Public Choice (2014) 160:65–108
DOI 10.1007/s11127-014-0171-5

Is newspaper coverage of economic events politically biased?

John R. Lott Jr. · Kevin A. Hassett

Received: 1 September 2012 / Accepted: 27 February 2014 / Published online: 20 March 2014

Abstract This paper develops an econometric technique to test for political bias in news reports that controls for the underlying character of the news reported. Because of the changing availability of the number of newspapers in Nexis/Lexis, two sets of time are examined: from January 1991 to May 2004 and from January 1985 to May 2004. Our results suggest that American newspapers tend to give more positive coverage to the same economic news when Democrats are in the White House than when Republicans are; a similar though smaller effect is found for Democratic control of Congress. Our results reject the claim that "reader diversity is a powerful force toward accuracy." When all types of news are pooled into a single analysis, our results are significant. However, the results vary greatly depending upon which types of economic data are being reported. When newspapers are examined individually the only support that Republicans appear to obtain is from the president's home state newspapers during his term. This is true for the *Houston Chronicle* under both Bushes and the *Los Angeles Times* during the Reagan administration. Contrary to rational expectations, media coverage affects people's perceptions of the economy.

Keywords Media bias · Voting · Campaigns

1 Introduction

Does media bias really exit? Goldberg (2001) and Coulter (2002) have written popular books about a liberal media bias. Alterman (2004) claims the opposite—that there is a

J. R. Lott Jr. (✉)
Crime Prevention Research Center, Swarthmore, PA, USA
e-mail: johnrlott@aol.com; johnrlott@crimeresearch.org

K. A. Hassett
American Enterprise Institute, 1150 17th Street NW, Washington, DC 20036, USA
e-mail: khassett@aei.org

conservative bias.[1] It seems only natural that journalists' own political leanings will color their perspectives, at least as far as choosing what issues to cover. Nevertheless, some argue that reporters' professionalism may allow them to divorce their personal views from their reports.

Critics on the left and right apparently agree that the bias matters: that it affects many people's perceptions about events, what politician gets the credit or the blame, and thus the outcomes of elections.[2] Some evidence also indicates that more newspaper articles mentioning 'recession' or 'layoffs' reduces consumer confidence, though the effect is short-lived (Doms and Morin 2004).

Even reporters themselves express concern that the media gives the public false impressions. For example, during 2004, 55 % of journalists at national media outlets told pollsters that the media were "not critical enough" of President Bush; only 8 % believed they were "too critical" (Pew 2004a). A similar poll during 1995 found that 48 % of the press believed that "too little" coverage had been given to President Clinton's accomplishments, and 2 % that "too much" coverage went to his achievements.[3,4] Possibly, journalists' feelings accurately reflect the coverage accorded these two presidents.

But it is hard to ignore the reality that journalists have their own strong political views. The Pew Research Center has survey data from 1995, 2004, and 2008, which show that the media may have become relatively more liberal over time. While the percentage of respondents identifying themselves as conservative rose from 4 to 8 %, the percentage identifying themselves as liberals rose much more quickly, from 22 to 32 % (Kohut 2008; Pew 2004b). Television network employees also give overwhelmingly to Democratic candidates. In 2012, 100 % of CBS's employee donations went to Democrats, 91 % of NBC's, 95 % of TimeWarner's employees, and even 96 % of those employed by News Corp (Fox News's parent company) (Shapiro 2012).[5] However, if professionalism governs the behavior of journalists, these beliefs and donations should have no impact on coverage itself.

Those who read and listen to the media certainly believe that there is bias. Hamilton (2004, p. 73) examined the political bias of news outlets and found, "Of those survey respondents who identified themselves as 'very liberal,' only 25.3 % perceive a 'great deal' of political bias in news coverage. In contrast, among those who say they are 'very conservative,' 44.5 % report there is a great deal of bias."[6] During the 2008 election, 50 % of unaffiliated voters see a pro-Obama bias and just 12 % believe that reporters were trying to help McCain (Rasmussen 2008). Even Democrats, by a 27–21 % majority, think that reporters wanted Obama to win his race against McCain.

[1] For a more systematic examination of positive and negative news coverage from late March through early June 2004 regarding that year's Presidential campaign, see: Project for Excellence in Journalism (2004).

[2] Two papers directly test for how the ownership of television and radio stations across countries varies with the returns to controlling information (Lott 1990, 1999). Another recent paper discusses how media coverage affects asset prices (Dyck and Zingales 2003). A final paper by Leeson (2008) shows that press freedom is associated with more informed citizens.

[3] Times Mirror Survey from Media Research Center's June 1995 edition of MediaWatch (Media Research Center 1995). See also Media Research Center (2004).

[4] Other surveys of reporters "deny the existence of this bias, claiming that their decisions are premised solely on professional norms" (Patterson and Donsbach 1996, p. 466).

[5] See also Opensecrets.org. http://www.worldnetdaily.com/news/article.asp?ARTICLE_ID=40862.

[6] Patterson and Donsbach's (1996, p. 466) survey of journalists lead them to conclude that "there is… a perceptual gap between journalists' self-image and their actions, and it leads them to reject any suggestion that they are politically biased."

More recently, there is the question of whether the media coverage of the economy is causing people to view the economy more negatively than is justified. For example, an Associated Press/Ipsos-Public Affairs survey during June 7–9, 2004 found that 57 % of respondents thought that more jobs had been lost than gained over the preceding 6 months (Associated Press 2004). Only 36 % thought that the reverse was true, despite the fact that the Current Employment Survey shows more than one million jobs were created over that time period.

In this paper we systematically examine how newspapers cover the economy to test whether Republican and Democratic administrations (or when those parties control Congress) are covered differently. There are two separate questions: whether reporting is objective and what topics are reported on. To create a proxy for bias, we use the announcement of economic conditions such as the unemployment rate to objectively measure what the underlying economic news is and compare it to an objective measure of how newspapers cover that news. The extent of news coverage when the economic news is positive or negative also is examined.

Newspaper coverage of the economy is one area where journalists believe that they do a particularly good job. Two-thirds of journalists believe that "major daily newspapers" do an "excellent" or "good" job covering economic policy issues, at least 20 percentage points higher than their confidence in public broadcasting and weekly newsmagazines and 11 times higher than the 6 % rating given broadcast network TV news (Croteau 1998).[7]

Nonetheless, our examination of economic indices reveals a systematic bias in favor of Democrats. This holds true for the 389 newspapers contained in the Nexis/Lexis database as well as the top ten papers when we examine reporting from January 1991 to May 2004. We also found this for four newspapers and the Associated Press, which we were able to examine from January 1985 to May 2004.

2 Existing research

A large and growing economics literature has attempted to explain when and where media coverage will be biased. Theoretical papers include: Baron (2006), Hamilton (2004), Leeson and Coyne (2005), and Mullainathan and Shleifer (2005). Empirical studies include: Ansolabehere et al. (2006), Birz and Lott (2011), Chiang and Knight (2011), DellaVigna and Kaplan (2007), Doms and Morin (2004), Gentzkow and Shapiro (2010), Gerber et al. (2009), Groeling and Kernell (1998), Groseclose and Milyo (2005), Hamilton (2004), Larcinese et al. (2011), Leeson (2008), Lott (1990, 1999, 2003), and Smith (1988). A number of empirical studies focus on newspapers, including Bovitz et al. (2002), Ansolabehere et al. (2006), Puglisi (2011), Gentzkow and Shapiro (2010), Gentzkow et al. (2012), Groseclose and Milyo (2005), and Larcinese et al. (2011). The literature on why the media would be willing to engage in such biased behavior dates back to Demsetz and Lehn (1985).

Others have reviewed the general topic of how people learn from media coverage and shown that providing people with additional information will change their views (Lott 1990, 1999; Gerber et al. 2009; Leeson 2008; DellaVigna and Kaplan 2007; Chan and Stone 2013).[8]

[7] See http://www.fair.org/reports/journalist-survey.html#state.

[8] Krupnikov et al. (2006) show that Democrats become more supportive of eliminating the estate tax as they get more information about the issue.

One influential paper by Groseclose and Milyo (2005) develops an index of how conservative or liberal media coverage is. Their index counts the times that a media outlet cites various think tanks and then compares that number with the times that members of Congress cite the same think tanks in their speeches on the floors of the House and Senate.[9] By comparing the citation patterns between politicians and media, they construct an Americans for Democratic Action score for each media outlet, and thus place it on the same scale that politicians are ranked from liberal to conservative. They found that "*Most* of the mainstream media outlets that we examined … were closer to the average Democrat in Congress than they were to the median member of the House."

There may indeed be bias, but since an academic or a business, government, or union official may also be interviewed for an article, examining think tanks only could give a mistaken picture of any bias. Most reporters interview people on both sides of a story, and any bias is likely to be much more subtle. For example, Lott (2003: chapter 2) shows that *New York Times* stories on gun regulations consistently interview academics who favor gun control, but uses gun dealers or the National Rifle Association to provide the other side, giving more credibility to those who support regulations since gun control positions benefit from the patina of academic support.[10] In this case, the Groseclose and Milyo bias measure makes the *New York Times* look more conservative than it actually is. Recent work by Lott (2007) looks at the sample for *USA Today* and ABC News and finds that this was a significant problem for Groseclose and Milyo. While over 95 % of the stories analyzed from Groseclose and Milyo's sample had sources from both sides of an issue, their choice of 200 think tanks made it look unbalanced because only 15 % of the stories included comments on both sides of an issue.

Hamilton (2004) uses the ideology of viewers/readers to measure the ideological ratings of the media (see also Gentzkow and Shapiro 2010). The assumption that liberals will be attracted to liberal shows and conservatives to conservative ones surely is reasonable. While this ranking can tell us the relative ideological ranking of shows, it is not clear that partisans watch a particular network for purely political reasons. His data that conservatives are much more likely to perceive bias than liberals are also useful, but these data are not combined in a way (e.g., by matching the perceived bias with the "tilt" of the network) that allows one to determine whether the perceptions are correct.

Groeling and Kernell (1998) test whether network television dwells on "bad" news and find weak evidence that networks from 1990 to 1995 are both more likely to take and report presidential approval polls when approvals rates are declining, though no attempt is made to distinguish coverage of Republican and Democratic administrations.[11]

There been an attempt to distinguish whether coverage differs under Republican and Democratic administrations (Puglisi 2011). Examining the *New York Times* from 1946 to 1994, Puglisi tests whether the *Times* was more likely to carry articles that dealt with policy issues on which Democrats were considered stronger when Democrats controlled the presidency and during election years. The difference he finds between Democratic and

[9] Gentzkow and Shapiro (2010) address Groseclose and Mylo's reliance on 200 think tanks by looking to see if there is a general bias in phrases used in news stories (e.g., the rates at which "death tax" or "estate tax" is used) to rank newspapers by whether they are liberal or conservative. However, this still (does) may not solve the problem of identifying which newspapers are politically biased since the underlying news story is still unknown.

[10] In addition, during both the end of the Clinton administration and the beginning of the Bush administration only Clinton era government officials were interviewed for prospective on government regulations.

[11] Groeling and Kernell control for an even year dummy for elections in 1990, 1992, and 1994, but do not distinguish the particular emphasis on presidential approval ratings during a presidential election year.

Republican presidencies is consistent with presidents from either party emphasizing those issues where they are strongest and the media coverage reflects the issues raised by the president. Puglisi also finds that the *Times* prints more stories about Democratic topics only during elections when Republicans are incumbents and that Republican presidential candidates systematically shy away from focusing on Democratic issues during campaigns.[12] Yet, he never explains why, if the press wants to help Democrats, that bias depends on whether that party holds the presidency.

An imaginative experiment by Gerber et al. (2009) provides a randomized trial just prior to the November 2005 gubernatorial election in Virginia. The authors examine only randomly assigned households in Northern Virginia to receive a free subscription to either the liberal *Washington Post*, the conservative *Washington Times*, or a non-subscription control group.[13] The people who got the *Washington Post* were eight percentage points more likely to vote for the Democrat and those who received the *Washington Times* were four percentage points more likely to vote for the Republican.

Our paper is very close to a recent paper written after ours by Larcinese et al. (2011).[14] They also look at how newspapers cover the release of economic news, whether that coverage varies based upon whether a Democrat or Republican is president, the frequency that news stories appear, and even look at differences across individual newspapers. Both papers try to explain news coverage by looking not just at the level of economics numbers, such as the unemployment rate, but also the change in the rate. Both papers even look at whether there is a difference for newspapers based on whether they had endorsed Republicans or Democrats.

We provide a much better measure of whether newspapers are biased.[15] Among the less obvious implicit assumptions behind Larcinese et al.'s approach is that a liberally biased newspaper must be balanced by other equally conservatively biased ones. Indeed, their measure of balance is even more restrictive as it is imposed to minimize the sum of the squared errors. The regressions that they run to construct how balanced newspaper endorsements are implicitly assume that the average newspaper is unbiased. That occurs because they are running a regression line through the endorsement data. Our approach is more general than that since we allow for the possibility that all newspapers could be biased in one direction or in any particular pattern. By looking at individual newspapers we can see the direction in which most newspapers are biased, and we find evidence that

[12] We believe that Puglisi has misinterpreted his results (2004 version of his 2011 paper, p. 29) and that they are possibly even more interesting than he believes. Immediately prior to an election, the emphasis on Democratic issues is 24.3 % higher when there is a Democratic incumbent and an almost identical 26.3 % higher for a Republican incumbent. While it would be interesting to see how this pattern varies across individual administrations, the impression is that there is a consistent Democratic bias no matter which party currently controls the presidency. One possible explanation for the time variation in his results is that if there is diminishing marginal returns to transfers, those who are winning transfers at the end of a Democratic administration will fight less hard to keep getting additional transfers and those who expect to win transfers from Democrats will fight more to win if a Republican administration is currently in office (Jung et al. 1994).

[13] Another paper by DellaVigna and Gentzkow (2010)) shows that Republicans gained 0.4–0.7 percentage points in towns where the Fox News Channel was carried before the 2000 election, although the study suffers from a potential endogeniety problem in terms of the cities that had access to the Fox News Channel first.

[14] While the first version of Larcinese et al. (2011)) was written in October 2006, the first version of our paper was written in August 2004.

[15] Ansolabehere et al. (2006) use the same methodology of relying on newspaper endorsements to measure bias.

contradicts the implicit assumption about how media biases are distributed in Larcinese et al. and other research.

There are also many other differences with Larcinese et al. (2011). Since they cover only the period from 1996 to 2005, they examine only two presidential administrations, thus making it hard to determine whether their results are simply based on how the press treated two different presidents, not on a general finding involving Democrats and Republicans. Yet, not only do some of our estimates span four administrations, we also examine changes in control of Congress to obtain more information on how the press treats Republicans and Democrats. We also account for many other factors that might explain the coverage of economic news (e.g., from changing poll numbers to stock prices) and cover a wider range of outlets, including the Associated Press.

