

The SAS System

The VARMAX Procedure

Number of Observations	130
Number of Pairwise Missing	0
Observation(s) eliminated by differencing	1

Simple Summary Statistics							
Variable	Type	N	Mean	Standard Deviation	Min	Max	Difference
Gasoline_Gallons	Dependent	130	466427.53846	24198910.091	-80870462.00	64468230.000	1
Diesel_Gallons	Dependent	130	-6637.70769	6815673.1067	-29756024.00	19994713.000	1
Total_Gallons_ST_Road_Tax	Dependent	130	577877.29231	28563214.919	-109647055.0	72433169.000	1

Granger-Causality Wald Test			
Test	DF	Chi-Square	Pr > ChiSq
1	4	11.52	0.0213

Test 1: Group 1 Variables:	Gasoline_Gallons
Group 2 Variables:	Diesel_Gallons Total_Gallons_ST_Road_Tax

The SAS System

The VARMAX Procedure

Type of Model	VAR(2)
Estimation Method	Least Squares Estimation

Constant Estimates	
Variable	Constant
Gasoline_Gallons	709369.53571
Diesel_Gallons	-1386.17235
Total_Gallons_ST_Road_Tax	846791.32055

AR Coefficient Estimates				
Lag	Variable	Gasoline_Gallons	Diesel_Gallons	Total_Gallons_ST_Road_Tax
1	Gasoline_Gallons	-0.70799	0.36094	0.16354
	Diesel_Gallons	0.10387	-0.25886	-0.10414
	Total_Gallons_ST_Road_Tax	-0.22494	0.23104	-0.33850
2	Gasoline_Gallons	-0.93590	-0.58753	0.80178
	Diesel_Gallons	-0.15084	-0.38276	0.16375
	Total_Gallons_ST_Road_Tax	-0.61845	-0.52112	0.48271

Schematic Representation of Parameter Estimates			
Variable/Lag	C	AR1	AR2
Gasoline_Gallons	.	-. .	-. +
Diesel_Gallons	.	.- .	.- +
Total_Gallons_ST_Road_Tax
+ is > 2*std error, - is < -2*std error, . is between, * is N/A			

Model Parameter Estimates						
Equation	Parameter	Estimate	Standard Error	t Value	Pr > t	Variable
Gasoline_Gallons	CONST1	709369.53571	1909785.8727	0.37	0.7110	1
	AR1_1_1	-0.70799	0.25506	-2.78	0.0064	Gasoline_Gallons(t-1)
	AR1_1_2	0.36094	0.43305	0.83	0.4062	Diesel_Gallons(t-1)
	AR1_1_3	0.16354	0.24173	0.68	0.5000	Total_Gallons_ST_Road_Tax(t-1)
	AR2_1_1	-0.93590	0.26608	-3.52	0.0006	Gasoline_Gallons(t-2)
	AR2_1_2	-0.58753	0.42121	-1.39	0.1656	Diesel_Gallons(t-2)
	AR2_1_3	0.80178	0.24132	3.32	0.0012	Total_Gallons_ST_Road_Tax(t-2)
	CONST2	-1386.17235	555432.48647	-0.00	0.9980	1
	AR1_2_1	0.10387	0.07418	1.40	0.1640	Gasoline_Gallons(t-1)
Diesel_Gallons	AR1_2_2	-0.25886	0.12595	-2.06	0.0420	Diesel_Gallons(t-1)
	AR1_2_3	-0.10414	0.07030	-1.48	0.1411	Total_Gallons_ST_Road_Tax(t-1)
	AR2_2_1	-0.15084	0.07739	-1.95	0.0536	Gasoline_Gallons(t-2)
	AR2_2_2	-0.38276	0.12250	-3.12	0.0022	Diesel_Gallons(t-2)
	AR2_2_3	0.16375	0.07019	2.33	0.0213	Total_Gallons_ST_Road_Tax(t-2)
	CONST3	846791.32055	2293316.0142	0.37	0.7126	1
	AR1_3_1	-0.22494	0.30628	-0.73	0.4641	Gasoline_Gallons(t-1)

