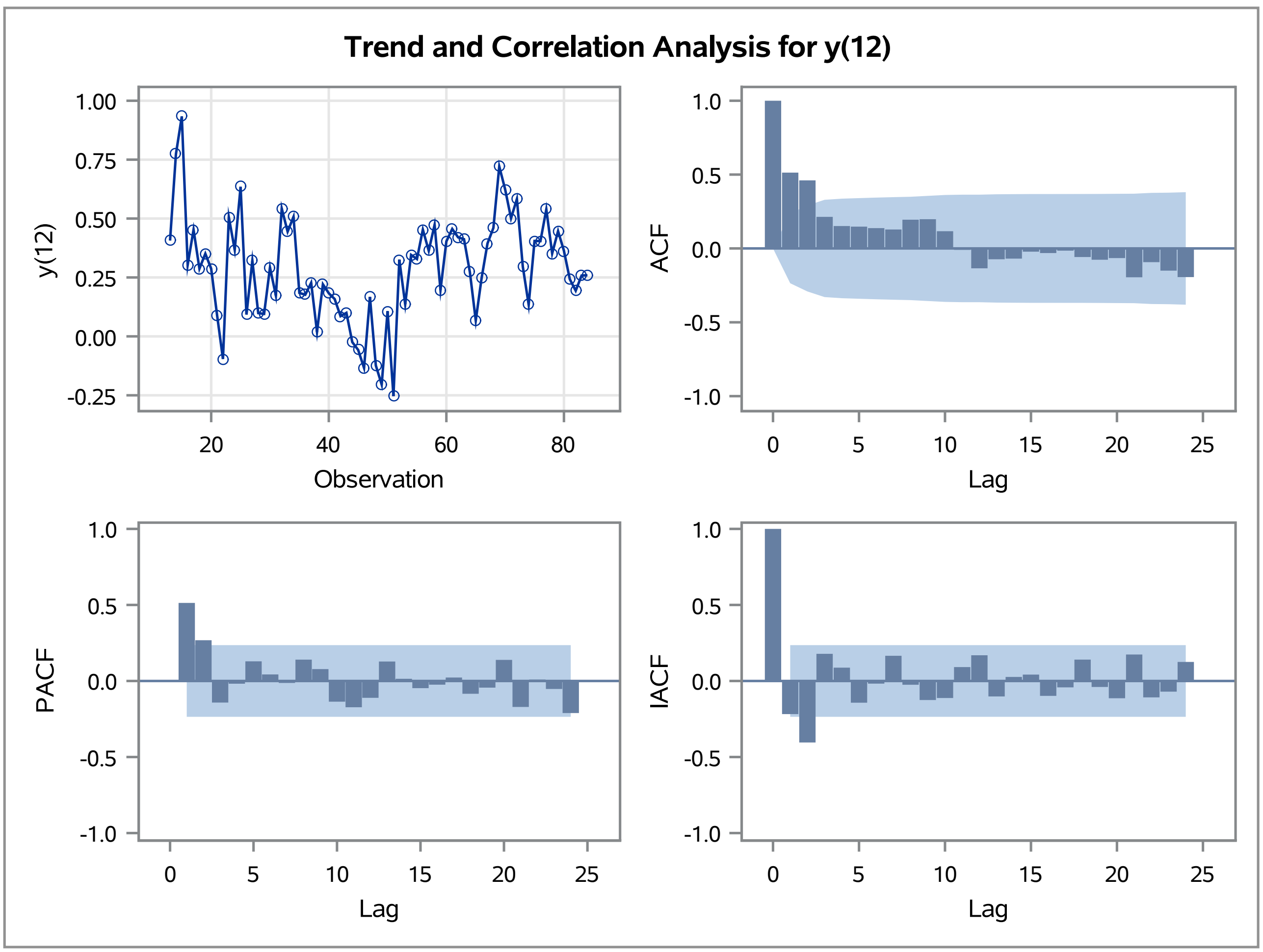
The ARIMA Procedure

Warning: The value of NLAG is larger than 25% of the series length. The asymptotic approximations used for correlation based statistics and confidence intervals may be poor.

Name of Variable = y	
Period(s) of Differencing	12
Mean of Working Series	0.288627
Standard Deviation	0.221759
Number of Observations	72
Observation(s) eliminated by differencing	12

Autocorrelation Check for White Noise

To Lag	Chi-Square	DF	Pr > ChiSq	Autocorrelations					
6	44.53	6	<.0001	0.513	0.461	0.214	0.152	0.148	0.137
12	55.12	12	<.0001	0.128	0.194	0.198	0.117	-0.010	-0.134
18	56.54	18	<.0001	-0.073	-0.069	-0.022	-0.031	-0.015	-0.058
24	69.09	24	<.0001	-0.077	-0.065	-0.195	-0.093	-0.150	-0.194



