

Partisan Bias in Economic News: Evidence on the  
Agenda-Setting Behavior of U.S. Newspapers

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April 8, 2010

## **Abstract**

We study the agenda-setting political behavior of a large sample of U.S. newspapers during the 1996-2005 period. Our purpose is to examine the intensity of coverage of economic issues as a function of the underlying economic conditions and the political affiliation of the incumbent president, focusing on unemployment, inflation, the federal budget and the trade deficit. We investigate whether there is any significant correlation between the endorsement policy of newspapers, and the differential coverage of bad/good economic news as a function of the president's political affiliation. We find evidence that newspapers with pro-Democratic endorsement pattern systematically give more coverage to high unemployment when the incumbent president is a Republican than when the president is Democratic, compared to newspapers with pro-Republican endorsement pattern. This result does not appear to be driven by the partisanship of readers. We find similar, albeit less robust, results for the trade deficit. We also find some evidence that newspapers cater to the partisan tastes of readers in the coverage of the budget deficit. We find no evidence of a partisan bias – or at least of a bias that is correlated with the endorsement or reader partisanship – for stories on inflation.

# 1 Introduction

News provided by the mass media are the most important source of information on public affairs in modern democratic societies. Hence, media outlets play a fundamental role in keeping the public informed on the decisions of their political representatives, as well as on issues and events that are relevant to public decision-making. Time and space available being limited, journalists exercise a considerable degree of discretion on the topics covered and the tone of the reports. It would therefore not be surprising if the political views of individual journalists were reflected in news reported in the mass media.

One of the most important claims about news in the mass media is the agenda-setting hypothesis. The idea is that editors and journalists have a large degree of freedom in deciding what is newsworthy and what is not, and these choices influence the perception of citizens about which issues are relevant and to what extent. Cohen [1963] stated it eloquently: the press “may not be successful much of the time in telling people what to think, but it is stunningly successful in telling its readers what to think about.”<sup>1</sup> The exploitation of agenda-setting power is potentially one of the most harmful behaviors by news media, especially if they use this power to suppress information. The reason is that it is difficult for consumers to distinguish the scenario “I did not see any news about X today because nothing important happened regarding X” from the scenario “I did not see any news about X today because, although something important happened, the media decided not to publish it”. Theoretical models by Anderson and McLaren [2009], Baron [2006], Bernhardt, Krassa and Polborn [2008], Besley and Prat [2006] and Puglisi [2004] incorporate precisely this source of media bias, and show how this can affect public decisions and possibly lead to suboptimal ones.

In this paper we try to gauge the extent of agenda bias on economic issues for a large number of U.S. newspapers over the period 1996-2005. The logic of our approach is as follows. Consider the issue of unemployment and suppose that the incumbent president is a Democrat. Suppose also that some newspapers have a partisan bias and wish to increase or decrease the popularity of the president. When unemployment is high or rising (i.e., when the underlying circumstances are bad) Republican leaning newspapers should devote more coverage to that issue than Democratic news-

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<sup>1</sup>Starting from the seminal contribution of McCombs and Shaw [1972], there is a vast literature in communication studies on agenda-setting effects. See also Iyengar, Kinder and Peters [1982], and Iyengar and Simon [2000].

papers. The opposite should occur when unemployment is low or falling (i.e., when circumstances are good).<sup>2</sup>

We apply this logic to four key economic issues: unemployment, inflation, the budget deficit, and the trade deficit. These issues are not only important, but we can also match the coverage with the actual economic figures. For each of these issues we collect data on the number of news stories for each newspaper using the NewsLibrary and Factiva electronic archives. We find considerable variation in the estimated partisan biases of different newspapers. As an example, consider a one percentage point increase in the unemployment rate. At one extreme, the Fresno Bee would react to this change by publishing almost one percent *fewer* stories on unemployment under Clinton than under Bush. At the other extreme the Bismark Tribune would react and publish one-half of one percent *more* stories under Clinton than under Bush. Note that we do not make any claims about the *absolute* biases of newspapers, but only their relative positions.

Next, we investigate whether this measure of the bias in newspaper coverage is systematically related to supply and/or demand factors. As a proxy for the explicit partisan leaning of owners and editors of a given newspaper, we use the relative propensity to endorse Republican or Democratic candidates across a large sample of elections. As a proxy for the partisan leaning of a newspaper's readers, we use circulation-weighted voting data at the county level.

For unemployment, we find robust evidence of a correlation between intensity of news coverage and the partisanship of endorsements. More precisely, we find that newspapers with a pro-Democratic endorsement pattern systematically publish fewer stories about unemployment when the national unemployment rate is high and the president is a Democrat than when the national unemployment is equally high and the president is a Republican. The size of the estimated effects is substantial, especially when expressed in relative terms. When the unemployment rate was one percentage point above the average, newspapers with a strong propensity to endorse Republican candidates reacted with 20% per month less articles under Bush than under Clinton. For the same one percent increase, newspapers with a strong pro-Democratic endorsement policy have about *twice* more news on unemployment under Clinton than under Bush, while newspapers with a more

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<sup>2</sup>We focus on the political affiliation of the incumbent president, because national economic conditions are most closely associated with the popularity and vote of the president, while there is no robust evidence suggesting that the economy has any significant effects on congressional elections (Fair 1978, Tufte 1978, Hibbs 1987, Erikson 1989, 1990, MacKuen, Erikson and Stimson 1992).

neutral stance, i.e. located in the middle of the endorsement distribution, would publish about 50% more news on unemployment under Bush than under Clinton.

With respect to readership, we find mixed results. While newspapers more heavily sold in Democratic areas tend to give more coverage to high unemployment under Bush than under Clinton as compared to those sold in Republican areas, this correlation is not significant, irrespective of whether we control for endorsement partisanship. On the other hand editorial partisanship is still significant when both variables are included, and it is robust to a large set of controls. These results suggest that agenda bias on unemployment is more related to the partisan position of owners and editors rather than to the partisanship of readers.

We find similar results for the coverage of the trade deficit, but these appear to be driven to a large extent by the strongly partisan behavior of the New York Times. On the other hand, newspapers appear to cater to the partisan tastes of their readers – even when controlling for endorsement partisanship – in the case of the budget deficit: newspapers that are more heavily sold in Republican areas systematically devote more coverage to this issue when the budget deficit is high and the incumbent President is a Democrat than when he is a Republican, as compared to newspapers sold in Democratic areas. This result is less robust than the one about unemployment, since it loses significance when controlling for the lagged instead of the contemporaneous level of the budget deficit. Finally, we find no systematic relationships between inflation coverage and either editorial partisanship or reader partisanship.

Our paper makes three contributions to the economics literature on media bias. First, we focus on the intensity of coverage across issues, rather than tone. Theoretically, it is arguable that intensity of coverage – especially, suppression of coverage – is more important than tone, because it poses a particularly difficult inference problem for citizens. Second, we focus on important economic topics that are relevant to all citizens and policy makers. Third, although we do not do this here, it is straightforward to apply our measurement strategy to different countries and time periods.