	AR1_3_2	0.23104	0.52002	0.44	0.6576	Diesel_Gallons(t-1)
	AR1_3_3	-0.33850	0.29027	-1.17	0.2459	Total_Gallons_ST_Road_Tax(t-1)
	AR2_3_1	-0.61845	0.31952	-1.94	0.0553	Gasoline_Gallons(t-2)
	AR2_3_2	-0.52112	0.50579	-1.03	0.3049	Diesel_Gallons(t-2)
	AR2_3_3	0.48271	0.28979	1.67	0.0984	Total_Gallons_ST_Road_Tax(t-2)

Covariances of Innovations			
Variable	Gasoline_Gallons	Diesel_Gallons	Total_Gallons_ST_Road_Tax
Gasoline_Gallons	4.6539915E14	8.5375795E13	5.2885291E14
Diesel_Gallons	8.5375795E13	3.9365773E13	1.1665205E14
Total_Gallons_ST_Road_Tax	5.2885291E14	1.1665205E14	6.7109505E14

Log-likelihood	-6337.25
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Information Criteria	
AICC	12743.61
HQC	12759.78
AIC	12728.49
SBC	12805.5
FPEC	6.972E41

Cross Covariances of Residuals				
Lag	Variable	Gasoline_Gallons	Diesel_Gallons	Total_Gallons_ST_Road_Tax
0	Gasoline_Gallons	4.3994763E14	8.0706807E13	4.9993127E14
	Diesel_Gallons	8.0706807E13	3.7212957E13	1.1027264E14
	Total_Gallons_ST_Road_Tax	4.9993127E14	1.1027264E14	6.3439454E14
1	Gasoline_Gallons	-7.289135E12	-6.389662E12	-1.271656E13
	Diesel_Gallons	-1.804178E12	-2.714289E12	-4.775785E12
	Total_Gallons_ST_Road_Tax	-1.237618E13	-7.105048E12	-1.939545E13
2	Gasoline_Gallons	-5.225702E13	-1.674085E13	-6.607037E13
	Diesel_Gallons	-5.350019E12	-3.613037E12	-1.134523E13
	Total_Gallons_ST_Road_Tax	-6.014948E13	-1.989112E13	-8.125487E13
3	Gasoline_Gallons	-8.241865E13	-3.042469E13	-1.143415E14
	Diesel_Gallons	-8.581595E12	-7.855594E12	-2.10971E13
	Total_Gallons_ST_Road_Tax	-9.953378E13	-3.448002E13	-1.426779E14

Cross Covariances of Residuals by Variable				
Variable	Lag	Gasoline_Gallons	Diesel_Gallons	Total_Gallons_ST_Road_Tax
Gasoline_Gallons	0	4.3994763E14	8.0706807E13	4.9993127E14
	1	-7.289135E12	-6.389662E12	-1.271656E13
	2	-5.225702E13	-1.674085E13	-6.607037E13
	3	-8.241865E13	-3.042469E13	-1.143415E14
Diesel_Gallons	0	8.0706807E13	3.7212957E13	1.1027264E14
	1	-1.804178E12	-2.714289E12	-4.775785E12
	2	-5.350019E12	-3.613037E12	-1.134523E13
	3	-8.581595E12	-7.855594E12	-2.10971E13
Total_Gallons_ST_Road_Tax	0	4.9993127E14	1.1027264E14	6.3439454E14
	1	-1.237618E13	-7.105048E12	-1.939545E13

