ملحق (1):ابيانات الدراسة

السنة	الشهر	الأسبوع	إنتاجية الأقمشة بالمتر
2015	يناير	الأول	5948
	يناير	الثاني	24490
	يناير	الثالث	21123
	يناير	الرابع	16910
2015	فبراير	الأول	18222
	فبراير	الثاني	18254
	فبراير	الثالث	24884
	فبراير	الرابع	21501
2015	مارس	الأول	19604
	مارس	الثاني	17266
	مارس	الثالث	14800
	مارس	الرابع	13963
2015	ابريل	الأول	16456
	ابريل	الثاني	18428
	ابريل	الثالث	20133
	ابريل	الرابع	20986
2015	مايو	الأول	20124
	مايو	الثاني	32261
	مايو	الثالث	30838
	مايو	الرابع	38624
2015	يونيو	الأول	36575
	يونيو	الثاني	28391
	يونيو	الثالث	42766
	يونيو	الرابع	28759
2015	يوليو	الأول	34659
	يوليو	الثاني	42850
	يوليو	الثالث	22772
	يوليو	الرابع	25888
2015	أغسطس	الأول	28366
	أغسطس	الثاني	29338
	أغسطس	الثالث	29000
	أغسطس	الرابع	35162
2015	سبتمبر	الأول	31014

	سبتمبر	الثاني	35989
	سبتمبر	الثالث	20412
	سبتمبر	الرابع	28298
2015	أكتوبر	الأول	38501
	أكتوبر	الثاني	20039
	أكتوبر	الثالث	20154
	أكتوبر	الرابع	23492
2015	نوفمبر	الأول	22810
	نوفمبر	الثاني	20199
	نوفمبر	الثالث	32622
	نوفمبر	الرابع	19889
2015	ديسمبر	الأول	22643
	ديسمبر	الثاني	23410
	ديسمبر	الثالث	23990
	ديسمبر	الرابع	20792
2016	يناير	الأول	35406
	يناير	الثاني	28980
	يناير	الثالث	25849
	يناير	الرابع	38509
2016	فبراير	الأول	35961
	فبراير	الثاني	37526
	فبراير	الثالث	38005
	فبراير	الرابع	22599
2016	مارس	الأول	29059
	مارس	الثاني	33499
	مارس	الثالث	29643
	مارس	الرابع	26501
2016	ابريل	الأول	37318
	ابريل	الثاني	30860
	ابريل	الثالث	37129
	ابريل	الرابع	30454

ملحق (2)- نتائج نموذج ARMA(2.1.1) :

```
MODEL:  MOD_4

Model Description:

Variable:   X
Regressors: NONE
```

Non-seasonal differencing: 1
No seasonal component in model.

Parameters:
AR1 _____ < value originating from estimation >
AR2 _____ < value originating from estimation >
MA1 _____ < value originating from estimation >
CONSTANT _____ < value originating from estimation >

95.00 percent confidence intervals will be generated.

Split group number: 1 Series length: 63
Number of cases skipped at end because of missing values: 1
Melard's algorithm will be used for estimation.

Termination criteria:
Parameter epsilon: .001
Maximum Marquardt constant: 1.00E+09
SSQ Percentage: .001
Maximum number of iterations: 10

Initial values:

AR1 -.79884
AR2 -.49820
MA1 .30187
CONSTANT -74.0180

Marquardt constant = .001
Adjusted sum of squares = 3583479660.4

Iteration History:

Iteration	Adj. Sum of Squares	Marquardt Constant
1	2983681288.4	.001000
2	2753190456.1	.000100
3	2739084894.0	10.000000
4	2738307931.2	1.000000
5	2724814849.6	10.000000
6	2724578448.5	1.000000
7	2711665571.8	10.000000

Conclusion of estimation phase.
Estimation terminated at iteration number 8 because:
Sum of squares decreased by less than .001 percent.

