The SAS System

The CONTENTS Procedure

Data Set Name	WORK.WORK_WARREN	**Observations**	225
Member Type	DATA	**Variables**	22
Engine	V9	**Indexes**	0
Created	09/22/2019 09:51:42	**Observation Length**	176
Last Modified	09/22/2019 09:51:42	**Deleted Observations**	0
Protection		**Compressed**	NO
Data Set Type		**Sorted**	NO
Label			
Data Representation	WINDOWS_64		
Encoding	wlatin1 Western (Windows)		

Engine/Host Dependent Information	
Data Set Page Size	65536
Number of Data Set Pages	1
First Data Page	1
Max Obs per Page	371
Obs in First Data Page	225
Number of Data Set Repairs	0
ExtendObsCounter	YES
Filename	C:\Users\kentk\AppData\Local\Temp\SAS Temporary Files_TD19160_DESKTOP-HCH158O_\work_warren.sas7bdat
Release Created	9.0401M3
Host Created	X64_8HOME

Alphabetic List of Variables and Attributes					
#	**Variable**	**Type**	**Len**	**Format**	**Informat**
20	BIDEN_CHANGE	Num	8	BEST12.	BEST32.
19	BIDEN_LAG1	Num	8	BEST12.	BEST32.
18	BUTTIGIEG_CHANGE	Num	8	BEST12.	BEST32.
17	BUTTIGIEG_LAG1	Num	8	BEST12.	BEST32.
3	Biden	Num	8	BEST12.	BEST32.
8	Biden_TV	Num	8	BEST12.	BEST32.

7	Buttigieg	Num	8	BEST12.	BEST32.
12	Buttigieg_TV	Num	8	BEST12.	BEST32.
1	Date	Num	8	DATE8.	DATE8.
16	HARRIS_CHANGE	Num	8	BEST12.	BEST32.
15	HARRIS_LAG1	Num	8	BEST12.	BEST32.
6	Harris	Num	8	BEST12.	BEST32.
11	Harris_TV	Num	8	BEST12.	BEST32.
22	SANDERS_CHANGE	Num	8	BEST12.	BEST32.
21	SANDERS_LAG1	Num	8	BEST12.	BEST32.
5	Sanders	Num	8	BEST12.	BEST32.
10	Sanders_TV	Num	8	BEST12.	BEST32.
2	TIME	Num	8	BEST12.	BEST32.
14	WARREN_CHANGE	Num	8	BEST12.	BEST32.
4	Warren	Num	8	BEST12.	BEST32.
13	Warren_LAG1	Num	8	BEST12.	BEST32.
9	Warren_TV	Num	8	BEST12.	BEST32.

The SAS System

The VARMAX Procedure

Number of Observations	224
Number of Pairwise Missing	0
Observation(s) eliminated by differencing	1

Simple Summary Statistics

Variable	Type	N	Mean	Standard Deviation	Min	Max	Difference
Biden	Dependent	224	-0.00670	1.84310	-5.66667	9.00000	1
Biden_TV	Dependent	224	0.00847	3.32667	-13.61490	17.77580	1

The SAS System

The VARMAX Procedure

Type of Model	VAR(7)
Estimation Method	Least Squares Estimation

Constant Estimates	
Variable	**Constant**
Biden	-0.01027
Biden_TV	0.04773

AR Coefficient Estimates			
Lag	**Variable**	**Biden**	**Biden_TV**
1	**Biden**	-0.15830	0.09510
	Biden_TV	0.19366	-0.13410
2	**Biden**	-0.19350	-0.00795
	Biden_TV	0.11380	-0.47170
3	**Biden**	-0.10634	0.05584
	Biden_TV	-0.16961	-0.22173
4	**Biden**	-0.24066	0.04109
	Biden_TV	0.03937	-0.10665
5	**Biden**	-0.12083	0.04581
	Biden_TV	-0.09932	-0.23550
6	**Biden**	-0.03179	-0.01217
	Biden_TV	0.10816	-0.08109
7	**Biden**	0.29259	0.00443
	Biden_TV	0.09133	-0.07724

Schematic Representation of Parameter Estimates								
Variable/Lag	**C**	**AR1**	**AR2**	**AR3**	**AR4**	**AR5**	**AR6**	**AR7**
Biden	.	-+	-.	..	-.	..	..	+.
Biden_TV	.	..	.-	.-	..	.-	..	..
+ 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
Biden	CONST1	-0.01027	0.11529	-0.09	0.9291	1
	AR1_1_1	-0.15830	0.06757	-2.34	0.0201	Biden(t-1)
	AR1_1_2	0.09510	0.03890	2.44	0.0154	Biden_TV(t-1)
	AR2_1_1	-0.19350	0.06872	-2.82	0.0053	Biden(t-2)
	AR2_1_2	-0.00795	0.03978	-0.20	0.8418	Biden_TV(t-2)
	AR3_1_1	-0.10634	0.06962	-1.53	0.1282	Biden(t-3)
	AR3_1_2	0.05584	0.04309	1.30	0.1965	Biden_TV(t-3)
	AR4_1_1	-0.24066	0.06905	-3.49	0.0006	Biden(t-4)
	AR4_1_2	0.04109	0.04473	0.92	0.3594	Biden_TV(t-4)
	AR5_1_1	-0.12083	0.07392	-1.63	0.1037	Biden(t-5)
	AR5_1_2	0.04581	0.04510	1.02	0.3110	Biden_TV(t-5)
	AR6_1_1	-0.03179	0.07279	-0.44	0.6628	Biden(t-6)
	AR6_1_2	-0.01217	0.04125	-0.30	0.7683	Biden_TV(t-6)
	AR7_1_1	0.29259	0.07031	4.16	0.0001	Biden(t-7)
	AR7_1_2	0.00443	0.04122	0.11	0.9145	Biden_TV(t-7)
Biden_TV	CONST2	0.04773	0.20790	0.23	0.8187	1
	AR1_2_1	0.19366	0.12185	1.59	0.1135	Biden(t-1)
	AR1_2_2	-0.13410	0.07016	-1.91	0.0574	Biden_TV(t-1)
	AR2_2_1	0.11380	0.12393	0.92	0.3596	Biden(t-2)
	AR2_2_2	-0.47170	0.07174	-6.58	0.0001	Biden_TV(t-2)
	AR3_2_1	-0.16961	0.12555	-1.35	0.1782	Biden(t-3)
	AR3_2_2	-0.22173	0.07771	-2.85	0.0048	Biden_TV(t-3)
	AR4_2_1	0.03937	0.12453	0.32	0.7522	Biden(t-4)
	AR4_2_2	-0.10665	0.08067	-1.32	0.1877	Biden_TV(t-4)
	AR5_2_1	-0.09932	0.13330	-0.75	0.4571	Biden(t-5)
	AR5_2_2	-0.23550	0.08133	-2.90	0.0042	Biden_TV(t-5)
	AR6_2_1	0.10816	0.13127	0.82	0.4110	Biden(t-6)
	AR6_2_2	-0.08109	0.07438	-1.09	0.2769	Biden_TV(t-6)
	AR7_2_1	0.09133	0.12680	0.72	0.4722	Biden(t-7)
	AR7_2_2	-0.07724	0.07433	-1.04	0.2999	Biden_TV(t-7)

Covariances of Innovations		
Variable	Biden	Biden_TV
Biden	2.87651	-0.27896

Biden_TV	-0.27896	9.35475

Log-likelihood	-558.374

Information Criteria	
AICC	1195.011
HQC	1227.805
AIC	1182.749
SBC	1294.285
FPEC	30.66882

Cross Covariances of Residuals by Variable

Variable	Lag	Biden	Biden_TV
Biden	**0**	2.67767	-0.25968
	1	-0.04925	0.09498
	2	-0.03024	-0.12688
	3	0.16149	0.13374
	4	0.01752	0.02033
	5	-0.08300	0.04705
	6	0.01466	-0.20793
	7	-0.21340	0.28930
	8	0.01425	-0.33766
Biden_TV	**0**	-0.25968	8.70811
	1	0.03787	-0.03059
	2	0.07200	-0.10329
	3	0.26169	-0.23099
	4	0.22589	-0.06196
	5	0.16167	-0.31400
	6	0.30765	-0.40588
	7	0.26850	-0.52469
	8	0.48672	-0.86802

Cross Correlations of Residuals by Variable

Variable	Lag	Biden	Biden_TV
Biden	**0**	1.00000	-0.05378
	1	-0.01839	0.01967

	2	-0.01129	-0.02628
	3	0.06031	0.02770
	4	0.00654	0.00421
	5	-0.03100	0.00974
	6	0.00548	-0.04306
	7	-0.07970	0.05991
	8	0.00532	-0.06993
Biden_TV	0	-0.05378	1.00000
	1	0.00784	-0.00351
	2	0.01491	-0.01186
	3	0.05419	-0.02653
	4	0.04678	-0.00711
	5	0.03348	-0.03606
	6	0.06371	-0.04661
	7	0.05560	-0.06025
	8	0.10080	-0.09968

Schematic Representation of Cross Correlations of Residuals

Variable/Lag	0	1	2	3	4	5	6	7	8
Biden	+.	. .	. .	. .	. .	. .	. .	. .	. .
Biden_TV	.+	. .	. .	. .	. .	. .	. .	. .	. .

+ 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
8	4	14.25	0.0065

Univariate Model ANOVA Diagnostics

Variable	R-Square	Standard Deviation	F Value	Pr > F
Biden	0.2319	1.69603	4.36	<.0001
Biden_TV	0.2340	3.05855	4.41	<.0001

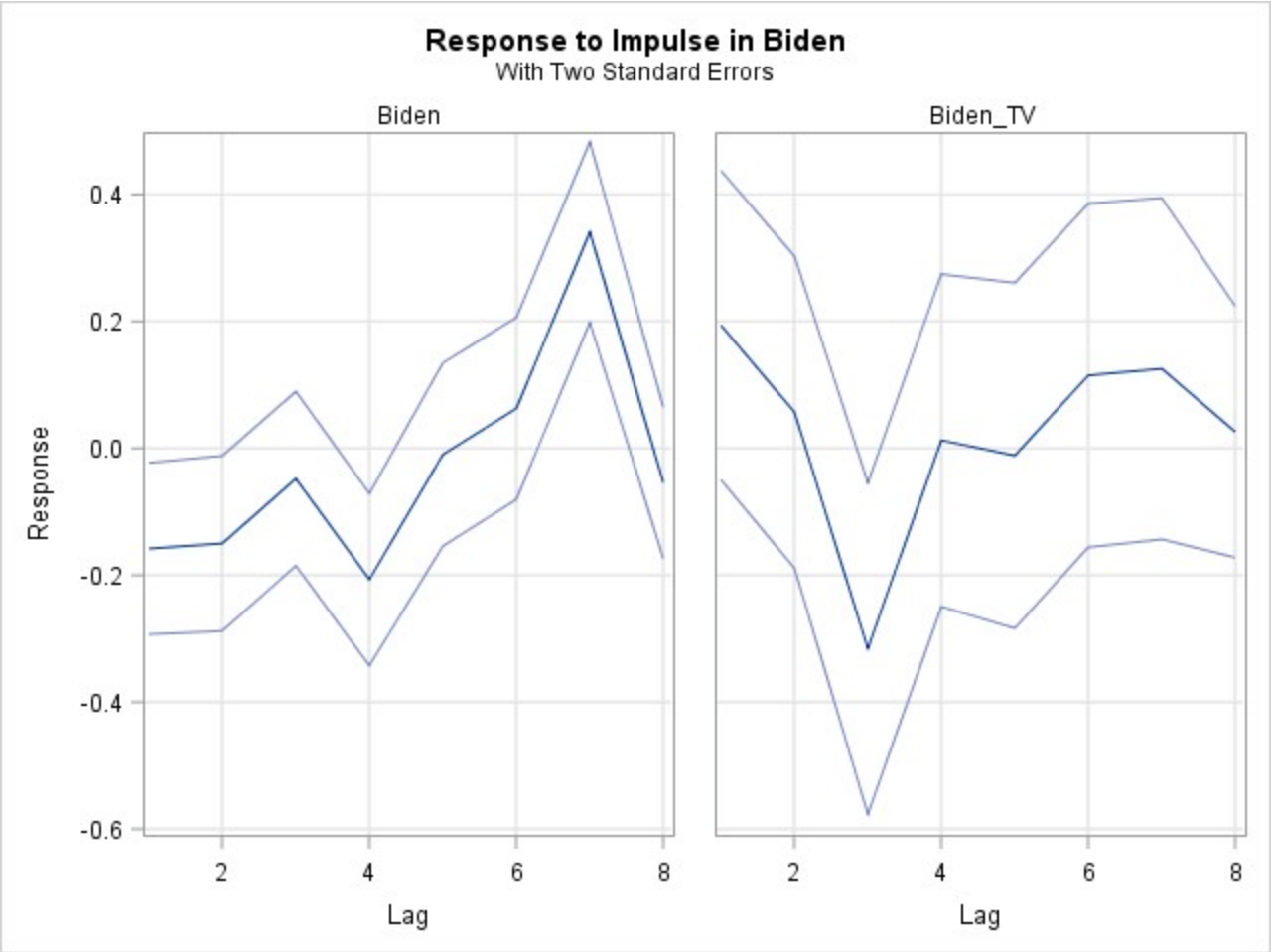
Univariate Model White Noise Diagnostics

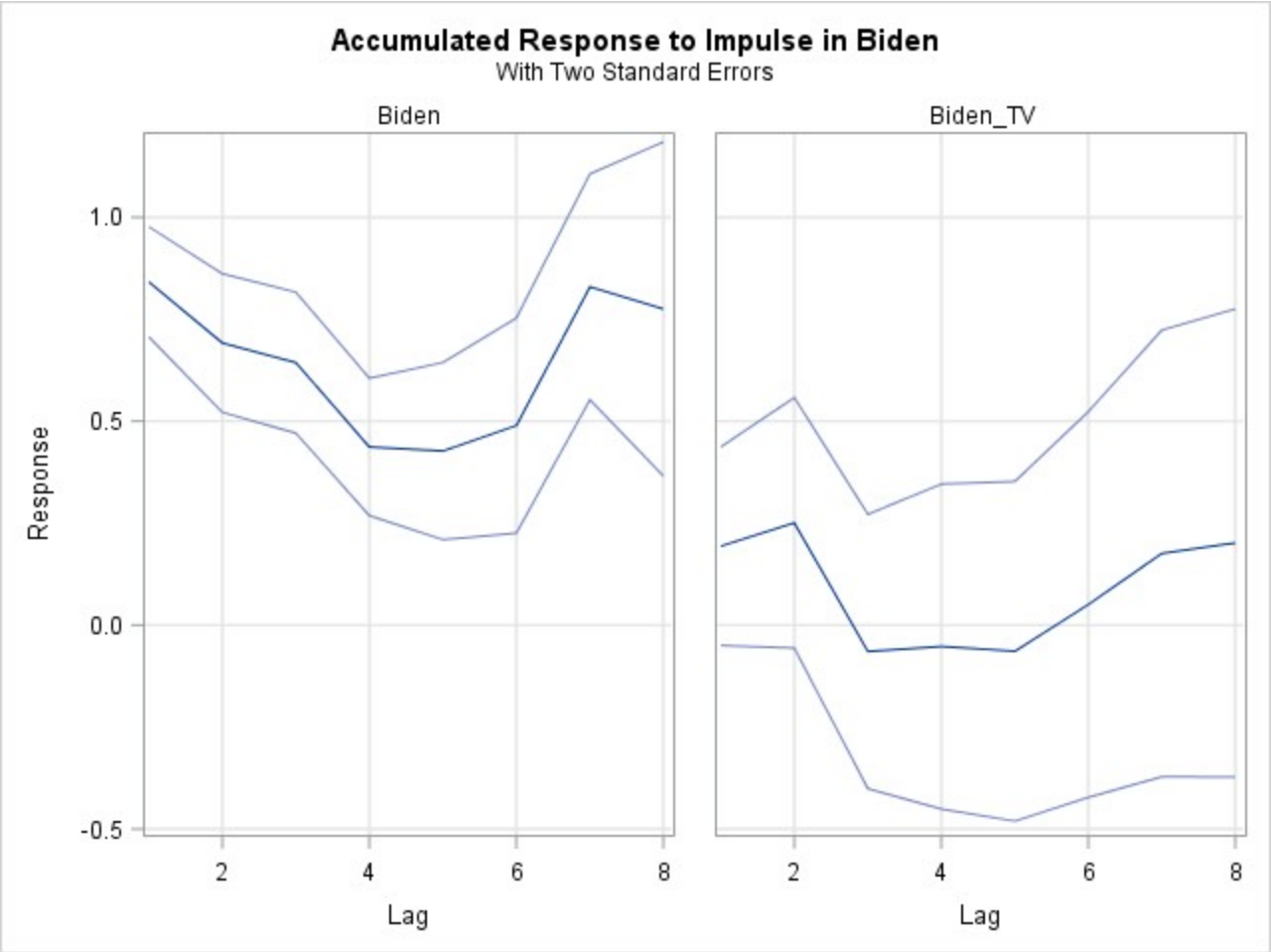
	Durbin	Normality		ARCH	

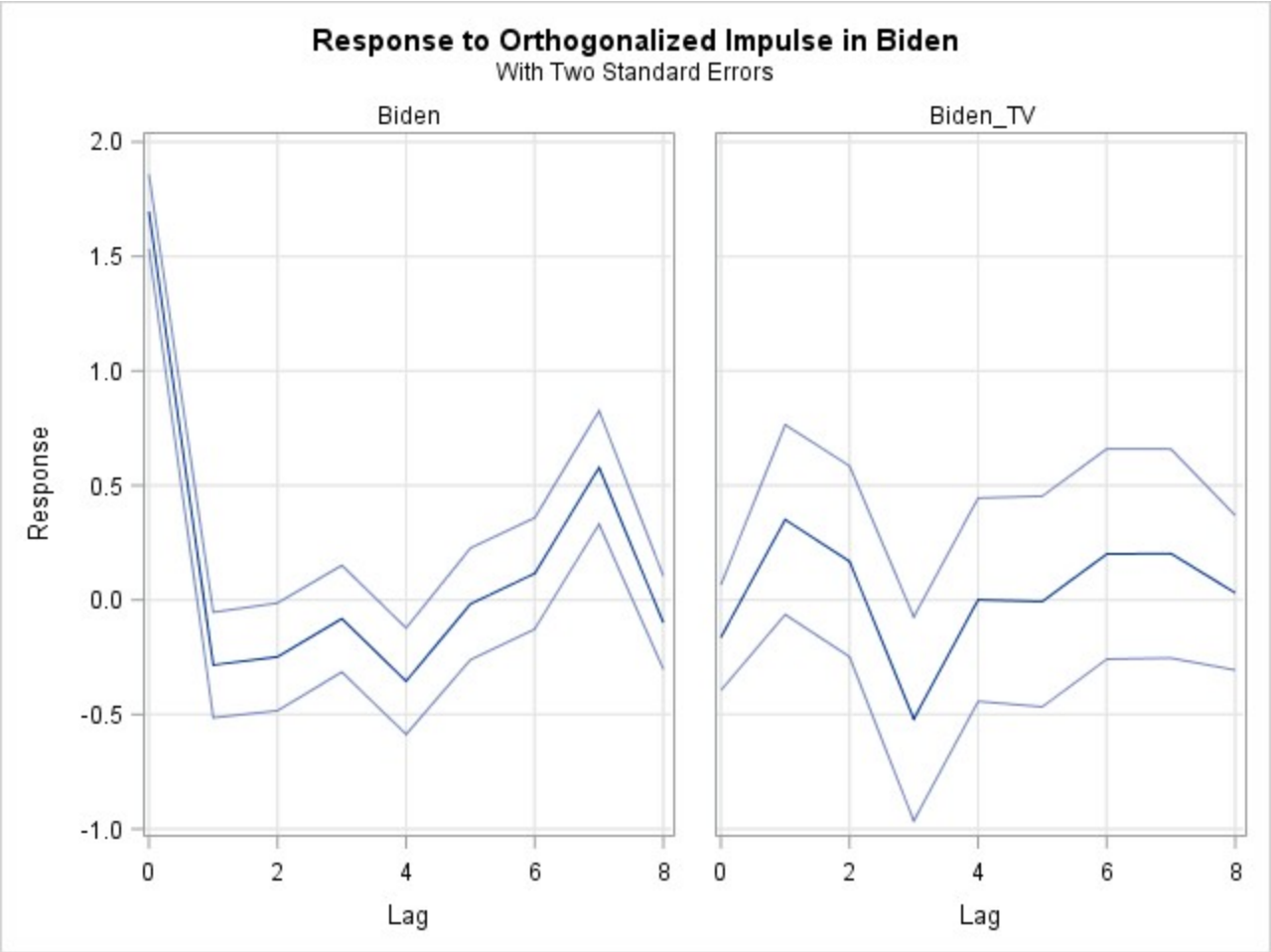
Variable	Watson	Chi-Square	Pr > ChiSq	F Value	Pr > F
Biden	2.03639	99.86	<.0001	0.07	0.7973
Biden_TV	2.00573	1035.24	<.0001	0.82	0.3650