	2	-6.014948E13	-1.989112E13	-8.125487E13
	3	-9.953378E13	-3.448002E13	-1.426779E14

Cross Correlations of Residuals				
Lag	Variable	Gasoline_Gallons	Diesel_Gallons	Total_Gallons_ST_Road_Tax
0	Gasoline_Gallons	1.00000	0.63076	0.94630
	Diesel_Gallons	0.63076	1.00000	0.71770
	Total_Gallons_ST_Road_Tax	0.94630	0.71770	1.00000
1	Gasoline_Gallons	-0.01657	-0.04994	-0.02407
	Diesel_Gallons	-0.01410	-0.07294	-0.03108
	Total_Gallons_ST_Road_Tax	-0.02343	-0.04624	-0.03057
2	Gasoline_Gallons	-0.11878	-0.13084	-0.12506
	Diesel_Gallons	-0.04181	-0.09709	-0.07384
	Total_Gallons_ST_Road_Tax	-0.11385	-0.12946	-0.12808
3	Gasoline_Gallons	-0.18734	-0.23778	-0.21643
	Diesel_Gallons	-0.06707	-0.21110	-0.13731
	Total_Gallons_ST_Road_Tax	-0.18840	-0.22441	-0.22490

Cross Correlations of Residuals by Variable				
Variable	Lag	Gasoline_Gallons	Diesel_Gallons	Total_Gallons_ST_Road_Tax
Gasoline_Gallons	0	1.00000	0.63076	0.94630
	1	-0.01657	-0.04994	-0.02407
	2	-0.11878	-0.13084	-0.12506
	3	-0.18734	-0.23778	-0.21643
Diesel_Gallons	0	0.63076	1.00000	0.71770
	1	-0.01410	-0.07294	-0.03108
	2	-0.04181	-0.09709	-0.07384
	3	-0.06707	-0.21110	-0.13731
Total_Gallons_ST_Road_Tax	0	0.94630	0.71770	1.00000
	1	-0.02343	-0.04624	-0.03057
	2	-0.11385	-0.12946	-0.12808
	3	-0.18840	-0.22441	-0.22490

Schematic Representation of Cross Correlations of Residuals				
Variable/Lag	0	1	2	3
Gasoline_Gallons	+++	---
Diesel_Gallons	+++-.
Total_Gallons_ST_Road_Tax	+++	---
+ is > 2*std error, - is < -2*std error, . is between				

Portmanteau Test for Cross Correlations of Residuals			
Up To Lag	DF	Chi-Square	Pr > ChiSq
3	9	23.59	0.0050

Univariate Model ANOVA Diagnostics				
Variable	R-Square	Standard Deviation	F Value	Pr > F

Gasoline_Gallons	0.2508	21573111.657	6.75	<.0001
Diesel_Gallons	0.2050	6274214.9370	5.20	<.0001
Total_Gallons_ST_Road_Tax	0.2250	25905502.364	5.86	<.0001

Univariate Model White Noise Diagnostics					
Variable	Durbin Watson	Normality		ARCH	
		Chi-Square	Pr > ChiSq	F Value	Pr > F
Gasoline_Gallons	2.02697	39.04	<.0001	18.29	<.0001
Diesel_Gallons	2.13178	41.05	<.0001	75.24	<.0001
Total_Gallons_ST_Road_Tax	2.05816	21.78	<.0001	38.57	<.0001

Univariate Model AR Diagnostics								
Variable	AR1		AR2		AR3		AR4	
	F Value	Pr > F	F Value	Pr > F	F Value	Pr > F	F Value	Pr > F
Gasoline_Gallons	0.03	0.8527	0.98	0.3776	2.48	0.0646	1.86	0.1223
Diesel_Gallons	0.68	0.4116	1.00	0.3723	2.98	0.0341	2.50	0.0463
Total_Gallons_ST_Road_Tax	0.12	0.7325	1.16	0.3184	3.51	0.0174	2.74	0.0320

