Introduction

Americans’ perceptions of the economy are powerful influences on their political and economic behavior (e.g., Hetherington, 1996; Gerber and Huber, 2009; Vavreck, 2009). At the same time, prior research indicates that the impact of local economic conditions on perceptions, while real, is limited in magnitude (Reeves and Gimpel, 2012; Ansolabehere et al., 2014). That raises the question of how Americans come to see the economy as strong or weak (e.g., De Boef and Kellstedt, 2004), especially given that assessing economic performance in a country of millions involves knowing about the conditions of strangers in faraway places. Understandably, prior scholarship points to mass media as a central source of Americans’ economic perceptions (e.g., Mutz, 1994; Blood and Phillips, 1995; Soroka, 2006; Soroka et al., 2015).

Still, media influence on public perceptions is more commonly assumed than demonstrated. While there is extensive experimental evidence demonstrating the impact of media coverage on various issue attitudes (e.g., Iyengar and Kinder, 1987; Nelson et al., 1997), it is not clear that such effects operate in real-world conditions (Gaines et al., 2007; Barabas and Jerit, 2010). Some research finds that media coverage can profoundly shape public attitudes (Gilens, 1999; Kellstedt, 2003), while other research is more skeptical of media and elite rhetorical influence (e.g., Druckman and Nelson, 2003; Enns, 2014). Public inattention (Prior, 2007), selective information-seeking (Druckman et al., 2012), and today’s increasingly fragmented media market (Bennett and Iyengar, 2008) might all limit the influence of specific media outlets in shaping public perceptions.

A handful of existing studies also discuss one underexplored possibility: that public opinion influences media coverage (Stevenson et al., 1994; Haller and Norpoth, 1997; Soroka et al., 2015). Haller and Norpoth (1997), for instance, find that economic evaluations are similar for respondents with and without significant news exposure, suggesting that other factors shape economic perceptions. In addition, given media outlets’ need to attract and
maintain an audience, it is plausible that their coverage will follow public opinion, telling viewers and readers what they already believe to expand and maintain market share (George and Waldofgel, 2006; Gentzkow and Shapiro, 2010). In this approach, media coverage still varies in tone, but public opinion chiefly shapes media coverage rather than the reverse.

Here, we assess these two explanations of the relationship between economic coverage and economic perceptions. Building on prior research on the agenda-setting role of print journalism (e.g., Robert and McCombs, 1994), we first examine newspaper stories mentioning the economy in the New York Times between 1980 and 2015 and the Washington Post between 1978 and 2015. This amounts to 84,071 stories in the Post and 124,285 stories in the Times. From these stories, the paper develops a simple, dictionary-based metric of economic coverage that proves valid and reliable. In fact, an independent assessment by Barberá et al. (2016) finds that this metric is more highly correlated with key economic indicators than the dictionary-based metrics of Thelwall et al. (2010) and Soroka et al. (2015). We also apply the same metric to 269,910 transcripts/articles from 2 national television networks (ABC and CBS), 19 state-level newspapers, and USA Today. To measure public economic perceptions, we use the Surveys of Consumer Attitudes and Behavior (SCA), a monthly survey which provides 245,947 respondents between 1978 and 2015.1

The results indicate that coverage of the economy in national newspapers is not a strong influence on subsequent public perceptions of economic performance. Instead, Granger tests show that public economic evaluations typically lead media coverage. We also contribute to the existing literature by testing our hypothesis at the state level using local media outlets. These results are less definitive, but suggest that state-level newspapers may be quicker to respond to changes in economic conditions than national media outlets.

Together, these analyses provide evidence about what is not influencing economic perceptions, but do not offer convincing evidence about what does shape perceptions. Americans’ economic perceptions do vary systematically with economic conditions. We see, too, that these perceptions shift prior to national newspaper coverage. One explanation is that Americans are able to extract economic information from media coverage regardless of its tone; a second is that other sources of information—including media outlets with narrower, more targeted audiences, as well as actual economic conditions or social networks—prove influential.

