Lampiran 1 Output Program Minitab

ARIMA (2, 1, 0)

```
Final Estimates of Parameters
Type          Coef        StDev          T          P
AR    1     -0.0180      0.1243      -0.15      0.885
AR    2     -0.1596      0.1244      -1.28      0.204
Constant    0.00099      0.01295       0.08      0.939


Differencing: 1 regular difference
Number of observations:  Original series 67, after differencing 66
Residuals:    SS =  0.697354  (backforecasts excluded)
              MS = 0.011069  DF = 63


Modified Box-Pierce (Ljung-Box) Chi-Square statistic
Lag                  12          24          36          48
Chi-Square         11.9        20.1        28.8        54.4
DF                    9          21          33          45
P-Value           0.218       0.514       0.676       0.158
```

ARIMA (0, 1, 2)

```
Final Estimates of Parameters
Type          Coef        StDev          T          P
MA    1      0.0380      0.1249       0.30      0.762
MA    2      0.1287      0.1250       1.03      0.307
Constant    0.00089      0.01082       0.08      0.935


Differencing: 1 regular difference
Number of observations:  Original series 67, after differencing 66
Residuals:    SS =  0.701062  (backforecasts excluded)
              MS = 0.011128  DF = 63


Modified Box-Pierce (Ljung-Box) Chi-Square statistic
Lag                  12          24          36          48
Chi-Square         12.0        20.0        28.1        54.0
DF                    9          21          33          45
P-Value           0.213       0.520       0.709       0.168
```

Lampiran 2 Program SAS

```
data sales;
  input y x1 x2;
  ly=log(y);
cards;

/***
proc arima data=sales;
  identify var=ly(1) nlag=15;
  run;
  estimate p=(2) noconstant;
  run;
***/
/***
proc arima data=sales;
  identify var=ly(1) crosscor=(x1(1)) nlag=15;
  run;
  estimate p=(2) input=(x1) noconstant;
  run;
***/
/***
proc arima data=sales;
  identify var=ly(1) crosscor=(x2(1)) nlag=15;
  run;
  estimate p=(2) input=(1$ x2) noconstant;
  run;
  forecast lead=5;
  run;
***/
/***
proc arima data=sales;
  identify var=ly(1) crosscor=(x1(1) x2(1)) nlag=15;
  run;
  estimate p=(2) input=(x1 1$ x2) noconstant ;
  run;
  forecast lead=5;
  run;
***/
proc arima data=sales;
identify var=ly(1) crosscor=(x2(1)) nlag=15;
run;
estimate p=(2) input=(1$ x2) noconstant printall plot;
run;
forecast lead=5 out=fcast;
run;
proc print data=fcast;
run;
```

```
                         ARIMA Procedure

                   Name of variable = LY.
                   Period(s) of Differencing = 1.
                 Mean of working series = 0.001354
                 Standard deviation     = 0.105834
                 Number of observations =      66
      NOTE: The first observation was eliminated by differencing.


                                  Autocorrelations
Lag Covariance Correlation -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1      Std
 0   0.011201   1.00000   |                     |********************|       0
 1 0.00020861   0.01862   |                .    |    .               |    0.123091
 2 -0.0025482  -0.22750   |              *****|    .               |    0.123134
 3 -0.0008281  -0.07393   |                . *|    .               |    0.129346
 4  0.0022433   0.20028   |                .  |****.               |    0.129985
 5 0.00075634   0.06753   |                .  |*   .               |    0.134579
 6 -0.0019338  -0.17265   |                . ***|    .               |    0.135092
 7 -0.0018585  -0.16593   |                . ***|    .               |    0.138395
 8 -0.0011487  -0.10255   |                .  **|    .               |    0.141377
 9  0.0019367   0.17291   |                .  |***  .               |    0.142499
10 0.00052809   0.04715   |                .  |*   .               |    0.145644
11 -0.0004498  -0.04016   |                .  *|    .               |    0.145875
12 -0.0015395  -0.13745   |                . ***|    .               |    0.146042
13  0.0016757   0.14961   |                .  |***  .               |    0.147989
14  0.0013558   0.12104   |                .  |**   .               |    0.150263
15  -0.000838  -0.07482   |                .  *|    .               |    0.151733
                         "." marks two standard errors


                         ARIMA Procedure
                     Inverse Autocorrelations

         Lag Correlation -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
          1    0.00450   |                    .    |    .               |
          2    0.12856   |                    .    |*** .               |
          3   -0.02231   |                    .    |    .               |
          4   -0.11662   |                    .  **|    .               |
          5    0.01348   |                    .    |    .               |
          6    0.14831   |                    .    |*** .               |
          7    0.09425   |                    .    |**  .               |
          8    0.14545   |                    .    |*** .               |
          9   -0.06778   |                    .   *|    .               |
         10   -0.00111   |                    .    |    .               |
         11   -0.08965   |                    .  **|    .               |
         12    0.07877   |                    .    |**  .               |
         13   -0.06232   |                    .   *|    .               |
         14   -0.00141   |                    .    |    .               |
         15    0.04723   |                    .    |*   .               |
```

```
                    Partial Autocorrelations

Lag Correlation -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
  1    0.01862  |                    .    |    .              |
  2   -0.22793  |                *****|    .              |
  3   -0.06804  |                .    *|    .              |
  4    0.15964  |                .    |***  .              |
  5    0.03382  |                .    |*    .              |
  6   -0.11433  |                .  **|    .              |
  7   -0.12938  |                .  ***|    .              |
  8   -0.19649  |                .****|    .              |
  9    0.09747  |                .    |**   .              |
 10    0.02972  |                .    |*    .              |
 11    0.05854  |                .    |*    .              |
 12   -0.08902  |                .  **|    .              |
 13    0.09028  |                .    |**   .              |
 14    0.00117  |                .    |    .              |
 15   -0.05410  |                .    *|    .              |
```

Autocorrelation Check for White Noise

```
To    Chi                    Autocorrelations
Lag  Square DF  Prob
  6   9.51   6  0.147  0.019 -0.228 -0.074  0.200  0.068 -0.173
 12  16.65  12  0.163 -0.166 -0.103  0.173  0.047 -0.040 -0.137
```

ARIMA Procedure
Conditional Least Squares Estimation

```
                            Approx.
    Parameter    Estimate   Std Error   T Ratio  Lag
    AR1,1         0.02298    0.12170      0.19    1
    AR1,2        -0.22840    0.12176     -1.88    2
```

```
Variance  Estimate =  0.0109468
Std Error Estimate = 0.10462693
AIC               = -108.70181*
SBC               = -104.3225*
Number of Residuals=        66
* Does not include log determinant.
```

Correlations of the Estimates

```
    Parameter        AR1,1       AR1,2

    AR1,1            1.000      -0.019
    AR1,2           -0.019       1.000
```

```
                  Autocorrelation Check of Residuals


   To   Chi                       Autocorrelations
   Lag  Square DF   Prob
    6     3.61  4  0.462 -0.016  0.038 -0.061  0.126  0.016 -0.166
   12     9.18 10  0.515 -0.119 -0.145  0.143 -0.011  0.034 -0.118
   18    14.57 16  0.557  0.137  0.061 -0.064 -0.107 -0.099  0.112
   24    18.24 22  0.692 -0.068  0.096 -0.113  0.099  0.021 -0.009
```

```
                          ARIMA Procedure

                      Name of variable = LY.

                    Period(s) of Differencing = 1.
                    Mean of working series = 0.001354
                    Standard deviation     = 0.105834
                    Number of observations =       66
            NOTE: The first observation was eliminated by differencing.

                          Autocorrelations
```