The ARIMA Procedure

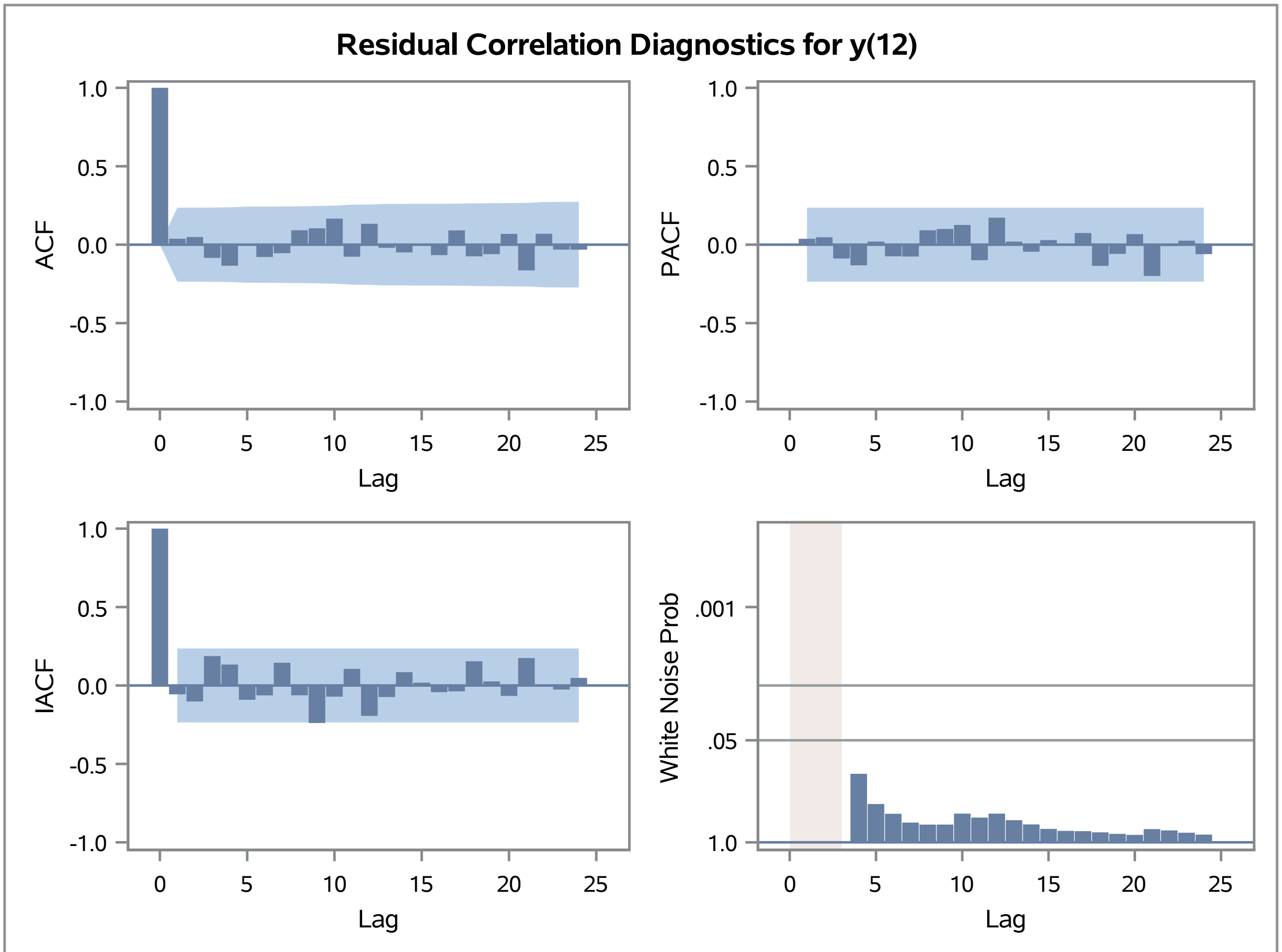
Maximum Likelihood Estimation					
Parameter	Estimate	Standard Error	t Value	Approx Pr > |t|	Lag
MU	0.28562	0.03657	7.81	<.0001	0
MA1,1	0.52048	0.13629	3.82	0.0001	12
AR1,1	0.34695	0.11029	3.15	0.0017	1
AR1,2	0.35167	0.11058	3.18	0.0015	2

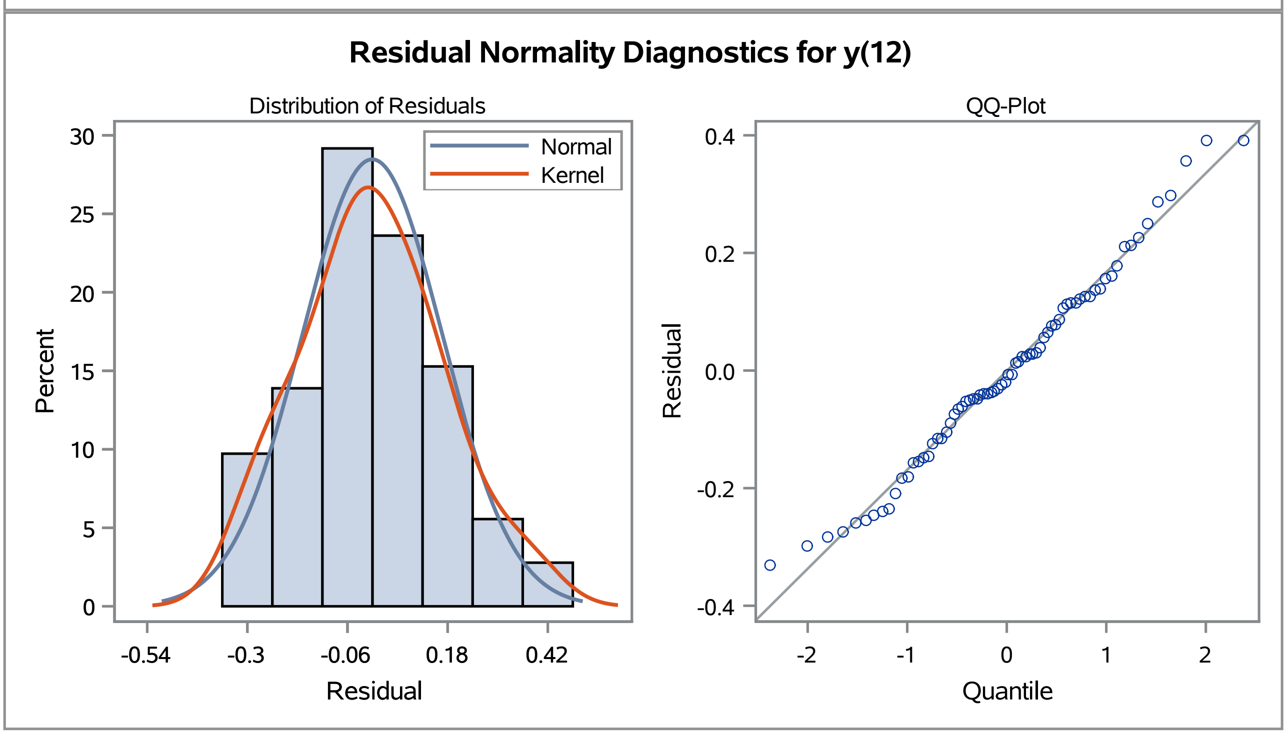
Constant Estimate	0.086079
Variance Estimate	0.029522
Std Error Estimate	0.17182
AIC	-41.0894
SBC	-31.9828
Number of Residuals	72

