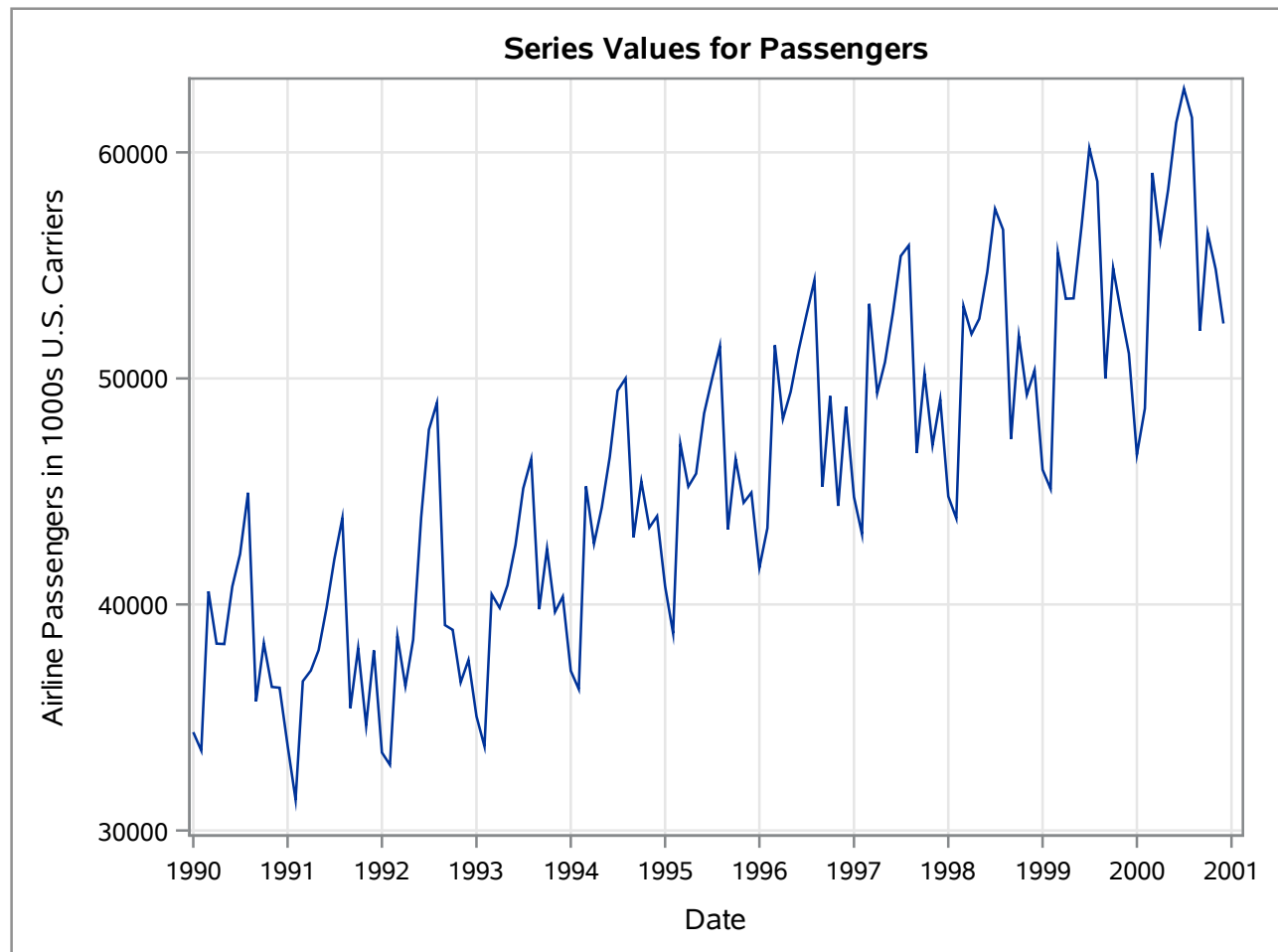


The TIMESERIES Procedure

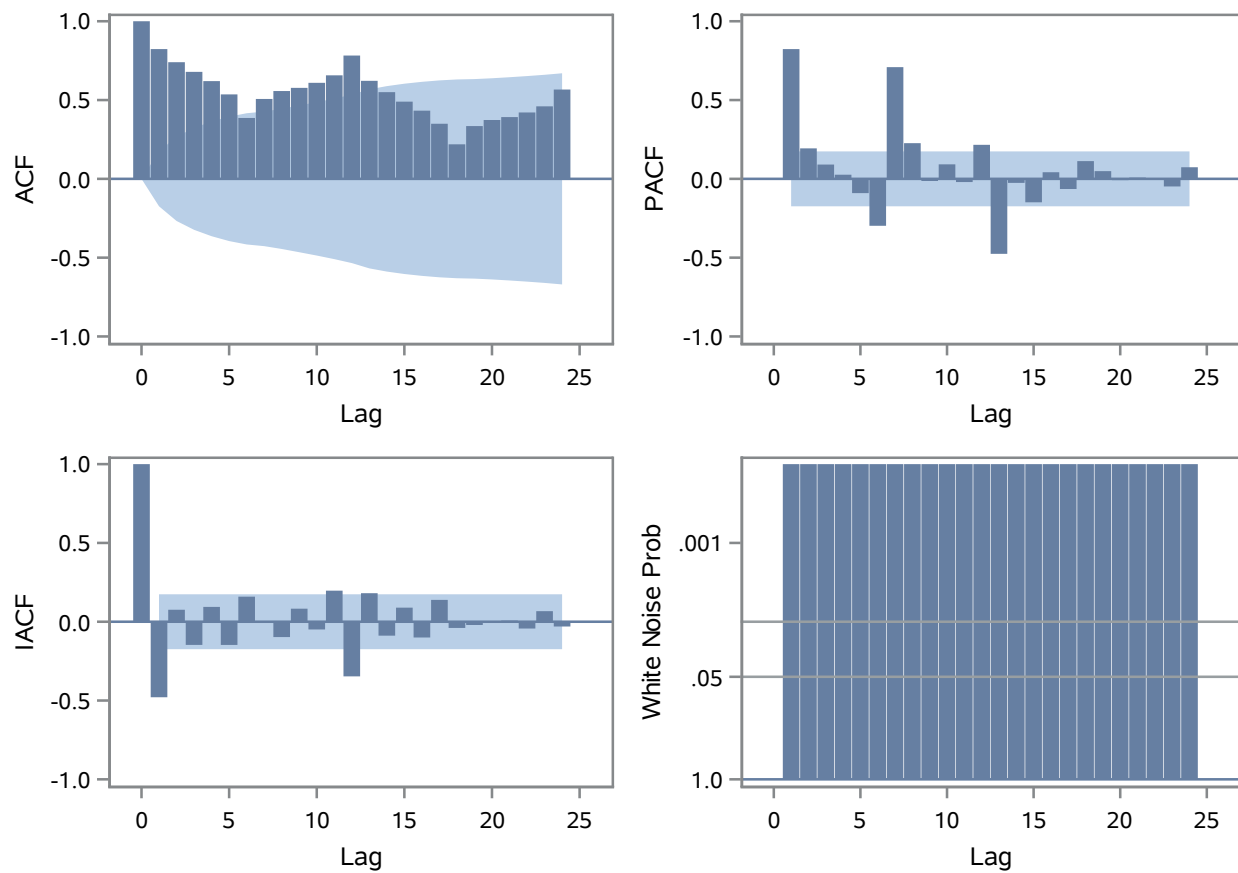
Input Data Set	
Name	WORK.AIR1990_2000
Label	
Time ID Variable	Date
Time Interval	MONTH
Length of Seasonal Cycle	12

Variable Information	
Name	Passengers
Label	Airline Passengers in 1000s U.S. Carriers
First	JAN1990
Last	DEC2000
Number of Observations Read	132