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
0	0.011201	1.00000	||******************|
1	0.00020861	0.01862	| . | . |
2	-0.0025482	-0.22750	| *****| . |
3	-0.0008281	-0.07393	| . *| . |
4	0.0022433	0.20028	| . |****. |
5	0.00075634	0.06753	| . |* . |
6	-0.0019338	-0.17265	| . ***| . |
7	-0.0018585	-0.16593	| . ***| . |
8	-0.0011487	-0.10255	| . **| . |
9	0.0019367	0.17291	| . |*** . |
10	0.00052809	0.04715	| . |* . |
11	-0.0004498	-0.04016	| . *| . |
12	-0.0015395	-0.13745	| . ***| . |
13	0.0016757	0.14961	| . |*** . |
14	0.0013558	0.12104	| . |** . |
15	-0.000838	-0.07482	| . *| . |

```
                    "." marks two standard errors


                          ARIMA Procedure
                    Inverse Autocorrelations
```

Lag	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
1	0.00450	| . | . |
2	0.12856	| . |*** . |
3	-0.02231	| . | . |
4	-0.11662	| . **| . |
5	0.01348	| . | . |
6	0.14831	| . |*** . |
7	0.09425	| . |** . |
8	0.14545	| . |*** . |
9	-0.06778	| . *| . |
10	-0.00111	| . | . |
11	-0.08965	| . **| . |
12	0.07877	| . |** . |
13	-0.06232	| . *| . |
14	-0.00141	| . | . |
15	0.04723	| . |* . |

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ARIMA Procedure
Partial Autocorrelations

```
Lag Correlation  -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
  1   0.01862   |                     .    |    .              |
  2  -0.22793   |                   *****|    .              |
  3  -0.06804   |                     .  *|    .              |
  4   0.15964   |                     .   |***  .             |
  5   0.03382   |                     .   |*    .             |
  6  -0.11433   |                     . **|    .              |
  7  -0.12938   |                     .***|    .              |
  8  -0.19649   |                   .****|    .               |
  9   0.09747   |                     .   |**   .             |
 10   0.02972   |                     .   |*    .             |
 11   0.05854   |                     .   |*    .             |
 12  -0.08902   |                     . **|    .              |
 13   0.09028   |                     .   |**   .             |
 14   0.00117   |                     .   |     .             |
 15  -0.05410   |                     .  *|    .              |
```

Autocorrelation Check for White Noise

```
To   Chi                 Autocorrelations
Lag  Square DF  Prob
  6   9.51  6  0.147   0.019 -0.228 -0.074  0.200  0.068 -0.173
 12  16.65 12  0.163  -0.166 -0.103  0.173  0.047 -0.040 -0.137
```

ARIMA Procedure

Conditional Least Squares Estimation

```
                              Approx.
     Parameter   Estimate    Std Error   T Ratio  Lag
     AR1,1       -0.22797     0.12083     -1.89    2
```

Variance Estimate = 0.01078439
Std Error Estimate = 0.1038479
AIC   = -110.66505*
SBC   = -108.4754*
Number of Residuals=   66
* Does not include log determinant.

ARIMA Procedure
Autocorrelation Check of Residuals

```
To   Chi                 Autocorrelations
Lag  Square DF  Prob
  6   3.66  5  0.600   0.007  0.036 -0.061  0.126  0.017 -0.169
 12   9.25 11  0.599  -0.127 -0.145  0.141 -0.007  0.031 -0.115
 18  14.69 17  0.618   0.137  0.063 -0.065 -0.112 -0.100  0.109
 24  18.11 23  0.751  -0.063  0.092 -0.109  0.097  0.023 -0.007
```

Lampiran 5 Model dengan Pemberian Diskon

```
                           ARIMA Procedure

                        Name of variable = LY.


                     Period(s) of Differencing = 1.
                     Mean of working series = 0.001354
                     Standard deviation     = 0.105834
                     Number of observations =      66
          NOTE: The first observation was eliminated by differencing.


                           Autocorrelations

Lag Covariance Correlation -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
  0   0.011201    1.00000  |                     |*******************|
  1  0.00020861    0.01862  |                    .  |  .               |
  2  -0.0025482   -0.22750  |                 *****|     .             |
  3  -0.0008281   -0.07393  |                    . *|     .            |
  4   0.0022433    0.20028  |                    .  |**** .             |
  5  0.00075634    0.06753  |                    .  |*   .             |
  6  -0.0019338   -0.17265  |                   . ***|     .           |
  7  -0.0018585   -0.16593  |                   . ***|     .           |
  8  -0.0011487   -0.10255  |                    . **|     .           |
  9   0.0019367    0.17291  |                    .  |***  .            |
 10  0.00052809    0.04715  |                    .  |*   .             |
 11  -0.0004498   -0.04016  |                    . *|     .            |
 12  -0.0015395   -0.13745  |                    . ***|     .           |
 13   0.0016757    0.14961  |                    .  |***  .            |
 14   0.0013558    0.12104  |                    .  |**  .             |
 15  -0.000838    -0.07482  |                    . *|     .            |
                    "." marks two standard errors


                           ARIMA Procedure
                       Inverse Autocorrelations


 Lag Correlation -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
   1    0.00450  |                     .  |  .               |
   2    0.12856  |                     .  |*** .             |
   3   -0.02231  |                     .  |   .              |
   4   -0.11662  |                     .  **|   .             |
   5    0.01348  |                     .  |   .              |
   6    0.14831  |                     .  |*** .             |
   7    0.09425  |                     .  |**  .             |
   8    0.14545  |                     .  |*** .             |
   9   -0.06778  |                     .  *|   .             |
  10   -0.00111  |                     .  |   .              |
  11   -0.08965  |                     .  **|   .             |
  12    0.07877  |                     .  |**  .             |
  13   -0.06232  |                     .  *|   .             |
  14   -0.00141  |                     .  |   .              |
  15    0.04723  |                     .  |*   .             |
```

ARIMA Procedure
Partial Autocorrelations

```
Lag Correlation -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
  1    0.01862  |                      .        |  .           |
  2   -0.22793  |                   *****|        .           |
  3   -0.06804  |                      . *|        .           |
  4    0.15964  |                      .  |***     .           |
  5    0.03382  |                      .  |*       .           |
  6   -0.11433  |                      . **|        .           |
  7   -0.12938  |                      . ***|       .           |
  8   -0.19649  |                      .****|        .           |
  9    0.09747  |                      .  |**      .           |
 10    0.02972  |                      .  |*       .           |
 11    0.05854  |                      .  |*       .           |
 12   -0.08902  |                      . **|        .           |
 13    0.09028  |                      .  |**      .           |
 14    0.00117  |                      .  |        .           |
 15   -0.05410  |                      . *|        .           |
```

Autocorrelation Check for White Noise

```
To   Chi                  Autocorrelations
Lag  Square DF   Prob
  6   9.51   6  0.147   0.019 -0.228 -0.074  0.200  0.068 -0.173
 12  16.65  12  0.163  -0.166 -0.103  0.173  0.047 -0.040 -0.137
```

ARIMA Procedure

Correlation of LY and X1
Variable X1 has been differenced.
Period(s) of Differencing = 1.
Variance of input = 0.169014
Number of observations =   66
NOTE: The first observation was eliminated by differencing.