Data and Methods
To explore the connection between media coverage and public perceptions of the national economy, we combine two data sources. Prior research indicates that television coverage commonly follows coverage in the major national newspapers (e.g., Robert and McCombs, 1994; Blood and Phillips, 1995), making those newspapers “most likely” cases for influence. Accordingly, we first measure the tone of coverage in two national newspapers, the Times and Post, as research has repeatedly found that these outlets are often agenda setters (McCombs and Shaw, 1972; McCombs, 2005). Additionally, these two have among the longest Lexis-Nexis archives.

One limitation in past research has come from the difficulty of hand-coding documents on a large scale. The prodigious coding efforts of DeBoef and Kellstedt (2004) and Soroka (2006) categorize under 5000 articles. A small but growing number of recent studies utilize automated content analyses that substantially reduce the costs of analyzing large text data sets. Soroka et al. (2015) were able to analyze about 30,000 economic news stories in the US, and Kayser and Peress (2015) collected over 2 million articles in 16 different countries (see also Young and Soroka, 2012). Here, we also use automated content analysis to include any article in the Times or Post that used a series of words related to economic performance.2 The advantage of using coverage from throughout the newspaper is that Americans’ economic information is not limited to what they read in explicitly political articles: business sections might provide a wealth of economic information.

We extracted the 111,805 relevant Times articles and 48,052 relevant Post articles from any section in either newspaper.2 The analysis then reduced each word to its common stem and calculated the share of articles using each word stem for each month. Experimentation showed a simple additive index of 21 economic words.3 This procedure produces measures of economic coverage that prove both valid and reliable (for a similar metric, see Kayser and Peress, 2015).3 In particular, Barberá et al. (2016) report that a very similar metric is more strongly correlated with aggregate economic conditions than other dictionary-based metrics—and that our measure’s performance rivals that of more sophisticated statistical models. The resulting Times index varies from 0.108 to 2.332 while the Post index runs from 0.306 to 3.284 (see Appendix A, Table 4). Higher values indicate a more negative tone.

As most economic indicators are heavily trended, a measure which indicates very positive coverage in one month and very negative coverage in the next month is likely to be inaccurate. The Post-based measure correlates with itself in the prior month at 0.769 and the Times-based measure does so at 0.829. As with the economy itself, economic coverage as measured through word usage appears consistent from month to month. These measures correlate with other conventional measures of economic performance as well, ranging from the national unemployment
rate (0.43 for the *Times* and 0.47 for the *Post*) to GDP growth (−0.54 and −0.47), consumer sentiment about the economy (−0.53 and −0.48), and stock market performance (−0.17 and −0.11). These measures of negative economic coverage act as we would expect, taking their highest values in the early 1980s, the early 1990s, the period just after 11 September 2001, and the run-up to the 2008 Great Recession. Their lowest values come at times of strong economic performance, such as the late 1990s and mid-2000s.

To measure economic perceptions, we turn to the SCA. The survey has asked the same battery of questions about personal and sociotropic economic conditions every month since January 1978. We combine four questions about economic conditions into an index such that higher values indicate negative economic assessments, with question wording and summary statistics located in Appendix B. The index of consumer sentiment ranges from a minimum of 5 (no concern about the economy in any of the questions) to a maximum of 25 (high concern about the economy in all questions). We average the responses by month, yielding a time-series with 432 separate months. The average month has 569.3 survey respondents.6

Those wishing to see how public opinion varies when presented with different issue frames can and do make use of survey experiments. Researchers wishing to analyze the possibility of a reverse relationship—an impact of public attitudes on media coverage—have a more challenging task, as there is no clear, randomization-based design to use. This paper thus draws on relative timing (Granger, 1988) to establish ceilings for the likely influence of newspapers’ frames on public perceptions and vice versa. To the extent that a causal relationship exists between two factors that vary over time, changes in the causal variable should correspond to subsequent changes in the affected variable. If the tests illustrate that one variable systematically precedes another, the causal relationship is plausible but not proven: that same temporal pattern could result from an omitted causal agent affecting both measures. As a consequence, we test one precondition of a causal relationship rather than testing the causal relationship itself.