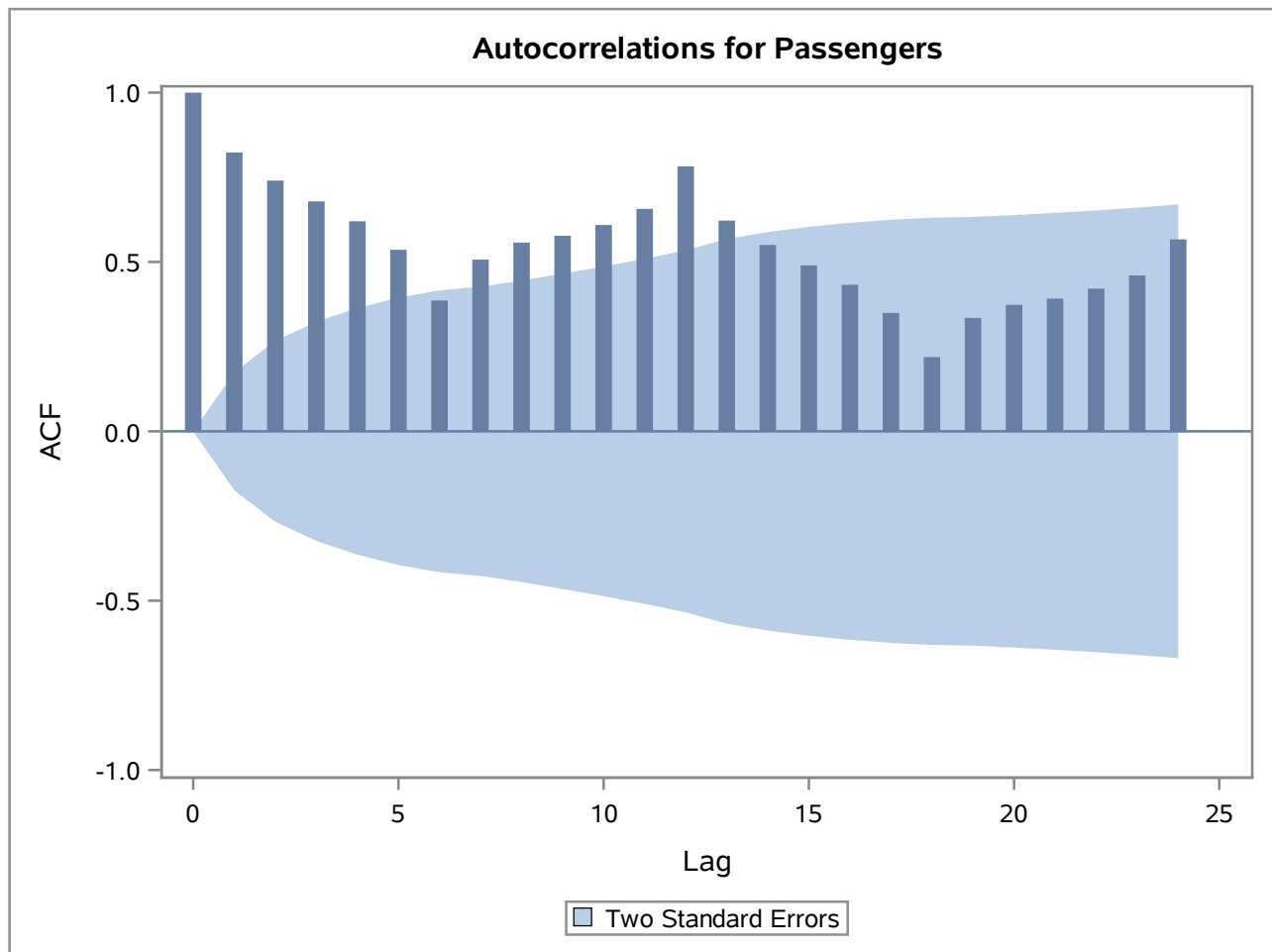


The TIMESERIES Procedure

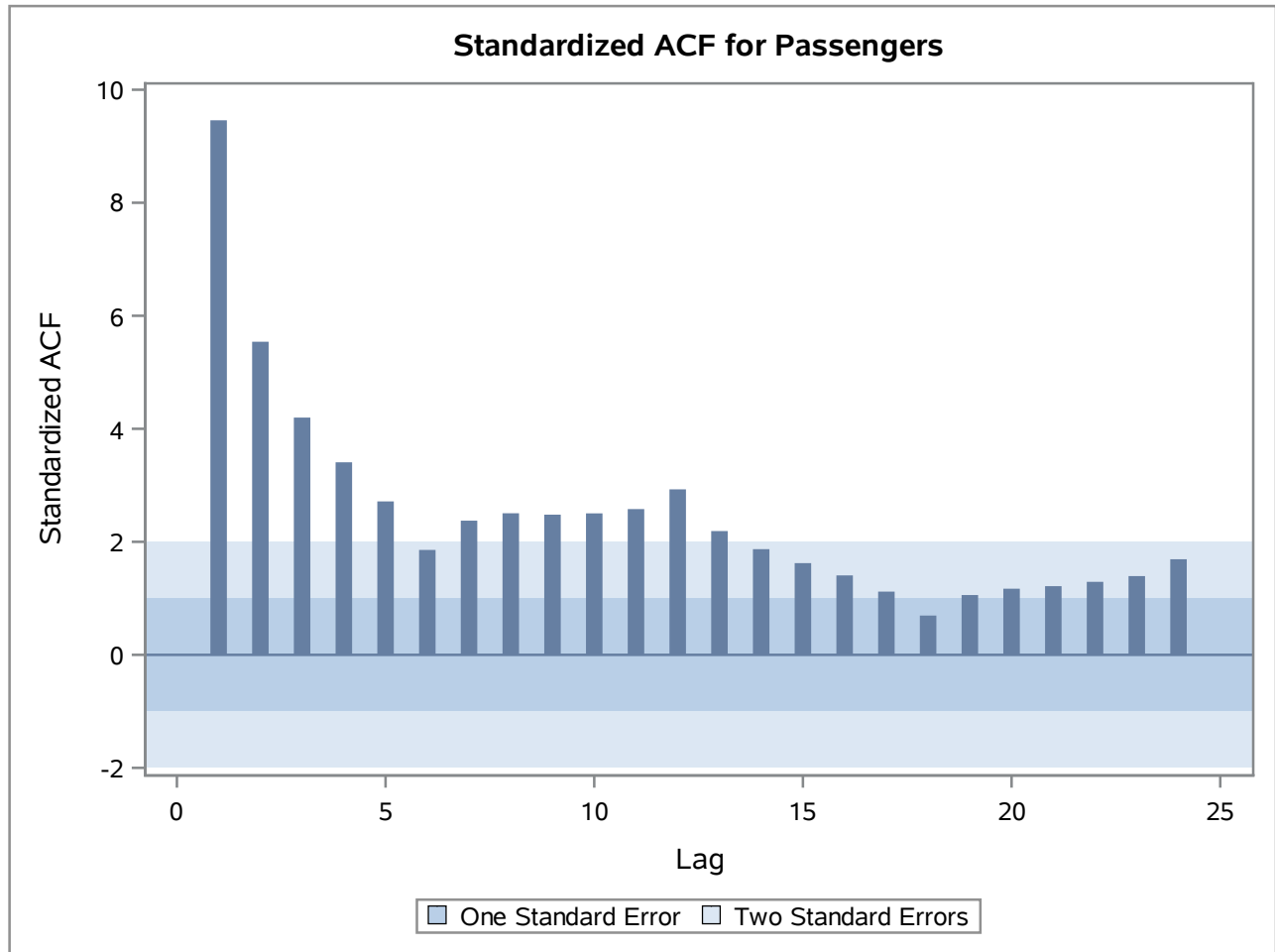
Correlations for Passengers



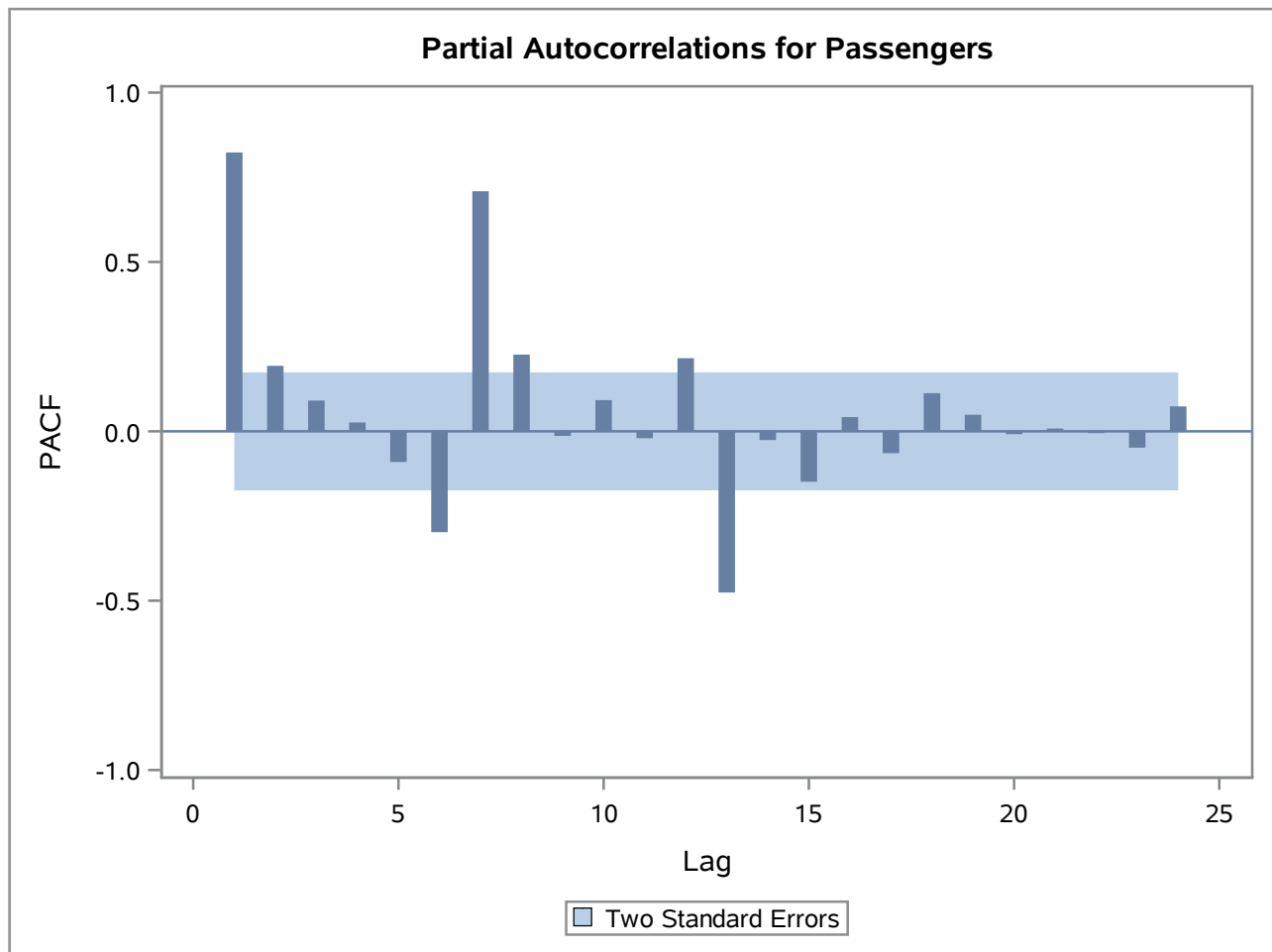
The TIMESERIES Procedure



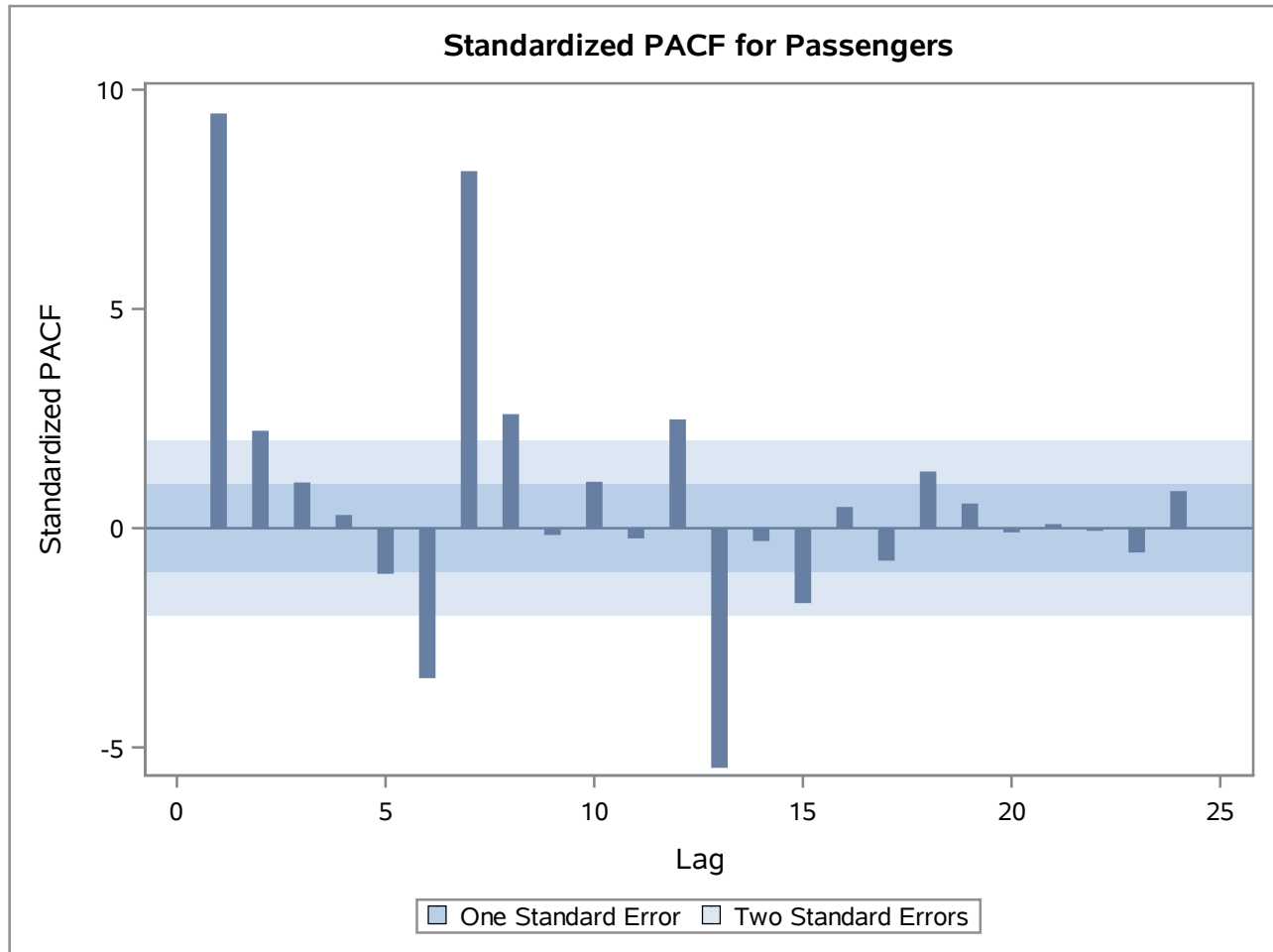
The TIMESERIES Procedure



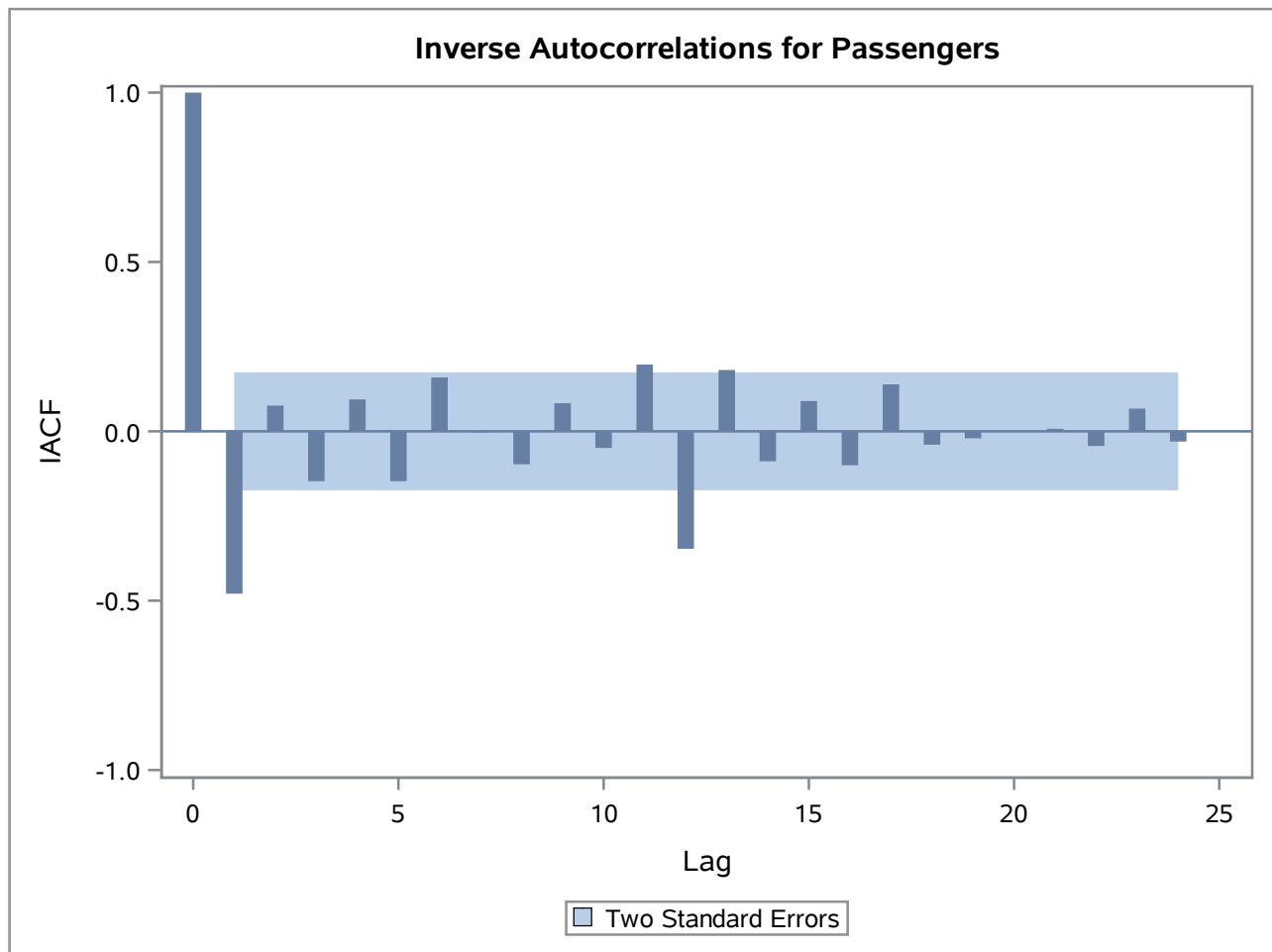
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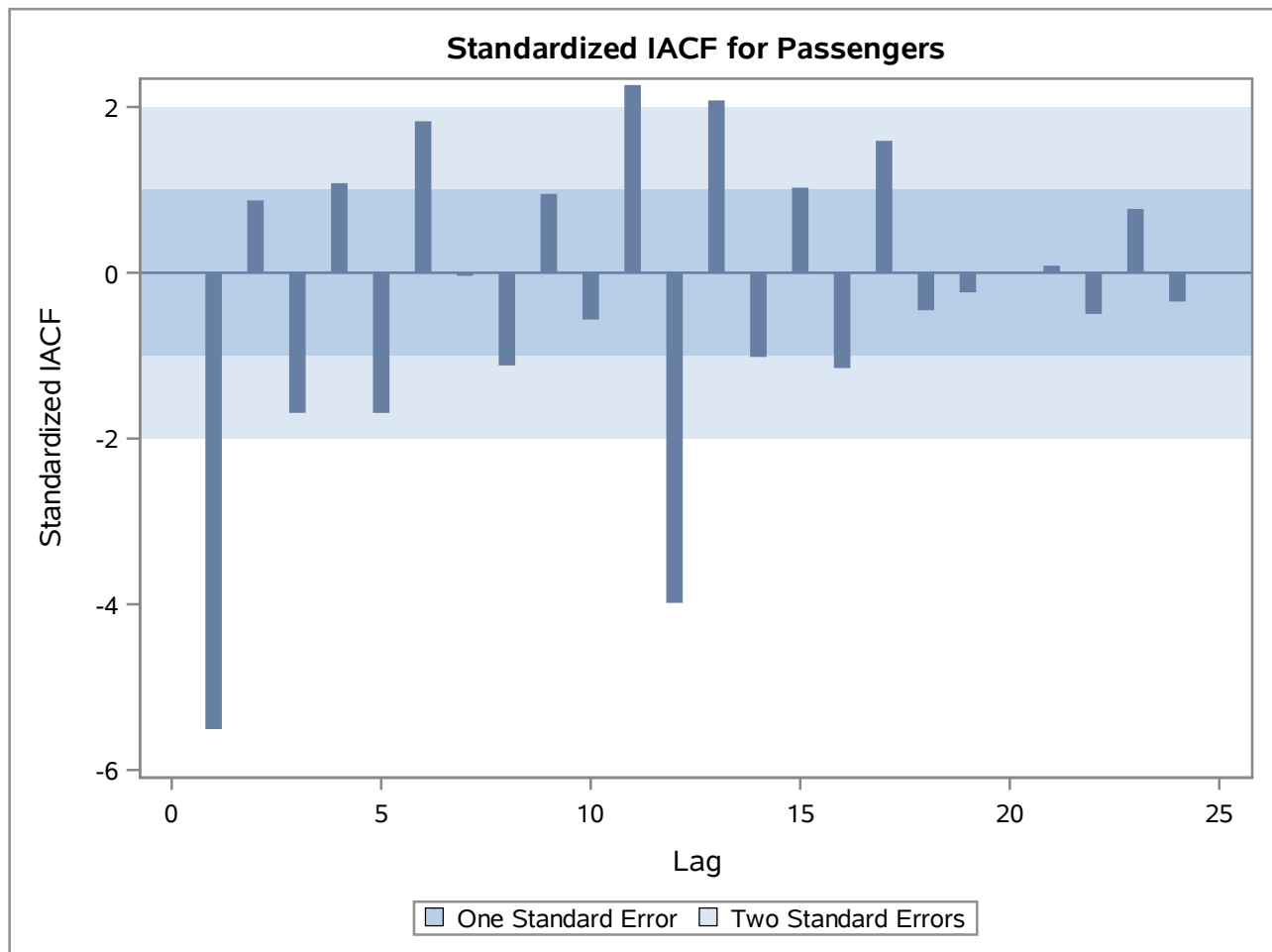
The TIMESERIES Procedure