Crosscorrelations

```
Lag Covariance Correlation -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
-15 -0.0014880  -0.03612  |              . *|        .           |
-14 -0.0048155  -0.11689  |              . **|        .           |
-13 -0.0017349  -0.04211  |              . *|        .           |   .
-12 0.00041549   0.01009  |              .  |        .           |
-11 -0.0055020  -0.13356  |              . ***|       .           |
-10  0.0014487   0.03517  |              .  |*       .           |
 -9  0.0083316   0.20224  |              .  |****.               |
 -8  0.0069390   0.16844  |              .  |*** .               |
 -7 -0.0020939  -0.05083  |              . *|        .           |
 -6 -0.0065160  -0.15817  |              . ***|       .           |
 -5  0.0029939   0.07268  |              .  |*       .           |
 -4  0.0025158   0.06107  |              .  |*       .           |
 -3 -0.0018753  -0.04552  |              . *|        .           |
 -2 -0.0054935  -0.13335  |              . ***|        .           |
```

```
-1 -0.0024524   -0.05953   |              .   *|      .              |
 0  0.00079663    0.01934   |              .    |      .              |
 1 -0.0051480    -0.12496   |              .   **|     .              |
 2  0.0012910     0.03134   |              .    |*     .              |
 3  0.0085117     0.20662   |              .    |****  .              |
 4  0.0079777     0.19365   |              .    |****  .              |
 5  0.00053975    0.01310   |              .    |      .              |
 6 -0.0073994    -0.17962   |           .****|        .              |
 7 -0.0034151    -0.08290   |              .  **|      .              |
 8  0.0027234     0.06611   |              .    |*     .              |
 9  0.0056765     0.13779   |              .    |***   .              |
10 -0.0058835    -0.14282   |            . ***|        .              |
11 -0.0064277    -0.15603   |            . ***|        .              |
12  0.0017512     0.04251   |              .    |*     .              |
13  0.0018563     0.04506   |              .    |*     .              |
14  0.00081001    0.01966   |              .    |      .              |
15  0.0015975     0.03878   |              .    |*     .              |
```

"." marks two standard errors

ARIMA Procedure
Conditional Least Squares Estimation

		Approx.				
Parameter	Estimate	Std Error	T Ratio	Lag	Variable	Shift
AR1,1	-0.22831	0.12303	-1.86	2	LY	0
NUM1	-0.0009719	0.03684	-0.03	0	X1	0

Variance Estimate = 0.01095277
Std Error Estimate = 0.1046555
AIC   = -108.66578*
SBC   = -104.28647*
Number of Residuals=   66
* Does not include log determinant.

ARIMA Procedure
Correlations of the Estimates

		LY	X1
Variable	Parameter	AR1,1	NUM1
LY	AR1,1	1.000	0.143
X1	NUM1	0.143	1.000

ARIMA Procedure
Autocorrelation Check of Residuals

To Lag	Chi Square	DF	Prob	Autocorrelations					
6	3.69	5	0.595	0.007	0.036	-0.061	0.126	0.018	-0.170
12	9.28	11	0.596	-0.127	-0.144	0.142	-0.008	0.030	-0.114
18	14.69	17	0.618	0.136	0.063	-0.065	-0.111	-0.100	0.109
24	18.10	23	0.752	-0.063	0.092	-0.108	0.097	0.023	-0.007

ARIMA Procedure

Name of variable = LY.

Period(s) of Differencing = 1.
Mean of working series = 0.001354
Standard deviation   = 0.105834
Number of observations =   66
NOTE: The first observation was eliminated by differencing.

Autocorrelations

```
Lag Covariance  Correlation -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
  0   0.011201   1.00000   |                    |********************|
  1 0.00020861   0.01862   |                .   |   .                |
  2 -0.0025482  -0.22750   |            *****|   .                |
  3 -0.0008281  -0.07393   |              . *|   .                |
  4  0.0022433   0.20028   |              .  |****.                |
  5 0.00075634   0.06753   |              .  |*   .                |
  6 -0.0019338  -0.17265   |            . ***|   .                |
  7 -0.0018585  -0.16593   |            . ***|   .                |
  8 -0.0011487  -0.10255   |            .  **|   .                |
  9  0.0019367   0.17291   |              .  |*** .                |
 10 0.00052809   0.04715   |              .  |*   .                |
 11 -0.0004498  -0.04016   |              . *|   .                |
 12 -0.0015395  -0.13745   |            . ***|   .                |
 13  0.0016757   0.14961   |              .  |*** .                |
 14  0.0013558   0.12104   |              .  |**  .                |
 15  -0.000838  -0.07482   |              . *|   .                |
```

"." marks two standard errors

ARIMA Procedure
Inverse Autocorrelations

```
Lag Correlation -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
  1   0.00450   |                   .   |   .                |
  2   0.12856   |                   .   |*** .                |
  3  -0.02231   |                   .   |   .                |
  4  -0.11662   |                 . **|   .                |
  5   0.01348   |                   .   |   .                |
  6   0.14831   |                   .   |*** .                |
  7   0.09425   |                   .   |**  .                |
  8   0.14545   |                   .   |*** .                |
  9  -0.06778   |                   . *|   .                |
 10  -0.00111   |                   .   |   .                |
 11  -0.08965   |                 . **|   .                |
 12   0.07877   |                   .   |**  .                |
 13  -0.06232   |                   . *|   .                |
 14  -0.00141   |                   .   |   .                |
 15   0.04723   |                   .   |*   .                |
```

```
                         ARIMA Procedure
                     Partial Autocorrelations

   Lag Correlation -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
     1    0.01862   |                    .        |    .           |
     2   -0.22793   |                   *****|    .           |
     3   -0.06804   |                    .  *|    .           |
     4    0.15964   |                    .   |***  .           |
     5    0.03382   |                    .   |*    .           |
     6   -0.11433   |                    .  **|   .           |
     7   -0.12938   |                    .  ***|   .           |
     8   -0.19649   |                   .****|    .           |
     9    0.09747   |                    .   |**   .           |
    10    0.02972   |                    .   |*    .           |
    11    0.05854   |                    .   |*    .           |
    12   -0.08902   |                    .  **|   .           |
    13    0.09028   |                    .   |**   .           |
    14    0.00117   |                    .   |    .           |
    15   -0.05410   |                    .  *|    .           |
```

                   Autocorrelation Check for White Noise

```
   To   Chi                     Autocorrelations
   Lag  Square DF   Prob
    6    9.51  6  0.147  0.019 -0.228 -0.074  0.200  0.068 -0.173
   12   16.65 12  0.163 -0.166 -0.103  0.173  0.047 -0.040 -0.137
```

                         ARIMA Procedure

                     Correlation of LY and X2
                  Variable X2 has been differenced.
                    Period(s) of Differencing = 1.
                     Variance of input = 13632.22
                   Number of observations =   66
          NOTE: The first observation was eliminated by differencing.

