
Sentiment and Uncertainty about Regulation

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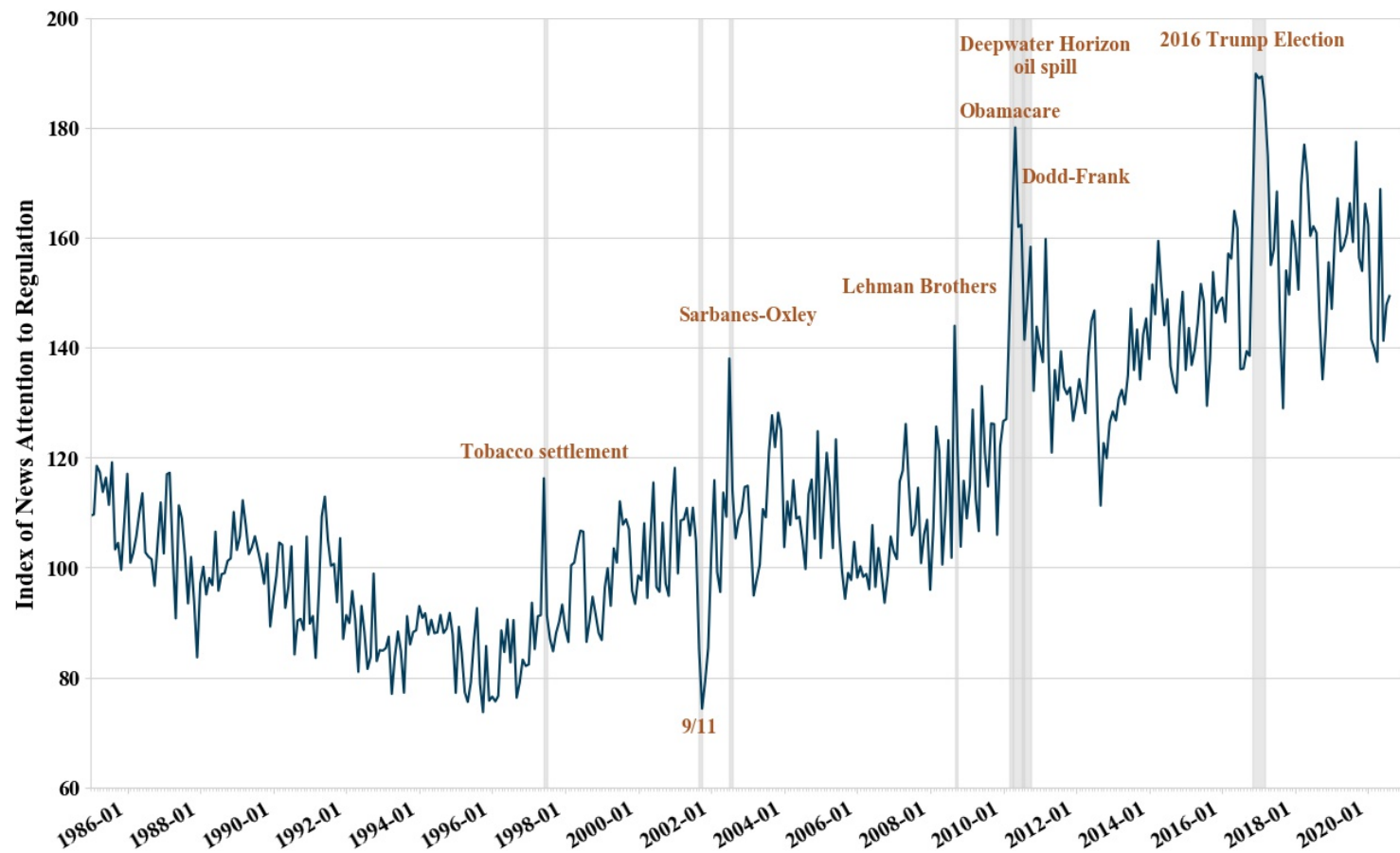
Motivation

“Stockman [U.S. Office of Management and Budget director at the time] said that a quarter of the nation's savings and loan institutions have failed because of government deregulation ...” (Boston Globe, Feb. 4, 1985)

“Owners ... saw the drive-through window as an opportunity for disabled patients and frequent customers. They invested \$100,000 last summer on an intercom system, high-resolution cameras and secure garage doors. But without a change in statewide regulations, the drive-through couldn't legally open.” (The Washington Post, Apr. 30, 2020)

“U.S. stocks surged Thursday, on track to extend their sharpest weekly rally since April, as investors cheered the prospect of curbs on new regulations and diminished chances of higher taxes under a split Congress.” (Wall Street Journal, Nov. 5, 2020)

Increasing News Attention to Regulation



Notes: The figure plots the Monthly Index of News Attention to Regulation from January 1985 to August 2020. The index is constructed by standardizing the scaled monthly counts of regulation-related news articles and normalizing the time series to a mean of 100 from 1985 to 2009. The index is calculated using data from seven U.S. newspapers including Boston Globe, Chicago Tribune, Los Angeles Times, New York Times, USA Today, Wall Street Journal, and the Washington Post.

