H1 FORECAST MODEL
MONTANA 2010-2016 ED Data

The AUTOREG Procedure

Dependent Variable	TCC_PRE

H1 FORECAST MODEL
MONTANA 2010-2016 ED Data

The AUTOREG Procedure

Ordinary Least Squares Estimates			
SSE	4027.46178	DFE	61
MSE	66.02396	Root MSE	8.12551
SBC	449.011209	AIC	444.72494
MAE	6.87861217	AICC	444.92494
MAPE	5.97297449	HQC	446.410751
Durbin-Watson	0.0329	Total R-Square	0.1198

Parameter Estimates

Variable	DF	Estimate	Standard Error	t Value	Approx Pr > |t|
Intercept	1	111.7160	2.3716	47.11	<.0001
TIME	1	0.1622	0.0563	2.88	0.0055

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	63.9280	1.000000	| |********************|
1	59.8109	0.935599	| |******************* |

Preliminary MSE	7.9689

Estimates of Autoregressive Parameters

Lag	Coefficient	Standard Error	t Value
1	-0.935599	0.045580	-20.53

Expected Autocorrelations

Lag	Autocorr
0	1.0000
1	0.9356

Coefficients for First NLAG Observations

	1
1	0.3530645863

Algorithm converged.

H1 FORECAST MODEL
MONTANA 2010-2016 ED Data

The AUTOREG Procedure

Maximum Likelihood Estimates			
SSE	132.905661	DFE	60
MSE	2.21509	Root MSE	1.48832
SBC	241.906771	AIC	235.477367
MAE	1.18878316	AICC	235.884147
MAPE	1.00746763	HQC	238.006083
Log Likelihood	-114.73868	Transformed Regression R-Square	0.0122
Durbin-Watson	0.7484	Total R-Square	0.9710
		Observations	63

Parameter Estimates

Variable	DF	Estimate	Standard Error	t Value	Approx Pr > |t|
Intercept	1	122.5533	10.9564	11.19	<.0001
TIME	1	0.1355	0.2500	0.54	0.5900
AR1	1	-0.9871	0.0233	-42.28	<.0001