                          Crosscorrelations

```
Lag Covariance Correlation -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
-15   0.423141   0.03310  |                    .   |*    .           |
-14   1.609571   0.12589  |                    .   |***  .           |
-13   0.016507   0.00129  |                    .   |    .           |
-12  -0.496350  -0.03882  |                    .  *|    .           |
-11  -2.359306  -0.18453  |                   .****|    .           |
-10   1.366687   0.10690  |                    .   |**   .           |
 -9  -0.295221  -0.02309  |                    .   |    .           |
 -8  -2.361990  -0.18474  |                   .****|    .           |
 -7  -0.651676  -0.05097  |                    .  *|    .           |
 -6   1.819532   0.14232  |                    .   |***  .           |
 -5   0.360355   0.02819  |                    .   |*    .           |
 -4   0.526297   0.04116  |                    .   |*    .           |
 -3   0.648389   0.05071  |                    .   |*    .           |
 -2   4.927418   0.38540  |                    .   |*******          |
 -1   0.160552   0.01256  |                    .   |    .           |
  0  -0.384585  -0.03008  |                    .  *|    .           |
  1  -4.227402  -0.33065  |             *******|    .           |
```

```
 2  -0.718658   -0.05621  |          .    * |    .           |
 3   0.0083024   0.00065  |          .      |    .           |
 4   0.623996    0.04881  |          .      |*   .           |
 5  -1.733267   -0.13557  |          . *** |    .           |
 6  -2.934856   -0.22955  |        *****|    .           |
 7   2.017957    0.15784  |          .    |*** .           |
 8   1.262015    0.09871  |          .    |** .           |
 9   0.589730    0.04613  |          .    |*  .           |
10   0.486095    0.03802  |          .    |*  .           |
11   0.291938    0.02283  |          .    |   .           |
12   0.124190    0.00971  |          .    |   .           |
13  -1.403228   -0.10975  |          . ** |    .           |
14  -0.274202   -0.02145  |          .    |   .           |
15  -0.015546   -0.00122  |          .    |   .           |
```

". " marks two standard errors

ARIMA Procedure
Conditional Least Squares Estimation

		Approx.				
Parameter	Estimate	Std Error	T Ratio	Lag	Variable	Shift
AR1,1	-0.24151	0.12941	-1.87	2	LY	0
NUM1	0.00003921	0.0001068	0.37	0	X2	0

Variance Estimate = 0.01092882
Std Error Estimate = 0.10454099
AIC   = -108.81028*
SBC   = -104.43098*
Number of Residuals=   66
* Does not include log determinant.

ARIMA Procedure
Correlations of the Estimates

		LY	X2
Variable	Parameter	AR1,1	NUM1
LY	AR1,1	1.000	-0.347
X2	NUM1	-0.347	1.000

ARIMA Procedure
Autocorrelation Check of Residuals

To Lag	Chi Square	DF	Prob	Autocorrelations					
6	3.36	5	0.644	0.025	0.035	-0.059	0.114	0.018	-0.164
12	8.99	11	0.623	-0.129	-0.144	0.140	-0.015	0.046	-0.112
18	14.58	17	0.626	0.145	0.055	-0.063	-0.116	-0.101	0.107
24	17.99	23	0.758	-0.061	0.092	-0.110	0.098	0.024	-0.002

ARIMA Procedure

Name of variable = LY.

Period(s) of Differencing = 1.
Mean of working series = 0.001354
Standard deviation   = 0.105834
Number of observations =   66
NOTE: The first observation was eliminated by differencing.

Autocorrelations

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1	Std
0	0.011201	1.00000	|*******************|	0
1	0.00020861	0.01862	. | .	0.123091
2	-0.0025482	-0.22750	*****| .	0.123134
3	-0.0008281	-0.07393	. *| .	0.129346
4	0.0022433	0.20028	. |****.	0.129985
5	0.00075634	0.06753	. |* .	0.134579
6	-0.0019338	-0.17265	. ***| .	0.135092
7	-0.0018585	-0.16593	. ***| .	0.138395
8	-0.0011487	-0.10255	. **| .	0.141377
9	0.0019367	0.17291	. |*** .	0.142499
10	0.00052809	0.04715	. |* .	0.145644
11	-0.0004498	-0.04016	. *| .	0.145875
12	-0.0015395	-0.13745	. ***| .	0.146042
13	0.0016757	0.14961	. |*** .	0.147989
14	0.0013558	0.12104	. |** .	0.150263
15	-0.000838	-0.07482	. *| .	0.151733

"." marks two standard errors

ARIMA Procedure
Inverse Autocorrelations

Lag	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1	
1	0.00450	. | .	
2	0.12856	. |*** .	
3	-0.02231	. | .	
4	-0.11662	. **| .	
5	0.01348	. | .	
6	0.14831	. |*** .	
7	0.09425	. |** .	
8	0.14545	. |*** .	
9	-0.06778	. *| .	
10	-0.00111	. | .	
11	-0.08965	. **| .	
12	0.07877	. |** .	
13	-0.06232	. *| .	
14	-0.00141	. | .	
15	0.04723	. |* .	

```
                        Partial Autocorrelations

           Lag Correlation -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
            1     0.01862  |                    .      |   .           |
            2    -0.22793  |                *****|      .              |
            3    -0.06804  |                  . *|      .              |
            4     0.15964  |                  .  |***   .              |
            5     0.03382  |                  .  |*     .              |
            6    -0.11433  |                  . **|      .             |
            7    -0.12938  |                  . ***|     .             |
            8    -0.19649  |                  .****|     .             |
            9     0.09747  |                  .   |**   .              |
           10     0.02972  |                  .   |*    .              |
           11     0.05854  |                  .   |*    .              |
           12    -0.08902  |                  . **|      .             |
           13     0.09028  |                  .   |**   .              |
           14     0.00117  |                  .   |      .             |
           15    -0.05410  |                  .  *|      .             |
```

```
                  Autocorrelation Check for White Noise

        To    Chi                    Autocorrelations
        Lag  Square  DF    Prob
         6    9.51   6    0.147   0.019 -0.228 -0.074  0.200  0.068 -0.173
        12   16.65  12    0.163  -0.166 -0.103  0.173  0.047 -0.040 -0.137
```

```
                          ARIMA Procedure

                     Correlation of LY and X1
                   Variable X1 has been differenced.
                    Period(s) of Differencing = 1.
                     Variance of input = 0.169014
                    Number of observations =        66
        NOTE: The first observation was eliminated by differencing.
```

```
                          Crosscorrelations

Lag Covariance Correlation -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
-15 -0.0014880  -0.03612  |                  . *|      .              |
-14 -0.0048155  -0.11689  |                  . **|      .             |
-13 -0.0017349  -0.04211  |                  . *|      .              |
-12  0.00041549  0.01009  |                  .   |      .             |
-11 -0.0055020  -0.13356  |                  . ***|     .             |
-10  0.0014487   0.03517  |                  .   |*    .              |
 -9  0.0083316   0.20224  |                  .   |****..              |
 -8  0.0069390   0.16844  |                  .   |***  .              |
 -7 -0.0020939  -0.05083  |                  . *|      .              |
 -6 -0.0065160  -0.15817  |                  . ***|     .             |
 -5  0.0029939   0.07268  |                  .   |*    .              |
 -4  0.0025158   0.06107  |                  .   |*    .              |
 -3 -0.0018753  -0.04552  |                  . *|      .              |
 -2 -0.0054935  -0.13335  |                  . ***|     .             |
 -1 -0.0024524  -0.05953  |                  . *|      .              |
  0  0.00079663  0.01934  |                  .   |      .             |
  1 -0.0051480  -0.12496  |                  . **|      .             |
```

2	0.0012910	0.03134			.		*	.	
3	0.0085117	0.20662			.		****	.	
4	0.0079777	0.19365			.		****	.	
5	0.00053975	0.01310			.			.	
6	-0.0073994	-0.17962			.****		.	
7	-0.0034151	-0.08290			. **		.	
8	0.0027234	0.06611			.		*	.	
9	0.0056765	0.13779			.		***	.	
10	-0.0058835	-0.14282			. ***		.	
11	-0.0064277	-0.15603			. ***		.	
12	0.0017512	0.04251			.		*	.	
13	0.0018563	0.04506			.		*	.	
14	0.00081001	0.01966			.			.	
15	0.0015975	0.03878			.		*	.	

