

**H1 FORECAST MODEL
KY 2010-2016 ED Data**

The AUTOREG Procedure

Dependent Variable	TCC_PRE
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H1 FORECAST MODEL
KY 2010-2016 ED Data

The AUTOREG Procedure

Ordinary Least Squares Estimates			
SSE	147322.009	DFE	61
MSE	2415	Root MSE	49.14382
SBC	675.778725	AIC	671.492456
MAE	41.4968094	AICC	671.692456
MAPE	6.49380793	HQC	673.178267
Durbin-Watson	0.0205	Total R-Square	0.6655

Parameter Estimates					
Variable	DF	Estimate	Standard Error	t Value	Approx Pr > t
Intercept	1	491.0174	14.3437	34.23	<.0001
TIME	1	3.7506	0.3405	11.02	<.0001

Estimates of 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	2338.4	1.000000													*****									
1	2223.1	0.950693													*****									
2	2091.0	0.894202													*****									
3	1927.3	0.824177													*****									
4	1734.3	0.741665													*****									
5	1530.1	0.654313													*****									
6	1323.0	0.565743													*****									
7	1111.0	0.475106													*****									
8	888.0	0.379739													*****									
9	652.7	0.279135													*****									
10	411.0	0.175745													****									

Preliminary MSE	204.5
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Estimates of Autoregressive Parameters			
Lag	Coefficient	Standard Error	t Value
1	-0.961055	0.130632	-7.36
2	-0.018306	0.135597	-0.14
10	0.099470	0.043794	2.27

Expected Autocorrelations	
Lag	Autocorr
0	1.0000
1	0.9493
2	0.8914
3	0.8253
4	0.7514
5	0.6706
6	0.5835
7	0.4909
8	0.3938
9	0.2930
10	0.1894

Coefficients for First NLAG Observations										
	1	2	3	4	5	6	7	8	9	10
1	0.3003360168	0	0	0	0	0	0	0	0	0
2	-0.906769953	0.9552138355	0	0	0	0	0	0	0	0
3	0.0941086391	-1.000495956	0.9598384799	0	0	0	0	0	0	0
4	0.1071085354	-0.016952746	-0.996204356	0.9657961202	0	0	0	0	0	0
5	0.1025648156	0.0019167343	-0.018848407	-0.990431499	0.9712268979	0	0	0	0	0
6	0.0992807946	0.0018553625	2.158806E-15	-0.018750695	-0.985108347	0.9762880535	0	0	0	0
7	0.0970791364	0.0018142176	-2.02521E-15	2.321968E-15	-0.018658676	-0.980094419	0.9811028091	0	0	0
8	0.0958485918	0.0017912333	1.779505E-15	-1.09816E-15	1.888733E-15	-0.018570267	-0.97527633	0.9857736427	0	0
9	0.0955302674	0.0017846293	-1.85907E-15	2.287546E-15	-1.74902E-15	2.58613E-15	-0.018483677	-0.97055662	0.9903916935	0
10	0.0960727961	0.0018299843	1.454965E-15	-1.81109E-15	1.777252E-15	-1.37598E-15	2.143337E-15	-0.018397321	-0.965845469	0.9950405463

Algorithm converged.

H1 FORECAST MODEL KY 2010-2016 ED Data

The AUTOREG Procedure

Maximum Likelihood Estimates			
SSE	656.41081	DFE	58
MSE	11.31743	Root MSE	3.36414
SBC	354.462103	AIC	343.746429
MAE	2.36910212	AICC	344.799061
MAPE	0.35802881	HQC	347.960956
Log Likelihood	-166.87321	Transformed Regression R-Square	0.2879
Durbin-Watson	2.0772	Total R-Square	0.9985
		Observations	63

Parameter Estimates					
Variable	DF	Estimate	Standard Error	t Value	Approx Pr > t
Intercept	1	470.4886	49.6684	9.47	<.0001
TIME	1	4.7431	1.3973	3.39	0.0012
AR1	1	-1.6954	0.1209	-14.02	<.0001
AR2	1	0.6874	0.1315	5.23	<.0001
AR10	1	0.0310	0.0227	1.36	0.1776

Expected Autocorrelations	
Lag	Autocorr
0	1.0000
1	0.9934
2	0.9754
3	0.9474
4	0.9106
5	0.8658
6	0.8137
7	0.7551
8	0.6907
9	0.6212
10	0.5474