FINAL PARAMETERS:

Number of residuals 62
Standard error 6572.2893
Log likelihood -633.38082
AIC 1274.7616
SBC 1283.2702

Analysis of Variance:

	DF	Adj. Sum of Squares	Residual Variance
Residuals	58	2711638711.6	43194986.4

Variables in the Model:

	B	SEB	T-RATIO	APPROX. PROB.
AR1	-.663453	.122388	-5.4208797	.00000120
AR2	-.411239	.120134	-3.4231576	.00114150
MA1	.972039	.138048	7.0413099	.00000000
CONSTANT	-10.434448	25.576742	-.4079663	.68480056

Covariance Matrix:

	AR1	AR2	MA1
AR1	.01497894	.00729247	.00409307
AR2	.00729247	.01443229	.00368382
MA1	.00409307	.00368382	.01905726

_

Correlation Matrix:

	AR1	AR2	MA1
AR1	1.0000000	.4959825	.2422582
AR2	.4959825	1.0000000	.2221268
MA1	.2422582	.2221268	1.0000000

Regressor Covariance Matrix:

	CONSTANT
CONSTANT	654.16972

Regressor Correlation Matrix:

	CONSTANT
CONSTANT	1.0000000

>Warning # 16567. Command name: ARIMA
>Undefined error #16567 - Cannot open text file
"E:\en\windows\spss.err": No such file or directory

The following new variables are being created:

Name	Label
FIT_2	Fit for X from ARIMA, MOD_4 CON
ERR_2	Error for X from ARIMA, MOD_4 CON
LCL_2	95% LCL for X from ARIMA, MOD_4 CON
UCL_2	95% UCL for X from ARIMA, MOD_4 CON
SEP_2	SE of fit for X from ARIMA, MOD_4 CON

Lag	ACF	T	LBQ
1	0.451956	3.62	13.70
2	0.432008	2.91	26.41
3	0.503999	3.02	44.00
4	0.272979	1.44	49.25
5	0.261189	1.34	54.13
6	0.247078	1.23	58.58
7	0.071849	0.35	58.96
8	0.080270	0.39	59.44
9	0.078637	0.38	59.92
10	-0.031048	-0.15	59.99
11	0.066957	0.32	60.35
12	-0.028322	-0.14	60.42
13	-0.138913	-0.67	62.02
14	-0.158839	-0.76	64.15
15	-0.205281	-0.98	67.78
16	-0.182747	-0.86	70.72

Lag	PACF	T
1	0.451956	3.62
2	0.286205	2.29
3	0.322056	2.58
4	-0.103044	-0.82
5	-0.023064	-0.18
6	-0.003914	-0.03
7	-0.128918	-1.03
8	-0.033207	-0.27
9	0.026919	0.22
10	-0.036016	-0.29
11	0.114048	0.91
12	-0.082937	-0.66
13	-0.152706	-1.22
14	-0.199898	-1.60
15	-0.083826	-0.67
16	0.081823	0.65

Autocorrelation Function: C2

Lag	ACF	T	LBQ
1	-0.446008	-3.54	13.14
2	-0.107554	-0.72	13.92
3	0.278464	1.85	19.21
4	-0.207812	-1.31	22.20
5	-0.001722	-0.01	22.20
6	0.196104	1.21	24.97
7	-0.203027	-1.22	27.98
8	0.005305	0.03	27.98
9	0.080900	0.48	28.48
10	-0.227923	-1.34	32.49
11	0.191728	1.09	35.39
12	0.024169	0.14	35.44
13	-0.071419	-0.40	35.85
14	0.032057	0.18	35.94
15	-0.073847	-0.41	36.40
16	0.063653	0.35	36.76

Partial Autocorrelation Function: C2

Lag	PACF	T
1	-0.446008	-3.54

```
  2  -0.382582  -3.04
  3   0.060698   0.48
  4  -0.077228  -0.61
  5  -0.078816  -0.63
  6   0.109396   0.87
  7  -0.031442  -0.25
  8  -0.086640  -0.69
  9  -0.080855  -0.64
 10  -0.259776  -2.06
 11  -0.041345  -0.33
 12   0.025343   0.20
 13   0.126998   1.01
 14   0.021076   0.17
 15  -0.131519  -1.04
 16  -0.009427  -0.07
```

ملحق(3): اختبار عشوائية البواقي

Runs Test: RESI2

```
Runs test for RESI2

Runs above and below K = 294.235

The observed number of runs = 34
The expected number of runs = 31.9677
32 observations above K; 30 below
P-value = 0.602
```

ملحق(4):التنبؤ بالكمية المنتجة

Period	Forecast	95% Limits Lower	Upper	Actual
65	32593.4	20250.9	44935.9	
66	34876.1	21930.6	47821.5	
67	32643.2	18947.0	46339.4	
68	33940.6	17960.5	49920.7	
69	34676.8	17947.7	51406.0	
70	34098.0	16427.4	51768.6	
71	34848.3	15936.3	53760.3	
72	35195.0	15490.2	54899.8	