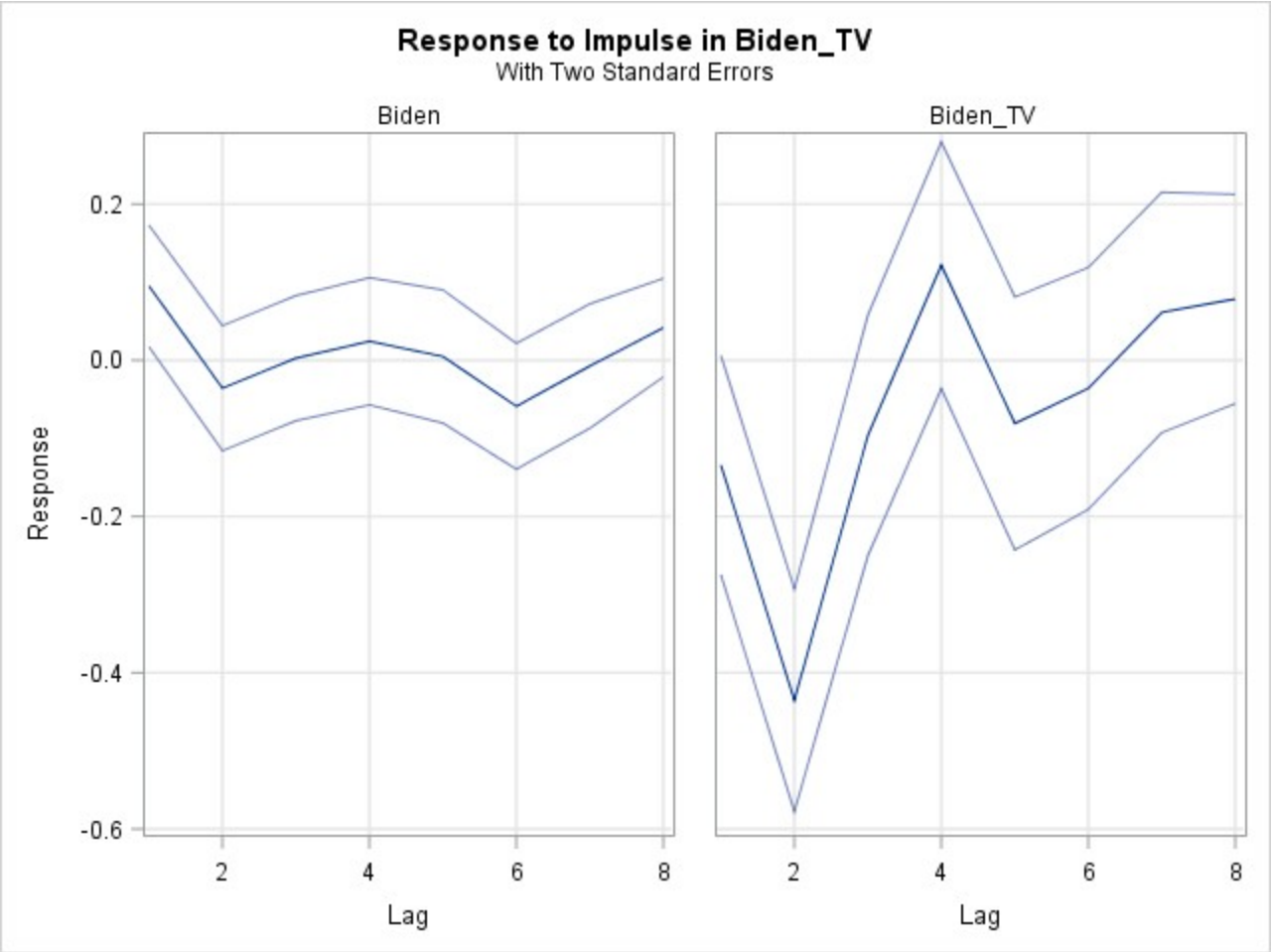
Univariate Model AR Diagnostics								
	AR1		AR2		AR3		AR4	
Variable	F Value	Pr > F	F Value	Pr > F	F Value	Pr > F	F Value	Pr > F
Biden	0.07	0.7881	0.05	0.9529	0.29	0.8350	0.22	0.9283
Biden_TV	0.00	0.9590	0.02	0.9838	0.06	0.9804	0.05	0.9957

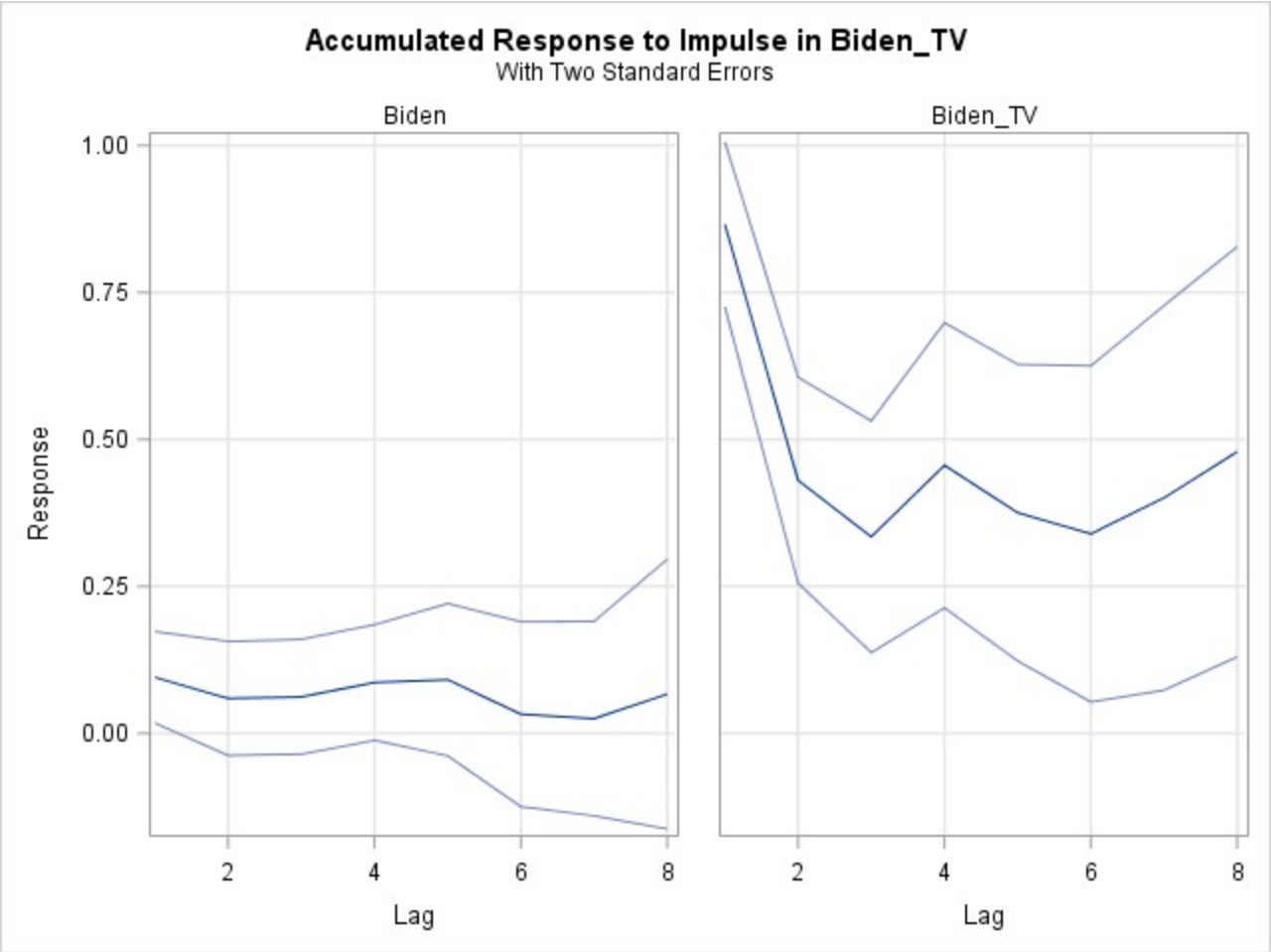
Roots of AR Characteristic Polynomial					
Index	Real	Imaginary	Modulus	Radian	Degree
1	0.69130	0.00000	0.6913	0.0000	0.0000
2	0.55683	0.69811	0.8930	0.8975	51.4235
3	0.55683	-0.69811	0.8930	-0.8975	-51.4235
4	0.55619	0.53674	0.7729	0.7676	43.9801
5	0.55619	-0.53674	0.7729	-0.7676	-43.9801
6	-0.00982	0.71766	0.7177	1.5845	90.7841
7	-0.00982	-0.71766	0.7177	-1.5845	-90.7841
8	-0.22717	0.81876	0.8497	1.8414	105.5070
9	-0.22717	-0.81876	0.8497	-1.8414	-105.5070
10	-0.26365	0.54792	0.6081	2.0193	115.6957
11	-0.26365	-0.54792	0.6081	-2.0193	-115.6957
12	-0.69675	0.00000	0.6967	3.1416	180.0000
13	-0.75585	0.39723	0.8539	2.6577	152.2761
14	-0.75585	-0.39723	0.8539	-2.6577	-152.2761

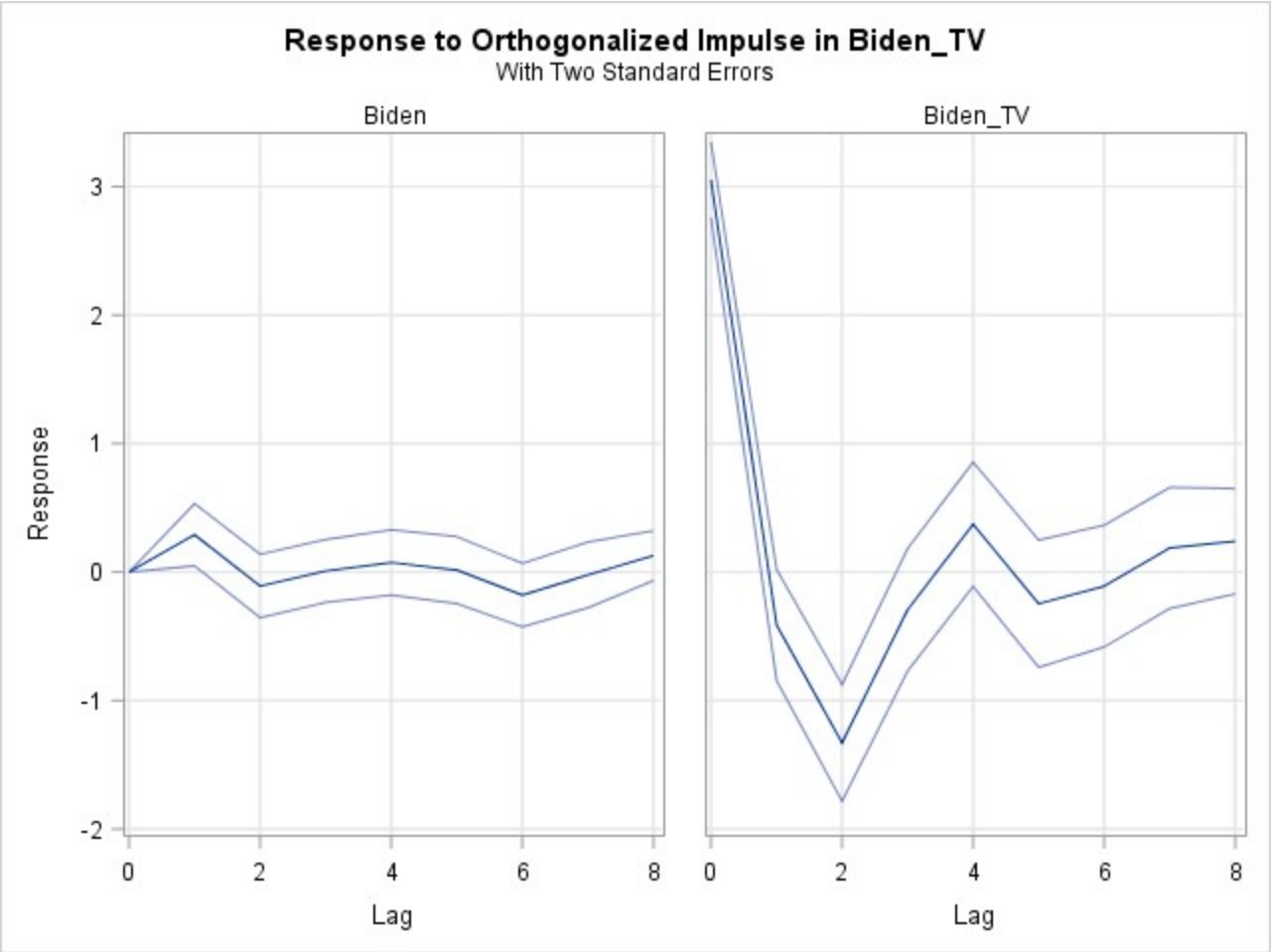

Response to Impulse in Biden
With Two Standard Errors
Biden
Biden_TV
Response
0.4
0.2
0.0
-0.2
-0.4
-0.6
2
4
6
8
Lag
Lag


Accumulated Response to Impulse in Biden
With Two Standard Errors
Biden
Biden_TV
Response
1.0
0.5
0.0
-0.5
2
4
6
8
Lag
Lag


Response to Orthogonalized Impulse in Biden
With Two Standard Errors
Biden
Biden_TV
Response
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
0
2
4
6
8
Lag
Lag


Response to Impulse in Biden_TV
With Two Standard Errors
Biden
Biden_TV
Response
0.2
0.0
-0.2
-0.4
-0.6
2
4
6
8
Lag
Lag


Accumulated Response to Impulse in Biden_TV
With Two Standard Errors
Biden
Biden_TV
Response
1.00
0.75
0.50
0.25
0.00
2
4
6
8
Lag
Lag


Response to Orthogonalized Impulse in Biden_TV
With Two Standard Errors
Biden
Biden_TV
Response
3
2
1
0
-1
-2
0
2
4
6
8
Lag
Lag

The SAS System

The VARMAX Procedure

Number of Observations	224
Number of Pairwise Missing	0
Observation(s) eliminated by differencing	1

Simple Summary Statistics

Variable	Type	N	Mean	Standard Deviation	Min	Max	Difference
Warren	Dependent	224	0.04688	1.28454	-8.00000	3.50000	1
Warren_TV	Dependent	224	0.01114	1.36365	-6.36980	6.59440	1

The SAS System

The VARMAX Procedure

Type of Model	VAR(7)
Estimation Method	Least Squares Estimation

Constant Estimates	
Variable	Constant
Warren	0.11420
Warren_TV	-0.01031

AR Coefficient Estimates			
Lag	Variable	Warren	Warren_TV
1	Warren	-0.27347	-0.04785
	Warren_TV	0.07001	-0.27494
2	Warren	-0.28977	0.09838
	Warren_TV	0.11994	-0.35926
3	Warren	-0.14110	0.18581
	Warren_TV	0.06358	-0.27636
4	Warren	-0.33153	0.02118
	Warren_TV	0.08416	-0.22383
5	Warren	-0.17163	0.11608
	Warren_TV	0.05381	-0.19107
6	Warren	-0.11471	0.15722
	Warren_TV	-0.08706	-0.21850
7	Warren	0.17493	0.12957
	Warren_TV	-0.02247	-0.15606

Schematic Representation of Parameter Estimates								
Variable/Lag	C	AR1	AR2	AR3	AR4	AR5	AR6	AR7
Warren	.	-.	-.	.+	-.	-.	.+	+.
Warren_TV	.	.-	.-	.-	.-	.-	.-	.-
+ 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
Warren	CONST1	0.11420	0.07962	1.43	0.1530	1
	AR1_1_1	-0.27347	0.06885	-3.97	0.0001	Warren(t-1)
	AR1_1_2	-0.04785	0.06809	-0.70	0.4830	Warren_TV(t-1)
	AR2_1_1	-0.28977	0.06995	-4.14	0.0001	Warren(t-2)
	AR2_1_2	0.09838	0.06896	1.43	0.1552	Warren_TV(t-2)
	AR3_1_1	-0.14110	0.07161	-1.97	0.0502	Warren(t-3)
	AR3_1_2	0.18581	0.07234	2.57	0.0109	Warren_TV(t-3)
	AR4_1_1	-0.33153	0.06952	-4.77	0.0001	Warren(t-4)
	AR4_1_2	0.02118	0.07117	0.30	0.7663	Warren_TV(t-4)
	AR5_1_1	-0.17163	0.07257	-2.36	0.0190	Warren(t-5)
	AR5_1_2	0.11608	0.07022	1.65	0.0999	Warren_TV(t-5)
	AR6_1_1	-0.11471	0.07076	-1.62	0.1066	Warren(t-6)
	AR6_1_2	0.15722	0.06997	2.25	0.0257	Warren_TV(t-6)
	AR7_1_1	0.17493	0.06873	2.55	0.0117	Warren(t-7)
	AR7_1_2	0.12957	0.06721	1.93	0.0553	Warren_TV(t-7)
Warren_TV	CONST2	-0.01031	0.07998	-0.13	0.8976	1
	AR1_2_1	0.07001	0.06916	1.01	0.3126	Warren(t-1)
	AR1_2_2	-0.27494	0.06840	-4.02	0.0001	Warren_TV(t-1)
	AR2_2_1	0.11994	0.07027	1.71	0.0894	Warren(t-2)
	AR2_2_2	-0.35926	0.06928	-5.19	0.0001	Warren_TV(t-2)
	AR3_2_1	0.06358	0.07194	0.88	0.3779	Warren(t-3)
	AR3_2_2	-0.27636	0.07267	-3.80	0.0002	Warren_TV(t-3)
	AR4_2_1	0.08416	0.06984	1.20	0.2296	Warren(t-4)
	AR4_2_2	-0.22383	0.07150	-3.13	0.0020	Warren_TV(t-4)
	AR5_2_1	0.05381	0.07291	0.74	0.4613	Warren(t-5)
	AR5_2_2	-0.19107	0.07054	-2.71	0.0073	Warren_TV(t-5)
	AR6_2_1	-0.08706	0.07109	-1.22	0.2221	Warren(t-6)
	AR6_2_2	-0.21850	0.07030	-3.11	0.0022	Warren_TV(t-6)
	AR7_2_1	-0.02247	0.06905	-0.33	0.7452	Warren(t-7)
	AR7_2_2	-0.15606	0.06752	-2.31	0.0218	Warren_TV(t-7)

Covariances of Innovations		
Variable	Warren	Warren_TV
Warren	1.31863	-0.01325

Warren_TV	-0.01325	1.33081

Log-likelihood	-262.464

Information Criteria	
AICC	603.1908
HQC	635.9846
AIC	590.9285
SBC	702.4651
FPEC	2.005643

Cross Covariances of Residuals by Variable

Variable	Lag	Warren	Warren_TV
Warren	**0**	1.22748	-0.01234
	1	-0.00959	0.02055
	2	-0.04867	0.03886
	3	0.06444	0.02419
	4	0.00740	0.00790
	5	-0.08395	0.03344
	6	-0.08766	0.03935
	7	-0.08799	-0.03008
	8	-0.13586	-0.01475
Warren_TV	**0**	-0.01234	1.23882
	1	0.03110	-0.03997
	2	0.02356	-0.08576
	3	-0.00307	-0.05693
	4	-0.03325	-0.03747
	5	0.02690	-0.00758
	6	0.06296	-0.09487
	7	-0.01720	-0.06310
	8	0.16961	-0.16723

Cross Correlations of Residuals by Variable

Variable	Lag	Warren	Warren_TV
Warren	**0**	1.00000	-0.01000
	1	-0.00782	0.01666

	2	-0.03965	0.03151
	3	0.05250	0.01962
	4	0.00603	0.00640
	5	-0.06839	0.02712
	6	-0.07142	0.03191
	7	-0.07168	-0.02440
	8	-0.11068	-0.01196
Warren_TV	0	-0.01000	1.00000
	1	0.02522	-0.03227
	2	0.01910	-0.06923
	3	-0.00249	-0.04595
	4	-0.02696	-0.03025
	5	0.02181	-0.00612
	6	0.05106	-0.07658
	7	-0.01395	-0.05094
	8	0.13755	-0.13500

Schematic Representation of Cross Correlations of Residuals

Variable/Lag	0	1	2	3	4	5	6	7	8
Warren	+.	. .	. .	. .	. .	. .	. .	. .	. .
Warren_TV	.+	. .	. .	. .	. .	. .	. .	. .	+.