Finally, a salient feature of our approach is that we code newspaper articles through an automatic keyword search, instead of a human-based content analysis. One advantage of this procedure is that, by definition, it is not intensive in the usage of human capital. Its low cost means that it can be used to gather data on a large number of news outlets for a long time span, restricted only by availabilities in digital archives. More importantly, an automatic search is easily replicated, as

it is based on known set of words and/or sentences that are used as classifiers.<sup>3</sup>

## 2 Related Literature

In the theoretical literature there are three approaches to modelling media bias. In the first approach, citizens have preferences directly over the ideological content of the news they consume, and media outlets cater to these preferences (Mullainathan and Shleifer 2005). In the second approach media bias takes the form of “pandering” to citizens’ prior beliefs, in order to maintain a reputation for reliable reporting (Gentzkow and Shapiro 2006). In the third approach, citizens seek information needed to evaluate policies or politicians. This information is assumed to come from media outlets, and these outlets may suppress the information (Anderson and McLaren 2009, Baron 2006, Bernhardt, Krasa and Polborn 2008, Besley and Prat 2006, and Puglisi 2004). As noted in the introduction, within the third group of models it is difficult even for highly rational citizens to completely undo the malicious effects of news bias.

Of course, media bias may also reflect a form of consumption by owners, editors, and journalists. Demsetz and Lehn [1985] discuss the “amenity potential” for owners of media firms, and find evidence that the scope for such consumption is large.<sup>4</sup>

The bulk of the empirical literature has focused on estimating media bias in terms of “tone” of coverage – i.e., how far to the left or right ideologically are media outlets. This seems most consistent with the first approach. The literature has paid relatively little attention to bias reflected in the intensity or suppression of coverage, which is the focus of the third theoretical approach.

Groseclose and Milyo [2005] classify U.S. media outlets by tracing out which think tanks are quoted by each of them. The political leaning of each think tank is recovered by looking at the political position (ADA score) of members of the U.S. Congress who quote the same think-tank in a non-negative way. In a nutshell, the political leaning of each outlet can then be calculated as the average ideology of quoted think-tanks. They find that all the outlets in their sample – except Fox News Special Report and the Washington Times – are located to the left of the average Congress

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<sup>3</sup>As pointed out by Antweiler and Frank [2005], automated procedures of text classification have the further advantage of reducing the “degrees of freedom” available to the researcher in the choice of the media outlets to be included in the sample. Gentzkow and Shapiro [2009] also adopt a keyword-based approach.

<sup>4</sup>Corneo [2006] and Petrova [2008a] provide formal models on the effects of wealth concentration on media behavior and policy choices. Ellman and Germano [2009] and Petrova [2008b] focus on the role played by advertisers and interest groups.

member. At the same time, all outlets but one (the Wall Street Journal) are located between the average Democrat and the average Republican Congressmen, hence displaying a high degree of centrism.<sup>5</sup>

Gentzkow and Shapiro [2009] provide another measure of media bias based on similarities between the language used by media outlets and congressmen. Exploiting the Congressional Record, they identify “partisan” words and phrases – i.e., those expressions that show the largest difference in the frequency of use between Democratic and Republican representatives. They then measure how frequently these expressions appear in a very large sample of newspapers. They conclude that the partisan bias of newspapers depends mainly on consumers’ ideological leaning and far less on the identity of owners. Newspapers adopting a liberal (conservative) language sell more copies in ZIP codes that are more liberal (conservative), as proxied by the propensity of their inhabitants to donate to Republican or Democratic candidates. On the other hand, once geographical factors are accounted for, the ideological slant of a given newspaper is not significantly correlated with the average ideological slant of those belonging to the same chain.

Lott and Hassett [2004] analyze newspaper coverage when official data about various economic indicators are released. They code the tone – positive or negative – of newspaper headlines, and relate this to the partisanship of the sitting president. Controlling for the economic data being released, they find that there are between 9.6 and 14.7 percent fewer positive stories when the incumbent president is a Republican.

Two existing papers look at the intensity of coverage rather than tone. Puglisi [2006] provides an account of the agenda setting behavior of the New York Times in the period 1946-1997. He finds that the Times displays pro-Democratic partisanship, with some watchdog aspects, in that, during presidential campaigns, it systematically gives more coverage to Democratic topics (civil rights, health care, labor and social welfare) when the incumbent president is a Republican.<sup>6</sup>

Puglisi and Snyder [2008] analyse the coverage of political scandals by a large sample of U.S. newspapers during the last decade. They study whether there is any significant correlation between

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<sup>5</sup>Gasper [2007] explores the robustness of the Groseclose and Milyo findings. He argues that their conclusions are robust to different measures of the ideological positions of senators and congressmen, but not to the time window being considered. In particular, the average estimated ideological position of the media shifts to the right if one uses more recent time windows.

<sup>6</sup>In accord with the theory of issue ownership, as pioneered by Petrocik [1996], an issue is said to be “Democratic” (or owned by the Democratic party) if the majority of citizens stably believes that Democratic politicians would be better than Republican ones at handling problems related to it.

the endorsement policy of newspapers, and the differential coverage of scandals involving Democratic or Republican high ranking politicians (mainly members of Congress and state governors). They find evidence that newspapers with pro-Democratic endorsement pattern systematically give more coverage to Republican scandals compared to newspapers with pro-Republican endorsement pattern, while the opposite holds for Democratic scandals. This is true even when controlling for the average partisan leanings of readers. In contrast, newspapers appear to cater to the partisan tastes of readers only for local scandals.

As with Puglisi [2006] and Puglisi and Snyder [2008], our paper focuses on the agenda-setting behavior of media outlets, i.e. the intensity of coverage. As with Gentzkow and Shapiro [2009] our paper focuses on relative rather than absolute political positions of U.S. media outlets. And, as with Lott and Hassett [2004], it focuses on economic news.

Two other papers are worth mentioning since they deal with media bias. Ansolabehere, Lessem and Snyder [2006] analyze the political orientation of endorsements by U.S. newspapers in statewide and congressional races, using a panel data design. They find an upward trend in the average propensity to endorse one or the other major-party candidate. They also find a particularly large increase in the propensity to endorse incumbents. Finally, they find a clear change in the average partisan slant of endorsements. In the 1940s and 1950s Republican candidates enjoyed a strong advantage in newspaper endorsements. This advantage gradually eroded in subsequent decades, so that by the 1990s there was a slight tendency for newspapers to endorse Democrats (even controlling for incumbency). Larcinese [2007] studies the propensity for newspapers in the UK to overprovide news that is of interest to audiences that are more valuable to advertisers.<sup>7</sup>

Finally, a few studies attempt to determine whether media bias affects political attitudes and decisions. In addition to the literature in communications studies on agenda-setting and framing effects, there are some recent papers examining the effects of variation in the diffusion of given media outlets, whose political position is assumed to be known. Gerber, Karlan and Bergan [2006] conducted a randomized field experiment just before the November 2005 gubernatorial election in Virginia. In the experiment, some households received a free subscription to the Washington Post, others received a free subscription to the Washington Times, and others received no free newspaper. DellaVigna and Kaplan [2007] use instead a quasi-experimental approach, and exploit the gradual

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<sup>7</sup>Strömberg [2004] provides a formal model that rationalizes this type of behavior.



introduction of Fox News in cable markets, in order to estimate its impact on the vote share in presidential elections between 1996 and 2000.

### 3 Data and empirical strategy

We collected data from the NewsLibrary electronic archive, recording the monthly number of hits on unemployment and inflation, and the quarterly number of hits on the federal budget deficit and the trade deficit.<sup>8</sup> First, through a number of preliminary searches we defined the exact wording of the search strings in order to reduce the number of false positive and false negative hits. Once identified the appropriate keywords (reported in Table 1), we run an automated search, then retrieving the number of hits on each topic by time unit. Overall, we collected data on 140 U.S. newspapers for which electronic archives dating back to 1996 are available to be searched through NewsLibrary. We use the newspapers' own archives to add data on the Los Angeles Times and the Chicago Tribune, and the Factiva archive for the New York Times.