ملحق(5): نموذج ARMA(1,1,1)

```
MODEL:  MOD_5

Model Description:

Variable:   X
Regressors: NONE

Non-seasonal differencing: 1
No seasonal component in model.
```

```
Parameters:
AR1      _________  < value originating from estimation >
MA1      _________  < value originating from estimation >
CONSTANT _________  < value originating from estimation >

95.00 percent confidence intervals will be generated.
_


Split group number: 1  Series length: 63
Number of cases skipped at end because of missing values: 1
Melard's algorithm will be used for estimation.

Termination criteria:
Parameter epsilon: .001
Maximum Marquardt constant: 1.00E+09
SSQ Percentage: .001
Maximum number of iterations: 10



Initial values:

AR1        .04064
MA1        .90551
CONSTANT -38.7515

Marquardt constant = .001
Adjusted sum of squares = 4464254948.9

              Iteration History:

  Iteration   Adj. Sum of Squares    Marquardt Constant

          1          3632316966.4             .00100000
          2          3507210380.1             .00010000
          3          3482106968.4             .00001000
          4          3476251326.6             .00000100
          5          3474813958.8             .00000010
_


Conclusion of estimation phase.
Estimation terminated at iteration number 6 because:
   All parameter estimates changed by less than .001

FINAL PARAMETERS:

Number of residuals  62
Standard error       7528.6195
Log likelihood       -641.06483
AIC                  1288.1297
SBC                  1294.5111

            Analysis of Variance:

              DF  Adj. Sum of Squares    Residual Variance

Residuals     59         3474456186.1           56680110.9
```

Variables in the Model:

	B	SEB	T-RATIO	APPROX. PROB.
AR1	-.338259	.129740	-2.6072139	.01154210
MA1	.905514	.147799	6.1266718	.00000008
CONSTANT	-22.175224	81.623118	-.2716782	.78681784

Covariance Matrix:

	AR1	MA1
AR1	.01683241	.00790738
MA1	.00790738	.02184443

Correlation Matrix:

	AR1	MA1
AR1	1.0000000	.4123719
MA1	.4123719	1.0000000

Regressor Covariance Matrix:

	CONSTANT
CONSTANT	6662.3334

Regressor Correlation Matrix:

	CONSTANT
CONSTANT	1.0000000

_

The following new variables are being created:

Name	Label
FIT_3	Fit for X from ARIMA, MOD_5 CON
ERR_3	Error for X from ARIMA, MOD_5 CON
LCL_3	95% LCL for X from ARIMA, MOD_5 CON
UCL_3	95% UCL for X from ARIMA, MOD_5 CON
SEP_3	SE of fit for X from ARIMA, MOD_5 CON

ملحق(6):نموذج ARMA(2,1,2)

MODEL: MOD_6

Model Description:

Variable: X
Regressors: NONE

Non-seasonal differencing: 1
No seasonal component in model.

Parameters:
AR1 _____ < value originating from estimation >
AR2 _____ < value originating from estimation >

```
MA1      _________  < value originating from estimation >
MA2      _________  < value originating from estimation >
CONSTANT _________  < value originating from estimation >

95.00 percent confidence intervals will be generated.

Split group number: 1  Series length: 63
Number of cases skipped at end because of missing values: 1
Melard's algorithm will be used for estimation.

Termination criteria:
Parameter epsilon: .001
Maximum Marquardt constant: 1.00E+09
SSQ Percentage: .001
Maximum number of iterations: 10




Initial values:

AR1       -.84874
AR2       -.49617
MA1        .10884
MA2        .06665
CONSTANT -96.8942

Marquardt constant = .001
Adjusted sum of squares = 3854059395.2
_

               Iteration History:

  Iteration   Adj. Sum of Squares    Marquardt Constant

          1          2864713503.0                .00100
          2          2836617057.3               1.00000
          3          2807482580.6              10.00000
          4          2798019383.3               1.00000
          5          2768570537.3              10.00000
          6          2768022687.2               1.00000
          7          2762293259.7              10.00000
          8          2759493258.8             100.00000
          9          2757024713.9              10.00000
_

Conclusion of estimation phase.
Estimation terminated at iteration number 10 because:
   Maximum number of iterations was exceeded.

FINAL PARAMETERS:

Number of residuals  62
Standard error       6668.8406
Log likelihood       -633.86365
AIC                  1277.7273
```

SBC 1288.363

Analysis of Variance:

	DF	Adj. Sum of Squares	Residual Variance
Residuals	57	2754416220.6	44473434.8

Variables in the Model:

	B	SEB	T-RATIO	APPROX. PROB.
AR1	-.942948	.250251	-3.7680149	.00039223
AR2	-.498521	.123916	-4.0230661	.00017108
MA1	.558181	.420975	1.3259220	.19015468
MA2	.427029	.365683	1.1677589	.24776557
CONSTANT	-13.558523	28.162481	-.4814392	.63204757

Covariance Matrix:

	AR1	AR2	MA1	MA2
AR1	.06262541	.02020029	.05450613	-.06911062
AR2	.02020029	.01535509	.01922248	-.01378577
MA1	.05450613	.01922248	.17722034	-.00704608
MA2	-.06911062	-.01378577	-.00704608	.13372393

Correlation Matrix:

	AR1	AR2	MA1	MA2
AR1	1.0000000	.6514124	.5173844	-.7552051
AR2	.6514124	1.0000000	.3684907	-.3042287
MA1	.5173844	.3684907	1.0000000	-.0457706
MA2	-.7552051	-.3042287	-.0457706	1.0000000

Regressor Covariance Matrix:

	CONSTANT
CONSTANT	793.12531

—

Regressor Correlation Matrix:

	CONSTANT
CONSTANT	1.0000000

>Warning # 16567. Command name: ARIMA
>Undefined error #16567 - Cannot open text file
"E:\en\windows\spss.err": No such file or directory

The following new variables are being created:

```
  Name        Label

  FIT_4       Fit for X from ARIMA, MOD_6 CON
  ERR_4       Error for X from ARIMA, MOD_6 CON
  LCL_4       95% LCL for X from ARIMA, MOD_6 CON
  UCL_4       95% UCL for X from ARIMA, MOD_6 CON
  SEP_4       SE of fit for X from ARIMA, MOD_6 CON
```

ملحق(7):نموذج ARMA(1,1,2)

```
MODEL:  MOD_7

Model Description:

Variable:   X
Regressors: NONE

Non-seasonal differencing: 1
No seasonal component in model.



Parameters:
AR1      _________  < value originating from estimation >
MA1      _________  < value originating from estimation >
MA2      _________  < value originating from estimation >
CONSTANT _________  < value originating from estimation >

95.00 percent confidence intervals will be generated.

Split group number: 1  Series length: 63
Number of cases skipped at end because of missing values: 1
Melard's algorithm will be used for estimation.
_


Termination criteria:
Parameter epsilon: .001
Maximum Marquardt constant: 1.00E+09
SSQ Percentage: .001
Maximum number of iterations: 10

Initial values:

AR1       -.93742
MA1        .15745
MA2        .72821
CONSTANT -25.5328

Marquardt constant = .001
Adjusted sum of squares = 4320994235.0

              Iteration History:

  Iteration   Adj. Sum of Squares    Marquardt Constant

          1          4094546594.9             .00100000
          2          4077131314.0             .00010000
          3          4075095449.8             .10000000
          4          4073289345.6             .01000000
_
```

Conclusion of estimation phase.
Estimation terminated at iteration number 5 because:
All parameter estimates changed by less than .001

FINAL PARAMETERS:

Number of residuals	62
Standard error	8104.1297
Log likelihood	-645.99169
AIC	1299.9834
SBC	1308.4919

Analysis of Variance:

	DF	Adj. Sum of Squares	Residual Variance
Residuals	58	4073216585.7	65676918.9

Variables in the Model:

	B	SEB	T-RATIO	APPROX. PROB.
AR1	-.876452	.633180	-1.3842069	.17159823
MA1	.157452	7.320870	.0215073	.98291479
MA2	.841238	6.363045	.1322068	.89527834
CONSTANT	-25.546036	55.125288	-.4634177	.64479933

Covariance Matrix:

	AR1	MA1	MA2
AR1	.400916	-.204444	-.958604
MA1	-.204444	53.595142	45.679574
MA2	-.958604	45.679574	40.488346

Correlation Matrix:

	AR1	MA1	MA2
AR1	1.0000000	-.0441048	-.2379288
MA1	-.0441048	1.0000000	.9806055
MA2	-.2379288	.9806055	1.0000000

Regressor Covariance Matrix:

	CONSTANT
CONSTANT	3038.7974

Regressor Correlation Matrix:

	CONSTANT
CONSTANT	1.0000000

```
>Warning # 16567.  Command name: ARIMA
>Undefined error #16567 - Cannot open text file
"E:\en\windows\spss.err": No such file or directory


The following new variables are being created:

  Name        Label

  FIT_5       Fit for X from ARIMA, MOD_7 CON
  ERR_5       Error for X from ARIMA, MOD_7 CON
  LCL_5       95% LCL for X from ARIMA, MOD_7 CON
  UCL_5       95% UCL for X from ARIMA, MOD_7 CON
  SEP_5       SE of fit for X from ARIMA, MOD_7 CON
```

ملحق(8):ARMA(1,1,3)

```
MODEL:  MOD_8

Model Description:

Variable:   X
Regressors: NONE

Non-seasonal differencing: 1
No seasonal component in model.

Parameters:
AR1      _________  < value originating from estimation >
MA1      _________  < value originating from estimation >
MA2      _________  < value originating from estimation >
MA3      _________  < value originating from estimation >
CONSTANT _________  < value originating from estimation >

95.00 percent confidence intervals will be generated.

Split group number: 1  Series length: 63
Number of cases skipped at end because of missing values: 1
Melard's algorithm will be used for estimation.
_


Termination criteria:
Parameter epsilon: .001
Maximum Marquardt constant: 1.00E+09
SSQ Percentage: .001
Maximum number of iterations: 10

Initial values:

AR1       -.81074
MA1        .19025
MA2        .39257
```

```
MA3       -.43054
CONSTANT -112.599

Marquardt constant = .001
Adjusted sum of squares = 4103067415.5

             Iteration History:

  Iteration   Adj. Sum of Squares    Marquardt Constant

          1          3159986939.1             .00100000
          2          3066226469.5             .00010000
          3          2895222975.5             .00001000
_


Conclusion of estimation phase.
Estimation terminated at iteration number 4 because:
   All parameter estimates changed by less than .001



FINAL PARAMETERS:

Number of residuals  62
Standard error       6798.0272
Log likelihood       -635.40394
AIC                  1280.8079
SBC                  1291.4435

            Analysis of Variance:

              DF  Adj. Sum of Squares    Residual Variance

Residuals     57         2894581444.9           46213174.2


     Variables in the Model:

                     B         SEB      T-RATIO   APPROX. PROB.

AR1           -.790035     .566420   -1.3947865       .16849220
MA1            .725390     .810304     .8952073       .37444118
MA2            .759435     .828640     .9164835       .36327473
MA3           -.489000     .409045   -1.1954672       .23685451
CONSTANT    -11.676577   21.913840    -.5328403       .59621549

Covariance Matrix:

                AR1          MA1          MA2          MA3

AR1       .32083191    .27114526   -.45081267    .15204704
MA1       .27114526    .65659213   -.26065562   -.06082373
MA2      -.45081267   -.26065562    .68664392   -.27664514
MA3       .15204704   -.06082373   -.27664514    .16731804

Correlation Matrix:

                AR1          MA1          MA2          MA3

AR1       1.0000000     .5907659    -.9604871     .6562477
```

```
MA1        .5907659    1.0000000    -.3881982    -.1835075
MA2       -.9604871    -.3881982    1.0000000    -.8161798
MA3        .6562477    -.1835075    -.8161798    1.0000000

Regressor Covariance Matrix:

             CONSTANT

CONSTANT    480.21639

_


Regressor Correlation Matrix:

             CONSTANT

CONSTANT    1.0000000

>Warning # 16567.  Command name: ARIMA
>Undefined error #16567 - Cannot open text file
"E:\en\windows\spss.err": No such file or directory


The following new variables are being created:

  Name        Label

  FIT_6       Fit for X from ARIMA, MOD_8 CON
  ERR_6       Error for X from ARIMA, MOD_8 CON
  LCL_6       95% LCL for X from ARIMA, MOD_8 CON
  UCL_6       95% UCL for X from ARIMA, MOD_8 CON
  SEP_6       SE of fit for X from ARIMA, MOD_8 CON
```

ملحق (9): ARMA(2,1,3)

```
MODEL:  MOD_9

Model Description:

Variable:   X
Regressors: NONE

Non-seasonal differencing: 1
No seasonal component in model.

Parameters:
AR1      _________  < value originating from estimation >
AR2      _________  < value originating from estimation >
MA1      _________  < value originating from estimation >
MA2      _________  < value originating from estimation >
MA3      _________  < value originating from estimation >
CONSTANT _________  < value originating from estimation >

95.00 percent confidence intervals will be generated.

Split group number: 1  Series length: 63
Number of cases skipped at end because of missing values: 1
Melard's algorithm will be used for estimation.

_
```