Simple Impulse Response				
Lag	Variable Response\Impulse	Gasoline_Gallons	Diesel_Gallons	Total_Gallons_ST_Road_Tax
1	Gasoline_Gallons	-0.70799	0.36094	0.16354
	STD	0.25506	0.43305	0.24173
	Diesel_Gallons	0.10387	-0.25886	-0.10414
	STD	0.07418	0.12595	0.07030
	Total_Gallons_ST_Road_Tax	-0.22494	0.23104	-0.33850
	STD	0.30628	0.52002	0.29027
2	Gasoline_Gallons	-0.43395	-0.89872	0.59305
	STD	0.29168	0.46546	0.26795
	Diesel_Gallons	-0.22784	-0.30232	0.24295
	STD	0.08056	0.12929	0.07402
	Total_Gallons_ST_Road_Tax	-0.35905	-0.74032	0.53644
	STD	0.35229	0.56149	0.32356
3	Gasoline_Gallons	0.58751	0.40562	-0.60773
	STD	0.25288	0.34409	0.22261
	Diesel_Gallons	0.08150	0.14448	-0.09740
	STD	0.07203	0.09873	0.06392
	Total_Gallons_ST_Road_Tax	0.44166	0.40611	-0.46912
	STD	0.30010	0.40352	0.26306

Simple Impulse Response by Variable				
Variable Response\Impulse	Lag	Gasoline_Gallons	Diesel_Gallons	Total_Gallons_ST_Road_Tax
Gasoline_Gallons	1	-0.70799	0.36094	0.16354
	STD	0.25506	0.43305	0.24173
	2	-0.43395	-0.89872	0.59305
	STD	0.29168	0.46546	0.26795
	3	0.58751	0.40562	-0.60773
	STD	0.25288	0.34409	0.22261

Diesel_Gallons	1	0.10387	-0.25886	-0.10414
	STD	0.07418	0.12595	0.07030
	2	-0.22784	-0.30232	0.24295
	STD	0.08056	0.12929	0.07402
	3	0.08150	0.14448	-0.09740
	STD	0.07203	0.09873	0.06392
Total_Gallons_ST_Road_Tax	1	-0.22494	0.23104	-0.33850
	STD	0.30628	0.52002	0.29027
	2	-0.35905	-0.74032	0.53644
	STD	0.35229	0.56149	0.32356
	3	0.44166	0.40611	-0.46912
	STD	0.30010	0.40352	0.26306

Decomposition of Prediction Error Covariances				
Lead	Variable	Gasoline_Gallons	Diesel_Gallons	Total_Gallons_ST_Road_Tax
1	Gasoline_Gallons	4.6539915E14	0.00000	0.00000
	Diesel_Gallons	1.5661882E13	2.3703891E13	0.00000
	Total_Gallons_ST_Road_Tax	6.0095813E14	1.6266034E13	5.3870887E13
2	Gasoline_Gallons	5.6214848E14	5.8412493E12	1.4407856E12
	Diesel_Gallons	1.7448415E13	2.6527357E13	584224668171
	Total_Gallons_ST_Road_Tax	7.5068677E14	1.6323796E13	6.0043389E13
3	Gasoline_Gallons	5.6477293E14	9.7764194E12	2.0387567E13
	Diesel_Gallons	1.7472745E13	2.6769493E13	3.7639116E12
	Total_Gallons_ST_Road_Tax	7.5681227E14	1.8399781E13	7.5545961E13
4	Gasoline_Gallons	5.6515535E14	1.0003183E13	4.0283828E13
	Diesel_Gallons	1.7476055E13	2.6865977E13	4.2749204E12
	Total_Gallons_ST_Road_Tax	7.5694565E14	1.8407036E13	8.7401621E13
5	Gasoline_Gallons	5.6599658E14	1.2116269E13	4.0422451E13
	Diesel_Gallons	1.7519869E13	2.6878723E13	4.6519794E12
	Total_Gallons_ST_Road_Tax	7.5721973E14	1.9286507E13	8.7481765E13
6	Gasoline_Gallons	5.6602495E14	1.236987E13	4.2368435E13
	Diesel_Gallons	1.7521638E13	2.6878804E13	4.9553217E12
	Total_Gallons_ST_Road_Tax	7.5722954E14	1.9484171E13	8.8798725E13

