Mutual influences in economic agendas: Assessing dynamics and conditionality in longitudinal relationships between media, politics, and public

SUPPLEMENTARY MATERIAL

1. Search strings and additional information for media agenda scraping.
2. “Macroeconomic” codes for political agenda.
3. Additional statistics excluded from the methods section, including correlations for media data and the results of the Dickey-Fuller Tests.
4. Results for models using controlling party of the House of Representatives, controlling party of the Senate, and division of government as moderators instead of the political party of the President.
5. Impulse Response Function graphs for Models 1-3.
6. Outline of all significant relationships.
7. Alternative presentation of causal models (by indicator rather than agenda).

1. Search strings & additional information for media scraping

Search string for economic media agenda	econom! OR finance! Or mortgage OR employment OR unemployment OR cutback! OR interest rate! OR inflation OR deflation OR debts OR import OR export OR stock market OR recession
Search string for economic crises	"recession" OR "economic crisis" OR "shrinking economy" OR "economic downturn" OR "economic fall" OR "financial crisis" OR "banking crisis" OR "credit crisis"

Although the media data were initially collected with a search string that targeted economics broadly, the dataset was narrowed for this study with a more precise search string, targeting only news articles within the existing data that addressed economic crises directly. Pearson's correlations demonstrated that both datasets (i.e., economic media attention broadly and crisis attention specifically) are closely correlated, indicating that when journalists talk about economics, they are likely typically talking about economic crises. Using the crisis-only dataset, then, provides a more reliable and precise measurement, for several reasons. Agenda-setting generally revolves around placing a *problem* higher on the public agenda and pinpointing crises puts us closer to examining that goal and is more in line with the journalistic watchdog role, as it emphasizes changes in economic conditions. Additionally, the general search string can return results that are only tangentially related to economics (i.e., Type I error and lower precision/reliability), whereas the crisis string is more precise. Along these lines, the general economic string returns far more data than any other variable in our complete dataset, which is likely to skew statistical analyses.

2. “Macroeconomic” codes for political agenda

The Comparative Agendas Project codes the following as “macroeconomics”:

- General domestic macroeconomic issues
- Inflation and interest rate
- Unemployment rate
- Monetary supply, Federal Reserve Board, and the Treasury
- National budget and debt
- Taxation, tax policy, and broad tax reform
- Industrial policy
- Price control and stabilization
- Other

See more information in the CAP codebook:

https://comparativeagendas.s3.amazonaws.com/codebookfiles/Codebook_PAP_2019.pdf

3. Additional methods information

The NYT media and crisis data are moderately correlated; $r(483) = .45$, $p < .001$. The WP media and crisis data show a moderately strong correlation; $r(483) = .62$, $p < .001$. All media data and all crisis data are moderately correlated; $r(483) = .51$, $p < .001$.