Termination criteria:
Parameter epsilon: .001
Maximum Marquardt constant: 1.00E+09
SSQ Percentage: .001
Maximum number of iterations: 10

Initial values:

AR1	-.86678
AR2	-.73183
MA1	.07690
MA2	-.09004
MA3	.12054
CONSTANT	-103.237

Marquardt constant = .001
Adjusted sum of squares = 3956710436.3

Iteration History:

Iteration	Adj. Sum of Squares	Marquardt Constant
1	3302197590.7	.001000
2	3262176649.7	1.000000
3	3179979328.6	10.000000
4	3163418884.7	1.000000
5	3103264803.3	10.000000
6	3083356169.9	1.000000
7	3039238592.7	10.000000
8	3038398413.1	1.000000
9	3005260077.6	10.000000

Conclusion of estimation phase.
Estimation terminated at iteration number 10 because:
Maximum number of iterations was exceeded.

FINAL PARAMETERS:

Number of residuals	62
Standard error	7086.3391
Log likelihood	-636.49548
AIC	1284.991
SBC	1297.7538

Analysis of Variance:

	DF	Adj. Sum of Squares	Residual Variance
Residuals	56	2996300416.0	50216201.3

Variables in the Model:

	B	SEB	T-RATIO	APPROX. PROB.
AR1	-1.064118	.154033	-6.9083924	.00000000

```
AR2           -.781805     .150177   -5.2059023       .00000285
MA1            .200119     .255866     .7821246       .43743597
MA2            .297337     .263369    1.1289739       .26372202
MA3            .438697     .260810    1.6820586       .09812634
CONSTANT    -21.226013   43.978520    -.4826450       .63122922

Covariance Matrix:

                AR1          AR2          MA1          MA2
MA3

AR1       .02372607    .01187716    .02559165   -.02113382   -
.01058538
AR2       .01187716    .02255300    .01481987    .00584848   -
.03071842
MA1       .02559165    .01481987    .06546754   -.00186197   -
.00392393
MA2      -.02113382    .00584848   -.00186197    .06936336   -
.00354020
MA3      -.01058538   -.03071842   -.00392393   -.00354020
.06802171

Correlation Matrix:

                AR1          AR2          MA1          MA2
MA3

AR1       1.0000000     .5134492     .6493402    -.5209547    -
.2634935
AR2        .5134492    1.0000000     .3856820     .1478685    -
.7842832
MA1        .6493402     .3856820    1.0000000    -.0276309    -
.0588010
MA2       -.5209547     .1478685    -.0276309    1.0000000    -
.0515394
MA3       -.2634935    -.7842832    -.0588010    -.0515394
1.0000000
_


Regressor Covariance Matrix:

             CONSTANT

CONSTANT    1934.1102

Regressor Correlation Matrix:

             CONSTANT

CONSTANT    1.0000000

The following new variables are being created:

  Name        Label

  FIT_7       Fit for X from ARIMA, MOD_9 CON
  ERR_7       Error for X from ARIMA, MOD_9 CON
  LCL_7       95% LCL for X from ARIMA, MOD_9 CON
  UCL_7       95% UCL for X from ARIMA, MOD_9 CON
  SEP_7       SE of fit for X from ARIMA, MOD_9 CON
```