+ 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
8	4	21.10	0.0003

Univariate Model ANOVA Diagnostics

Variable	R-Square	Standard Deviation	F Value	Pr > F
Warren	0.2761	1.14832	5.50	<.0001
Warren_TV	0.2016	1.15361	3.64	<.0001

Univariate Model White Noise Diagnostics

	Durbin	Normality		ARCH	

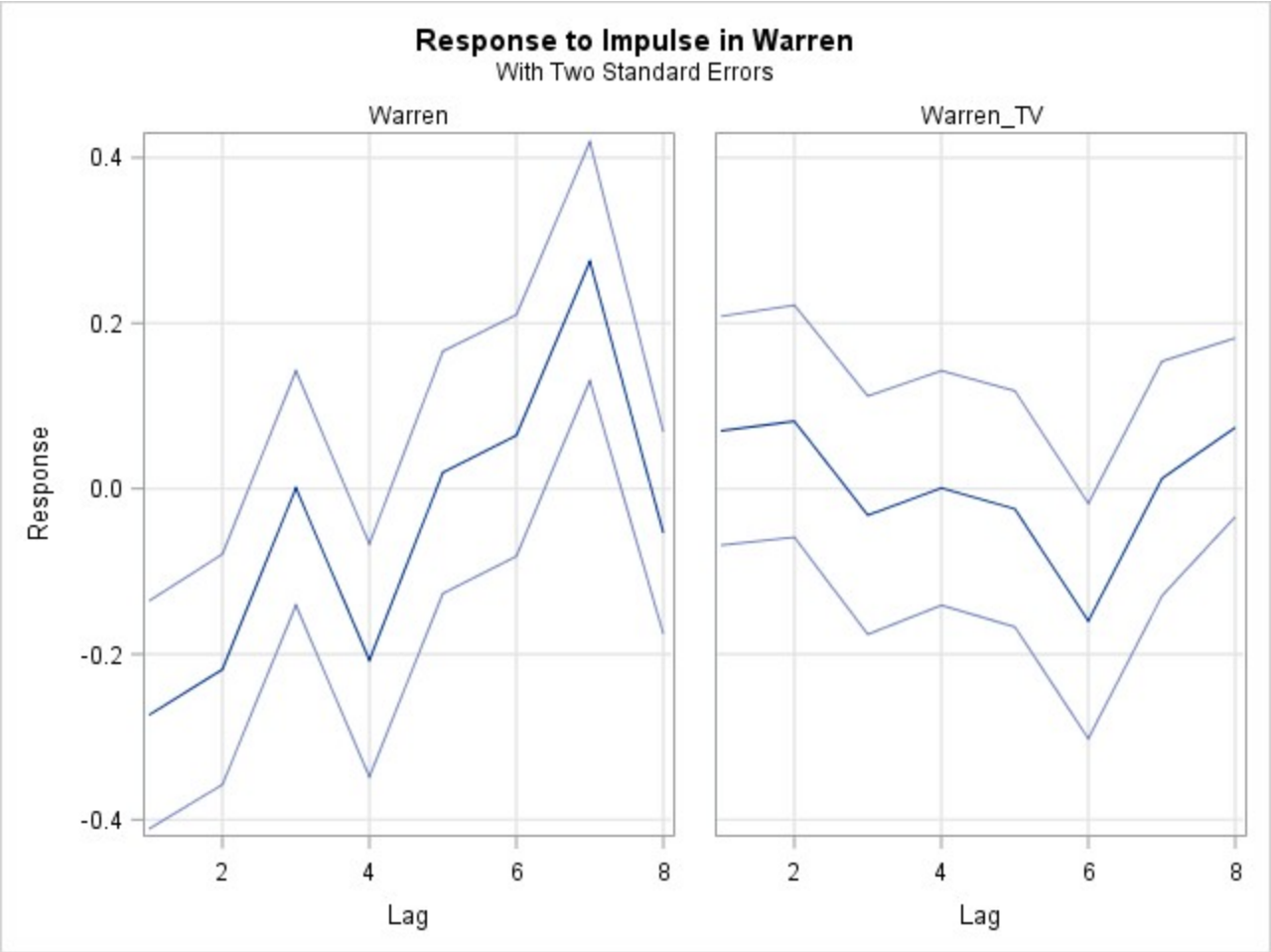
Variable	Watson	Chi-Square	Pr > ChiSq	F Value	Pr > F
Warren	2.00972	218.95	<.0001	4.58	0.0334
Warren_TV	2.06291	304.07	<.0001	25.94	<.0001

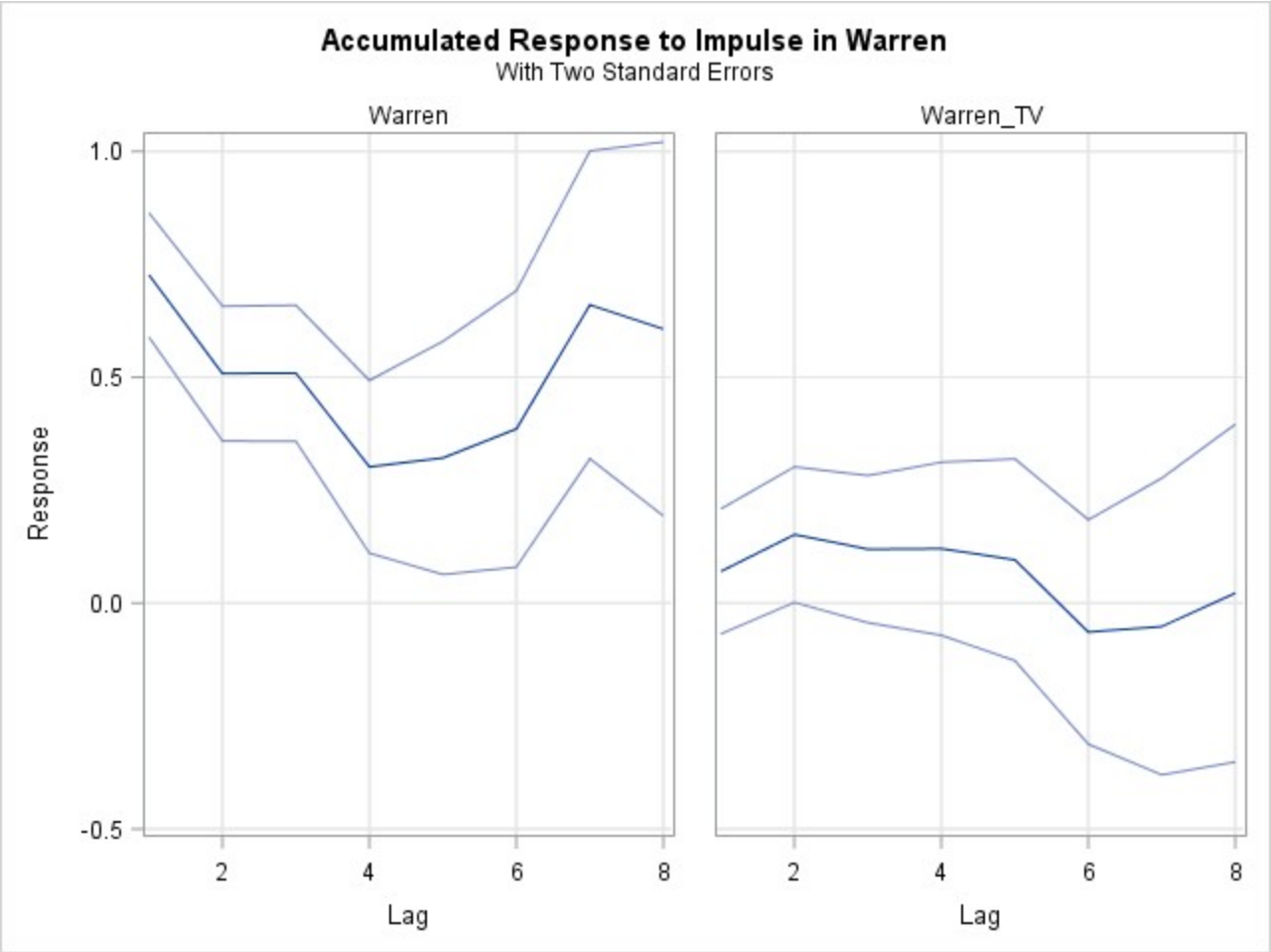
Univariate Model AR Diagnostics

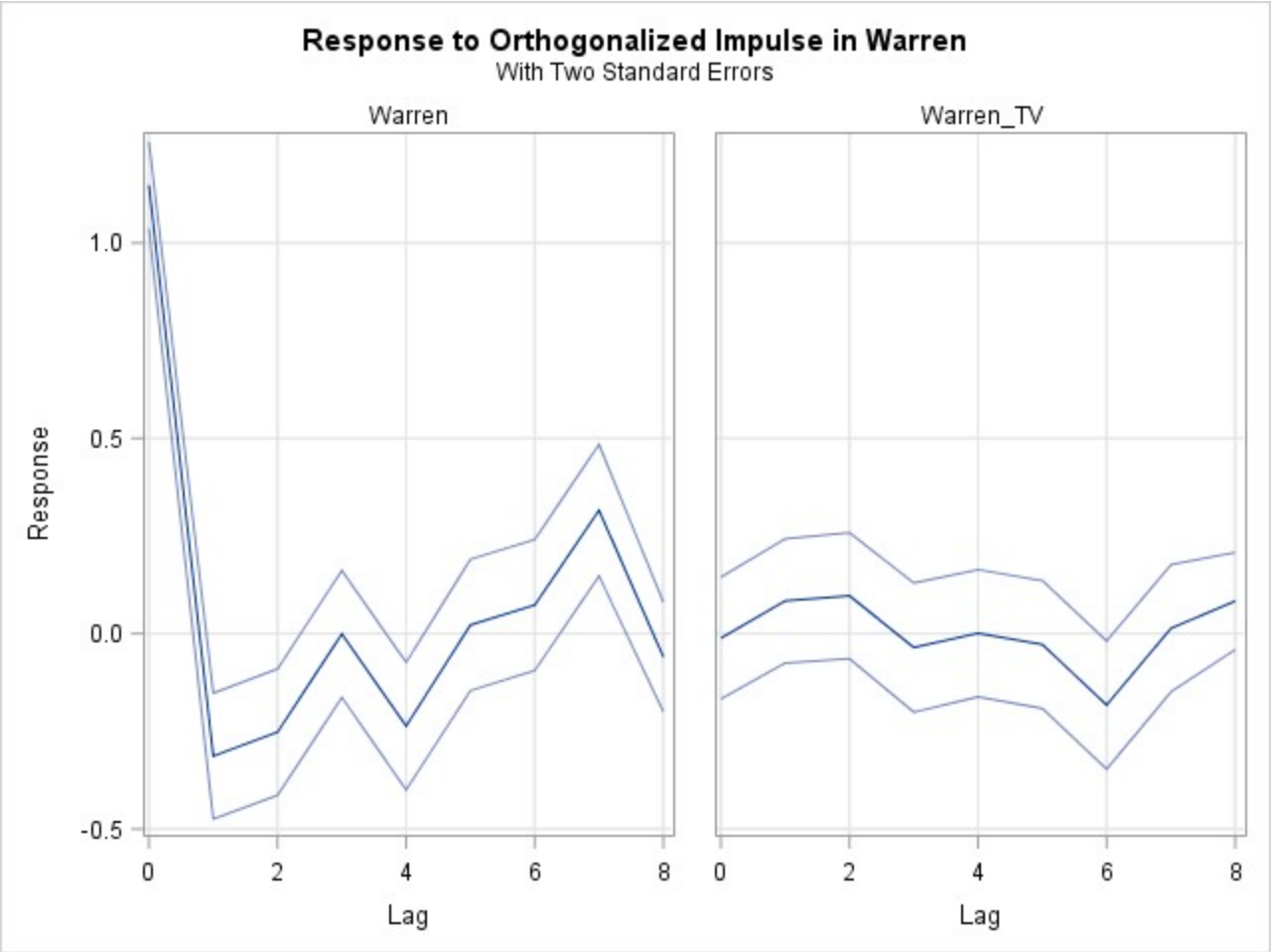
Variable	AR1		AR2		AR3		AR4	
	F Value	Pr > F	F Value	Pr > F	F Value	Pr > F	F Value	Pr > F
Warren	0.01	0.9088	0.17	0.8397	0.31	0.8186	0.23	0.9224
Warren_TV	0.22	0.6370	0.68	0.5085	0.67	0.5712	0.63	0.6425

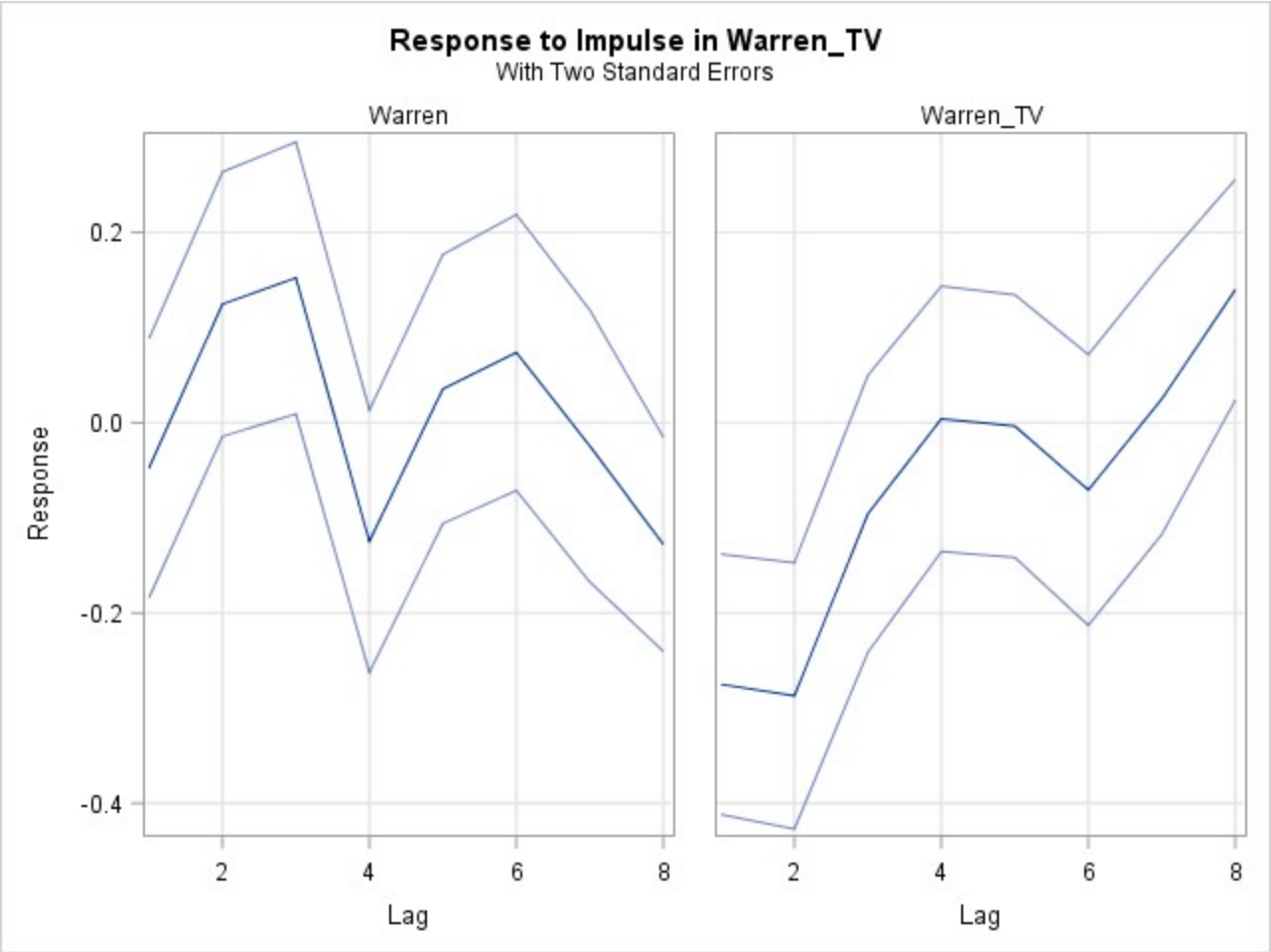
Roots of AR Characteristic Polynomial

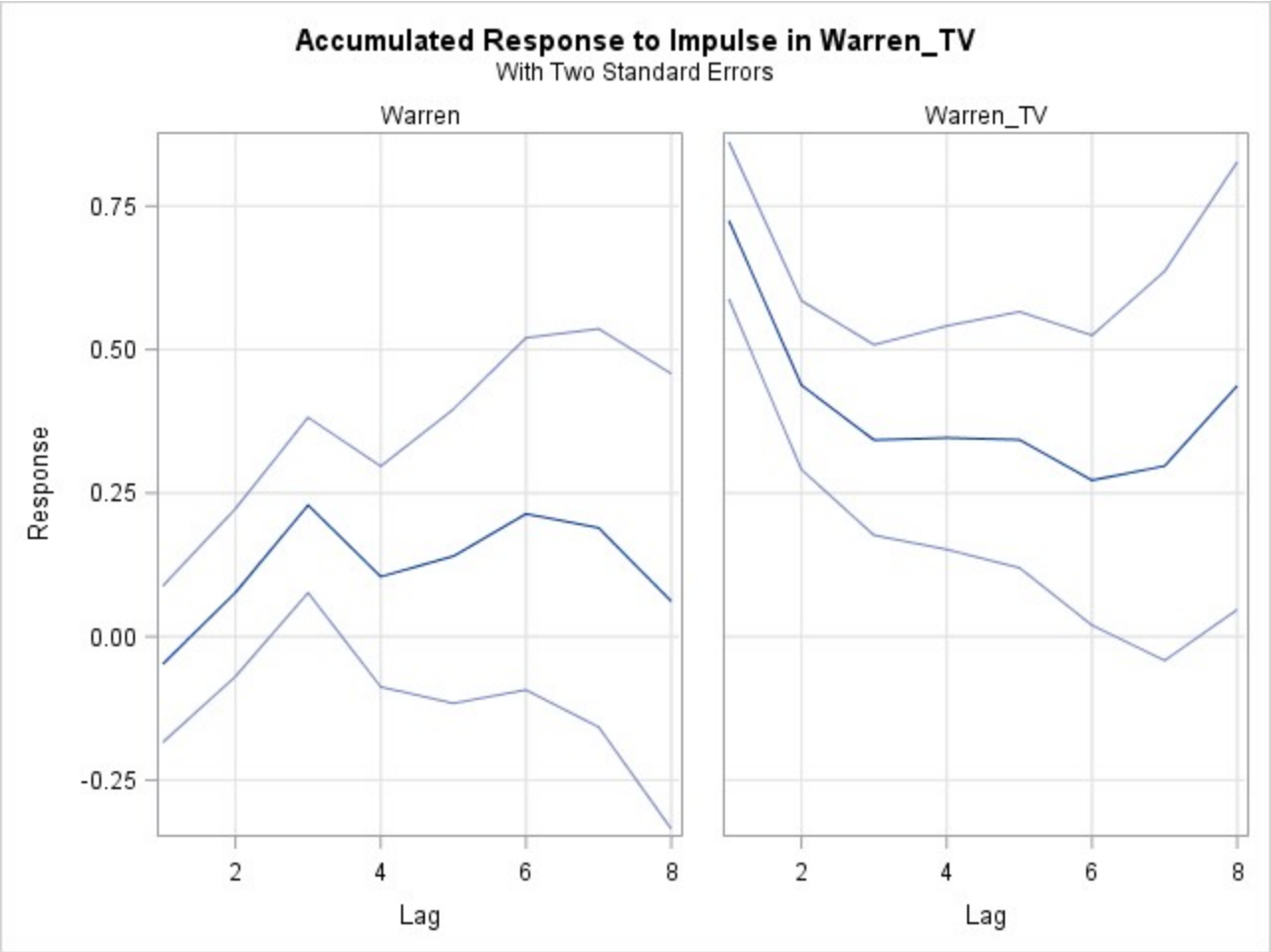
Index	Real	Imaginary	Modulus	Radian	Degree
1	0.59854	0.49483	0.7766	0.6908	39.5814
2	0.59854	-0.49483	0.7766	-0.6908	-39.5814
3	0.57914	0.68016	0.8933	0.8654	49.5861
4	0.57914	-0.68016	0.8933	-0.8654	-49.5861
5	0.47363	0.00000	0.4736	0.0000	0.0000
6	0.07630	0.77750	0.7812	1.4730	84.3954
7	0.07630	-0.77750	0.7812	-1.4730	-84.3954
8	-0.20748	0.81477	0.8408	1.8202	104.2870
9	-0.20748	-0.81477	0.8408	-1.8202	-104.2870
10	-0.49746	0.52552	0.7236	2.3288	133.4287
11	-0.49746	-0.52552	0.7236	-2.3288	-133.4287
12	-0.68352	0.00000	0.6835	3.1416	180.0000
13	-0.71829	0.42059	0.8324	2.6119	149.6494
14	-0.71829	-0.42059	0.8324	-2.6119	-149.6494