Our paper also measures media bias differently than any of these previous studies. We objectively categorize newspaper headlines as either positive, negative, neutral or mixed and then compare those headlines to the actual economic numbers that generated those news articles. The data allows us to examine statistically whether or not political bias affects news coverage, controlling for the character of the news itself. In addition, we look at the impact of partisan control of the presidency and Congress on how newspapers report the news.

3 The data

This study examines reporting biases on four different economic data series: durable goods, GDP, retail sales and unemployment. Three of these data series are released monthly, with the GDP growth numbers released every quarter. Newspaper and wire service articles in all of the 389 newspapers in the Nexis/Lexis files and the top ten newspapers were examined for the day of and the day after the news announcement. The top ten papers are: *USA Today, Wall Street Journal, New York Times, Los Angeles Times, Washington Post, New York Daily News, New York Post, Chicago Tribune, Newsday,* and *Houston Chronicle*.

We primarily examined the monthly reported durable goods sales, retail sales and unemployment reports from January 1991 (released in February 1991) to April 2004 (released in May 2004). Unfortunately, prior to 1991, Nexis includes only 31 newspapers and by the time that one gets back to the beginning of Reagan's second term, only four of the top ten newspapers and the Associated Press are still included (we use this last set of newspapers at the end of Section IV). All top ten newspapers are available back to January 1991. But only four of the top ten newspapers are available back to 1985.

Overall, there were 12,620 headlines contained in our sample from Nexis. The GDP growth data are from the first quarter of 1991 (with the first newspaper headlines in April 1991), through the first quarter of 2004 (headlines from April 2004). To be included, the headlines had to either directly or indirectly allude to economic data that were released either that day or the day before.

The headlines were then classified as positive, negative, neutral or mixed based upon whether the headlines mentioned that these economic variables were improving or getting worse according to systematic criteria based on keywords.[16] An online appendix ("Identifying and Classifying Newspaper Headlines") describes these classifications in more

[16] A similar approach on a different media issue was also used in John R. Lott, Jr., "Media Bias: Political correctness invades sports coverage," *Washington Times*, October 10, 2003, p. A21.

detail and discusses how this information was collected.[17] We cross-checked the classifications of headlines using multiple research assistants.[18]

It is often possible to find widely divergent headlines arising from the same economic data reports. For example, when newspapers on January 31, 2004 announced a 4 % growth in GDP during the fourth quarter of 2003, the front page of the *New York Times* read "Economy Remained Strong in 4th Quarter, US Reports" (Andrews 2004), while the *Chicago Tribune's* headline was "GDP Growth Disappoints" (Miller 2004). The April 3rd, 2004 headlines reporting unemployment statistics ranged from the *New York Daily News*'s "Jobs, Jobs Everywhere" (Van Riper 2004) to the *Miami Herald*'s "Unemployment Rises"(Fields 2004). For durable goods, the February 16th, 1996 headlines discussing the 1.3 % increase show everything from "Factories Break Losing Streak" (San Jose Mercury News 1996) and "Factory orders post a 1.3 % jump for December" (*Wall Street Journal*) (Duff 1996) to "Latest round of indicators show marked slowdown in recent months" (*Dallas Morning News*) (Wire Reports 1996). It is difficult to claim that headlines on either of these extremes are wrong: but different newspapers do frequently emphasize dramatically different sets of facts.

We chose headlines because they create the strongest image of the news in readers' minds, and because headlines are easier to objectively classify, though the headlines we examine may differ systematically from the stories they are associated with. While newspapers write other news stories on the economy that do not coincide with the specific releases of economic data, one benefit of limiting ourselves to these announcement dates is that we can more directly link a specific set of economic data to how the media covers that data. It is possible that these other news stories are biased in ways that are different from stories released on announcement dates, and thus announcement date coverage might not give the complete picture of any partisan biases. The values for the different economic variables were those released at the time of the news reports. For GDP, those news reports are quarterly. For unemployment, retail sales, and durable goods, those news reports are monthly.

Descriptive information from these searches is presented in Tables 1, 2, 3 and 4. For all four economic indexes, economic reports during President George W. Bush's administration received less positive coverage than economic reports under President Clinton. The dates of the presidencies are for when they are in office. While these differences are quite large for unemployment (22 percentage points), GDP (12 percentage points), and durable goods (14 percentage points), they are statistically significant only at the 10 % level for a two-tailed *t* test for two indexes (unemployment and durable goods) and at the 30 % level for one other index (GDP). For all four indexes, the nadir of positive coverage was obtained during President George H.W. Bush's presidency, though in the fourth (retail sales) he actually obtained slightly more positive news coverage than his son or President Clinton did. Only for the top ten newspapers' coverage of retail sales did one of the Bushes

[17] The Appendix is available at SSRN (http://ssrn.com/abstract=2319005).

[18] We started by assigning all research assistants to look at the same five hundred headlines, but did not find any disagreements. We then assigned two research assistants to code the same headlines when we originally did our sample back to 1991, but we didn't continue doing that for all the newspapers when we expanded the sample back to 1985 because there were again no disagreements in how headlines were being classified (the two newspapers that we didn't do this for were the Washington Post and the Chicago Tribune). This double-checking was done for all those involved in the coding and for some part of all the different indexes. Neither Hassett nor Lott classified the headlines themselves and the coders were not told why we were classifying the headlines. Our reliance on headlines versus looking at the content of was the reason we believe that there were so little disagreement on classifications.

obtain more positive news coverage than Clinton, though even then Clinton always had the lowest rate of negative news coverage. Information was available for the second Reagan administration from 1985 through 1988 for the *New York Times, Los Angeles Times, Washington Times, Chicago Tribune*, and the Associated Press Newswire. Reagan's coverage in newspaper headlines was less positive than for Clinton's for durable goods, retail sales, and GDP growth and more positive for unemployment.

Yet, the question is not just who receives the most positive coverage. After all, negative coverage could well be justified. Table 1, 2, 3 and 4 can't answer whether the differences in economic performance can explain the differences in news coverage. But it is still useful to compare the differences in mean economic reports and the range of those reports under the different administrations. Only GDP growth and unemployment rates vary statistically significantly across the three administrations. Yet, for example, while 45 % of the news coverage of unemployment rates under the Clinton administration was positive and Bush II received only 22 % positive coverage, the difference in average unemployment rates at least appear relatively small (5.2 % for Clinton and 5.5 % for Bush II) and there is a great deal of overlap (ranging from 3.9 to 7.1 % under Clinton and from 4.2 to 6.4 % under Bush II).

Obviously, it may be more than just the average level of unemployment that matters. It may make a difference whether the unemployment rate is rising or falling. Possible trends in news coverage must also be accounted for. Accordingly, we now turn to an econometric analysis of these data.

4 A more systematic examination

Tables 5 through 16 report the econometric results that investigate how the percentage of positive news stories varies with economic announcements controlling for the economic content of the announcements. Double censored Tobit estimates are reported since the endogenous variable is truncated at both zero and one.[19] The specifications for all 389 newspapers and wire services in Nexis and the top ten newspapers account for the economic news, the change in economic performance from the last announcement, as well as lagging the percentage of positive news coverage either once or twice. After accounting for these factors, the question is whether Republican and Democratic administrations get different coverage for the same underlying economic news.

The data are time series in nature, where the endogenous variable aggregates the number of positive headlines from all newspapers and divides by the total number of articles at a particular announcement date. A panel analysis with fixed time and newspaper specific effects is not possible since all control variables (e.g., whether there is a Republican or Democratic administration or the economic conditions) change at the same time

[19] For all newspapers, 23 % of the sample is at zero and 7 % is at one and the distribution between these values is uniform. For the top ten newspapers, 34 % of the sample is at zero and 19 % is at one and the distribution between these values is convex from above. While STATA's Tobit estimates don't allow us to adjust for possible serial correlation of the error term, the presence of a lagged dependent variable is intended to minimize the importance of that factor. As a check, the appendix reports regressions that make those adjustments (using Prais–Winsten regressions with Cochrane–Orcutt transformations) and they produce very similar results to those reported here.

Table 1 Durable goods: comparing simple means in news coverage and economic variables (monthly data)

	Percentage of stories that are positive	Percentage of stories in top 10 newspapers that are positive	Percentage of stories that are negative	Percentage of stories in top 10 newspapers that are negative	Mean durable goods growth	Range of values for durable goods growth
Reagan*		0.435		0.429		−7.5 to 8.8
Bush	0.390	0.393	0.475	0.437	0.139	−6.2 to 10.7
Clinton	0.537	0.488	0.303	0.320	0.548	−12.4 to 10
Bush II	0.393	0.422	0.385	0.362	0.108	−8.5 to 12.8
Bush vs. Clinton	−0.1465 (1.524, 0.130)	−0.095 (0.945, 0.350)	0.172 (1.902, 0.060)	0.1172 (1.217, 0.226)	−.409 (0.543, 0.588)	
Clinton vs. Bush II	0.143 (1.905, 0.059)	0.0672 (0.827, 0.41)	−0.0836 (1.145, 0.254)	−0.0427 (0.543, 0.59)	0.4409 (0.697, 0.487)	
Bush vs. Bush II	−0.0033 (0.030, 0.976)	−.028 (0.247, 0.806)	0.089 (0.805, 0.424)	0.074 (0.621, 0.537)	0.032 (0.032, 0.974)	

Table 2 GDP: comparing simple means in news coverage and economic variables (quarterly data)

	Percentage of stories that are positive	Percentage of stories in top 10 newspapers that are positive	Percentage of stories that are negative	Percentage of stories in top 10 newspapers that are negative	Mean GDP growth	Range of values for GDP growth
Reagan[a]		0.275		0.442		1.1 to 4.3
Bush	0.199	0.244	0.422	0.495	1.188	−2.8 to 3.8
Clinton	0.439	0.445	0.224	0.232	3.447	0.5 to 5.9
Bush II	0.316	0.319	0.320	0.342	2.508	−.4 to 7.2
Bush vs. Clinton	−0.240 (1.880, 0.068)	−0.201 (1.307, 0.199)	0.198 (1.652, 0.107)	0.263 (1.904, 0.065)	−2.259 (3.54, 0.001)	
Clinton vs. Bush II	0.123 (1.121, 0.269)	0.126 (0.964, 0.341)	−0.096 (1.043, 0.303)	−0.110 (.998, 0.324)	0.939 (1.62, 0.112)	
Bush vs. Bush II	−0.118 (0.923, 0.368)	−0.075 (0.537, 0.598)	0.102 (−0.639, 0.531)	0.153 (−.869, 0.396)	−1.320 (1.36, 0.191)	

[a] For Reagan it is the New York Times, Los Angeles Times, Washington Times, Chicago Tribune, and the Associated Press Newswire

Table 3 Retail sales: comparing simple means in news coverage and economic variables (monthly data)

	Percentage of stories that are positive	Percentage of stories in top 10 newspapers that are positive	Percentage of stories that are negative	Percentage of stories in top 10 newspapers that are negative	Mean retail sales growth	Range of values for retail sales growth
Reagan[a]		0.398		0.339		−5.8 to 4.6
Bush	0.457	0.505	0.343	0.297	0.217	−.9 to 1.3
Clinton	0.506	0.455	0.246	0.225	0.302	−1 to 1.5
Bush II	0.461	0.443	0.348	0.331	0.208	−3.7 to 7.1
Bush vs. Clinton	−0.049 (0.607, 0.545)	0.050 (0.526, 0.600)	0.097 (1.317, 0.191)	0.072 (0.918, 0.361)	−0.085 (0.696, 0.488)	
Clinton vs. Bush II	0.044 (0.656, 0.513)	−0.013 (0.137, 0.892)	−0.102 (1.628, 0.106)	−.0106 (1.342, 0.182)	0.094 (0.534, 0.594)	
Bush vs. Bush II	−0.005 (0.050, 0.961)	0.062 (0.543, 0.590)	−0.005 (0.046, 0.963)	−0.035 (0.300, 0.766)	0.009 (0.028, 0.978)	

Table 4 Unemployment: comparing simple means in news coverage and economic variables (monthly data)

	Percentage of stories that are positive	Percentage of stories in top 10 newspapers that are positive	Percentage of stories that are negative	Percentage of stories in top 10 newspapers that are negative	Mean unem-ployment rate	Range of values for unem-ployment rate
Reagan[a]		0.480		0.206		5.3 to 7.4
Bush	0.197	0.169	0.441	0.459	7.079	6.2 to 7.8
Clinton	0.452	0.456	0.230	0.214	5.197	3.9 to 7.1
Bush II	0.223	0.198	0.499	0.517	5.527	4.2 to 6.4
Bush vs. Clinton	−0.255 (3.620, 0.000)	−0.287 (4.172, 0.000)	0.211 (3.269, 0.001)	0.245 (3.928, 0.000)	1.882 (9.660, 0.000)	
Clinton vs. Bush II	0.229 (3.939, 0.000)	0.257 (4.397, 0.000)	−0.269 (4.676, 0.000)	−0.303 (5.443, 0.000)	−.330 (2.088, 0.039)	
Bush vs. Bush II	−0.026 (.375, 0.709)	−0.03 (.429, 0.669)	−0.057 (0.668, 0.507)	−.057 (0.663, 0.510)	1.552 (11.22, 0.000)	

[a] For Reagan it is the New York Times, Los Angeles Times, Washington Times, Chicago Tribune, and the Associated Press Newswire

Table 5 Explaining the percentage of newspaper headlines that are positive for all four newspaper indexes by press announcement from January 1991 to May 2004: Tobit Estimates (in parentheses the t-statistic and the probability it is significant for a two-tailed *t* test)