ملحق(10): ARMA(3,1,3)

```
MODEL:  MOD_10

Model Description:

Variable:   X
Regressors: NONE

Non-seasonal differencing: 1
No seasonal component in model.

Parameters:
AR1      _________  < value originating from estimation >
AR2      _________  < value originating from estimation >
AR3      _________  < value originating from estimation >
MA1      _________  < value originating from estimation >
MA2      _________  < value originating from estimation >
MA3      _________  < value originating from estimation >
CONSTANT _________  < value originating from estimation >

95.00 percent confidence intervals will be generated.

Split group number: 1  Series length: 63
Number of cases skipped at end because of missing values: 1
Melard's algorithm will be used for estimation.
_


Termination criteria:
Parameter epsilon: .001
Maximum Marquardt constant: 1.00E+09
SSQ Percentage: .001
Maximum number of iterations: 10

Initial values:

AR1      -1.46671
AR2      -1.24101
AR3       -.29767
MA1       -.24600
MA2       -.01317
MA3        .15943
CONSTANT -70.1457

Marquardt constant = .001
Adjusted sum of squares = 3702780499.3

             Iteration History:

  Iteration   Adj. Sum of Squares    Marquardt Constant

          1          2888771452.3              .100000
          2          2861654826.7              .010000
          3          2845588897.8              .001000
          4          2769857990.3             1.000000
          5          2746573424.5            10.000000
          6          2743289996.7             1.000000
          7          2731331813.4            10.000000
          8          2723995883.4             1.000000
```

```
          9          2715928378.6              .100000
_


Conclusion of estimation phase.
Estimation terminated at iteration number 10 because:
   Maximum number of iterations was exceeded.

FINAL PARAMETERS:

Number of residuals  62
Standard error       6730.5942
Log likelihood       -633.4107
AIC                  1280.8214
SBC                  1295.7113

            Analysis of Variance:

               DF  Adj. Sum of Squares    Residual Variance

Residuals      55         2712849322.2           45300898.3

           Variables in the Model:

                      B         SEB      T-RATIO   APPROX. PROB.

AR1           -1.479886     .548894   -2.6961259       .00929044
AR2           -1.243768     .515591   -2.4123158       .01921431
AR3            -.354698     .309703   -1.1452846       .25705046
MA1             .097149     .661945     .1467632       .88385559
MA2             .377823     .482712     .7827094       .43715496
MA3             .497748     .339827    1.4647102       .14869311
CONSTANT    -13.528327   28.505017    -.4745946       .63695500

Covariance Matrix:

                AR1           AR2           AR3           MA1
MA2

AR1       .30128421     .27095708     .16357389     .31381256   -
.18034590
AR2       .27095708     .26583401     .15512043     .27796938   -
.13974487
AR3       .16357389     .15512043     .09591570     .16917685   -
.08697574
MA1       .31381256     .27796938     .16917685     .43817165   -
.10403852
MA2      -.18034590    -.13974487    -.08697574    -.10403852
.23301058
MA3      -.04212081    -.07043971    -.02731553     .01644560
.04995188


                MA3

AR1      -.04212081
AR2      -.07043971
AR3      -.02731553
MA1       .01644560
MA2       .04995188
MA3       .11548236
```

—

Correlation Matrix:

	AR1	AR2	AR3	MA1	MA2
AR1	1.0000000	.9574300	.9622345	.8636942	-.6806601
AR2	.9574300	1.0000000	.9714465	.8144596	-.5614910
AR3	.9622345	.9714465	1.0000000	.8252280	-.5817889
MA1	.8636942	.8144596	.8252280	1.0000000	-.3255999
MA2	-.6806601	-.5614910	-.5817889	-.3255999	1.0000000
MA3	-.2258139	-.4020263	-.2595416	.0731088	.3045132

	MA3
AR1	-.2258139
AR2	-.4020263
AR3	-.2595416
MA1	.0731088
MA2	.3045132
MA3	1.0000000

Regressor Covariance Matrix:

	CONSTANT
CONSTANT	812.53600

Regressor Correlation Matrix:

	CONSTANT
CONSTANT	1.0000000

The following new variables are being created:

Name	Label
FIT_8	Fit for X from ARIMA, MOD_10 CON
ERR_8	Error for X from ARIMA, MOD_10 CON
LCL_8	95% LCL for X from ARIMA, MOD_10 CON
UCL_8	95% UCL for X from ARIMA, MOD_10 CON
SEP_8	SE of fit for X from ARIMA, MOD_10 CON

ملحق(11): ARMA(3,1,1)

MODEL: MOD_11

—

Model Description:

Variable: X
Regressors: NONE

Non-seasonal differencing: 1
No seasonal component in model.

Parameters:
AR1   _________ < value originating from estimation >
AR2   _________ < value originating from estimation >
AR3   _________ < value originating from estimation >
MA1   _________ < value originating from estimation >
CONSTANT _________ < value originating from estimation >

95.00 percent confidence intervals will be generated.

Split group number: 1 Series length: 63
Number of cases skipped at end because of missing values: 1
Melard's algorithm will be used for estimation.