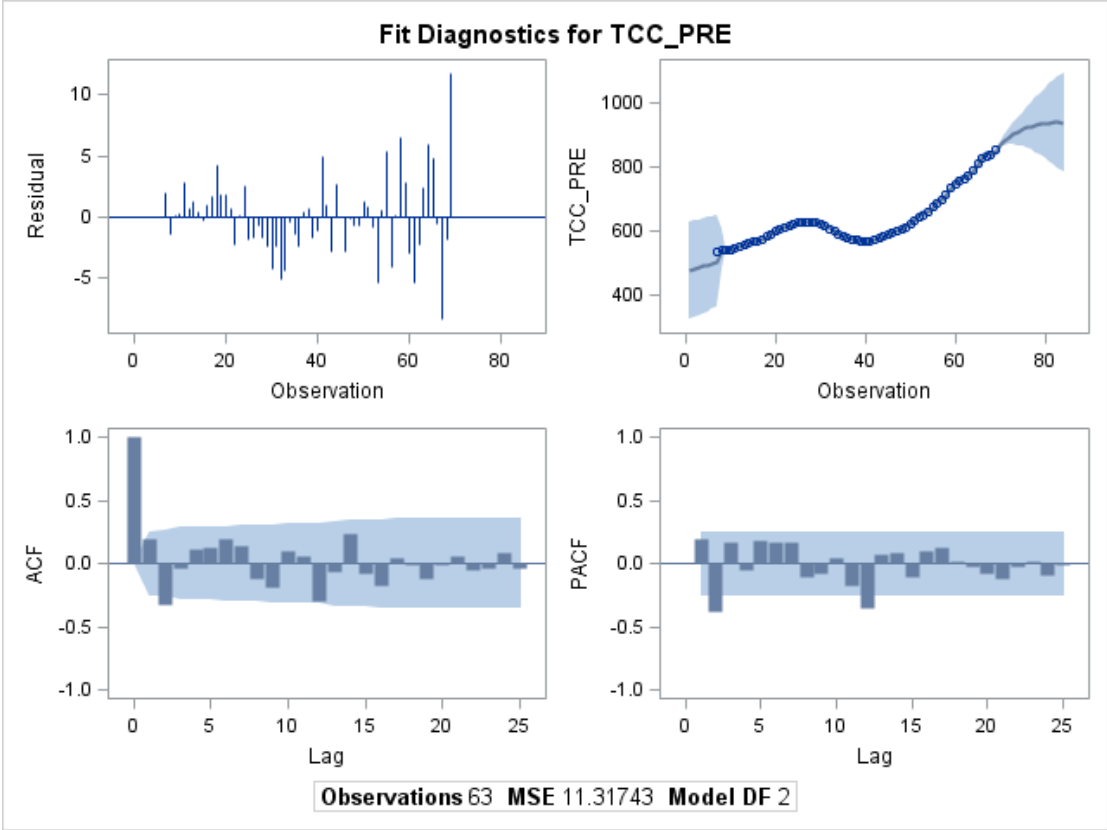
Coefficients for First NLAG Observations										
	1	2	3	4	5	6	7	8	9	10
1	0.0571616071	0	0	0	0	0	0	0	0	0
2	-0.493187647	0.4964891784	0	0	0	0	0	0	0	0
3	0.8347313656	-1.793947175	0.9712249776	0	0	0	0	0	0	0
4	0.1156537501	0.6270050795	-1.707221539	0.9780867788	0	0	0	0	0	0
5	0.1061350817	-0.068922973	0.6987239582	-1.704693512	0.9838284416	0	0	0	0	0
6	0.0975216296	-0.06232188	3.643441E-14	0.6953163263	-1.702527337	0.9886500244	0	0	0	0
7	0.088971773	-0.055300136	9.519027E-14	5.130649E-14	0.6925177087	-1.700631344	0.9926453783	0	0	0
8	0.079520397	-0.046980044	-1.28239E-13	1.071742E-13	5.42995E-14	0.6903062159	-1.698952064	0.9958254569	0	0
9	0.0679302103	-0.036188778	-1.70338E-14	-1.07978E-13	1.11801E-13	4.705092E-14	0.6887057044	-1.697475847	0.9981396967	0
10	0.0525208754	-0.021294892	5.372521E-14	-2.5562E-14	-1.02749E-13	1.057169E-13	4.818268E-14	0.6877542582	-1.696249749	0.9995205333