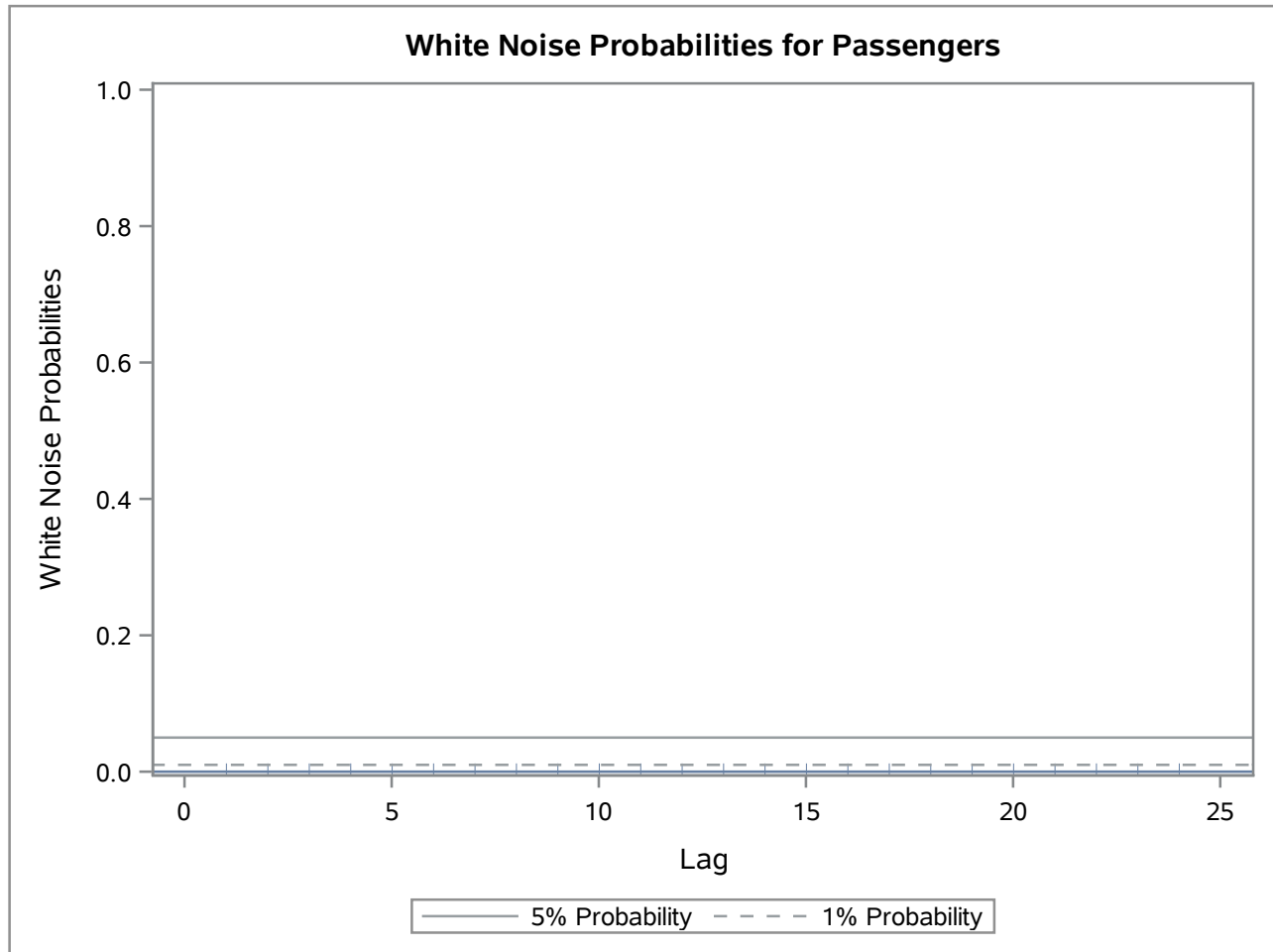
The TIMESERIES Procedure



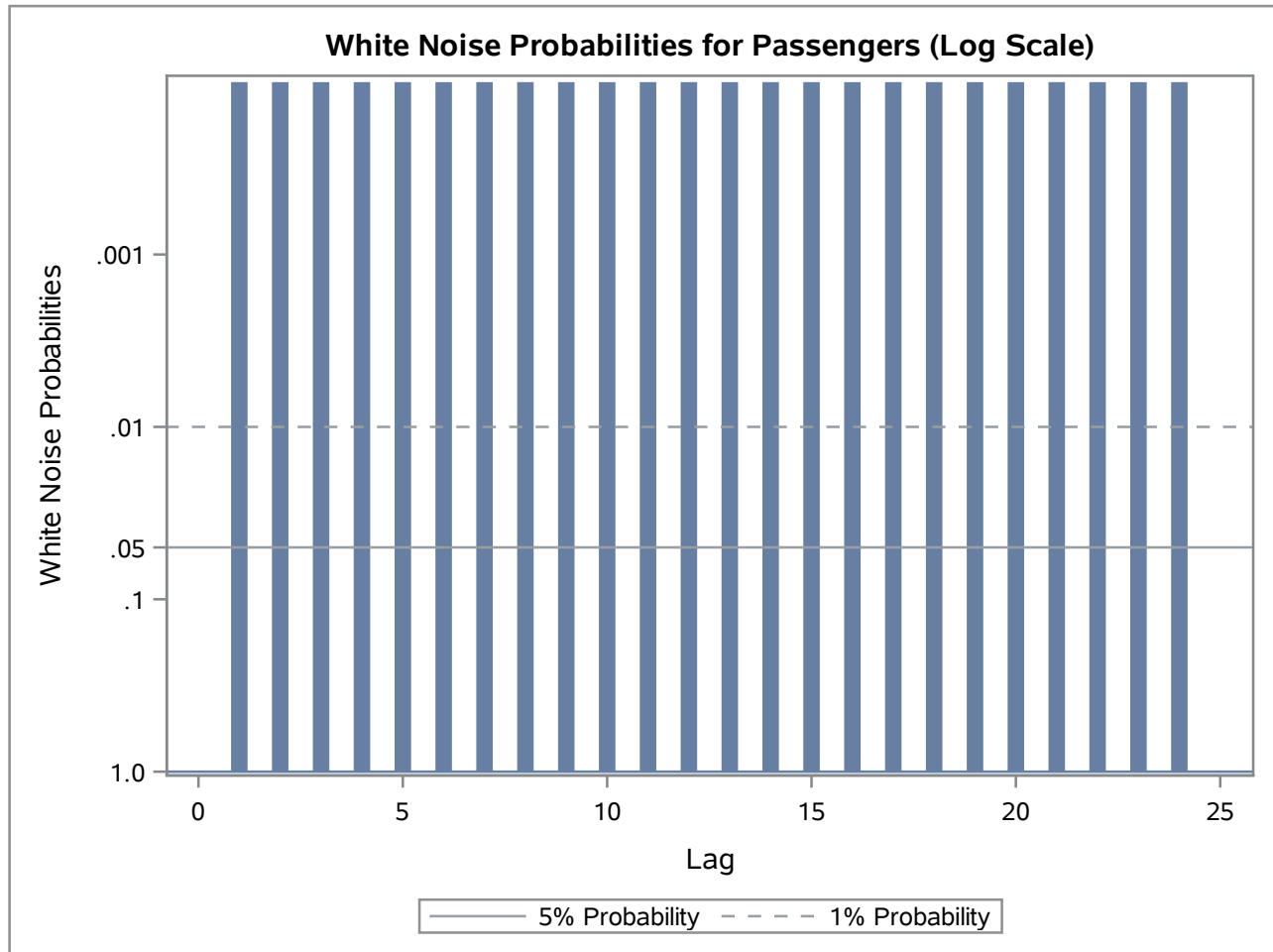
The TIMESERIES Procedure



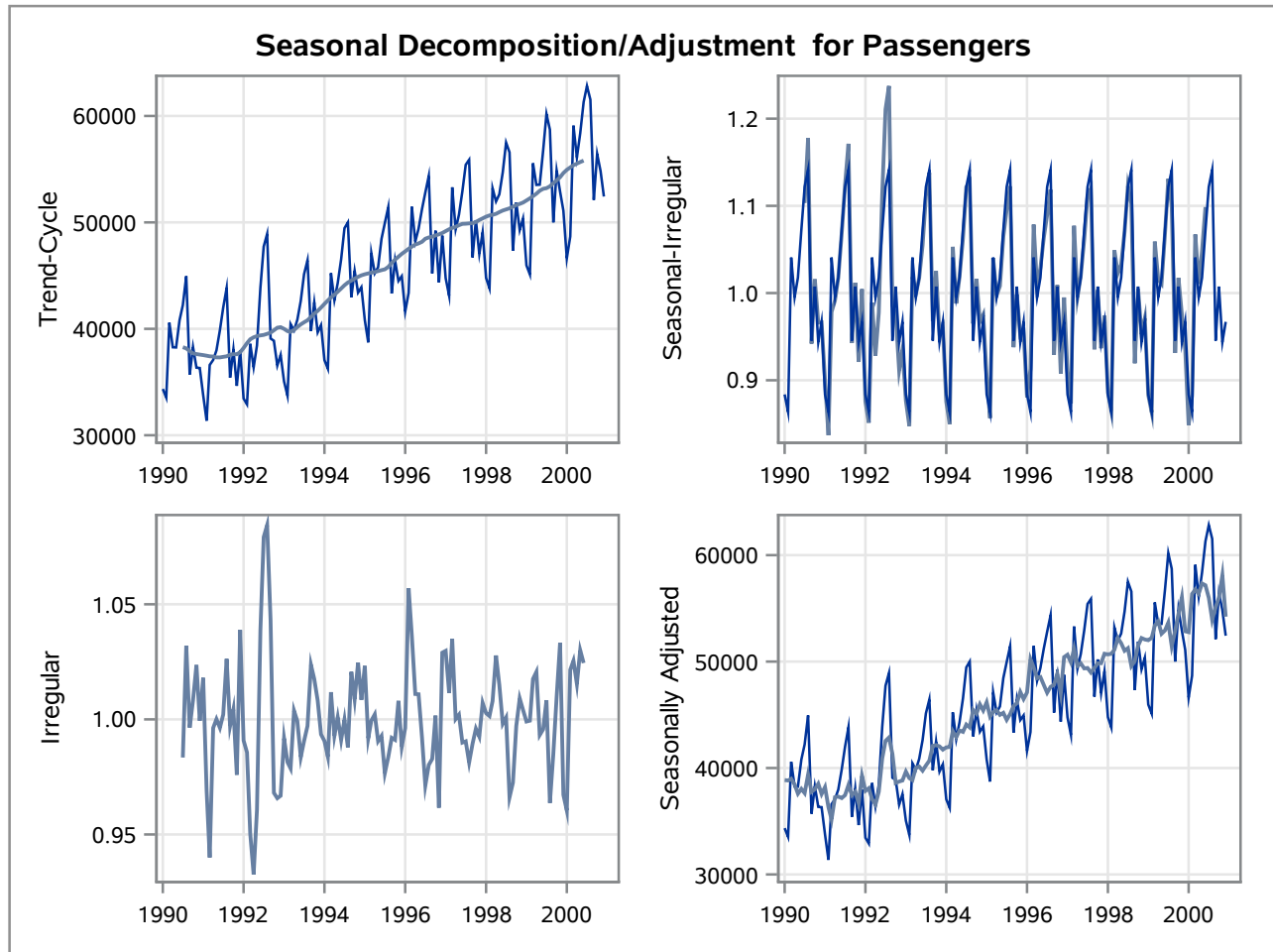
The TIMESERIES Procedure



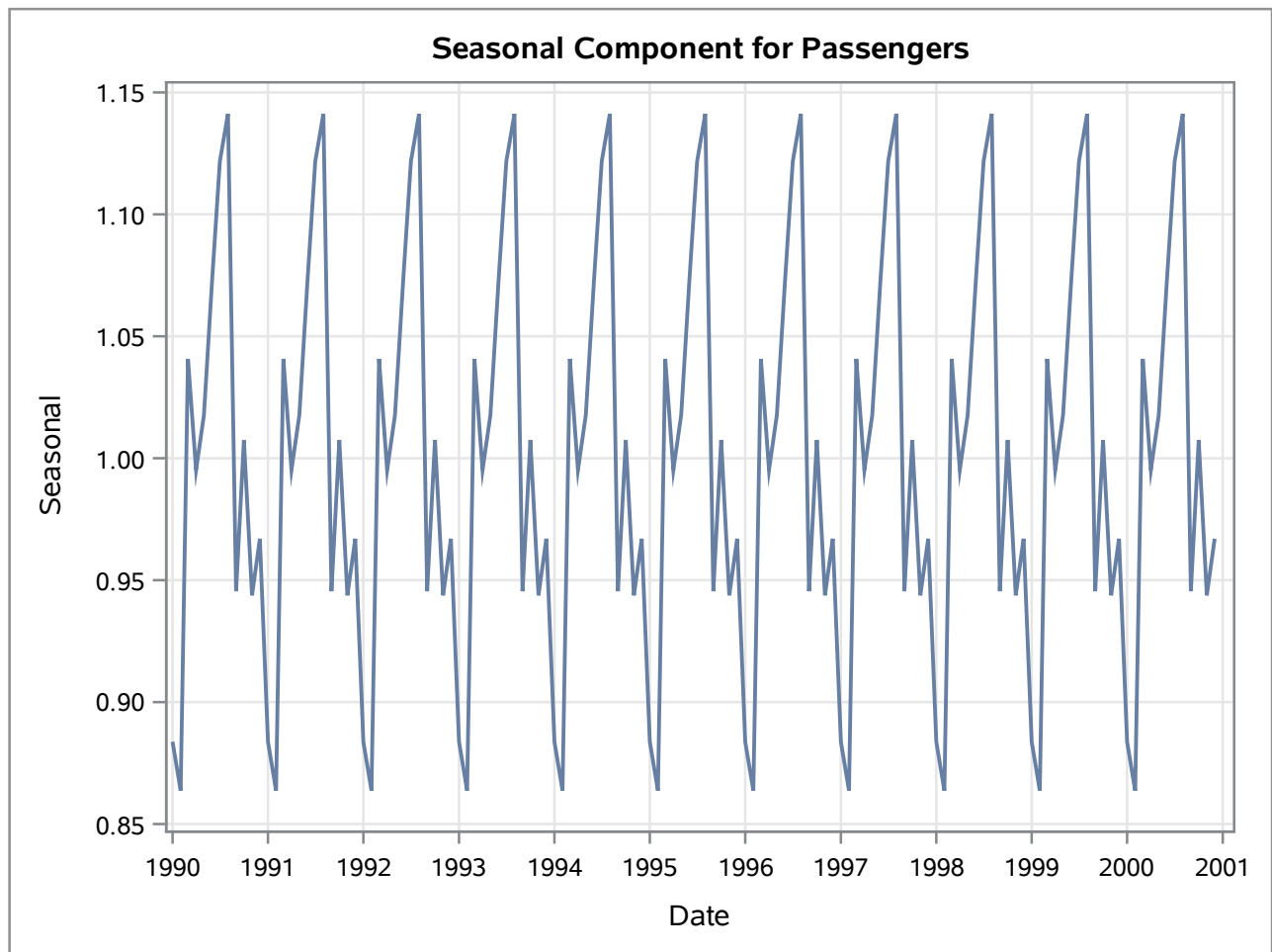
The TIMESERIES Procedure



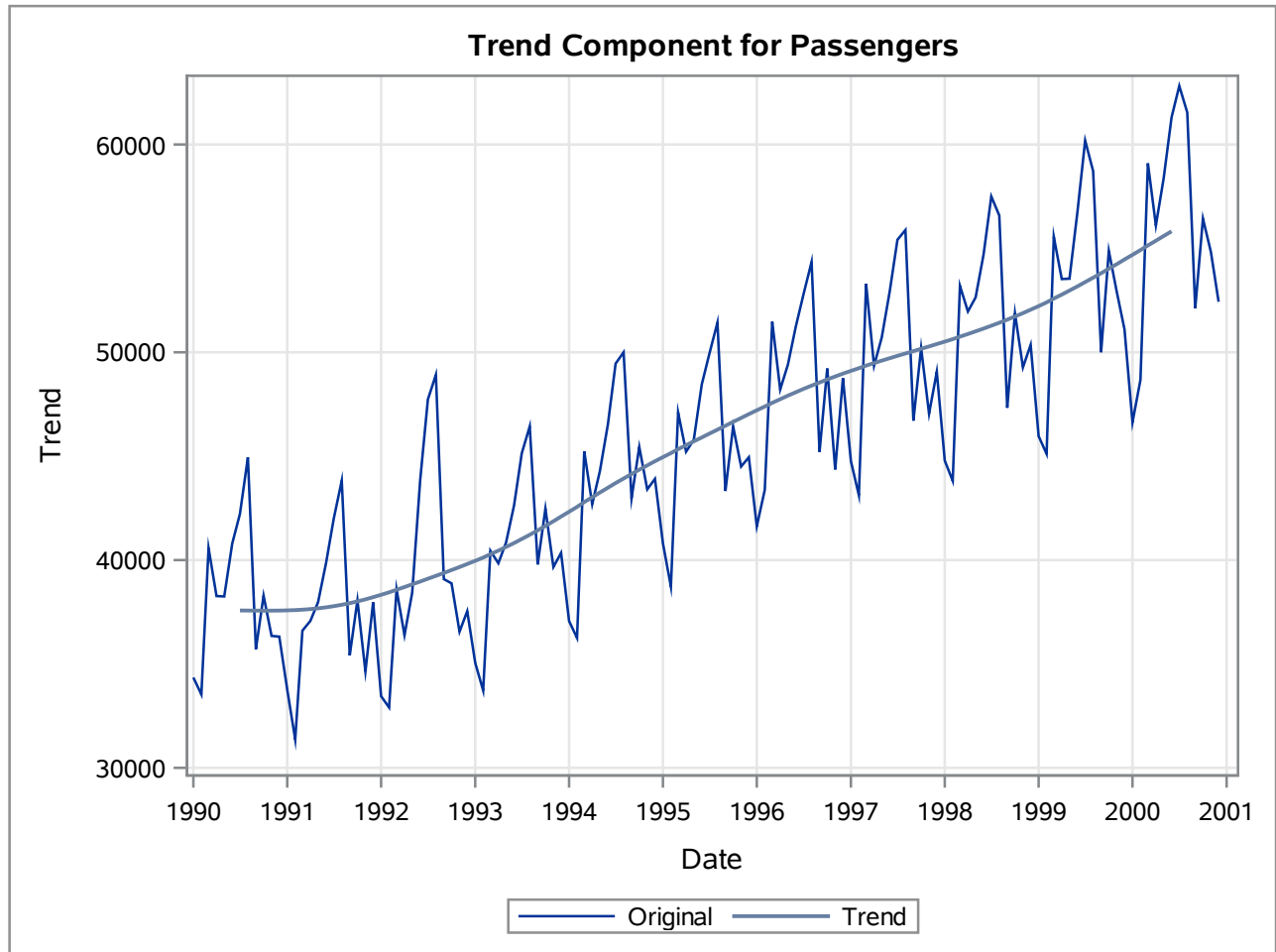
The TIMESERIES Procedure

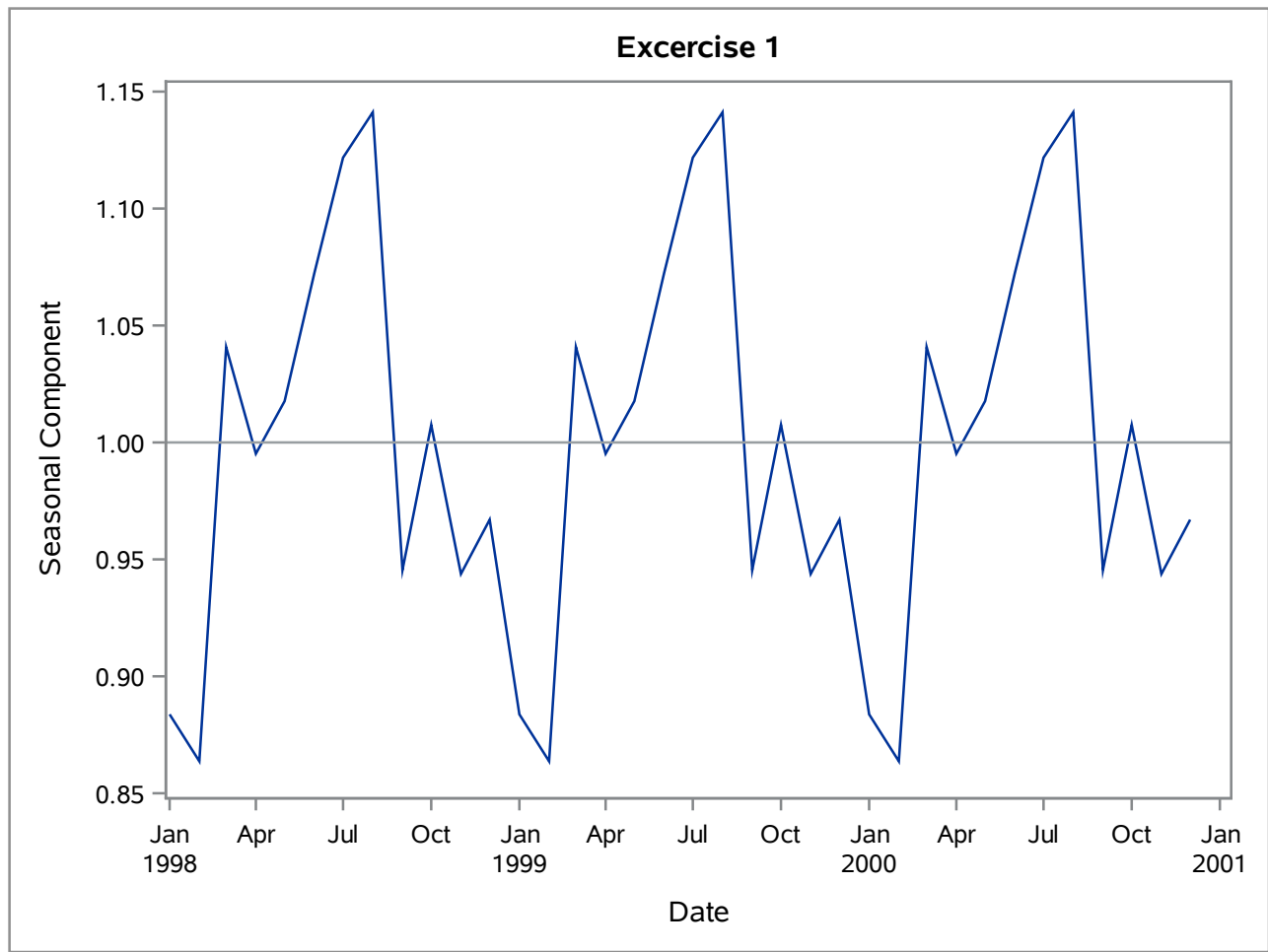


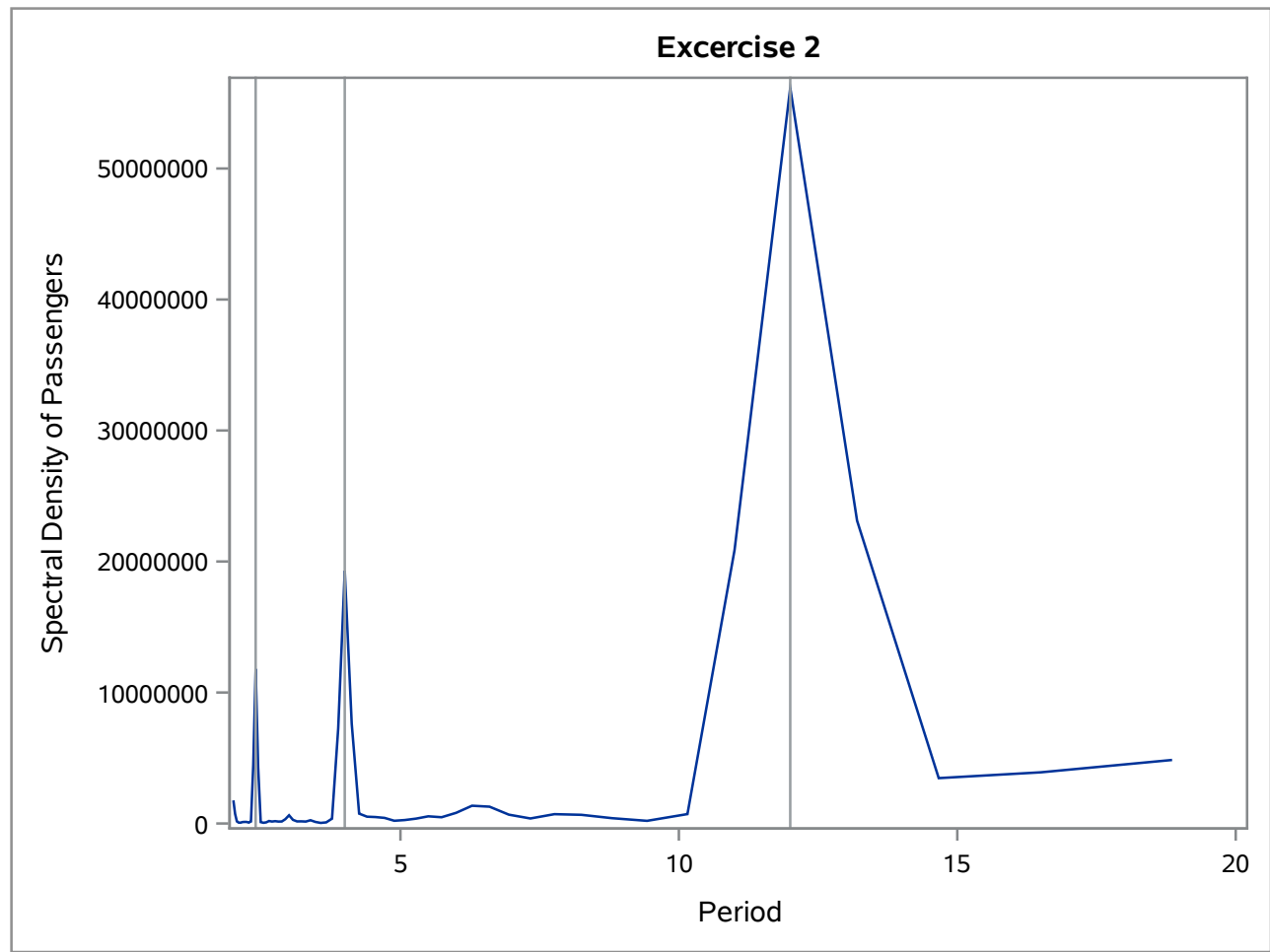
The TIMESERIES Procedure



The TIMESERIES Procedure







The ARIMA Procedure

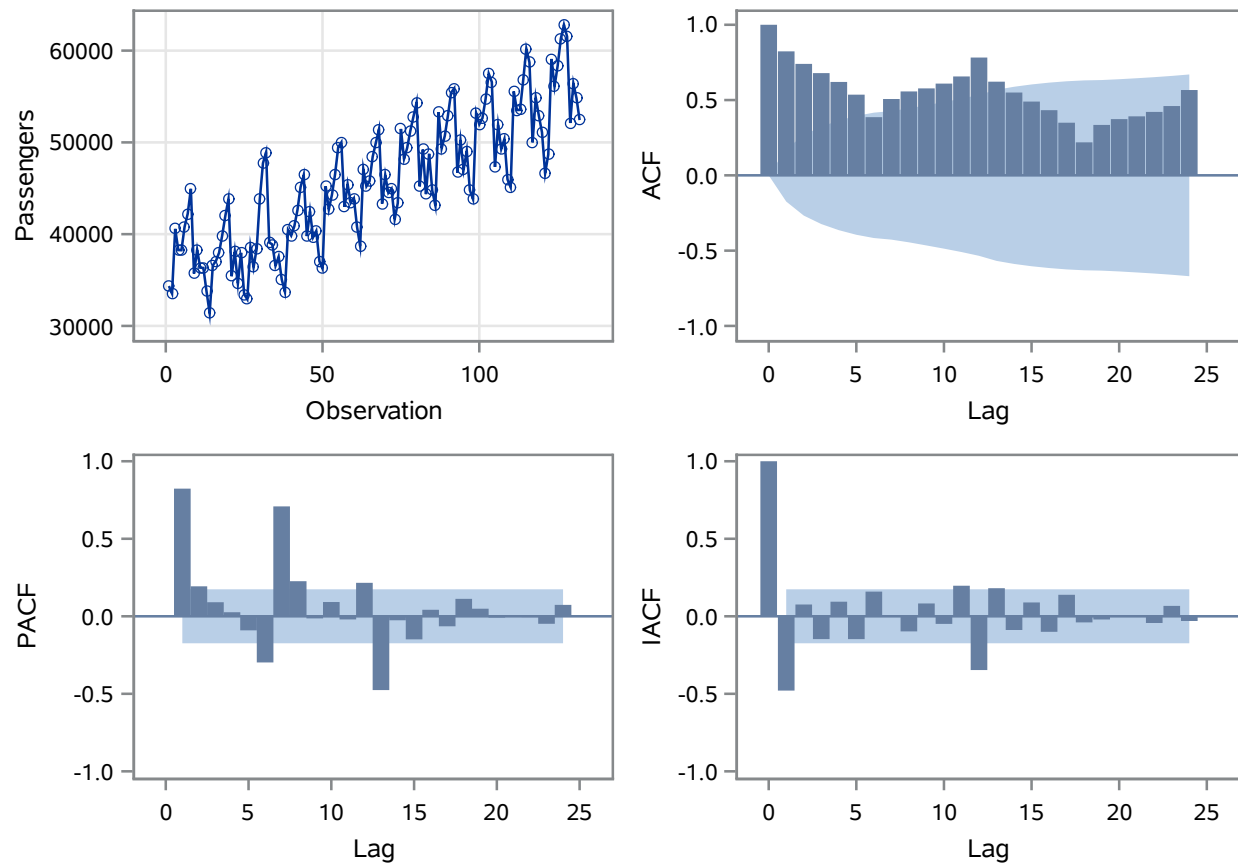
Name of Variable = Passengers	
Mean of Working Series	45772.13
Standard Deviation	7268.874
Number of Observations	132

Autocorrelation Check for White Noise									
To Lag	Chi-Square	DF	Pr > ChiSq	Autocorrelations					
6	343.34	6	<.0001	0.823	0.740	0.679	0.620	0.536	0.386
12	679.01	12	<.0001	0.507	0.557	0.577	0.609	0.657	0.782
18	872.94	18	<.0001	0.622	0.550	0.490	0.433	0.350	0.219
24	1052.45	24	<.0001	0.335	0.373	0.392	0.421	0.460	0.567

Augmented Dickey-Fuller Unit Root Tests							
Type	Lags	Rho	Pr < Rho	Tau	Pr < Tau	F	Pr > F
Zero Mean	0	-0.1681	0.6433	-0.16	0.6264		
	1	0.1000	0.7046	0.13	0.7224		
	2	0.1046	0.7057	0.16	0.7304		
	3	0.1359	0.7131	0.22	0.7480		
Single Mean	0	-22.4408	0.0049	-3.55	0.0083	6.37	0.0043
	1	-14.6103	0.0390	-2.78	0.0641	4.02	0.0871
	2	-11.0329	0.0983	-2.27	0.1839	2.69	0.3845
	3	-10.4880	0.1128	-2.17	0.2186	2.49	0.4352
Trend	0	-73.2890	0.0004	-7.02	<.0001	24.66	0.0010
	1	-69.2023	0.0004	-5.77	<.0001	16.66	0.0010
	2	-85.3714	0.0004	-5.55	<.0001	15.42	0.0010
	3	-162.670	0.0001	-5.84	<.0001	17.03	0.0010

The ARIMA Procedure

Trend and Correlation Analysis for Passengers

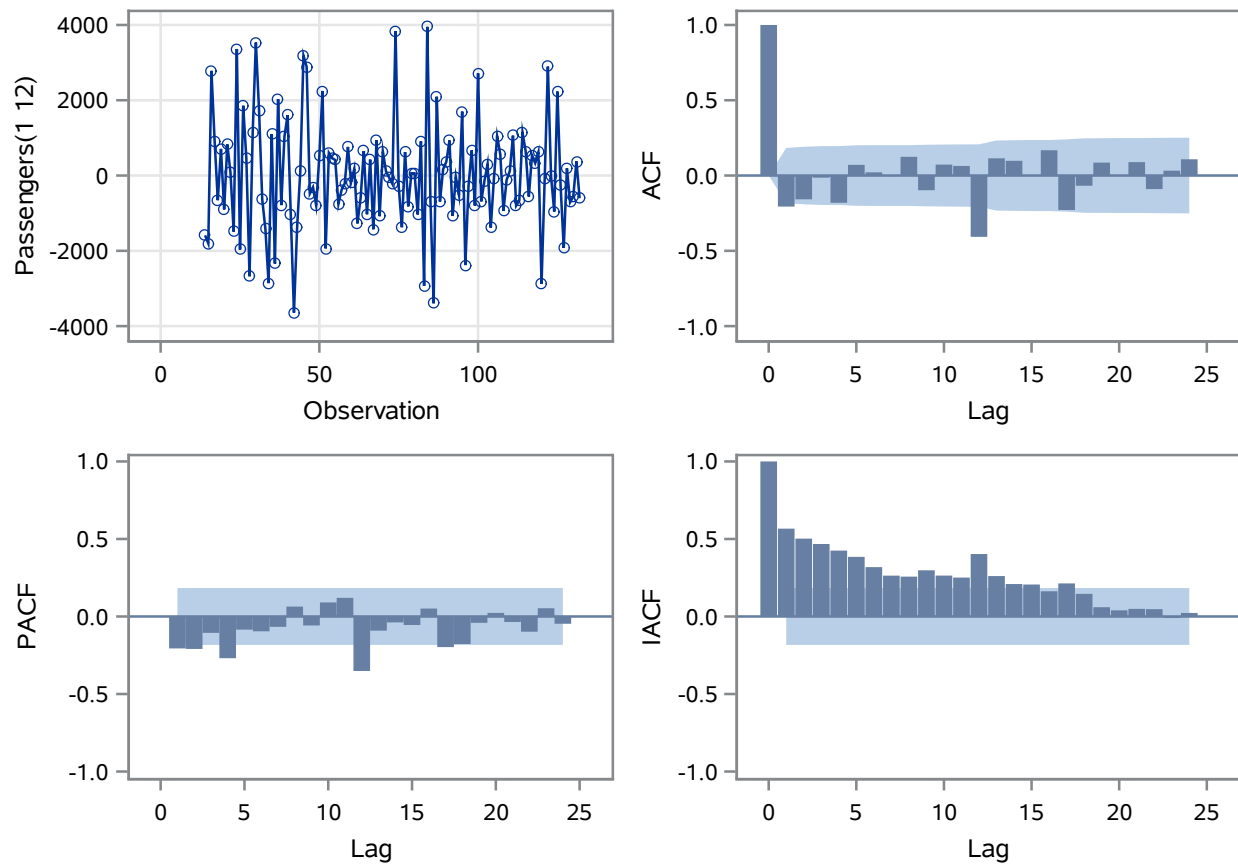


The ARIMA Procedure

Name of Variable = Passengers	
Period(s) of Differencing	1,12
Mean of Working Series	16.05042
Standard Deviation	1478.926
Number of Observations	119
Observation(s) eliminated by differencing	13