"." marks two standard errors

ARIMA Procedure

Correlation of LY and X2
Variable X2 has been differenced.
Period(s) of Differencing = 1.
Variance of input = 13632.22
Number of observations =   66
NOTE: The first observation was eliminated by differencing.

Crosscorrelations

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
-15	0.423141	0.03310	| . |* . |
-14	1.609571	0.12589	| . |*** . |
-13	0.016507	0.00129	| . | . |
-12	-0.496350	-0.03882	| . *| . |
-11	-2.359306	-0.18453	| .****| . |
-10	1.366687	0.10690	| . |** . |
-9	-0.295221	-0.02309	| . | . |
-8	-2.361990	-0.18474	| .****| . |
-7	-0.651676	-0.05097	| . *| . |
-6	1.819532	0.14232	| . |*** . |
-5	0.360355	0.02819	| . |* . |
-4	0.526297	0.04116	| . |* . |
-3	0.648389	0.05071	| . |* . |
-2	4.927418	0.38540	| . |******* |
-1	0.160552	0.01256	| . | . |
0	-0.384585	-0.03008	| . *| . |
1	-4.227402	-0.33065	| *******| . |
2	-0.718658	-0.05621	| . *| . |
3	0.0083024	0.00065	| . | . |
4	0.623996	0.04881	| . |* . |
5	-1.733267	-0.13557	| . ***| . |
6	-2.934856	-0.22955	| *****| . |
7	2.017957	0.15784	| . |*** . |
8	1.262015	0.09871	| . |** . |
9	0.589730	0.04613	| . |* . |
10	0.486095	0.03802	| . |* . |
11	0.291938	0.02283	| . | . |
12	0.124190	0.00971	| . | . |

```
13  -1.403228   -0.10975  |          .   **|     .              |
14  -0.274202   -0.02145  |              .   |     .              |
15  -0.015546   -0.00122  |              .   |     .              |
```

"." marks two standard errors

ARIMA Procedure
Conditional Least Squares Estimation

Parameter	Estimate	Approx. Std Error	T Ratio	Lag	Variable	Shift
AR1,1	-0.24202	0.13196	-1.83	2	LY	0
NUM1	-0.0014031	0.03731	-0.04	0	X1	0
NUM2	0.00003932	0.0001077	0.36	0	X2	0

Variance Estimate = 0.01110204
Std Error Estimate = 0.10536621
AIC   = -106.81179*
SBC   = -100.24282*
Number of Residuals=   66
* Does not include log determinant.

Correlations of the Estimates

| | | LY | X1 | X2 |
Variable	Parameter	AR1,1	NUM1	NUM2
LY	AR1,1	1.000	0.153	-0.351
X1	NUM1	0.153	1.000	-0.054
X2	NUM2	-0.351	-0.054	1.000

Autocorrelation Check of Residuals

To Lag	Chi Square	DF	Prob	Autocorrelations					
6	3.40	5	0.639	0.024	0.035	-0.058	0.115	0.018	-0.166
12	9.03	11	0.619	-0.129	-0.143	0.141	-0.015	0.045	-0.112
18	14.58	17	0.626	0.144	0.055	-0.063	-0.115	-0.101	0.106
24	17.97	23	0.759	-0.062	0.092	-0.109	0.098	0.023	-0.002

ARIMA Procedure

Forecasts for variable LY

Obs	Forecast	Std Error	Lower 95%	Upper 95%
68	8.6379	0.1054	8.4314	8.8444
69	8.6385	0.1490	8.3464	8.9306
70	8.6415	0.1691	8.3101	8.9728
71	8.6413	0.1870	8.2749	9.0078
72	8.6409	0.2058	8.2375	9.0443

```
                          ARIMA Procedure

                       Name of variable = LY.

                   Period(s) of Differencing = 1.
                   Mean of working series = 0.001354
                   Standard deviation     = 0.105834
                   Number of observations =      66
         NOTE: The first observation was eliminated by differencing.

                          Autocorrelations

Lag Covariance Correlation -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
  0   0.011201    1.00000  |                    |********************|
  1 0.00020861    0.01862  |                 .  |  .                 |
  2 -0.0025482   -0.22750  |              *****| .                    |
  3 -0.0008281   -0.07393  |                .  *| .                   |
  4  0.0022433    0.20028  |                .   |****.                |
  5 0.00075634    0.06753  |                .   |*   .                |
  6 -0.0019338   -0.17265  |              . ***| .                    |
  7 -0.0018585   -0.16593  |              . ***| .                    |
  8 -0.0011487   -0.10255  |              . **| .                     |
  9  0.0019367    0.17291  |                .   |*** .                |
 10 0.00052809    0.04715  |                .   |*   .                |
 11 -0.0004498   -0.04016  |                .  *| .                   |
 12 -0.0015395   -0.13745  |                . ***| .                  |
 13  0.0016757    0.14961  |                .   |*** .                |
 14  0.0013558    0.12104  |                .   |**  .                |
 15 -0.000838    -0.07482  |                .  *| .                   |
                   "." marks two standard errors


                          ARIMA Procedure
                      Inverse Autocorrelations

          Lag Correlation -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
            1   0.00450   |                 .  |  .                 |
            2   0.12856   |                 .  |*** .               |
            3  -0.02231   |                 .  | .                  |
            4  -0.11662   |                 . **| .                 |
            5   0.01348   |                 .  | .                  |
            6   0.14831   |                 .  |*** .               |
            7   0.09425   |                 .  |**  .               |
            8   0.14545   |                 .  |*** .               |
            9  -0.06778   |                 . *| .                  |
           10  -0.00111   |                 .  | .                  |
           11  -0.08965   |                 . **| .                 |
           12   0.07877   |                 .  |**  .               |
           13  -0.06232   |                 . *| .                  |
           14  -0.00141   |                 .  | .                  |
           15   0.04723   |                 .  |*   .               |
```

ARIMA Procedure
Partial Autocorrelations

```
Lag Correlation -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
  1    0.01862  |                .     |   .                 |
  2   -0.22793  |              *****|   .                    |
  3   -0.06804  |                . *|   .                    |
  4    0.15964  |                .  |***  .                  |
  5    0.03382  |                .  |*    .                  |
  6   -0.11433  |                . **|   .                   |
  7   -0.12938  |                . ***|  .                   |
  8   -0.19649  |               .****|   .                   |
  9    0.09747  |                .  |**   .                  |
 10    0.02972  |                .  |*    .                  |
 11    0.05854  |                .  |*    .                  |
 12   -0.08902  |                . **|   .                   |
 13    0.09028  |                .  |**   .                  |
 14    0.00117  |                .  |     .                  |
 15   -0.05410  |                . *|     .                  |
```

Autocorrelation Check for White Noise

```
To   Chi                 Autocorrelations
Lag  Square DF  Prob
 6    9.51   6  0.147   0.019 -0.228 -0.074  0.200  0.068 -0.173
12   16.65  12  0.163  -0.166 -0.103  0.173  0.047 -0.040 -0.137
```

ARIMA Procedure
Conditional Least Squares Estimation

```
                              Approx.
     Parameter   Estimate   Std Error   T Ratio  Lag
     AR1,1       -0.22797     0.12083    -1.89    2
```

Variance Estimate = 0.01078439
Std Error Estimate = 0.1038479
AIC   = -110.66505*
SBC   = -108.4754*
Number of Residuals=   66
* Does not include log determinant.