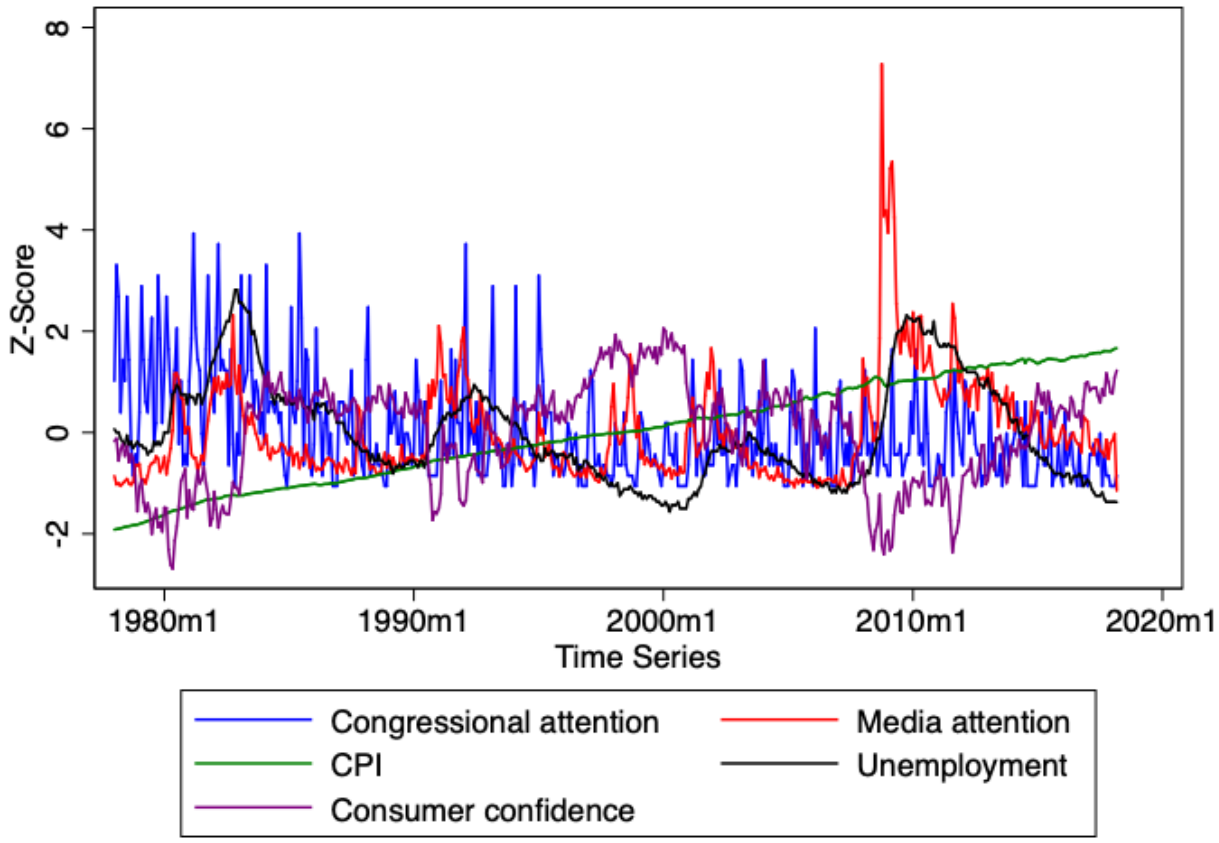
Dickey-Fuller Test Results

First test – No differencing			*Second test – Differenced data*		
Variable	**Z**	**p**	**Variable**	***Z***	***p***
Congressional Attention	-13.67	.000**	Δ Congressional Attention	-30.18	.000**
Media Attention	-5.20	.000**	Δ Media Attention	-24.80	.000**
CPI	-1.83	.366	Δ CPI	-15.55	.000**
Unemployment Rate	-0.75	.832	Δ Unemployment Rate	-19.04	.000**
Consumer Confidence	-3.30	.015*	Δ Consumer Confidence	-22.68	.000**
State of the Union	-23.67	.000**	Δ State of the Union	-37.89	.000**
Executive Order	-20.48	.000**	Δ Executive Order	-35.42	.000**

Note: 5% critical value of -2.87. * $p < .05$ ** $p < .000$

Figure A3.1

Time-Series Graph of the Standardized Z-Scores for the Five Continuous Variables



4. Additional models

Results for models including controlling party of the House of Representatives, controlling party of the Senate, and division of government (all dichotomous). Only fit statistics, VAR model R^2, and VAR Granger tests are reported (FEVD, Ljung-Box Q, and Lagrange M excluded) to demonstrate basic relationships in these extraneous models.

Differenced Dickey-Fuller tests. House of Representatives; z = -21.90, $p < .000$; Senate; z = -21.89, $p < .000$; divided government z = -21.89, $p < .000$.

Model for House of Representatives, Republican

Best fit indicators: Lag 3 with two indicators in agreement; *FPE* = 2722.61; *AIC* = 22.10.

	Δ Congress	**Δ Media**	**Δ CPI**	**Δ Unemployment**	**Δ Confidence**
Δ Congress --Granger	--	3.23	**18.95****	2.60	3.89
Δ Media --Granger	7.13	--	4.10	0.77	**12.57****
Δ CPI --Granger	7.73	7.26	--	2.40	1.75
Δ Unemployment --Granger	2.61	**8.05***	7.57	--	2.45
Δ Confidence --Granger	0.84	7.42	7.13	2.76	--
R-squared	29.41**	12.84**	15.28**	9.20	11.52**

Note: Independent variables in columns (vertical), dependent variables in rows (horizontal).
* $p < .05$; ** $p < .001$

Model for House of Representatives, Democrat

Best fit indicators: Lag 11 with three indicators in agreement; *LR* = 62.59; *FPE* = 15418.3; *AIC* = 23.79.

	Δ Congress	Δ Media	Δ CPI	Δ Unemployment	Δ Confidence
Δ Congress --Granger	--	6.68	5.69	**22.87***	12.97
Δ Media --Granger	8.41	--	**57.28****	14.13	11.32
Δ CPI --Granger	**30.04****	**154.27****	--	9.74	**23.65***
Δ Unemployment --Granger	10.94	19.48	17.67	--	18.38
Δ Confidence --Granger	18.41	**21.87***	15.75	19.56	--
R-squared	56.00**	39.09**	68.64**	40.68**	29.66**

Note: Independent variables in columns (vertical), dependent variables in rows (horizontal).
* $p < .05$; ** $p < .001$

Model for Senate, Republican

Best fit indicators: Lag 3 with two indicators in agreement; *FPE* = 1911.97; *AIC* = 21.74.