Autocorrelation Check for White Noise									
To Lag	Chi-Square	DF	Pr > ChiSq	Autocorrelations					
6	13.06	6	0.0421	-0.206	-0.158	-0.014	-0.181	0.071	0.021
12	39.86	12	<.0001	-0.003	0.124	-0.098	0.073	0.064	-0.407
18	54.92	18	<.0001	0.114	0.098	-0.001	0.168	-0.229	-0.067
24	60.27	24	<.0001	0.086	-0.001	0.089	-0.090	0.032	0.108

Trend and Correlation Analysis for Passengers(1 12)



The ARIMA Procedure

Maximum Likelihood Estimation					
Parameter	Estimate	Standard Error	t Value	Approx Pr > t	Lag
MU	17.20648	38.13874	0.45	0.6519	0
MA1,1	0.38357	0.08524	4.50	<.0001	1
MA2,1	0.52598	0.09710	5.42	<.0001	12

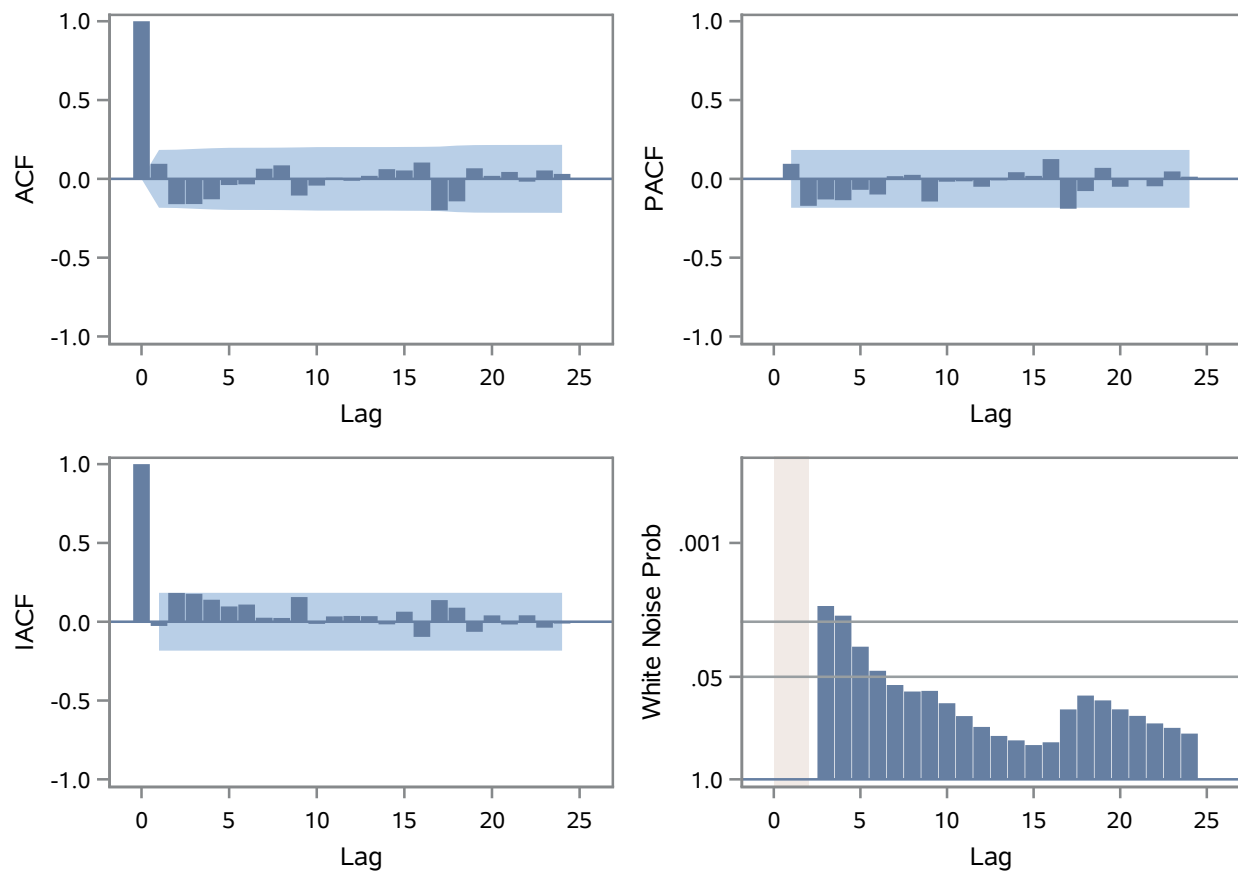
Constant Estimate	17.20648
Variance Estimate	1605005
Std Error Estimate	1266.888
AIC	2045.062
SBC	2053.4
Number of Residuals	119

Correlations of Parameter Estimates			
Parameter	MU	MA1,1	MA2,1
MU	1.000	0.032	0.023
MA1,1	0.032	1.000	-0.005
MA2,1	0.023	-0.005	1.000

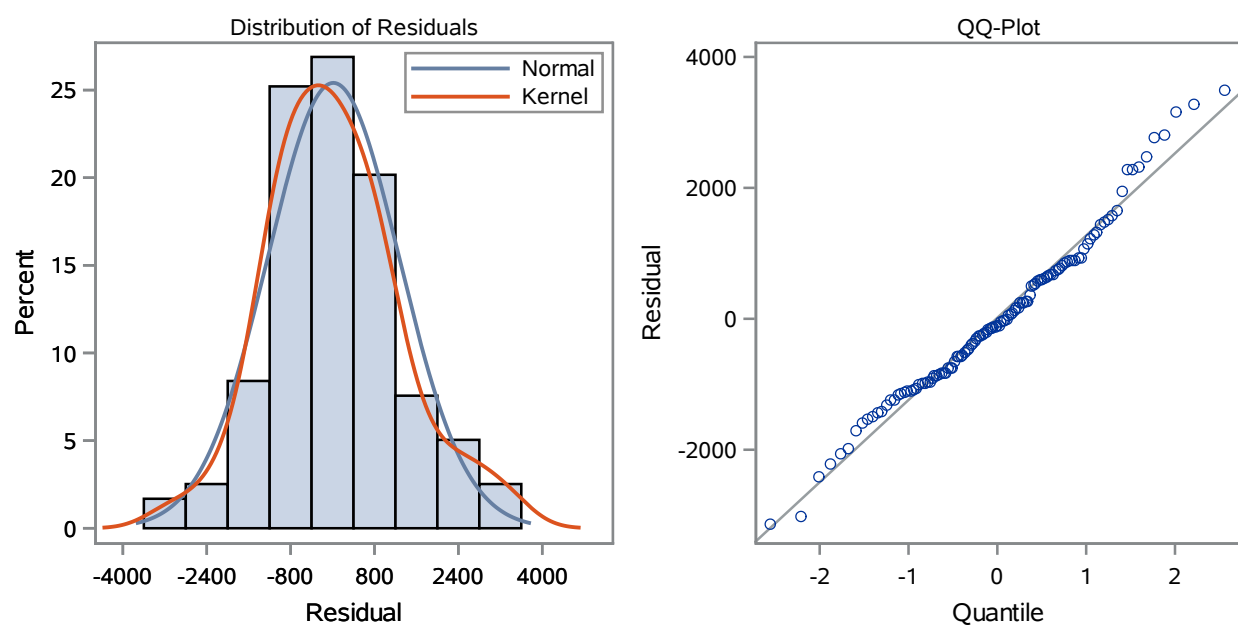
Autocorrelation Check of Residuals									
To Lag	Chi-Square	DF	Pr > ChiSq	Autocorrelations					
6	9.85	4	0.0430	0.096	-0.160	-0.159	-0.129	-0.039	-0.034
12	13.08	10	0.2194	0.065	0.086	-0.106	-0.042	0.007	-0.012
18	24.11	16	0.0872	0.019	0.062	0.054	0.104	-0.200	-0.143
24	25.70	22	0.2648	0.067	0.019	0.044	-0.018	0.053	0.031

The ARIMA Procedure

Residual Correlation Diagnostics for Passengers(1 12)



Residual Normality Diagnostics for Passengers(1 12)



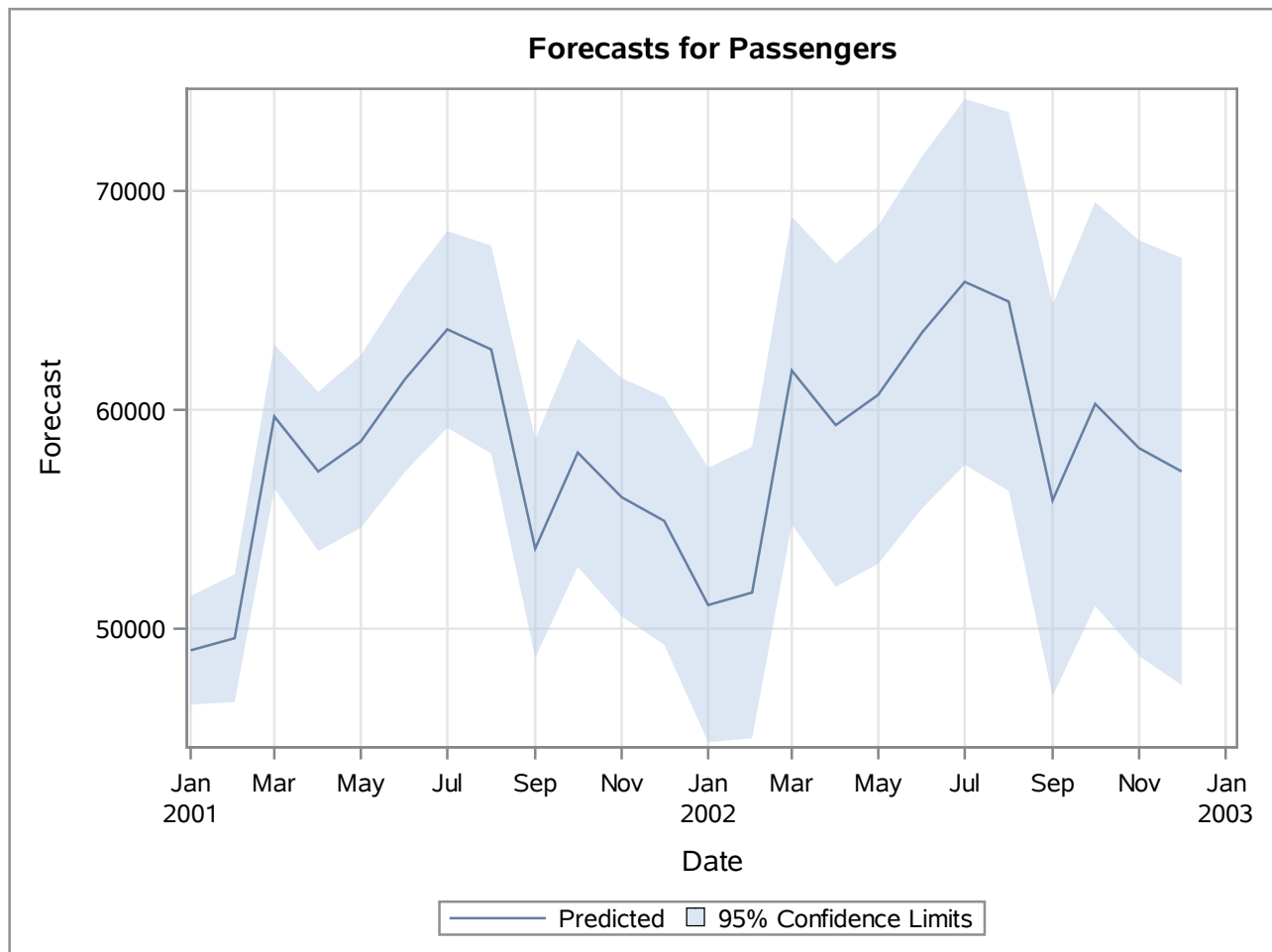
Model for variable Passengers	
Estimated Mean	17.20648
Period(s) of Differencing	1,12

The ARIMA Procedure

Moving Average Factors	
Factor 1:	1 - 0.38357 B**(1)
Factor 2:	1 - 0.52598 B**(12)

Forecasts for variable Passengers				
Obs	Forecast	Std Error	95% Confidence Limits	
133	49013.6358	1266.8877	46530.5815	51496.6901
134	49567.1225	1488.2452	46650.2154	52484.0295
135	59694.0106	1680.6972	56399.9046	62988.1167
136	57181.7852	1853.2708	53549.4412	60814.1292
137	58554.7092	2011.0897	54613.0458	62496.3727
138	61387.2242	2157.3946	57158.8086	65615.6399
139	63677.2983	2294.3889	59180.3786	68174.2180
140	62757.3308	2423.6522	58007.0598	67507.6018
141	53660.4310	2546.3620	48669.6532	58651.2088
142	58048.3546	2663.4242	52828.1390	63268.5702
143	56008.2803	2775.5536	50568.2951	61448.2654
144	54927.0709	2883.3257	49275.8563	60578.2855
145	51082.1263	3197.1913	44815.7465	57348.5060
146	51652.8194	3398.1050	44992.6561	58312.9827
147	61796.9140	3587.7852	54764.9843	68828.8438
148	59301.8951	3767.9288	51916.8903	66686.8999
149	60692.0256	3939.8443	52970.0728	68413.9785
150	63541.7471	4104.5655	55496.9466	71586.5477
151	65849.0277	4262.9266	57493.8451	74204.2103
152	64946.2666	4415.6119	56291.8264	73600.7069
153	55866.5733	4563.1912	46922.8830	64810.2636
154	60271.7034	4706.1448	51047.8291	69495.5777
155	58248.8356	4844.8822	48753.0409	67744.6303
156	57184.8327	4979.7559	47424.6904	66944.9749

The ARIMA Procedure

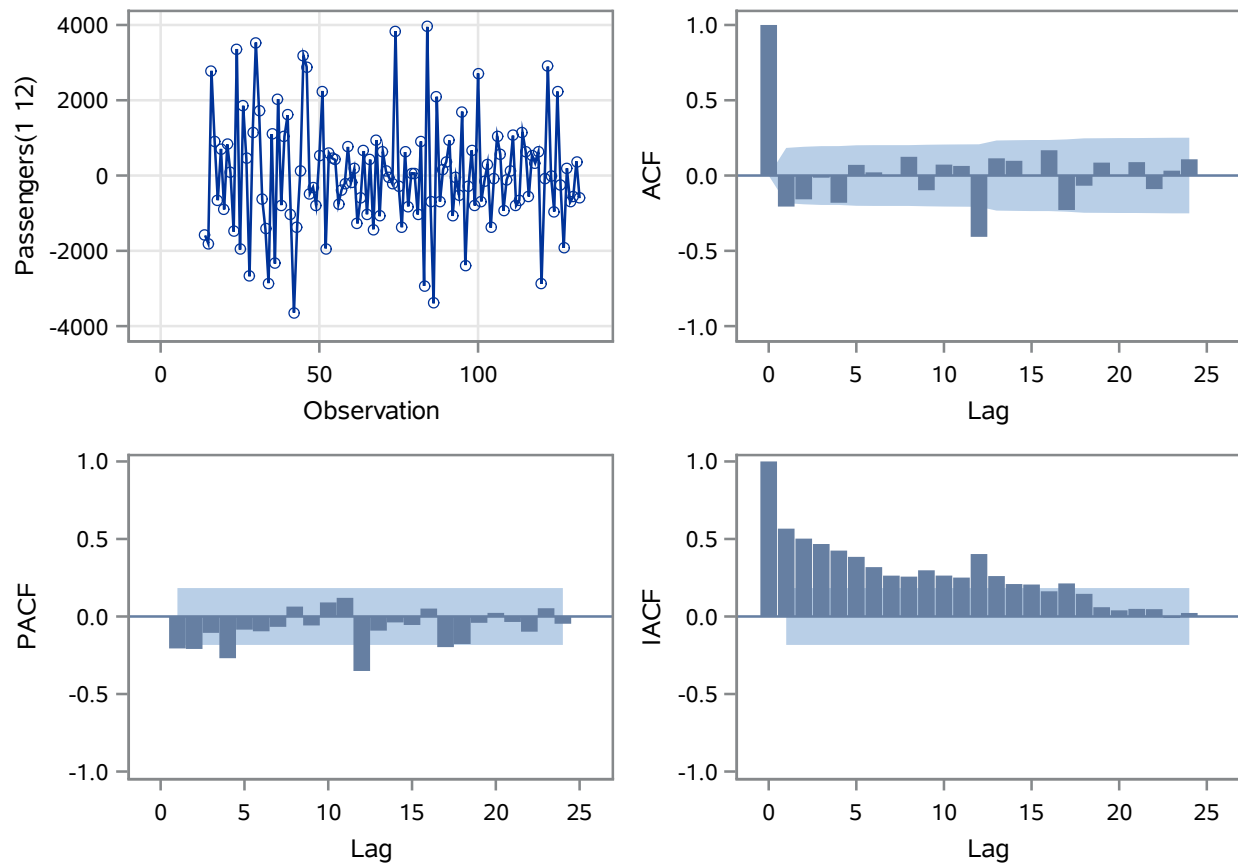


The ARIMA Procedure

Name of Variable = Passengers	
Period(s) of Differencing	1,12
Mean of Working Series	16.05042
Standard Deviation	1478.926
Number of Observations	119
Observation(s) eliminated by differencing	13

Autocorrelation Check for White Noise									
To Lag	Chi-Square	DF	Pr > ChiSq	Autocorrelations					
6	13.06	6	0.0421	-0.206	-0.158	-0.014	-0.181	0.071	0.021
12	39.86	12	<.0001	-0.003	0.124	-0.098	0.073	0.064	-0.407
18	54.92	18	<.0001	0.114	0.098	-0.001	0.168	-0.229	-0.067
24	60.27	24	<.0001	0.086	-0.001	0.089	-0.090	0.032	0.108

Trend and Correlation Analysis for Passengers(1 12)



The ARIMA Procedure

Maximum Likelihood Estimation					
Parameter	Estimate	Standard Error	t Value	Approx Pr > t	Lag
MU	16.65439	15.79306	1.05	0.2916	0
MA1,1	0.87853	0.07665	11.46	<.0001	1
MA2,1	0.52034	0.09722	5.35	<.0001	12
AR1,1	0.51025	0.12386	4.12	<.0001	1