ARIMA Procedure
Autocorrelation Check of Residuals

```
To   Chi                 Autocorrelations
Lag  Square DF  Prob
 6    3.66   5  0.600   0.007  0.036 -0.061  0.126  0.017 -0.169
12    9.25  11  0.599  -0.127 -0.145  0.141 -0.007  0.031 -0.115
18   14.69  17  0.618   0.137  0.063 -0.065 -0.112 -0.100  0.109
24   18.11  23  0.751  -0.063  0.092 -0.109  0.097  0.023 -0.007
```

```
                              ARIMA Procedure

                           Name of variable = LY.


                        Period(s) of Differencing = 1.
                        Mean of working series = 0.001354
                        Standard deviation     = 0.105834
                        Number of observations =       66
                 NOTE: The first observation was eliminated by differencing.


                                Autocorrelations

Lag Covariance Correlation -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
  0   0.011201   1.00000   |                        |********************|
  1  0.00020861   0.01862  |                    .   |   .                |
  2 -0.0025482   -0.22750  |                *****|   .                    |
  3 -0.0008281   -0.07393  |                    .  *|   .                 |
  4  0.0022433    0.20028  |                    .   |****.                |
  5  0.00075634   0.06753  |                    .   |*   .                |
  6 -0.0019338   -0.17265  |                 .  ***|    .                 |
  7 -0.0018585   -0.16593  |                 .  ***|    .                 |
  8 -0.0011487   -0.10255  |                 .   **|    .                 |
  9  0.0019367    0.17291  |                 .     |***  .                |
 10 0.00052809    0.04715  |                 .     |*    .                |
 11 -0.0004498   -0.04016  |                 .    *|     .                |
 12 -0.0015395   -0.13745  |                 .   ***|    .                |
 13  0.0016757    0.14961  |                 .     |***  .                |
 14  0.0013558    0.12104  |                 .     |**   .                |
 15 -0.000838    -0.07482  |                 .    *|     .                |
                 "." marks two standard errors

                              ARIMA Procedure
                        Inverse Autocorrelations

      Lag Correlation -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
        1    0.00450  |                    .   |   .                |
        2    0.12856  |                    .   |*** .                |
        3   -0.02231  |                    .   |   .                |
        4   -0.11662  |                    .  **|   .                |
        5    0.01348  |                    .   |   .                |
        6    0.14831  |                    .   |*** .                |
        7    0.09425  |                    .   |**  .                |
        8    0.14545  |                    .   |*** .                |
        9   -0.06778  |                    .  *|   .                |
       10   -0.00111  |                    .   |   .                |
       11   -0.08965  |                    .  **|   .                |
       12    0.07877  |                    .   |**  .                |
       13   -0.06232  |                    .  *|   .                |
       14   -0.00141  |                    .   |   .                |
       15    0.04723  |                    .   |*   .                |
```

```
                           ARIMA Procedure
                       Partial Autocorrelations

      Lag Correlation -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
       1    0.01862   |                    .        |  .               |
       2   -0.22793   |                    *****|   .               |
       3   -0.06804   |                    `.   *|   .               |
       4    0.15964   |                    .        |***  .            |
       5    0.03382   |                    .        |*    .            |
       6   -0.11433   |                    .   **|   .               |
       7   -0.12938   |                    .  ***|   .               |
       8   -0.19649   |                    .****|   .               |
       9    0.09747   |                    .        |**   .            |
      10    0.02972   |                    .        |*    .            |
      11    0.05854   |                    .        |*    .            |
      12   -0.08902   |                    .   **|   .               |
      13    0.09028   |                    .        |**   .            |
      14    0.00117   |                    .        |     .            |
      15   -0.05410   |                    .    *|   .               |
```

```
                  Autocorrelation Check for White Noise

       To    Chi                    Autocorrelations
      Lag  Square DF   Prob
       6    9.51   6  0.147   0.019 -0.228 -0.074  0.200  0.068 -0.173
      12   16.65  12  0.163  -0.166 -0.103  0.173  0.047 -0.040 -0.137
```

```
                           ARIMA Procedure

                       Correlation of LY and X1
                    Variable X1 has been differenced.
                    Period(s) of Differencing = 1.
                     Variance of input = 0.169014
                    Number of observations =        66
          NOTE: The first observation was eliminated by differencing.

                          Crosscorrelations
```

```
Lag Covariance Correlation -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
-15 -0.0014880   -0.03612  |                  .   *|   .               |
-14 -0.0048155   -0.11689  |                  .  **|   .               |
-13 -0.0017349   -0.04211  |                  .   *|   .               |
-12  0.00041549   0.01009  |                  .    |   .               |
-11 -0.0055020   -0.13356  |                  . ***|   .               |
-10  0.0014487    0.03517  |                  .    |*  .               |
 -9  0.0083316    0.20224  |                  .    |****.               |
 -8  0.0069390    0.16844  |                  .    |*** .               |
 -7 -0.0020939   -0.05083  |                  .   *|   .               |
 -6 -0.0065160   -0.15817  |                  . ***|   .               |
 -5  0.0029939    0.07268  |                  .    |*  .               |
 -4  0.0025158    0.06107  |                  .    |*  .               |
 -3 -0.0018753   -0.04552  |                  .   *|   .               |
 -2 -0.0054935   -0.13335  |                  . ***|   .               |
 -1 -0.0024524   -0.05953  |                  .   *|   .               |
  0  0.00079663   0.01934  |                  .    |   .               |
  1 -0.0051480   -0.12496  |                  .  **|   .               |
```

```
 2  0.0012910    0.03134  |          .        |*   .        |
 3  0.0085117    0.20662  |          .        |****.        |
 4  0.0079777    0.19365  |          .        |****.        |
 5 0.00053975    0.01310  |          .        |    .        |
 6 -0.0073994   -0.17962  |        .****|     .           |
 7 -0.0034151   -0.08290  |          .   **|    .           |
 8  0.0027234    0.06611  |          .     |*   .        |
 9  0.0056765    0.13779  |          .     |*** .        |
10 -0.0058835   -0.14282  |        . ***|      .           |
11 -0.0064277   -0.15603  |        . ***|      .           |
12  0.0017512    0.04251  |          .     |*   .        |
13  0.0018563    0.04506  |          .     |*   .        |
14 0.00081001    0.01966  |          .     |    .        |
15  0.0015975    0.03878  |          .     |*   .        |
```

"." marks two standard errors

ARIMA Procedure
Conditional Least Squares Estimation

		Approx.				
Parameter	Estimate	Std Error	T Ratio	Lag	Variable	Shift
AR1,1	-0.22831	0.12303	-1.86	2	LY	0
NUM1	-0.0009719	0.03684	-0.03	0	X1	0

Variance Estimate = 0.01095277
Std Error Estimate = 0.1046555
AIC   = -108.66578*
SBC   = -104.28647*
Number of Residuals=   66
* Does not include log determinant.