Expected Autocorrelations

Lag	Autocorr
0	1.0000
1	0.9871

Coefficients for First NLAG Observations

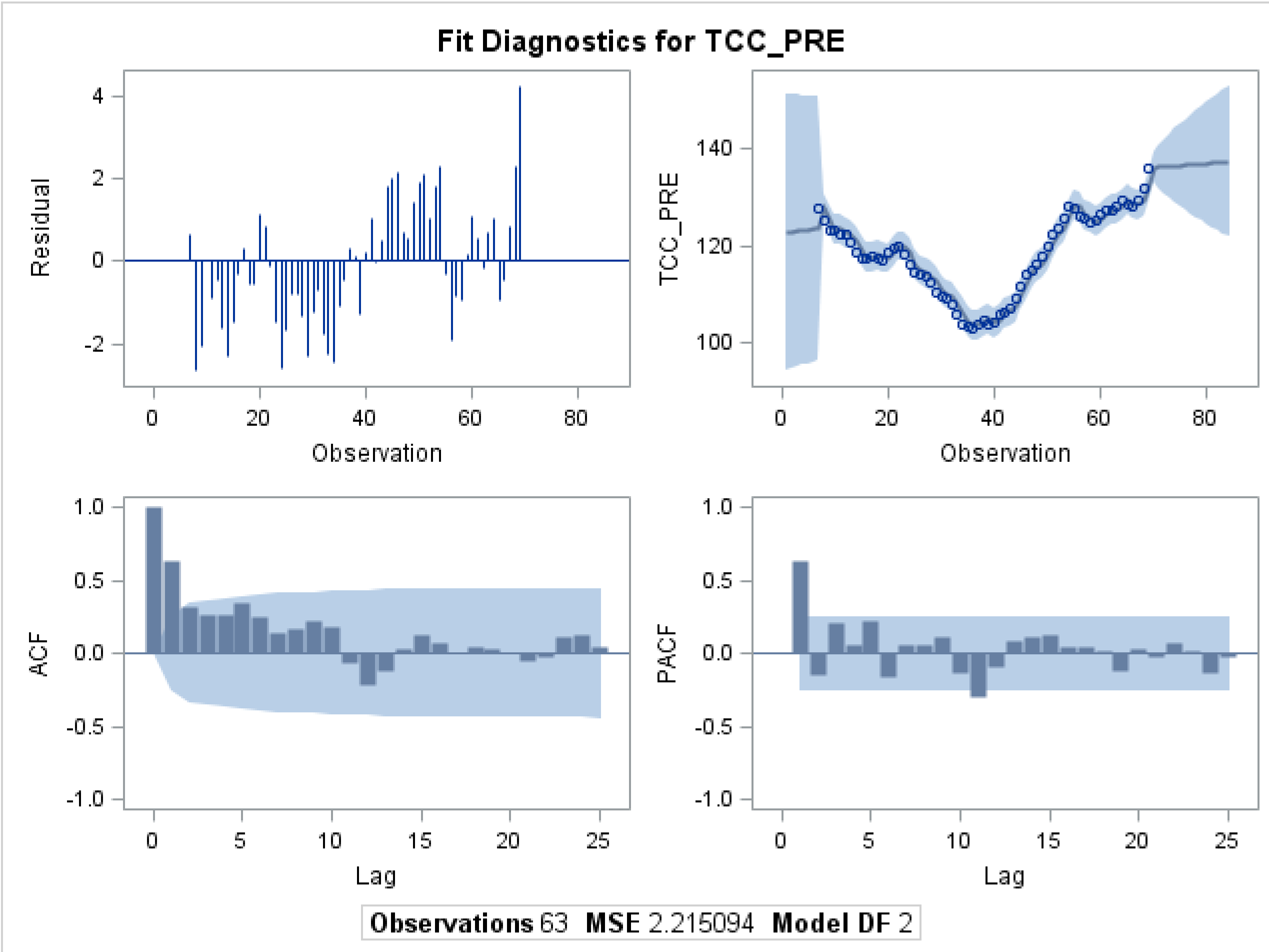
	1
1	0.1603087564

Autoregressive parameters assumed given

Variable	DF	Estimate	Standard Error	t Value	Approx Pr > |t|
Intercept	1	122.5533	9.8622	12.43	<.0001
TIME	1	0.1355	0.1576	0.86	0.3934

H1 FORECAST MODEL
MONTANA 2010-2016 ED Data

The AUTOREG Procedure



H2 FORECAST MODEL
MONTANA 2010-2016 ED Data

The AUTOREG Procedure

Dependent Variable	TCC_PRE

H2 FORECAST MODEL
MONTANA 2010-2016 ED Data

The AUTOREG Procedure

Ordinary Least Squares Estimates			
SSE	97.7918157	DFE	61
MSE	1.60314	Root MSE	1.26615
SBC	214.774013	AIC	210.487743
MAE	1.06731081	AICC	210.687743
MAPE	10.8932786	HQC	212.173554
Durbin-Watson	0.0633	Total R-Square	0.2614

Parameter Estimates

Variable	DF	Estimate	Standard Error	t Value	Approx Pr > |t|
Intercept	1	8.6283	0.3696	23.35	<.0001
TIME	1	0.0408	0.008772	4.65	<.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	1.5523	1.000000	| |********************|
1	1.4123	0.909846	| |****************** |

Preliminary MSE	0.2673

Estimates of Autoregressive Parameters

Lag	Coefficient	Standard Error	t Value
1	-0.909846	0.053569	-16.98

Expected Autocorrelations

Lag	Autocorr
0	1.0000
1	0.9098

Coefficients for First NLAG Observations

	1
1	0.4149459306

Algorithm converged.