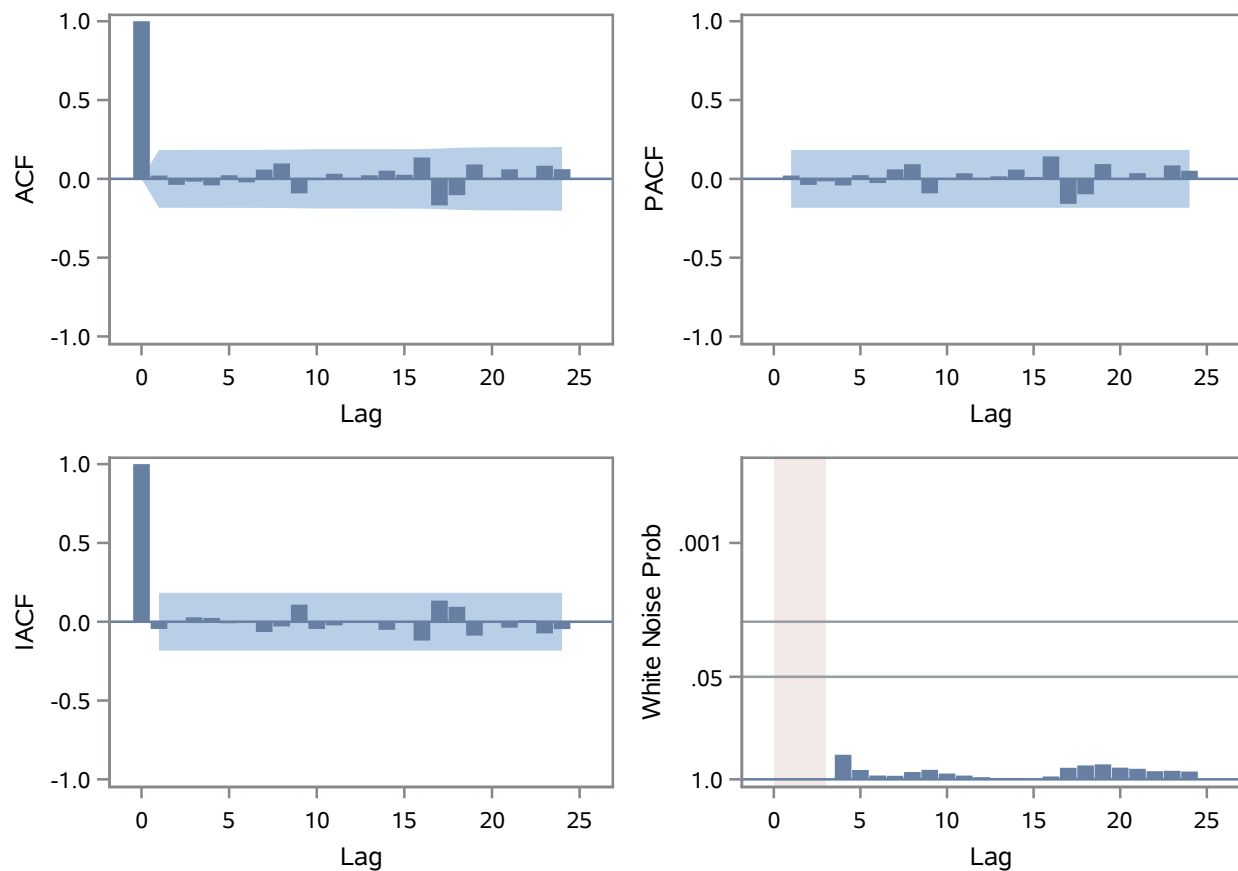
Constant Estimate	8.156536
Variance Estimate	1476186
Std Error Estimate	1214.984
AIC	2036.642
SBC	2047.758
Number of Residuals	119

Correlations of Parameter Estimates				
Parameter	MU	MA1,1	MA2,1	AR1,1
MU	1.000	0.009	0.010	-0.019
MA1,1	0.009	1.000	-0.136	0.757
MA2,1	0.010	-0.136	1.000	-0.094
AR1,1	-0.019	0.757	-0.094	1.000

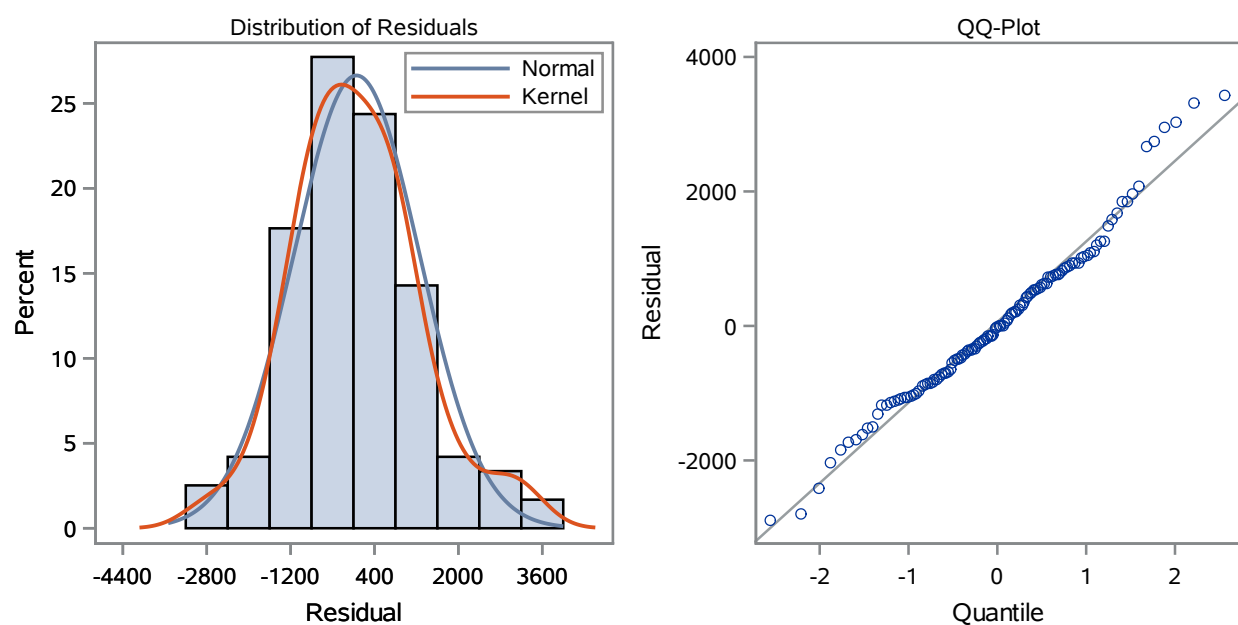
Autocorrelation Check of Residuals									
To Lag	Chi-Square	DF	Pr > ChiSq	Autocorrelations					
6	0.54	3	0.9092	0.025	-0.034	-0.014	-0.037	0.027	-0.018
12	3.54	9	0.9392	0.062	0.100	-0.089	-0.005	0.034	-0.000
18	12.22	15	0.6625	0.025	0.054	0.028	0.137	-0.167	-0.104
24	15.53	21	0.7953	0.090	0.003	0.060	-0.006	0.083	0.061

The ARIMA Procedure

Residual Correlation Diagnostics for Passengers(1 12)



Residual Normality Diagnostics for Passengers(1 12)



Model for variable Passengers	
Estimated Mean	16.65439
Period(s) of Differencing	1,12

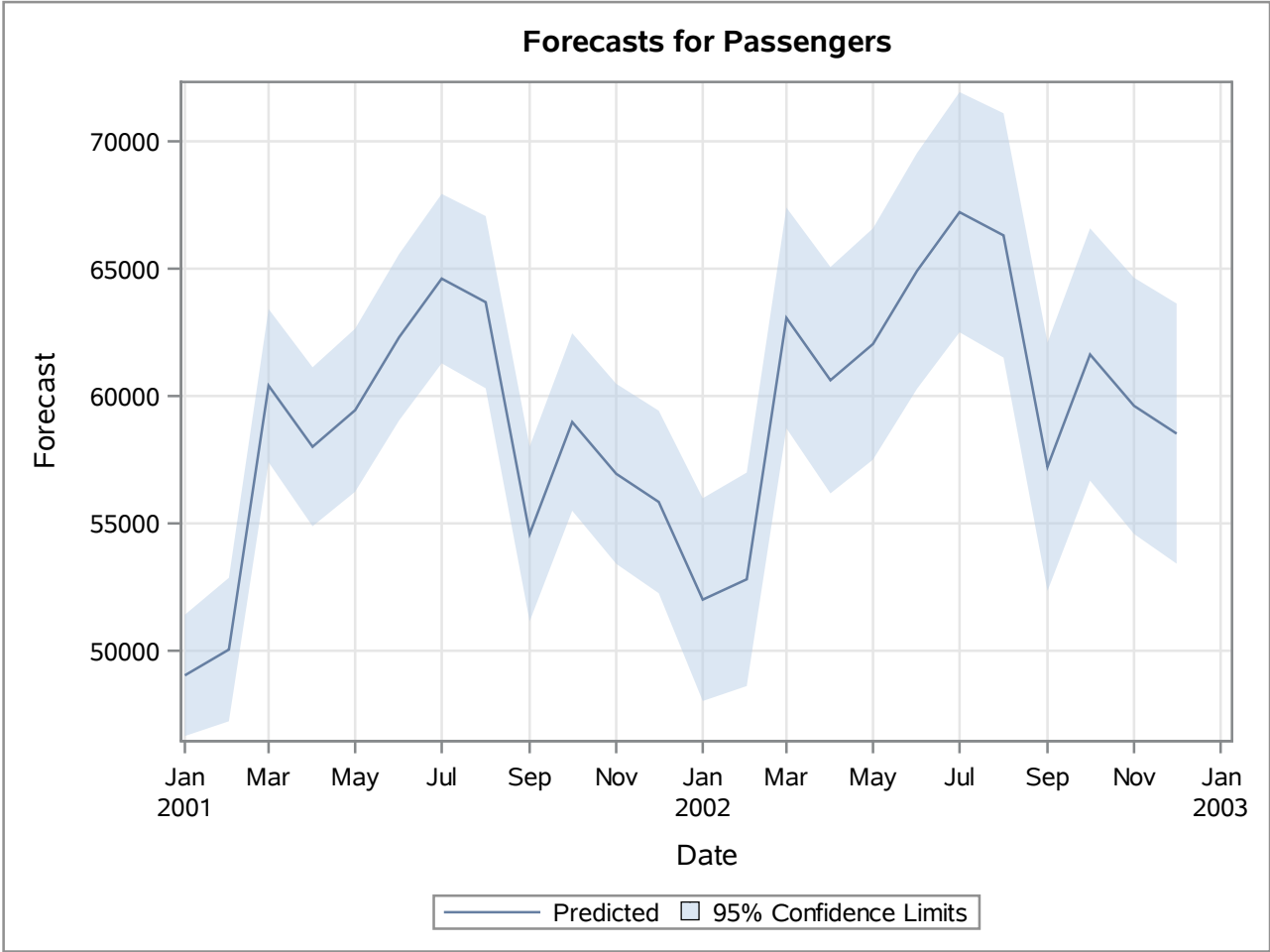
The ARIMA Procedure

Autoregressive Factors	
Factor 1:	1 - 0.51025 B**(1)

Moving Average Factors	
Factor 1:	1 - 0.87853 B**(1)
Factor 2:	1 - 0.52034 B**(12)

Forecasts for variable Passengers				
Obs	Forecast	Std Error	95% Confidence Limits	
133	49032.9663	1214.9840	46651.6415	51414.2912
134	50046.0285	1437.1058	47229.3528	52862.7041
135	60408.5198	1534.9309	57400.1105	63416.9290
136	58007.6790	1592.0717	54887.2759	61128.0821
137	59444.5666	1632.9885	56243.9680	62645.1652
138	62309.8147	1666.5817	59043.3745	65576.2549
139	64609.5545	1696.5473	61284.3830	67934.7260
140	63684.3598	1724.5577	60304.2888	67064.4307
141	54585.9205	1751.4130	51153.2141	58018.6268
142	58979.5502	1777.5105	55495.6936	62463.4068
143	56947.3225	1803.0542	53413.4013	60481.2437
144	55840.5523	1828.1525	52257.4392	59423.6653
145	52006.3945	2030.8345	48026.0321	55986.7568
146	52804.5718	2138.3833	48613.4177	56995.7260
147	63065.5754	2210.5034	58733.0683	67398.0824
148	60621.1073	2267.2593	56177.3608	65064.8538
149	62043.8907	2316.6036	57503.4311	66584.3503
150	64910.0988	2362.0340	60280.5972	69539.6004
151	67218.4850	2405.1950	62504.3893	71932.5806
152	66305.8585	2446.8955	61510.0315	71101.6856
153	57221.9887	2487.5482	52346.4838	62097.4935
154	61631.2090	2527.3724	56677.6500	66584.7679
155	59615.0929	2566.4912	54584.8625	64645.3232
156	58524.7000	2604.9786	53419.0358	63630.3643

The ARIMA Procedure



The ARIMA Procedure

Name of Variable = Passengers	
Mean of Working Series	45772.13
Standard Deviation	7268.874
Number of Observations	132

Autocorrelation Check for White Noise									
To Lag	Chi-Square	DF	Pr > ChiSq	Autocorrelations					
6	343.34	6	<.0001	0.823	0.740	0.679	0.620	0.536	0.386
12	679.01	12	<.0001	0.507	0.557	0.577	0.609	0.657	0.782
18	872.94	18	<.0001	0.622	0.550	0.490	0.433	0.350	0.219
24	1052.45	24	<.0001	0.335	0.373	0.392	0.421	0.460	0.567

Correlation of Passengers and Time	
Variance of input =	2027.917
Number of Observations	132

Correlation of Passengers and MON1	
Variance of input =	0.076389
Number of Observations	132

Correlation of Passengers and MON2	
Variance of input =	0.076389
Number of Observations	132

Correlation of Passengers and MON3	
Variance of input =	0.076389
Number of Observations	132

Correlation of Passengers and MON4	
Variance of input =	0.076389
Number of Observations	132

The ARIMA Procedure

Correlation of Passengers and MON5	
Variance of input =	0.076389
Number of Observations	132

Correlation of Passengers and MON6	
Variance of input =	0.076389
Number of Observations	132

Correlation of Passengers and MON7	
Variance of input =	0.076389
Number of Observations	132

Correlation of Passengers and MON8	
Variance of input =	0.076389
Number of Observations	132

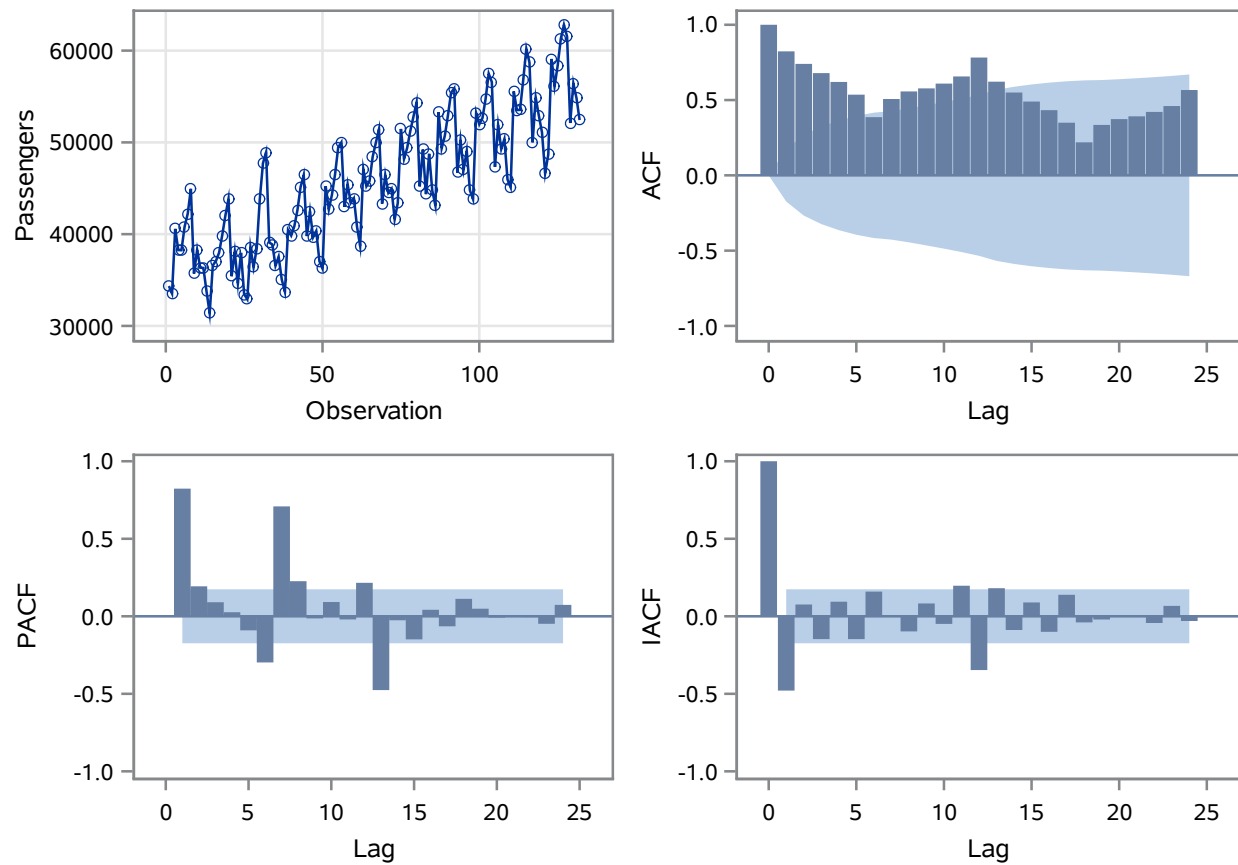
Correlation of Passengers and MON9	
Variance of input =	0.076389
Number of Observations	132

Correlation of Passengers and MON10	
Variance of input =	0.076389
Number of Observations	132

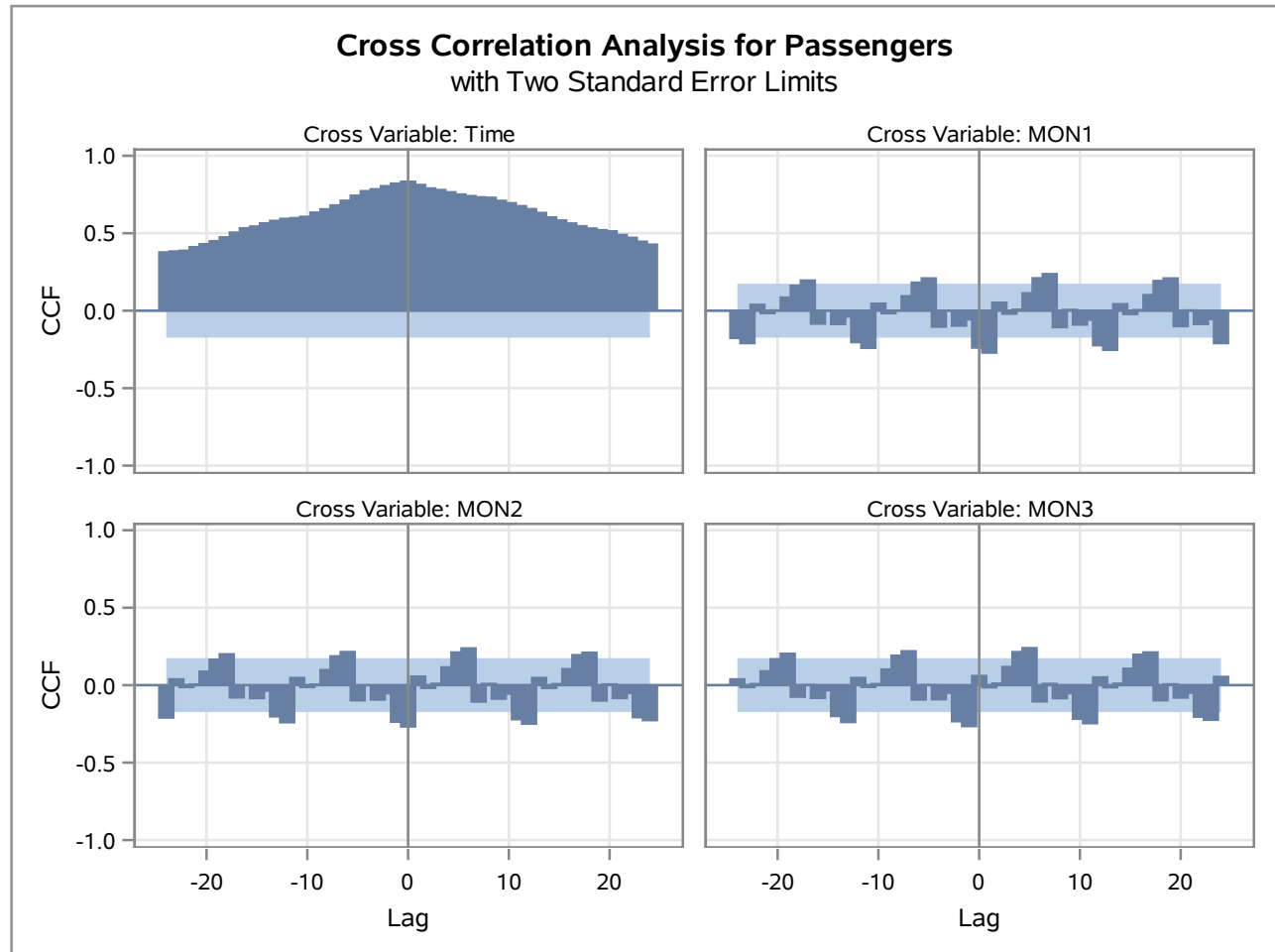
Correlation of Passengers and MON11	
Variance of input =	0.076389
Number of Observations	132