Explanatory variables	All newspapers				Top 10 newspapers			
	1	2	3	4	5	6	7	8
Republican	−0.1468	−0.1228	−0.1210	−0.0954	−0.1855	−0.1263	−0.1316	−0.0713
	(4.05, 0.00)	(3.34, 0.00)	(3.24, 0.00)	(2.54, 0.01)	(2.83, 0.01)	(1.87, .06)	(1.96, 0.05)	(1.04, 0.30)
Durable goods	0.1195	0.1254	0.1217	0.1272	0.1721	0.1922	0.1755	0.1940
	(6.49, 0.00)	(6.81, 0.00)	(6.67, 0.00)	(6.99, 0.00)	(5.07, 0.00)	(5.50, 0.00)	(5.25, 0.00)	(5.64, 0.00)
Change in durable goods	−0.0098	−0.0138	−0.0117	−0.0156	−0.0019	0.0003	−0.0057	−0.0033
	(0.88, 0.38)	(1.24, 0.22)	(1.06, 0.29)	(1.42, 0.16)	(0.09, 0.93)	(0.02, 0.99)	(0.29, 0.77)	(0.16, 0.87)
GDP growth	0.0042	0.0074	0.0061	0.0092	0.0128	0.0158	0.0167	0.0194
	(0.24, 0.81)	(0.43, 0.67)	(0.36, 0.72)	(0.55, 0.59)	(0.42, 0.68)	(0.51, 0.61)	(0.55, 0.58)	(0.64, 0.52)
Change in GDP growth	0.1053	0.113	0.1023	0.1095	0.1807	0.1898	0.1739	0.1814
	(3.98, 0.00)	(4.24, 0.00)	(3.91, 0.00)	(4.17, 0.00)	(3.75, 0.00)	(3.86, 0.00)	(3.67, 0.00)	(3.76, 0.00)
Retail sales	0.3582	0.4814	0.3664	0.4916	0.5296	0.6948	0.5459	0.7202
	(5.81, 0.00)	(7.14, 0.00)	(5.99, 0.00)	(7.36, 0.00)	(4.47, 0.00)	(4.98, 0.00)	(4.66, 0.00)	(5.23, 0.00)
Change in retail sales	−0.0839	−0.0921	−0.0904	−0.0985	−0.1533	−0.1615	−0.1661	−0.1741
	(2.23, 0.03)	(2.48, 0.01)	(2.42, 0.02)	(2.68, 0.01)	(2.17, 0.03)	(2.27, 0.02)	(2.38, 0.02)	(2.48, 0.01)
Unemployment rate	−.0129	−0.011	−0.0219	−0.0204	−0.0113	−0.0084	−0.0279	−0.0264
	(1.89, 0.06)	(1.47, 0.14)	(2.86, 0.00)	(2.64, 0.01)	(0.94, 0.35)	(0.68, 0.50)	(2.09, 0.04)	(1.95, 0.05)
Change in unemployment rate	−1.4048	−1.424	−1.2662	−1.2864	−1.5079	−1.5252	−1.2834	−1.2926
	(7.43, 0.00)	(7.59, 0.00)	(6.56, 0.00)	(6.75, 0.00)	(4.68, 0.00)	(4.81, 0.00)	(3.92, 0.00)	(4.02, 0.00)
New jobs			0.4496	0.4935			0.8398	0.8844
			(2.49, 0.01)	(2.76, 0.01)			(2.80, 0.01)	(4.02, 0.00)
Change in new jobs			−0.0465	−0.0647			−0.2869	−0.3209
			(0.34, 0.74)	(0.48, 0.63)			(1.26, 0.21)	(1.43, 0.15)
Single lag in positive coverage rate	−0.0111	−0.0185	−0.0314	−0.041	0.0060	−0.0005	−0.0352	−0.4575
	(0.20, 0.84)	(0.34, 0.73)	(0.56, 57)	(0.75, 0.46)	(0.07, 0.95)	(0.00, 1.00)	(0.39, 0.70)	(0.51, 0.61)

Table 5 continued

Explanatory variables	All newspapers				Top 10 newspapers			
	1	2	3	4	5	6	7	8
Double lag in positive coverage rate		0.0673		0.0603		0.1016		0.0701
		(1.36, 0.18)		(1.23, 0.22)		(1.20, 0.23)		(0.84, 0.40)
Log likelihood	−300.59	−288.12	−296.31	−283.06	−425.96	−405.26	−421.80	−400.66
Pseudo R^2	0.2871	0.3110	0.2972	0.3231	0.1594	0.1745	0.1676	0.1839
Number Obs.	527	523	527	523	492	476	492	476
% Headlines neg.	9	10	11	12	13	14	15	16
Republican	0.129 (3.61)	0.115 (3.09)	0.093 (2.56)	0.082 (2.19)	0.199 (3.14)	0.182 (2.86)	0.132 (2.15)	0.13 (2.03)

for all newspapers. As a substitute for this panel type approach we will later report separate results for individual newspapers.

An overview of the partisan gap is shown in Table 5, which reports the average difference in positive coverage between Republican and Democratic administrations after including all the media coverage and accounting for all of the different types of economic news. These results are obtained by stacking the data sets for these different economic announcements on top of each other. For all the newspapers, Republicans receive between 9.6 and 14.7 percentage points less positive coverage than Democrats and the differences are statistically significant at least at the 1 % level for a two-tailed *t* test. That is about 20–30 % less positive coverage than was provided on average during the Clinton administration. More durable goods, GDP growth, retail sales and jobs and less unemployment all produce more positive news coverage. Our basic empirical specification is as follows:

$$\begin{aligned}&\text{PERCENTAGE OF HEADLINES THAT ARE POSITIVE}_{i,t}\\&\quad = a + b_1\,\text{REPUBLICAN PRESIDENT}_{i,t}\\&\quad + b_2\,\text{PERCENTAGE OF THE HEADLINES THAT ARE POSITIVE LAGGED ONE PERIOD}_{i,t} + b_3\,\text{GDP GROWTH}_{i,t} + b_4\,\text{CHANGE IN GDP GROWTH}_{i,t}\\&\quad + b_5\,\text{GROWTH IN DURBALE GOODS SALES}_{i,t}\\&\quad + b_6\,\text{CHANGE IN DURABLE GOODS SALES GROWTH}_{i,t}\\&\quad + b_7\,\text{GROWTH IN RETAIL SALES}_{i,t} + b_8\,\text{CHANGE IN RETAIL SALES GROWTH}_{i,t}\\&\quad + b_9\,\text{UNEMPLOYMENT RATE}_{i,t} + b_{10}\,\text{CHANGE IN UNEMPLOYMENT RATE}_{i,t} + \varepsilon_{i,t,}\end{aligned}$$

where i is the type of economic headline being examined, t is the date, and ε is the error term.

The gap for the top ten papers is wider, ranging from 7.1 to 18.5 percentage points less positive for Republicans; three of the four estimates are statistically significant at least at the 6 % level for a two-tailed t-test. This implies that the Republican administration obtained between 60 and 85 % of the positive coverage given to Clinton.[20]

The last row in the tables shows that rerunning these regressions using the percentage of headlines that were negative implied that Republicans received a larger percentage of negative headlines and that the results were slightly reduced in both size and statistical significance for all newspapers and slightly larger and more statistically significant for the top ten newspapers. (This result is not particularly surprising given that the correlation between the percentage of the headlines that are positive and negative is −0.86).

Additional specification tests are shown in Table 6. These include removing the values for lagged headlines; including a dummy variable for recession; including a dummy for

[20] The fewer observations for the top ten papers occurs almost exclusively because retail sales numbers don't get much news coverage. Even if the top ten papers don't cover a retail sales number release, at least some of the 389 newspapers in our sample will mention the announcement. Only five of the remaining missing observations are due to durable good sales, and the reasons are the same. Rerunning the first four specifications in Table 5 so that the sample is limited to what was available for the top 10 newspapers has almost no effect on the results. For example, the Republican dummy coefficient for the first specification is −0.143 (t = 3.75). The results shown later in Table 7 for durable goods and Table 9 for retail sales are also unaffected. For example, the Republican dummy coefficient in the first specification of Table 7 becomes −0.203 (t = −2.09) and for the first specification of Table 9 becomes −0.048 (t = −0.62). The alternative of reporting all the regressions for the 389 with these observations deleted didn't seem like the best approach both as it would throw out data and it didn't alter the results we reported.

coverage after September 11th[21]; the Gallup Survey asking people to evaluate the economic outlook (though this survey wasn't done consistently and reduces the sample size by about 40 %)[22]; the return in percentage terms for the Dow Jones Industrial Average, the S&P 500, and market-value-weighted over 1, 2, 3, 4, and 5 days before the news announcement (only the results for 1 and 5 days are shown because it doesn't effect the estimates for the president's party)[23]; using squared terms for all the economic variables and the changes in those variables[24]; including the inflation rate, including the recession dummy and the squared terms together, including lags for six months of the endogenous variable and the four economic control variables[25]; weighting the Tobit estimates by the number of news stories[26]; including a slow-moving dummy variable that changes once every 4 years[27]; including time and time squared variables; using weighted least squares with clustering by president and robust standard errors[28]; or negative binomial estimates

[21] Summarizing comments by Alan Blinder, the *New York Times* wrote: "if anything, current economic coverage favored Mr. Bush by letting the administration get away with blaming 9/11 for the economy's poor performance" (Porter 2004). While a dummy for news coverage after September is positive, it is never statistically significant. Including it implies that news coverage for all newspapers exhibits an even larger partisan bias against Republicans (−0.178 (t-statistic = −3.8)), but the bias against Republicans in the top ten newspapers is smaller (−0.139 (t-statistic = −1.68)).

[22] We reran all the regressions shown in Tables 5 through 11 using the Gallup survey data on economic conditions. There were two ways of controlling for this variable: including separate variables for the percent who thought that economic conditions were excellent, good, and fair or those who thought that economics were either excellent or good. These variables were almost never statistically significant at least at the 10 % level for a two-tailed *t* test, and did not really alter the results. Despite the large reduction in sample size, the estimates for all newspapers were slightly weakened and those for the top ten newspapers were slightly strengthened. The eight results for the Republican presidential variable that correspond to those reported in Table 5 are as follows (absolute t-statistics in parentheses): −0.128 (2.61), −0.111 (2.28), −0.105 (2.08), −0.086 (1.71), −0.280 (2.93), −0.220 (2.25), −0.207 (2.09), and −0.141 (1.40). For Table 10 that examines unemployment, the results for columns 1, 2, 5 and 6 are as follows: −0.092 (1.2), −0.86 (1.11), −0.342 (2.59), and −0.320 (2.41).

[23] The time series of daily returns on all three indices, S&P 500, Value-weighted return and Dow Jones Industrial Average were obtained from Wharton Research Data Services (WRDS) from February 1, 1985 to July 30, 2004. While coefficients for all changes in market return are positive, the Dow Jones Industrial Average is the only one that is statistically significant. The coefficient for the DJIA for one day for all newspapers is 0.04 (t-statistic = 2.86) and for the top 10 newspapers the coefficient is 0.13 (t-statistic = 4.48).

[24] We redid the regressions reported in Tables 5, 7, 8 and 9 using the squared terms for all economic variables and it did not change and of the results. All the coefficients that had been statistically significant remain so.

[25] Chris Carroll made another related suggestion. Replacing the simple one-month lag for the percent of the headlines that are positive with the percentage for the last six months, resulted in the Republican coefficient for specification 1 equaling −0.14 (t-statistic = −3.4) and specification 5 equaling −0.16 (t-statistic = −1.75). In both cases the new lagged variable was extremely small and had a t-statistic less than 0.5.

[26] We tried this even though a plot of the percentage of positive news stories for either all newspapers or the top ten papers on the corresponding number of stories did not indicate any real heteroskedasticity; weighting the Tobits by the number of stories did not appreciably alter the results.

[27] Because of Chris Carroll's concern that there might be "an underlying 'momentum' term plus a higher-frequency 'noise' term," we included a series of monthly dummy variables that cover the previous 48 months. The first dummy is for one month lagged, the second for two months lagged, and so on up to 48 months.

[28] STATA does not provide clustering or robust standard errors with the Tobit option. .

with robust standard errors[29]; and a simple OLS specification with a logged number of positive headlines as a dependent variable and a logged number of all headlines as a control variable.[30] These tests did not alter the basic results.

The next four tables break down the partisan bias for each economic statistic. The gap is greatest and most consistent for GDP data. Indeed, all of those results imply a large bias in coverage ranging from 16.3 to 24.1 percentage points, though the results for the top ten newspapers are statistically significant at only the 20 % level for a two-tailed t-test. The estimates for unemployment imply that Republicans get less positive news coverage and the difference is statistically significant at least at the 10 % level for a two-tailed *t* test half the time and significant at least at the 20 % level a quarter of the time. For durable goods, there is a significant partisan bias in about half the estimates. For retail sales, there appears to be no difference in how Republican and Democratic administrations are treated.

4.1 Durable goods

Table 7 finds that even after accounting for the actual economic data, the newspapers gave Republicans about 18–22 percentage points less positive news coverage on durable goods sales data than Democrats and that both Bush I and Bush II got less positive coverage (by similar magnitudes) than Clinton. To put this in perspective, for the same set of economic news, Republicans receive only about 60 % as much positive coverage as Clinton. Yet, these statistically significant differences appear only when all the papers are examined. More durable goods sales are strongly associated with more positive news coverage, though the relationship with the change in sales of durable goods is neither very large nor statistically significant.

4.2 GDP

The results for news coverage are most consistent for GDP (Table 8). All of the estimates imply that Republican administrations were given much less positive coverage than Democrats for the same GDP numbers, and the difference is very large: among all newspapers Republicans got 16–21 percentage points less positive coverage and Bush II between 14 and 18 percentage points less positive coverage. The top ten papers show a much larger difference: Republicans got about 23–24 percentage points less positive coverage and Bush II received 37 percentage points less positive coverage. For the other variables, higher GDP growth and an increase in that growth rate both are associated with more positive news coverage, though the change in growth rates is what drives the coverage and GDP growth is itself only statistically significant at about the 20 % level for a two-tailed t-test.[31]

[29] The negative binomial estimates provide another way of dealing with truncation at zero. For negative binomial incident rate ratios with clustering by President and robust standard errors, the Republican coefficient for corresponding to specification 1 equaled 0.72 (t-statistic = −5.97) and specification 5 equaling 0.78 (t-statistic = −5.65). Not including clustering by President changes the t-statistics for specification 1 to −18.3 and for specification 5 to −6.99.

[30] When the number of positive articles is zero, the natural log is taken of 0.1.

[31] We also tried including the percentage increase in new jobs and the change in that number along with the GDP growth rates in these GDP regressions, but that did not alter the results. The coefficient on specification 1 increases from −0.163 to −0.187 with an absolute t-statistic of 1.79 and for specification 5 it shrinks from −0.24 to −0.23 with an absolute t-statistic of 1.19. We also redid the regressions in Table 5 the same way and again there was little change in the estimates.