ARIMA Procedure
Correlations of the Estimates

Variable	Parameter	LY AR1,1	X1 NUM1
LY	AR1,1	1.000	0.143
X1	NUM1	0.143	1.000

ARIMA Procedure
Autocorrelation Check of Residuals

To Lag	Chi Square	DF	Prob	Autocorrelations					
6	3.69	5	0.595	0.007	0.036	-0.061	0.126	0.018	-0.170
12	9.28	11	0.596	-0.127	-0.144	0.142	-0.008	0.030	-0.114
18	14.69	17	0.618	0.136	0.063	-0.065	-0.111	-0.100	0.109
24	18.10	23	0.752	-0.063	0.092	-0.108	0.097	0.023	-0.007

```
                                ARIMA Procedure

                            Name of variable = LY.

                         Period(s) of Differencing = 1.
                         Mean of working series = 0.001354
                         Standard deviation     = 0.105834
                         Number of observations =       66
                   NOTE: The first observation was eliminated by differencing.


                                Autocorrelations

Lag Covariance Correlation -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
  0   0.011201   1.00000   |                        |********************|
  1 0.00020861   0.01862   |                    .   |   .                |
  2 -0.0025482  -0.22750   |               *****|   .                    |
  3 -0.0008281  -0.07393   |                  . *|   .                    |
  4  0.0022433   0.20028   |                  .  |****.                   |
  5 0.00075634   0.06753   |                  .  |*   .                   |
  6 -0.0019338  -0.17265   |                  .***|   .                   |
  7 -0.0018585  -0.16593   |                  . ***|   .                  |
  8 -0.0011487  -0.10255   |                  .  **|   .                  |
  9  0.0019367   0.17291   |                  .  |***  .                  |
 10 0.00052809   0.04715   |                  .  |*   .                   |
 11 -0.0004498  -0.04016   |                  .  *|   .                   |
 12 -0.0015395  -0.13745   |                  . ***|   .                  |
 13  0.0016757   0.14961   |                  .  |***  .                  |
 14  0.0013558   0.12104   |                  .  |**   .                  |
 15 -0.000838   -0.07482   |                  .  *|   .                   |
                           "." marks two standard errors


                                ARIMA Procedure
                           Inverse Autocorrelations

    Lag Correlation -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
     1    0.00450   |              .   |   .                 |
     2    0.12856   |              .   |***  .               |
     3   -0.02231   |              .   |   .                 |
     4   -0.11662   |              .  **|   .                 |
     5    0.01348   |              .   |   .                 |
     6    0.14831   |              .   |***  .               |
     7    0.09425   |              .   |**   .               |
     8    0.14545   |              .   |***  .               |
     9   -0.06778   |              .  *|   .                 |
    10   -0.00111   |              .   |   .                 |
    11   -0.08965   |              .  **|   .                 |
    12    0.07877   |              .   |**   .               |
    13   -0.06232   |              .  *|   .                 |
    14   -0.00141   |              .   |   .                 |
    15    0.04723   |              .   |*    .               |
```

ARIMA Procedure
Partial Autocorrelations

Lag	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
1	0.01862	. | .
2	-0.22793	*****| .
3	-0.06804	. *| .
4	0.15964	. |*** .
5	0.03382	. |* .
6	-0.11433	. **| .
7	-0.12938	. ***| .
8	-0.19649	.****| .
9	0.09747	. |** .
10	0.02972	. |* .
11	0.05854	. |* .
12	-0.08902	. **| .
13	0.09028	. |** .
14	0.00117	. | .
15	-0.05410	. *| .

Autocorrelation Check for White Noise

To Lag	Chi Square	DF	Prob	Autocorrelations
6	9.51	6	0.147	0.019 -0.228 -0.074 0.200 0.068 -0.173
12	16.65	12	0.163	-0.166 -0.103 0.173 0.047 -0.040 -0.137

ARIMA Procedure

Correlation of LY and X2
Variable X2 has been differenced.
Period(s) of Differencing = 1.
Variance of input = 13632.22
Number of observations = 66
NOTE: The first observation was eliminated by differencing.

Crosscorrelations

Lag	Covariance	Correlation	-1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
-15	0.423141	0.03310	. |* .
-14	1.609571	0.12589	. |*** .
-13	0.016507	0.00129	. | .
-12	-0.496350	-0.03882	. *| .
-11	-2.359306	-0.18453	.****| .
-10	1.366687	0.10690	. |** .
-9	-0.295221	-0.02309	. | .
-8	-2.361990	-0.18474	.****| .
-7	-0.651676	-0.05097	. *| .
-6	1.819532	0.14232	. |*** .
-5	0.360355	0.02819	. |* .
-4	0.526297	0.04116	. |* .
-3	0.648389	0.05071	. |* .
-2	4.927418	0.38540	. |*******
-1	0.160552	0.01256	. | .
0	-0.384585	-0.03008	. *| .

```
 1   -4.227402   -0.33065   |        ******|      .          |
 2   -0.718658   -0.05621   |          .  *|      .          |
 3    0.0083024   0.00065   |          .   |      .          |
 4    0.623996    0.04881   |          .   |*     .          |
 5   -1.733267   -0.13557   |          . ***|     .          |
 6   -2.934856   -0.22955   |        *****|       .          |
 7    2.017957    0.15784   |          .   |***   .          |
 8    1.262015    0.09871   |          .   |**    .          |
 9    0.589730    0.04613   |          .   |*     .          |
10    0.486095    0.03802   |          .   |*     .          |
11    0.291938    0.02283   |          .   |      .          |
12    0.124190    0.00971   |          .   |      .          |
13   -1.403228   -0.10975   |          . **|      .          |
14   -0.274202   -0.02145   |          .   |      .          |
15   -0.015546   -0.00122   |          .   |      .          |
```

                "." marks two standard errors

                    ARIMA Procedure
            Conditional Least Squares Estimation

                        Approx.
    Parameter   Estimate   Std Error   T Ratio Lag Variable Shift
    AR1,1   -0.24151   0.12941   -1.87   2   LY   0
    NUM1   0.00003921   0.0001068   0.37   0   X2   0

    Variance Estimate = 0.01092882
    Std Error Estimate = 0.10454099
    AIC   = -108.81028*
    SBC   = -104.43098*
    Number of Residuals=   66
    * Does not include log determinant.

                    ARIMA Procedure
            Correlations of the Estimates

                                      LY   X2
        Variable   Parameter   AR1,1   NUM1

        LY   AR1,1   1.000   -0.347
        X2   NUM1   -0.347   1.000

                    ARIMA Procedure
            Autocorrelation Check of Residuals

    To   Chi   Autocorrelations
    Lag Square DF   Prob
     6   3.36   5 0.644   0.025 0.035 -0.059 0.114 0.018 -0.164
    12   8.99 11 0.623 -0.129 -0.144 0.140 -0.015 0.046 -0.112
    18   14.58 17 0.626   0.145 0.055 -0.063 -0.116 -0.101 0.107
    24   17.99 23 0.758 -0.061 0.092 -0.110 0.098 0.024 -0.002
```

```
                           ARIMA Procedure
                   Conditional Least Squares Estimation

                            Approx.
Parameter    Estimate      Std Error   T Ratio  Lag  Variable Shift
AR1,1        -0.25156       0.12446     -2.02    2   LY          0
NUM1        -0.0017089      0.03550     -0.05    0   X1          0
NUM2        -0.0002675    0.00009554    -2.80    0   X2          1
Variance  Estimate = 0.00999433
Std Error Estimate = 0.09997164
AIC               = -111.98236*
SBC               =  -105.4592*
Number of Residuals=        65
* Does not include log determinant.


                           ARIMA Procedure
                    Correlations of the Estimates

                                  LY          X1          X2
         Variable    Parameter    AR1,1      NUM1        NUM2

         LY          AR1,1        1.000      0.153       -0.015
         X1          NUM1         0.153      1.000       -0.002
         X2          NUM2        -0.015     -0.002        1.000


                           ARIMA Procedure

                    Autocorrelation Check of Residuals

To   Chi                     Autocorrelations
Lag  Square DF   Prob
 6    2.94   5  0.709 -0.010  0.036  0.095  0.120 -0.014 -0.126
12    9.45  11  0.580 -0.093 -0.159  0.081 -0.040  0.048 -0.194
18   14.03  17  0.665  0.151  0.041 -0.001 -0.113 -0.040  0.116
24   17.39  23  0.790 -0.051  0.081 -0.111  0.111 -0.004 -0.013
```

Lampiran 9 Model dengan Kenaikkan Harga

```
                              ARIMA Procedure

                          Name of variable = LY.
                     Period(s) of Differencing = 1.
                    Mean of working series = 0.001354
                    Standard deviation     = 0.105834
            ·       Number of observations =       66
          NOTE: The first observation was eliminated by differencing.


