     0.21     0.23     0.21
     0.1057   0.0301  -0.0278  -0.0169  -0.0719  -0.0704  -0.0400  -0.0281  -0.0167   0.0043   0.0727  -0.0287
SE   0.0494   0.0494   0.0494   0.0494   0.0494   0.0494   0.0494   0.0494   0.0494   0.0494   0.0494   0.0494
Q     31.87    32.27    32.61    32.74    35.03    37.23    37.95    38.30    38.42    38.43    40.81    41.18
PV     0.10     0.12     0.14     0.17     0.14     0.11     0.12     0.14     0.17     0.20     0.16     0.19

 LJUNG-BOX Q VALUE OF ORDER 16 IS    14.64 AND IF RESIDUALS ARE RANDOM IT SHOULD BE DISTRIBUTED AS CHI-SQUARED(14)

FORECASTS:

ORIGIN:          411 NUMBER:           8

OBS       FORECAST        STD ERROR           ACTUAL             RESIDUAL
      FORECAST          STD ERROR
      (TR. SERIES)                                                        (
ORIGINAL SERIES)
412     -0.937098          1.06554                                          -0.937098          1.06554
413     -0.251702          1.71353                                          -0.251702          1.71353
414      0.544091E-01      1.81686                                           0.544091E-01      1.81686
415      0.191125          1.83745                                           0.191125          1.83745
416      0.252185          1.84183                                           0.252185          1.84183
417      0.279455          1.84284                                           0.279455          1.84284
418      0.291635          1.84310                                           0.291635          1.84310
419      0.297075          1.84318                                           0.297075          1.84318


INTERPOLATED SERIES

YEAR             1         2         3         4

1900                                 1.146     1.366
1901           0.141     0.456    -0.638    -1.726
1902          -2.360    -3.342    -0.725     3.443
1903           4.907     3.246     0.844     2.090
1904           4.915     4.837     3.683     2.855
.......
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