In this section we will first present the economic news data, and describe how we use it to compute a measure of partisan coverage. We then illustrate the procedure used to recover the endorsement propensity of the various newspapers. We do the same for the measure of reader partisanship. Finally we investigate the simple correlation between our measure of agenda bias and either endorsement or reader partisanship. This illustrates our empirical strategy, in a less rigorous but more intuitive fashion. We will then be ready to present our panel specification.

#### 3.1 The economic news data

The key variables in our analysis are the values of the four underlying economic indicators, and the amount of newspaper coverage devoted to the four economic issues. Since newspapers vary greatly in size cross-sectionally (total number of pages, stories, and words), and can also vary in size over time, we focus on the relative frequency of stories in each newspaper. Table 1 reports the keywords that we use<sup>9</sup>.

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<sup>8</sup>The official macroeconomic figure is made available to the public monthly for the unemployment and the inflation rate, and quarterly for the two deficits.

<sup>9</sup>A potential concern is that all the variation in the coverage of economic news might be driven by editorials themselves. Hence, we have re-run the searches excluding the words "editorial" or "editor". We explore the robustness of our results to this narrower definition of coverage below. We proxy the total number of stories in each newspaper in each period by running a search on the word "and".

Let  $EV_t^i$  be the value of the economic figure regarding issue  $i$  at time  $t$ , where  $i \in \{U, I, B, T\}$  and  $U$  stands for "unemployment",  $I$  for "inflation",  $B$  for budget deficit, and  $T$  for trade deficit. Let  $n_{jt}^i$  be the relative frequency of pieces published by newspaper  $j$  during time  $t$  about issue  $i$ .<sup>10</sup>

For each newspaper  $j$  and each economic issue  $i \in \{U, I, B, T\}$ , we then run a separate OLS regression:

$$n_{jt}^i = \alpha_j^i + \beta_{1,j}^i EV_t^i + \beta_{2,j}^i \Delta EV_t^i + \gamma_j^i DP_t + \delta_j^i (EV_t^i \cdot DP_t) + \lambda_j^i \ln s_{jt} + \epsilon_{jt}^i \quad (1)$$

where  $DP_t$  is a dummy variable indicating that the incumbent president is a Democrat. In addition, we control for the change in the economic variable of interest (month by month for unemployment and inflation, quarter by quarter for the budget and the trade deficit). We also control for the logarithm of the total number of articles in each newspaper at time  $t$ ,  $s_{jt}$ . The coefficient  $\delta_j^i$  represents the difference in how newspaper  $j$  reacts to bad economic news when the president is Democratic compared to when the president is a Republican. Positive values indicate that the newspaper is more reactive to bad economic news when the incumbent president is a Democrat.<sup>11</sup>

Figure 1 represents a scatter plot where for each newspaper the measure of the differential coverage of unemployment (the estimated  $\delta_j^U$ ) is shown on the horizontal axis, while the vertical axis displays the average circulation in 1996. Newspapers selling more than 400,000 copies are represented by their name, and smaller papers are represented with dots.

The graph hints at a sizeable degree of variation in the differential coverage of unemployment. At one extreme of the distribution, the Fresno Bee – for a one percentage point increase in the unemployment rate – would devote almost one percent *less* of total stories to unemployment under Clinton than under Bush. At the other extreme the Bismark Tribune – for the same one percentage increase – would react with half a percentage point *more* stories under Clinton than under Bush. To name some prominent newspapers, the New York Times' estimated differential slope is  $-0.09$ , i.e. it would react with about 0.1 percent of stories less under Clinton than under Bush. The estimated  $\delta_j$  for the Los Angeles Times is  $-0.18$ , while it is  $+0.16$  for the Detroit Free Press.

<sup>10</sup>Table 2 displays summary statistics of the relative frequency of stories and the economic figures of interest for the 1996-2005 period.

<sup>11</sup>If we had data for a period long enough to cover numerous presidents, it would be possible to treat this interaction term as a measure of the *absolute* pro-Republican bias of a newspaper. However, given the short time span available, the time series variation by itself could easily be misleading. In particular, other newsworthy events and issues could be crowding out economic news more in some years than others.

### 3.2 The endorsement and readership data

We were able to gather endorsement data for 102 newspapers. Table A1 lists the newspapers with endorsement data, together with the chain to which they belong, if any.

We obtained the endorsement data for 85 newspapers from Ansolabehere, Lessem and Snyder [2006], and supplemented this with data on 17 additional newspapers searched via the NewsLibrary archive. For the remaining 38 newspapers, in some cases the newspaper has an explicit policy not to endorse candidates for political offices (e.g. the Deseret News in Salt Lake City, the Orange County Register, and the Colorado Springs Gazette). In addition, many smaller ones do not bother to make endorsements, even though they may not take an explicit editorial stance on the subject.

Following Ansolabehere, Lessem and Snyder [2006] we can calculate the propensity of each newspaper to endorse one of the parties during electoral campaigns. We used a linear regression model to estimate the “partisan bias” in endorsement behavior. Let  $i$  index offices, let  $j$  index newspapers and let  $t$  index years. Let

$$E_{ijt} = \begin{cases} 1 & \text{if newspaper } j \text{ endorses Democrat for office } i \text{ in year } t \\ -1 & \text{if newspaper } j \text{ endorses Republican for office } i \text{ in year } t \\ 0 & \text{if newspaper } j \text{ makes no endorsement for office } i \text{ in year } t \end{cases}$$

measure the endorsement behavior by each newspaper that makes an endorsement (or an explicit refusal to endorse) in a race.<sup>12</sup> Also, let

$$I_{ijt} = \begin{cases} 1 & \text{if Democrat for office } i \text{ in year } t \text{ is only incumbent} \\ -1 & \text{if Republican for office } i \text{ in year } t \text{ is only incumbent} \\ 0 & \text{if otherwise} \end{cases}$$

measure the incumbency status of the candidates in each race.<sup>13</sup> Finally, we use previous electoral experience to measure non-incumbent quality. Specifically, define a “high-quality” candidate as a candidate who currently holds a U.S. House seat or an elected statewide office other than the office

<sup>12</sup>There are a few cases in our sample where a newspaper endorsed both candidates in a race. We drop these from our analysis.

<sup>13</sup>After redistricting there are some U.S. House races with two incumbents running, in which case  $I_{ijt} = 0$ . There are a few such cases in our sample. If we drop them the results are unchanged.

sought. Let

$$Q_{ijt} = \begin{cases} 1 & \text{if Democrat for office } i \text{ in year } t \text{ is only high quality non-incumbent} \\ -1 & \text{if Republican for office } i \text{ in year } t \text{ is only high quality non-incumbent} \\ 0 & \text{otherwise} \end{cases}$$

We estimated the following linear model for the period 1992-2002, exploiting the panel nature of the data<sup>14</sup>

$$E_{ijt} = NE_j + \theta_t + \beta_1 I_{ijt} + \beta_2 Q_{ijt} + \epsilon_{ijt} \quad (2)$$

The newspaper-specific fixed effects,  $NE_j$ , capture newspapers' partisanship.<sup>15</sup> Similarly to Figure 1, Figure 2 features a scatter plot of the Democratic endorsement score for each newspaper against its average circulation in 1996. In the figure, 0 is the neutral point, positive values indicate a propensity to endorse Democratic candidates and negative values a propensity to endorse Republican candidates. The endorsement variable, which is only based on editorials, indicates a slight prevalence, on average, of pro-Democratic endorsements. Overall, however, most newspapers appear to be centrist, in the sense that they are placed in the range  $[-0.5, 0.5]$  in the endorsement scale (i.e. within the vertical lines). Interestingly, this is especially true for larger newspapers, while the more partisan newspapers, outside the  $[-0.5, 0.5]$  range, tend to have more modest circulation.