The ARIMA Procedure

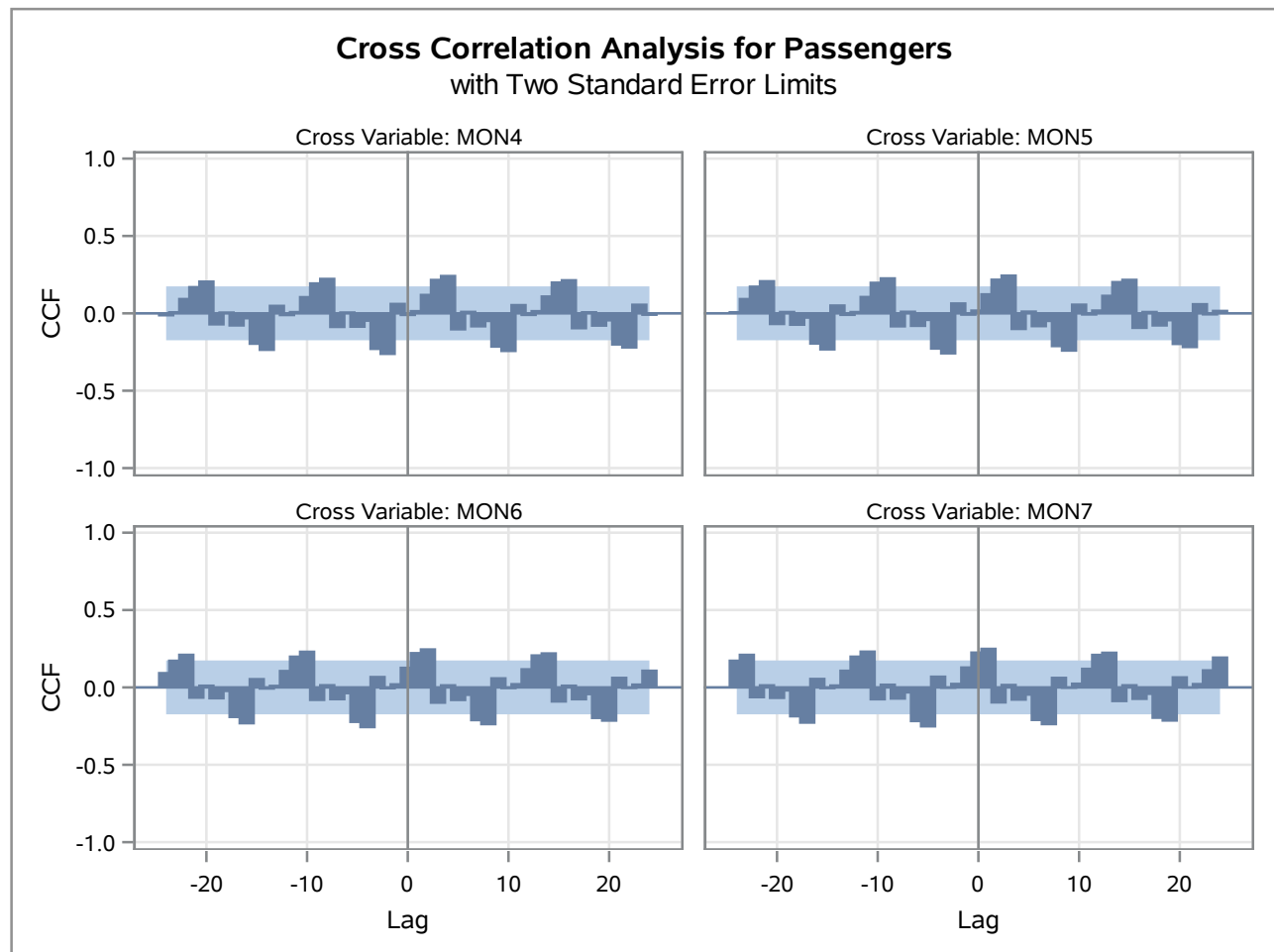
Trend and Correlation Analysis for Passengers



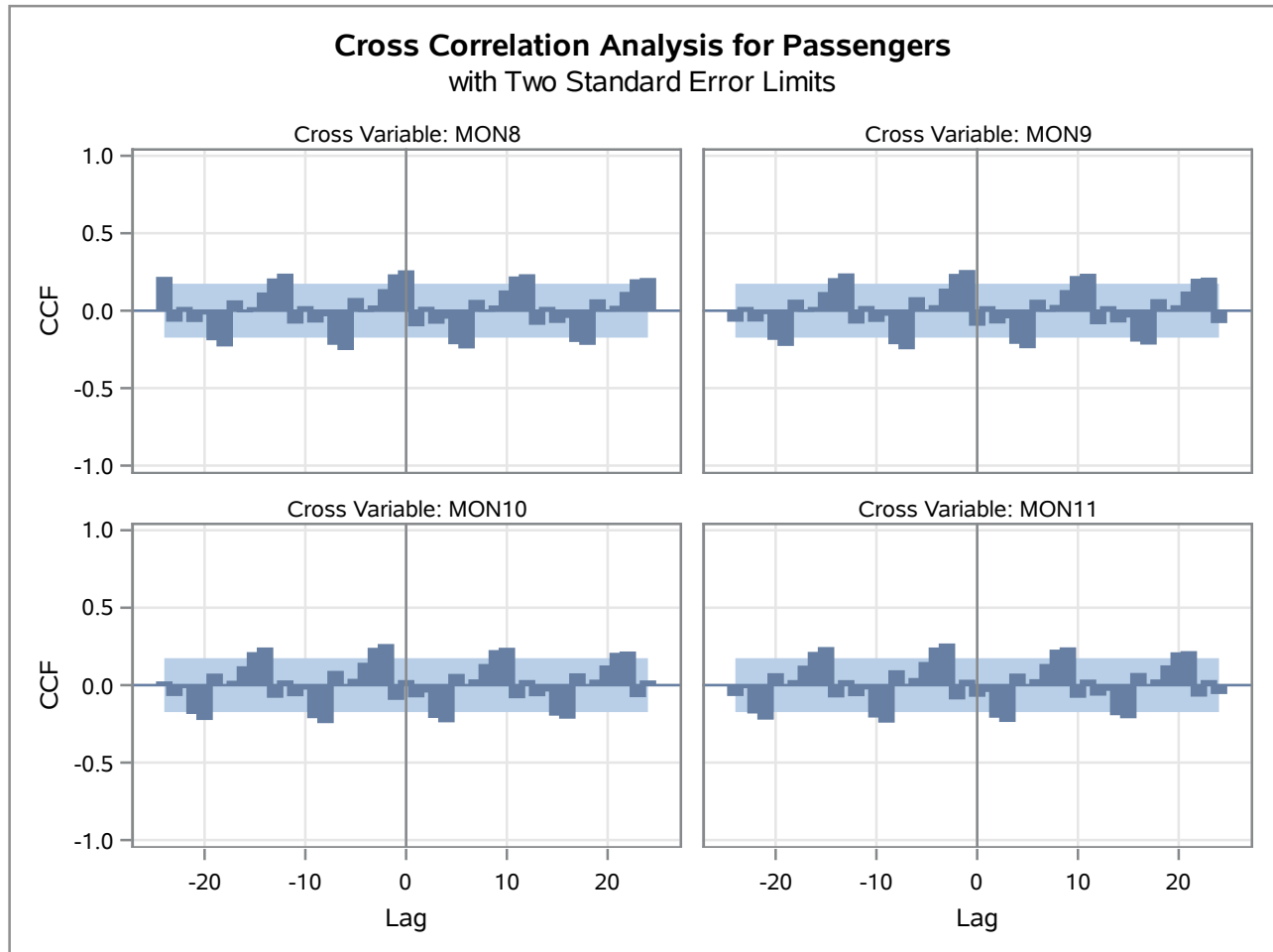
The ARIMA Procedure



The ARIMA Procedure



The ARIMA Procedure



Conditional Least Squares Estimation							
Parameter	Estimate	Standard Error	t Value	Approx Pr > t	Lag	Variable	Shift
MU	33365.5	517.86189	64.43	<.0001	0	Passengers	0
NUM1	158.73523	3.45518	45.94	<.0001	0	Time	0
NUM2	-3207.5	643.45208	-4.98	<.0001	0	MON1	0
NUM3	-4061.5	643.25724	-6.31	<.0001	0	MON2	0
NUM4	4012.7	643.08091	6.24	<.0001	0	MON3	0
NUM5	1805.9	642.92309	2.81	0.0058	0	MON4	0
NUM6	2703.5	642.78381	4.21	<.0001	0	MON5	0
NUM7	5165.8	642.66308	8.04	<.0001	0	MON6	0
NUM8	7383.4	642.56090	11.49	<.0001	0	MON7	0
NUM9	7896.1	642.47729	12.29	<.0001	0	MON8	0
NUM10	-895.61250	642.41225	-1.39	0.1659	0	MON9	0
NUM11	2085.1	642.36579	3.25	0.0015	0	MON10	0
NUM12	-679.35568	642.33791	-1.06	0.2924	0	MON11	0

The ARIMA Procedure

Constant Estimate	33365.52
Variance Estimate	2269223
Std Error Estimate	1506.394
AIC	2318.727
SBC	2356.204
Number of Residuals	132

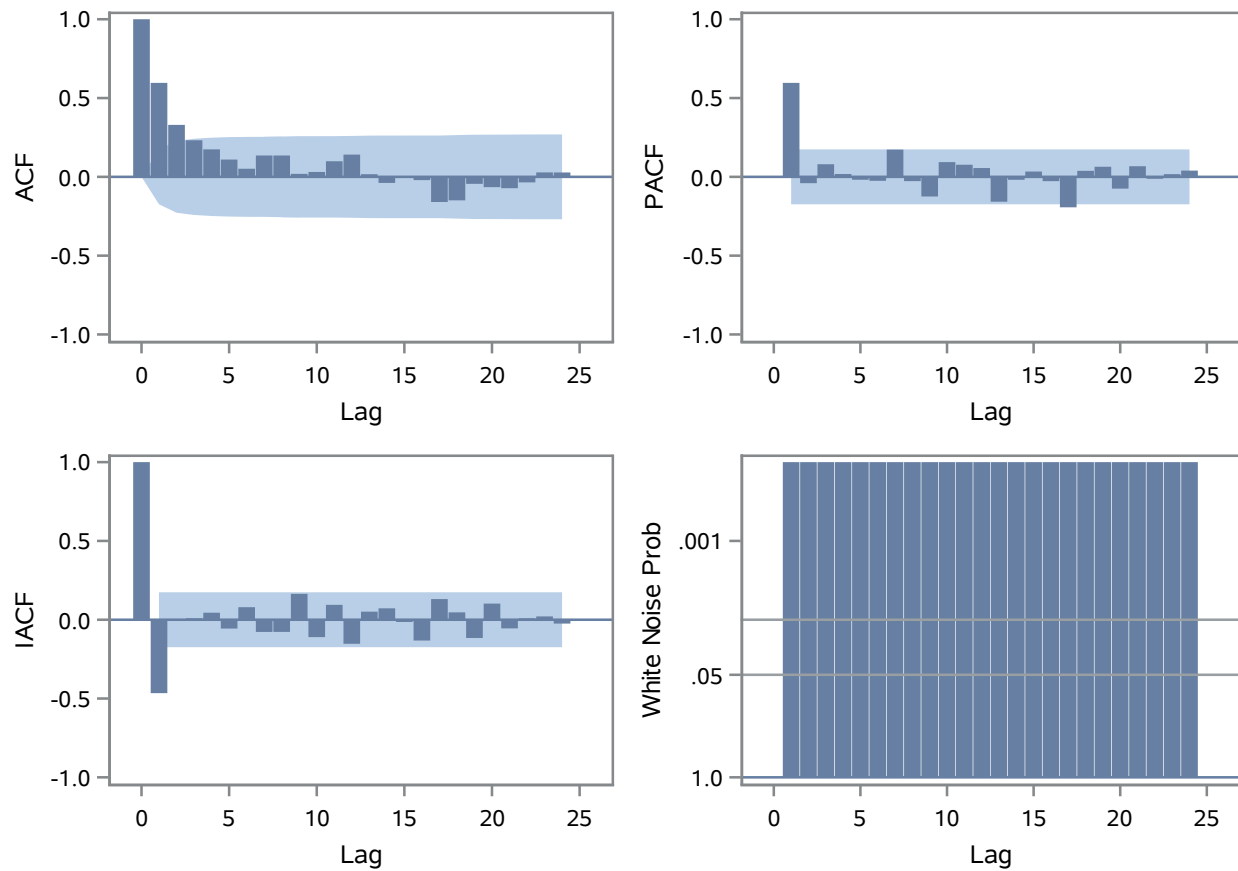
* AIC and SBC do not include log determinant.

Correlations of Parameter Estimates													
Variable Parameter	Passengers MU	Time NUM1	MON1 NUM2	MON2 NUM3	MON3 NUM4	MON4 NUM5	MON5 NUM6	MON6 NUM7	MON7 NUM8	MON8 NUM9	MON9 NUM10	MON10 NUM11	MON11 NUM12
Passengers MU	1.000	-0.480	-0.647	-0.645	-0.643	-0.640	-0.638	-0.635	-0.633	-0.630	-0.628	-0.625	-0.623
Time NUM1	-0.480	1.000	0.059	0.054	0.048	0.043	0.038	0.032	0.027	0.022	0.016	0.011	0.005
MON1 NUM2	-0.647	0.059	1.000	0.502	0.501	0.501	0.501	0.501	0.501	0.500	0.500	0.500	0.499
MON2 NUM3	-0.645	0.054	0.502	1.000	0.501	0.501	0.501	0.501	0.501	0.500	0.500	0.500	0.500
MON3 NUM4	-0.643	0.048	0.501	0.501	1.000	0.501	0.501	0.501	0.501	0.500	0.500	0.500	0.500
MON4 NUM5	-0.640	0.043	0.501	0.501	0.501	1.000	0.501	0.501	0.501	0.500	0.500	0.500	0.500
MON5 NUM6	-0.638	0.038	0.501	0.501	0.501	0.501	1.000	0.501	0.500	0.500	0.500	0.500	0.500
MON6 NUM7	-0.635	0.032	0.501	0.501	0.501	0.501	0.501	1.000	0.500	0.500	0.500	0.500	0.500
MON7 NUM8	-0.633	0.027	0.501	0.501	0.501	0.501	0.500	0.500	1.000	0.500	0.500	0.500	0.500
MON8 NUM9	-0.630	0.022	0.500	0.500	0.500	0.500	0.500	0.500	0.500	1.000	0.500	0.500	0.500
MON9 NUM10	-0.628	0.016	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	1.000	0.500	0.500
MON10 NUM11	-0.625	0.011	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	1.000	0.500
MON11 NUM12	-0.623	0.005	0.499	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	0.500	1.000

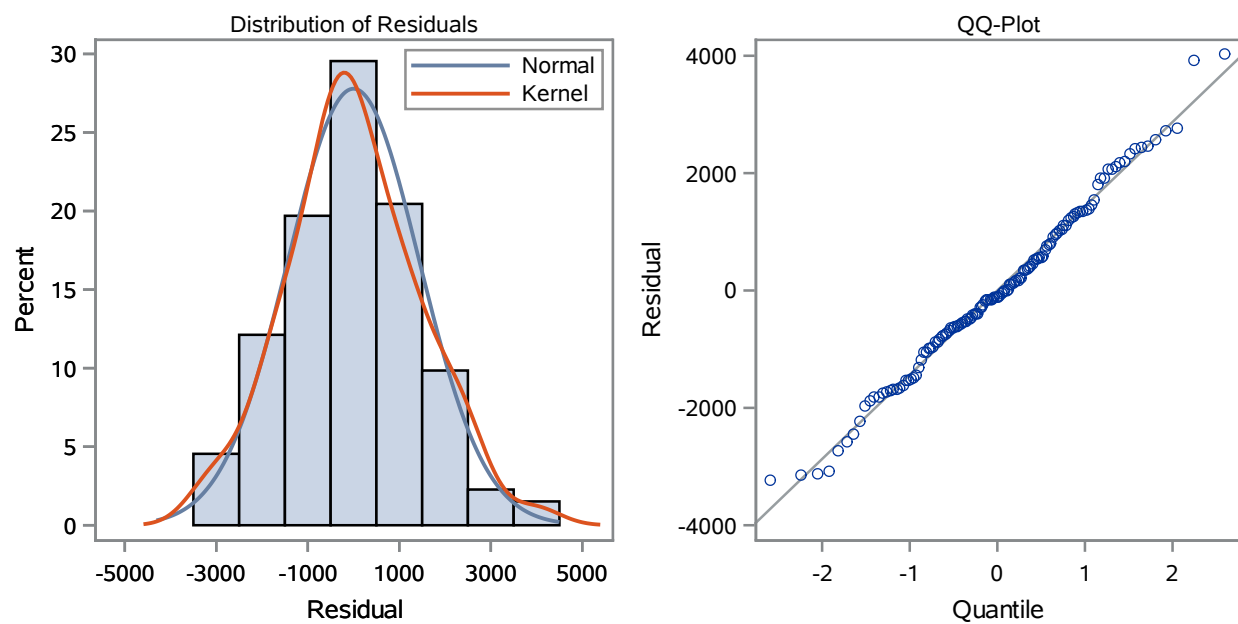
Autocorrelation Check of Residuals									
To Lag	Chi-Square	DF	Pr > ChiSq	Autocorrelations					
6	76.46	6	<.0001	0.596	0.330	0.232	0.174	0.110	0.052
12	86.22	12	<.0001	0.135	0.135	0.019	0.031	0.099	0.141
18	93.91	18	<.0001	0.017	-0.038	0.005	-0.021	-0.159	-0.149
24	96.17	24	<.0001	-0.044	-0.065	-0.072	-0.035	0.028	0.028

The ARIMA Procedure

Residual Correlation Diagnostics for Passengers



Residual Normality Diagnostics for Passengers



Model for variable Passengers

Estimated Intercept 33365.52

The ARIMA Procedure

Input Number 1	
Input Variable	Time
Overall Regression Factor	158.7352

Input Number 2	
Input Variable	MON1
Overall Regression Factor	-3207.46

Input Number 3	
Input Variable	MON2
Overall Regression Factor	-4061.47

Input Number 4	
Input Variable	MON3
Overall Regression Factor	4012.708

Input Number 5	
Input Variable	MON4
Overall Regression Factor	1805.882

Input Number 6	
Input Variable	MON5
Overall Regression Factor	2703.51

Input Number 7	
Input Variable	MON6
Overall Regression Factor	5165.775

Input Number 8	
Input Variable	MON7
Overall Regression Factor	7383.403

Input Number 9	
Input Variable	MON8
Overall Regression Factor	7896.123

The ARIMA Procedure

Input Number 10	
Input Variable	MON9
Overall Regression Factor	-895.613

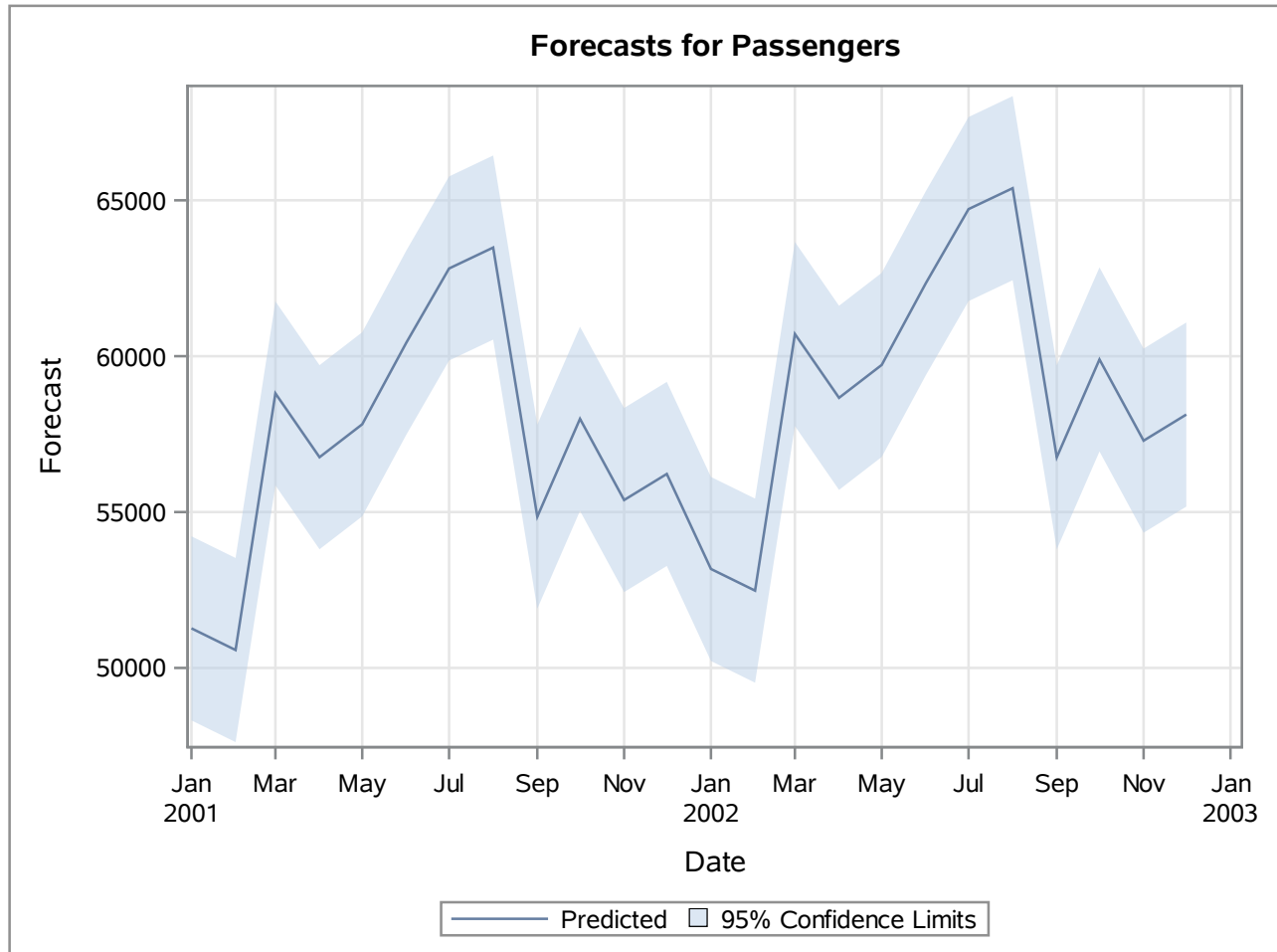
Input Number 11	
Input Variable	MON10
Overall Regression Factor	2085.107