	Δ Congress	Δ Media	Δ CPI	Δ Unemployment	Δ Confidence
Δ Congress --Granger	--	7.06	**16.13****	4.47	1.29
Δ Media --Granger	6.32	--	6.14	3.84	1.63
Δ CPI --Granger	1.38	3.67	--	0.56	4.46
Δ Unemployment --Granger	1.63	**17.26****	1.36	--	2.11
Δ Confidence --Granger	0.40	**8.50***	**18.75****	1.92	--
R-squared	32.22**	10.71*	27.35**	15.16**	16.68**

Note: Independent variables in columns (vertical), dependent variables in rows (horizontal).
* $p < .05$; ** $p < .001$

Model for Senate, Democrat

Best fit indicators: Lag 11 with two indicators in agreement; *FPE* = 27090.8; *AIC* = 24.35.

	Δ Congress	**Δ Media**	**Δ CPI**	**Δ Unemployment**	**Δ Confidence**
Δ Congress --Granger	--	15.54	17.81	**26.36***	13.95
Δ Media --Granger	15.82	--	**59.42****	**31.17***	5.13
Δ CPI --Granger	15.94	**74.12****	--	3.97	**27.33***
Δ Unemployment --Granger	7.85	19.32	5.29	--	**28.44***
Δ Confidence --Granger	13.99	24.83	17.78	24.83	--
R-squared	57.71**	41.45**	46.18**	40.85**	29.52**

Note: Independent variables in columns (vertical), dependent variables in rows (horizontal).
* $p < .05$; ** $p < .001$

Model for Division of Government, Unified

Best fit indicators: Lag 3 with two indicators in agreement; *FPE* = 6347.75; *AIC* = 22.94.

	Δ Congress	**Δ Media**	**Δ CPI**	**Δ Unemployment**	**Δ Confidence**
Δ Congress --Granger	--	**8.59***	**16.43****	3.01	4.06
Δ Media --Granger	0.20	--	6.13	3.76	**10.89***
Δ CPI --Granger	3.60	3.73	--	2.12	2.23
Δ Unemployment --Granger	4.75	1.38	2.43	--	**9.51***
Δ Confidence --Granger	0.87	2.49	**19.96****	**9.14***	--
R-squared	38.56**	22.52**	25.14**	22.25**	24.62**

Note: Independent variables in columns (vertical), dependent variables in rows (horizontal).
* $p < .05$; ** $p < .001$

Model for Division of Government, Divided

Best fit indicators: Lag 11 with two indicators in agreement; *FPE* = 9565.98; *AIC* = 23.34.

	Δ Congress	**Δ Media**	**Δ CPI**	**Δ Unemployment**	**Δ Confidence**
Δ Congress --Granger	--	8.20	8.87	**27.86***	6.91
Δ Media --Granger	15.25	--	**31.96***	**23.52***	9.04
Δ CPI --Granger	**20.60***	**70.87**	--	7.33	**37.28****
Δ Unemployment --Granger	14.88	**23.08***	18.32	--	14.76
Δ Confidence --Granger	11.29	19.35	**21.85***	**24.03***	--
R-squared	51.51**	33.93**	42.07**	34.60**	25.35**

Note: Independent variables in columns (vertical), dependent variables in rows (horizontal).
* $p < .05$; ** $p < .001$

5. Impulse Response Function Graphs for Models 1-3

Figure A5.1

(C)IRF Graphs for Model 1 (No Political Conditions; N = 483)