Preview

- We construct news-based measures of sentiment and uncertainty about regulation, both in aggregate and for 15 regulatory policy areas.
- We examine the responses of macroeconomic indicators to sentiment and uncertainty shocks about regulation.

Key Findings:

- A negative shock to sentiment about regulation is associated with large, persistent drops in future output and employment, while a regulatory uncertainty shock reduces output and employment temporarily.
- The impulse response patterns remain after controlling for existing measures of general news sentiment or economic policy uncertainty.
- Economic outcomes respond differently to sentiment and uncertainty shocks about different regulatory policy areas.

Literature

- Economic sentiment
 - Survey-based measures (Carroll et al., 1994; Benhabib and Spiegel, 2019)
 - News-based measures (Shapiro et al., 2020)
- Policy uncertainty
 - Economic policy uncertainty (EPU) index (Baker et al., 2016)
- Economic effects of regulation
 - Cumulative volume or restriction of regulation (Coffey et al., 2020; Dawson and Seater, 2013)

Regulation-Related News

853,286 news articles that contain the keyword "regulat*" or "deregulat*" (Seven U.S. newspapers, Jan 1985 - Aug 2020, from ProQuest TDM Studio)

True Positive

"Mr. Shad asserted that he doesn't see enough evidence of fraud or other abuses by financial planners to justify additional federal regulation."

(Wall Street Journal, 1986-6-12)

False Positive

"Western led 35-33 at halftime, but the Warriors fought back to take a 57-49 lead on two David Boone free throws with 8:11 left in regulation."

(Chicago Tribune, 1987-1-13)

A Dictionary of Regulatory Noun Chunks

- 1 Identify noun chunks from unique titles of all rules considered by federal agencies from 1995 to 2019 (Unified Agenda data)

Test Procedures for the Analysis of Trace Metals Under the Clean Water Act



["test procedure", "~~analysis~~", "trace metal", "clean water act"]

- 2 Search noun chunks in the initial news corpus

A Regulatory Section:

"Researchers developing vaccines for horses have some advantages over their counterparts looking for a vaccine for humans. Animal drugs face lower regulatory barriers. And the horse vaccine benefited from shortcuts that couldn't be allowed in human research." (WSJ, 2003-8-29)

- 3 Conduct human checking and correction
 - ↳ 11,103 regulatory noun chunks
 - ↳ 505,811 news articles with regulatory sections

Sentiment Analysis

- Assessing sentiment

= proportion of positive words – the proportion of negative words in the regulatory section (with negation)

- Loughran and McDonald (LM) dictionary
- Harvard General Inquirer (GI) dictionary
- Lexicoder Sentiment Dictionary (LSD)