H2 FORECAST MODEL
MONTANA 2010-2016 ED Data

The AUTOREG Procedure

Maximum Likelihood Estimates			
SSE	6.19533606	DFE	60
MSE	0.10326	Root MSE	0.32133
SBC	48.314091	AIC	41.8846869
MAE	0.24159632	AICC	42.2914665
MAPE	2.41090614	HQC	44.4134029
Log Likelihood	-17.942343	Transformed Regression R-Square	0.0353
Durbin-Watson	1.1601	Total R-Square	0.9532
		Observations	63

Parameter Estimates

Variable	DF	Estimate	Standard Error	t Value	Approx Pr > |t|
Intercept	1	9.8596	1.9772	4.99	<.0001
TIME	1	0.0463	0.0491	0.94	0.3495
AR1	1	-0.9798	0.0332	-29.55	<.0001

Expected Autocorrelations

Lag	Autocorr
0	1.0000
1	0.9798

Coefficients for First NLAG Observations

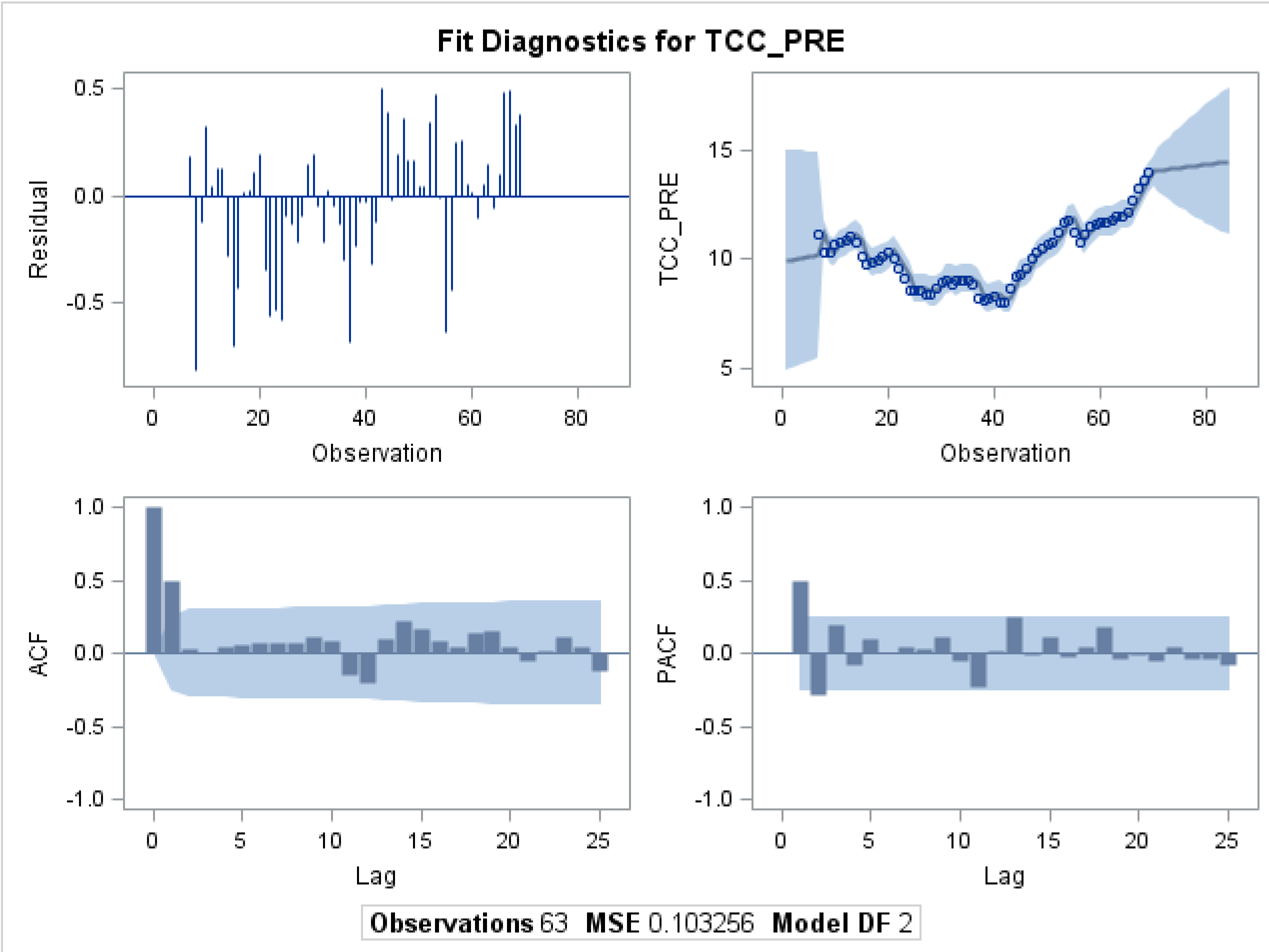
	1
1	0.2002153491

Autoregressive parameters assumed given

Variable	DF	Estimate	Standard Error	t Value	Approx Pr > |t|
Intercept	1	9.8596	1.7217	5.73	<.0001
TIME	1	0.0463	0.0310	1.49	0.1409