As a proxy for the average political position of readers of a given newspaper  $j$ , we weight the average Democratic vote in presidential, senatorial and gubernatorial elections in each county during the time period by the relative sales of that newspaper in that county. Let this variable be  $NR_j$ . Figure 3 displays a scatter plot of reader partisanship against average circulation. Reader partisanship appears to be less concentrated than endorsement partisanship, and larger newspapers are sold in Democratic and Republican areas as well, rather than being concentrated in moderate areas.

Ex ante, one might be concerned that endorsement and reader partisanship are so correlated that it is very difficult to tell one from the other. Figure 4 displays a scatter plot of the endorsement partisanship  $NE_j$  against readers' ideology  $NR_j$  for our sample of newspapers, together with the

<sup>14</sup>The panel is unbalanced, since we do not have endorsement data on some newspapers in the earlier years.

<sup>15</sup>The model also includes year fixed-effects,  $\theta_t$ , to capture partisan tides.

estimated regression line. As expected, there is a statistically significant correlation between the partisan stance on the demand and on the supply side in the cross section. But the correlation –when excluding the Washington Times as an outlier– is only 0.29, which is not overwhelming.<sup>16</sup> Clearly, there is a lot of “slack” between the partisan positions of news consumers and news providers.

### 3.3 The correlates of agenda bias: a preliminary investigation

The question we address is whether our measure of biased coverage of economic issues is systematically correlated with the ideological position of the demand and/or the supply side. In Figures 5-12 we thus analyze the relationship between the estimated interaction terms from equation (1) and either the estimated propensity to endorse Democratic candidates obtained from equation (2) or the measure of reader partisanship. Again, we explicitly report the names of newspapers with circulation above 400,000 copies. Each graph also displays a bivariate regression line, i.e. the fitted values of a regression of  $\widehat{\delta}_j^i$  over  $\widehat{NE}_j$  (or  $NR_j$ ) and a constant.

In the case of unemployment news (Figure 5), the relationship between the endorsement variable and the estimated interaction term is negative and statistically insignificant. However, this is clearly due to the Washington Times, which is the most extreme Republican endorser in the sample, but still exhibits a strongly negative differential slope. If we exclude the Washington Times from the analysis as an outlier, the relationship between endorsement policy and agenda bias on unemployment is negative and firmly significant. Regarding reader partisanship, the relationship with agenda bias is negative and statistically insignificant, irrespective of the inclusion or exclusion of the Washington Times.

Figure 7 and 8 display results regarding the coverage of inflation. The fitted values show a mild and positive relationship between the endorsement variable and the estimated interaction terms. However, this relationship is statistically insignificant. By the same token, the relationship with reader partisanship is negative and statistically insignificant.

Figure 9 and 10 represent the same relationships for the coverage of the budget deficit. As with unemployment, the Washington Times appears as a relevant outlier. The negative correlation between endorsement partisanship and the differential coverage of the budget deficit is statistically significant only when including the WT. The correlation with reader partisanship is negative and

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<sup>16</sup>When including the Washington Times, the correlation shrinks to 0.21.

statistically insignificant irrespective of the inclusion of the Washington Times.

Finally, Figure 11 and 12 show results for the trade deficit. In the case of endorsement partisanship, two newspapers might work as outliers: again the Washington Times, and the New York Times. When including both, the relationship with the differential slope is negative and statistically insignificant. When excluding the Washington Times, the relationship becomes statistically significant. When excluding both, it is statistically insignificant but not far away from mild significance. In the case of reader partisanship, the negative relationship is mildly significant only when including both the NYT and the WT.

### 3.4 Panel specification

This simple two-stage graphical analysis gives a mixed picture of the links between partisan coverage of economic news and either endorsement policy or reader partisanship. On one hand, we find some evidence of a correlation between the differential coverage of unemployment and endorsement partisanship. We find similar results for the trade deficit, but the influential behavior of the New York Times might essentially drive this. On the other hand, we find small and statistically insignificant relationships for inflation and the budget deficit.

Here, we perform a more structured test. Rather than analyzing newspapers one at a time, we exploit fully the panel nature of our data. Consider endorsement partisanship first. We estimate three-way specifications containing an interaction term between the economic variable  $EV^i$ , an indicator for Democratic president  $DP_t$  and the newspaper-specific endorsement propensity  $\widehat{NE}_j$ .<sup>17</sup> A basic three-way specification is the following (we omit the indicator  $i$  of the economic issue):<sup>18</sup>

$$n_{jt} = \alpha_j + \beta_1 EV_t + \beta_2 \Delta EV_t + \gamma DP_t + \delta(EV_t \cdot DP_t) + \xi(DP_t \cdot \widehat{NE}_j) + \\ + \vartheta(EV_t \cdot \widehat{NE}_j) + \phi(EV_t \cdot DP_t \cdot \widehat{NE}_j) + \lambda \ln s_{jt} + \epsilon_{jt} \quad (\text{Specification A})$$

where we include newspaper fixed effects  $\alpha_j$  and sensitivity to newspaper size (in logarithm)  $\lambda$ . We also control for the change  $\Delta EV_t$  in the economic variable. Our coefficient of interest is  $\phi$ . A negative

<sup>17</sup>To account for the possibility that the fixed effects may not absorb the entire within-newspaper correlation in the error term, we run all regressions clustering the standard errors by newspaper.

<sup>18</sup>In the baseline specification we control for the *contemporaneous* value of the relevant economic figure ( $x_t$ ), by itself and properly interacted. For reasons that will be discussed in Section 5.1, we will also re-run all regressions by using lagged values of the economic variables.

value of  $\phi$  implies that newspapers which tend to endorse Democratic candidates have a relatively pro-Democratic agenda-setting bias (on economic item  $i$ ), compared to newspapers that tend to endorse Republican candidates. In this specification we cannot include time specific dummies since we have other variables that, in each given period, do not vary across newspapers. However, time dummies can be quite important in order to capture the influence that contemporaneous events can have on the space devoted to economic news. Hence, in a second specification we include time-dummies  $\tau_t$  but exclude other variables that, in each period, do not vary across newspapers:

$$n_{jt} = \alpha_j + \tau_t + \xi(DP_t \cdot \widehat{NE}_j) + \vartheta(EV_t \cdot \widehat{NE}_j) + \phi(EV_t \cdot DP_t \cdot \widehat{NE}_j) + \lambda \ln s_{jt} + \epsilon_{jt} \quad (\text{Specification B})$$

Finally, in our most demanding specification, we replace  $\xi(DP_t \cdot \widehat{NE}_j)$  and  $\vartheta(EV_t \cdot \widehat{NE}_j)$  with, respectively, newspaper-specific Democratic president effects and newspaper-specific issue-variable effects:

$$n_{jt} = \alpha_j + \zeta_t + \beta_j x_t + \gamma_j DP_t + \phi(EV_t \cdot DP_t \cdot \widehat{NE}_j) + \lambda \ln s_{jt} + \epsilon_{jt} \quad (\text{Specification C})$$

This specification is the most general since we allow newspapers to react differently to changes in the president and in the unemployment rate not just in function of their endorsement partisanship but also of any other unobserved newspaper characteristics.

The same type of specification is useful to investigate how biased coverage is correlated with reader partisanship. In order to do so, we simply rerun models A, B and C by replacing  $\widehat{NE}_j$  with  $NR_j$ . We will also explore the joint role played by ideology on the demand and the supply side by including in the same specification the proper two-way and three-way interactions with both  $\widehat{NE}_j$  and  $NR_j$ .