Table 6 Alternative specifications for Table 5: Tobit estimates (in parentheses the t-statistics are followed by the probability that it is statistically significant for a two-tailed *t* test)

	Modifications to specification 1 in Table 5 examining all newspapers	Modifications to specification 5 in Table 5 top 10 newspapers
Removing the values for lagged headlines	−0.152 (4.30)	−0.199 (3.14)
Including a dummy variable for recession	−0.137 (3.56)	−0.175 (2.56)
Including a dummy for coverage after September 11th	−0.178 (3.8)	−0.139 (1.68)
Including variables for percent in the Gallup survey who rate the economy as Excellent, Good, and Fair	−0.128 (2.61)	−0.280 (2.93)
Including a variable for percent in the Gallup survey who rate the economy as either Excellent or Good	−0.141 (2.92)	−0.276 (2.91)
The percent return in the Dow Jones Industrial Average the day of the announcement	−0.141 (3.91)	−0.165 (2.57)
The percent return in the S&P 500 the day of the announcement	−0.140 (3.91)	−0.166 (2.58)
The value-weighted percent return the day of the announcement	−0.140 (3.89)	−0.166 (2.59)
The percent return in the Dow Jones Industrial Average over 5 days (t-5) where t is the day of the announcement	−0.148 (4.07)	−0.186 (2.83)
The percent return in the S&P 500 over 5 days (t-5) where t is the day of the announcement	−0.148 (4.07)	−0.187 (2.85)
The value-weighted percent return over 5 days (t-5) where t is the day of the announcement	−0.148 (4.08)	−0.188 (2.86)
Excluding the AP stories in newspapers	−0.164 (4.31)	
Including lags for six months of the endogenous variable and the economic control variables	−0.154 (3.78)	−0.216 (2.86)
Including lags for six months of the endogenous variable and the economic control variables and a recession dummy	−0.147 (3.56)	−0.199 (2.63)
Including lags for six months of the endogenous variable and the economic control variables, a recession dummy, and a dummy for post September 11th coverage	−0.163 (2.92)	−0.104 (1.10)
Replacing the one month lag in the percent of news stories that are positive with the same variable over the preceding six months	−0.14 (3.4)	−0.16 (1.75)
using squared terms for all the economic variables and the changes in those variables	−0.198 (4.46)	−0.202 (4.42)
including the recession dummy and the squared terms together	−0.156 (3.38)	−0.17 (3.57)
Including the previously reported monthly and yearly inflation rates	−0.149 (4.11)	−0.187 (3.01)
Weighting the Tobit estimates by the number of news stories	−0.133 (3.82)	−0.18 (3.09)
To deal with a possible underlying "momentum" term plus a higher frequency "noise" term include a four year moving average of the endogenous variable, a series of monthly dummy variables which equal 1 every 48 months, and six lags for the endogenous variable and the preceding six months of the economic variables.	−0.12 (2.53)	−0.251 (2.31)

Table 6 continued

	Modifications to specification 1 in Table 5 examining all newspapers	Modifications to specification 5 in Table 5 top 10 newspapers
Including a time and time squared terms in the specifications	−0.195 (3.38)	−0.081 (2.77)
Using weighted least squares with clustering by President and robust standard errors	−0.094 (9.18)	−0.091 (11.23)
Count data approach using negative binomial estimates, the total number of news stories, and robust standard errors, incident rate ratio	0.72 (18.30)	0.78 (6.99)
Count data approach using negative binomial estimates, the total number of news stories, and robust standard errors and clustering by President, incident rate ratio	0.72 (5.97)	0.78 (5.65)
OLS with natural log of the number of positive news stories and the total number of news stories	−0.550 (3.76)	−0.397 (3.05)

4.3 Retail sales growth

It is difficult to observe any systematic bias in media coverage of retail sales (Table 9). The results indicate that Republicans usually obtain a few percentage points more positive news coverage, but the differences are never statistically significant. More importantly, the breakdowns by administration in specification 7 indicates that Bush I received the most positive news coverage with Bush II receiving the least; specification 8 indicates that Bush II received the most positive coverage. With this pattern and the statistically insignificant results, it is difficult to infer any systematic bias in coverage. Higher retail sales growth resulted in more positive coverage, though a greater increase in the growth rate from the previous report actually offsets some of this increase. In other words, suppose that retail sales rise from a growth rate of 2–3 %; specifications 6 and 8 for the top ten newspapers imply that there will be a net increase in positive coverage of five percentage points.

4.4 Unemployment

These results are mixed when all newspapers are examined and depend upon whether we just account for unemployment rates or include jobs. Table 10 accounts for just the unemployment rate and shows that Republicans received between seven and 24 percentage points less positive news coverage than Democrats. The breakdown by administration indicates that for all newspapers Bush I actually received within two percentage points as much positive coverage as Clinton and that Bush II had by far the least positive coverage. For the top ten newspapers Bush I had about seven percentage points less positive coverage than Clinton and Bush II had 27–29 percentage points less positive coverage. The Bush II administration's positive coverage is always statistically significantly less than for the Clinton administration. Each one tenth of a percentage point increase in unemployment reduces positive news coverage by about three to six percentage points.[32]

[32] We redid specifications 1 and 5 in Tables 7 through 11 and obtained estimates similar to those reported in the text. For all newspapers, the coefficient on Republican for durable goods equaled −0.20 (t-statistic = 1.99); for GDP, −0.183 (t-statistic = 2.11); for retail sales, −0.04 (t-statistic = 0.65); and for unemployment, −0.06 (t-statistic = 1.20). In none of the cases was the recession variable statistically

Table 7 Explaining the percentage of newspaper headlines that are positive for durable goods by press announcement from January 1991 to May 2004: Tobit estimates (in parentheses the t-statistics are followed by the probability that it is statistically significant for a two-tailed *t* test)

Explanatory variables	All newspapers				Top 10 newspapers			
	1	2	3	4	5	6	7	8
Republican	−0.2230	−0.1784			−0.1715	−0.0731		
	(2.34, 0.02)	(1.86, 0.07)			(1.02, 0.31)	(0.42, 0.68)		
Clinton			0.2762	0.2021			0.2320	0.1603
			(1.91, 0.06)	(1.39, 0.17)			(0.93, 0.35)	(0.62, 0.54)
Bush II			0.0783	0.0343			0.0922	0.1320
			(0.49, 0.62)	(0.22, 0.83)			(0.33, 0.74)	(0.46, 0.65)
F-test			3.36	2.42			0.53	0.02
Significance			(0.07)	(0.12)			(0.47)	(0.89)
Durable goods	0.1403	0.1525	0.1403	0.1524	0.2145	0.2326	0.2136	0.2308
	(5.00, 0.00)	(5.26, 0.00)	(5.00, 0.00)	(5.25, 0.00)	(4.12, 0.00)	(4.13, 0.00)	(4.09, 0.00)	(4.09, 0.00)
Durable goods	−0.0176	−0.0259	−0.0175	−0.0258	−0.0106	−0.0011	−0.0100	0.0004
Change	(0.98, 0.33)	(1.41, 0.16)	(0.97, 0.33)	(1.40, 0.16)	(0.33, 0.74)	(0.03, 0.97)	(0.32, 0.75)	(0.01, 0.99)
Single lag in positive coverage rate	−0.1449	−0.1488	−0.1447	−0.1483	−0.1336	−0.0651	−0.1331	−0.010
	(1.03, 0.30)	(1.07, 0.29)	(1.03, 0.31)	(1.07, 0.29)	(0.56, 0.57)	(0.27, 0.79)	(0.56, 0.58)	(0.25, 0.80)
Double lag in positive coverage rate		0.1867		0.1860		0.1170		0.1096
		(1.56, 0.12)		(1.56, 0.12)		(0.56, 0.58)		(0.52, 0.61)
Log likelihood	−124.4424	−121.0947	−124.3202	−122.0711	−131.3296	−124.4220	−131.2742	−124.3170
Pseudo R^2	0.2279	0.2365	0.2286	0.2366	0.1898	0.2069	0.1901	0.2075
Number of obs.	159	158	159	168	149	144	149	144

Table 8 Explaining the percentage of newspaper headlines that are positive for GDP by press announcement from January 1991 to May 2004: Tobit Estimates (in parentheses the t-statistics are followed by the probability that it is statistically significant for a two-tailed *t* test)

Explanatory variables	All newspapers				Top 10 newspapers			
	1	2	3	4	5	6	7	8
Republican	−0.1630	−0.2078			−0.2407	−0.2286		
	(1.86, 0.07)	(2.41, 0.02)			(1.43, 0.16)	(1.30, 0.20)		
Clinton			0.2317	0.2965			0.2481	0.2169
			(1.80, 0.08)	(2.30, 0.03)			(1.02, 0.31)	(0.84, 0.40)
Bush II			0.0947	0.1182			0.0103	−0.0160
			(0.73, 0.47)	(0.92, 0.36)			(0.04, 0.97)	(0.06, 0.95)
F-test			2.14	3.85			1.71	1.51
Significance			(0.15)	(0.06)			(0.198)	(0.23)
Growth rate	0.0724	0.0788	0.0669	0.0766	0.0923	0.0833	0.0916	0.0839
	(2.15, 0.04)	(2.19, .03)	(1.95, 0.06)	(2.15, 0.04)	(1.52, 0.14)	(1.23, 0.23)	(1.46, 0.15)	(1.23, 0.23)
Change growth rate	0.0713	0.0577	0.0748	0.0578	0.1250	0.1390	0.1254	0.1388
	(2.69, 0.01)	(1.96, .06)	(2.80, 0.01)	(1.98, 0.05)	(2.62, 0.01)	(2.48, 0.02)	(2.58, 0.01)	(2.47, 0.02)
Single lag in positive coverage rate	−0.0660	−0.1315	−0.0622	−0.1399	−0.2205	−0.1920	−0.2199	−0.1922
	(0.45, 0.66)	(0.88, 0.38)	(0.42, 0.67)	(0.95, 0.35)	(0.95, 0.35)	(0.78, 0.44)	(0.94, 0.35)	(0.78, 0.44)
Double lag in positive coverage rate		−0.2479		−0.2677		0.1007		0.1021
		(1.99, 0.05)		(2.14, 0.04)		(0.45, 0.65)		(0.46, 0.65)
Log likelihood	−10.4731	−8.7320	−10.2076	−8.3091	−36.7822	−36.4778	−36.7813	−36.4760
Pseudo R^2	0.6372	0.6961	0.6464	0.7108	0.2648	0.2637	0.2648	0.2637
Number of obs.	52	51	52	51	52	51	52	51

Table 9 Explaining the percentage of newspaper headlines that are positive for retail sales by press announcement from January 1991 to May 2004: Tobit Estimates (in parentheses the t-statistics are followed by the probability that it is statistically significant for a two-tailed *t* test)

Explanatory variables	All newspapers				Top 10 newspapers			
	1	2	3	4	5	6	7	8
Republican	−0.0632	−0.0268			0.0977	0.2776		
	(0.97, 0.33)	(0.44, 0.66)			(0.55, 0.58)	(1.50, 0.14)		
Clinton			0.0670	0.0740			−0.1766	−0.2091
			(0.73, 0.47)	(0.85, 0.40)			(0.81, 0.42)	(0.97, 0.34)
Bush II			0.0060	0.0757			−0.1813	0.1905
			(0.06, 0.95)	(0.76, 0.45)			(0.62, 0.54)	(0.60, 0.55)
F-test			0.65	0.00			0.00	2.09
Significance			(0.42)	(0.98)			(0.98)	(0.15)
Retail sales	0.4214	0.5815	0.4213	0.5839	0.7169	1.0823	0.7292	1.0816
	(5.82, 0.00)	(7.59, 0.00)	(5.82, 0.00)	(7.62, 0.00)	(3.58, 0.00)	(4.37, 0.00)	(3.61, 0.00)	(4.41, 0.00)
Retail sales change	−0.1331	−0.1536	−0.1331	−0.1540	−0.2464	−0.3080	−0.2530	−0.3029
	(2.98, 0.00)	(3.65, 0.00)	(2.98, 0.00)	(3.66, 0.00)	(2.10, 0.04)	(2.58, 0.01)	(2.14, 0.03)	(2.56, 0.01)
Single lag in positive coverage rate	−0.2070	−0.2414	−0.2071	−0.2427	−0.1324	−0.2844	−0.1433	−0.2749
	(2.00, 0.05)	(2.50, 0.01)	(2.00, 0.05)	(2.51, 0.01)	(0.59, 0.56)	(1.26, 0.21)	(0.63, 53)	(1.22, 0.22)
Double lag in positive coverage rate		0.0026		0.0042		−0.0762		−0.0651
		(0.03, 0.98)		(0.05, 0.96)		(.37, 0.71)		(0.31, 0.75)
Log likelihood	−93.2541	−82.0435	−93.2525	−81.7544	−131.9887	−117.8048	−131.7972	−117.6255
Pseudo R^2	0.2038	0.2947	0.2038	0.2972	0.0703	0.1018	0.0716	0.1032
Number of obs.	156	154	156	154	131	121	131	121

One hypothesis concerning the unemployment coverage may be that the media focuses more on job creation, and that this was unusually disappointing during the administration of Bush II. For Table 11, which includes the percentage increase in new jobs and the change in that number, Republicans consistently received less positive news coverage, but the differences are statistically significant only at the 10 % level for a one-tailed t-test for the top ten newspapers. For these top ten newspapers, the Clinton administration received the most positive coverage followed by Bush I, with Bush II's administrations receiving the worst coverage. The difference between Clinton and Bush II continues to be statistically significant. Of course, one might also find that a biased media chooses the indicators to cover that are the most negative. A democratic administration might have produced more emphasis on the relatively low unemployment rate in the previous few years.

While any economic data contain measurement error, one advantage of the specifications we use is that headlines are compared to the economic numbers reported in the news articles. Unless the person writing the headline misread the number or that number was wrong in the first place (and that did not occur in our sample), such measurement error can be ruled out. That said, the economic numbers released by the federal government don't always perfectly describe the condition of the economy, but the measurement error issue is much smaller than most regressions that use data on GDP, unemployment, durable goods or retail sales.[33]

Table 12 breaks down the possible bias by newspaper for the top ten newspapers as well as for the Associated Press wire service stories.[34] These estimates represent all news

Footnote 32 continued
significant. In the one case it came closest to being statistically significant the coefficient for GDP was 0.26 (t-statistic = 1.44). For the top 10 newspapers, the coefficient on Republican for durable goods equaled −0.24 (t-statistic = 1.82); for GDP, −0.28 (t-statistic = 1.67); for retail sales, 0.13 (t-statistic = 0.70); and for unemployment, −0.16 (t-statistic = 1.90). The recession variable was statistically significant only in the unemployment regression.