H2 FORECAST MODEL
MONTANA 2010-2016 ED Data

The AUTOREG Procedure



H3 FORECAST MODEL
MONTANA 2010-2016 ED Data

The AUTOREG Procedure

Dependent Variable	TCC_PRE

H3 FORECAST MODEL
MONTANA 2010-2016 ED Data

The AUTOREG Procedure

Ordinary Least Squares Estimates			
SSE	2.73650505	DFE	61
MSE	0.04486	Root MSE	0.21180
SBC	-10.524024	AIC	-14.810293
MAE	0.17094923	AICC	-14.610293
MAPE	44.7165673	HQC	-13.124482
Durbin-Watson	0.0886	Total R-Square	0.7768

Parameter Estimates

Variable	DF	Estimate	Standard Error	t Value	Approx Pr > |t|
Intercept	1	-0.2411	0.0618	-3.90	0.0002
TIME	1	0.0214	0.001467	14.57	<.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	0.0434	1.000000	| |********************|
1	0.0410	0.943315	| |******************* |
2	0.0367	0.844714	| |***************** |

Preliminary MSE	0.00398

Estimates of Autoregressive Parameters

Lag	Coefficient	Standard Error	t Value
1	-1.329778	0.118762	-11.20
2	0.409686	0.118762	3.45

Expected Autocorrelations

Lag	Autocorr
0	1.0000
1	0.9433
2	0.8447

Coefficients for First NLAG Observations

	1	2
1	0.3027666149	0
2	-0.860517349	0.9122267985

Algorithm converged.

H3 FORECAST MODEL
MONTANA 2010-2016 ED Data

The AUTOREG Procedure

Maximum Likelihood Estimates			
SSE	0.1774589	DFE	59
MSE	0.00301	Root MSE	0.05484
SBC	-171.62741	AIC	-180.19995
MAE	0.04274214	AICC	-179.51029
MAPE	10.7695931	HQC	-176.82833
Log Likelihood	94.0999736	Transformed Regression R-Square	0.2558
Durbin-Watson	1.7252	Total R-Square	0.9855
		Observations	63

Parameter Estimates

Variable	DF	Estimate	Standard Error	t Value	Approx Pr > |t|
Intercept	1	-0.1457	0.1852	-0.79	0.4344
TIME	1	0.0189	0.004245	4.46	<.0001
AR1	1	-1.4213	0.1129	-12.59	<.0001
AR2	1	0.4897	0.1135	4.31	<.0001