- Assessing uncertainty

= proportion of uncertainty words in the regulatory section

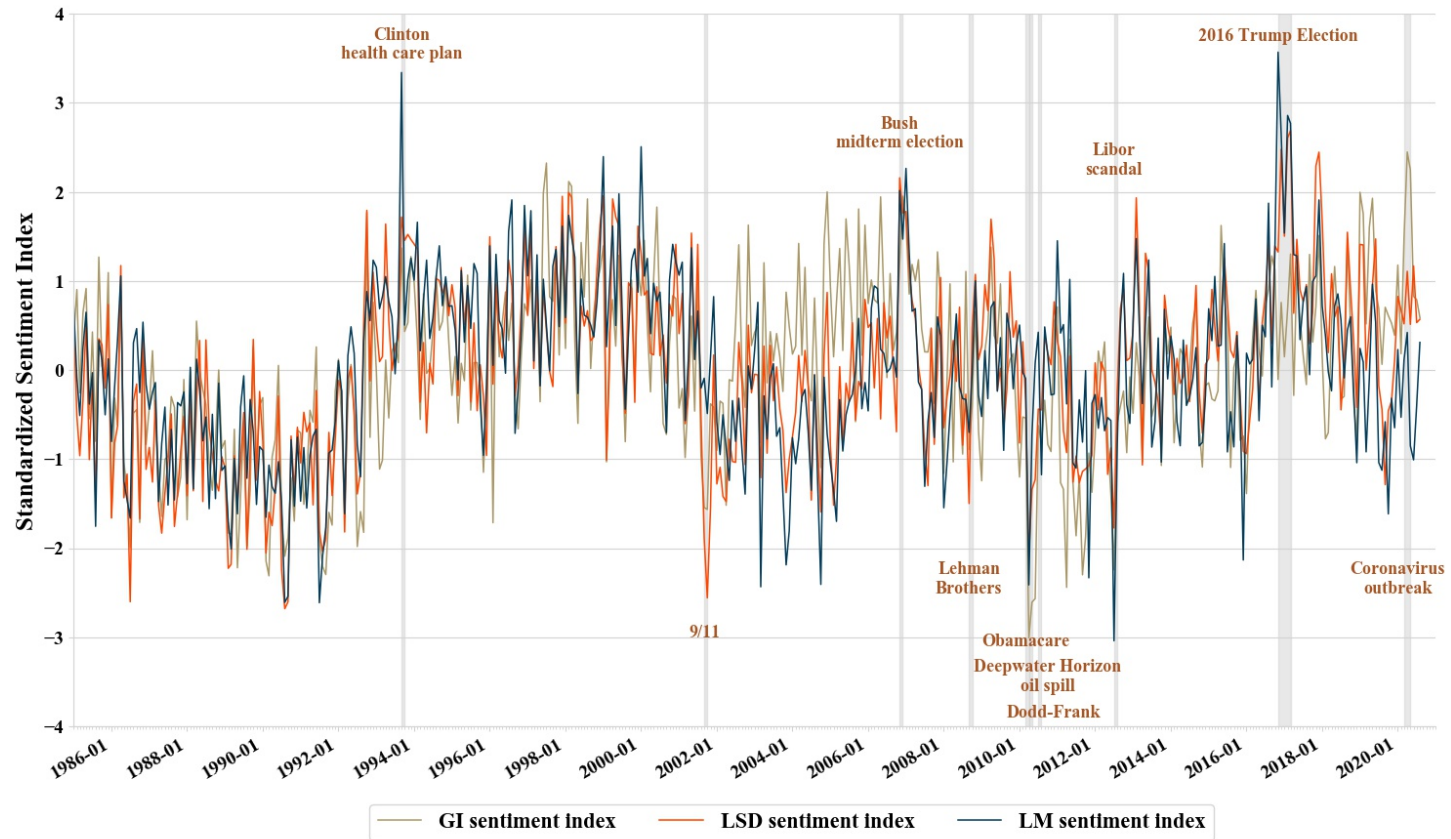
- Loughran and McDonald (LM) dictionary

- Sentiment & uncertainty indexes

$$s_j = u_{t(j)} + v_{i(j)} + \epsilon_j$$

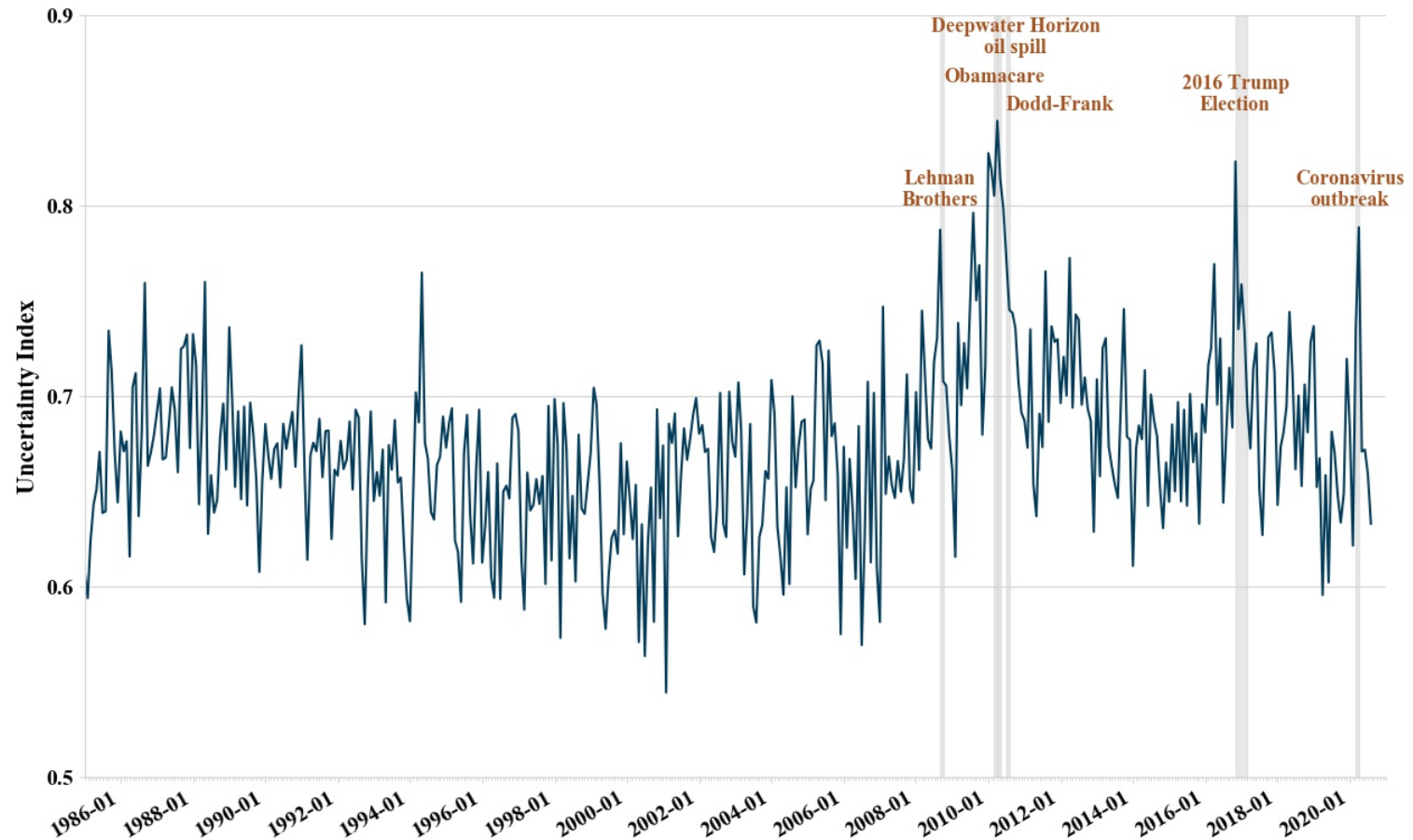
where s_j is the estimated sentiment or uncertainty score for article j , $u_{t(j)}$ is a year-month fixed effect, and $v_{i(j)}$ is a newspaper fixed effect.