Correlations of Parameter Estimates				
Parameter	MU	MA1,1	AR1,1	AR1,2
MU	1.000	-0.063	0.043	0.046
MA1,1	-0.063	1.000	-0.062	0.167
AR1,1	0.043	-0.062	1.000	-0.524
AR1,2	0.046	0.167	-0.524	1.000

Autocorrelation Check of Residuals									
To Lag	Chi-Square	DF	Pr > ChiSq	Autocorrelations					
6	2.74	3	0.4341	0.038	0.049	-0.084	-0.134	0.002	-0.078
12	9.08	9	0.4300	-0.054	0.092	0.105	0.166	-0.076	0.133
18	11.10	15	0.7454	-0.020	-0.049	0.002	-0.066	0.091	-0.074
24	15.48	21	0.7983	-0.060	0.069	-0.163	0.070	-0.031	-0.031

The ARIMA Procedure



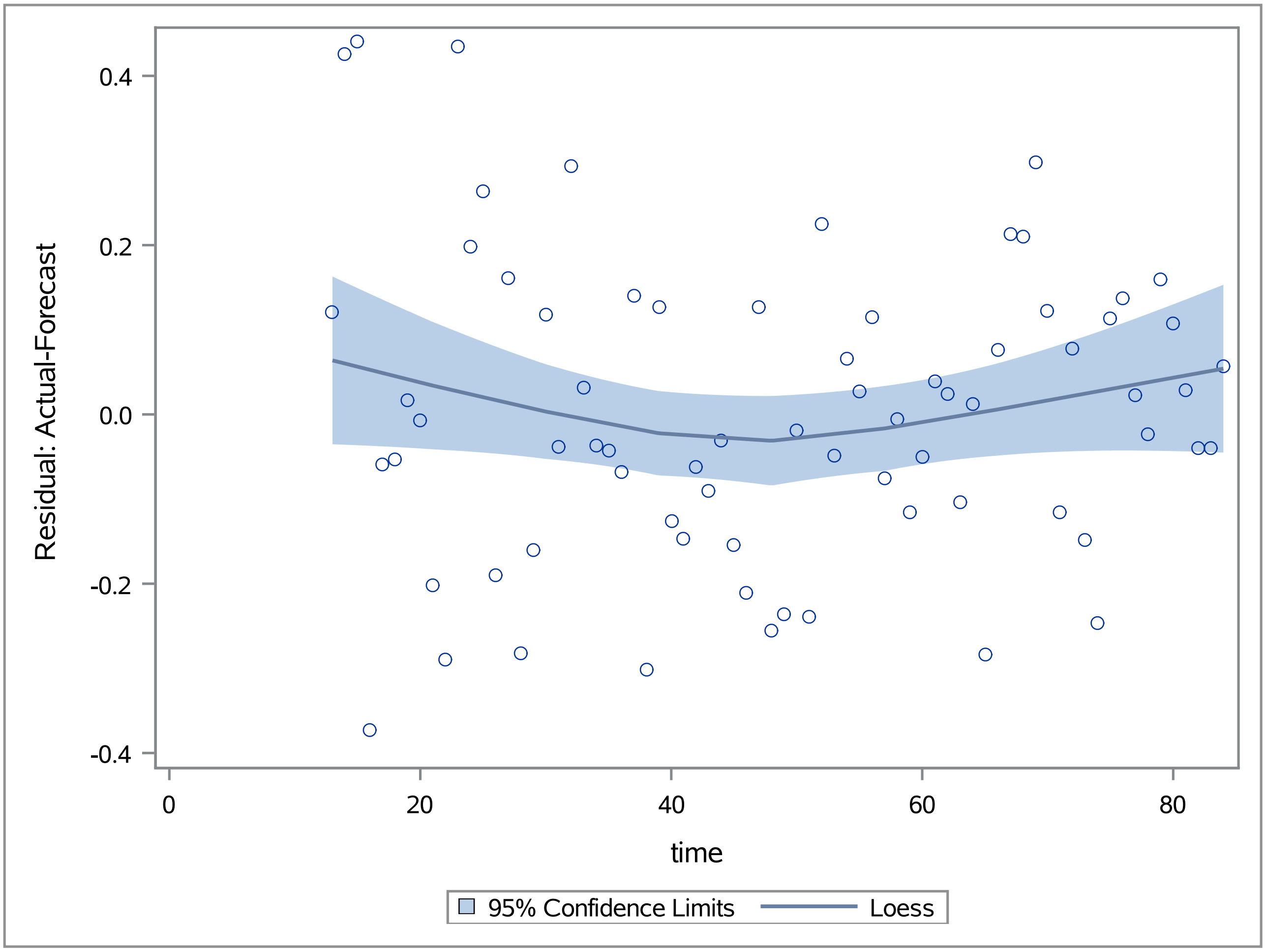


Model for variable y	
Estimated Mean	0.285617
Period(s) of Differencing	12

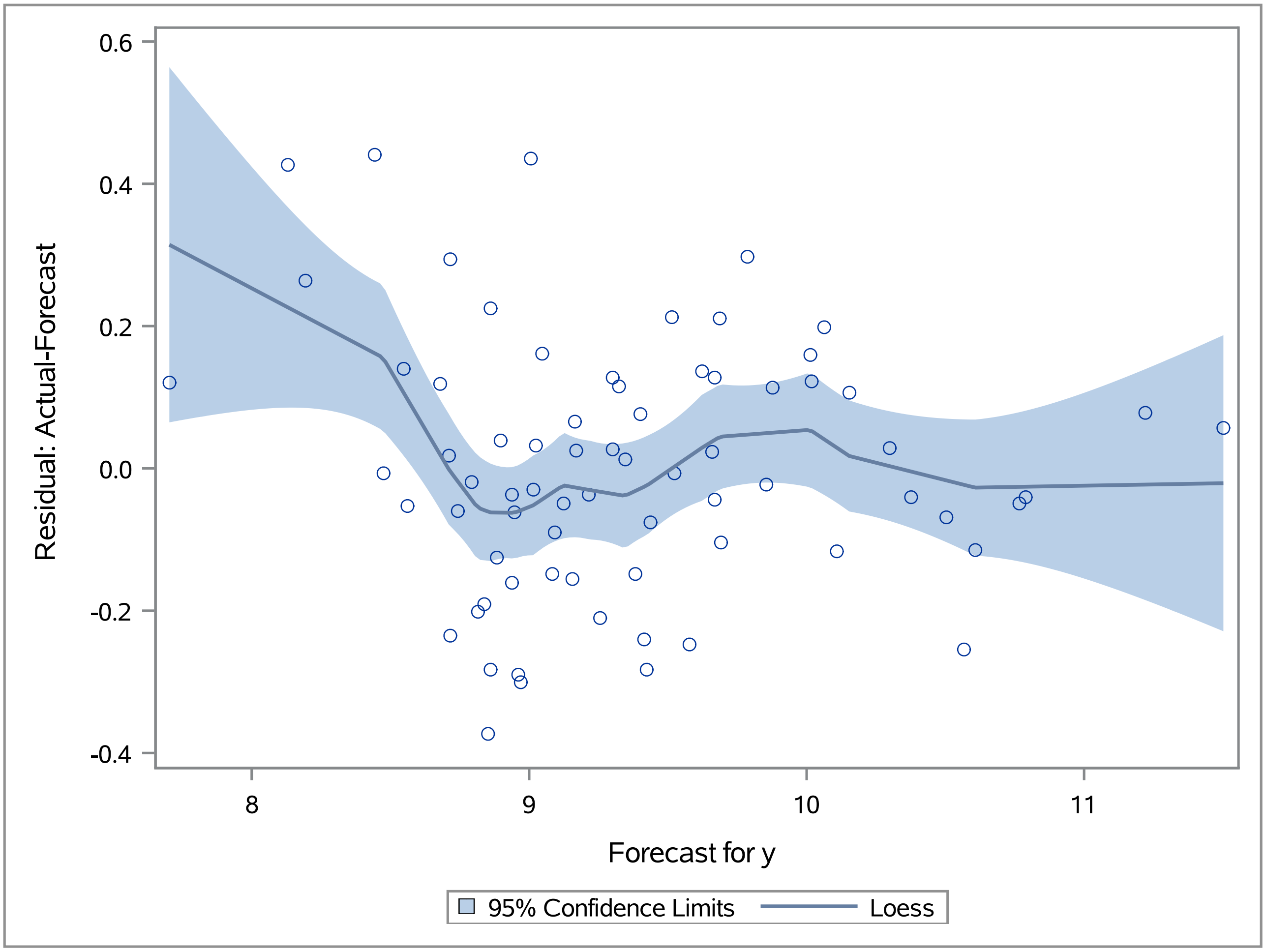
The ARIMA Procedure

Autoregressive Factors	
Factor 1:	1 - 0.34695 B**(1) - 0.35167 B**(2)

Moving Average Factors	
Factor 1:	1 - 0.52048 B**(12)



Residual: Actual-Forecast
0.4
0.2
0.0
-0.2
-0.4
0
20
40
60
80
time
95% Confidence Limits
Loess



Residual: Actual-Forecast
0.6
0.4
0.2
0.0
-0.2
-0.4
8
9
10
11
Forecast for y
95% Confidence Limits
Loess

Fitting a seasonal ARIMA model on X (no transformation)