**Results: Leading or Lagging?**

Figure 1 presents two key measures—*media economic concern* and *public economic concern*—with panels corresponding to the *Times* and *Post*, respectively. The overall trends are very similar. There appears to be something approaching a national consensus about the state of the economy, one that pervades both national reporting and public opinion. Still, in identifying how plausible causal claims about media coverage and public perceptions are, the ordering of the time-series—whether the peaks and nadirs of public opinion follow those in media coverage—is critical. Looking at Figure 1, we do not see obvious cases where changes in media coverage preceded shifts in public perception. On the contrary, media coverage lags changes in public attitudes at key moments, such as in the early 1980s and 2005 to 2006. To test these relationships formally, Table 1 presents Granger tests.7

Its top panel displays the results for tests of the possibility that the temporal pattern from *media economic concern* to *public economic concern* is the result of chance alone. The *Times* shows occasionally significant effects when we use lags of two and three months, but no such findings with a one-month lag, a pattern which is at odds with claims of media influence given prior research indicating that media effects typically decay quickly (e.g., Hill et al., 2013). The fact that the *Post* shows no significant pattern for one, two, or three-month lags reinforces the claim that economic coverage in major, national newspapers does not systematically lead public economic perceptions. The causal ordering implied by many media effects studies—that shifts in elite frames should precede public opinion shifts—is not sustained with respect to economic attitudes.

But is there evidence of the reverse relationship? The bottom panel of Table 1 presents the results of Granger tests considering the alternative possibility that public opinion leads media coverage. This time, every one of the six tests is significant (p < .01), providing robust evidence that Americans’ views of the economy shift before the relevant newspaper coverage does. A separate OLS model indicates that as public economic concern rises by 1.00—nearly a standard deviation—we should expect *Times* coverage to become 0.03 more negative, or 8% of its standard deviation (see Appendix C, Table 8). As Appendix C, Table 7 shows, this pattern also holds when breaking out respondents by their education or income levels, without consistent evidence that any group is more responsive to media coverage or more likely to anticipate media coverage (see also Haller and Norpoth, 1997).8

As Table 2 shows, we find the same pattern when replicating these analyses using television transcripts from ABC and CBS News. In both cases, the Granger test is significant when public perceptions lead media coverage by one month, but not when they lag.9 To address the possibility that the *Times* and *Post* might be influenced by their particular media markets, we also considered *USA Today* using a corpus from 1989 to 2016 and found similar results. To be sure, this evidence is not sufficient to claim that public attitudes cause media coverage, but it is consistent with that claim. It is also consistent with the possibility that public opinion and media coverage are both responding to another factor—perhaps real-world economic conditions.

Additionally, we tested the same hypothesis at the state level using 241,270 articles from 19 different local newspapers from 17 large US states.10 In those tests, we restrict our sample of survey respondents to those living in a specific state, meaning that our measurement of public opinion is substantially noisier. Even so, Granger tests indicate a statistically significant relationship in which public sentiment follows media coverage in 16 of 19 examples, while media coverage lags behind public opinion in 12 of 19 examples, as Table 2 below details. (See Appendix A, Tables 2 and 4.)
In sum, the results at the state level are less conclusive, and suggest that perhaps state-level newspapers play more of a role in shaping public economic perceptions. Given that newspaper organizations are strategic actors which respond to both professional norms and economic incentives (Hamilton, 2004; George and Waldfogel, 2006), it is plausible that locally targeted newspapers may have more incentive to emphasize local economic changes.

**Conclusion**

Public perceptions about the economy do not appear to originate with the tone of national newspaper coverage.
Perhaps the public is able to extract information about economic performance irrespective of the tone of the corresponding media coverage. The economy might be an exception to the general pattern of low levels of political information, as it has a substantial impact on various aspects of Americans’ day-to-day lives. Indeed, MacKuen et al. (1992) find that collectively, Americans cast votes based on their economic expectations, a fact which demands considerable economic knowledge on the part of at least some individuals. On a related note, Soroka et al. (2015) find that the public’s prospective economic evaluations often precede shifts in the tone of media coverage. As a result, this paper lends new weight to scholarship contending that news outlets have a more limited capacity to shape public perceptions than is often appreciated. While a comprehensive account of public
perceptions of the economy would necessarily include an assessment of responses to real-world economic conditions (e.g., Hopkins, 2011), our goal here is simply to assess the sequencing of public perceptions and media accounts.11