Input Number 12	
Input Variable	MON11
Overall Regression Factor	-679.356

Forecasts for variable Passengers				
Obs	Forecast	Std Error	95% Confidence Limits	
133	51269.8455	1506.3941	48317.3672	54222.3237
134	50574.5727	1506.3941	47622.0945	53527.0510
135	58807.4818	1506.3941	55855.0036	61759.9601
136	56759.3909	1506.3941	53806.9127	59711.8692
137	57815.7545	1506.3941	54863.2763	60768.2328
138	60436.7545	1506.3941	57484.2763	63389.2328
139	62813.1182	1506.3941	59860.6399	65765.5964
140	63484.5727	1506.3941	60532.0945	66437.0510
141	54851.5727	1506.3941	51899.0945	57804.0510
142	57991.0273	1506.3941	55038.5490	60943.5055
143	55385.3000	1506.3941	52432.8217	58337.7783
144	56223.3909	1506.3941	53270.9127	59175.8692
145	53174.6682	1506.3941	50222.1899	56127.1464
146	52479.3955	1506.3941	49526.9172	55431.8737
147	60712.3045	1506.3941	57759.8263	63664.7828
148	58664.2136	1506.3941	55711.7354	61616.6919
149	59720.5773	1506.3941	56768.0990	62673.0555
150	62341.5773	1506.3941	59389.0990	65294.0555
151	64717.9409	1506.3941	61765.4627	67670.4192
152	65389.3955	1506.3941	62436.9172	68341.8737
153	56756.3955	1506.3941	53803.9172	59708.8737
154	59895.8500	1506.3941	56943.3717	62848.3283

The ARIMA Procedure

Forecasts for variable Passengers				
Obs	Forecast	Std Error	95% Confidence Limits	
155	57290.1227	1506.3941	54337.6445	60242.6010
156	58128.2136	1506.3941	55175.7354	61080.6919



The ARIMA Procedure

Name of Variable = Passengers	
Mean of Working Series	45772.13
Standard Deviation	7268.874
Number of Observations	132

Autocorrelation Check for White Noise									
To Lag	Chi-Square	DF	Pr > ChiSq	Autocorrelations					
6	343.34	6	<.0001	0.823	0.740	0.679	0.620	0.536	0.386
12	679.01	12	<.0001	0.507	0.557	0.577	0.609	0.657	0.782
18	872.94	18	<.0001	0.622	0.550	0.490	0.433	0.350	0.219
24	1052.45	24	<.0001	0.335	0.373	0.392	0.421	0.460	0.567

Correlation of Passengers and Time	
Variance of input =	2027.917
Number of Observations	132

Correlation of Passengers and MON1	
Variance of input =	0.076389
Number of Observations	132

Correlation of Passengers and MON2	
Variance of input =	0.076389
Number of Observations	132

Correlation of Passengers and MON3	
Variance of input =	0.076389
Number of Observations	132

Correlation of Passengers and MON4	
Variance of input =	0.076389
Number of Observations	132

The ARIMA Procedure

Correlation of Passengers and MON5	
Variance of input =	0.076389
Number of Observations	132

Correlation of Passengers and MON6	
Variance of input =	0.076389
Number of Observations	132

Correlation of Passengers and MON7	
Variance of input =	0.076389
Number of Observations	132

Correlation of Passengers and MON8	
Variance of input =	0.076389
Number of Observations	132

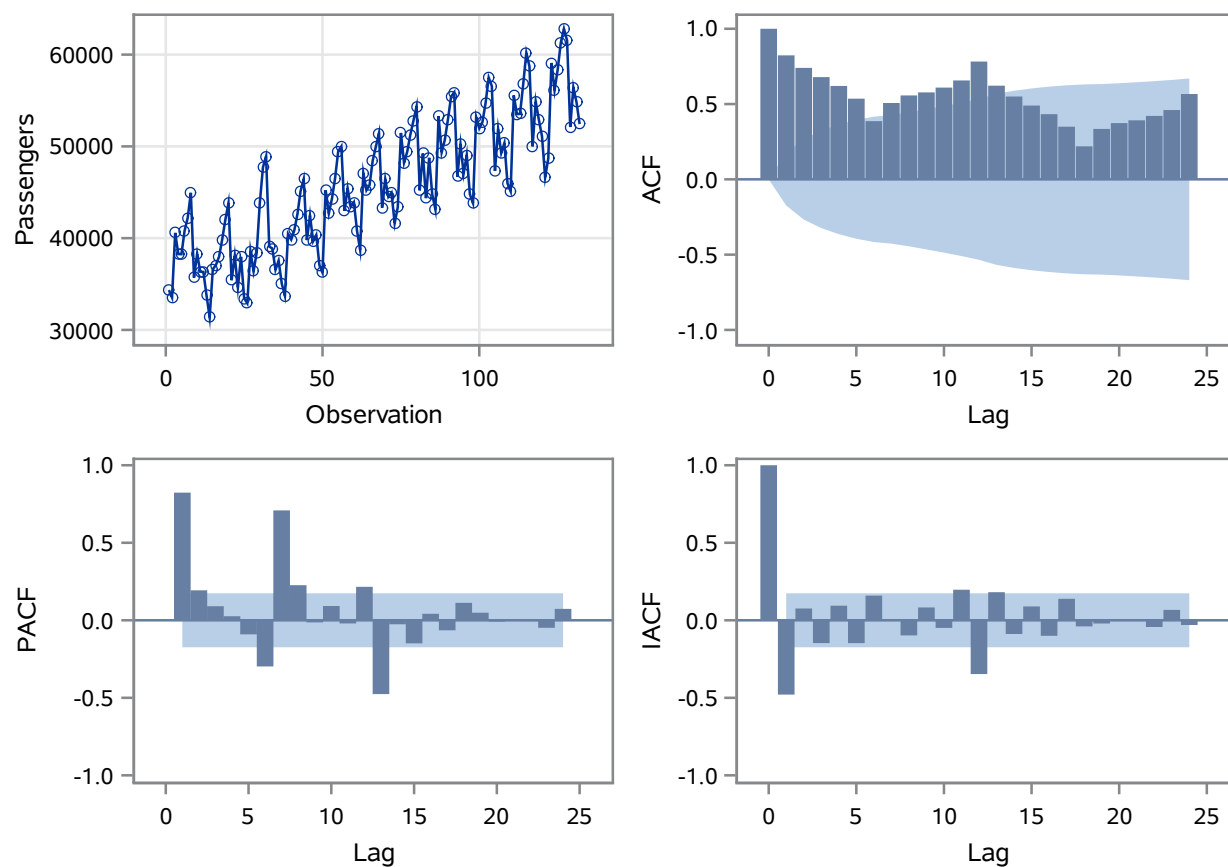
Correlation of Passengers and MON9	
Variance of input =	0.076389
Number of Observations	132

Correlation of Passengers and MON10	
Variance of input =	0.076389
Number of Observations	132

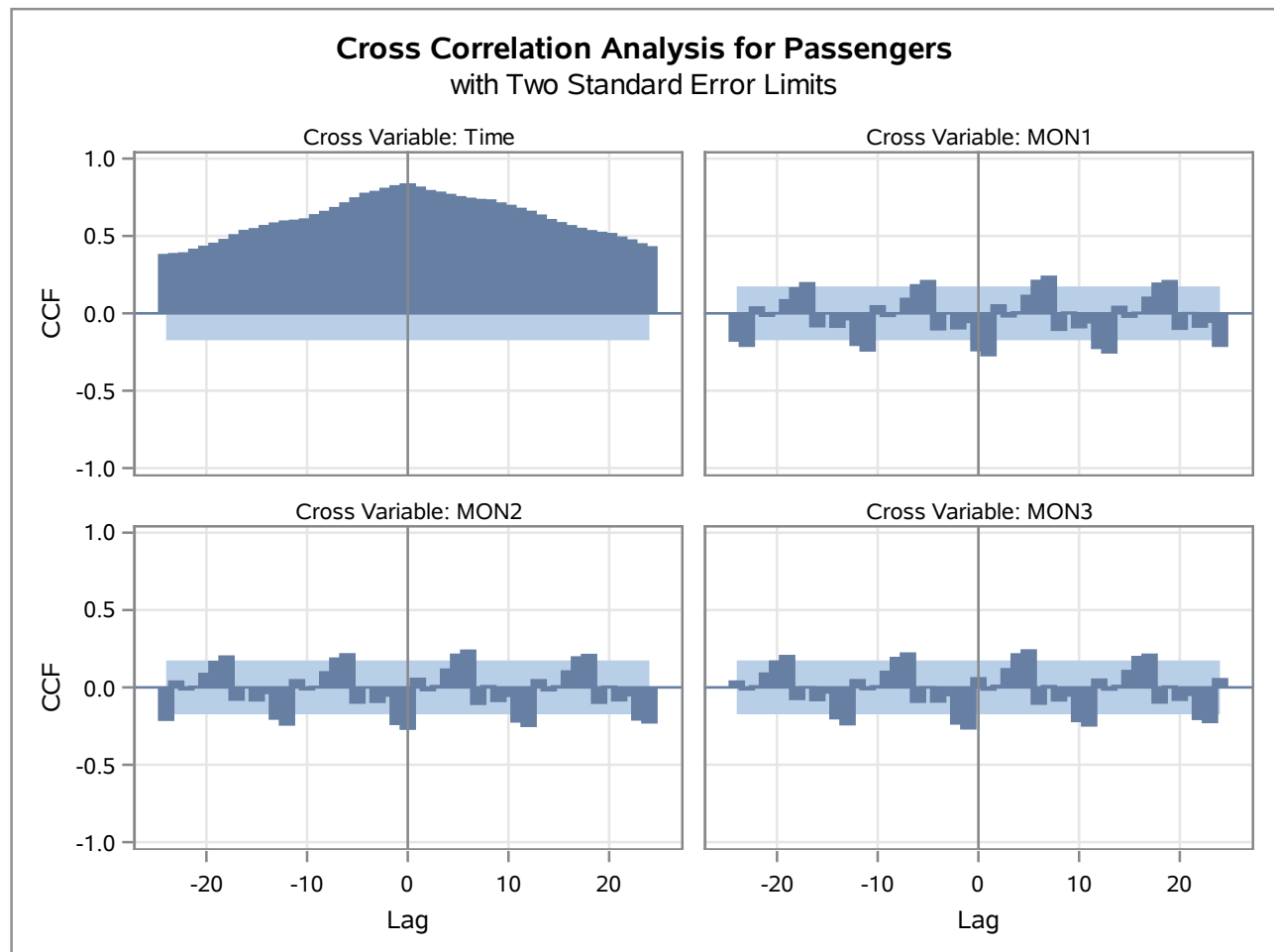
Correlation of Passengers and MON11	
Variance of input =	0.076389
Number of Observations	132

The ARIMA Procedure

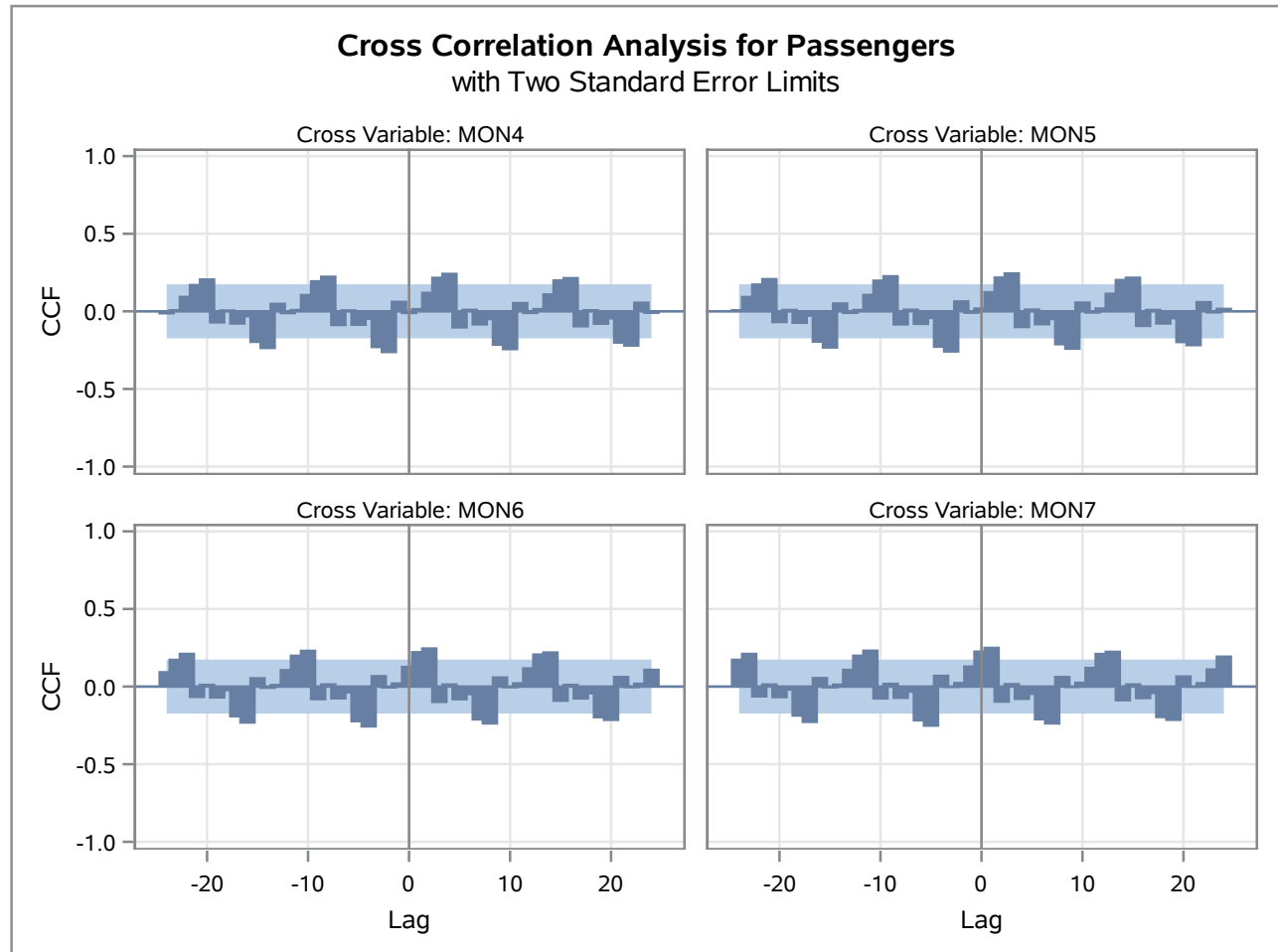
Trend and Correlation Analysis for Passengers



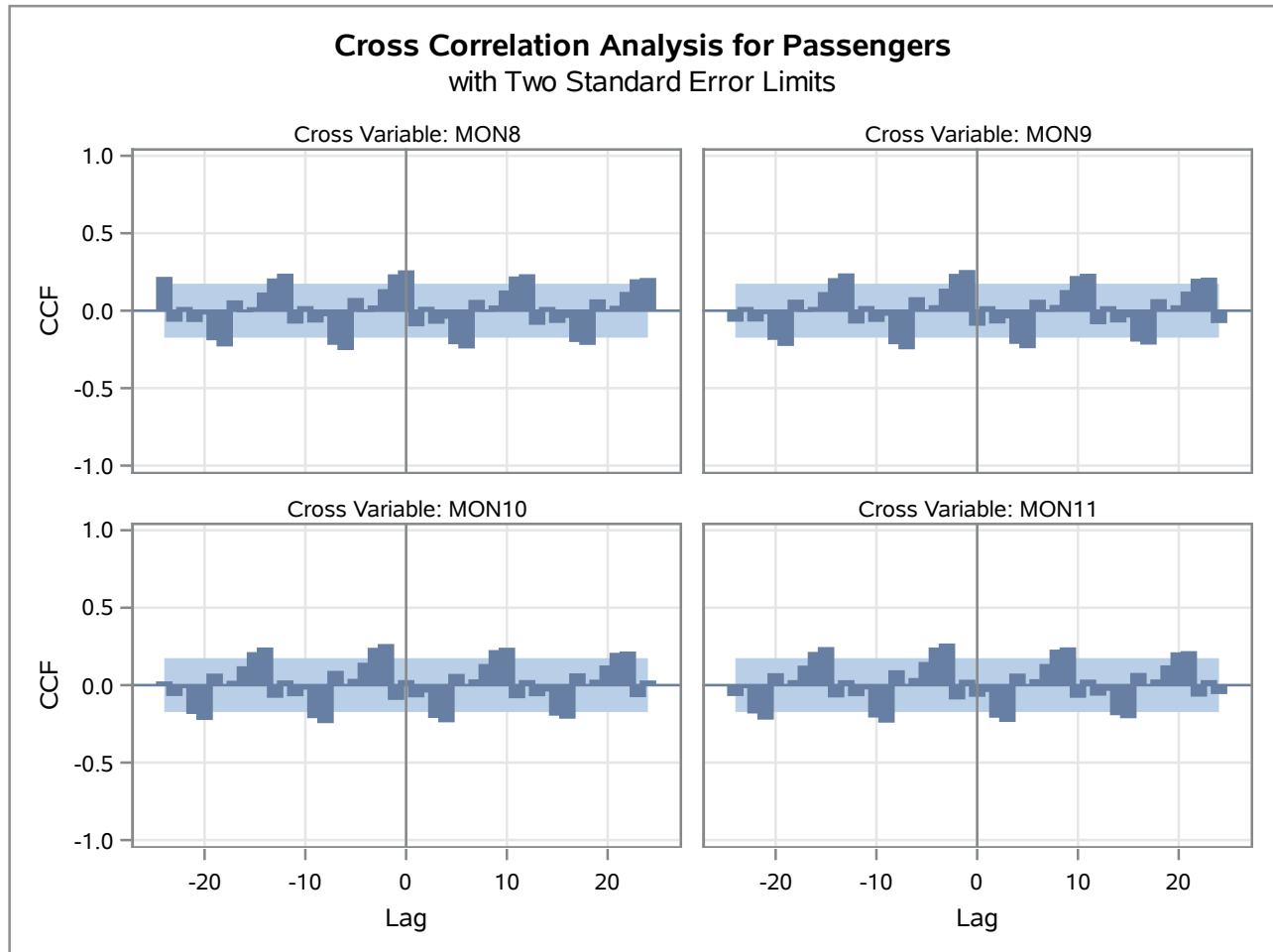
The ARIMA Procedure



The ARIMA Procedure



The ARIMA Procedure



Conditional Least Squares Estimation							
Parameter	Estimate	Standard Error	t Value	Approx Pr > t	Lag	Variable	Shift
MU	33651.7	527.25607	63.82	<.0001	0	Passengers	0
MA1,1	-0.56463	0.07805	-7.23	<.0001	1	Passengers	0
NUM1	157.13810	4.44645	35.34	<.0001	0	Time	0
NUM2	-3431.2	471.68578	-7.27	<.0001	0	MON1	0
NUM3	-4248.6	610.69043	-6.96	<.0001	0	MON2	0
NUM4	3827.2	610.47364	6.27	<.0001	0	MON3	0
NUM5	1621.9	610.28956	2.66	0.0090	0	MON4	0
NUM6	2521.2	610.13762	4.13	<.0001	0	MON5	0
NUM7	4985.0	610.01817	8.17	<.0001	0	MON6	0
NUM8	7204.3	609.93105	11.81	<.0001	0	MON7	0
NUM9	7718.6	609.87637	12.66	<.0001	0	MON8	0
NUM10	-1071.6	609.85409	-1.76	0.0815	0	MON9	0
NUM11	1910.8	609.86423	3.13	0.0022	0	MON10	0
NUM12	-852.10776	458.78019	-1.86	0.0658	0	MON11	0

The ARIMA Procedure

Constant Estimate	33651.67
Variance Estimate	1572367
Std Error Estimate	1253.941
AIC	2271.189
SBC	2311.548
Number of Residuals	132

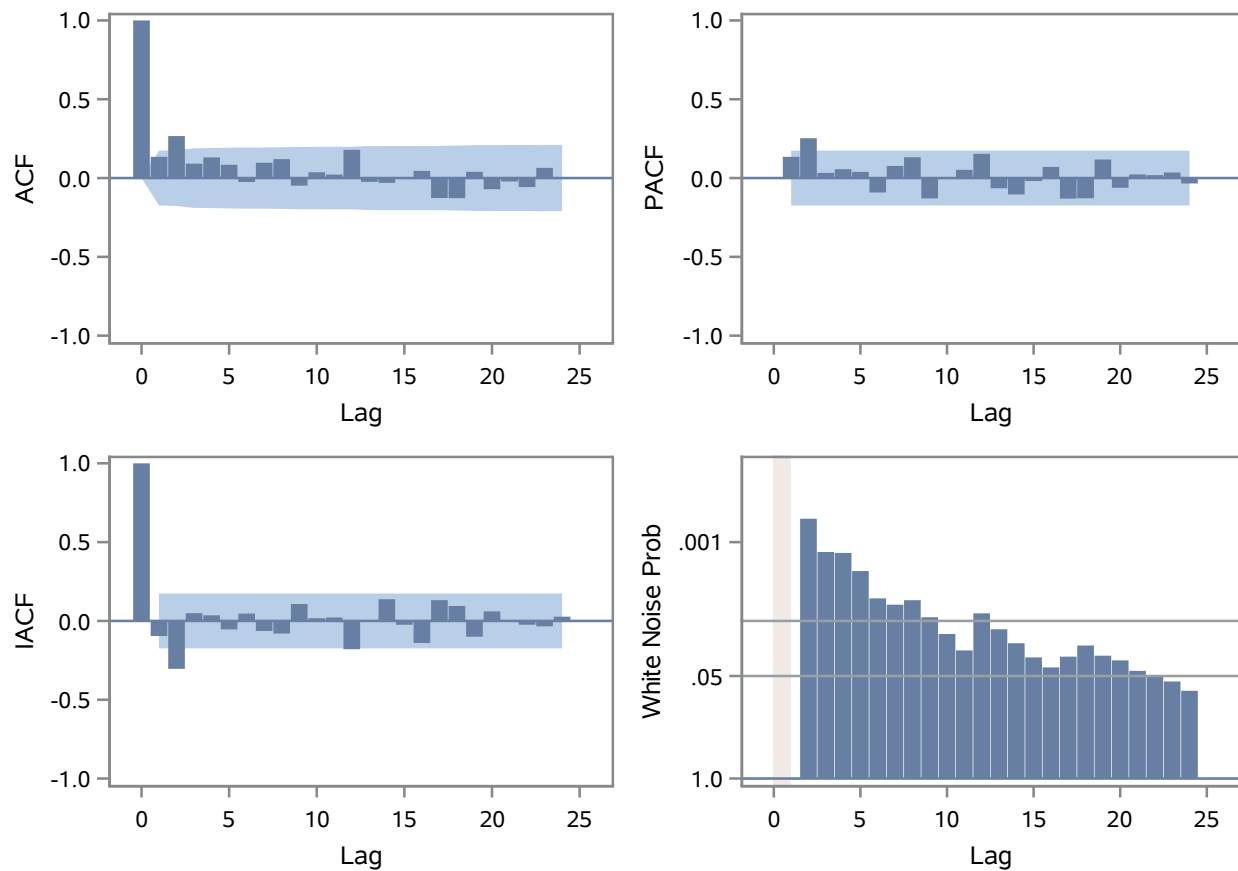
* AIC and SBC do not include log determinant.