Sentiment Index



Notes: The figure plots three sentiment indexes estimated using the Loughran and McDonald (LM) dictionary, the General Inquirer (GI) dictionary, and the Lexicoder Sentiment Dictionary (LSD), respectively. All indexes are normalized to have mean equal to zero and standard deviation equal to one.

Uncertainty Index



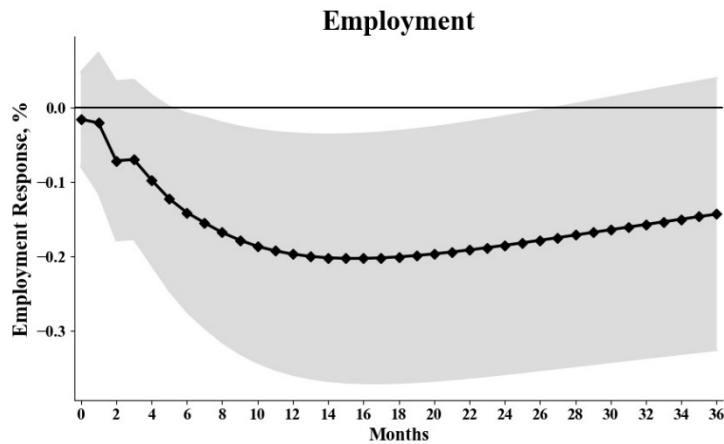
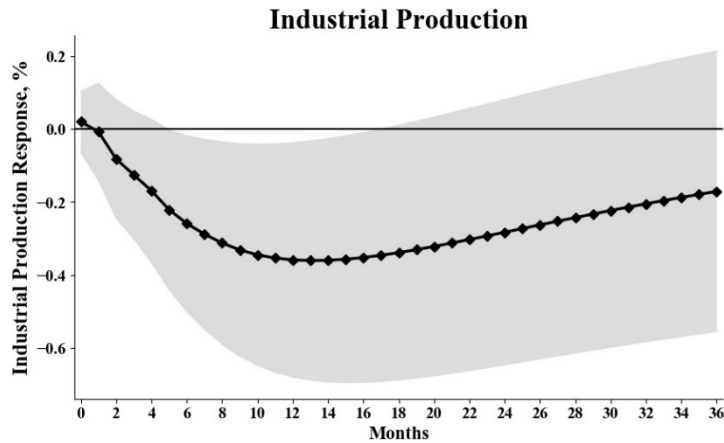
Notes: The figure plots the regulatory uncertainty index estimated using the Loughran and McDonald (LM) dictionary.