Decomposition of Prediction Error Covariances by Variable				
Variable	Lead	Gasoline_Gallons	Diesel_Gallons	Total_Gallons_ST_Road_Tax
Gasoline_Gallons	1	4.6539915E14	0.00000	0.00000
	2	5.6214848E14	5.8412493E12	1.4407856E12
	3	5.6477293E14	9.7764194E12	2.0387567E13
	4	5.6515535E14	1.0003183E13	4.0283828E13
	5	5.6599658E14	1.2116269E13	4.0422451E13
	6	5.6602495E14	1.236987E13	4.2368435E13
Diesel_Gallons	1	1.5661882E13	2.3703891E13	0.00000
	2	1.7448415E13	2.6527357E13	584224668171
	3	1.7472745E13	2.6769493E13	3.7639116E12
	4	1.7476055E13	2.6865977E13	4.2749204E12
	5	1.7519869E13	2.6878723E13	4.6519794E12

	6	1.7521638E13	2.6878804E13	4.9553217E12
Total_Gallons_ST_Road_Tax	1	6.0095813E14	1.6266034E13	5.3870887E13
	2	7.5068677E14	1.6323796E13	6.0043389E13
	3	7.5681227E14	1.8399781E13	7.5545961E13
	4	7.5694565E14	1.8407036E13	8.7401621E13
	5	7.5721973E14	1.9286507E13	8.7481765E13
	6	7.5722954E14	1.9484171E13	8.8798725E13

Proportions of Prediction Error Covariances				
Lead	Variable	Gasoline_Gallons	Diesel_Gallons	Total_Gallons_ST_Road_Tax
1	Gasoline_Gallons	1.00000	0.00000	0.00000
	Diesel_Gallons	0.39786	0.60214	0.00000
	Total_Gallons_ST_Road_Tax	0.89549	0.02424	0.08027
2	Gasoline_Gallons	0.98721	0.01026	0.00253
	Diesel_Gallons	0.39157	0.59532	0.01311
	Total_Gallons_ST_Road_Tax	0.90766	0.01974	0.07260
3	Gasoline_Gallons	0.94930	0.01643	0.03427
	Diesel_Gallons	0.36397	0.55763	0.07840
	Total_Gallons_ST_Road_Tax	0.88957	0.02163	0.08880
4	Gasoline_Gallons	0.91829	0.01625	0.06546
	Diesel_Gallons	0.35946	0.55261	0.08793
	Total_Gallons_ST_Road_Tax	0.87736	0.02134	0.10131
5	Gasoline_Gallons	0.91506	0.01959	0.06535
	Diesel_Gallons	0.35718	0.54798	0.09484
	Total_Gallons_ST_Road_Tax	0.87642	0.02232	0.10125
6	Gasoline_Gallons	0.91182	0.01993	0.06825
	Diesel_Gallons	0.35501	0.54459	0.10040
	Total_Gallons_ST_Road_Tax	0.87489	0.02251	0.10260

Proportions of Prediction Error Covariances by Variable				
Variable	Lead	Gasoline_Gallons	Diesel_Gallons	Total_Gallons_ST_Road_Tax
Gasoline_Gallons	1	1.00000	0.00000	0.00000
	2	0.98721	0.01026	0.00253
	3	0.94930	0.01643	0.03427
	4	0.91829	0.01625	0.06546
	5	0.91506	0.01959	0.06535
	6	0.91182	0.01993	0.06825
Diesel_Gallons	1	0.39786	0.60214	0.00000
	2	0.39157	0.59532	0.01311
	3	0.36397	0.55763	0.07840
	4	0.35946	0.55261	0.08793
	5	0.35718	0.54798	0.09484
	6	0.35501	0.54459	0.10040
Total_Gallons_ST_Road_Tax	1	0.89549	0.02424	0.08027
	2	0.90766	0.01974	0.07260
	3	0.88957	0.02163	0.08880
	4	0.87736	0.02134	0.10131