Autoregressive parameters assumed given					
Variable	DF	Estimate	Standard Error	t Value	Approx Pr > t
Intercept	1	470.4886	41.4960	11.34	<.0001

Autoregressive parameters assumed given					
Variable	DF	Estimate	Standard Error	t Value	Approx Pr > t
TIME	1	4.7431	0.9797	4.84	<.0001

H1 FORECAST MODEL
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The AUTOREG Procedure



H2 FORECAST MODEL
KY 2010-2016 ED Data

The AUTOREG Procedure

Dependent Variable	TCC_PRE
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H2 FORECAST MODEL
KY 2010-2016 ED Data

The AUTOREG Procedure

Ordinary Least Squares Estimates			
SSE	3557.80323	DFE	61
MSE	58.32464	Root MSE	7.63706
SBC	441.199646	AIC	436.913377
MAE	6.22097634	AICC	437.113377
MAPE	10.5642904	HQC	438.599188
Durbin-Watson	0.0384	Total R-Square	0.2252

Parameter Estimates					
Variable	DF	Estimate	Standard Error	t Value	Approx Pr > t
Intercept	1	49.2482	2.2290	22.09	<.0001
TIME	1	0.2228	0.0529	4.21	<.0001

Estimates of Autocorrelations																
Lag	Covariance	Correlation	-1	9	8	7	6	5	4	3	2	1	0	1	2	3
0	56.4731	1.000000													*****	
1	51.5695	0.913170													*****	
2	46.2045	0.818169													*****	

Preliminary MSE	9.2974
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Estimates of Autoregressive Parameters			
Lag	Coefficient	Standard Error	t Value
1	-0.999538	0.129605	-7.71
2	0.094579	0.129605	0.73

Expected Autocorrelations	
Lag	Autocorr
0	1.0000
1	0.9132
2	0.8182

Coefficients for First NLAG Observations		
	1	2
1	0.4057507443	0
2	-0.909077052	0.9955173289

ERROR: The estimation did not converge in the maximum iterations. Continuing assuming convergence.

H2 FORECAST MODEL KY 2010-2016 ED Data

The AUTOREG Procedure

Maximum Likelihood Estimates			
SSE	44.2066245	DFE	59
MSE	0.74926	Root MSE	0.86560
SBC	179.333538	AIC	170.760999
MAE	0.60846157	AICC	171.450654
MAPE	1.03391478	HQC	174.132621
Log Likelihood	-81.3805	Transformed Regression R-Square	0.0745
Durbin-Watson	2.0750	Total R-Square	0.9904
		Observations	63

Parameter Estimates					
Variable	DF	Estimate	Standard Error	t Value	Approx Pr > t
Intercept	1	42.7152	12.3626	3.46	0.0010
TIME	1	0.5287	0.3413	1.55	0.1267
AR1	1	-1.8057	0.0810	-22.30	<.0001
AR2	1	0.8218	0.0839	9.79	<.0001

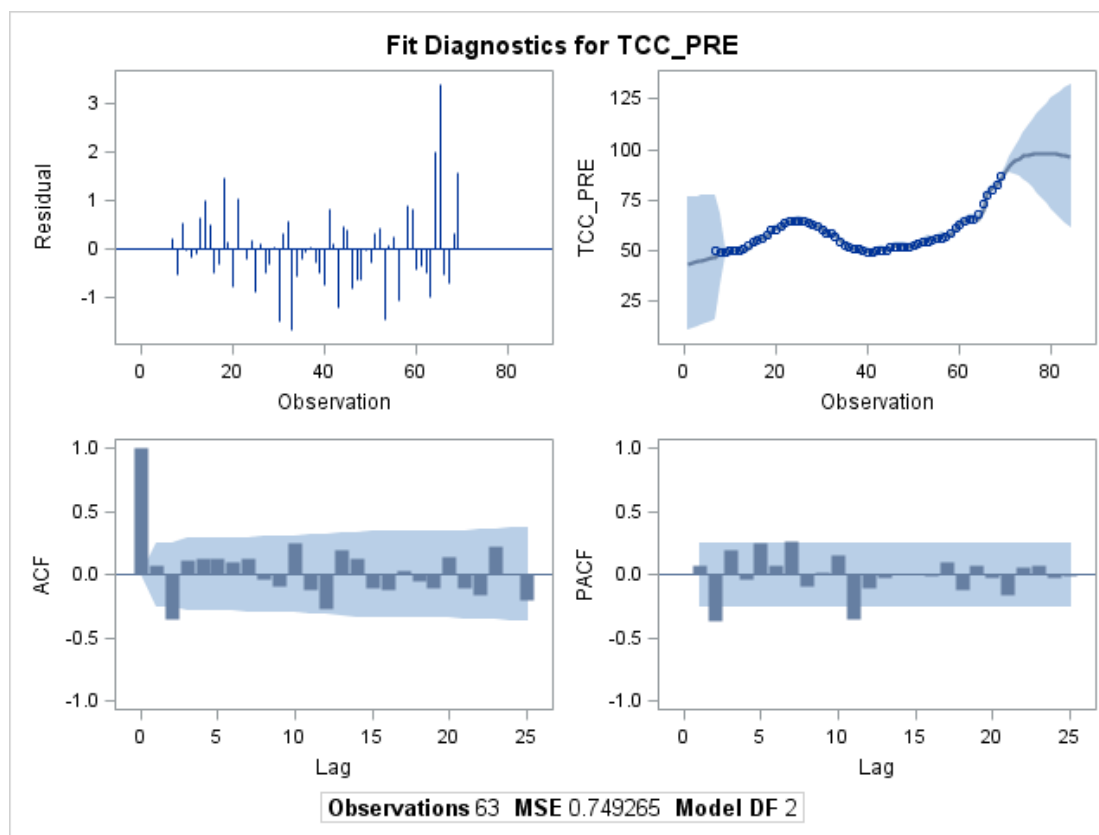
Expected Autocorrelations	
Lag	Autocorr
0	1.0000
1	0.9912
2	0.9681