Response to Impulse in Warren
With Two Standard Errors
Warren
Warren_TV
Response
0.4
0.2
0.0
-0.2
-0.4
2
4
6
8
Lag
Lag


Accumulated Response to Impulse in Warren
With Two Standard Errors
Warren
Warren_TV
Response
1.0
0.5
0.0
-0.5
2
4
6
8
Lag
Lag


Response to Orthogonalized Impulse in Warren
With Two Standard Errors
Warren
Warren_TV
Response
1.0
0.5
0.0
-0.5
0
2
4
6
8
Lag
Lag


Response to Impulse in Warren_TV
With Two Standard Errors
Warren
Warren_TV
Response
0.2
0.0
-0.2
-0.4
2
4
6
8
Lag
Lag


Accumulated Response to Impulse in Warren_TV
With Two Standard Errors
Warren
Warren_TV
Response
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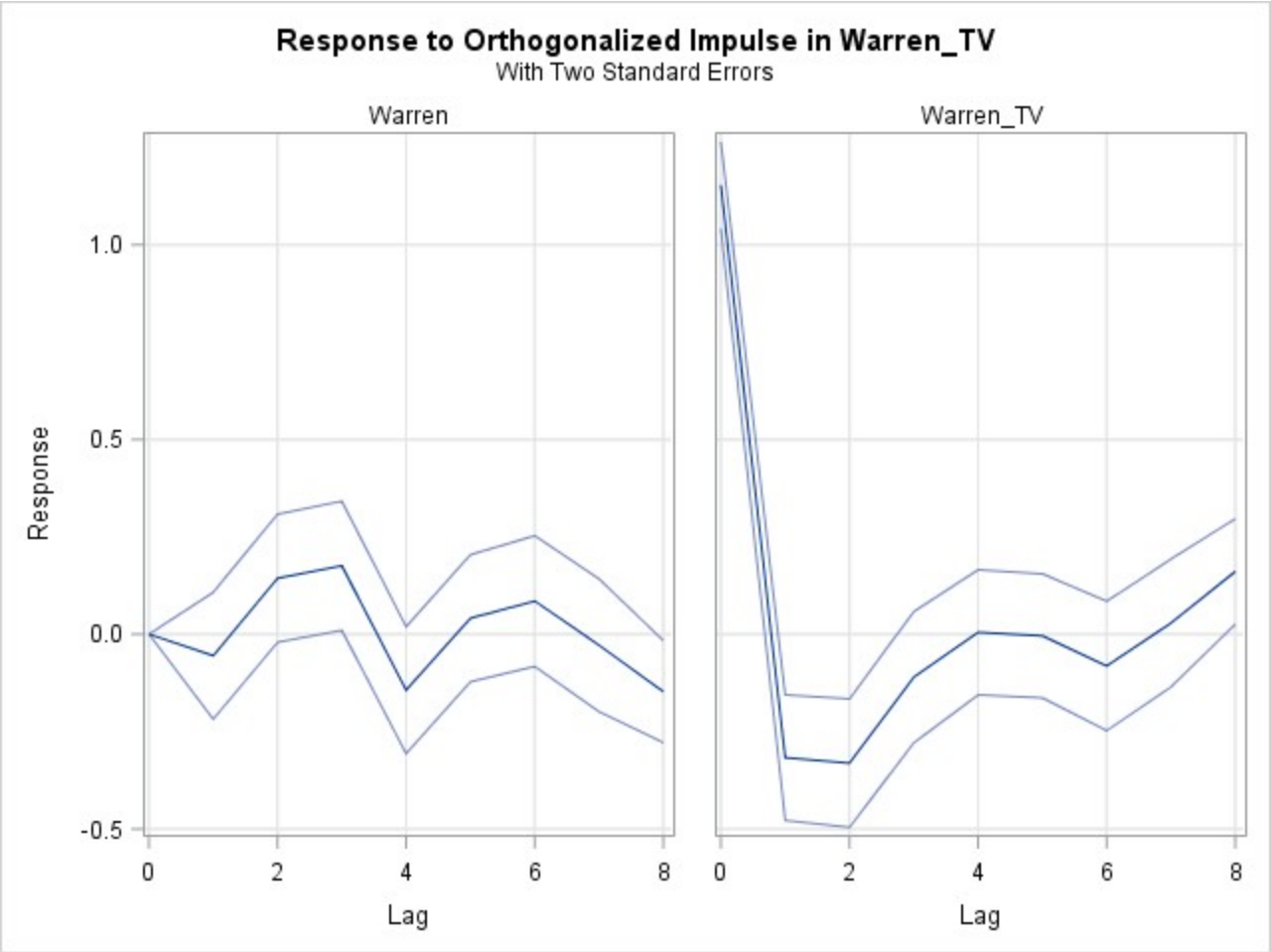
0.50
0.25
0.00
-0.25
2
4
6
8
Lag
Lag


Response to Orthogonalized Impulse in Warren_TV
With Two Standard Errors
Warren
Warren_TV
Response
1.0
0.5
0.0
-0.5
0
2
4
6
8
Lag
Lag

The SAS System

The VARMAX Procedure

Number of Observations	224
Number of Pairwise Missing	0
Observation(s) eliminated by differencing	1

Simple Summary Statistics

Variable	Type	N	Mean	Standard Deviation	Min	Max	Difference
Sanders	Dependent	224	-0.02679	1.46012	-6.00000	6.00000	1
Sanders_TV	Dependent	224	0.00178	1.44962	-6.91700	7.91470	1

The SAS System

The VARMAX Procedure

Type of Model	VAR(7)
Estimation Method	Least Squares Estimation

Constant Estimates	
Variable	Constant
Sanders	-0.03475
Sanders_TV	0.01584

AR Coefficient Estimates			
Lag	Variable	Sanders	Sanders_TV
1	Sanders	-0.08269	-0.04727
	Sanders_TV	-0.01018	-0.25751
2	Sanders	-0.16127	0.10843
	Sanders_TV	0.01141	-0.40489
3	Sanders	-0.07802	-0.05346
	Sanders_TV	-0.03050	-0.31283
4	Sanders	-0.13082	-0.05626
	Sanders_TV	0.03256	-0.29047
5	Sanders	0.00928	-0.05554
	Sanders_TV	-0.04901	-0.17273
6	Sanders	-0.19233	-0.12425
	Sanders_TV	0.01899	-0.20290
7	Sanders	0.09716	0.04982
	Sanders_TV	0.02514	-0.02072

Schematic Representation of Parameter Estimates								
Variable/Lag	C	AR1	AR2	AR3	AR4	AR5	AR6	AR7
Sanders	.	..	-.	..	..	..	-.	..
Sanders_TV	.	.-	.-	.-	.-	.-	.-	..
+ 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
Sanders	CONST1	-0.03475	0.09769	-0.36	0.7225	1
	AR1_1_1	-0.08269	0.07058	-1.17	0.2427	Sanders(t-1)
	AR1_1_2	-0.04727	0.07428	-0.64	0.5252	Sanders_TV(t-1)
	AR2_1_1	-0.16127	0.06889	-2.34	0.0202	Sanders(t-2)
	AR2_1_2	0.10843	0.07524	1.44	0.1511	Sanders_TV(t-2)
	AR3_1_1	-0.07802	0.06969	-1.12	0.2642	Sanders(t-3)
	AR3_1_2	-0.05346	0.07989	-0.67	0.5041	Sanders_TV(t-3)
	AR4_1_1	-0.13082	0.06928	-1.89	0.0604	Sanders(t-4)
	AR4_1_2	-0.05626	0.08083	-0.70	0.4872	Sanders_TV(t-4)
	AR5_1_1	0.00928	0.06972	0.13	0.8942	Sanders(t-5)
	AR5_1_2	-0.05554	0.08068	-0.69	0.4920	Sanders_TV(t-5)
	AR6_1_1	-0.19233	0.06861	-2.80	0.0055	Sanders(t-6)
	AR6_1_2	-0.12425	0.07655	-1.62	0.1061	Sanders_TV(t-6)
	AR7_1_1	0.09716	0.06964	1.40	0.1645	Sanders(t-7)
	AR7_1_2	0.04982	0.07612	0.65	0.5136	Sanders_TV(t-7)
Sanders_TV	CONST2	0.01584	0.09321	0.17	0.8652	1
	AR1_2_1	-0.01018	0.06734	-0.15	0.8800	Sanders(t-1)
	AR1_2_2	-0.25751	0.07087	-3.63	0.0004	Sanders_TV(t-1)
	AR2_2_1	0.01141	0.06573	0.17	0.8623	Sanders(t-2)
	AR2_2_2	-0.40489	0.07179	-5.64	0.0001	Sanders_TV(t-2)
	AR3_2_1	-0.03050	0.06649	-0.46	0.6470	Sanders(t-3)
	AR3_2_2	-0.31283	0.07622	-4.10	0.0001	Sanders_TV(t-3)
	AR4_2_1	0.03256	0.06610	0.49	0.6228	Sanders(t-4)
	AR4_2_2	-0.29047	0.07712	-3.77	0.0002	Sanders_TV(t-4)
	AR5_2_1	-0.04901	0.06652	-0.74	0.4622	Sanders(t-5)
	AR5_2_2	-0.17273	0.07697	-2.24	0.0259	Sanders_TV(t-5)
	AR6_2_1	0.01899	0.06546	0.29	0.7720	Sanders(t-6)
	AR6_2_2	-0.20290	0.07304	-2.78	0.0060	Sanders_TV(t-6)
	AR7_2_1	0.02514	0.06644	0.38	0.7055	Sanders(t-7)
	AR7_2_2	-0.02072	0.07263	-0.29	0.7757	Sanders_TV(t-7)

Covariances of Innovations		
Variable	Sanders	Sanders_TV
Sanders	2.06181	-0.25515

Sanders_TV	-0.25515	1.87691

Log-likelihood	-346.439

Information Criteria	
AICC	771.1404
HQC	803.9343
AIC	758.8781
SBC	870.4147
FPEC	4.348914

Cross Covariances of Residuals by Variable

Variable	Lag	Sanders	Sanders_TV
Sanders	**0**	1.91929	-0.23751
	1	0.01584	0.01032
	2	-0.02405	-0.03346
	3	0.03150	0.02142
	4	-0.07492	-0.05488
	5	0.02268	-0.04295
	6	-0.11503	0.05120
	7	-0.05961	0.04145
	8	-0.33501	0.07269
Sanders_TV	**0**	-0.23751	1.74717
	1	0.01279	-0.00229
	2	0.06073	-0.04179
	3	0.06073	-0.07392
	4	0.09639	-0.08584
	5	0.10941	-0.10665
	6	0.13868	-0.14295
	7	0.03632	-0.06262
	8	0.24306	-0.19020

Cross Correlations of Residuals by Variable

Variable	Lag	Sanders	Sanders_TV
Sanders	**0**	1.00000	-0.12970
	1	0.00825	0.00564

	2	-0.01253	-0.01827
	3	0.01641	0.01170
	4	-0.03904	-0.02997
	5	0.01182	-0.02346
	6	-0.05993	0.02796
	7	-0.03106	0.02263
	8	-0.17455	0.03970
Sanders_TV	0	-0.12970	1.00000
	1	0.00698	-0.00131
	2	0.03316	-0.02392
	3	0.03316	-0.04231
	4	0.05264	-0.04913
	5	0.05975	-0.06104
	6	0.07573	-0.08182
	7	0.01983	-0.03584
	8	0.13273	-0.10886

Schematic Representation of Cross Correlations of Residuals

Variable/Lag	0	1	2	3	4	5	6	7	8
Sanders	+.	. .	. .	. .	. .	. .	. .	. .	−.
Sanders_TV	.+	. .	. .	. .	. .	. .	. .	. .	. .

+ 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
8	4	19.71	0.0006

Univariate Model ANOVA Diagnostics

Variable	R-Square	Standard Deviation	F Value	Pr > F
Sanders	0.1222	1.43590	2.01	0.0187
Sanders_TV	0.1886	1.37001	3.35	<.0001

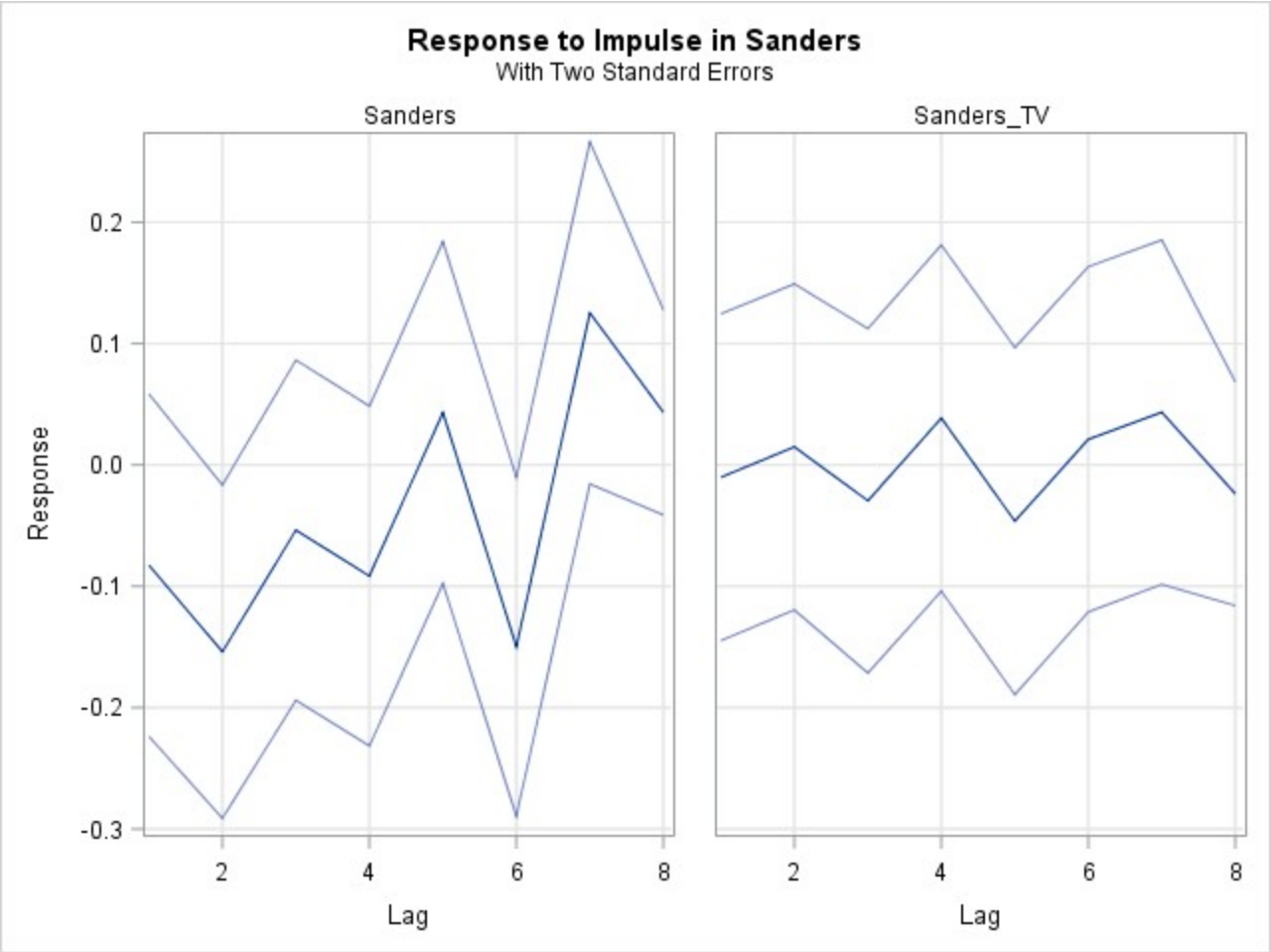
Univariate Model White Noise Diagnostics