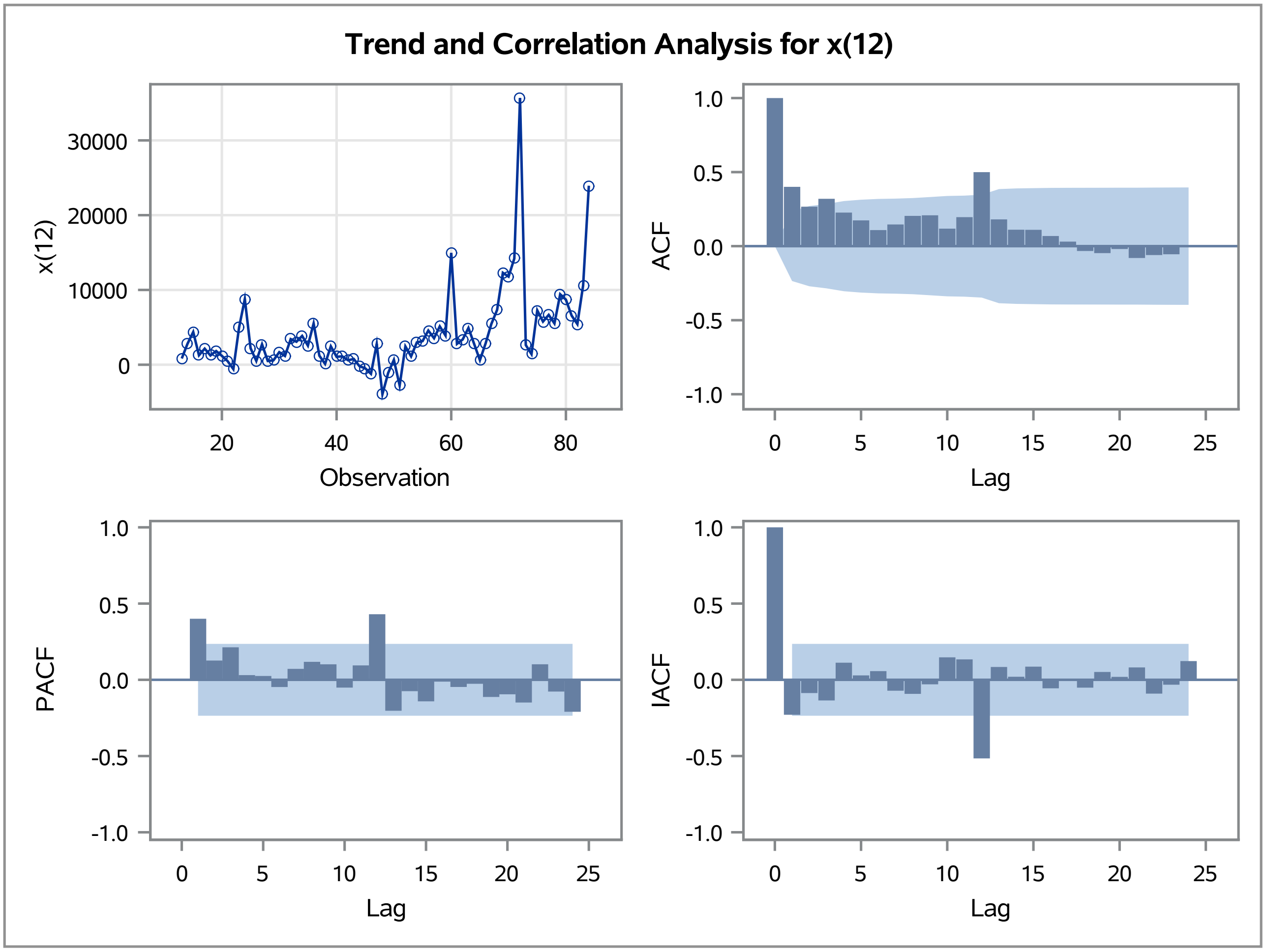
The ARIMA Procedure

Warning: The value of NLAG is larger than 25% of the series length. The asymptotic approximations used for correlation based statistics and confidence intervals may be poor.

Name of Variable = x	
Period(s) of Differencing	12
Mean of Working Series	4139.18
Standard Deviation	5736.184
Number of Observations	72
Observation(s) eliminated by differencing	12

Autocorrelation Check for White Noise

To Lag	Chi-Square	DF	Pr > ChiSq	Autocorrelations					
6	32.71	6	<.0001	0.400	0.266	0.320	0.227	0.174	0.109
12	68.33	12	<.0001	0.146	0.204	0.208	0.118	0.196	0.500
18	74.19	18	<.0001	0.181	0.111	0.110	0.068	0.031	-0.033
24	75.83	24	<.0001	-0.047	-0.019	-0.080	-0.060	-0.055	-0.006



Fitting a seasonal ARIMA model on X (no transformation)

The ARIMA Procedure

Maximum Likelihood Estimation					
Parameter	Estimate	Standard Error	t Value	Approx Pr > |t|	Lag
MU	4136.2	1150.6	3.59	0.0003	0
MA1,1	-0.81159	0.21280	-3.81	0.0001	12
AR1,1	0.37116	0.10365	3.58	0.0003	1