Coefficients for First NLAG Observations		
	1	2
1	0.0754589037	0
2	-0.564823177	0.5698414403

Autoregressive parameters assumed given					
Variable	DF	Estimate	Standard Error	t Value	Approx Pr > t
Intercept	1	42.7152	11.0405	3.87	0.0003
TIME	1	0.5287	0.2453	2.16	0.0352

**H2 FORECAST MODEL
KY 2010-2016 ED Data**

The AUTOREG Procedure



H3 FORECAST MODEL
KY 2010-2016 ED Data

The AUTOREG Procedure

Dependent Variable	TCC_PRE
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H3 FORECAST MODEL
KY 2010-2016 ED Data

The AUTOREG Procedure

Ordinary Least Squares Estimates			
SSE	19714.1572	DFE	61
MSE	323.18291	Root MSE	17.97729
SBC	549.067852	AIC	544.781582
MAE	14.340877	AICC	544.981582
MAPE	26.6489413	HQC	546.467393
Durbin-Watson	0.0326	Total R-Square	0.9208

Parameter Estimates					
Variable	DF	Estimate	Standard Error	t Value	Approx Pr > t
Intercept	1	-34.7189	5.2471	-6.62	<.0001
TIME	1	3.3163	0.1246	26.63	<.0001

Estimates of 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	312.9	1.000000													*****									
1	286.4	0.915295													*****									
2	259.5	0.829241													*****									
3	228.1	0.728991													*****									
4	192.6	0.615359													*****									
5	156.3	0.499371													*****									
6	121.1	0.386960													*****									
7	85.6124	0.273589													****									
8	49.0831	0.156854													***									
9	13.2455	0.042328													*									
10	-21.8674	-0.069881											*											
11	-52.8250	-0.168811											***											

Preliminary MSE	47.3103
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Estimates of Autoregressive Parameters			
Lag	Coefficient	Standard Error	t Value
1	-0.907932	0.050745	-17.89
11	0.105364	0.050745	2.08

Expected Autocorrelations	
Lag	Autocorr
0	1.0000
1	0.9082
2	0.8137
3	0.7169
4	0.6181
5	0.5174
6	0.4153
7	0.3119
8	0.2076
9	0.1028
10	-0.0024
11	-0.1075