VAR

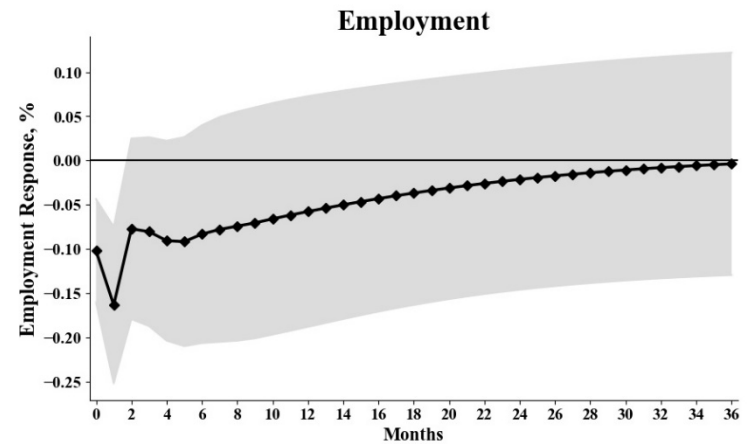
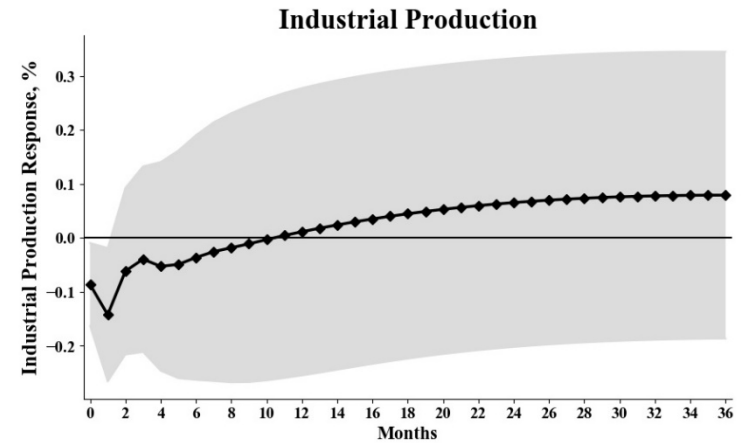
Monthly VAR of Baker et al. (2016):

- One-standard-deviation negative sentiment shocks & one-standard-deviation upward uncertainty shocks, respectively
- Orthogonalized by using the Cholesky decomposition with the following ordering of variables: our regulatory sentiment or uncertainty, index, the log of S&P500 index, the federal funds rate, log employment, and log industrial production.
- Three lags of all variables
- Robustness checks:
 - reverse ordering
 - add the S&P index
 - add VIX
 - bivariate VAR
 - bivariate VAR with reverse ordering
 - add time trends
 - add the Michigan Consumer Sentiment Index
 - add news sentiment index of Shapiro et al. (2020)
 - add the EPU index of Baker et al. (2016)