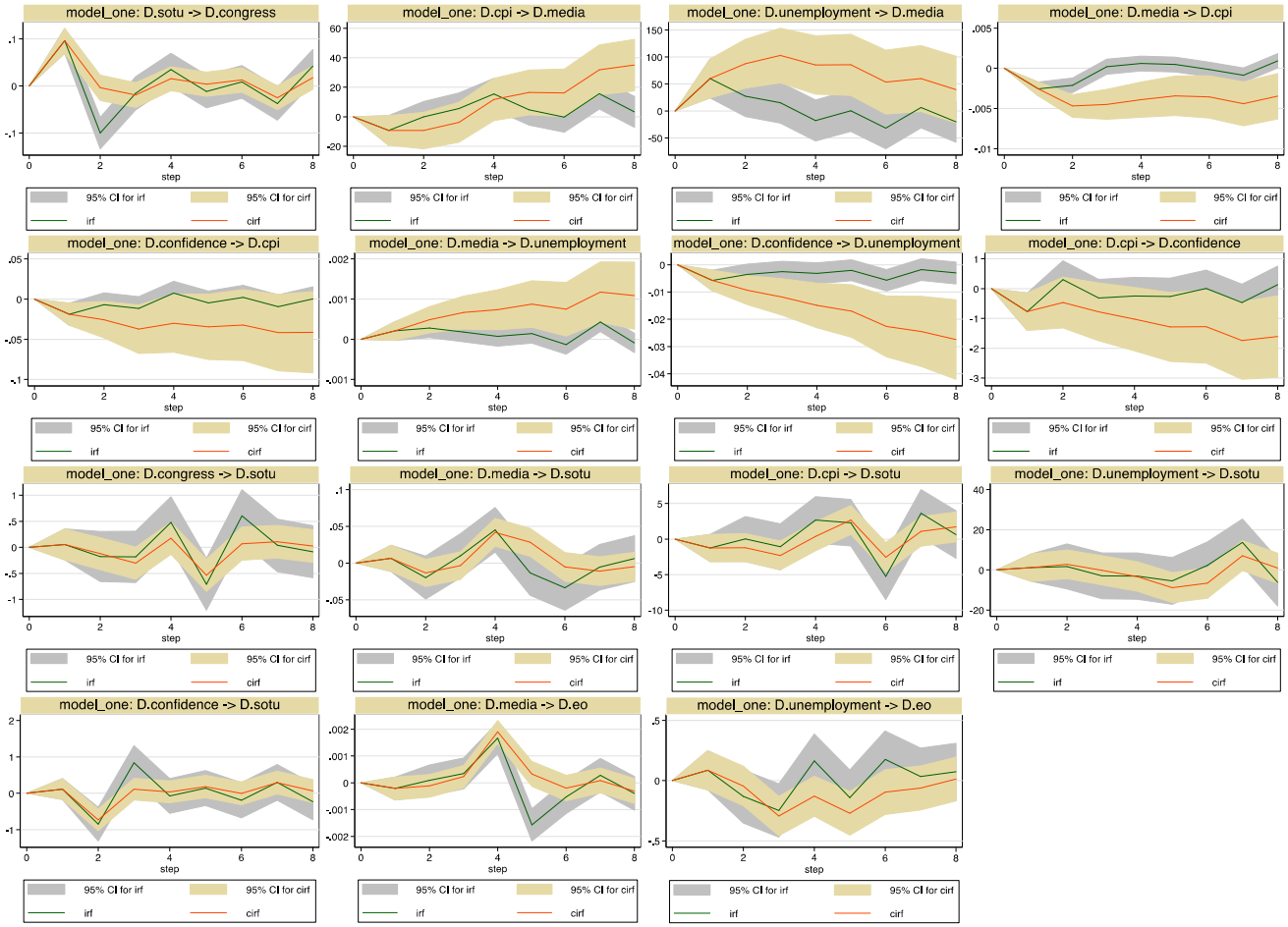


Figure A5.2

IRF Graphs for Model 2 (Republican President; N = 254)