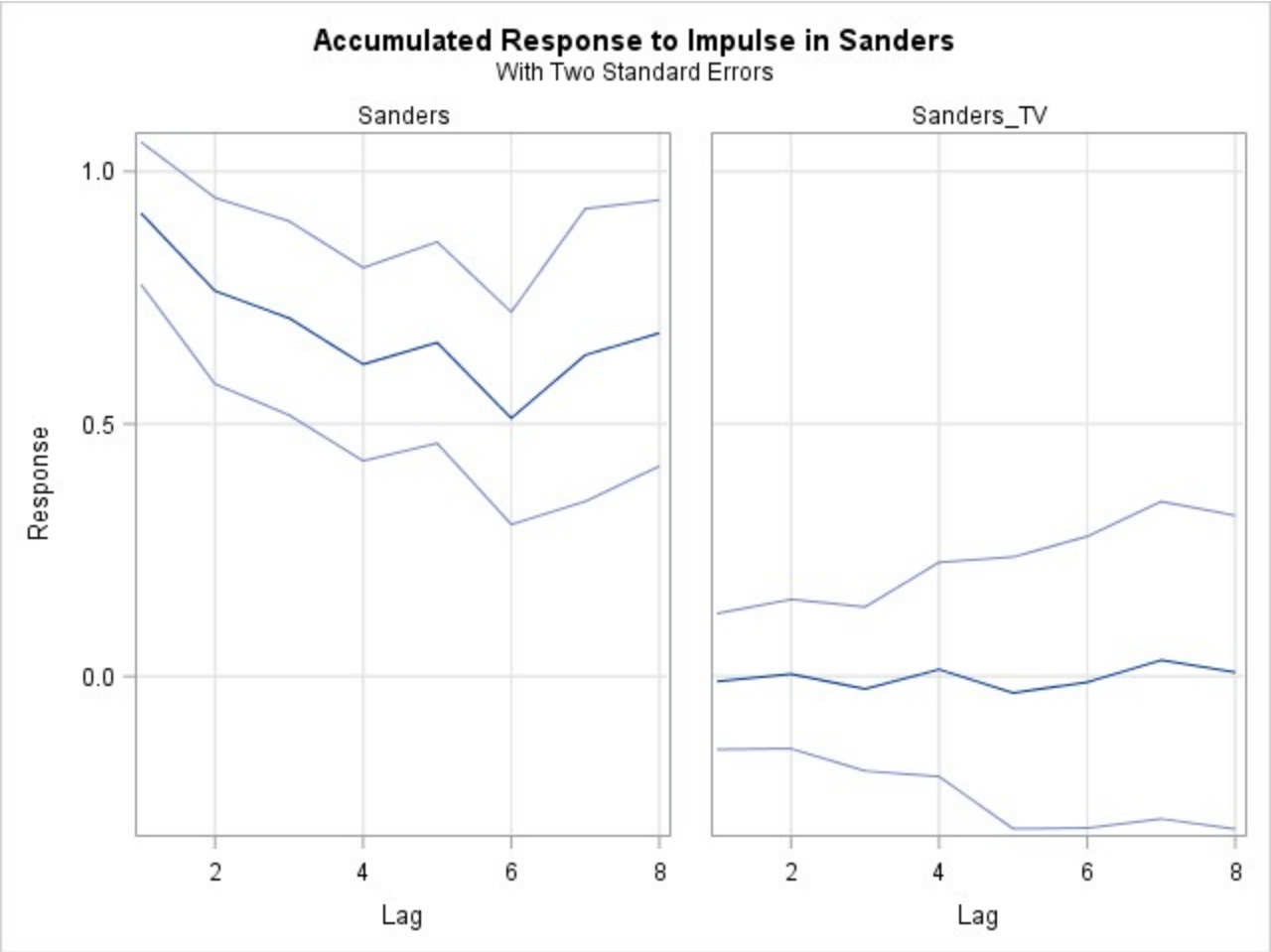
	Durbin	Normality		ARCH	

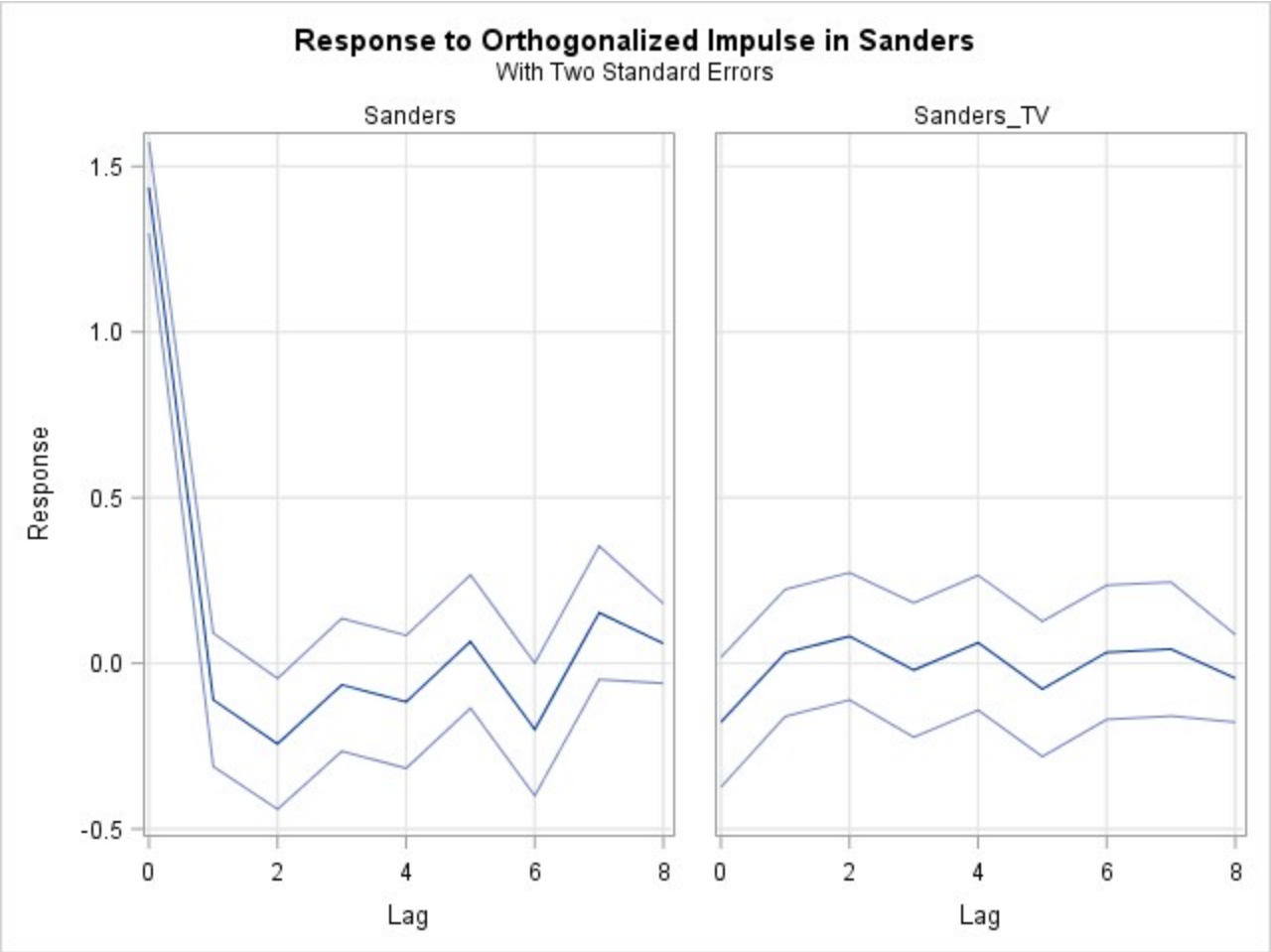
Variable	Watson	Chi-Square	Pr > ChiSq	F Value	Pr > F
Sanders	1.98249	107.96	<.0001	0.41	0.5246
Sanders_TV	2.00219	819.09	<.0001	0.02	0.8837

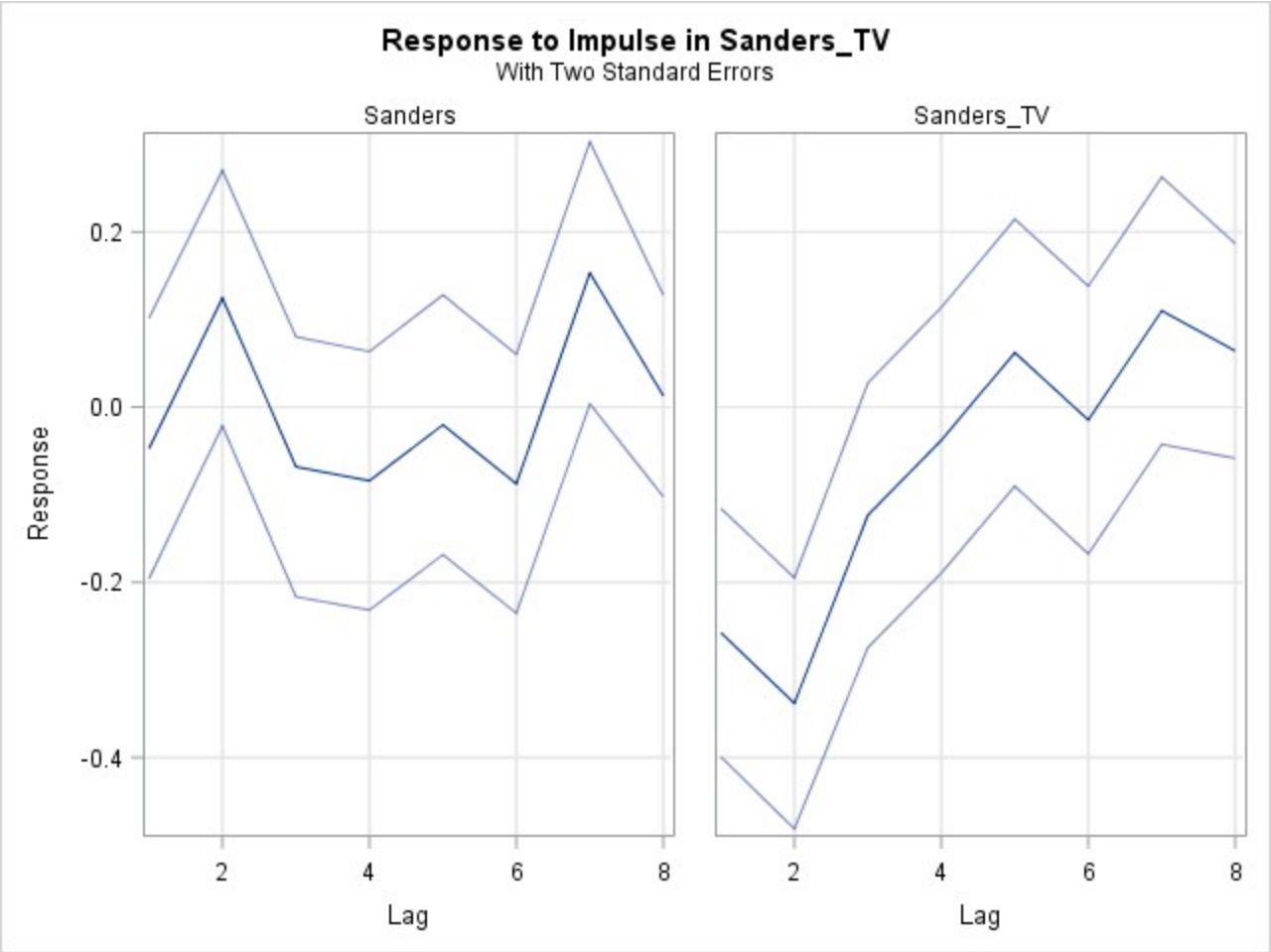
Univariate Model AR Diagnostics								
	AR1		AR2		AR3		AR4	
Variable	F Value	Pr > F	F Value	Pr > F	F Value	Pr > F	F Value	Pr > F
Sanders	0.01	0.9039	0.02	0.9777	0.03	0.9917	0.11	0.9790
Sanders_TV	0.00	0.9847	0.06	0.9410	0.17	0.9189	0.26	0.9062

Roots of AR Characteristic Polynomial					
Index	Real	Imaginary	Modulus	Radian	Degree
1	0.56948	0.61009	0.8346	0.8198	46.9714
2	0.56948	-0.61009	0.8346	-0.8198	-46.9714
3	0.52591	0.48938	0.7184	0.7494	42.9396
4	0.52591	-0.48938	0.7184	-0.7494	-42.9396
5	0.41601	0.00000	0.4160	0.0000	0.0000
6	0.02026	0.72760	0.7279	1.5430	88.4051
7	0.02026	-0.72760	0.7279	-1.5430	-88.4051
8	-0.08881	0.79009	0.7951	1.6827	96.4133
9	-0.08881	-0.79009	0.7951	-1.6827	-96.4133
10	-0.17436	0.00000	0.1744	3.1416	180.0000
11	-0.58983	0.44865	0.7411	2.4913	142.7416
12	-0.58983	-0.44865	0.7411	-2.4913	-142.7416
13	-0.72794	0.38883	0.8253	2.6510	151.8913
14	-0.72794	-0.38883	0.8253	-2.6510	-151.8913


Response to Impulse in Sanders
With Two Standard Errors
Sanders
Sanders_TV
Response
0.2
0.1
0.0
-0.1
-0.2
-0.3
2
4
6
8
Lag
Lag


Accumulated Response to Impulse in Sanders
With Two Standard Errors
Sanders
Sanders_TV
Response
1.0
0.5
0.0
2
4
6
8
Lag
Lag


Response to Orthogonalized Impulse in Sanders
With Two Standard Errors
Sanders
Sanders_TV
Response
1.5
1.0
0.5
0.0
-0.5
0
2
4
6
8
Lag
Lag


Response to Impulse in Sanders_TV
With Two Standard Errors
Sanders
Sanders_TV
Response
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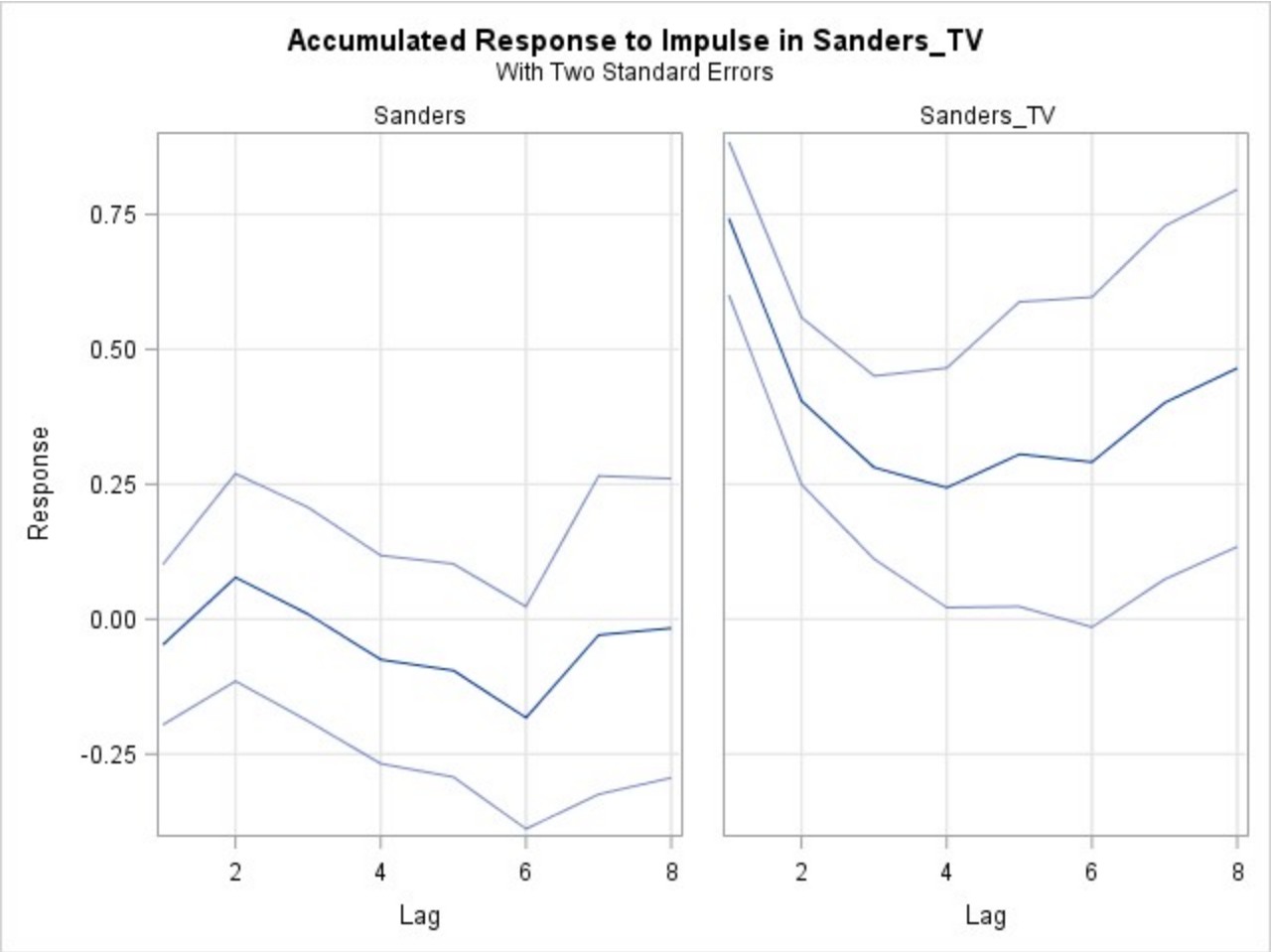
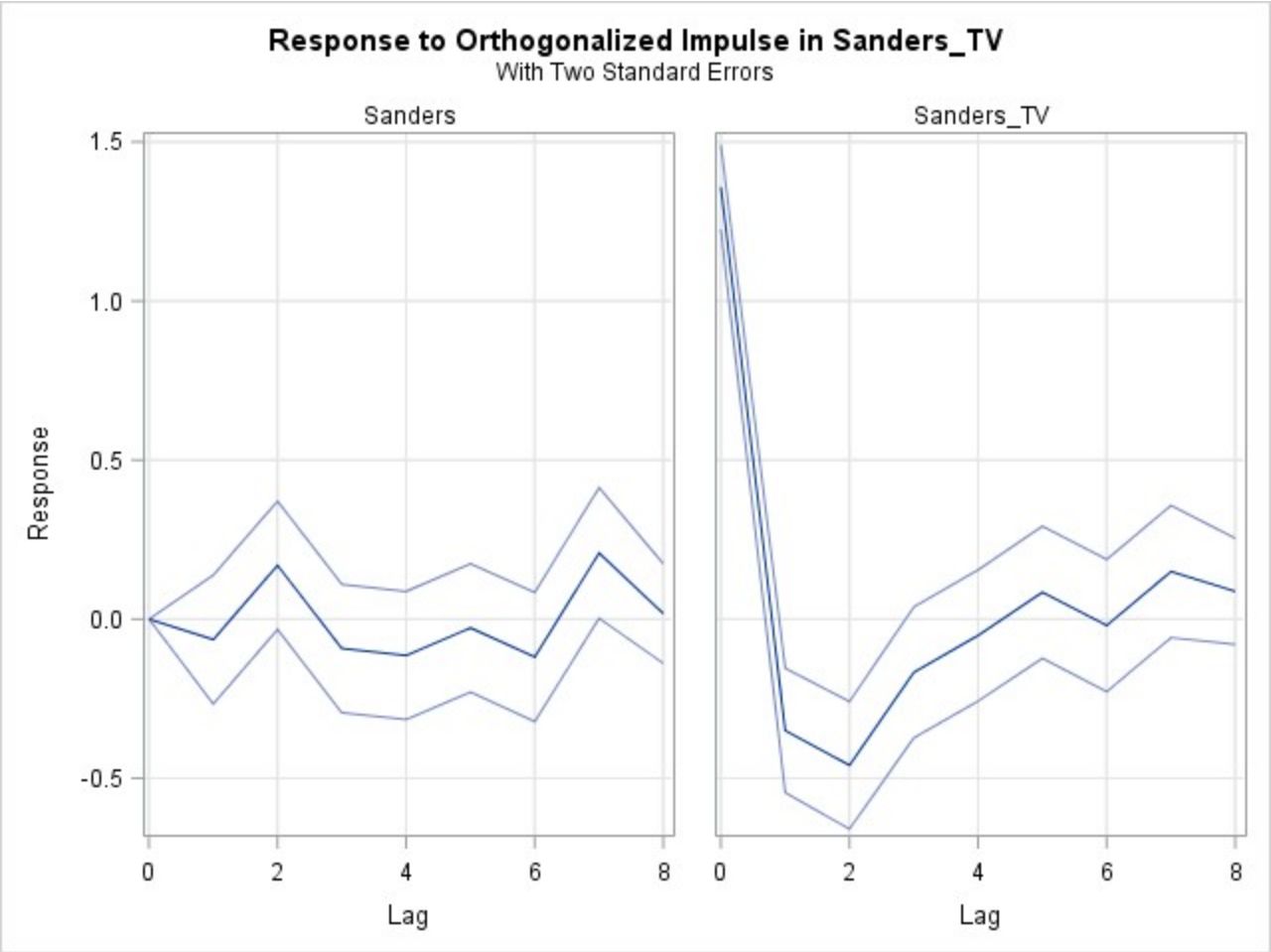
-0.2
-0.4
2
4
6
8
Lag
Lag


Accumulated Response to Impulse in Sanders_TV
With Two Standard Errors
Sanders
Sanders_TV
Response
0.75
0.50
0.25
0.00
-0.25
2
4
6
8
Lag
Lag


Response to Orthogonalized Impulse in Sanders_TV
With Two Standard Errors
Sanders
Sanders_TV
Response
1.5
1.0
0.5
0.0
-0.5
0
2
4
6
8
Lag
Lag

The SAS System

The VARMAX Procedure

Number of Observations	224
Number of Pairwise Missing	0
Observation(s) eliminated by differencing	1

Simple Summary Statistics

Variable	Type	N	Mean	Standard Deviation	Min	Max	Difference
Harris	Dependent	224	-0.02902	0.66939	-2.33333	3.70000	1
Harris_TV	Dependent	224	0.00221	1.34638	-7.37830	12.15870	1

The SAS System

The VARMAX Procedure

Type of Model	VAR(7)
Estimation Method	Least Squares Estimation

Constant Estimates	
Variable	Constant
Harris	-0.02283
Harris_TV	0.02317

AR Coefficient Estimates			
Lag	Variable	Harris	Harris_TV
1	Harris	0.15888	-0.03671
	Harris_TV	0.20285	-0.40883
2	Harris	0.02304	-0.00388
	Harris_TV	0.40251	-0.43915
3	Harris	-0.15426	0.03177
	Harris_TV	0.03149	-0.22956
4	Harris	-0.01973	-0.03154
	Harris_TV	0.08280	-0.14996
5	Harris	-0.08863	0.00991
	Harris_TV	0.04045	-0.08749
6	Harris	0.09159	0.01279
	Harris_TV	0.12152	-0.02597
7	Harris	-0.03071	0.00990
	Harris_TV	-0.13689	0.00720

Schematic Representation of Parameter Estimates								
Variable/Lag	C	AR1	AR2	AR3	AR4	AR5	AR6	AR7
Harris	.	+.	..	-.	..	..	..	..
Harris_TV	.	.-	+-	.-	..	..	..	..
+ 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
Harris	CONST1	-0.02283	0.04553	-0.50	0.6167	1
	AR1_1_1	0.15888	0.07302	2.18	0.0307	Harris(t-1)
	AR1_1_2	-0.03671	0.03840	-0.96	0.3401	Harris_TV(t-1)
	AR2_1_1	0.02304	0.07206	0.32	0.7495	Harris(t-2)
	AR2_1_2	-0.00388	0.04125	-0.09	0.9251	Harris_TV(t-2)
	AR3_1_1	-0.15426	0.07340	-2.10	0.0368	Harris(t-3)
	AR3_1_2	0.03177	0.04440	0.72	0.4752	Harris_TV(t-3)
	AR4_1_1	-0.01973	0.07423	-0.27	0.7906	Harris(t-4)
	AR4_1_2	-0.03154	0.04524	-0.70	0.4865	Harris_TV(t-4)
	AR5_1_1	-0.08863	0.07317	-1.21	0.2272	Harris(t-5)
	AR5_1_2	0.00991	0.04463	0.22	0.8245	Harris_TV(t-5)
	AR6_1_1	0.09159	0.07327	1.25	0.2127	Harris(t-6)
	AR6_1_2	0.01279	0.04150	0.31	0.7583	Harris_TV(t-6)
	AR7_1_1	-0.03071	0.07313	-0.42	0.6750	Harris(t-7)
	AR7_1_2	0.00990	0.03872	0.26	0.7985	Harris_TV(t-7)
Harris_TV	CONST2	0.02317	0.08625	0.27	0.7885	1
	AR1_2_1	0.20285	0.13832	1.47	0.1441	Harris(t-1)
	AR1_2_2	-0.40883	0.07273	-5.62	0.0001	Harris_TV(t-1)
	AR2_2_1	0.40251	0.13649	2.95	0.0036	Harris(t-2)
	AR2_2_2	-0.43915	0.07813	-5.62	0.0001	Harris_TV(t-2)
	AR3_2_1	0.03149	0.13902	0.23	0.8210	Harris(t-3)
	AR3_2_2	-0.22956	0.08411	-2.73	0.0069	Harris_TV(t-3)
	AR4_2_1	0.08280	0.14061	0.59	0.5566	Harris(t-4)
	AR4_2_2	-0.14996	0.08570	-1.75	0.0817	Harris_TV(t-4)
	AR5_2_1	0.04045	0.13860	0.29	0.7707	Harris(t-5)
	AR5_2_2	-0.08749	0.08453	-1.03	0.3019	Harris_TV(t-5)
	AR6_2_1	0.12152	0.13878	0.88	0.3823	Harris(t-6)
	AR6_2_2	-0.02597	0.07861	-0.33	0.7415	Harris_TV(t-6)
	AR7_2_1	-0.13689	0.13853	-0.99	0.3242	Harris(t-7)
	AR7_2_2	0.00720	0.07334	0.10	0.9219	Harris_TV(t-7)