[33] In a simple single-variable regression, measurement errors will bias down coefficient estimates. For multiple variable regression estimates, measurement errors can alter coefficient signs (Leamer 1978). The true coefficient values can be determined by estimating the direct and reverse regressions for those variables estimated with error (Koopmans 1937; Klepper and Leamer 1984). Koopmans showed that if the K reverse regressions and the direct regression all yield estimates of the same sign on every variable, then the maximum and minimum values for a coefficient from this set of K+1 estimates are consistent estimates of the endpoints of an interval that contains the true coefficients. Measurement error is not a problem for our regressions. That is indeed the case for specification 1 in Table 7 for durable goods. We follow Klepper and Leamer's lead in introducing prior beliefs to bound the measurement error for GDP. They show that as long as R^{*2}, the R^2 obtained with this model assuming no measurement error, is less than the maximum value of R^{*2} consistent with all the normalized regressions lying in the same orthant, the estimates are bounded. We used Klepper and Leamer's approach and found that as long as the expected R^2 in specification 1 in Table 8 if there was no measurement error was less than 0.91, the measurement error would be bounded. To expect such a simple model to explain over 91 % of the variation in positive headlines seems doubtful as long as the reader agrees with that the measurement error issue is not a problem for that regression either. The estimates for retail sales were not bounded and only the estimates for the top ten newspapers for Unemployment in specification 5 were bounded.

[34] The Associated Press provides 15.3 % of all headlines in our sample. Stories were classified as AP when either the reporter credited was the AP reporter or the story was simply identified as being from the AP. We did not do a similar breakdown for the other news services. AP and other wire service stories that appear in many papers are often not put into Nexis because they figure that there will be at least a few other papers that will put them up and they figure that it adds little to have a large number of papers all report the same thing. As we show later, the headlines on the AP stories that are run in newspapers are very similar to the headlines that are on the AP wire service version.

Table 10 Explaining the percentage of newspaper headlines that are positive for unemployment rate by press announcement from January 1991 to May 2004: Tobit estimates (in parentheses the t-statistics are followed by the probability that it is statistically significant for a two-tailed *t* test)

Explanatory variables	All newspapers				Top 10 newspapers			
	1	2	3	4	5	6	7	8
Republican	−0.0816	−0.0746			−0.2442	−0.2231		
	(1.52, 0.13)	(1.32, 0.19)			(3.08, 0.00)	(2.62, 0.01)		
Clinton			−0.0194	−0.0136			0.0881	0.0736
			(0.23, 0.82)	(0.16, 0.88)			(0.72, 0.47)	(0.59, 0.56)
Bush II			−0.1285	−0.1132			−0.2055	−0.2009
			(1.53, 0.13)	(1.33, 0.19)			(1.65, 0.10)	(1.62, 0.11)
F-test			3.76	2.81			11.84	9.00
Significance			(0.05)	(0.10)			(0.001)	(0.003)
Unemployment	−0.0366	−0.0360	−0.0581	−0.0549	−0.0413	−0.0384	−0.0745	−0.0713
Rate	(1.56, 0.12)	(1.53, 0.13)	(2.14, 0.03)	(2.00, 0.05)	(1.21, 0.23)	(1.12, 0.26)	(1.89, 0.06)	(1.79, 0.08)
Change in unemployment rate	−1.4258	−1.4549	−1.4424	−1.4643	−1.1949	−1.2048	−1.2145	−1.2225
	(10.01, 0.00)	(10.05, 0.00)	(10.11, 0.00)	(10.12, 0.00)	(5.91, 0.00)	(5.95, 0.00)	(5.98, 0.00)	(6.01, 0.00)
Single lag in positive coverage rate	0.2114	0.2200	0.2091	0.2165	0.1186	0.1204	0.1102	0.1118
	(2.81, 0.01)	(2.91, 0.00)	(2.80, 0.01)	(2.88, 0.01)	(1.08, 0.28)	(1.10, 0.27)	(1.00, 0.32)	(1.02, 0.31)
Double lag in positive coverage rate		0.0346		0.0302		0.0717		−0.0613
		(0.46, 0.64)		(0.41, 0.69)		(0.66, 0.51)		(0.56, 0.58)
Log likelihood	−37.3280	−36.9180	−36.1596	−36.0421	−92.4680	−92.2524	−91.0919	−90.9350
Pseudo R^2	0.5832	0.5868	0.5962	0.5966	0.2590	0.2607	0.2700	0.2713
Number of obs.	160	159	160	159	160	159	160	159

Table 11 Explaining the percentage of newspaper headlines that are positive for the unemployment rate and jobs numbers by press announcement from January 1991 to May 2004: Tobit estimates (in parentheses the t-statistic and the probability)

Explanatory variables	All newspapers				Top 10 newspapers			
	1	2	3	4	5	6	7	8
Republican	−0.0212	−0.0125			−0.1619	−0.1543		
	(0.37, 0.71)	(0.21, 0.83)			(1.95, 0.05)	(1.77, 0.08)		
Clinton			−0.0734	−0.0657			0.0151	0.0111
			(0.87, 0.39)	(0.76, 0.45)			(0.12, 0.90)	(0.09, 0.93)
Bush II			−0.1213	−0.1017			−0.1947	−0.1933
			(1.51, 0.13)	(1.24, 0.22)			(1.61, 0.11)	(1.60, 0.11)
F-test			0.65	0.34			5.60	4.81
Significance			(0.42)	(0.56)			(0.02)	(0.03)
Unemployment rate	−0.0391	−0.0388	−0.0593	−0.0558	−0.0450	−0.0438	−0.0765	−0.0755
	(1.73, 0.09)	(1.72, 0.09)	(2.27, 0.03)	(2.12, 0.04)	(1.36, 0.18)	(1.31, 0.19)	(1.99, 0.05)	(1.95, 0.05)
Change in unemployment rate	−1.3256	−1.3584	−1.3433	−1.3688	−1.0728	−1.0789	−1.0931	−1.0970
	(9.45, 0.00)	(9.58, 0.00)	(9.56, 0.00)	(9.65, 0.00)	(5.36, 0.00)	(5.36, 0.00)	(5.44, 0.00)	(5.43, 0.00)
New jobs	0.3521	0.3671	0.3470	0.3608	0.4951	0.4881	0.4905	0.4858
	(2.36, 0.02)	(2.45, 0.02)	(2.33, 0.02)	(2.42, 0.02)	(2.42, 0.02)	(2.37, 0.02)	(2.40, 0.02)	(2.36, 0.02)
Change in new jobs	0.02243	0.0222	0.02440	0.0239	−0.1243	−0.1233	−0.1250	−0.1244
	(0.21, 0.83)	(0.21, 0.83)	(0.23, 0.82)	(0.23, 0.82)	(−0.84, 0.40)	(0.83, 0.41)	(0.84, 0.40)	(0.84, 0.40)
Single lag in positive coverage rate	0.1879	0.1974	0.1866	0.1950	0.0727	0.0740	0.0644	0.0653
	(2.44, 0.02)	(2.56, 0.01)	(2.44, 0.02)	(2.54, 0.01)	(0.65, 0.51)	(0.67, 0.51)	(0.58, 0.56)	(0.59, 0.56)
Double lag in positive coverage rate		0.0314		0.0278		0.0294		0.0196
		(0.44, 0.66)		(0.39, 0.70)		(0.27, 0.78)		(0.18, 0.86)
Log likelihood	−31.2731	−30.4491	−30.1451	−29.6802	−88.8540	−88.8164	−87.5457	−87.529
Pseudo R^2	0.6508	0.6592	0.6634	0.6678	0.2879	0.2882	0.2984	0.2986
Number of obs.	160	159	160	159	160	159	160	159

headlines for each paper using the specifications shown in Table 5, but there are two differences. First, since we are examining only one paper at a time, we use ordered logit regressions to predict the percentage of the headlines for a story that is positive (the two exceptions are for the *New York Daily News* and the *New York Post* in specifications 18 and 19 where we used weighted least squares because we otherwise couldn't obtain convergence).,[35,36] Second, many of these papers do not record a story in Nexis every month for each economic statistic. Thus, in order to avoid losing a large number of the observations, the first set of regressions do not include the lagged values of news coverage.

While Table 5 indicates that all but one of the top ten papers and the AP tend to be overly negative during Republican administrations, Table 12 shows that these ten newspapers and the AP do not act in unison. The Associated Press, *Chicago Tribune, Los Angeles Times, New York Times, Wall Street Journal*, and *Washington Post* had significantly more negative headlines during Republican administrations at least at the 10 % level for a two-tailed *t* test.[37] Their point estimates in Section A imply that all these papers gave at least 45 percentage points less positive coverage for the same economic news during Republican administrations than for Democrats. The *Chicago Tribune* provides 73 percentage points less positive coverage. According to the estimate, *Newsday* is marginally statistically significant at the 16 % level for a two-tailed *t* test. Only the *Houston Chronicle* displayed any consistent bias towards Republicans, but the effect wasn't statistically significant.[38]

There are some notable examples of this partisan gap among the papers rated as having the most statistically significant differences. The day after the release of GDP numbers for the third quarter of 2003, it was reported that GDP had surged ahead at a 7.2 % rate, the largest quarterly growth rate reported in nearly 20 years, the headline on the front page of the *Washington Post* was mixed: "Output Rises at Highest Rate Since 1984, but Jobs Still Decline" (Berry and Allen 2003). The front page of the *Chicago Tribune* was even more negative, stating: "GDP aside, jobless rate is number that matters" (Neikirk 2003). One would think both the GDP and unemployment numbers had just been released and were equally newsworthy. Yet, these stories were from October 31st, the day after the GDP numbers were released and 4 weeks after the most recent unemployment report. (Interestingly, neither paper mentioned the GDP numbers again when the next unemployment numbers were released a week later.)

Two other newspapers provide an interesting contrast to the *Chicago Tribune* and the *Washington Post*. Neither *USA Today* ("7.2 % GDP growth fastest in 19 years: Economists credit tax relief, shoppers" Hagenbaugh 2003) nor the *Houston Chronicle* ("U.S.

[35] It was not possible to use ordered logits on our earlier regressions because there were too many categories. Even here simple logit regressions are not appropriate because newspapers occasionally run multiple stories on the economic numbers when they are released. Using Tobits or ordered logits for these individual newspapers has little effect on which newspapers have a statistically significant partisan gap. The one exception is for the *New York Times*, which goes from being statistically significant at the 13 % level in the equivalent of specification 4 using a Tobit to being significant at the 0.08 level with an ordered logit. Using these different estimation procedures did have an effect on the size of the estimated partisan bias.

[36] We also did this using the percentage of the headlines that were negative and obtained similar results. The omitted categories were for neutral or mixed headlines.

[37] Even the *New York Times* recently acknowledged a bias on social issues, though there was no discussion of its coverage of economic topics. See Okrent (2004).

[38] For the twenty-two regressions reported in Table 12 none of the Republican coefficients are affected by the inclusion of the recession variable; the recession dummy is statistically significant in just four of those estimates.

Table 12 Ordered logit estimates for the percentage of newspaper headlines that are positive by individual newspaper for all economic news for January 1991 to May 2004: (because of problems obtaining estimates for the New York Daily News and New York Post those estimates use weighted least squares. Only the dummy variable for Republican administration is reported. The t-statistics in parentheses are followed by the probability that it is statistically significant for a two-tailed *t* test)

	AP wire story headlines	USA today	Wall street journal	New York times	Los Angeles times	Washing-ton post	New York daily news	New York post	Newsday	Chicago tribune	Houston chronicle
No lags of endogenous variable											
Control variables	1	2	3	4	5	6	7	8	9	10	11
Republican	−0.487	−0.522	−0.516	−0.457	−0.449	−0.633	−0.148	−1.079	−0.527	−0.728	0.264
	(2.60, 0.01)	(1.41, 0.16)	(1.64, 0.10)	(1.77, 0.08)	(1.74, 0.08)	(2.18, 0.03)	(0.18, 0.86)	(0.88, 0.38)	(1.41, 0.16)	(2.71, 0.01)	(0.44, 0.66)
Log likelihood	−559.69	−105.62	−181.18	−290.99	−246.56	−194.514	−38.59	16.218	−101.38	−356.29	−59.38
Pseudo R^2	0.1614	0.0760	0.2901	0.1683	0.1395	0.2007	0.1805	0.4867	0.1745	0.2188	0.2851
N	486	142	335	356	312	293	72	40	168	426	101
Single lag of endogenous variable											
	12	13	14	15	16	17	18	19	20	21	22
Republican	−0.479	−0.635	−0.540	−0.568	−0.623	−0.831	0.32	−0.498	−0.848	−0.693	0.787
	(2.48, 0.01)	(0.95, 0.34)	(1.38, 0.17)	(1.83, 0.001)	(2.00, 0.05)	(2.30, 0.02)	(0.93, 0.36)	(1.29, 0.25)	(1.60, 0.11)	(2.40, 0.02)	(0.94, 0.35)
Log likelihood or F-test	−542.74	−44.87	−129.20	−235.36	−189.96	−153.14	1.36	1.76	−49.13	−320.31	−24.15
Pseudo R^2 or adj-R^2	0.1457	0.1286	0.2749	0.1859	0.1206	0.1904	0.0791	0.2935	0.2505	0.2133	0.2021
N	451	59	232	285	240	224	43	12	90	373	33

economy shows biggest rise in years: Officials hope improvement spurs new jobs" Ivanovich 2003) have a statistically significant overall partisan gap in our regressions.

For four of the top ten newspapers and the Associated Press it was possible to extend the sample back to the beginning of Reagan's second term in 1985. Because of the much larger sample, we report the estimates with a single lag of the endogenous variable. All of the newspapers shown in Table 13, together as well as separately, imply a statistically significant partisan gap in favor of the Democrats, with the exception this time of the *Los Angeles Times*, though even in this case economic news under Republicans received 20 percentage points less positive coverage than under Democrats.[39]

A breakdown of the differences by administration shows that both the Bush I and II administrations received significantly less positive headlines than during the Clinton administration for all newspapers. The Associated Press, *New York Times*, *Washington Post*, and the *Chicago Tribune* also imply that the Clinton administration received more positive headlines than the Reagan administration, but most of these differences are small and the only statistically significant difference is for the Associated Press. By contrast, the *Los Angeles Times* was the only newspaper that gave the Clinton administration significantly fewer positive news headlines than the Reagan administration. Given the results in Table 12 implying that the *Houston Chronicle* provided the most positive coverage for Bush I and Bush II, these results indicate that Republican presidents tend to get the most positive coverage from newspapers in their home states.[40] If the *Los Angeles Times* is removed from the overall regressions shown in Table 13 to account for this home state effect, the difference between the Reagan and Clinton administrations is statistically significant at better than the 8 % level. Unfortunately, we do not have the data for the *Arkansas Democrat-Gazette,* so we can't test this hypothesis for the Clinton administration.

Figures 1 and 2 illustrate the residuals from the specification shown in Table 13, column 1 with a couple of changes. The estimates here rely on ordinary least squares and do not include the dummy for whether the president is a Republican. A positive residual (actual percentage of the headlines that are positive minus the predicted percentage) implies that the media made it appear that the economy was doing better than it actually was. A negative residual implies that the economy was doing worse than it actually was doing. It is important to keep in mind that both figures include the data for the *Los Angeles Times,* which was biased in favor of the Reagan administration.