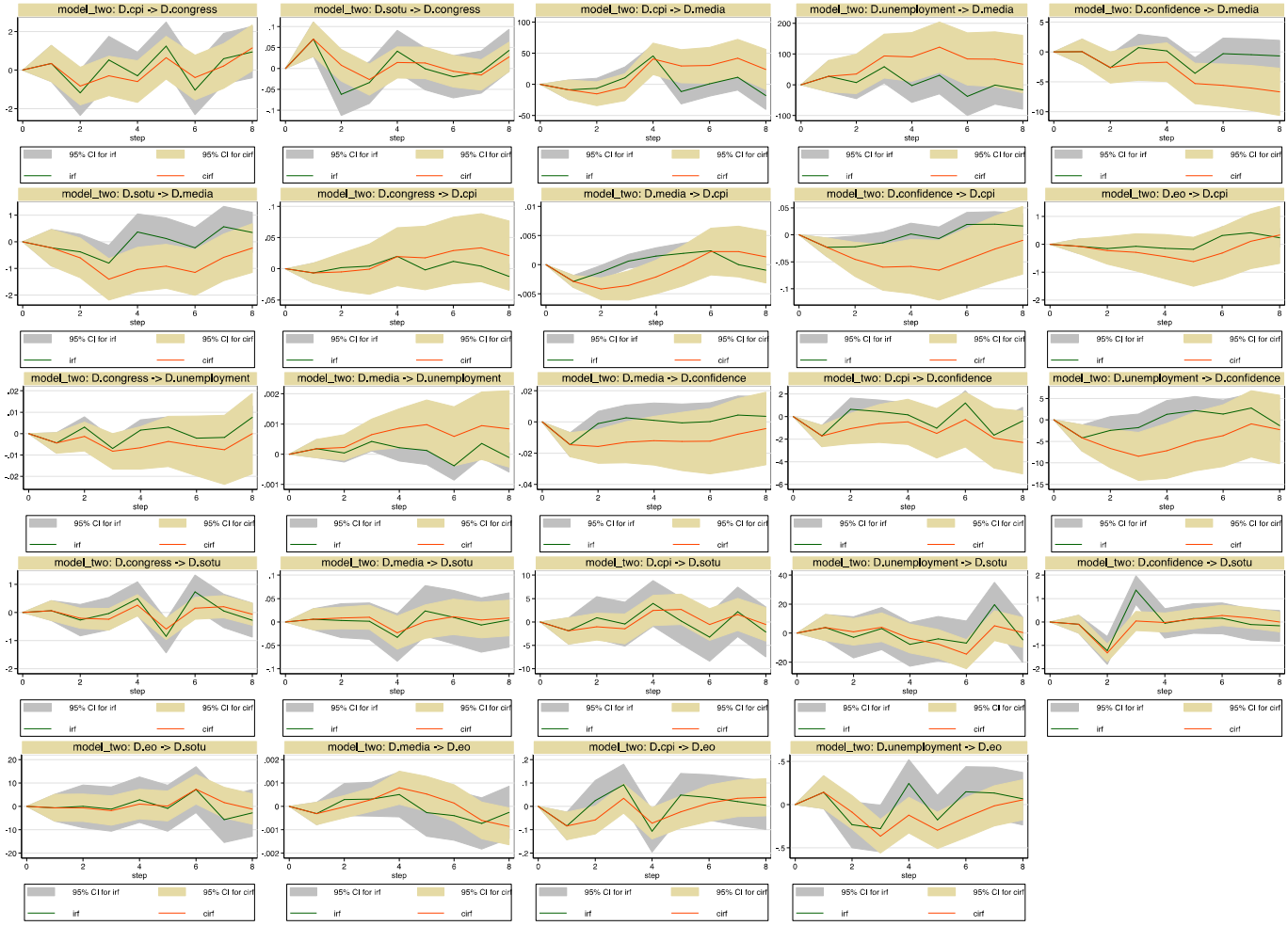
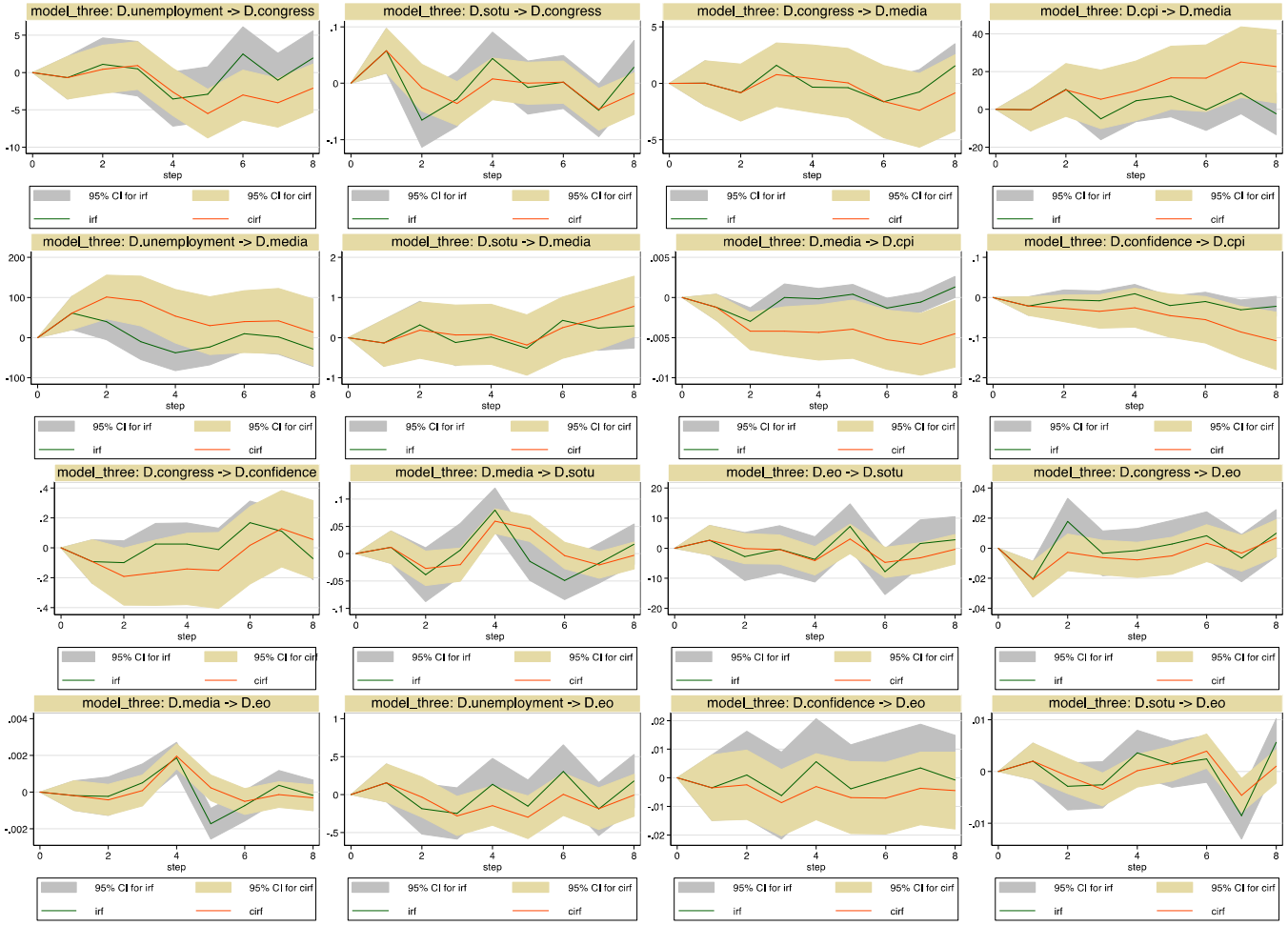