Covariances of Innovations		
Variable	Harris	Harris_TV
Harris	0.43933	0.21751

Harris_TV	0.21751	1.57629

Log-likelihood	-153.912

Information Criteria	
AICC	386.0866
HQC	418.8805
AIC	373.8243
SBC	485.3609
FPEC	0.737481

Cross Covariances of Residuals by Variable

Variable	Lag	Harris	Harris_TV
Harris	**0**	0.40896	0.20248
	1	-0.00185	0.00097
	2	0.00250	0.00729
	3	0.01119	0.00666
	4	-0.00000	-0.01730
	5	-0.01018	0.00968
	6	-0.00298	-0.02372
	7	0.00199	-0.01563
	8	-0.03786	-0.01472
Harris_TV	**0**	0.20248	1.46733
	1	-0.00559	-0.00231
	2	0.00680	-0.01574
	3	0.00391	-0.01888
	4	0.00286	-0.04390
	5	-0.00290	-0.02643
	6	0.03184	-0.09515
	7	-0.01117	-0.07210
	8	0.03371	-0.22782

Cross Correlations of Residuals by Variable

Variable	Lag	Harris	Harris_TV
Harris	**0**	1.00000	0.26138
	1	-0.00453	0.00125

	2	0.00610	0.00941
	3	0.02737	0.00860
	4	-0.00000	-0.02234
	5	-0.02490	0.01250
	6	-0.00730	-0.03062
	7	0.00486	-0.02017
	8	-0.09257	-0.01901
Harris_TV	0	0.26138	1.00000
	1	-0.00722	-0.00157
	2	0.00878	-0.01073
	3	0.00505	-0.01286
	4	0.00369	-0.02992
	5	-0.00374	-0.01801
	6	0.04110	-0.06484
	7	-0.01442	-0.04914
	8	0.04352	-0.15526

Schematic Representation of Cross Correlations of Residuals

Variable/Lag	0	1	2	3	4	5	6	7	8
Harris	++	. .	. .	. .	. .	. .	. .	. .	. .
Harris_TV	++	. .	. .	. .	. .	. .	. .	. .	.-

+ 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
8	4	13.76	0.0081

Univariate Model ANOVA Diagnostics

Variable	R-Square	Standard Deviation	F Value	Pr > F
Harris	0.0757	0.66282	1.18	0.2908
Harris_TV	0.2096	1.25550	3.83	<.0001

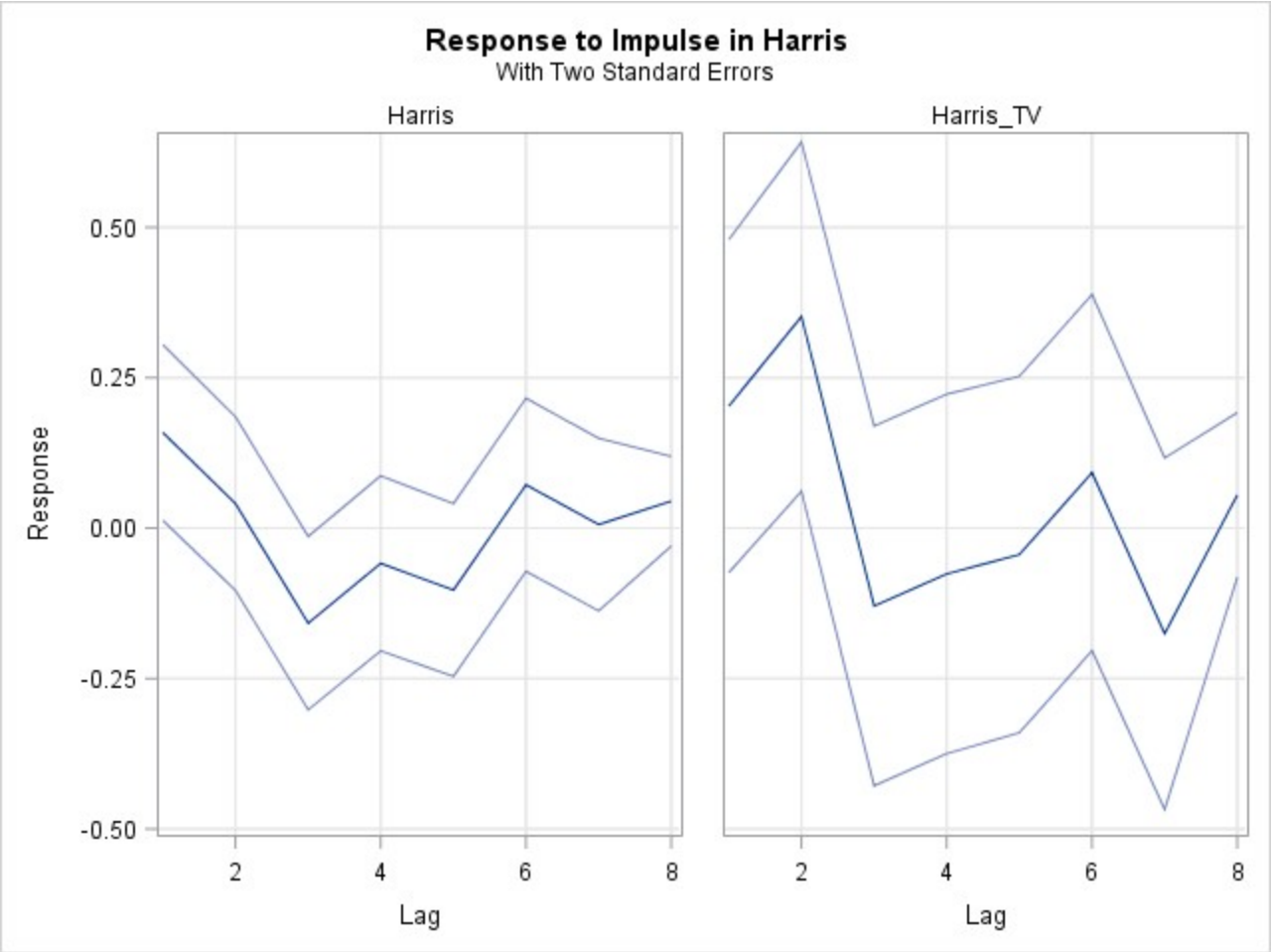
Univariate Model White Noise Diagnostics

	Durbin	Normality		ARCH	

Variable	Watson	Chi-Square	Pr > ChiSq	F Value	Pr > F
Harris	2.00502	259.38	<.0001	1.51	0.2200
Harris_TV	2.00225	9999.99	<.0001	1.46	0.2279

Univariate Model AR Diagnostics								
	AR1		AR2		AR3		AR4	
Variable	F Value	Pr > F	F Value	Pr > F	F Value	Pr > F	F Value	Pr > F
Harris	0.00	0.9471	0.01	0.9918	0.06	0.9819	0.05	0.9958
Harris_TV	0.00	0.9816	0.01	0.9876	0.02	0.9965	0.06	0.9930

Roots of AR Characteristic Polynomial					
Index	Real	Imaginary	Modulus	Radian	Degree
1	0.48891	0.16305	0.5154	0.3219	18.4432
2	0.48891	-0.16305	0.5154	-0.3219	-18.4432
3	0.47287	0.53557	0.7145	0.8475	48.5581
4	0.47287	-0.53557	0.7145	-0.8475	-48.5581
5	0.34102	0.60963	0.6985	1.0608	60.7780
6	0.34102	-0.60963	0.6985	-1.0608	-60.7780
7	-0.08165	0.68896	0.6938	1.6888	96.7591
8	-0.08165	-0.68896	0.6938	-1.6888	-96.7591
9	-0.31751	0.25995	0.4103	2.4555	140.6914
10	-0.31751	-0.25995	0.4103	-2.4555	-140.6914
11	-0.37443	0.59926	0.7066	2.1293	121.9983
12	-0.37443	-0.59926	0.7066	-2.1293	-121.9983
13	-0.58720	0.00000	0.5872	3.1416	180.0000
14	-0.72117	0.00000	0.7212	3.1416	180.0000


Response to Impulse in Harris
With Two Standard Errors
Harris
Harris_TV
Response
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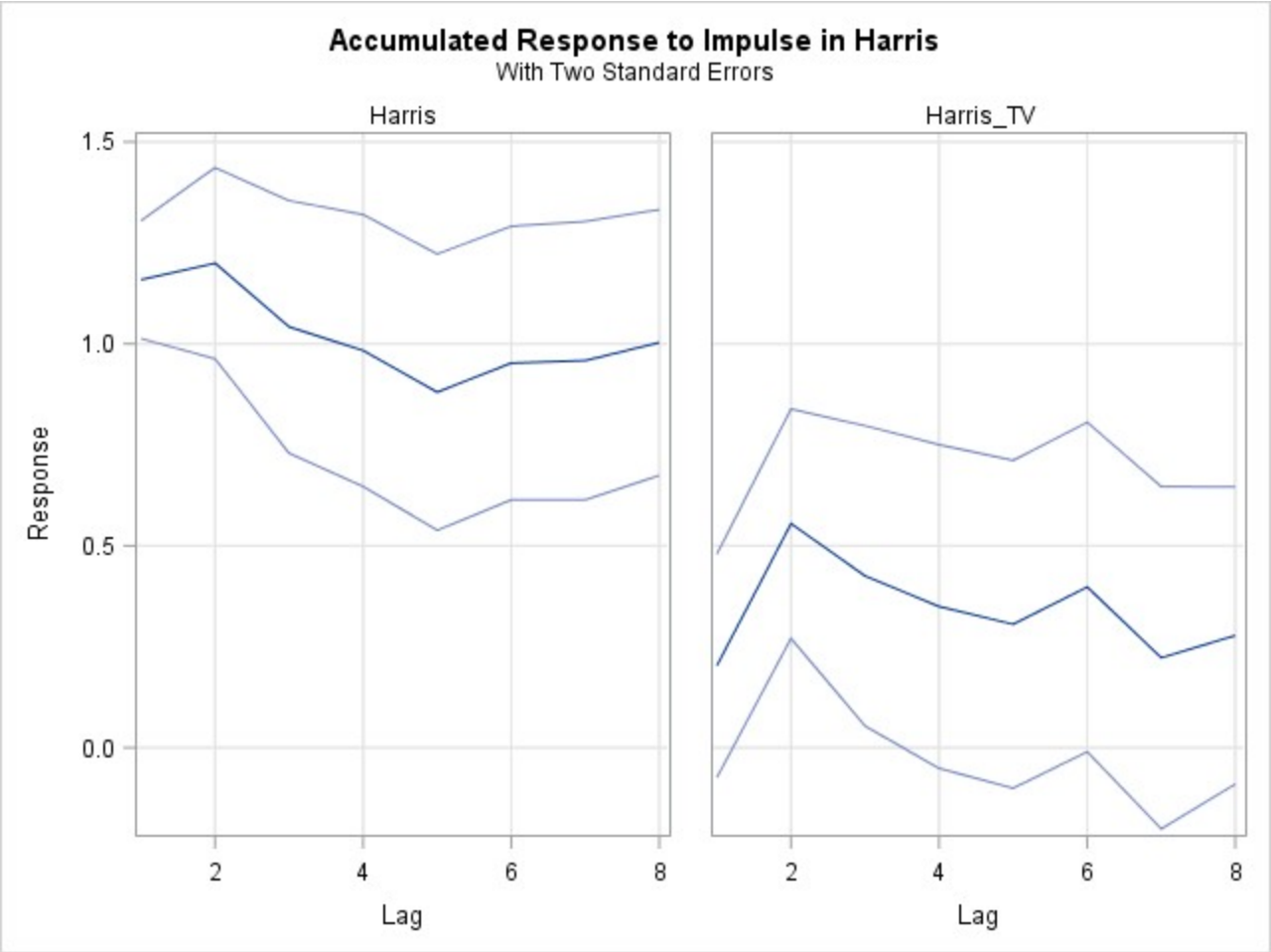
0.25
0.00
-0.25
-0.50
2
4
6
8
Lag
Lag


Accumulated Response to Impulse in Harris
With Two Standard Errors
Harris
Harris_TV
Response
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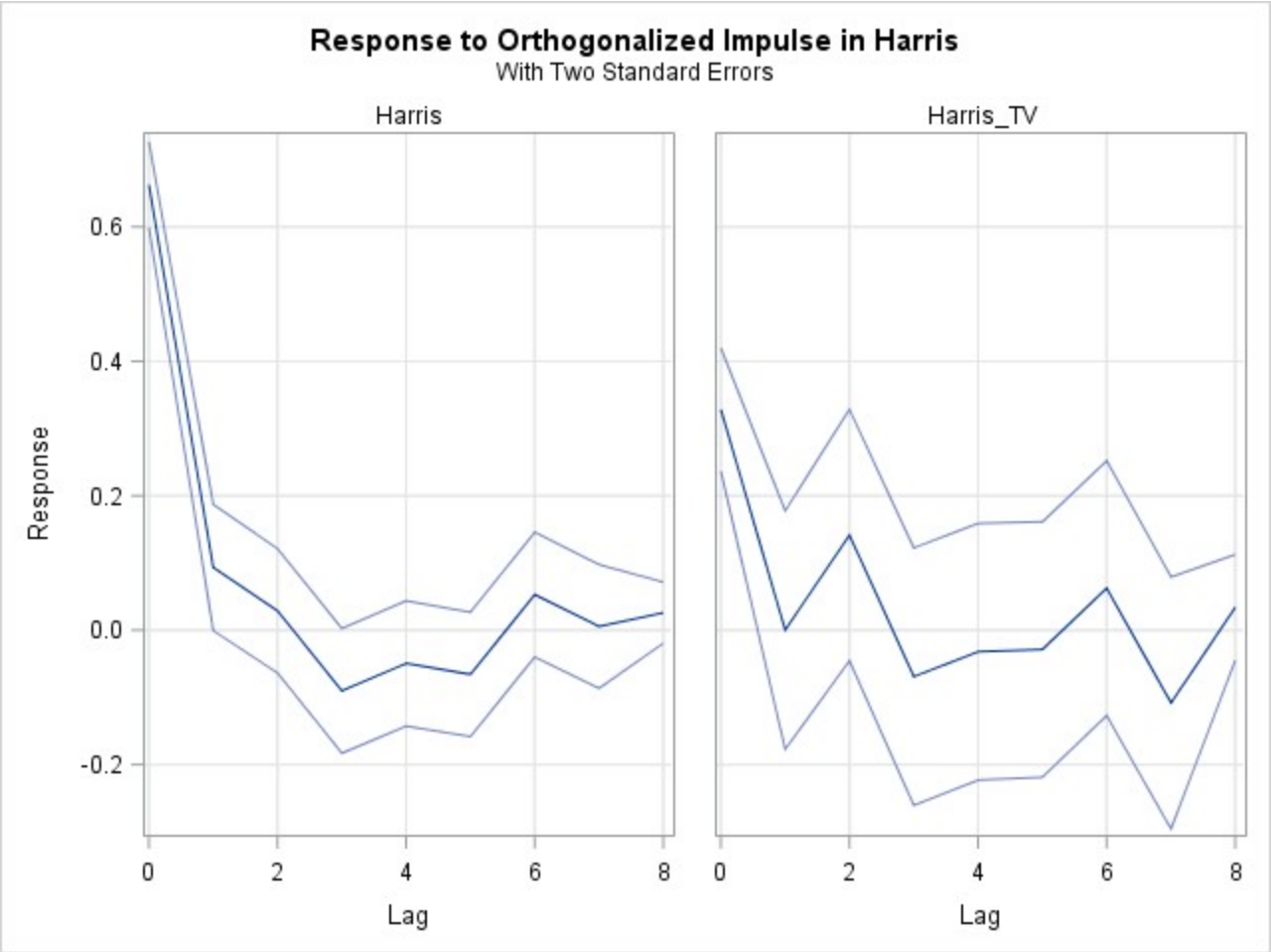
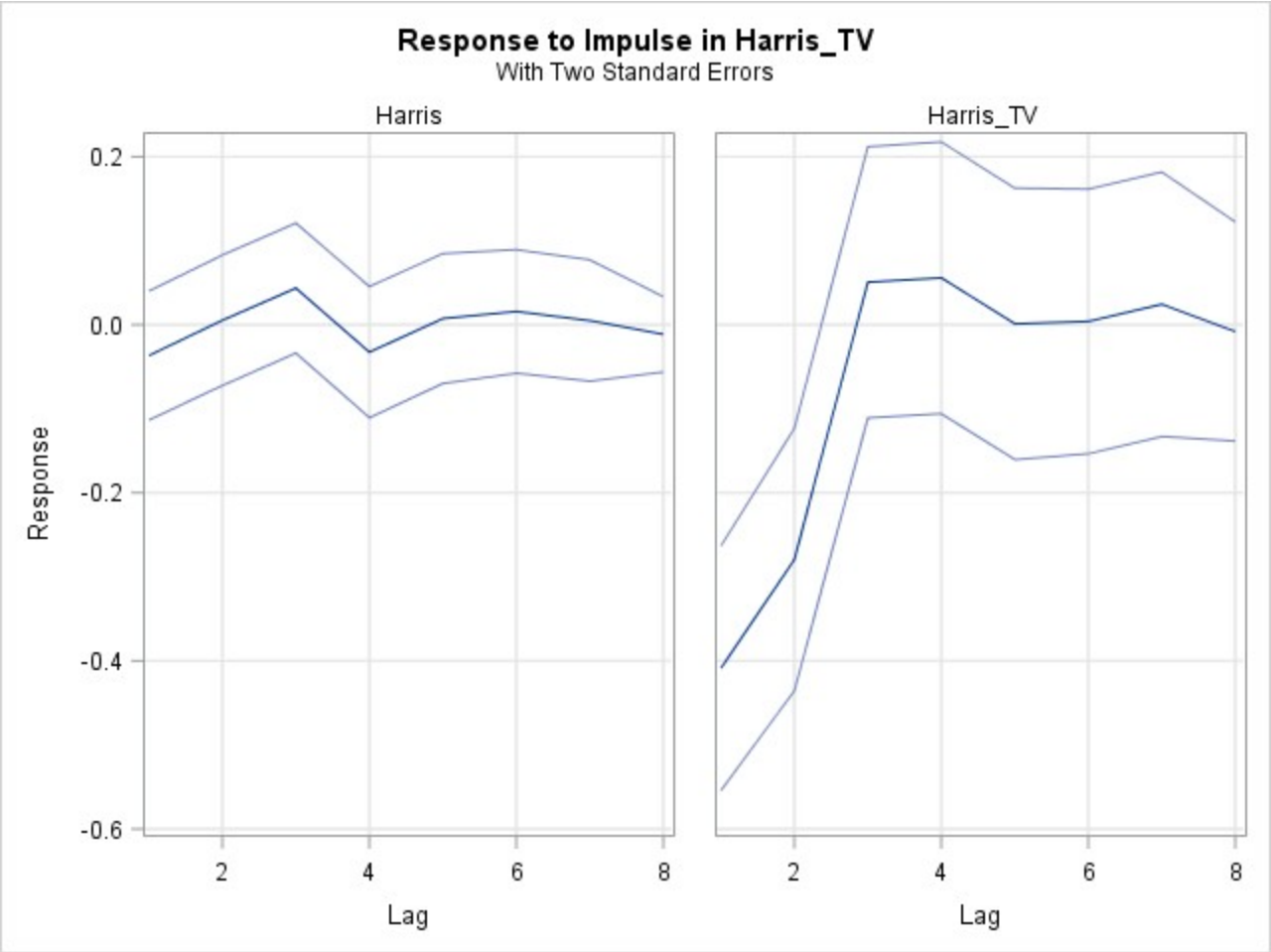
0.5
0.0
2
4
6
8
Lag
Lag