Since it is *a priori* unclear which aspect of an economic figure is deemed as more newsworthy by editors and journalists (whether it is the level thereof, or the change, or both), we also re-consider the same three specifications by using the change in the relevant economic figure rather than the levels in the interaction terms. In this case we keep the level of the economic variable as a control. We find, however, no significant results when we focus on changes. The tables are therefore not

reported but are available from the authors upon request.

## 4 Results

Table 3 displays the results about biased coverage of economic news and endorsement partisanship. Table 4 does the same for reader partisanship, while in Table 5 we jointly consider endorsement and reader partisanship. In all tables we exclude the Washington Times from the analysis, and report t-statistics in brackets below each coefficient.

The results in Table 3 confirm that newspapers with a pro-Democratic-endorsement pattern, compared to pro-Republican newspapers, give significantly less coverage to unemployment in times of high unemployment under Clinton than under George W. Bush. The three-way interaction between the level of the unemployment rate, the Democratic President dummy and the Democratic endorsement variable always comes with the expected negative sign and is significant at the 5% level in all three specifications. The magnitude of the coefficient is also very stable across specifications. On the other hand, the three-way interaction effect is never statistically significant for inflation and the budget deficit. However, confirming the two-stage analysis discussed above, the three-way interaction for the trade deficit is mildly significant at the 10% level across all specifications.<sup>19</sup>

Some data analysts might be tempted to treat the average difference in slopes across Democratic and Republican presidents (the  $\delta$ s) as a measure of the average *absolute* level of bias across the newspapers in our sample. We are not. The reason is that the time sample is too short, so we are only comparing two presidents; the underlying economic conditions were different under the two presidents, so functional form is a major concern; and many other newsworthy events (terrorist attacks, war in Iraq, Monica Lewinsky scandal, O.J. Simpson trial) might have crowded out economic news differentially under the two presidents. Compared to recent literature on media bias (see Lott and Hassett, 2004), we would place little emphasis on such coefficients.<sup>20</sup> Finally, it

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<sup>19</sup>When we exclude the New York Times from the sample, the interaction term is still significant for specification A and B, but no longer so for specification C.

<sup>20</sup>If one did use the coefficients in this way, the picture would be mixed. The estimated difference in slopes is negative and significantly different from zero in the case of unemployment, inflation and trade deficit, suggesting a pro-Democratic bias. That is, newspapers on average devoted more attention to unemployment (inflation, trade deficit) during periods of high unemployment under George W. Bush than under Clinton, and vice versa for periods of low unemployment. On the other hand, for the budget deficit the estimate suggests a pro-Republican bias. At the same time, budget deficit and unemployment were generally decreasing under Clinton and were increasing during the George W. Bush years. Hence, it is hard to determine whether the coefficients reflect a partisan bias in coverage or simply a judgement about the importance of the direction of a change (i.e. increases vs. decreases) for a particular



is interesting to note that the coefficients on the interaction between the unemployment rate and the endorsement variable (the  $\vartheta$ s) are positive and statistically significant. In other terms, coverage by Democratic-endorsing newspapers is more reactive to high unemployment than by Republican-leaning ones, even when controlling with the triple interaction for the partisan effect. This is true for the trade deficit as well, albeit with a lower level of statistical significance.

Table 4 replicates the format of Table 3, but it focuses on reader partisanship. Differently from the two-stage analysis, we find that newspapers more heavily sold in Democratic counties are significantly more reactive to a larger budget deficit under George W. Bush than under Clinton, as compared to newspapers sold in Republican counties. The three-way interaction term is strongly significant across all three specifications. On the other hand, for the three other economic issues we do not find any evidence of an agenda bias that is significantly correlated with the partisan leaning of readers. In all cases the point estimates of the three-way interaction are negative, but never reach ordinary levels of significance.

Finally, in Table 5 we jointly consider endorsement and reader partisanship, properly interacted with the economic variable and the Democratic president dummy. The main message arising from the previous tables is confirmed here: the differential coverage of unemployment is significantly correlated with endorsement partisanship, but not with reader partisanship. The same holds for the trade deficit, albeit with a lower level of significance.<sup>21</sup> On the other hand, partisan coverage of the budget deficit is significantly correlated with the average partisan leaning of readers, not with the one displayed by editors through their endorsements. Finally, the coverage of inflation is not significantly correlated with either endorsement or reader partisanship.

How large are the effects we find for unemployment and the two deficits? As a benchmark, consider specification A in Table 5 and start with unemployment news. We first group the newspapers into quintiles on the basis of their endorsement patterns. Then, for each group, we compute the difference between the average predicted change in the number of unemployment stories under Clinton and under George W. Bush, if the unemployment rate is one percentage point higher than the average. The magnitudes refer to newspapers belonging to the first, third and fifth quintile in the endorsement distribution, i.e. newspapers that we define as, respectively, strongly Republican,

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economic variable.

<sup>21</sup>Again – when excluding the New York Times from the analysis – the three-way interaction is still significant with specifications A and B, no longer so with specification C.

“neutral”, and strongly Democratic. The estimated effects are nonnegligible. Newspapers will react to a 1% increase in the unemployment rate differently depending on whether the president is a Democrat or a Republican: under a Republican president a strongly Republican newspaper will provide 0.02 percent less news on unemployment than if the same 1% increase in the unemployment rate happens under a Democrat. On the other side, considering again a 1% increase in the unemployment rate, a strongly Democratic newspaper will provide about 0.10 percent *more* news on unemployment under a Republican president than under a Democratic president. The differential treatment of the same change under the two presidents is about 0.05 percent for a “neutral” newspaper.<sup>22</sup> This should be compared with the standard deviation in the frequency of unemployment news, which (see Table 2) equals 0.372, while the standard deviation of the actual unemployment figure during our time period is 0.672. These effects appear even larger if expressed in relative terms. On average, a strongly Republican newspaper would react to a 1% change in unemployment with 20% *less* stories under Bush than under Clinton, while a strongly Democratic outlet would publish about *twice* more news on unemployment under Bush than under Clinton. The estimated reaction for a neutral newspaper is about 50% larger under Bush than under Clinton.

The effects for trade deficit are also fairly substantial. All categories of newspapers would more strongly react to a 1% increase in the deficit under Bush than under Clinton, but this difference is 0.01 percent of stories for strongly Republican newspapers, about 0.02 for neutral ones and almost 0.03 for strongly Democratic ones. To put this into perspective, the standard deviation in the relative frequency of news about trade deficit is 0.059. And – during 1996-2005 period – the standard deviation in the trade deficit figure is 1.579. Table 2 clearly shows that on average the relative frequency of unemployment news is an order of magnitude larger than the trade deficit one, but in relative terms the differential reactivity of strongly Republican and strongly Democratic newspapers under Bush and under Clinton is in fact larger for the latter issue than for the former.

Regarding the budget deficit, we proceed in an exactly parallel way, by first grouping the newspapers into quintiles on the basis of their readers’ partisanship. Focusing again on specification A in Table 5, we then compute the average differential reactivity to a 1% change in the deficit under Bush and under Clinton for the various quintiles. The estimated effects are nonnegligible: for a 1%

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<sup>22</sup>Of course, the fact that those ratios tilt towards positive values depends on the interaction between the Democratic president dummy and the economic variable being positive.

change in the deficit, newspapers that are read in strongly Republican areas would publish 0.01 percent less stories under Bush than under Clinton. On the other hand, newspapers sold in strongly Democratic areas would react with 0.001 percent more stories under Bush than under Clinton. For reference, the standard deviation of budget deficit news is around 0.1, while the standard deviation in the budget deficit figure is about 2.