Figure A5.3

IRF Graphs for Model 3 (Democratic President; N = 229)



6. Outline of all significant relationships

Model	Relationship	Direction	Explanation
1	Congress ↔ SOTU	Nonlinear	An increase in SOTU quasi-statements leads to an increase, then sharp decrease, then evening out of Congressional attention. An increase in Congressional attention leads to a slow growth of SOTU quasi-statements, with fluctuation (including decline) towards the end of the forecast.
	Media ↔ CPI	Differs	CPI has a positive effect on media, where increases in CPI lead to increases in media output. Media attention has a negative effect on CPI, where increases in media coverage lead to decreases in CPI.
	Media ↔ Unemployment	Differs	Unemployment has a curvilinear relationship with media attention, where increases in unemployment lead to more media attention for a few months, but then coverage declines. Media attention has a positive effect on unemployment, where more media coverage leads to higher unemployment rates.
	Confidence ↔ CPI	Negative	Both CPI and consumer confidence have negative effects on one another, where a shock in one leads to declines in the other.
	Media → SOTU	Nonlinear	Increased media coverage leads to a slow growth in SOTU quasi-statements, but this peaks and declines.
	CPI → SOTU	Nonlinear	A shock to the CPI leads to a slow growth over time in SOTU quasi-statements, falling dramatically after about six months and then returning to the average.
	Confidence → SOTU	Negative	A shock to the consumer confidence leads to a brief drop in SOTU quasi-statements, and then a return to the average.
	Unemployment → SOTU	Positive	An increase in the unemployment rate leads to a delayed increase in SOTU quasi-statements.
	Confidence → Unemployment	Negative	An increase in confidence leads to a swift, large drop in the unemployment rate.
	Media → EO	Nonlinear	An increase in media attention leads to a sharp increase, and then equally as sharp decrease in EOs.
	Unemployment → EO	Negative	An increase in unemployment leads to a decrease in executive orders, but this returns to the average after about 5 months.
2	Congress ↔ SOTU	Nonlinear	Both relationships fluctuate considerably. An increase in SOTU quasi-statements leads to a brief increase, then sharp decline, and then evening out

			of Congressional attention. An increase in Congressional attention has no effect for about five months, then SOTU quasi-statements decline, and then they quickly return to average.
	Congress ↔ CPI	Differs	Congressional attention has a positive effect on CPI, where more attention leads to higher CPI. CPI has a nonlinear relationship with Congressional attention, where a shock in CPI scores leads to a constantly fluctuating Congressional attention.
	Confidence ↔ CPI	Nonlinear	Consumer confidence has a parabolic relationship with CPI, where an increase in confidence leads to lower CPI scores, but then after about 5 months, this shifts to an increase in CPI. CPI has an inverse parabolic effect on confidence – an increase in CPI leads to an increase in confidence followed, at the halfway point, by a decrease in confidence.
	Media ↔ CPI	Nonlinear	A shock in CPI leads to a delayed and then plateaued growth in media coverage. A shock in media coverage leads to a dip and then steady rise in CPI.
	EO ↔ CPI	Differs	A shock to EOs leads to a steady decline in CPI, and then a slightly more exaggerated growth in CPI. A shock to CPI leads to a fluctuating change in EO, first dipping, then growing, then dipping again, before moving towards a steady growth trend.
	Media ↔ Confidence	Negative	A shock in either leads to a decline in the other, although confidence trends back towards the average long after a shock in media.
	Media ↔ Unemployment	Nonlinear	Both relationships are characterized first by periods of growth (wherein a shock in one leads to increases in the other), followed by a declining trend.
	Media ↔ SOTU	Nonlinear	Both relationships are characterized by downward trends in the first few months. After about 4 months, SOTU returns to the average as a response to a shock in media attention. Media attention slightly grows, then declines, then finally slowly grows again, moving back towards the average after a shock in SOTU.
	CPI → SOTU	Nonlinear	A shock in the CPI leads to a fluctuating growth and decline of SOTU quasi-statements over time.
	Confidence → SOTU	Nonlinear	A shock in consumer confidence leads to a sharp initial decline, and then a flattening out at the average for SOTU quasi-statements.