                              Autocorrelations

Lag Covariance Correlation -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
  0    0.011201    1.00000  |                         |*******************|
  1 0.00020861     0.01862  |                    .    |     .             |
  2 -0.0025482    -0.22750  |                   *****|      .             |
  3 -0.0008281    -0.07393  |                    .   *|     .             |
  4  0.0022433     0.20028  |                    .    |****.              |
  5 0.00075634     0.06753  |                    .    |*   .              |
  6 -0.0019338    -0.17265  |                    . ***|     .             |
  7 -0.0018585    -0.16593  |                    . ***|     .             |
  8 -0.0011487    -0.10255  |                    .  **|     .             |
  9  0.0019367     0.17291  |                    .    |***  .             |
 10 0.00052809     0.04715  |                    .    |*    .             |
 11 -0.0004498    -0.04016  |                    .   *|     .             |
 12 -0.0015395    -0.13745  |                    . ***|     .             |
 13  0.0016757     0.14961  |                    .    |***  .             |
 14  0.0013558     0.12104  |                    .    |**   .             |
 15 -0.000838     -0.07482  |                    .   *|     .             |
                         "." marks two standard errors


                              ARIMA Procedure
                         Inverse Autocorrelations

    Lag Correlation -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
      1    0.00450  |                   .    |    .             |
      2    0.12856  |                   .    |***  .            |
      3   -0.02231  |                   .    |    .             |
      4   -0.11662  |                   . **|     .             |
      5    0.01348  |                   .    |     .            |
      6    0.14831  |                   .    |***  .            |
      7    0.09425  |                   .    |**   .            |
      8    0.14545  |                   .    |***  .            |
      9   -0.06778  |                   .   *|     .            |
     10   -0.00111  |                   .    |     .            |
     11   -0.08965  |                   . **|     .             |
     12    0.07877  |                   .    |**   .            |
     13   -0.06232  |                   .   *|     .            |
     14   -0.00141  |                   .    |     .            |
     15    0.04723  |                   .    |*    .            |
```

```
                        ARIMA Procedure
                   Partial Autocorrelations


     Lag Correlation -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
       1    0.01862   |              .     |  .              |
       2   -0.22793   |           *****|   .              |
       3   -0.06804   |              .   *|  .              |
       4    0.15964   |              .    |***  .           |
       5    0.03382   |              .    |*   .            |
       6   -0.11433   |              .  **|    .            |
       7   -0.12938   |              . ***|    .            |
       8   -0.19649   |              .****|    .            |
       9    0.09747   |              .    |**  .            |
      10    0.02972   |              .    |*   .            |
      11    0.05854   |              .    |*   .            |
      12   -0.08902   |              .  **|    .            |
      13    0.09028   |              .    |**  .            |
      14    0.00117   |              .    |    .            |
      15   -0.05410   |              .   *|    .            |


              Autocorrelation Check for White Noise

     To   Chi                      Autocorrelations
     Lag  Square DF   Prob
      6     9.51  6   0.147   0.019 -0.228 -0.074  0.200  0.068 -0.173
     12    16.65 12   0.163  -0.166 -0.103  0.173  0.047 -0.040 -0.137


                        ARIMA Procedure


                   Correlation of LY and X2
                Variable X2 has been differenced.
                  Period(s) of Differencing = 1.
                   Variance of input = 13632.22
                  Number of observations =       66
        NOTE: The first observation was eliminated bydifferencing.


                        Crosscorrelations


Lag Covariance Correlation -1 9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 1
-15   0.423141    0.03310   |              .    |*   .            |
-14   1.609571    0.12589   |              .    |***  .           |
-13   0.016507    0.00129   |              .    |    .            |
-12  -0.496350   -0.03882   |              .   *|    .            |
-11  -2.359306   -0.18453   |              .****|    .            |
-10   1.366687    0.10690   |              .    |**  .            |
 -9  -0.295221   -0.02309   |              .    |    .            |
 -8  -2.361990   -0.18474   |              .****|    .            |
 -7  -0.651676   -0.05097   |              .   *|    .            |
 -6   1.819532    0.14232   |              .    |***  .           |
 -5   0.360355    0.02819   |              .    |*   .            |
 -4   0.526297    0.04116   |              .    |*   .            |
 -3   0.648389    0.05071   |              .    |*   .            |
 -2   4.927418    0.38540   |              .    |********         |
 -1   0.160552    0.01256   |              .    |    .            |
```

```
 0  -0.384585   -0.03008  |        .    *|   .           |
 1  -4.227402   -0.33065  |        ******|   .           |
 2  -0.718658   -0.05621  |        .    *|   .           |
 3   0.0083024   0.00065  |        .     |   .           |
 4   0.623996    0.04881  |        .     |*  .           |
 5  -1.733267   -0.13557  |        . ***|   .           |
 6  -2.934856   -0.22955  |        *****|   .           |
 7   2.017957    0.15784  |        .     |*** .          |
 8   1.262015    0.09871  |        .     |** .           |
 9   0.589730    0.04613  |        .     |*  .           |
10   0.486095    0.03802  |        .     |*  .           |
11   0.291938    0.02283  |        .     |   .           |
12   0.124190    0.00971  |        .     |   .           |
13  -1.403228   -0.10975  |        .   **|   .           |
14  -0.274202   -0.02145  |        .     |   .           |
15  -0.015546   -0.00122  |        .     |   .           |
```
"." marks two standard errors

ARIMA Procedure
Conditional Least Squares Estimation

```
                         Approx.
Parameter   Estimate    Std Error   T Ratio  Lag  Variable Shift
AR1,1       -0.25089     0.12204     -2.06    2   LY         0
NUM1        -0.0002675   0.00009479  -2.82    0   X2         1
```
Variance Estimate = 0.00983606
Std Error Estimate = 0.09917692
AIC   = -113.9799*
SBC   = -109.63113*
Number of Residuals=   65
* Does not include log determinant.

ARIMA Procedure
Correlations of the Estimates

		LY	X2
Variable	Parameter	AR1,1	NUM1
LY	AR1,1	1.000	-0.015
X2	NUM1	-0.015	1.000

ARIMA Procedure
Autocorrelation Check of Residuals

To Lag	Chi Square	DF	Prob	Autocorrelations					
6	2.93	5	0.711	-0.008	0.036	0.093	0.120	-0.015	-0.126
12	9.43	11	0.582	-0.093	-0.159	0.080	-0.039	0.049	-0.194
18	14.04	17	0.664	0.151	0.042	-0.001	-0.114	-0.040	0.115
24	17.43	23	0.788	-0.051	0.081	-0.112	0.111	-0.003	-0.013

```
                        ARIMA Procedure

Forecasts for variable LY

  Obs    Forecast Std Error   Lower 95%    Upper 95%
  68      8.6391    0.0992      8.4447       8.8335
  69      8.6397    0.1403      8.3648       8.9146
  70      8.6414    0.1587      8.3303       8.9525
  71      8.6412    0.1752      8.2977       8.9847
  72      8.6408    0.1929      8.2628       9.0188
```