	5	0.87642	0.02232	0.10125
	6	0.87489	0.02251	0.10260

Forecasts						
Variable	Obs	Time	Forecast	Standard Error	95% Confidence Limits	
Gasoline_Gallons	132	JUL2020	72559681.885	21573111.657	30277160.003	114842203.77
	133	AUG2020	81207315.347	24707044.833	32782397.309	129632233.39
	134	SEP2020	78485380.043	28633412.643	22364922.509	134605837.58
	135	OCT2020	76825610.837	31358250.065	15364570.091	138286651.58
	136	NOV2020	78662022.915	34263041.433	11507695.705	145816350.13
Diesel_Gallons	132	JUL2020	3268020.4630	6274214.9370	-9029214.845	15565255.771
	133	AUG2020	4333333.0323	7548818.1813	-10462078.73	19128744.794
	134	SEP2020	4739387.5447	8447979.0911	-11818347.22	21297122.305
	135	OCT2020	3839396.0089	9289652.9003	-14367989.10	22046781.122
	136	NOV2020	3839619.3289	10147611.777	-16049334.28	23728572.942
Total_Gallons_ST_Road_Tax	132	JUL2020	84065241.335	25905502.364	33291389.701	134839092.97
	133	AUG2020	89885377.437	29322427.648	32414475.308	147356279.57
	134	SEP2020	87500502.867	34063150.597	20737954.497	154263051.24
	135	OCT2020	86766854.455	37441468.174	13382925.305	160150783.60
	136	NOV2020	88347959.133	40832918.844	8316908.8158	168379009.45

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Number of Observations	130
Number of Pairwise Missing	0
Observation(s) eliminated by differencing	1

Simple Summary Statistics

Variable	Type	N	Mean	Standard Deviation	Min	Max	Difference
Diesel_Gallons	Dependent	130	-6637.70769	6815673.1067	-29756024.00	19994713.000	1
Total_Gallons_ST_Road_Tax	Dependent	130	577877.29231	28563214.919	-109647055.0	72433169.000	1
Gasoline_Gallons	Independent	130	466427.53846	24198910.091	-80870462.00	64468230.000	1

The SAS System

The VARMAX Procedure

Type of Model	VARX(2,1)
Estimation Method	Least Squares Estimation

Constant Estimates	
Variable	Constant
Diesel_Gallons	-129900.9978
Total_Gallons_ST_Road_Tax	75218.20208

Coefficient Estimates of Independent Variables		
Lag	Variable	Gasoline_Gallons
0	Diesel_Gallons	0.18138
	Total_Gallons_ST_Road_Tax	1.09223
1	Diesel_Gallons	0.22656
	Total_Gallons_ST_Road_Tax	0.42620

AR Coefficient Estimates			
Lag	Variable	Diesel_Gallons	Total_Gallons_ST_Road_Tax
1	Diesel_Gallons	-0.31799	-0.13044
	Total_Gallons_ST_Road_Tax	-0.02773	-0.44535
2	Diesel_Gallons	-0.27933	0.03371
	Total_Gallons_ST_Road_Tax	0.05372	-0.06464

Schematic Representation of Parameter Estimates					
Variable/Lag	C	XL0	XL1	AR1	AR2
Diesel_Gallons	.	+	+	--	..
Total_Gallons_ST_Road_Tax	.	+	+	.-	..
+ is > 2*std error, - is < -2*std error, . is between, * is N/A					

Model Parameter Estimates						
Equation	Parameter	Estimate	Standard Error	t Value	Pr > t	Variable
Diesel_Gallons	CONST1	-129900.9978	431417.08872	-0.30	0.7639	1
	XL0_1_1	0.18138	0.01955	9.28	0.0001	Gasoline_Gallons(t)
	XL1_1_1	0.22656	0.05527	4.10	0.0001	Gasoline_Gallons(t-1)
	AR1_1_1	-0.31799	0.09568	-3.32	0.0012	Diesel_Gallons(t-1)
	AR1_1_2	-0.13044	0.05352	-2.44	0.0163	Total_Gallons_ST_Road_Tax(t-1)
	AR2_1_1	-0.27933	0.09496	-2.94	0.0039	Diesel_Gallons(t-2)
	AR2_1_2	0.03371	0.02413	1.40	0.1650	Total_Gallons_ST_Road_Tax(t-2)
	CONST2	75218.20208	791706.22805	0.10	0.9245	1
Total_Gallons_ST_Road_Tax	XL0_2_1	1.09223	0.03588	30.44	0.0001	Gasoline_Gallons(t)
	XL1_2_1	0.42620	0.10143	4.20	0.0001	Gasoline_Gallons(t-1)
	AR1_2_1	-0.02773	0.17559	-0.16	0.8748	Diesel_Gallons(t-1)
	AR1_2_2	-0.44535	0.09822	-4.53	0.0001	Total_Gallons_ST_Road_Tax(t-1)
	AR2_2_1	0.05372	0.17426	0.31	0.7584	Diesel_Gallons(t-2)
	AR2_2_2	-0.06464	0.04429	-1.46	0.1470	Total_Gallons_ST_Road_Tax(t-2)