Termination criteria:
Parameter epsilon: .001
Maximum Marquardt constant: 1.00E+09
SSQ Percentage: .001
Maximum number of iterations: 10

Initial values:

AR1   -.49832
AR2   -.21625
AR3   .17458
MA1   .34590
CONSTANT -128.054

Marquardt constant = .001
Adjusted sum of squares = 4189002644.8

Iteration History:

Iteration	Adj. Sum of Squares	Marquardt Constant
1	2999277766.3	.001000
2	2772102343.5	1.000000
3	2766507152.2	.100000
4	2760896303.3	1.000000
5	2737914397.0	10.000000
6	2734590305.0	1.000000
7	2714903112.0	10.000000
8	2712865029.8	1.000000
9	2712252447.7	10.000000

Number of residuals 62
Standard error   6634.6179
Log likelihood   -633.37007
AIC   1276.7401
SBC   1287.3758

Analysis of Variance:

	DF	Adj. Sum of Squares	Residual Variance
Residuals	57	2710848318.8	44018154.4

Variables in the Model:

	B	SEB	T-RATIO	APPROX. PROB.
AR1	-.601337	.149079	-4.0336780	.00016518
AR2	-.323404	.167660	-1.9289263	.05872450
AR3	.106744	.144039	.7410734	.46169115
MA1	.976537	.189162	5.1624407	.00000322
CONSTANT	-12.037079	28.237397	-.4262815	.67150834

Covariance Matrix:

	AR1	AR2	AR3	MA1
AR1	.02222457	.01696207	.01171480	.01210631
AR2	.01696207	.02810996	.01647494	.01398612
AR3	.01171480	.01647494	.02074732	.01080249
MA1	.01210631	.01398612	.01080249	.03578223

Correlation Matrix:

	AR1	AR2	AR3	MA1
AR1	1.0000000	.6786283	.5455532	.4293003
AR2	.6786283	1.0000000	.6822018	.4409947
AR3	.5455532	.6822018	1.0000000	.3964689
MA1	.4293003	.4409947	.3964689	1.0000000

Regressor Covariance Matrix:

	CONSTANT
CONSTANT	797.35059

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Regressor Correlation Matrix:

	CONSTANT
CONSTANT	1.0000000

ملحق(12): ARMA(3,1,2)

MODEL: MOD_12

Initial values:

AR1	.39028
AR2	.33166
AR3	.24070
MA1	1.03662
MA2	-.27798
CONSTANT	-843.300

Marquardt constant = .001
Adjusted sum of squares = 5532294913.0

Iteration History:

Iteration	Adj. Sum of Squares	Marquardt Constant
1	4694749565.0	.00100000
2	4307638770.1	.00010000
3	4178620977.8	.00001000
4	3535493186.5	.01000000
5	3158563416.5	.00100000
6	2852091296.3	.00010000
7	2746477927.2	.10000000
8	2737626207.2	.01000000
9	2728082227.3	.10000000

_

FINAL PARAMETERS:

Number of residuals	62
Standard error	6671.498
Log likelihood	-633.52022
AIC	1279.0404
SBC	1291.8033

Analysis of Variance:

	DF	Adj. Sum of Squares	Residual Variance
Residuals	56	2723841987.4	44508886.1

Variables in the Model:

	B	SEB	T-RATIO	APPROX. PROB.
AR1	-.613444	1.020306	-.60123582	.55010905
AR2	-.319204	.652221	-.48941127	.62646217
AR3	.114207	.418700	.27276615	.78603631
MA1	.925563	1.669033	.55455003	.58141060
MA2	.070199	.969610	.07239943	.94254201
CONSTANT	-13.119586	27.812175	-.47172096	.63895882

Covariance Matrix:

	AR1	AR2	AR3	MA1	MA2
AR1	1.0410238	.6531208	.4086950	1.3868145	-.9707916
AR2	.6531208	.4253925	.2647833	.9004565	-.6025256
AR3	.4086950	.2647833	.1753094	.5721425	-.3754611
MA1	1.3868145	.9004565	.5721425	2.7856727	-1.1876421
MA2	-.9707916	-.6025256	-.3754611	-1.1876421	.9401443

Correlation Matrix:

	AR1	AR2	AR3	MA1	MA2
AR1	1.0000000	.9814503	.9566794	.8143723	-.9812923
AR2	.9814503	1.0000000	.9696012	.8271853	-.9527596
AR3	.9566794	.9696012	1.0000000	.8187222	-.9248367
MA1	.8143723	.8271853	.8187222	1.0000000	-.7338770
MA2	-.9812923	-.9527596	-.9248367	-.7338770	1.0000000

—

Regressor Covariance Matrix:

	CONSTANT
CONSTANT	773.51709

Regressor Correlation Matrix:

	CONSTANT
CONSTANT	1.0000000