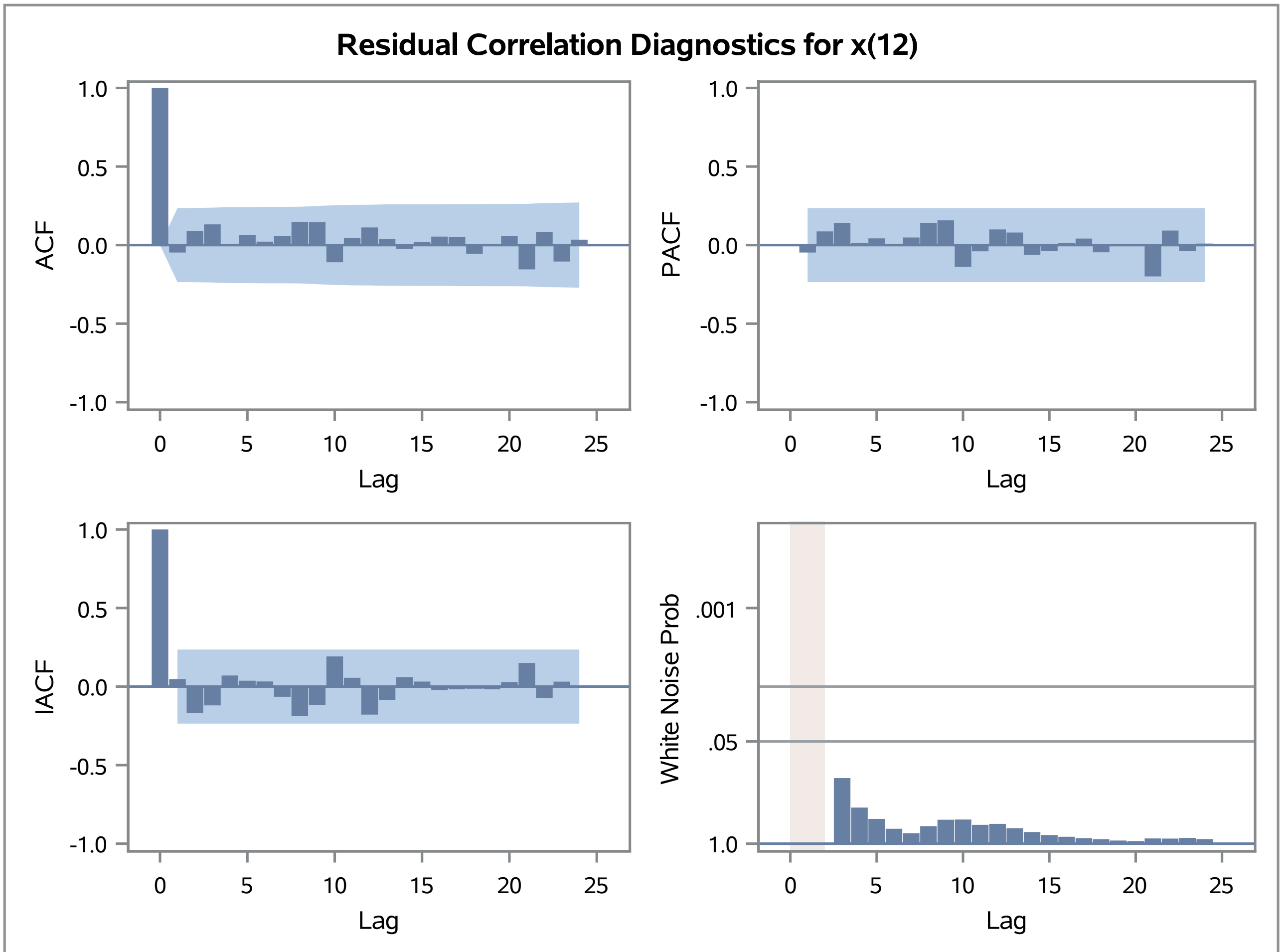
Constant Estimate	2601.022
Variance Estimate	15735015
Std Error Estimate	3966.739
AIC	1412.786
SBC	1419.616
Number of Residuals	72