Covariances of Innovations		
Variable	Diesel_Gallons	Total_Gallons_ST_Road_Tax
Diesel_Gallons	2.3725306E13	2.0093136E13
Total_Gallons_ST_Road_Tax	2.0093136E13	7.9899721E13

Log-likelihood	-4125.27
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Information Criteria	
AICC	8290.108
HQC	8304.244
AIC	8284.544
SBC	8333.029
FPEC	1.66E27

Cross Covariances of Residuals			
Lag	Variable	Diesel_Gallons	Total_Gallons_ST_Road_Tax
0	Diesel_Gallons	2.2427829E13	1.8994292E13
	Total_Gallons_ST_Road_Tax	1.8994292E13	7.5530205E13
1	Diesel_Gallons	-1.712451E12	-6.096955E12
	Total_Gallons_ST_Road_Tax	-7.99449E11	-9.366834E12
2	Diesel_Gallons	-1.423899E12	-5.282061E12
	Total_Gallons_ST_Road_Tax	-2.49401E12	-2.181642E13
3	Diesel_Gallons	-3.287658E12	-2.771289E12
	Total_Gallons_ST_Road_Tax	901918839281	5.450295E12

Cross Correlations of Residuals			
Lag	Variable	Diesel_Gallons	Total_Gallons_ST_Road_Tax
0	Diesel_Gallons	1.00000	0.46150
	Total_Gallons_ST_Road_Tax	0.46150	1.00000
1	Diesel_Gallons	-0.07635	-0.14814
	Total_Gallons_ST_Road_Tax	-0.01942	-0.12401
2	Diesel_Gallons	-0.06349	-0.12834
	Total_Gallons_ST_Road_Tax	-0.06060	-0.28884
3	Diesel_Gallons	-0.14659	-0.06733
	Total_Gallons_ST_Road_Tax	0.02191	0.07216

Schematic Representation of Cross Correlations of Residuals

Variable/Lag	0	1	2	3
Diesel_Gallons	++
Total_Gallons_ST_Road_Tax	++	..	.-	..

+ is > 2*std error, - is < -2*std error, . is between

Portmanteau Test for Cross Correlations of Residuals

Up To Lag	DF	Chi-Square	Pr > ChiSq
3	4	20.70	0.0004

Univariate Model ANOVA Diagnostics

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Variable	R-Square	Standard Deviation	F Value	Pr > F
Diesel_Gallons	0.5209	4870862.9899	21.92	<.0001
Total_Gallons_ST_Road_Tax	0.9077	8938664.3829	198.40	<.0001

Univariate Model White Noise Diagnostics					
Variable	Durbin Watson	Normality		ARCH	
		Chi-Square	Pr > ChiSq	F Value	Pr > F
Diesel_Gallons	2.14273	26.73	<.0001	4.17	0.0432
Total_Gallons_ST_Road_Tax	2.24570	0.44	0.8036	0.27	0.6073

Univariate Model AR Diagnostics								
Variable	AR1		AR2		AR3		AR4	
	F Value	Pr > F	F Value	Pr > F	F Value	Pr > F	F Value	Pr > F
Diesel_Gallons	0.74	0.3912	0.71	0.4920	1.63	0.1865	1.27	0.2842
Total_Gallons_ST_Road_Tax	1.96	0.1643	7.63	0.0007	4.97	0.0027	4.04	0.0041