#### 4.1 A historical case study

Since it remains difficult to disentangle the direction of causality with data whose relevant variation is ultimately cross-sectional, a possible empirical strategy consists in using time series data and exploit some (possibly) exogenous shock in the partisanship of readers across regions, or in the editorial position of newspapers, as triggered by a change in ownership or management. An interesting case in hand is represented by the succession of Otis Chandler in 1960 as publisher of the Los Angeles Times, the newspaper his family owned since 1884. The LA Times used to have a clear conservative slant, which was overturned by Chandler, who aimed at making it a credible rival of the New York Times. Figure 13 shows the time-series variation in the propensity of the LA Times to endorse Democratic candidates, together with the average yearly share of the Democratic vote in presidential, senatorial and gubernatorial elections in California. In the 60s, after Otis Chandler took office, there was a steep increase in the propensity to endorse Democratic candidates, which was not matched at all by a comparatively rapid surge in the Democratic vote.

The top two scatter plots in Figure 14 show the relationship between the actual unemployment rate and the relative frequency of unemployment stories on the LA Times, before and after 1965. In each graph, coverage-unemployment combinations under a Democratic (Republican) President are indexed by a one (zero). The bottom two graphs parallel the top ones, showing the same relationship for the inflation rate. Regression lines between the economic variable and its coverage, as a function of the political affiliation of the incumbent President, are reported. The two scatter plots on the left show that before 1965 the LA Times systematically gave more coverage to high unemployment and inflation under a Democratic President than a Republican one<sup>23</sup>. On the other hand, according to the two graphs on the right, in the post-1965 period there is no systematic difference in the slopes under presidents of different political affiliation.

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<sup>23</sup>This is formally confirmed by proper difference-in-differences regressions, available upon request from the authors.

Ideally, this anecdotal evidence should be backed up by the analysis of a large sample of newspapers, with enough time series variation in their ownership and management. However, coupled with our previous analysis of endorsement patterns, it is indicative of the fact that supply side factors might play a non-negligible role in determining the political position of mass media outlets, in this case affecting the partisan coverage of economic news.

## 5 Robustness checks

In this section we check the robustness of our results.

### 5.1 Lagged values of the economic figures

It is *a priori* unclear whether newsworthy economic events are more correlated with contemporaneous values of the relevant economic figures, or lagged values. The Bureau of Economic Analysis and the Bureau of Labor Statistics (or any statistical agency assigned to similar tasks) can only publish lagged values of macroeconomic variables. However, newspapers do not only report on the release of official data – which are related to what happened in the past – but also on contemporaneous events, which may be correlated with the current value of the relevant macroeconomic figure. For example, with respect to unemployment, there might be news stories on large layoffs in a given sector or by a particular large firm, or reports of large current spikes in applications at local unemployment agencies.

We thus want to check whether our results are robust to controlling for the lagged value of the economic variable of interest instead of the contemporaneous one. The findings of this exercise are displayed in Table 6, which exactly parallels Table 5. More precisely, we control for the previous month’s unemployment rate and inflation rate, and the previous quarter’s budget deficit and trade deficit.

Results regarding unemployment news are remarkably robust to this change. If anything, the size and the significance level of the three-way interaction between unemployment rate, the Democratic president dummy and endorsement partisanship is larger in Table 6 than in Table 5. On the other hand – in the case of budget deficit news – the three-way interaction with the reader partisanship variable is no longer significant at ordinary confidence level when controlling for the

lagged instead of the contemporaneous level of the deficit. Finally, for trade deficit stories the three-way interaction with the endorsement variable is still mildly significant, but not under the more demanding specification C.

## 5.2 Unemployment news: further robustness checks

In table 7 we show some further robustness checks regarding unemployment coverage.

Newspapers typically have a locally concentrated readership that cares about local events, and local aspects of common phenomena. Since there is noticeable variation in unemployment across regions and states, the local unemployment rate in an area or state may represent a newsworthy issue. This can potentially introduce an omitted variables bias. The concern is that, in Democratic-voting areas, the local unemployment rate could be systematically lower than its average when the incumbent president is a Democrat, because of public job-creating projects being targeted to the area. Since the political partisanship of potential readers in the area where a newspaper sells is positively correlated with its endorsement policy (see Figure 4), then the less intense coverage of high unemployment by Democratic-leaning newspapers under a Democratic president could be driven by the fact that the *local* unemployment rate is lower in those areas where the newspapers are sold. This would not indicate a partisan bias trickling down from the editorial page to the economic news section, but simple reporting on local economic conditions.

To address this issue, we re-ran our regressions controlling for both the level and change of the unemployment rate in the state where each newspaper is based.<sup>24</sup> As a baseline, we use the fuller specification adopted in Tables 5 (and 6), whereas we control for both reader and endorsement partisanship. The results are reported in columns 1-3 of Table 7. Again we find a systematic correlation between the endorsement policy and the differential coverage of unemployment. The size and significance of the coefficients of the three-way interaction terms are very similar to those reported in Table 6. If anything, the point estimates are slightly larger in absolute value, but statistically indistinguishable from the baseline ones. On the other hand, it is again the case that the three-way interactions with the reader partisanship variable are not significantly different from zero.

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<sup>24</sup>Due to multicollinearity, while the slope of unemployment news with respect to the national unemployment rate is allowed to be newspaper-specific with specification C, the slopes with respect to state level unemployment rate and its change are common across newspapers.

The coefficients of the level of the unemployment rate in the state is positive and significant at standard confidence levels, but for specification C. Similarly, the coverage of unemployment is positively and significantly correlated with the change in the state unemployment rate in all three specifications.

The results found so far could be driven by what is featured on editorial pages themselves. Therefore we repeat our regressions by excluding editorials from our dependent variable.<sup>25</sup> The results are presented in columns 4-6 of Table 7, again using the same A-B-C specifications.<sup>26</sup> The results are very reassuring: the coefficient of the three-way interaction with the endorsement variable is again negative and significant, and the magnitude is only slightly lower than what we found in the previous cases. To sum up, a large part of the differential coverage of unemployment takes place on the news pages, not merely on the editorial ones, suggesting that agenda-setting indeed spills over into the economic news section.

## 6 Discussion and conclusions

In this paper we have analyzed the relationship between reader and endorsement partisanship of U.S. newspapers and the coverage of economic issues, as a function of the true economic datum and the political affiliation of the incumbent president. Considering the 1996-2005 period, there is strong evidence that newspapers endorsing Democratic candidates give less coverage to high unemployment (and more coverage to low unemployment) under Clinton than under George W. Bush, as compared to Republican-leaning newspapers. This relationship is very robust to a number of alternative specifications and robustness checks. There is also evidence of a similar pattern of coverage for the trade deficit issue, although this is less robust. For the budget deficit issue, we find some evidence of a bias in coverage that is correlated with the partisanship of newspapers' readers, although again this finding is not fully robust. We find no significant patterns for inflation.

How should we interpret these findings? On the one hand, since we find strong and robust evidence of agenda setting behavior only on one economic issue out of four, we might reject the idea that the U.S. press exhibits a potentially harmful partisan slant in its coverage of economic

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<sup>25</sup>We consider news on unemployment excluding the words “editorial” or “editor”. To pin down the size of the news section of each newspaper during each month, we have run a search on the word “and”, excluding again the words “editorial” or “editor”.

<sup>26</sup>We find very similar results when including levels and changes in state unemployment rates as well.

news. On the other hand, the one issue where our results are strongest – unemployment – is the most salient of the four during the time period studied. Moreover, as discussed in the introduction, there is a large body of evidence that citizens assess the incumbent president’s performance on the basis of how strong the economy is, and vote accordingly in presidential elections. Citizens are also better able to grasp the significance of a high unemployment rate, because of the dire consequences it can have on their personal lives.