Coefficients for First NLAG Observations											
	1	2	3	4	5	6	7	8	9	10	11
1	0.4051002296	0	0	0	0	0	0	0	0	0	0
2	-0.878937781	0.9678005061	0	0	0	0	0	0	0	0	0
3	0.061195323	-0.936269528	0.9697333072	0	0	0	0	0	0	0	0
4	0.0635183639	3.464895E-16	-0.9342675	0.9718113344	0	0	0	0	0	0	0
5	0.0662240997	2.144544E-16	5.851759E-16	-0.932105777	0.9740651421	0	0	0	0	0	0
6	0.0693805529	-3.48275E-16	4.335112E-17	7.402844E-16	-0.929750261	0.9765329294	0	0	0	0	0
7	0.0730753521	1.136318E-16	-3.35512E-17	-2.95121E-17	5.868123E-16	-0.927157962	0.9792632789	0	0	0	0
8	0.0774229632	-7.18578E-16	-1.88736E-16	1.593022E-16	-1.32693E-16	3.865003E-16	-0.924273704	0.9823191358	0	0	0
9	0.0825754298	6.749832E-16	-5.40941E-16	-1.12302E-16	2.749225E-16	-6.52071E-17	4.598999E-16	-0.921025279	0.9857837421	0	0
10	0.0887387832	-7.74092E-17	2.47818E-16	-5.12941E-17	-3.56781E-16	1.645121E-16	-1.61665E-16	8.353092E-16	-0.917316119	0.9897697499	0
11	0.0961989385	1.541298E-18	-2.56943E-16	4.042305E-16	-3.00071E-16	6.727857E-17	-1.41113E-16	-5.56529E-17	7.161726E-16	-0.91301385	0.994433705

Algorithm converged.

H3 FORECAST MODEL KY 2010-2016 ED Data

The AUTOREG Procedure

Maximum Likelihood Estimates			
SSE	349.135352	DFE	59
MSE	5.91755	Root MSE	2.43260
SBC	309.219497	AIC	300.646958
MAE	1.85512217	AICC	301.336613
MAPE	2.77996289	HQC	304.01858
Log Likelihood	-146.32348	Transformed Regression R-Square	0.7473
Durbin-Watson	1.0316	Total R-Square	0.9986
		Observations	63

Parameter Estimates					
Variable	DF	Estimate	Standard Error	t Value	Approx Pr > t
Intercept	1	-32.1327	11.1626	-2.88	0.0056
TIME	1	3.3984	0.3000	11.33	<.0001
AR1	1	-1.0388	0.0192	-54.18	<.0001
AR11	1	0.1138	0.0174	6.56	<.0001

Expected Autocorrelations	
Lag	Autocorr
0	1.0000
1	0.9882
2	0.9654
3	0.9320
4	0.8884
5	0.8350
6	0.7723
7	0.7012
8	0.6223
9	0.5366
10	0.4450
11	0.3484

Coefficients for First NLAG Observations											
	1	2	3	4	5	6	7	8	9	10	11
1	0.1147291469	0	0	0	0	0	0	0	0	0	0
2	-0.738756841	0.7476124979	0	0	0	0	0	0	0	0	0
3	0.3962650272	-1.22768698	0.846138534	0	0	0	0	0	0	0	0
4	0.2885558475	-7.97229E-15	-1.161976484	0.8939881967	0	0	0	0	0	0	0
5	0.2291850229	5.03389E-15	-3.01243E-15	-1.125577573	0.9228979741	0	0	0	0	0	0
6	0.1919372234	1.186394E-14	-8.21076E-15	5.590542E-15	-1.101997776	0.9426455157	0	0	0	0	0
7	0.1667309555	-2.98159E-15	-2.87006E-17	-2.2216E-15	2.695691E-15	-1.085153998	0.9572772743	0	0	0	0
8	0.1488505324	8.484859E-15	-8.35853E-15	6.067022E-15	-4.74681E-15	3.098545E-17	-1.072268618	0.9687808116	0	0	0
9	0.1357993563	-5.28201E-15	3.195506E-15	-2.50778E-15	3.797026E-15	-6.44055E-15	2.105125E-15	-1.061886768	0.9782523836	0	0
10	0.1261395063	1.04465E-14	-7.52709E-15	8.634987E-15	-4.46635E-15	2.298986E-15	-4.76735E-15	1.267351E-15	-1.053167623	0.9863513071	0
11	0.1189933897	-4.30311E-15	1.071449E-15	-2.45482E-15	6.014504E-15	-5.48875E-15	3.76478E-15	-5.40478E-15	3.001178E-15	-1.045586375	0.9935030588

Autoregressive parameters assumed given					
Variable	DF	Estimate	Standard Error	t Value	Approx Pr > t

Autoregressive parameters assumed given					
Variable	DF	Estimate	Standard Error	t Value	Approx Pr > t
Intercept	1	-32.1327	10.6731	-3.01	0.0038
TIME	1	3.3984	0.2573	13.21	<.0001

H3 FORECAST MODEL
KY 2010-2016 ED Data

The AUTOREG Procedure