Expected Autocorrelations

Lag	Autocorr
0	1.0000
1	0.9541
2	0.8663

Coefficients for First NLAG Observations

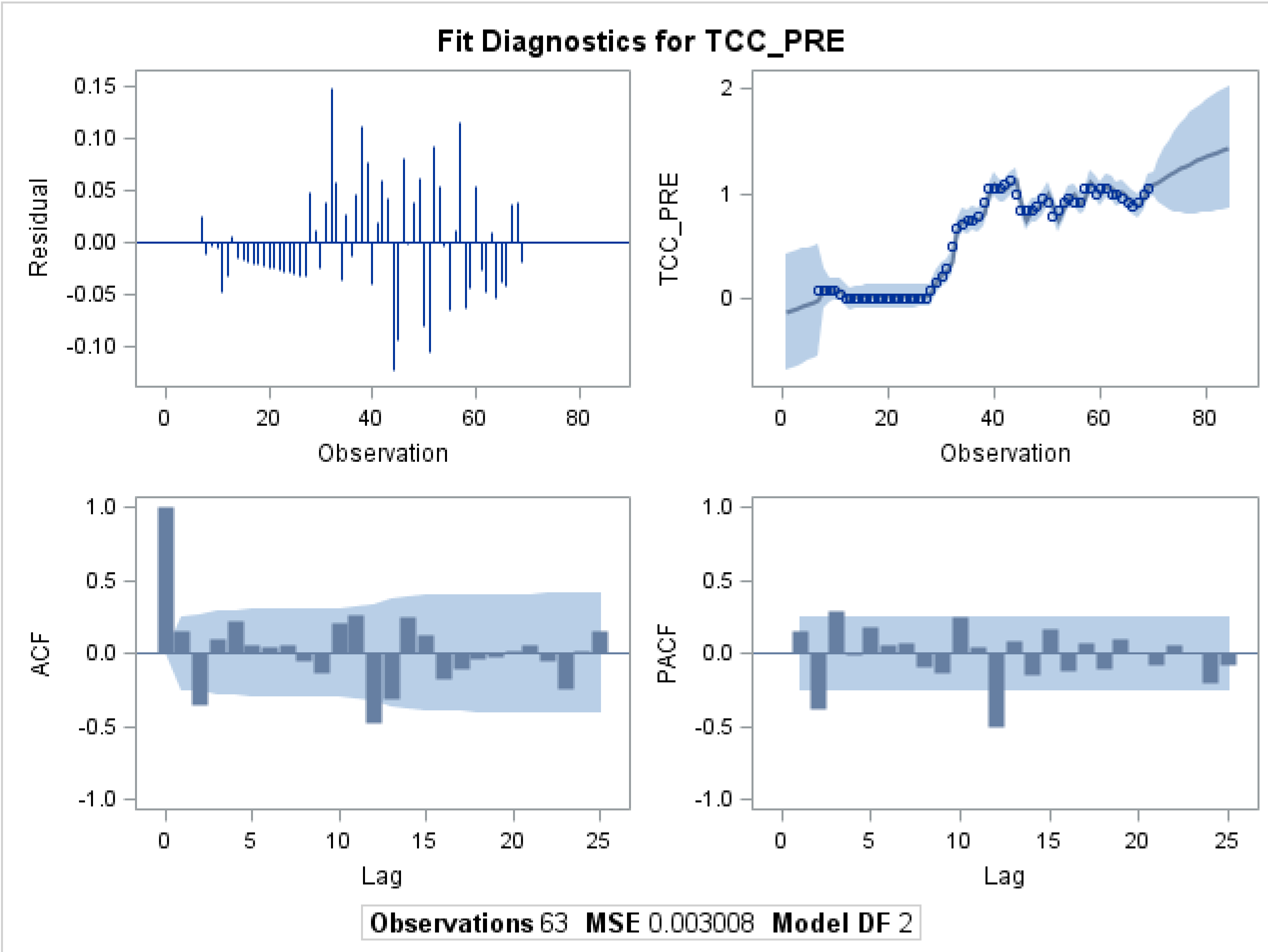
	1	2
1	0.2611789186	0
2	-0.831840572	0.8718790996