Response to Orthogonalized Impulse in Harris
With Two Standard Errors
Harris
Harris_TV
Response
0.6
0.4
0.2
0.0
-0.2
0
2
4
6
8
Lag
Lag


Response to Impulse in Harris_TV
With Two Standard Errors
Harris
Harris_TV
Response
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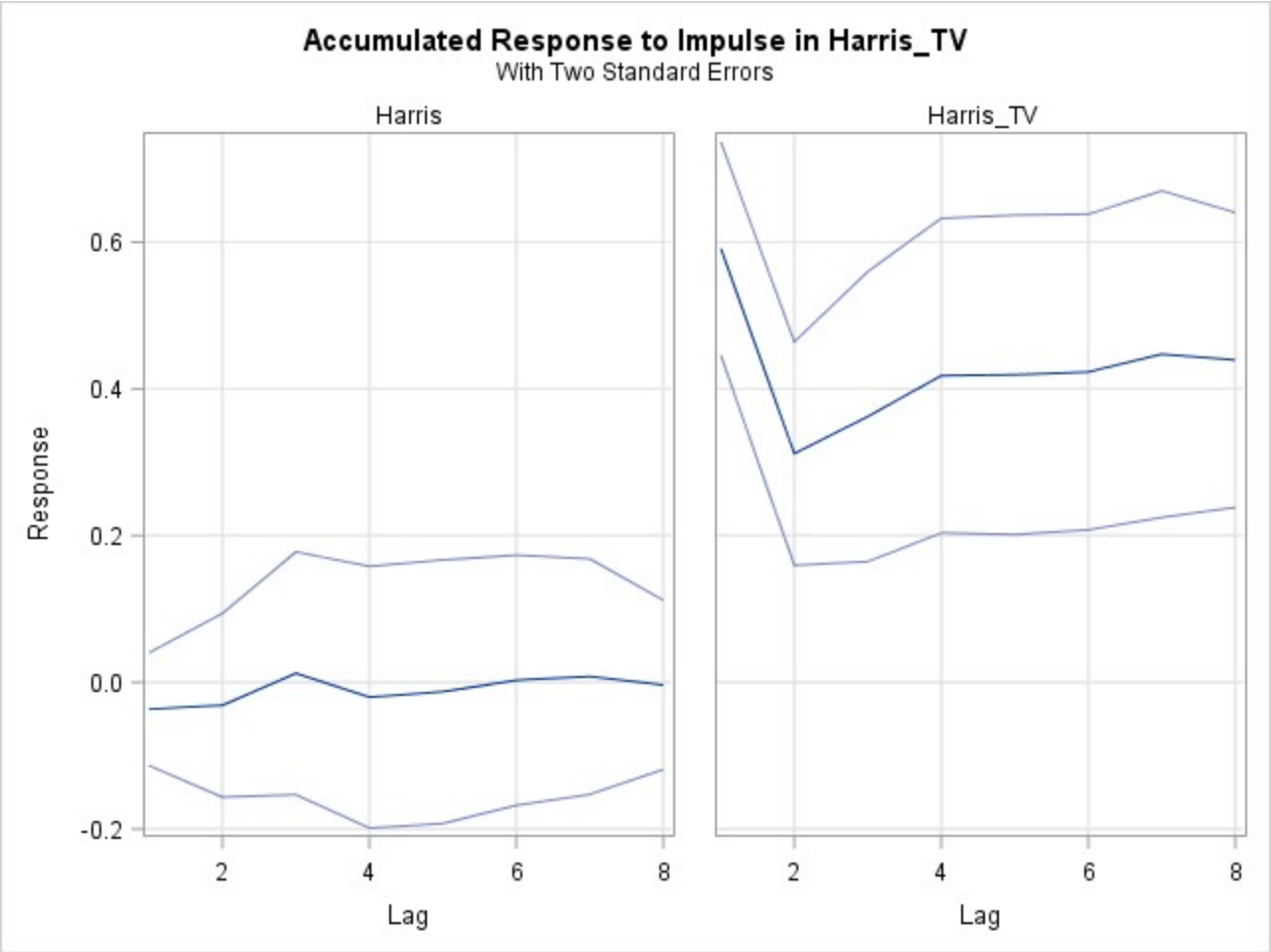
0.0
-0.2
-0.4
-0.6
2
4
6
8
Lag
Lag


Accumulated Response to Impulse in Harris_TV
With Two Standard Errors
Harris
Harris_TV
Response
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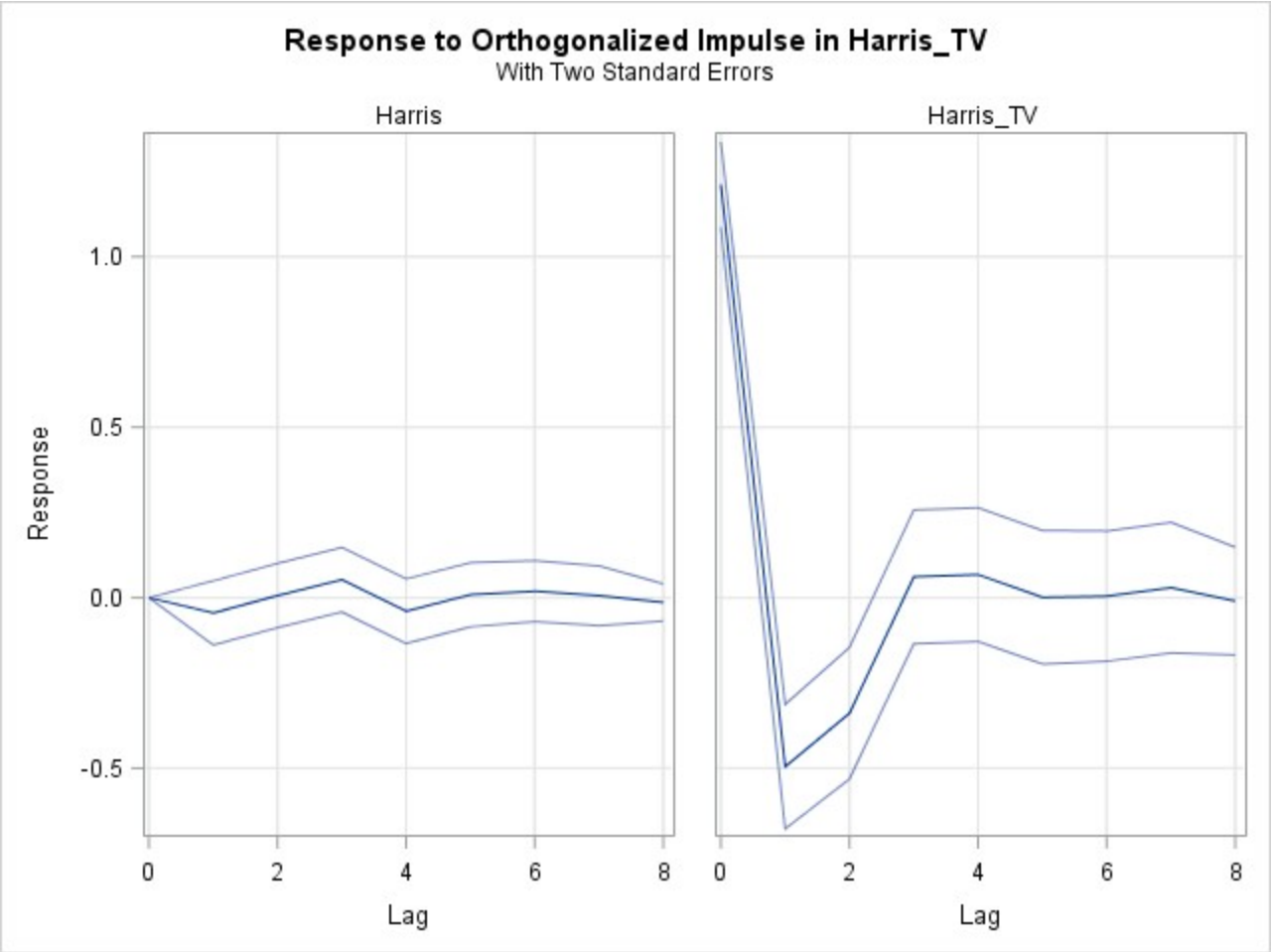
0.4
0.2
0.0
-0.2
2
4
6
8
Lag
Lag


Response to Orthogonalized Impulse in Harris_TV
With Two Standard Errors
Harris
Harris_TV
Response
1.0
0.5
0.0
-0.5
0
2
4
6
8
Lag
Lag

The SAS System

The VARMAX Procedure

Number of Observations	224
Number of Pairwise Missing	0
Observation(s) eliminated by differencing	1

Simple Summary Statistics

Variable	Type	N	Mean	Standard Deviation	Min	Max	Difference
Buttigieg	Dependent	224	0.03125	0.63534	-4.00000	2.50000	1
Buttigieg_TV	Dependent	224	0.00089	0.53982	-1.93570	2.07620	1

The SAS System

The VARMAX Procedure

Type of Model	VAR(7)
Estimation Method	Least Squares Estimation

Constant Estimates	
Variable	Constant
Buttigieg	0.04042
Buttigieg_TV	0.00638

AR Coefficient Estimates			
Lag	Variable	Buttigieg	Buttigieg_TV
1	Buttigieg	-0.01387	0.05854
	Buttigieg_TV	0.10399	-0.38404
2	Buttigieg	-0.16229	-0.03842
	Buttigieg_TV	-0.08339	-0.40330
3	Buttigieg	-0.11303	0.20892
	Buttigieg_TV	0.04179	-0.33146
4	Buttigieg	-0.19548	0.23597
	Buttigieg_TV	0.02704	-0.32657
5	Buttigieg	0.08860	0.01127
	Buttigieg_TV	-0.01400	-0.27603
6	Buttigieg	-0.13226	0.25032
	Buttigieg_TV	-0.02889	-0.22194
7	Buttigieg	0.16482	0.09207
	Buttigieg_TV	-0.01686	-0.18105

Schematic Representation of Parameter Estimates								
Variable/Lag	C	AR1	AR2	AR3	AR4	AR5	AR6	AR7
Buttigieg	.	..	-.	.+	-+	..	.+	+.
Buttigieg_TV	.	.-	.-	.-	.-	.-	.-	.-
+ 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
Buttigieg	CONST1	0.04042	0.04105	0.98	0.3259	1
	AR1_1_1	-0.01387	0.06943	-0.20	0.8418	Buttigieg(t-1)
	AR1_1_2	0.05854	0.08376	0.70	0.4854	Buttigieg_TV(t-1)
	AR2_1_1	-0.16229	0.06807	-2.38	0.0181	Buttigieg(t-2)
	AR2_1_2	-0.03842	0.08794	-0.44	0.6627	Buttigieg_TV(t-2)
	AR3_1_1	-0.11303	0.06886	-1.64	0.1023	Buttigieg(t-3)
	AR3_1_2	0.20892	0.09142	2.29	0.0233	Buttigieg_TV(t-3)
	AR4_1_1	-0.19548	0.06693	-2.92	0.0039	Buttigieg(t-4)
	AR4_1_2	0.23597	0.09334	2.53	0.0122	Buttigieg_TV(t-4)
	AR5_1_1	0.08860	0.06804	1.30	0.1943	Buttigieg(t-5)
	AR5_1_2	0.01127	0.09347	0.12	0.9041	Buttigieg_TV(t-5)
	AR6_1_1	-0.13226	0.06744	-1.96	0.0512	Buttigieg(t-6)
	AR6_1_2	0.25032	0.08942	2.80	0.0056	Buttigieg_TV(t-6)
	AR7_1_1	0.16482	0.06809	2.42	0.0164	Buttigieg(t-7)
	AR7_1_2	0.09207	0.08750	1.05	0.2940	Buttigieg_TV(t-7)
Buttigieg_TV	CONST2	0.00638	0.03424	0.19	0.8524	1
	AR1_2_1	0.10399	0.05791	1.80	0.0741	Buttigieg(t-1)
	AR1_2_2	-0.38404	0.06987	-5.50	0.0001	Buttigieg_TV(t-1)
	AR2_2_1	-0.08339	0.05679	-1.47	0.1435	Buttigieg(t-2)
	AR2_2_2	-0.40330	0.07336	-5.50	0.0001	Buttigieg_TV(t-2)
	AR3_2_1	0.04179	0.05745	0.73	0.4678	Buttigieg(t-3)
	AR3_2_2	-0.33146	0.07626	-4.35	0.0001	Buttigieg_TV(t-3)
	AR4_2_1	0.02704	0.05584	0.48	0.6288	Buttigieg(t-4)
	AR4_2_2	-0.32657	0.07786	-4.19	0.0001	Buttigieg_TV(t-4)
	AR5_2_1	-0.01400	0.05676	-0.25	0.8054	Buttigieg(t-5)
	AR5_2_2	-0.27603	0.07797	-3.54	0.0005	Buttigieg_TV(t-5)
	AR6_2_1	-0.02889	0.05626	-0.51	0.6081	Buttigieg(t-6)
	AR6_2_2	-0.22194	0.07459	-2.98	0.0033	Buttigieg_TV(t-6)
	AR7_2_1	-0.01686	0.05680	-0.30	0.7669	Buttigieg(t-7)
	AR7_2_2	-0.18105	0.07299	-2.48	0.0139	Buttigieg_TV(t-7)

Covariances of Innovations		
Variable	Buttigieg	Buttigieg_TV
Buttigieg	0.35758	0.02739

Buttigieg_TV	0.02739	0.24883

Log-likelihood	61.96357

Information Criteria	
AICC	-45.6648
HQC	-12.871
AIC	-57.9271
SBC	53.60948
FPEC	0.100847

Cross Covariances of Residuals by Variable

Variable	Lag	Buttigieg	Buttigieg_TV
Buttigieg	**0**	0.33286	0.02550
	1	0.00138	-0.00297
	2	-0.01238	0.00829
	3	0.00986	-0.00659
	4	-0.01603	0.01589
	5	0.01127	-0.00052
	6	-0.01381	0.01467
	7	-0.00565	-0.00851
	8	0.00137	0.01741
Buttigieg_TV	**0**	0.02550	0.23163
	1	0.00180	-0.00163
	2	0.00639	-0.00055
	3	0.00680	-0.00646
	4	0.00239	-0.00391
	5	0.00324	-0.01139
	6	0.00911	-0.00868
	7	0.01351	-0.00950
	8	0.00663	-0.00685

Cross Correlations of Residuals by Variable

Variable	Lag	Buttigieg	Buttigieg_TV
Buttigieg	**0**	1.00000	0.09183
	1	0.00415	-0.01068

	2	-0.03718	0.02985
	3	0.02962	-0.02373
	4	-0.04816	0.05721
	5	0.03385	-0.00189
	6	-0.04149	0.05285
	7	-0.01699	-0.03064
	8	0.00411	0.06269
Buttigieg_TV	0	0.09183	1.00000
	1	0.00647	-0.00702
	2	0.02301	-0.00237
	3	0.02449	-0.02789
	4	0.00862	-0.01690
	5	0.01166	-0.04919
	6	0.03283	-0.03749
	7	0.04867	-0.04102
	8	0.02387	-0.02957

Schematic Representation of Cross Correlations of Residuals

Variable/Lag	0	1	2	3	4	5	6	7	8
Buttigieg	+.	. .	. .	. .	. .	. .	. .	. .	. .
Buttigieg_TV	.+	. .	. .	. .	. .	. .	. .	. .	. .

+ 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
8	4	8.21	0.0843

Univariate Model ANOVA Diagnostics

Variable	R-Square	Standard Deviation	F Value	Pr > F
Buttigieg	0.1975	0.59798	3.55	<.0001
Buttigieg_TV	0.2265	0.49883	4.22	<.0001

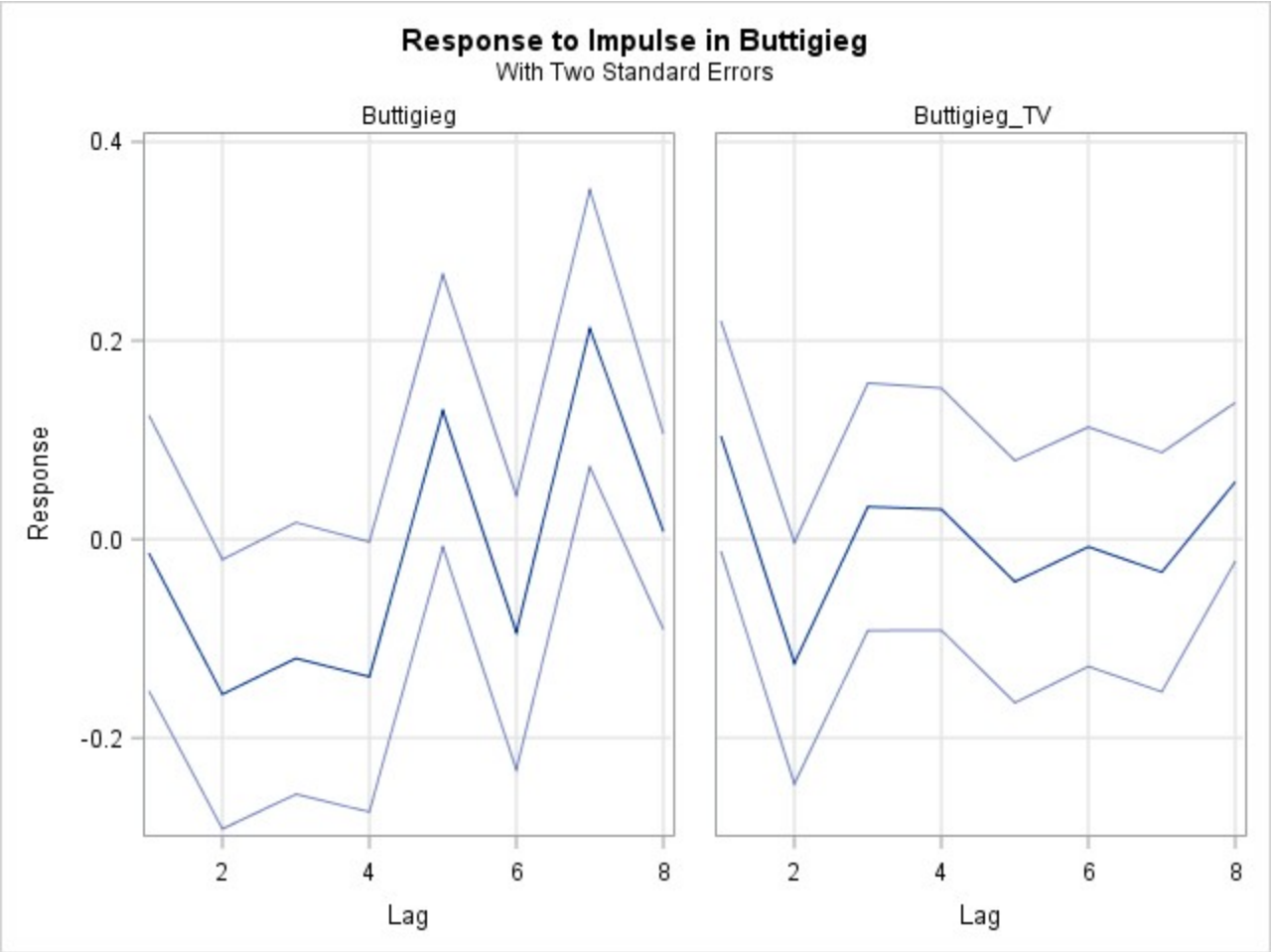
Univariate Model White Noise Diagnostics

	Durbin	Normality		ARCH	

Variable	Watson	Chi-Square	Pr > ChiSq	F Value	Pr > F
Buttigieg	1.98748	826.76	<.0001	0.21	0.6476
Buttigieg_TV	2.00331	110.82	<.0001	4.82	0.0292

Univariate Model AR Diagnostics								
	AR1		AR2		AR3		AR4	
Variable	F Value	Pr > F	F Value	Pr > F	F Value	Pr > F	F Value	Pr > F
Buttigieg	0.00	0.9515	0.15	0.8614	0.16	0.9219	0.25	0.9079
Buttigieg_TV	0.01	0.9178	0.01	0.9942	0.06	0.9809	0.06	0.9933