This last statement likely applies to the inflation rate as well, but the independence of the Federal Reserve makes it difficult for the public to establish links between presidential policies and inflation. Also, even if citizens are largely unaware of the institutional independence of the Fed, in the time period under consideration inflation was very low, so it was not perceived as a serious problem that required action.<sup>27</sup> It is also interesting to note that in the long run analysis of the LA Times presented in section 4.1, the succession of Otis Chandler as publisher seemed to matter not only with regards to the coverage of unemployment, but for inflation as well. During the longer time period considered there, the inflation rate was often much higher than in the more recent period (e.g., in the late 1940s, the 1970s and the early 1980s). At those times the rise in the cost of living was widely perceived as a very serious issue.

Finally, the budget deficit and the trade deficit are probably more complex issues, whose influence on presidential approval is less clear and whose significance citizens understand much less, perhaps because of the lack of direct effects on their personal lives, perhaps because the effects are not immediate and can therefore be heavily discounted. In the American National Election Studies 1992-2004, unemployment came in second as the “most important problem facing the nation” (crime being first). Nearly 10% of respondents mentioned it. By comparison, less than 0.5% of respondents mentioned inflation, and even counting generously, only about 1.5% of respondents mentioned trade issues (only 0.33% of respondents mentioned the trade deficit specifically, and more respondents mentioned “international competitiveness” or “outsourcing”, which might be treated more appropriately as employment issues).<sup>28</sup>

As mentioned in the introduction, we only study agenda-setting and do not attempt to estimate

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<sup>27</sup>During the 1996-2005 period, the highest inflation rate was about 4.7% (September 2005). In the 1988-2005 period, the peak of around 6.3% was reached in October 1990.

<sup>28</sup>Unfortunately, we cannot separate the government deficit from other mentions about government spending being too high.

any framing of economic events done through tone. Another limitation of our approach is that we simply count the number of articles featuring the chosen keywords.<sup>29</sup>

One of the most desirable features of our approach is that it is quite flexible and easily replicable. This will allow us – and others – to readily extend the analysis in several directions. First, it would be worthwhile to try and gather data on additional newspapers for the early 90s and late 80s, in order to shed some further light on the robustness of our results with respect to the time-window being considered. Moreover, historical electronic archives such as ProQuest can be used to construct long time series on the coverage of economic issues by a handful of newspapers. Secondly, any debate on the extent of “mass media bias” in the U.S. should be put into a comparative perspective.<sup>30</sup> Given that the economy represents a salient issue in almost all countries, one could use the same keywords-based search procedure on the electronic archives of newspapers and media outlets in other countries, and construct similar datasets to the one analyzed here. The purpose of such an exercise would be to compare – on a cross-country basis – the amount of within-country variation in the differential coverage of relevant economic figures, as a function of the political affiliation of the incumbent government and the level itself of the economic figure.

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<sup>29</sup>One could for example refine the search algorithm to code the page number and newspaper section on which each piece appears. In particular, one could give a higher weight to front page stories, or separately consider them in the analysis. A further improvement (which is more difficult to implement within an automated search) would be to weight articles by their length.

<sup>30</sup>See Gentzkow, Glaeser and Goldin [2006] for a time-series comparison of the extent of bias on the U.S. press in the coverage of two political scandals, the *Crédit Mobilier* in the 1870s and the *Teapot Dome* in the 1920s.



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Fig. 1: Average circulation and agenda bias on unemployment