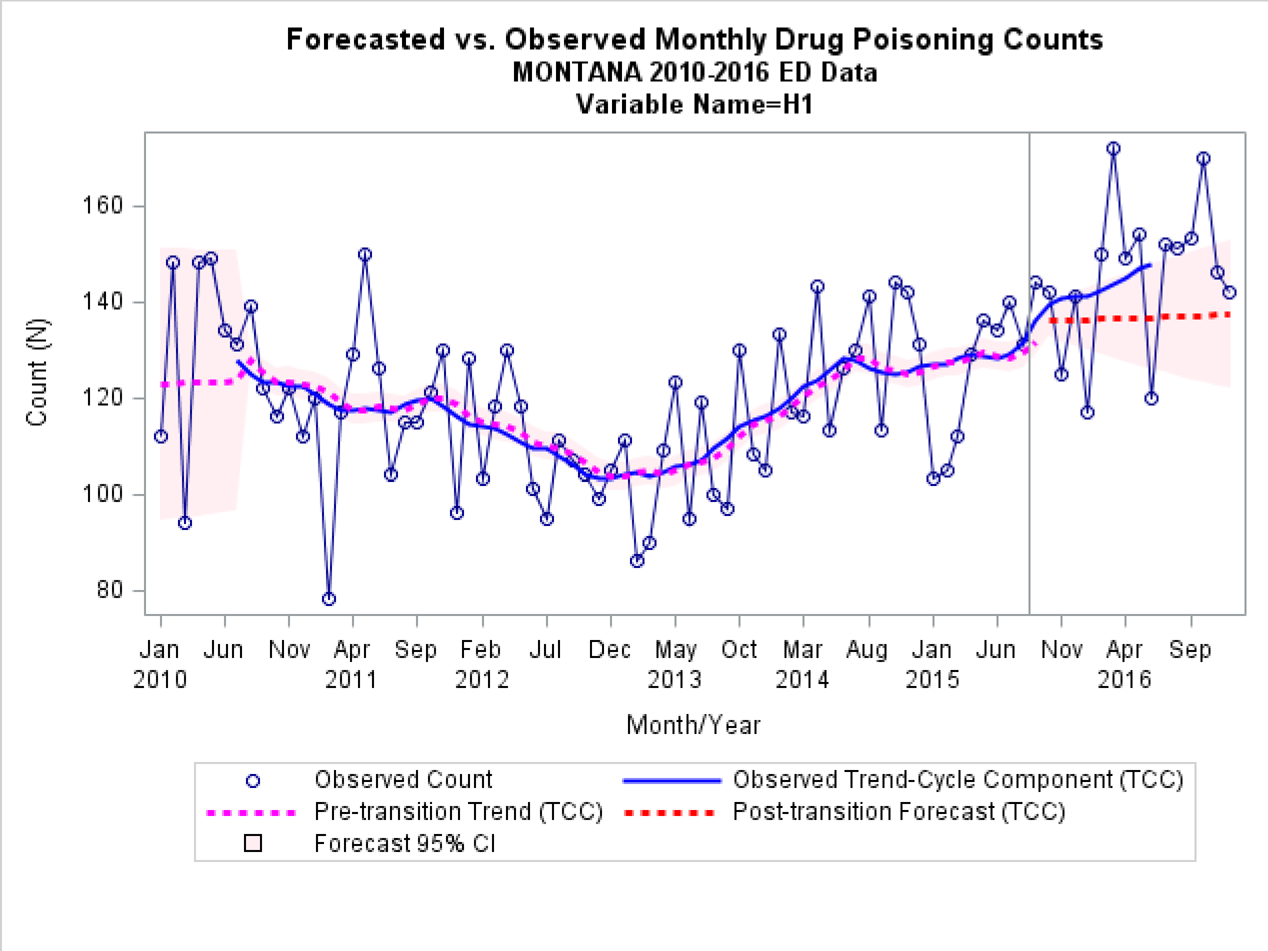
Autoregressive parameters assumed given

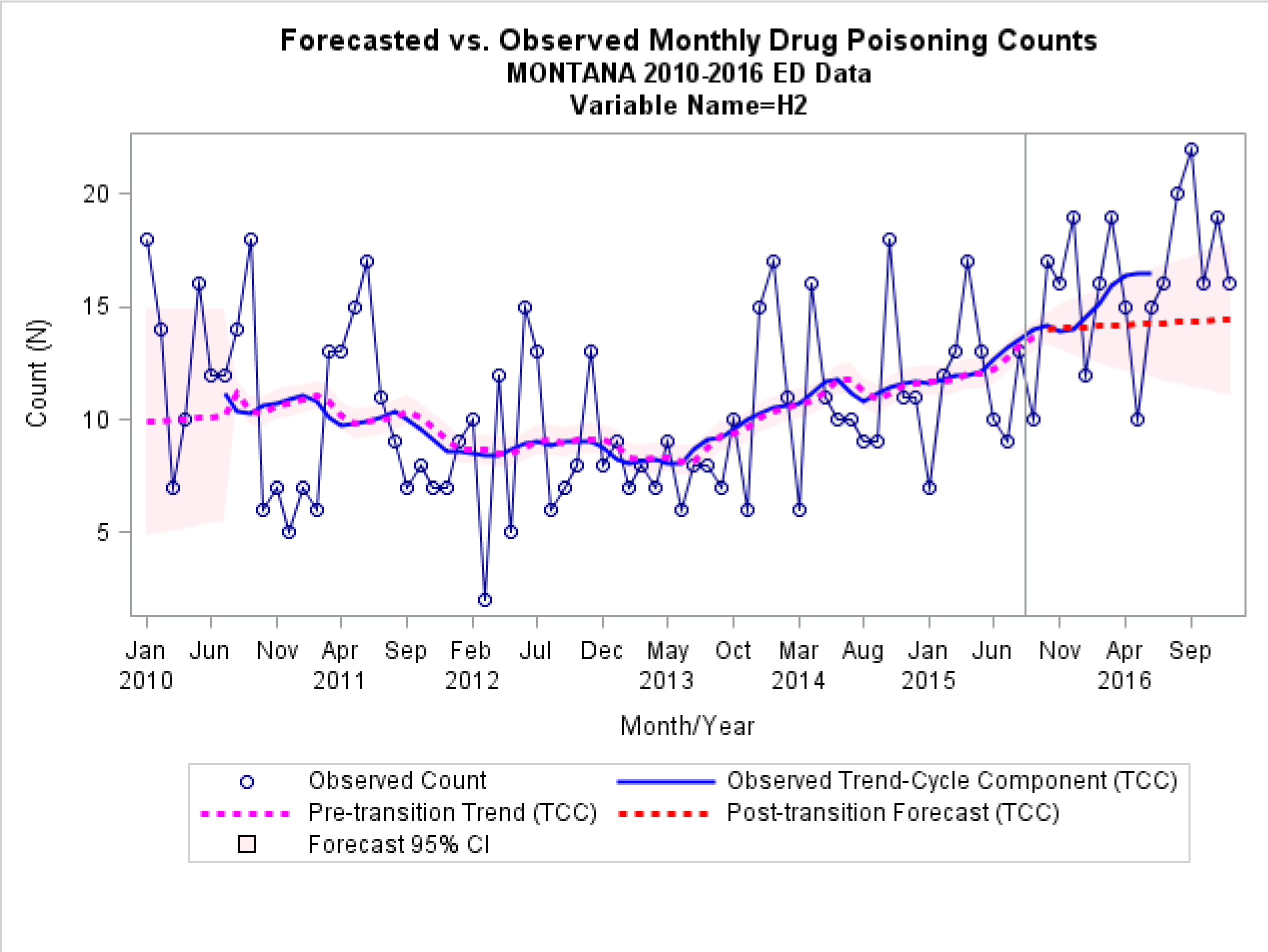
Variable	DF	Estimate	Standard Error	t Value	Approx Pr > |t|
Intercept	1	-0.1457	0.1844	-0.79	0.4325
TIME	1	0.0189	0.004205	4.50	<.0001