Impulse Responses to Sentiment Shocks about Regulation

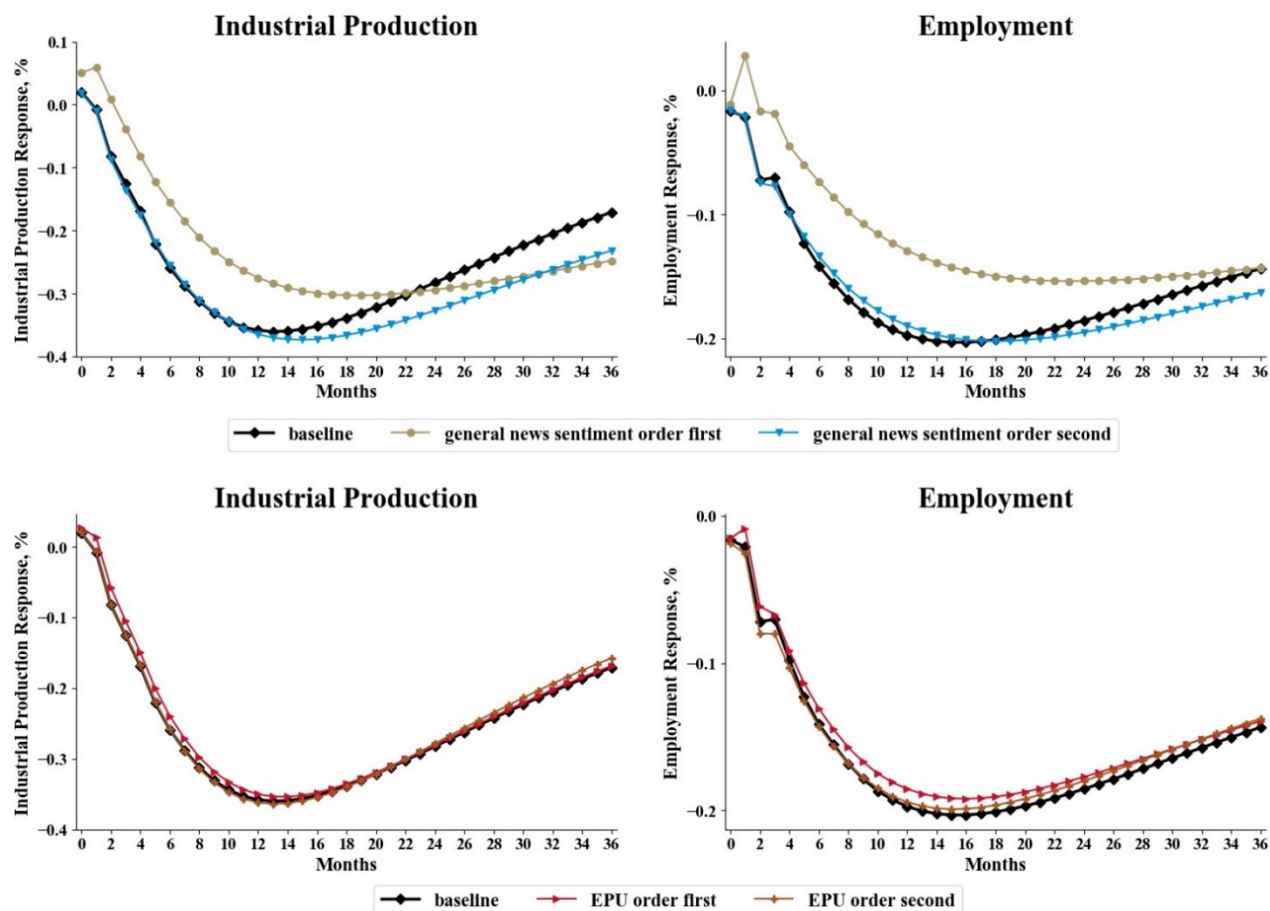


Impulse Responses to Uncertainty Shocks about Regulation



Notes: The figures plot VAR-estimated impulse response functions for industrial production and employment to a one-standard-deviation negative shock to sentiment about regulation or to a one-standard-deviation upward shock to uncertainty about regulation. The gray areas are 90% confidence bands.

Adding General News Sentiment or EPU



Notes: The figures plot VAR-estimated impulse response functions for industrial production and employment to a one-standard-deviation negative shock to sentiment about regulation, controlling for the news sentiment index of Shapiro et al. (2020) and the EPU index of Baker et al. (2016).

Categorical Indexes

A regulatory section:

“Automobile manufacturers are financing a multimillion dollar lobbying campaign aimed at persuading state legislatures to require motorists to buckle up their seat belts, a move designed to kill a federal regulation requiring the industry to equip vehicles with more expensive air bags by 1989. Last year, legislatures in New York, New Jersey and Illinois adopted mandatory seat belt laws and legislation already has been led on Beacon Hill to bring about the same end.” (Boston Globe, 1985-1-30)



Noun Chunks: ["seat belt", "federal regulation", "air bag", "seat belt"]



Rule Titles: Passenger-Side Manual Cutoff Switch for Air Bags;
Seat Belts Installed at Adjustable Seats; ...