There are methodological limitations worth acknowledging. We have studied only a subset of media outlets, with no attention to cable television, radio, social media, newspapers with smaller circulations, or other would-be sources of economic information. Estimated media coverage sentiment varies with the corpus and keywords employed (Barberá et al., 2016), so our measurement strategy may be application-specific. But even with these caveats, it is worth highlighting that our measure of public economic concern associates strongly with real-world economic statistics. In light of a somewhat surprising finding that economic coverage by major national newspapers has little effect on public perceptions, linking specific respondents to the media sources they use and analyzing a wider range of media sources are important next steps in advancing our understanding of the role of media coverage in shaping economic perceptions. In addition, as national newspapers tend to shape elite opinion more directly than mass-level opinion (see Herbst, 1998), future research might further untangle the complex interplay between media organizations, political elites, and public economic perceptions. With respect to methodology, these results underscore the value of straightforward dictionary-based automated content analysis in specific applications.

Acknowledgements

The authors thank Tiger Brown, Owen O’Hare, Saleel Huprikar, Thomas Munson, Gabrielle Rothschild, Anton Strezhnev, and Elena Zhao for excellent research assistance. Yph Lelkes and Diana Mutz kindly provided feedback.

Declaration of Conflicting Interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Supplementary materials


Notes

1. The length of this time-series helps ensure that the findings are not driven by a specific presidency, business cycle, or other events.
2. The Lexis-Nexis search string was: “economy AND (boom OR hire OR surplus OR employment OR profits OR debt OR deficit OR downturn OR jobless OR recession OR slump OR unemployment).”
3. While Soroka et al. (2015) also analyze these two newspapers, our searches were more permissive and so return a markedly larger number of articles. Nonetheless, the monthly correlation in the number of articles between their data and ours is 0.68 (for the Times) and 0.46 (for the Post).
4. These include 15 negative word stems (“bad,” “bear,” “debt,” “drop,” “fall,” “fear,” “jobless,” “layoff,” “loss,” “plunge,” “problem,” “recess,” “slow,” “slump,” and “unemployment”) and 6 positive word stems (“bull,” “grow,” “growth,” “inflation,” “invest,” and “profit”). See Appendix A, Table 3. We intended this index to place more weight on negative words to reflect the media’s well-established tendency to over-report negative economic news (Blood and Phillips, 1995; Broome, 2006) as well as citizens’ tendency to be more sensitive to negative information (Rozin and Royzman, 2001). We constructed the media economic concern index by summing the frequencies of negative and positive words and then subtracting them.
5. We pursued other approaches, including the development of a predictive model using 600 hand-coded articles and the use of factor analysis to identify positive or negative economic coverage. It is important to note, however, that measures which are highly accurate at the level of the individual article may nonetheless perform poorly in assessing our quantity of interest, the aggregate tone of economic coverage (see also Hopkins and King, 2010). The measure detailed here has the twin virtues of validity and simplicity. Factor analyses generate similar results, as reported in Appendix A, Table 1.
6. Hopkins (2011) demonstrates that the time-series are generally quite similar across income and educational groups, a finding reinforced by the figures in Appendix D. Accordingly, we do not use survey weights in constructing these measures.
7. We have also run Granger tests using the first dimension from factor analyses. See Appendix C, Tables 6 and 7.
8. Additionally, we find that the pattern is consistent when splitting the data before and after 1996, suggesting that these results are not driven by the fragmentation of the media market in recent decades.
9. ABC News transcripts are available for 248 months; CBS News transcripts are available for 227 months.
10. We employed large states to have sufficient sample sizes from the Surveys of Consumer Attitudes and Behavior, and then utilized the largest state-level newspapers archived in Lexis-Nexis.
11. Tables 9 and 10 in Appendix C provide a preliminary assessment along these lines, showing that both public economic perceptions and media coverage appear to lead the unemployment rate. What’s more, separate assessments indicate that on average, coverage in the national outlets studied here tends to lead the tone of state-level coverage. Given the variability in state-level economic conditions, and given the role of the Times and Post as outlets that endeavor to cover national as well as regional and local affairs, such a finding makes sense.

Carnegie Corporation of New York Grant

This publication was made possible (in part) by a grant from Carnegie Corporation of New York. The statements made and views expressed are solely the responsibility of the authors.
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