Figure 1 shows the residuals from the regression that examine the GDP headlines. Consistent with the regression results already reported, the Clinton administration gets more favorable coverage when GDP numbers are released than any of the three Republican administrations. Noting that the first reported GDP numbers in an administration are for the last quarter of the previous administration, there appears to be a strong upswing in how the media treats GDP growth during the first quarter of the Clinton administration and a similar drop during Bush II.

[39] Including the dummy variable for recessions did not alter these general results, though this was the one set of regressions where the recession variable was itself consistently statistically significant.

[40] These estimates were also redone using a dummy variable for coverage after September 11th, but there was little change in the partisan gap, with the gap still being statistically significant for all newspapers other than the *Los Angeles Times*. The dummy for September 11th was only close to being statistically significant for the *Chicago Tribune*. Even for the *Chicago Tribune*, the estimates implied that the Republicans got an even smaller percentage of positive headlines than would have normally been expected in the brief but short economic downturn after the attack (the coefficient was -0.58 with a t-statistic $= -1.53$).

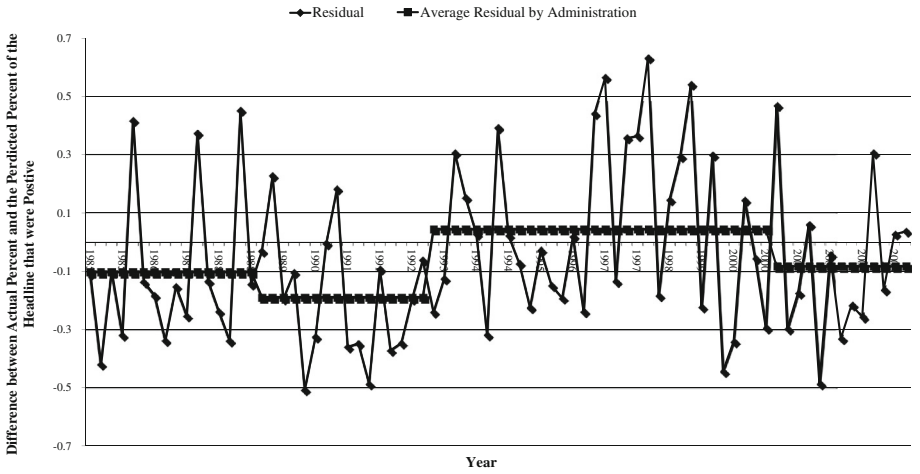

Fig. 1 Examininging Media Bias Over Time for Headlines on GDP: The New York Times, Los Angeles Times, Washington Post, Chicago Tribune, and Associated Press Wire from 1985 to 2004 (Estimates use OLS for the specification in column 1 in Table 13)

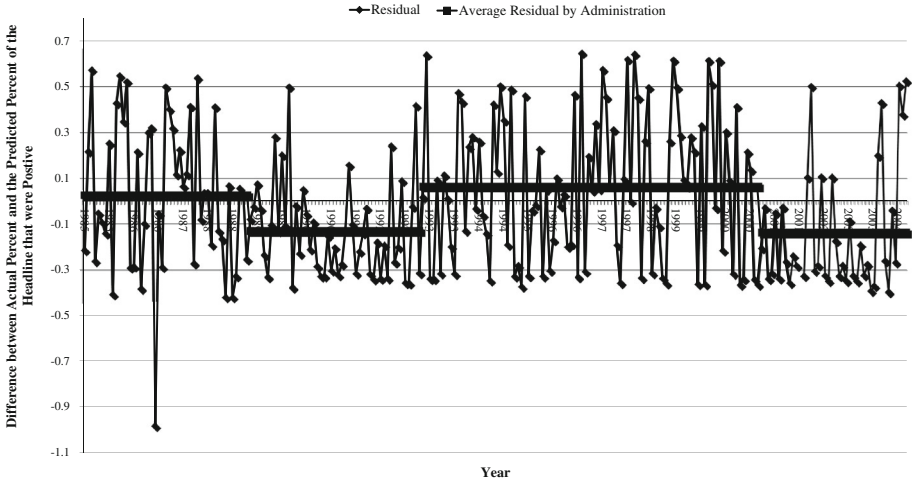

Fig. 2 Examininging Media Bias Over Time for Headlines on the Unemployment Rate: The New York Times, Los Angeles Times, Washington Post, Chicago Tribune, and Associated Press Wire from 1985 to 2004 Using OLS for the specification in column 1, Table 13)

Figure 2 shows the residuals for those observations that examine the release of unemployment rate information. The media was favorable towards both the Reagan and Clinton administrations and negative towards the Bush I and Bush II administrations. Again, even after accounting for the underlying economic news, the headlines appear to become more positive when Clinton becomes president and more negative when Bush II becomes president.

Another comparison for these top ten newspapers is possible. Most newspapers endorse candidates for president, and while newspapers could possibly create a wall between their editorial positions and their newsrooms, newspapers that endorse a political party may also use their news stories to help advance that cause.[41] Even if newsrooms are biased against Republicans, newspapers whose editorial staffs support Republicans may have newsrooms that are less biased against that party. Of the top ten newspapers, seven endorsed presidential candidates during the 1984 to 2000 period: three always endorsed Democrats, three always endorsed Republicans, and one, the *New York Daily News*, endorsed Reagan and Bush in 1984 and 1988 and Clinton and Gore in all other election cycles. Running an ordered logit regression with the coefficients from Tables 12 and 13 on the percentage of the time that these papers endorsed Republicans shows that these papers printed newspaper headlines that were relatively less favorable to Democrats, and the coefficient on this new regression implies that the coefficients in Tables 12 and 13 increase by 1.086 points if a newspaper endorses a Republican instead of a Democrat but the effect is quite statistically insignificant (the t-statistic is 0.77, probability = 0.44).

Tables 14 and 15 look more closely at a subset of the Associated Press headlines. Some of the Associated Press stories that we study are used in the 389 newspapers contained in Nexis. An obvious question is whether the Associated Press headlines show a partisan gap similar to the headlines that appear in the newspapers that use those Associated Press stories. It is possible that the Associated Press is biased relative to the newspapers that use their stories. At least a couple of alternative explanations are possible: (1) the views of the Associated Press reflects the views of the newspapers that subscribe to its service or (2) as a convenience, newspapers simply rely on the Associated Press headlines in composing their own headlines. Table 14 finds no significant difference in the percentage of stories that are either positive or negative across reporting periods. Table 15 breaks this down further by administration and again finds no statistically significant difference between the headlines in the original Associated Press wire story and the headlines in the newspapers running the stories. The headlines composed by the AP closely match the headlines used by the newspapers that print the AP stories.

Finally, we tried removing all Associated Press stories that were run by the newspapers in our sample, but the results remained essentially unchanged. The specification corresponding to the first regression in Table 5 implied that Republicans still received 16.4 percentage points fewer positive news stories, with a t-statistic of −4.33.

Mullainathan and Shleifer (2005) provide a theoretical model showing that while individual media outlets will slant their coverages towards certain targeted audiences, in the aggregate "reader diversity is a powerful force toward accuracy" and that this should be particularly true where there is "political competition." Yet, despite evidence that daily newspaper readers tend to be either relatively conservative or ideologically the same as the general population (Hamilton 2004, pp. 107–109),[42] the results here indicate that at least among newspapers there is a systematic partisan gap in favor of Democrats. Indeed, we don't even find any newspaper with a Republican bias.

[41] Larcinese et al. (2011) and Puglisi and Snyder (2011) also look at the impact of endorsements on newspaper behavior. However, as discussed previously, their approach implicitly assumes that newspapers are on average not biased in terms of whom they endorse.

[42] Earlier evidence from 1985 also shows that newspaper readers are relatively conservative. A *Los Angeles Times* survey of 6,000 newspaper readers found that 24 % of newspaper readers described themselves as liberal, 33 % as middle-of-the-road, and 29 % as conservative (Shaw 1985).

Table 13 Ordered Logit estimates for the percentage of newspaper headlines that are positive by individual newspaper from January 1985 to May 2004 for all economic news: redoing the regressions shown in Table 11 with a single lag of the endogenous variable (only the dummy variable for Republican administration is reported. The robust t-statistics in parentheses are followed by the probability that it is statistically significant for a two-tailed *t* test)

	Total for all five media outlets	Total for four media outlets (excluding the Los Angeles Times because of the President's home state effect)	AP wire story headlines	New York times	Los Angeles times	Washington post	Chicago tribune
Examining the difference in news coverage between republican and democratic administrations							
	1	2	3	4	5	6	7
Republican	−0.478	−0.5004	−0.58	−0.40	−0.25	−0.57	−0.50
	(3.47, 0.000)	(3.62, 0.000)	(3.68, 0.00)	(1.84, 0.07)	(0.99, 0.32)	(2.28, 0.02)	(2.65, 0.01)
N	747	739	670	462	416	337	561
Examining the differences between administrations							
	8	9	10	11	12	13	14
Reagan second term	0.383	0.254	0.31	0.634	1.254	0.69	0.72
	(1.83, 0.067)	(2.218, 0.237)	(1.31, 0.19)	(2.06, 0.04)	(4.59, 0.00)	(1.81, 0.07)	(2.09, 0.04)
Clinton administration	0.622	0.576	0.77	0.65	0.78	0.83	0.77
	(3.61, 0.00)	(3.27, 0.001)	(3.75, 0.00)	(2.28, 0.02)	(2.62, 0.01)	(2.57, 0.01)	(2.90, 0.00)
Bush II	0.00017	−0.0837	0.24	−0.09	0.102	−0.15	−0.26
	(0.00, 0.999)	(0.36, 0.719)	(0.96, 0.34)	(0.24, 0.81)	(0.28, 0.78)	(0.35, 0.73)	(0.70, 0.49)
F-test reagan = Clinton	2.093	3.12	4.80	0.00	2.72	0.22	0.04
Significance	(0.149)	(0.0773)	(0.03)	(0.95)	(0.10)	(0.64)	(0.84)
F-test Bush II = Clinton	7.98	8.56	5.18	3.96	3.16	5.82	7.75
Significance	(0.0047)	(0.0034)	(0.02)	(0.05)	(0.08)	(0.02)	(0.01)
F-test Bush II = reagan	2.34	1.72	0.07	3.44	9.73	3.44	5.23
Significance	(0.1265)	(0.1901)	(0.80)	(0.06)	(0.002)	(0.06)	(0.02)

Table 14 Associated Press Headlines compared to headlines in newspapers carrying AP articles

	Percentage of stories that are positive	Percentage of stories that are negative
Associated Press stories published in newspapers in our sample	0.445	0.343
Newspapers running Associated Press Articles	0.473	0.352
Difference (t-statistic, probability)	−0.028 (0.8679, 0.39)	−0.009 (0.2961, 0.77)

5 Other factors and a test for the cost of engaging in bias

Two other variables might impact how positive media coverage of the economy is: whether it is an election year and which party controls Congress. Table 16 includes these variables in rerunning the first and fifth specifications from Tables 7, 8, 9, 10 and 11. Partisan control of Congress and the presidency differed many time during both the Clinton and Bush II administrations.

Including these two variables has very little impact on the fraction of news coverage given to Republican presidents and only once is either new variable ever statistically significant. The bottom line is that only the party of the president seems to matter and elections have little impact on the fraction of news coverage that is positive.[43]

It is possible that the press treats parties that control the Congress the same as they treat the party that controls the White House. Alternatively, the perception may be that the party that controls the White House is the party that gets the vast majority of the credit or blame for the economy. At the margin it might be more difficult for newspapers, particularly the top ones, to be hostile to a political party when it controls both houses of Congress as well as the presidency since they rely on the government officials for their stories.[44] Dyck and Zingales (2003), for example, argue that there is evidence of a quid pro quo between

[43] Following Puglisi (2004), we interacted the dummy for a Republican president with the election year. Puglisi says that when there is a Republican president the press becomes more favorable towards Democrats. While the results are mixed, none of them seem to support his hypothesis. For all newspapers, the news coverage actually appears to become more favorable towards Republicans. For the top 10 papers there is no statistically significant effect. Since Puglisi examined the *New York Times*, we re-examined that newspaper and again found no change during election years. We also tried limiting the election variables to just the three months studied by Puglisi (August, September and October). The interaction for a Republican president with those three months until the election is now consistently negative (consistent with his theory), but while the coefficients for these interactions are relatively large, none are close to being statistically significant.

[44] One of the authors came across an example of this during the spring of 1994 at a lunch with some members of the *Philadelphia Inquirer*'s editorial board. The board briefly discussed endorsing a Republican candidate but decided against it because Democrats controlled the governorship, the state legislature, and the city government of Philadelphia and there was the concern that they would not have the same access to news from the Democrats if they endorsed the Republican.

Along a similar line, Tierney (2004) recently surveyed journalists at the 2004 Democratic National Convention and found that while ones based in Washington favored Kerry by at 12 to 1 margin over Bush, those outside the Beltway favored Kerry by a 3 to 1 margin. He wanted to see whether reporters' support for Kerry might be explained by self-interest instead of ideology or whether covering Kerry might be better for their careers ("mainly because any change in administration means lots of news"). If anything he found that they supported Kerry despite its impact on their careers, with a 77–67 majority believing that covering Bush would be more likely to produce a "front page [story] and get on the air." The test that we conduct differs in that we see how the partisan gap varies as the cost of helping a particular party changes. While very interesting, the cross-sectional survey data studied by Tierney do not examine these marginal changes.

Table 15 Associated Press Breakdown by Type of Headline and President

	Percentage of Associated Press stories published in newspapers in our sample that are positive	Percentage of newspapers running Associated Press articles that are positive	Difference (t-statistic, probability)
Bush	0.327	0.395	−0.068 (0.67, 0.50)
Clinton	0.480	0.505	−0.025 (0.62, 0.54)
Bush II	0.411	0.423	−0.012 (0.20, 0.84)

journalists and business sources. The most direct test of this is to include a variable for when the Republicans or Democrats control both the presidency and Congress. This new variable equals one when the Republicans control everything, 0.5 when there is divided government, and 0 otherwise.

The results produce modest support for this hypothesis in four of the eight specifications shown in Table 16. For GDP and unemployment, Republican control of either the presidency or Congress is associated with less positive news coverage, but when Republicans control both branches the coefficients are positive and statistically significant for all newspapers at either the 10 % level for a one-tailed *t* test (GDP) or the 10 % level for a two-tailed t-test (durable goods and unemployment). Interestingly, even when the Republicans control both the presidency and the Congress, the upturn in positive coverage associated with unified government never offsets the direct negative effects associated with Republican control of those two branches. In the other four specifications, there is either not enough information to disentangle the different party identification variables or the coefficients are quite small and have t-statistics close to 1.