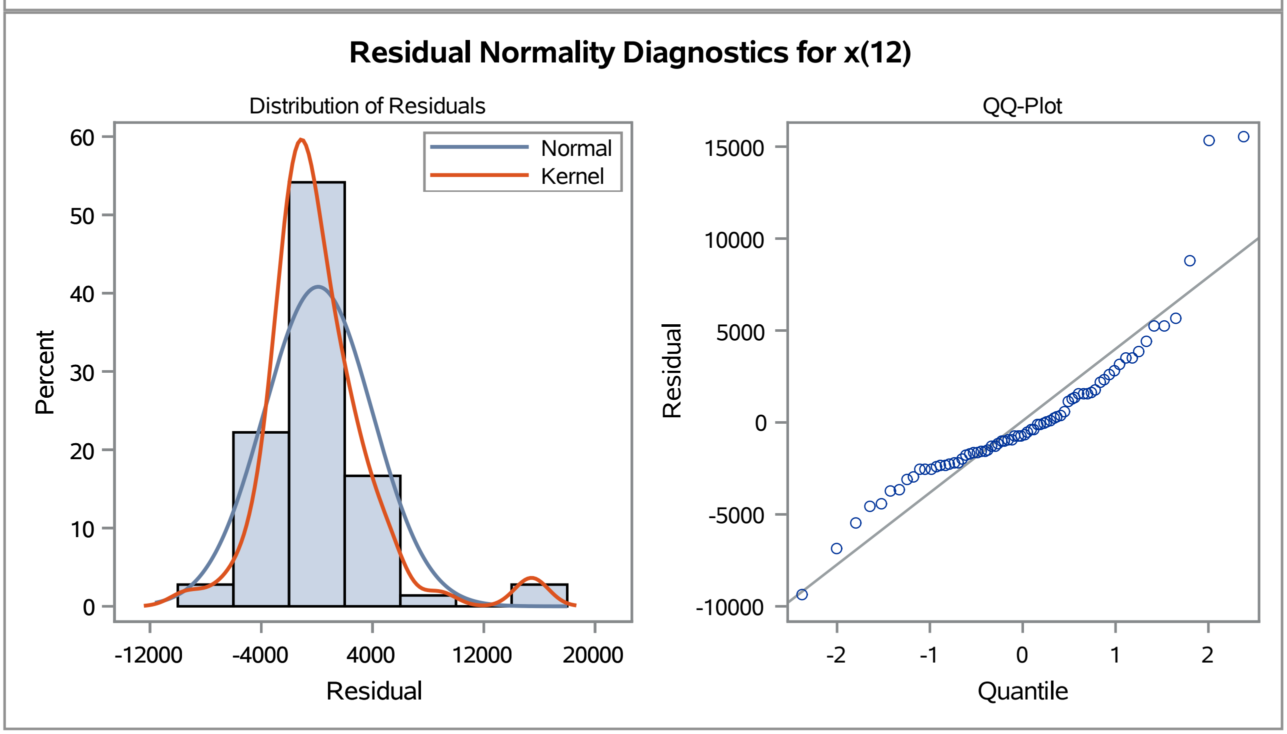
Correlations of Parameter Estimates			
Parameter	MU	MA1,1	AR1,1
MU	1.000	0.016	0.039
MA1,1	0.016	1.000	0.072
AR1,1	0.039	0.072	1.000

Autocorrelation Check of Residuals									
To Lag	Chi-Square	DF	Pr > ChiSq	Autocorrelations					
6	2.51	4	0.6422	-0.047	0.089	0.132	0.009	0.066	0.023
12	8.77	10	0.5540	0.058	0.148	0.146	-0.109	0.046	0.113
18	9.84	16	0.8751	0.040	-0.025	0.018	0.053	0.051	-0.056
24	14.73	22	0.8734	0.002	0.056	-0.155	0.083	-0.105	0.034

Fitting a seasonal ARIMA model on X (no transformation)