Correlations of Parameter Estimates														
Variable Parameter	Passengers MU	Passengers MA1,1	Time NUM1	MON1 NUM2	MON2 NUM3	MON3 NUM4	MON4 NUM5	MON5 NUM6	MON6 NUM7	MON7 NUM8	MON8 NUM9	MON9 NUM10	MON10 NUM11	MON11 NUM12
Passengers MU	1.000	-0.048	-0.583	-0.496	-0.600	-0.596	-0.592	-0.588	-0.584	-0.579	-0.575	-0.571	-0.567	-0.414
Passengers MA1,1	-0.048	1.000	0.045	0.032	0.021	0.020	0.020	0.020	0.019	0.019	0.019	0.018	0.018	0.024
Time NUM1	-0.583	0.045	1.000	0.073	0.052	0.045	0.038	0.031	0.023	0.016	0.009	0.001	-0.006	-0.018
MON1 NUM2	-0.496	0.032	0.073	1.000	0.675	0.395	0.394	0.394	0.393	0.393	0.392	0.392	0.391	0.146
MON2 NUM3	-0.600	0.021	0.052	0.675	1.000	0.711	0.494	0.494	0.493	0.493	0.493	0.492	0.492	0.365
MON3 NUM4	-0.596	0.020	0.045	0.395	0.711	1.000	0.711	0.494	0.493	0.493	0.493	0.493	0.492	0.366
MON4 NUM5	-0.592	0.020	0.038	0.394	0.494	0.711	1.000	0.710	0.493	0.493	0.493	0.493	0.492	0.366
MON5 NUM6	-0.588	0.020	0.031	0.394	0.494	0.494	0.710	1.000	0.710	0.493	0.493	0.493	0.493	0.366
MON6 NUM7	-0.584	0.019	0.023	0.393	0.493	0.493	0.493	0.710	1.000	0.710	0.493	0.493	0.493	0.366
MON7 NUM8	-0.579	0.019	0.016	0.393	0.493	0.493	0.493	0.493	0.710	1.000	0.710	0.493	0.493	0.366
MON8 NUM9	-0.575	0.019	0.009	0.392	0.493	0.493	0.493	0.493	0.493	0.710	1.000	0.710	0.493	0.367
MON9 NUM10	-0.571	0.018	0.001	0.392	0.492	0.493	0.493	0.493	0.493	0.493	0.710	1.000	0.710	0.367
MON10 NUM11	-0.567	0.018	-0.006	0.391	0.492	0.492	0.492	0.493	0.493	0.493	0.493	0.710	1.000	0.655
MON11 NUM12	-0.414	0.024	-0.018	0.146	0.365	0.366	0.366	0.366	0.366	0.366	0.367	0.367	0.655	1.000

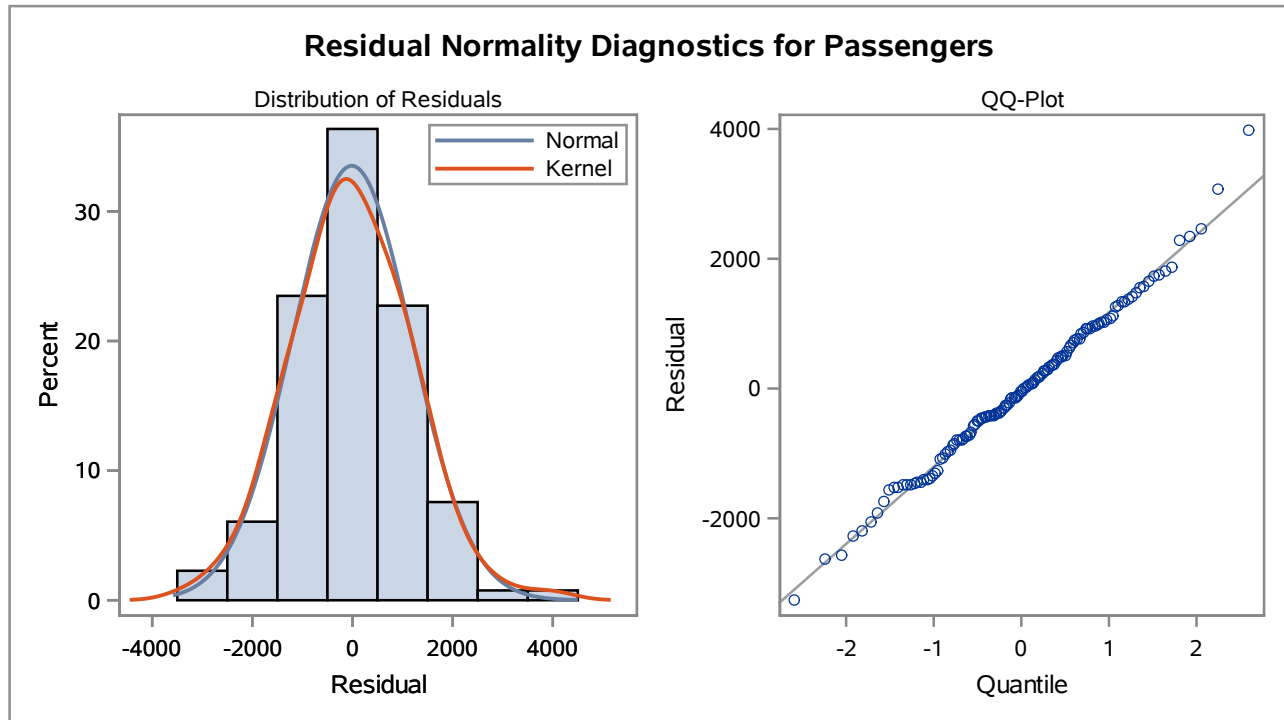
The ARIMA Procedure

Autocorrelation Check of Residuals									
To Lag	Chi-Square	DF	Pr > ChiSq	Autocorrelations					
6	16.76	5	0.0050	0.135	0.267	0.092	0.131	0.085	-0.024
12	25.64	11	0.0073	0.098	0.121	-0.047	0.038	0.024	0.181
18	31.06	17	0.0197	-0.022	-0.029	0.002	0.047	-0.125	-0.126
24	33.37	23	0.0748	0.041	-0.070	-0.021	-0.056	0.066	0.007

Residual Correlation Diagnostics for Passengers



The ARIMA Procedure



Model for variable Passengers	
Estimated Intercept	33651.67
Moving Average Factors	
Factor 1:	$1 + 0.56463 B^{**}(1)$

Input Number 1	
Input Variable	Time
Overall Regression Factor	157.1381

Input Number 2	
Input Variable	MON1
Overall Regression Factor	-3431.16

Input Number 3	
Input Variable	MON2
Overall Regression Factor	-4248.59

Input Number 4	
Input Variable	MON3
Overall Regression Factor	3827.179

The ARIMA Procedure

Input Number 5	
Input Variable	MON4
Overall Regression Factor	1621.95

Input Number 6	
Input Variable	MON5
Overall Regression Factor	2521.175

Input Number 7	
Input Variable	MON6
Overall Regression Factor	4985.037

Input Number 8	
Input Variable	MON7
Overall Regression Factor	7204.263

Input Number 9	
Input Variable	MON8
Overall Regression Factor	7718.579

Input Number 10	
Input Variable	MON9
Overall Regression Factor	-1071.56

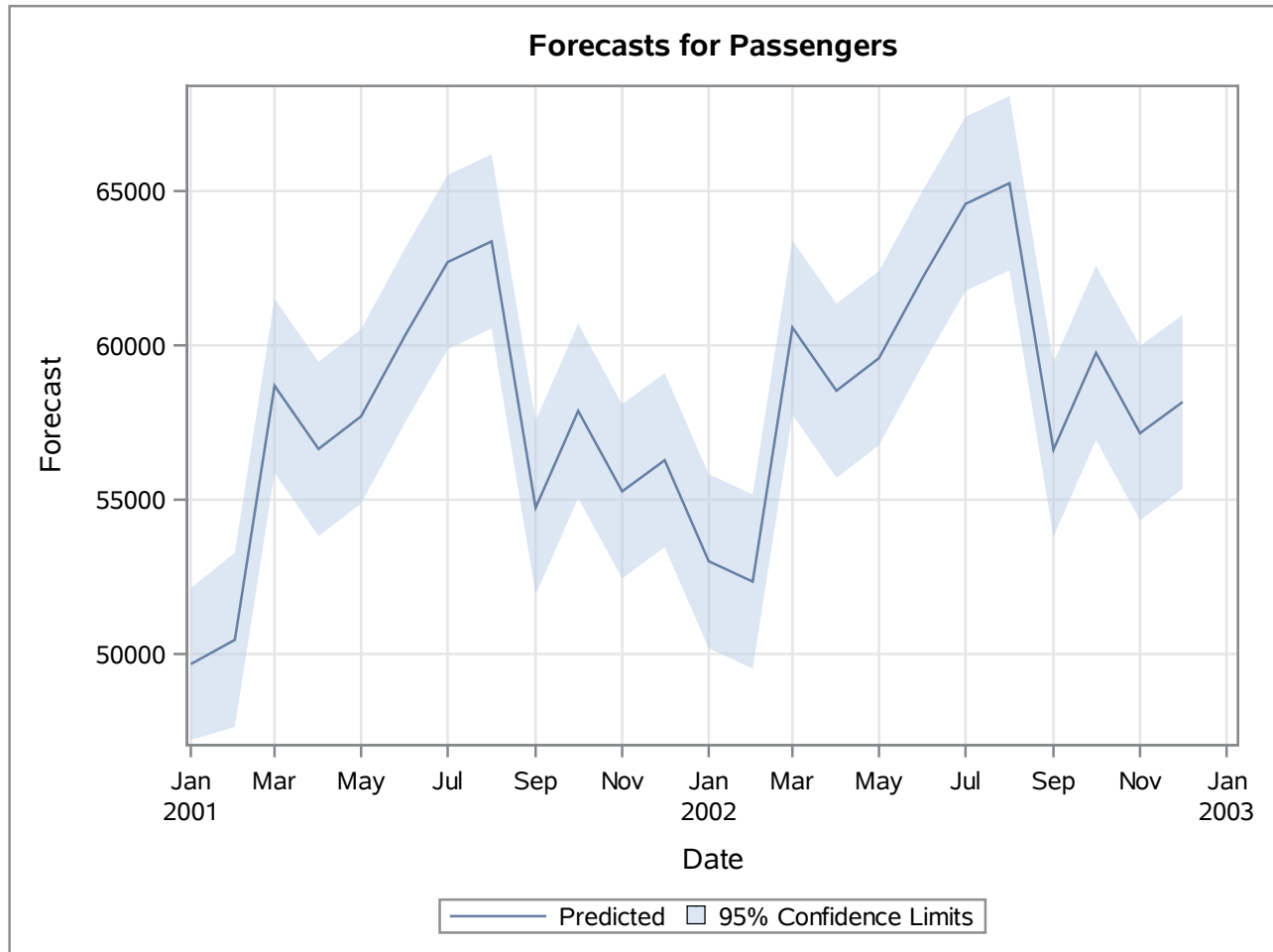
Input Number 11	
Input Variable	MON10
Overall Regression Factor	1910.758

Input Number 12	
Input Variable	MON11
Overall Regression Factor	-852.108

The ARIMA Procedure

Forecasts for variable Passengers				
Obs	Forecast	Std Error	95% Confidence Limits	
133	49672.0293	1253.9406	47214.3509	52129.7077
134	50459.5799	1440.0176	47637.1973	53281.9624
135	58692.4889	1440.0176	55870.1064	61514.8714
136	56644.3980	1440.0176	53822.0155	59466.7806
137	57700.7616	1440.0176	54878.3791	60523.1442
138	60321.7617	1440.0176	57499.3791	63144.1442
139	62698.1253	1440.0176	59875.7427	65520.5078
140	63369.5798	1440.0176	60547.1973	66191.9624
141	54736.5798	1440.0176	51914.1973	57558.9624
142	57876.0344	1440.0176	55053.6518	60698.4169
143	55270.3071	1440.0176	52447.9246	58092.6896
144	56279.5530	1440.0176	53457.1704	59101.9355
145	53005.5273	1440.0176	50183.1448	55827.9099
146	52345.2371	1440.0176	49522.8546	55167.6197
147	60578.1462	1440.0176	57755.7636	63400.5287
148	58530.0553	1440.0176	55707.6727	61352.4378
149	59586.4189	1440.0176	56764.0363	62408.8014
150	62207.4189	1440.0176	59385.0364	65029.8014
151	64583.7825	1440.0176	61761.4000	67406.1651
152	65255.2371	1440.0176	62432.8545	68077.6196
153	56622.2371	1440.0176	53799.8545	59444.6196
154	59761.6916	1440.0176	56939.3091	62584.0742
155	57155.9644	1440.0176	54333.5818	59978.3469
156	58165.2102	1440.0176	55342.8277	60987.5928

The ARIMA Procedure



Exercise 6

Tuesday, February 27, 2018 07:04:17 PM 51

Obs	Model	_NAME_	_REGION_	DFE	N	NOBS	NMISSA	NMISSP	NPARMS	TSS	SST
1	Simple	Passengers	FIT	131	132	132	0	0	1	283526008371	6974422232.8
2	Double	Passengers	FIT	131	132	132	0	0	1	283526008371	6974422232.8
3	Linear	Passengers	FIT	130	132	132	0	0	2	283526008371	6974422232.8
4	DampTrend	Passengers	FIT	129	132	132	0	0	3	283526008371	6974422232.8
5	Seasonal	Passengers	FIT	130	132	132	0	0	2	283526008371	6974422232.8

Obs	SSE	MSE	RMSE	UMSE	URMSE	MAPE	MAE	RSQUARE	ADJRSQ	AADJRSQ	RWRSQ
1	2045184029.94	15493818.41	3936.22	15612091.83	3951.21	6.70936	3018.97	0.70676	0.70676	0.70228	0.11264
2	2260249763.81	17123104.27	4138.01	17253814.99	4153.77	7.85912	3556.28	0.67592	0.67592	0.67098	0.01933
3	2040602974.88	15459113.45	3931.81	15696945.96	3961.94	6.68991	2992.57	0.70742	0.70517	0.69841	0.11463
4	2040462905.31	15458052.31	3931.67	15817541.90	3977.13	6.69401	2997.32	0.70744	0.70290	0.69383	0.11469
5	205959220.94	1560297.13	1249.12	1584301.70	1258.69	2.10521	944.61	0.97047	0.97024	0.96956	0.91064

Obs	AIC	AICC	SBC	APC	MAXERR	MINERR	MAXPE	MINPE	ME	MPE	MDAPE	GMAPE
1	2187.39	2187.42	2190.27	15730365.25	10457.85	-9500.71	18.1792	-22.1873	222.051	-0.00149	5.49483	4.18468
2	2200.58	2200.61	2203.47	17384525.71	9745.82	-7689.71	20.4174	-22.3185	124.337	-0.50794	7.40155	5.99765
3	2189.09	2189.18	2194.86	15934778.48	10202.58	-9752.53	17.6003	-22.8444	-23.159	-0.55036	5.12034	4.02886
4	2191.08	2191.27	2199.73	16177031.49	10252.73	-9701.42	17.6852	-22.7578	17.266	-0.46200	5.13862	4.10165
5	1886.37	1886.46	1892.14	1608306.27	3180.06	-3534.87	6.8342	-9.0922	139.182	0.28665	1.59012	1.30626

Obs	MINPPE	MAXPPE	MPPE	MAPPE	MDAPPE	GMAPPE	MINSPE	MAXSPE	MSPE	SMAPE	MDASPE	GMASPE
1	-18.1585	22.2183	0.74879	6.72418	5.46721	4.20033	-19.9717	19.9968	0.37293	6.69014	5.49158	4.18858
2	-18.2462	25.6556	0.33208	7.84430	7.91826	5.99237	-20.0780	22.7387	-0.08814	7.82523	7.68600	5.98873
3	-18.5962	21.3596	0.19671	6.62975	5.32690	4.02181	-20.5025	19.2986	-0.17440	6.63333	5.18870	4.02158
4	-18.5388	21.4849	0.28524	6.64570	5.41698	4.09808	-20.4328	19.4008	-0.08645	6.64336	5.27413	4.09605
5	-8.3344	7.3355	0.36740	2.12141	1.59040	1.31054	-8.6968	7.0760	0.32684	2.11226	1.59016	1.30827

Obs	MINRE	MAXRE	MRE	MRAE	MDRAE	GMRAE	MASE	MINAPES	MAXAPES	MAPES	MDAPES	GMAPES
1	-2.5864	32.5960	1.46531	1.61476	1.00344	0.87143	0.93431	0.41059	143.326	41.3752	33.6146	25.9186
2	-4.4276	92.9725	2.89174	3.45299	1.44077	1.23087	1.10060	1.35889	133.567	48.7391	49.8048	37.1476
3	-2.2199	30.1583	1.50290	1.63884	1.02587	0.83963	0.92614	0.24051	139.827	41.0134	32.0722	24.9535
4	-2.2808	29.2606	1.50891	1.64380	1.01230	0.85477	0.92761	0.60294	140.514	41.0785	32.6103	25.4044
5	-54.3413	66.9286	0.43816	1.57383	0.28074	0.27327	0.29234	0.28221	48.446	12.9459	9.2403	8.0906

Obs	Model	_NAME_	_REGION_	DFE	N	NOBS	NMISSA	NMISSP	NPARMS	TSS	SST
6	Winters	Passengers	FIT	129	132	132	0	0	3	283526008371	6974422232.8
7	AddWinters	Passengers	FIT	129	132	132	0	0	3	283526008371	6974422232.8

Obs	SSE	MSE	RMSE	UMSE	URMSE	MAPE	MAE	RSQUARE	ADJRSQ	AADJRSQ	RWRSQ
6	199603297.98	1512146.20	1229.69	1547312.39	1243.91	2.06413	937.48	0.97138	0.97094	0.97005	0.91340
7	187530108.07	1420682.64	1191.92	1453721.77	1205.70	1.98741	898.68	0.97311	0.97269	0.97186	0.91864

Obs	AIC	AICC	SBC	APC	MAXERR	MINERR	MAXPE	MINPE	ME	MPE	MDAPE	GMAPE
6	1884.23	1884.42	1892.88	1582478.58	3644.03	-3255.74	8.3085	-8.3742	-41.615	-0.12079	1.63382	1.27048
7	1876.00	1876.19	1884.65	1486760.90	3037.65	-3575.08	6.9260	-9.7465	-39.693	-0.16688	1.46722	1.24983

Obs	MINPPE	MAXPPE	MPPE	MAPPE	MDAPPE	GMAPPE	MINSPE	MAXSPE	MSPE	SMAPE	MDASPE	GMASPE
6	-7.7271	9.0614	-0.04636	2.07282	1.64296	1.26941	-8.0377	8.6686	-0.08380	2.06758	1.63444	1.26983
7	-8.8810	7.4413	-0.09577	1.98079	1.47853	1.24819	-9.2936	7.1744	-0.13117	1.98320	1.47347	1.24890

Obs	MINRE	MAXRE	MRE	MRAE	MDRAE	GMRAE	MASE	MINAPES	MAXAPES	MAPES	MDAPES	GMAPES
6	-44.1026	41.6162	0.39219	1.53749	0.28034	0.27081	0.29013	0.10828	49.942	12.8482	10.4517	7.8689
7	-44.2835	73.2303	0.63016	1.54218	0.26909	0.25961	0.27812	0.09076	48.997	12.3164	9.1842	7.7411

Model	MAPE	AIC_SSE
WinterAdditive	.	.
ARIMA(1, 1, 1)(0, 1, 1)12	2.10803	1708.84
ARIMA(0, 1, 1)(0, 1, 1)12	2.19770	1718.77
Linera_SeasDummies	2.13480	1884.59