Roots of AR Characteristic Polynomial					
Index	Real	Imaginary	Modulus	Radian	Degree
1	0.60441	0.00000	0.6044	0.0000	0.0000
2	0.60339	0.55877	0.8224	0.7470	42.8013
3	0.60339	-0.55877	0.8224	-0.7470	-42.8013
4	0.52242	0.63112	0.8193	0.8794	50.3832
5	0.52242	-0.63112	0.8193	-0.8794	-50.3832
6	0.06517	0.73894	0.7418	1.4828	84.9596
7	0.06517	-0.73894	0.7418	-1.4828	-84.9596
8	-0.09379	0.78417	0.7898	1.6898	96.8204
9	-0.09379	-0.78417	0.7898	-1.6898	-96.8204
10	-0.48483	0.55354	0.7358	2.2901	131.2142
11	-0.48483	-0.55354	0.7358	-2.2901	-131.2142
12	-0.72086	0.00000	0.7209	3.1416	180.0000
13	-0.75309	0.44998	0.8773	2.6030	149.1415
14	-0.75309	-0.44998	0.8773	-2.6030	-149.1415


Response to Impulse in Buttigieg
With Two Standard Errors
Buttigieg
Buttigieg_TV
Response
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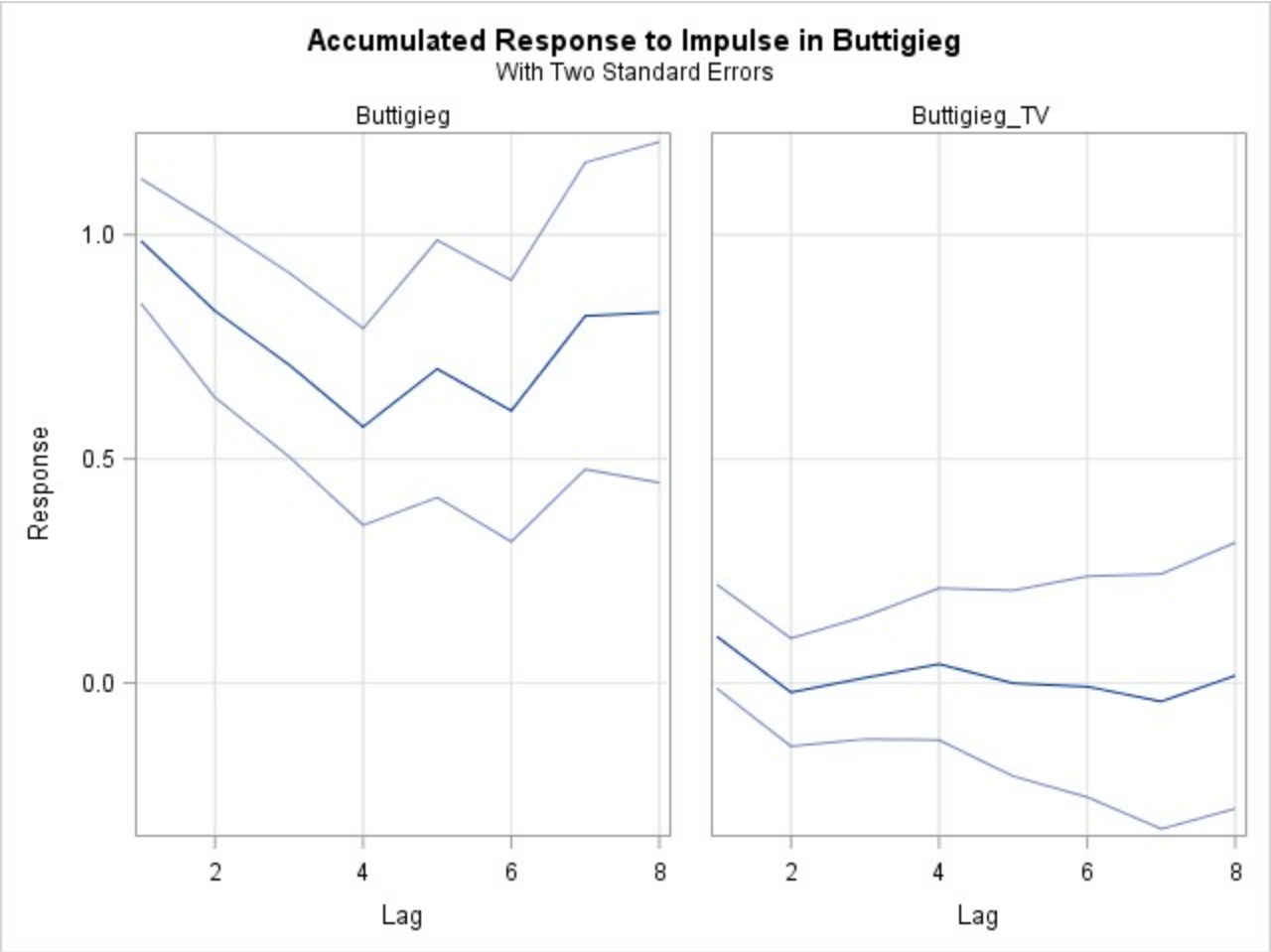
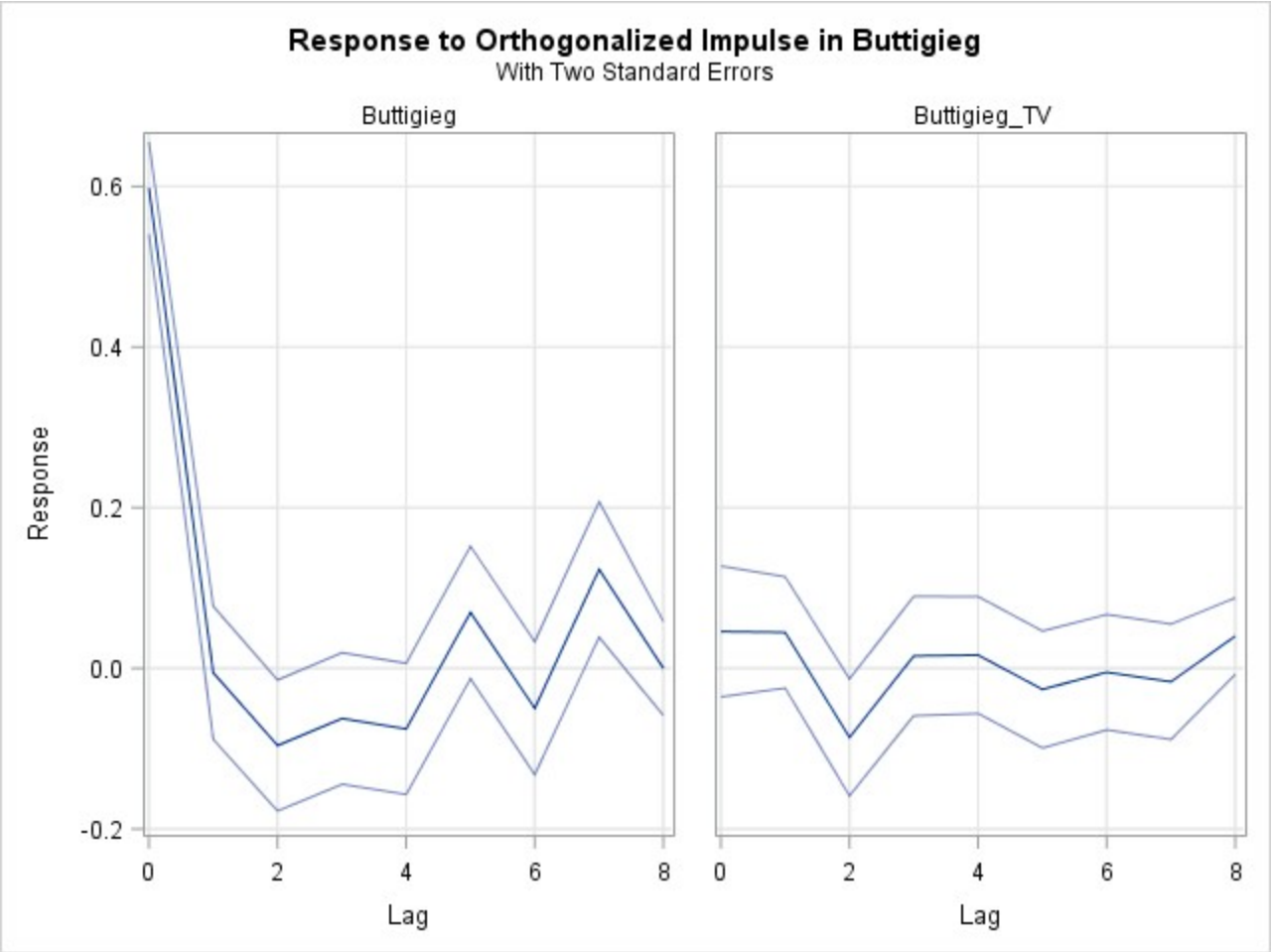
0.0
-0.2
2
4
6
8
Lag
Lag


Accumulated Response to Impulse in Buttigieg
With Two Standard Errors
Buttigieg
Buttigieg_TV
Response
1.0
0.5
0.0
2
4
6
8
Lag
Lag


Response to Orthogonalized Impulse in Buttigieg
With Two Standard Errors
Buttigieg
Buttigieg_TV
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0.2
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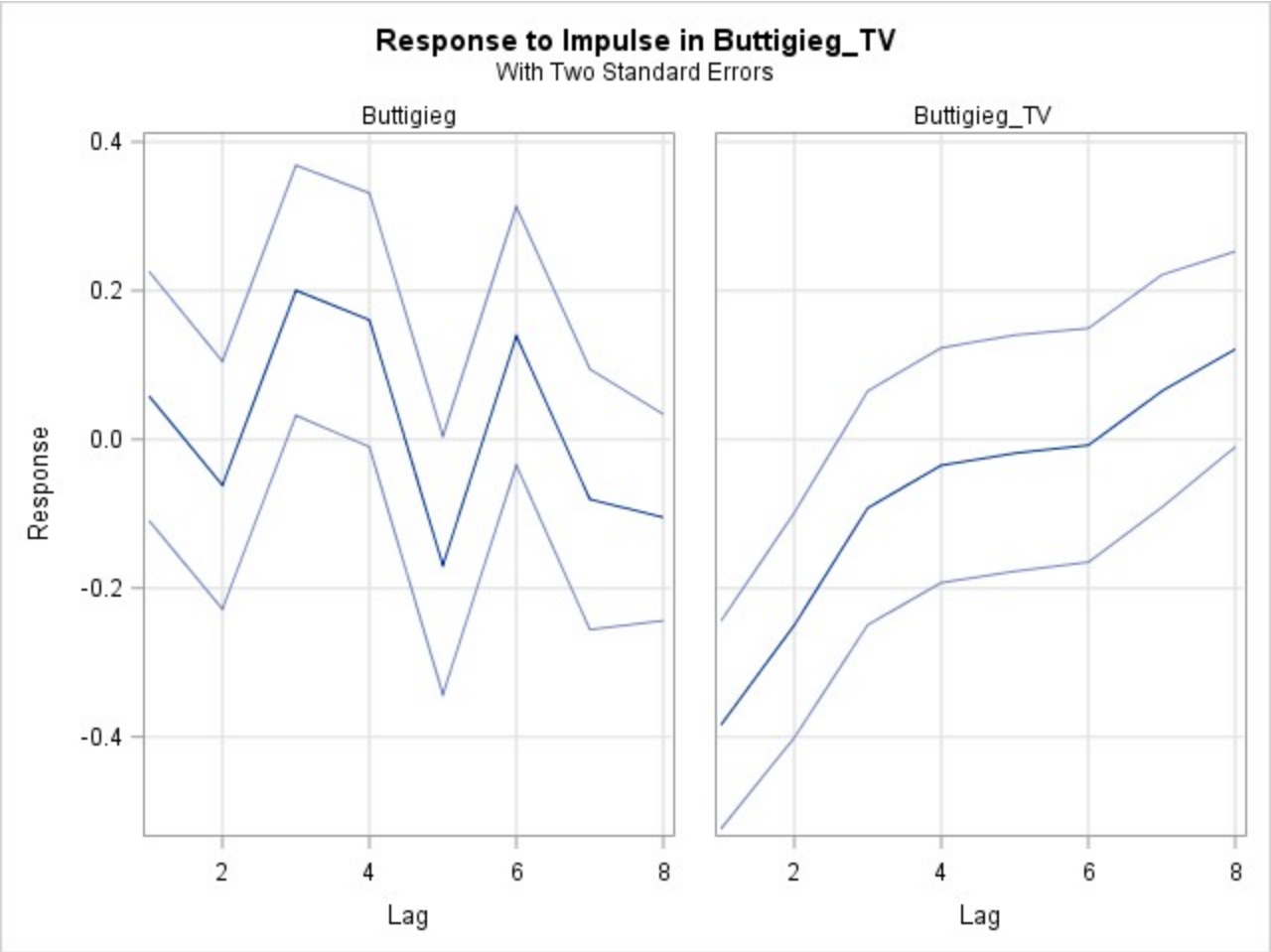
0
2
4
6
8
Lag
Lag


Response to Impulse in Buttigieg_TV
With Two Standard Errors
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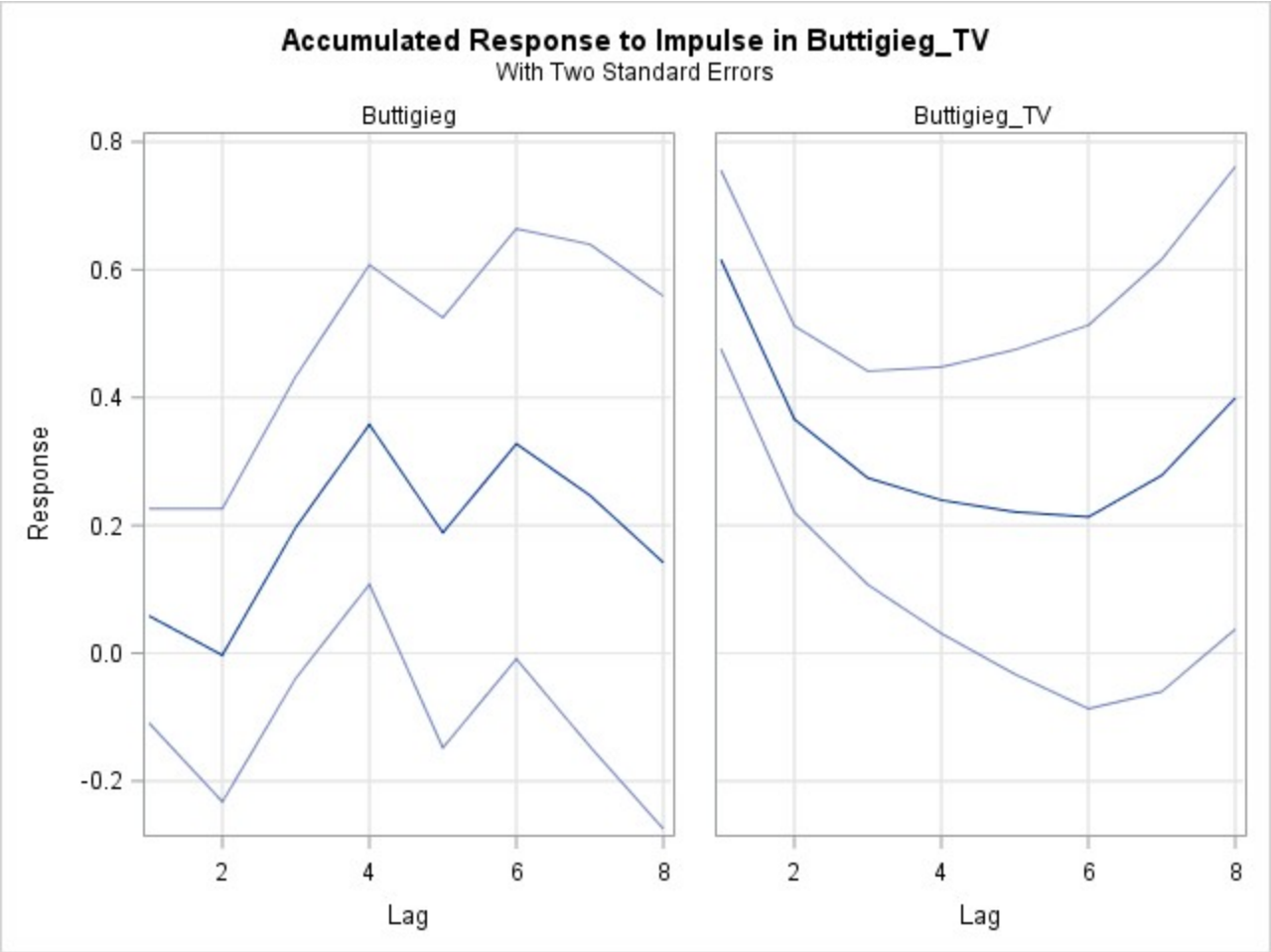
-0.4
2
4
6
8
Lag
Lag


Accumulated Response to Impulse in Buttigieg_TV
With Two Standard Errors
Buttigieg
Buttigieg_TV
Response
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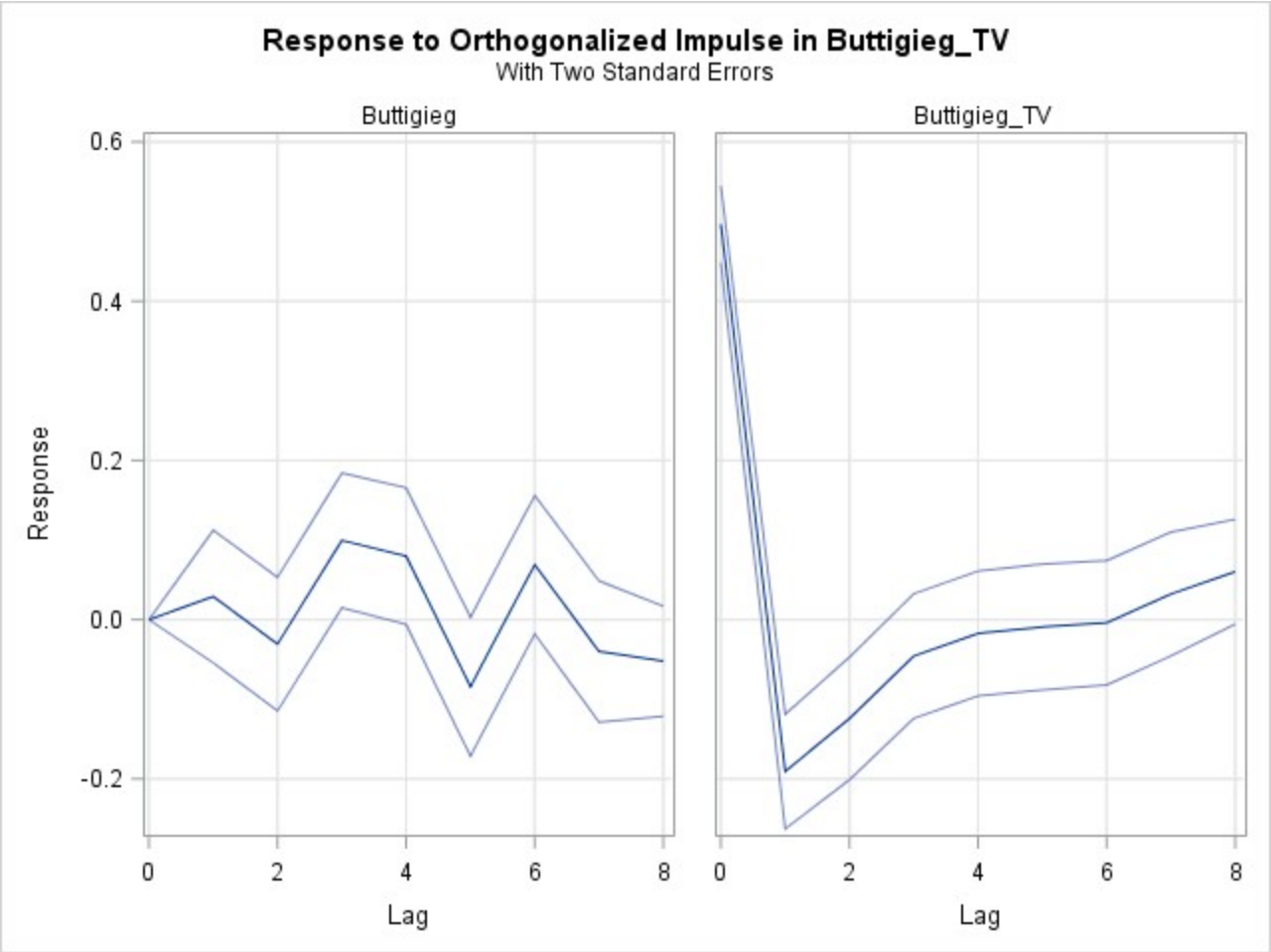
0.4
0.2
0.0
-0.2
2
4
6
8
Lag
Lag


Response to Orthogonalized Impulse in Buttigieg_TV
With Two Standard Errors
Buttigieg
Buttigieg_TV
Response
0.6
0.4
0.2
0.0
-0.2
0
2
4
6
8
Lag
Lag