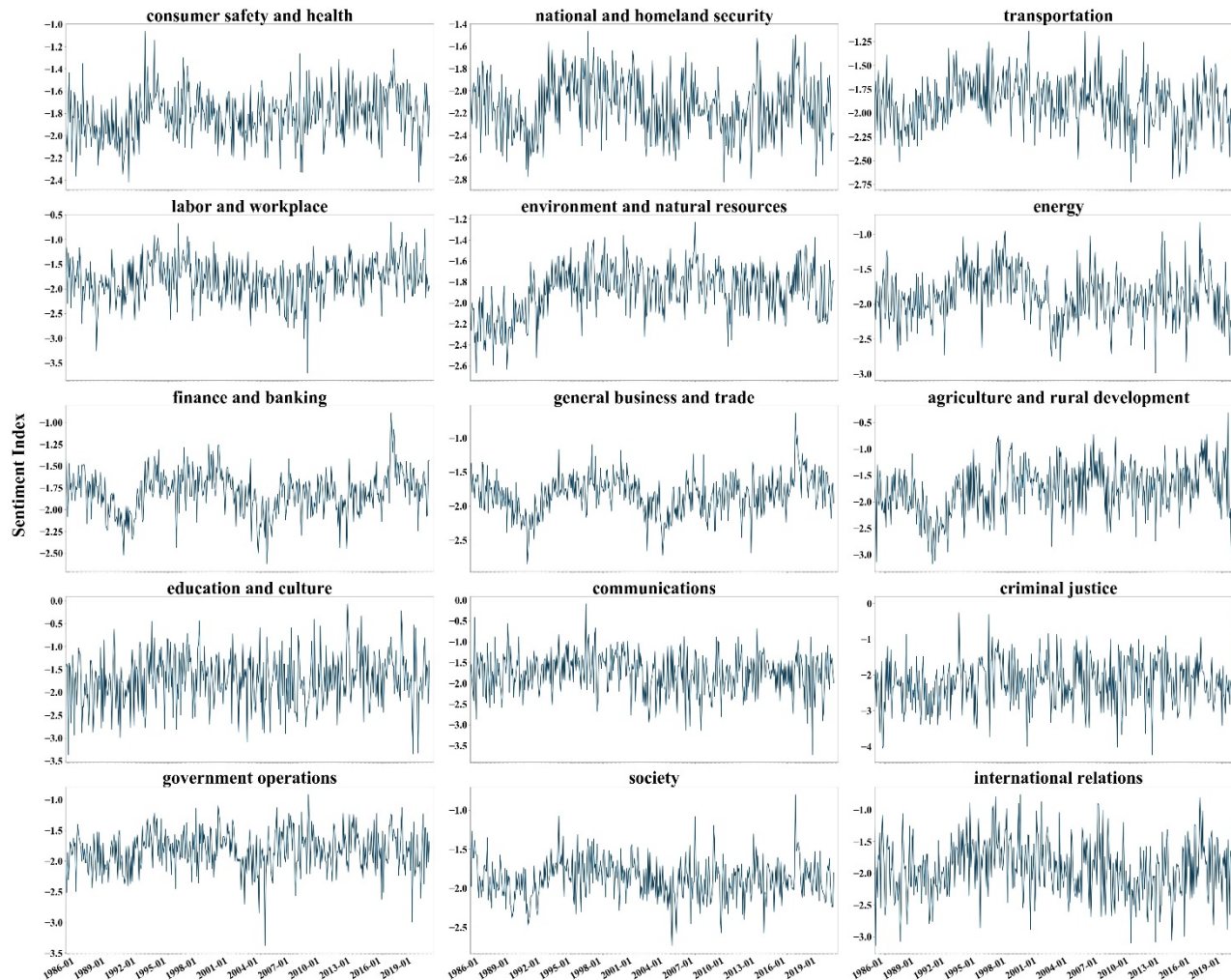


Agency: National Highway Traffic Safety Administration, DOT



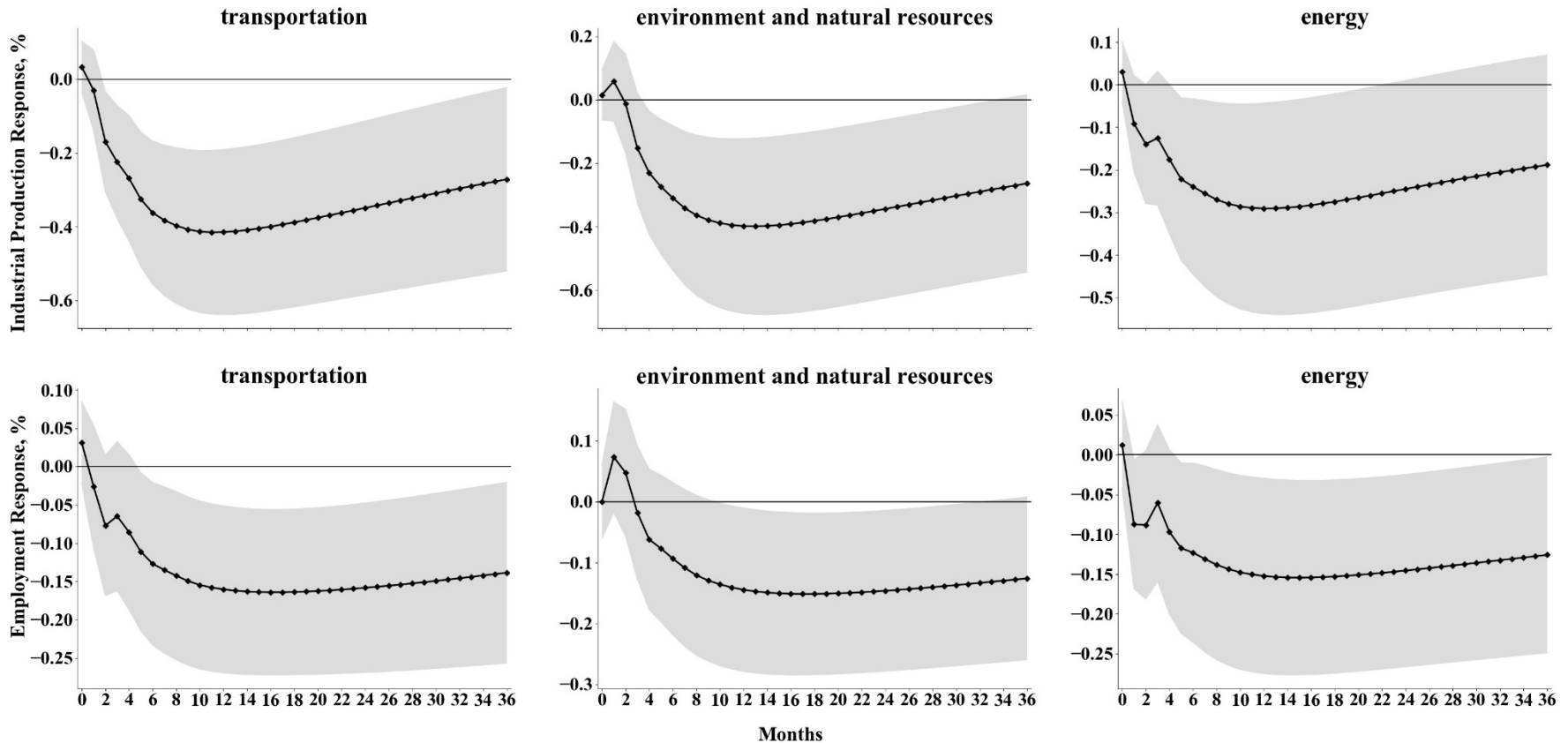
Regulatory Area: Transportation

Categorical Sentiment Indexes



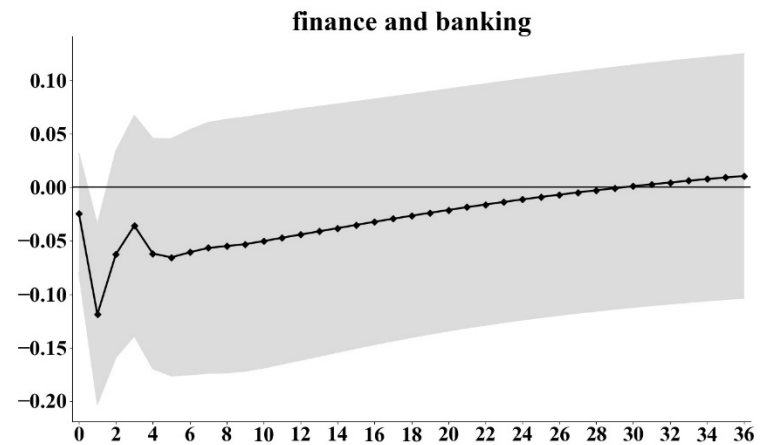
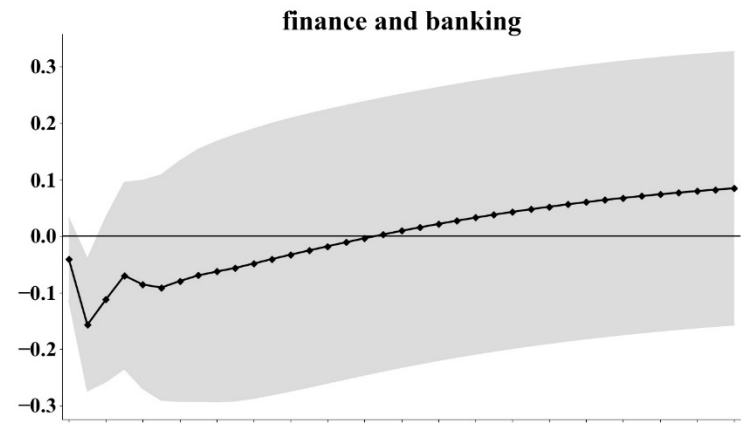
Notes: The figures plot the sentiment indexes estimated using the Loughran and McDonald (LM) dictionary for each regulatory policy area.

Impulse Responses to Sentiment Shocks



Notes: The figures plot VAR-estimated impulse responses of industrial production and employment to a one-standard-deviation negative sentiment shock for each regulatory policy area. The gray areas are 90% confidence bands.

Impulse Responses to Uncertainty Shocks



Months

Notes: The figures plot VAR-estimated impulse responses of industrial production and employment to a one-standard-deviation upward uncertainty shock for each regulatory policy area. The gray areas are 90% confidence bands.

Conclusion

- We constructed measures of sentiment and uncertainty about regulation.
- Negative news about regulation may lead to persistent drops in future output and employment, while increased regulatory uncertainty has transitory effects.
- News sentiment and uncertainty around certain regulatory policy areas appear to have particularly strong links with macroeconomic performance.

Future Work:

- Improve classification accuracy for categorical indexes
- Explore industry-level measures and analyses

Thank you!

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RegulatoryStudies.gwu.edu