Finally, we examined whether positive coverage varies with the president's approval rating. It is possible that newspapers will find it more costly to slant headlines against more popular presidents. To do this we gathered the Gallup presidential approval surveys and took either their monthly or quarterly averages depending on the headline index examined. Yet, there is no evidence that presidential approval matters. When we reran the regressions shown in Table 16 presidential approval was never statistically significant and the coefficient was quite small (results not reported in the table).

Overall, only the party of the president seems to matter and the presence of elections have little impact on the percentage of news coverage that is positive. It doesn't seem to matter how popular a president is. There is some evidence that control over both the presidency and the national legislature results in more positive coverage.

6 Are changes in media bias associated with changes in people's perceptions?

A rational expectations perspective would imply that any bias in news coverage shouldn't affect people's views. Presumably, voters would weigh the information they received based on the source. When reading liberally biased newspapers, readers would assume that the paper will make the economy appear to be doing less well under Republicans than Democrats. Possibly readers will sometimes make the wrong adjustment, but there is no reason to believe that this error should be systematic.

Table 16 Including variables to examine if a political party that controls Congress as well as whether news coverage varies in election years (the dummy for party control of congress equals one for Republicans, equals 0.5 if control of congress divided): tobit estimates (the t-statistics in parentheses are followed by the probability that it is statistically significant for a two-tailed *t* test)

	All newspapers				Top 10 newspapers			
	Durable goods	GDP	Retail sales	Unemployment rate	Durable goods	GDP	Retail sales	Unemployment Rate
Adding control of Congress and election year variable								
	1	2	3	4	5	6	7	8
Republican	−0.1971	−0.1415	−0.0910	−0.0840	−0.2811	−0.2210	−0.0292	−0.21
	(4.47, 0.00)	(1.69, 0.10)	(1.28, .020)	(1.65, 0.10)	(3.65, 0.00)	(1.33, 0.19)	(0.14, 0.89)	(2.61, 0.01)
Control Congress	−0.0175	0.0444	−0.0690	0.0291	−0.1155	0.0766	−0.2186	−0.0086
	(0.39, 0.70)	(.52, 0.61)	(0.98, 0.33)	(0.37, 0.71)	(1.47, 0.14)	(0.45, 0.66)	(1.06, 0.29)	(0.08, 0.94)
Election year	0.0490	−0.2020	0.028	0.0202	−0.0032	−0.1870	−0.0423	0.0266
	(1.23, 0.22)	(2.26, 0.03)	(0.44, 0.66)	(0.46, 0.65)	(0.05, 0.96)	(1.06, 0.29)	(0.25, 0.80)	(0.42, 0.68)
Economic variable value	0.1229	0.0931	0.4167	−0.0263	0.1584	0.1029	0.7096	−0.0295
	(5.78, 0.00)	(2.61, 0.01)	(5.77, 0.00)	(0.71, 0.48)	(4.28, 0.00)	(1.54, 0.13)	(3.58, 0.00)	(0.55, 0.58)
Change in economic variable value	−0.0093	0.0573	−0.1320	−1.424	0.0095	0.1168	−0.2431	−1.2451
	(0.72, 0.47)	(2.14, 0.04)	(2.97, 0.00)	(9.93, 0.00)	(0.43, 0.67)	(2.35, 0.02)	(2.09, 0.04)	(6.02, 0.00)
Single lag in positive coverage rate	−0.0346	−0.1913	−0.2171	0.2092	−0.0022	−0.3066	−0.1611	0.1856
	(0.58, 0.56)	(1.25, 0.22)	(2.10, 0.04)	(2.77, 0.01)	(0.02, 0.98)	(1.22, 0.23)	(0.71, 0.48)	(1.73, 0.09)
Log likelihood	−362.4019	−7.8423	−92.5975	−37.179	−462.2321	−36.1177	−131.4201	−93.9935
Pseudo R^2	0.1396	0.7283	0.2094	0.5849	0.0860	0.2781	0.0743	0.2493

Table 16 continued

	All newspapers				Top 10 newspapers			
	Durable goods	GDP	Retail sales	Unemployment rate	Durable goods	GDP	Retail sales	Unemployment Rate
Test for unified government								
	9	10	11	12	13	14	15	16
Republican	−0.4550	−0.4698	−0.0910	−0.3525	−0.5873	−0.7525	−0.0292	−0.5914
	(3.13, 0.00)	(1.96, 0.06)	(1.28, 0.20)	(2.22, 0.03)	(2.36, 0.02)	(1.54, 0.13)	(.14, .89)	(2.49, 0.01)
Control Congress	−0.3038	−0.3297	−0.069	−0.3268	−0.4564	−0.5149	−0.2186	−0.5214
	(1.90, 0.06)	(1.23, 0.22)	(0.98, 0.33)	(1.53, 0.13)	(1.66, 0.97)	(.97, 0.34)	(1.06, .29)	(1.65, 0.10)
Unified government (republican = 1)	0.5811	0.7658	Dropped because of collinearity	0.6433	0.6988	1.2209	Dropped because of collinearity	0.9138
	(1.86, 0.06)	(1.47, 0.15)		(1.81, 0.07)	(1.30, 0.20)	(1.17, 0.25)		(1.74, 0.09)
Log likelihood	−360.6640	−6.7418	−97.5975	−35.6910	−461.4144	−35.4197	−131.4201	−92.4476
Pseudo R^2	0.1438	0.7664	0.2094	0.6021	0.0877	0.2920	0.0857	0.2616

The existence of a partisan gap in newspaper headlines is a necessary but not a sufficient condition for demonstrating that these headlines alter voters' opinions. The more important question is whether this bias systematically impacts what voters think of the economy.

Fortunately, from July 1991 to the present, the Gallup Poll News Service has regularly asked whether economic conditions have been getting better or worse. (However, no surveys were conducted during 1993, 1994 and 1995; other values are also missing. These lost observations reduce the sample by about 40 %). On average, 42 % of those surveyed viewed the economy as getting better, ranging from a low of 19 % to a high of 69 %. We can use this data to see whether how voters evaluate economic conditions can be related to changes in how the media covers the economy.

Since people's perceptions of whether the economy is getting better likely depend on economic news as well as the economy's trajectory over time, we use the current and lagged percentage of headlines that are positive and the four measures of economic activity for either the past 3 or 6 months. On average, the surveys are taken by the 13th of the month, but the date may range anytime from the first to the last day of the month. Thus, the surveys are frequently administered prior to that month's economic announcements. The relationship between recent past headlines and the survey results should thus be much stronger than between the current month's headlines and surveys.

Table 17 examines the impact of headlines from all newspapers as well as the top ten papers. Several effects are obvious. First, people consistently and significantly think that the economy is getting better when there are more past positive newspaper headlines, though the effects are not very large. For example, specification 5, which accounts for six lags in news coverage and economic variables, shows that a 15 percentage point increase in positive headlines (similar to the overall advantage found for Democrats) implies that about four percentage points (or 9 %) more respondents view the economy as getting better. For the top ten papers, the implied effect is about 3.1 percentage points (or 7 %).[45]

Second, the impact of past positive coverage remains unchanged when the actual economic numbers from those past months are included. Including the past economic numbers adds only at most a percentage point or so to the explanatory power of our estimates. While the joint F-test for the current and lagged positive headlines is statistically significant at more than the 1 % level for all newspapers, none of joint F-tests for the economic variables were significant. Comparing the adjusted-R^2s when using just the newspaper headlines or just economic variables (not shown) produces adjusted-R^2s for the newspaper headlines that are 33–100 % larger than when just the economic variables are used.

Our results in Table 17 help answer the broader question of whether the newspaper headlines are either balanced off by the content of the news articles themselves or by other media. If that offset had been complete, we would not observe the significant relationship that we find between the percentage of the headlines that are positive and the survey data.

[45] Even after including the variables for media coverage and the economy, including the dummy variable for whether there is a Republican president finds that respondents during Republican administrations were 10.5–11.4 percentage points less likely to believe that the economy was getting better (the t-statistics were about 3). This was true both for all newspapers and the top ten in specifications 4, 5, 9, and 10. This implies that even after accounting for newspaper coverage and the actual economic numbers, respondents still had a relatively negative impression of how the economy was doing during Republican administrations. Including a dummy variable for recessions (while usually statistically significant) has almost no effect on the Republican or press coverage variables. Whether this additional deficit is due to Republicans being unable to explain their accomplishments or due to other types of news coverage is not clear.

Table 17 Analyzing percentage of those surveyed who answer that things are 'Getting Better" to the question that "Right now, do you think that economic conditions in the country as a whole are getting better or getting worse?": Cochrane Orcutt (the t-statistics in parentheses are followed by the probability that it is statistically significant for a two-tailed *t* test. F-statistics show joint statistical significance, with the probability that it is statistically significant show in parentheses)

Control variables	All newspapers					Top 10 newspapers				
	Accounting for only positive headlines			Including current and past economic variables		Accounting for only positive headlines			Including current and past economic variables	
Percentage of newspaper headlines positive	1	2	3	4	5	6	7	8	9	10
During current month	0.0007	0.0092		0.0034	0.0194	−.0027	−.0033		0.0040	0.0036
	(0.05)	(0.72)		(0.21)	(1.11)	(0.20)	(0.23)		(0.26)	(0.18)
Lagged one month	0.0326	0.0399	0.0355	0.0450	0.0565	0.0383	0.0446	0.0467	0.0396	0.0422
	(2.55)	(3.07)	(3.13)	(2.72)	(3.18)	(2.30)	(2.56)	(3.17)	(2.10)	(2.04)
Lagged two months	0.0447	0.0553	0.0520	0.0456	0.0593	0.0488	0.0698	0.0713	0.0413	0.0527
	(3.79)	(4.58)	(4.49)	(3.05)	(3.47)	(2.92)	(3.62)	(3.92)	(2.19)	(2.24)
Lagged three months	0.0164	0.0327	0.0312	0.0002	0.0266	0.0056	0.0363	0.0363	−.0106	0.0198
	(1.46)	(2.53)	(2.42)	(0.01)	(1.45)	(0.39)	(1.73)	(1.74)	(0.66)	(0.75)
Lagged four months		0.0380	0.0328		0.0481		0.0521	0.0516		0.0441
		(2.84)	(2.54)		(2.72)		(2.50)	(2.51)		(1.69)
Lagged five months		0.0190	0.0166		0.0136		0.0298	0.0292		0.0231
		(1.60)	(1.45)		(0.97)		(1.57)	(1.56)		(0.95)
Lagged six months		0.0113	0.0115		0.0136		0.0212	0.0206		0.0219
		(1.05)	(1.07)		(0.97)		(1.44)	(1.43)		(1.20)
F-test for all positive news story variables	5.01 (0.0007)	4.41 (0.0002)	4.87 (0.0001)	3.64 (0.007)	3.03 (0.005)	3.90 (0.0049)	3.63 (0.0013)	4.27 (0.0006)	2.70 (0.0336)	1.74 (0.1074)
F-test for all durable goods variables				0.80	1.08				0.85	0.70
				(0.527)	(.381)				(0.5072)	(0.6717)
F-test for all GDP variables				1.69	1.37				1.08	1.45
				(0.155)	(0.220)				(0.3705)	(0.1952)

Table 17 continued

Control variables	All newspapers					Top 10 newspapers				
	Accounting for only positive headlines			Including current and past economic variables		Accounting for only positive headlines			Including current and past economic variables	
Percentage of newspaper headlines positive	1	2	3	4	5	6	7	8	9	10
F-test for All retail sales variables				1.03	0.23				2.32	0.45
				(0.395)	(0.977)				(0.061)	(0.8702)
F-test for All unemployment rate variables				0.58	1.31				0.41	0.86
				(0.677)	(0.249)				(0.8037)	(05446)
Adjusted R^2	0.0764	0.1110	0.1075	0.0725	0.1224	0.0718	0.1200	0.1268	0.0945	0.1014

Overall, the results also appear to conflict with the typical rational expectations story and are consistent with past research (Lott 1990, 1999).

Krupnikov et al. (2006) raise the general question of whether the effects of media bias are different for Republicans and Democrats. We can follow their approach by re-estimating the regressions in Table 17, entering either the percentage of Republicans or Democrats who answer that things are "Getting Better," though the data we have don't allow us to investigate the interesting question about how well qualified people in these different groups evaluate the choices that they face. Unfortunately, we are also limited by the period of time that we are able to study, with the data by party affiliation available to us only from the beginning of 1996 to the end of our sample in 2004.

During this period, Republicans were nine percentage points more optimistic about whether things were getting better than Democrats. Generally, if we redo the specifications shown in Table 17, this shorter time period produced results similar to what was already shown. Using specification 5, a 15 percentage point increase in positive headlines implies a 4.5 percentage point increase in all respondents who view the economy as getting better. Replacing the overall survey estimate with separate results for Republicans and Democrats implied that Democrats were about twice as sensitive to changes in the percentage of positive headlines than Republicans. Again, using specification 5 and the same 15 percentage point increase in positive headlines, the survey results implied a 6.2 percentage point increase for Democrats in the number of respondents who view the economy as getting better. For Republicans, it was three percentage points. An F-test finds that these two coefficients are statistically significantly different at the 5 % level.

7 Does bad news generate more news coverage?

We also used our data to re-examine Smith's (1988) and Groeling and Kernell's (1998) claim that the media prefers to cover bad news. If there is a preference for bad news, just as Smith found more stories on the evening television news, the number of newspaper stories should also increase. Because of the count nature of the data and over-dispersion of the dependent variable, all of these regressions are run as negative binomials. Table 18 first runs the number of news stories on the economic variable only and a time trend. Only one of the specifications (specification 7 for unemployment without a time trend) confirms the bad news, more coverage hypothesis, and even for that case the result isn't statistically significant. For example, increasing durable good orders by one standard deviation, increases the total number of stories by 5 %. For GDP, a one standard deviation increase raises the number of news stories by 9 %; for retail sales, 8 %; and for unemployment, it can either rise by 4 % or fall by 7 %. Table 19 includes the changes in economic variables as well as lagged total news stories and continues to imply that if there is any relationship, there are more stories if the news is positive.

Yet, coverage involves not only the number of stories but also their placement. To examine this, we looked at how the percentage of front-page stories on different economic data varied with how well the economy was doing. The economic numbers considered to be the most important are immediately obvious, with about a quarter of all stories on GDP and unemployment appearing on the front page, but only 5 % of the stories on durable good and retail sales.