	Unemployment → SOTU	Negative	A shock in unemployment rate leads to a generally downward trend of SOTU quasi-statements.
	Media → EO	Nonlinear	A shock in media coverage leads first to a steady growth in EOs, but this then declines at about the halfway point, ultimately leading towards further decline.
	Unemployment → EO	Nonlinear	A shock in the unemployment rate leads to sharp growths and declines, fluctuating greatly over time.
	Congress → Unemployment	Nonlinear	A shock in Congressional attention leads to a steady decline in unemployment, but then the trend shifts upward towards the end of the period.
	EO → SOTU	Nonlinear	A shock in EOs leads to almost no change in SOTUs at all until the very end of the period, where it peaks and then declines.
	Unemployment → Confidence	Nonlinear	A shock in unemployment leads first to a decline in consumer confidence, but this grows and returns to average about halfway through the period.
3	Media ↔ SOTU	Differs	A shock to SOTU quasi-statements leads to a slow growth in media coverage (positive). A shock to media coverage leads to a small decline, then sharp increase, and then swift decline again in SOTU quasi-statements.
	EO ↔ SOTU	Nonlinear	Both relationships fluctuate greatly over time. In both cases, a shock leads to a small growth in response, followed by rapidly changing periods of decline/growth.
	Media ↔ CPI	Differs	Media attention and CPI have inverse relationships with one another. A shock in CPI has a positive effect on media coverage, leading to more media output. A shock in media coverage has a negative effect on CPI, leading to lower CPI scores.
	SOTU → Congress	Nonlinear	A shock in SOTU quasi-statements leads to an immediate jump in Congressional attention, followed by a swift decline, and then a fluctuating relationship.
	Congress → Media	Nonlinear	A shock to Congressional attention leads to a slight decline, then slight growth, steady decline, and then steady growth in media attention.
	Congress → EO	Positive	After a brief dip in EOs following a shock in Congressional attention, the trend maintains a steady upward growth.
	Congress → Confidence	Nonlinear	A shock in Congressional attention leads to a drop in consumer confidence for 4-5 months, followed by a brief upward trend that declines again after just 1-2 months.

	Confidence → CPI	Negative	A shock in consumer confidence leads to a drop in CPI.
	Confidence → EO	Nonlinear	A shock in consumer confidence leads to persistently fluctuating growths and declines in EOs.
	Unemployment → EO	Nonlinear	A shock in unemployment leads to a fluctuating, though primarily declining, rate in EOs.
	Unemployment → Congress	Nonlinear	A shock in unemployment leads to a slight growth in Congressional attention, followed by a swift decline, and then a moderate growth back towards the average.
	Unemployment → Media	Nonlinear	A shock in unemployment leads, at first, to a growth in media coverage, but this then becomes a steady downward trend after about 3 months.
	Media → EO	Nonlinear	A shock in media coverage has a delayed effect. Around the 4th month, there is a swift growth and then subsequent fall back to the average.

Note. CPI: Consumer Price Index. SOTU: State of the Union. EO: Executive Orders.

7. Alternative presentation of causal models (by indicator rather than agenda)

Figure A7.1

Visualization of Significant Granger Causal Relationships for Model 1 (general conditions).