The ARIMA Procedure



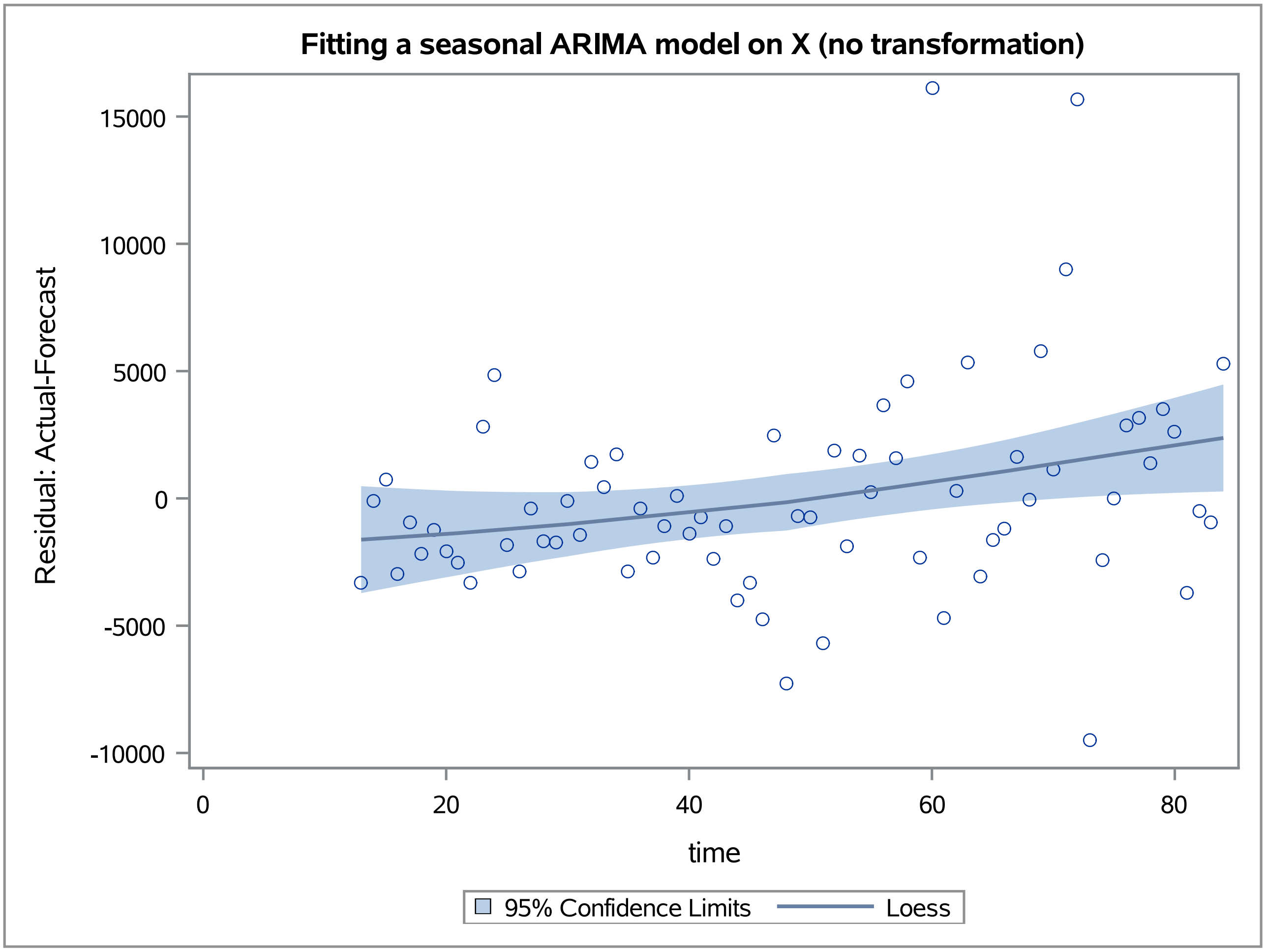


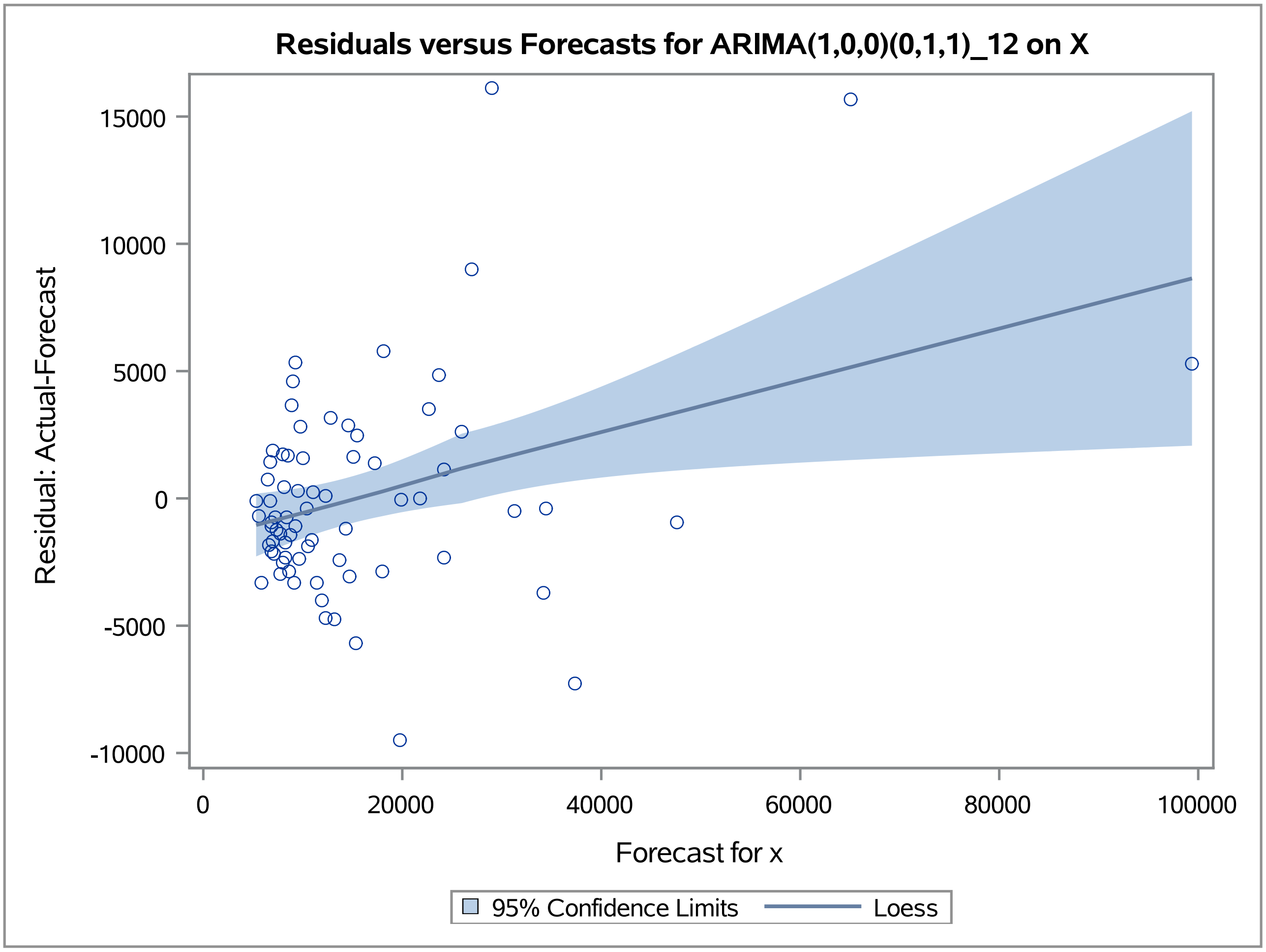
Model for variable x	
Estimated Mean	4136.205
Period(s) of Differencing	12

The ARIMA Procedure

Autoregressive Factors	
Factor 1:	1 - 0.37116 B**(1)

Moving Average Factors	
Factor 1:	1 + 0.81159 B**(12)


Fitting a seasonal ARIMA model on X (no transformation)
Residual: Actual-Forecast
15000
10000
5000
0
-5000
-10000
0
20
40
60
80
time
95% Confidence Limits
Loess


Residuals versus Forecasts for ARIMA(1,0,0)(0,1,1)_12 on X
Residual: Actual-Forecast
15000
10000
5000
0
-5000
-10000
0
20000
40000
60000
80000
100000
Forecast for x
95% Confidence Limits
Loess