Table 18 Explaining the number of news stories in all newspapers: negative binomials with incident rate ratios

	Durable goods		GDP		Retail sales		Unemployment rate	
	1	2	3	4	5	6	7	8
Economic variable value	1.011	1.011	1.057	1.039	1.071	1.068	0.933	1.041
	(1.14, 0.25)	(1.27, 0.21)	(1.63, 0.10)	(1.43, 0.15)	(1.13, 0.26)	(1.22, 0.22)	(2.90, 0.00)	(1.53, 0.13)
Time trend		1.001		1.010		1.003		1.005
		(2.10, 0.04)		(3.29, 0.00)		(4.19, 0.00)		(7.40, 0.00)
Log likelihood	−499.774	−497.856	−191.773	−185.717	−498.900	−491.522	−598.450	−570.460
Pseudo R^2	0.0012	0.0051	0.015	0.046	0.005	0.02	0.006	0.052

Table 19 Explaining the number of news stories in all newspapers: negative binomials with incident rate ratios

Explanatory variables	Durable goods		GDP		Retail sales		Unemployment rate		Unemployment rate and jobs	
	1	2	3	4	5	6	7	8	9	10
Economic variable value	1.026	1.027	1.023	1.013	1.101	1.103	0.955	1.032	0.953	1.061
	(1.44, 0.15)	(1.55, 0.12)	(0.59, 0.55)	(0.41, 0.68)	(1.34, 0.18)	(1.47, 0.14)	(2.00, 0.05)	(1.18, 0.24)	(2.04, 0.04)	(2.02, 0.04)
Change in economic variable value	0.990	0.989	1.034	1.034	0.991	0.985	1.065	0.935	1.069	1.008
	(1.02, 0.31)	(1.12, 0.26)	(1.25, 0.21)	(1.39, 0.17)	(0.27, 0.79)	(0.44, 0.66)	(.34, 0.73)	(0.42, 0.67)	(0.37, 0.71)	(0.05, 0.96)
Total news stories lagged	1.012	1.010	1.006	0.9998	1.015	1.010	1.013	1.006	1.013	1.005
	(2.26, 0.02)	(1.88, 0.06)	(1.19, 0.23)	(0.03, 0.97)	(2.61, 0.01)	(1.78, 0.08)	(5.92, 0.00)	(2.28, 0.02)	(5.98, 0.00)	(1.82, 0.07)
New jobs									0.962	1.388
									(0.28, 0.78)	(2.34, 0.02)
Change in new jobs									1.094	0.905
									(0.74, 0.46)	(0.79, 0.43)
Time trend		1.001		1.011		1.002		1.004		1.004
		(1.86, 0.06)		(3.02, 0.00)		(3.46, 0.00)		(5.68, 0.00)		(5.31, 0.00)
Log likelihood	−494	−492.612	−187.35	−181.94	−491.957	−487.011	−578.25	−564.143	−577.816	−561.068
Pseudo R^2	0.006	0.008	0.019	0.047	0.014	0.024	0.033	0.057	0.034	0.062

The specifications used to test this mirror those reported in Tables 18 and 19.[46] The findings indicate that rising GDP as well as durable good and retail sales are associated with larger percentages of front-page stories. Yet, statistically significance does not necessarily carry much practical import. A one-percentage point increase in durable good sales raises the percentage of these stories on the front page by only six-tenths of one percentage point. Similarly, a one-percentage point increase in GDP or retail sales raises the share of those stories on the front page by only about two percentage points. The one outlier continues to be the unemployment rate, though the placement of those front-page stories is this time consistently in the direction of "bad news sells".

Adding in the changes in economic variables as well as lagged total news stories, left all of the estimated signs unchanged, reduce the levels of statistical significance. The statistically significant results for the change in GDP support the "goods news sells" hypothesis, while the bad news hypothesis is supported by the statistically significant impact of unemployment.

Surprisingly, our results imply the opposite: good economic numbers sell.

8 Conclusion

Newspapers do not treat all news equally. Given the same news, Republican presidents receive about 20–30 % less positive coverage from all newspapers and 20–40 % less positive coverage from the top ten papers than was provided on average for Democrats and these results are quite statistically significant. This partisan bias is associated with about a 7–9 % increase in opinion poll respondents viewing the economy as getting better. Overall, the headlines affect people's perception of the economy and, for at least some people, the impact is not offset by other news sources.

Newspapers don't treat all economic statistics the same way, nor do all newspapers have the same partisan gap, but the vast majority of newspapers cover any given economic news more favorably when a Democrat is president. Only one newspaper treated one Republican administration significantly more positively than the Clinton administration: the *Los Angeles Times*'*s* headlines were most favorable to the Reagan administration, but the newspaper still favored Clinton over either Bush administration. We can only guess, but the coverage from the *LA Times* might well reflect Reagan coming from California, just like the *Houston Chronicle* seemed to favor both Bushes, who came from Texas.

There is some modest support for the hypothesis that newspapers find it more difficult to report negatively on Republicans when Republicans control both the presidency and the Congress. However, even when Republicans control both branches of government they still receive less positive coverage than Democrats. Despite the common perception, newspapers actually provide more coverage when the economic news is good. More durable goods, GDP growth, retail sales and jobs—and less unemployment—all produce more positive news coverage.

Acknowledgments We would like to thank John Cogan, James Hamilton, Joe Harrington, Larry Kenny, Mark Klamer, Sam Peltzman, Florenz Plassmann, Alex Tabarrok and the participants in seminars at the University of Texas, University of British Columbia, Simon Fraser University, University of Canterbury (NZ), and the University of Maryland for their comments. Brian Blase, Jill Mitchell, Gordon Gray, Refael Lav, Aarif Morbi, Neil Dutta, Robert Harrison, and Robert Jeffrey for their helpful research assistance.

[46] These estimates are available at SSRN (http://ssrn.com/abstract=2319005).

References

Alterman, E. (2004). *What liberal media? The truth about bias and the news*. New York: Basic Books. (Reprint edition March 2, 2004).

Andrews, E. L. (2004). "Economy remained strong in 4th quarter, U.S. reports," *New York Times*, Saturday, January 31, 2004, 1.

Ansolabehere, S., Lessem, R., & Snyder, J. M, Jr. (2006). The orientation of newspaper endorsements in U.S. elections, 1940–2002. *Quarterly Journal of Political Science, 1*(4), 393–404.

Associated Press/Ipsos-Public Affairs survey (2004). 1101 Connecticut Avenue NW, Suite 200, Washington, DC 20036, June 7–9, 2004.

Baron, D. P. (2006). Persistent media bias. *Journal of Public Economics, 90*, 1–36.

Berry, J. M., & Allen, M. (2003). "U.S. economic growth surges; output rises at highest rate since 1984, but jobs still decline," *Washington Post*, October 31, 2003, p. A1.

Birz, G., & Lott, J. R., Jr. (2011). The effect of macroeconomic news on stock returns: new evidence from newspaper coverage. *Journal of Banking & Finance, 35*, 2791–2800. co-authored with Gene Birz.

Bovitz, G. L., Druckman, J. N., & Lupia, A. (2002). When can a news organization lead public opinion? Ideology versus market forces in decisions to make news. *Public Choice, 113*, 127–155.

Chan, J., & Stone, D. F. (2013). Media proliferation and partisan selective exposure. *Public Choice, 156*(3–4), 467–490.

Chiang, C., & Knight, B. (2011). Media bias and influence: Evidence from newspaper endorsements. *Review of Economic Studies, 78*(3), 795–820.

Coulter, A. (2002). *Slander: Liberal lies about the American right*. New York: Crown Publishers.

Croteau, D. (1998). *Examining the 'liberal media' claim*. New York: Fairness & Accuracy in Reporting. (June).

DellaVigna, S., & Gentzkow, M. (2010). Persuasion: Empirical evidence. *Annual Review of Economics, 2*(1), 643–669.

DellaVigna, S., & Kaplan, E. (2007). The Fox News effect: media bias and voting. *Quarterly Journal of Economics, 122*(3), 1187–1234.

Demsetz, H., & Lehn, K. (1985). The structure of corporate ownership: causes and consequences. *Journal of Political Economy, 93*(6), 313–346.

Doms, M., & Morin, N. (2004). *Consumer sentiment, the economy, and the news media*. San Francisco: Federal Reserve Bank of San Francisco. (July).

Duff, C. (1996). "Factory orders post a 1.3 % jump for December," *Wall Street Journal*, Friday, February 16, 1996, A2.

Dyck, A., & Zingales, L. (2003). The media and asset prices. University of Chicago Business School Working Paper, August 1.

Fields, G. (2004). "Unemployment rate rises," *Miami Herald*, Friday, April 2, 2004, p. 1.

Gentzkow, M., Petek, N., Shapiro, J. M. & Sinkinson, M. (2012). Do newspapers serve the state?: Incumbent party influence on the US press, 1869–1928. NBER Working Paper 18164.

Gentzkow, M., & Shapiro, J. M. (2010). What drives media slant? Evidence from U.S. daily newspapers. *Econometrica, 78*(1), 35–71.

Gerber, A., Karlan, D., & Bergan, D. (2009). Does the media matter?: A field experiment measuring the effect of newspapers on voting behavior and political opinions. *American Economic Journal, 1*(2), 35–52.

Goldberg, B. (2001). *Bias: A CBS insider exposes how the media distort the news*. Washington, DC: Regnery Publishing.

Groeling, T., & Kernell, S. (1998). Is network news coverage of the president biased? *Journal of Politics, 60*(4), 1063–1087.

Groseclose, T., & Milyo, J. (2005). A measure of media bias. *Quarterly Journal of Economics, 120*(4), 1191–1237.

Hagenbaugh, B. (2003). 7.2% GDP growth fastest in 19 years, *USA Today*, October 31, 2003, A1.

Hamilton, J. T. (2004). *All the news that's fit to sell: how the market transforms information into news*. Princeton: Princeton University Press.

Ivanovich, D. (2003). "U.S. economy shows biggest rise in years; officials hope improvement spurs new jobs. *Houston Chronicle, 31*(2003), A1.

Jung, G., Kenny, L. W., & Lott, J. R, Jr. (1994). An explanation for why senators from the same state vote differently so frequently. *Journal of Public Economics, 54*(1), 65–96.

Klepper, S., & Leamer, E. E. (1984). Consistent sets of estimators for regression with error is all variables. *Econometrica, 52*(1), 162–183.

Kohut, A. (2008). "The web: alarming, appealing and a challenge to journalistic values," Project for Excellence in Journalism, The PEW Research Center, March 17 (http://www.stateofthemedia.org/files/2011/01/Journalist-report-2008.pdf).
Koopmans, T. C. (1937). *Linear regression analysis of economic time series*. Amsterdam: Econometric Institute Itaarlem—de Erwin F., Bohn NV.
Krupnikov, Y., Lupia, A., & Prior, M. (2006). Public ignorance and estate tax repeal: the effect of partisan differences and survey incentives. *National Tax Journal, 59*(3), 425–437.
Larcinese, V., Puglisi, R., & Snyder, J. M., Jr. (2011). Partisan bias in economic news: evidence on the agenda-setting behavior of U.S. newspapers. *Journal of Public Economics, 95*(9), 1178–1189.
Leamer, E. (1978). *Specification searches: ad hoc inference with non experimental data*. New York: Wiley.
Leeson, P. T. (2008). Media freedom, political knowledge, and participation. *Journal of Economic Perspectives, 22*(2), 155–169.
Leeson, P. T., & Coyne, C. J. (2005). Manipulating the media. *Institutions and Economic Development, 1*(2), 67–92.
Lott, J. R., Jr. (1990). An explanation for public provision of schooling: the importance of indoctrination. *Journal of Law and Economics, 33*(1), 199–231.
Lott, J. R., Jr. (1999). Public schooling, indoctrination, and totalitarianism. *Journal of Political Economy, 107*(S6), S127–S157.
Lott, J. R., Jr. (2003). *The bias against guns*. Washington, DC: Regnery Publishing, Inc.
Lott, M. (2007). Do media outlets really not provide both sides in news coverage: Re-evaluating Groseclose and Milyo. Working paper.
Media Research Center (1995). MediaWatch: June 1995. 9(6).
Media Research Center. (2004) "The liberal media: every poll shows journalists are more liberal than the American public—and the public knows it. June 30.
Miller, J. P. (2004). "GDP disappoints," *Chicago Tribune*, Saturday, January 31, 2004, 1.
Mullainathan, S., & Shleifer, A. (2005). The market for news. *American Economic Review, 95*(1), 1031–1053.
Neikirk, W. (2003). "GDP aside, jobless rate is number that matters," *Chicago Tribune*, October 31, 2003, 1.
Okrent, D. (2004). "Is the New York Times a liberal newspaper?" New York Times, Sunday, July 25, 2004.
Patterson, T. E., & Donsbach, W. (1996). News decisions: Journalists as partisan actors. *Political Communication, 13*, 453–468.
Pew Research Center for the People and the Press. (2004a). Survey of journalists. March 10–April 20, 2004.
Porter, E. (2004). "Do newspapers make good news look bad?" *New York Times*, September 12. D3.
Project for Excellence in Journalism (2004). *Character and the campaign: what are the master narratives about the candidates in 2004 and how is the public reacting to them?* Project for Excellence in Journalism, Pew Research Center and University of Missouri journalism school.
Puglisi, R. (2011). Being the New York Times: the political behaviour of a newspaper. *The B.E. Journal of Economic Analysis & Policy, 11*(1), 20.
Puglisi, R. & Snyder, J. M. Jr. (2011). The balanced U.S. press. NBER Working Paper 17263.
Rasmussen Reports (2008). Belief growing that reporters are trying to help Obama win. Rasmussen Reports, July 21, 2008.
The PEW Research Center (2004b). "Bottom-line pressures now hurting coverage, say journalists," Project for Excellence in Journalism, May 23, 2004 (http://www.people-press.org/2004/05/23/bottom-line-pressures-now-hurting-coverage-say-journalists/).
San Jose Mercury News. (1996). "Factories break losing streak," Mercury News Staff writers, the Associated Press, Bloomberg New and Reuters Friday, February 16, C1.
Shapiro, R. (2012) "Money, politics and the press: media political donations to Democrats," The Huffington Post, September 6, 2012 (http://www.huffingtonpost.com/2012/09/06/media-political-donations-democrats_n_1855502.html).
Shaw, D. (1985). "Public and the press—two viewpoints," *Los Angeles Times*, August 11, A1.
Smith, T. (1988). *The vanishing economy*. Arlington: The Media Institute.
Tierney, J. (2004). Finding biases on the bus. *New York Times*, Sunday, August 1, 16.
Van Riper, T. (2004). "Jobs, jobs everywhere," *Daily News* (New York), Friday, April 2, 2004, 17.
Wire Reports (1996). "Clinton calls for debate on economic growth, latest round of indicators show marked slowdown in recent months," *Dallas Morning News*, Friday, February 16, D1.