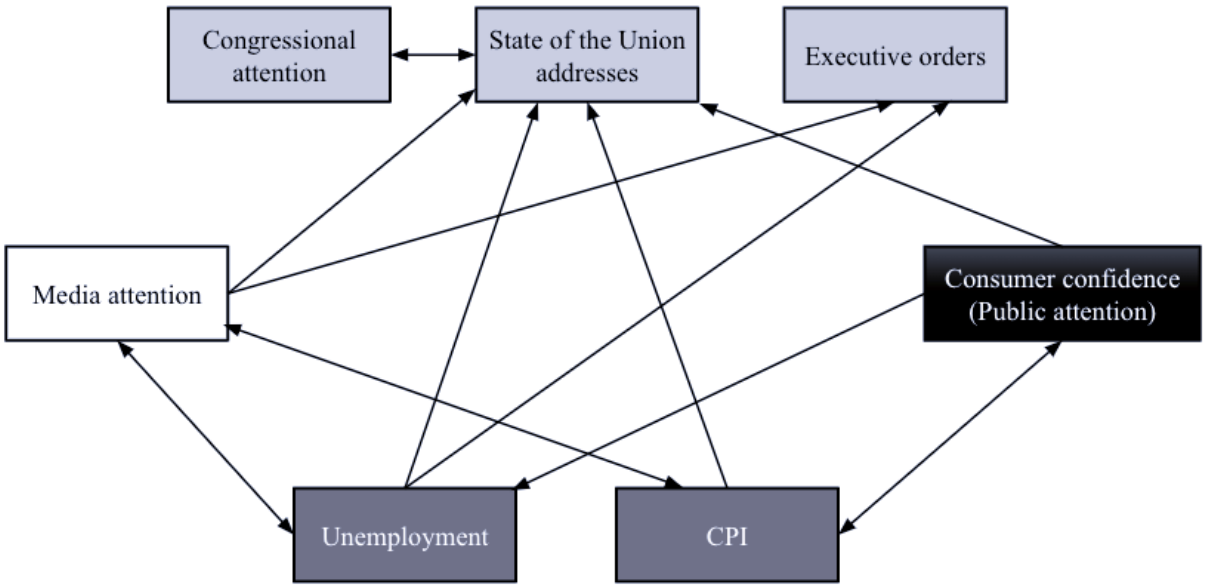


Figure A7.2

Visualization of Significant Granger Causal Relationships for Model 2 (Republican President).

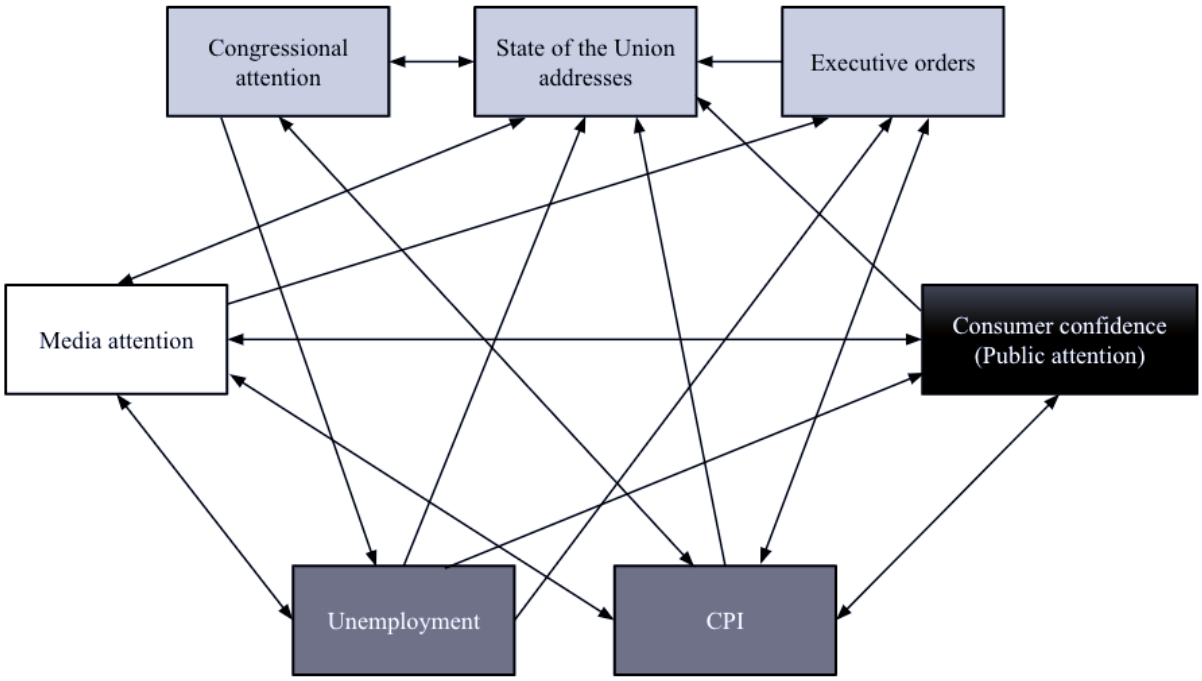


Figure A7.3

Visualization of Significant Granger Causal Relationships for Model 3 (Democratic President).