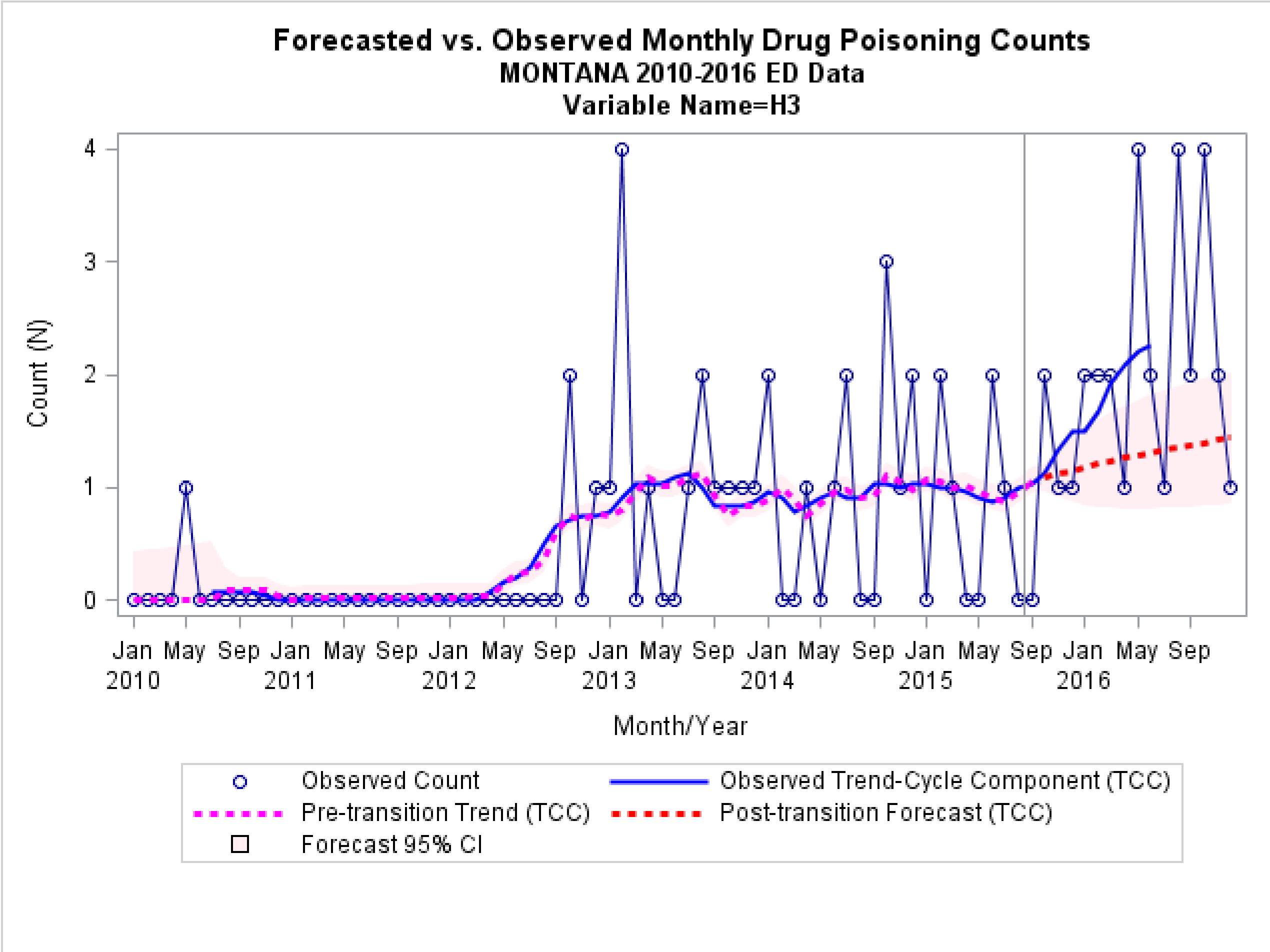
H3 FORECAST MODEL
MONTANA 2010-2016 ED Data

The AUTOREG Procedure




Forecasted vs. Observed Monthly Drug Poisoning Counts
MONTANA 2010-2016 ED Data
Variable Name=H1
Count (N)
80
100
120
140
160
Jan 2010
Jun
Nov
Apr 2011
Sep
Feb 2012
Jul
Dec
May 2013
Oct
Mar 2014
Aug
Jan 2015
Jun
Nov
Apr 2016
Sep
Month/Year
Observed Count
Observed Trend-Cycle Component (TCC)
Pre-transition Trend (TCC)
Post-transition Forecast (TCC)
Forecast 95% CI


Forecasted vs. Observed Monthly Drug Poisoning Counts
MONTANA 2010-2016 ED Data
Variable Name=H2
Count (N)
20
15
10
5
Jan 2010
Jun
Nov
Apr 2011
Sep
Feb 2012
Jul
Dec
May 2013
Oct
Mar 2014
Aug
Jan 2015
Jun
Nov
Apr 2016
Sep
Month/Year
Observed Count
Observed Trend-Cycle Component (TCC)
Pre-transition Trend (TCC)
Post-transition Forecast (TCC)
Forecast 95% CI



Forecasted vs. Observed Monthly Drug Poisoning Counts
MONTANA 2010-2016 ED Data
Variable Name=H3
Count (N)
0
1
2
3
4
Jan 2010
May
Sep
Jan 2011
May
Sep
Jan 2012
May
Sep
Jan 2013
May
Sep
Jan 2014
May
Sep
Jan 2015
May
Sep
Jan 2016
May
Sep
Month/Year
Observed Count
Observed Trend-Cycle Component (TCC)
Pre-transition Trend (TCC)
Post-transition Forecast (TCC)
Forecast 95% CI