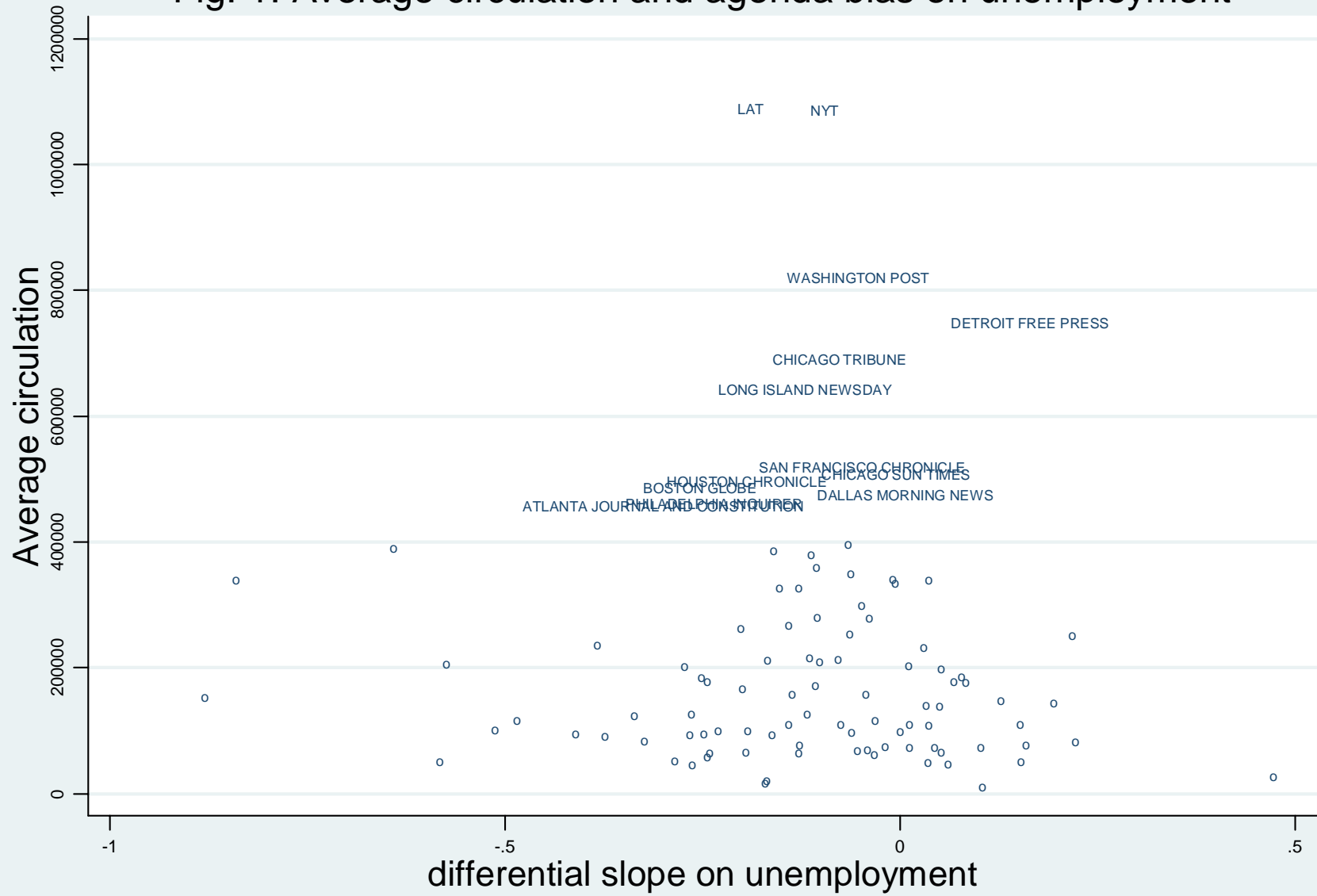


Fig. 2: Average circulation and endorsement partisanship

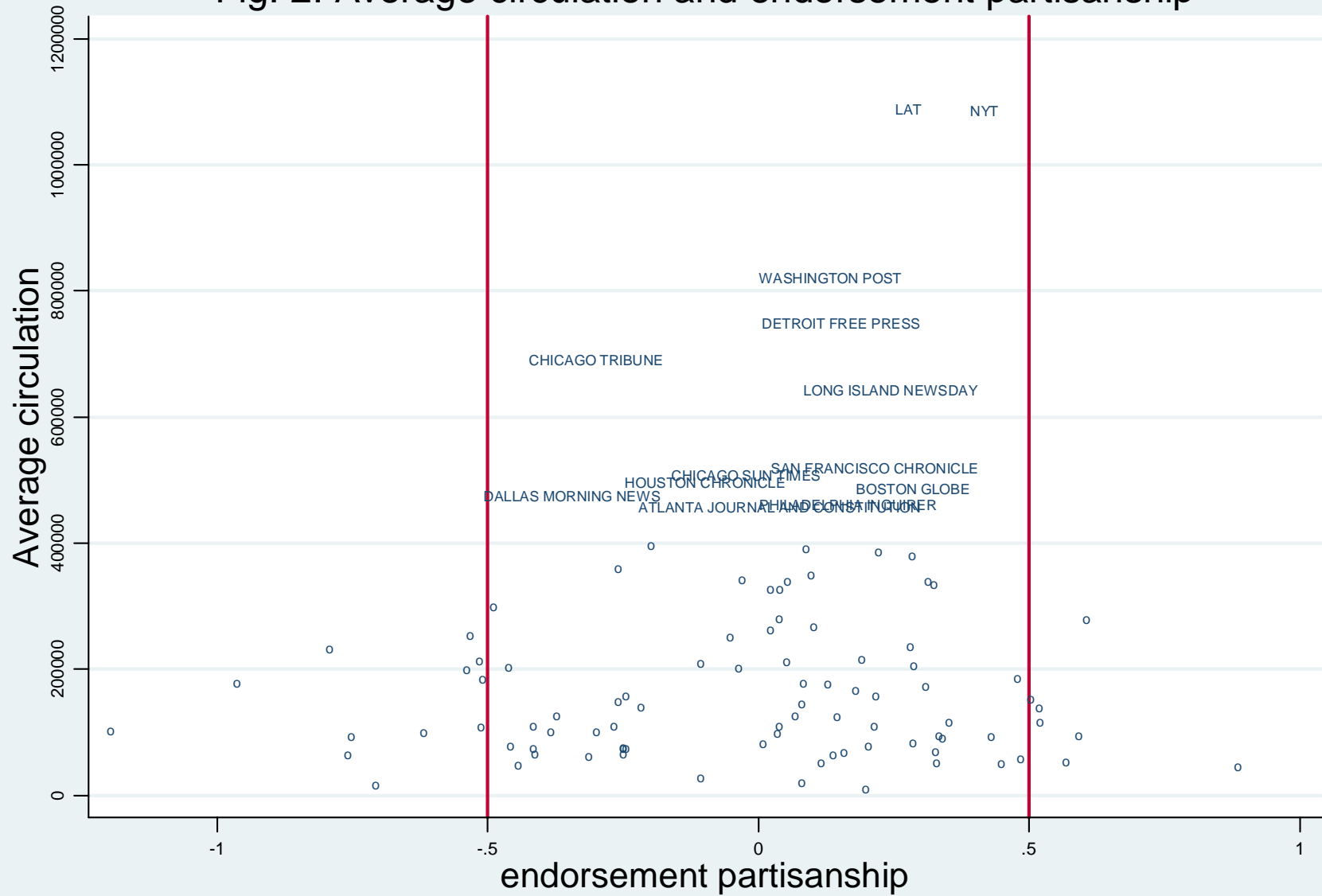


Fig. 3: Average circulation and reader partisanship

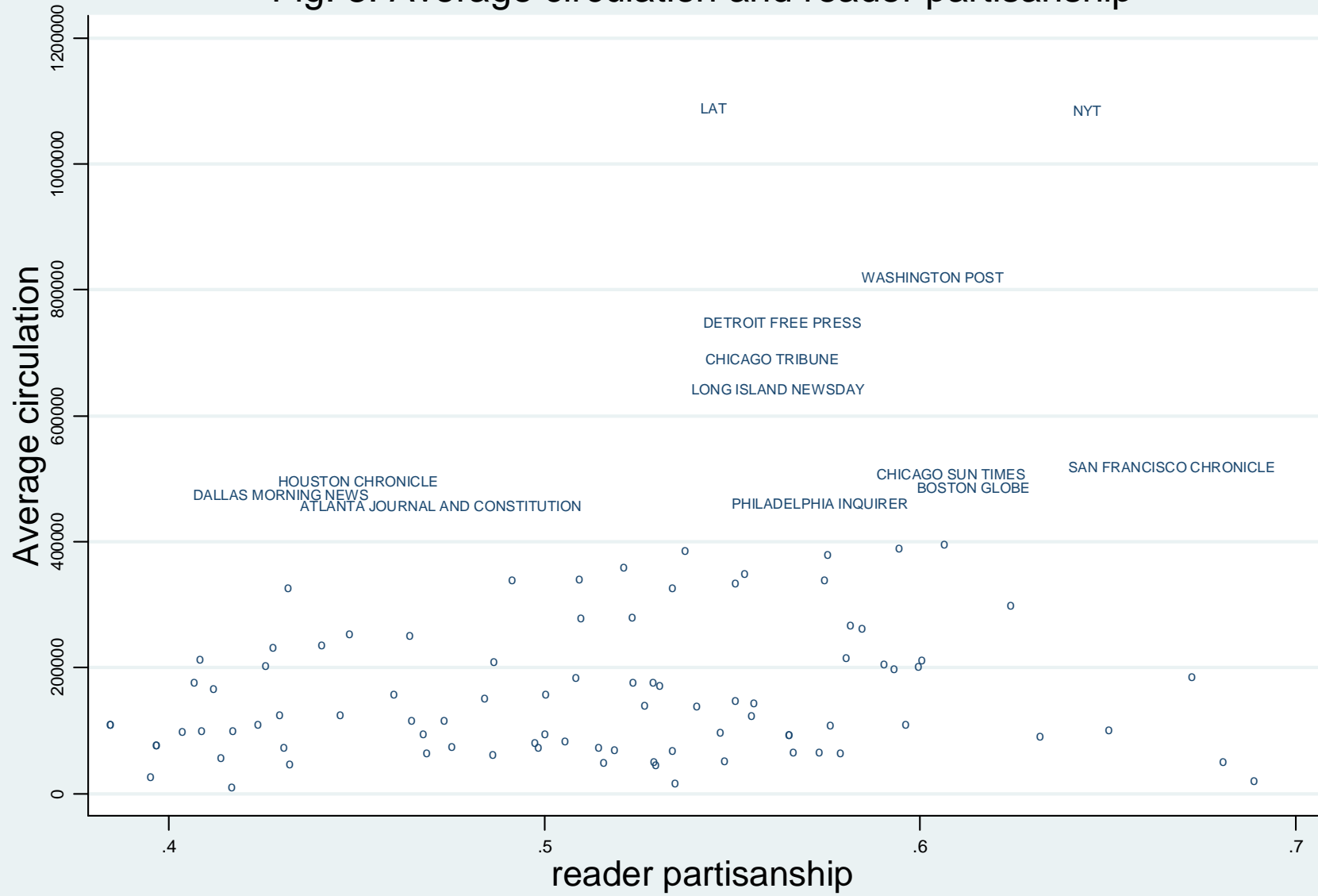


Fig. 4: Correlation between endorsement and reader partisanship

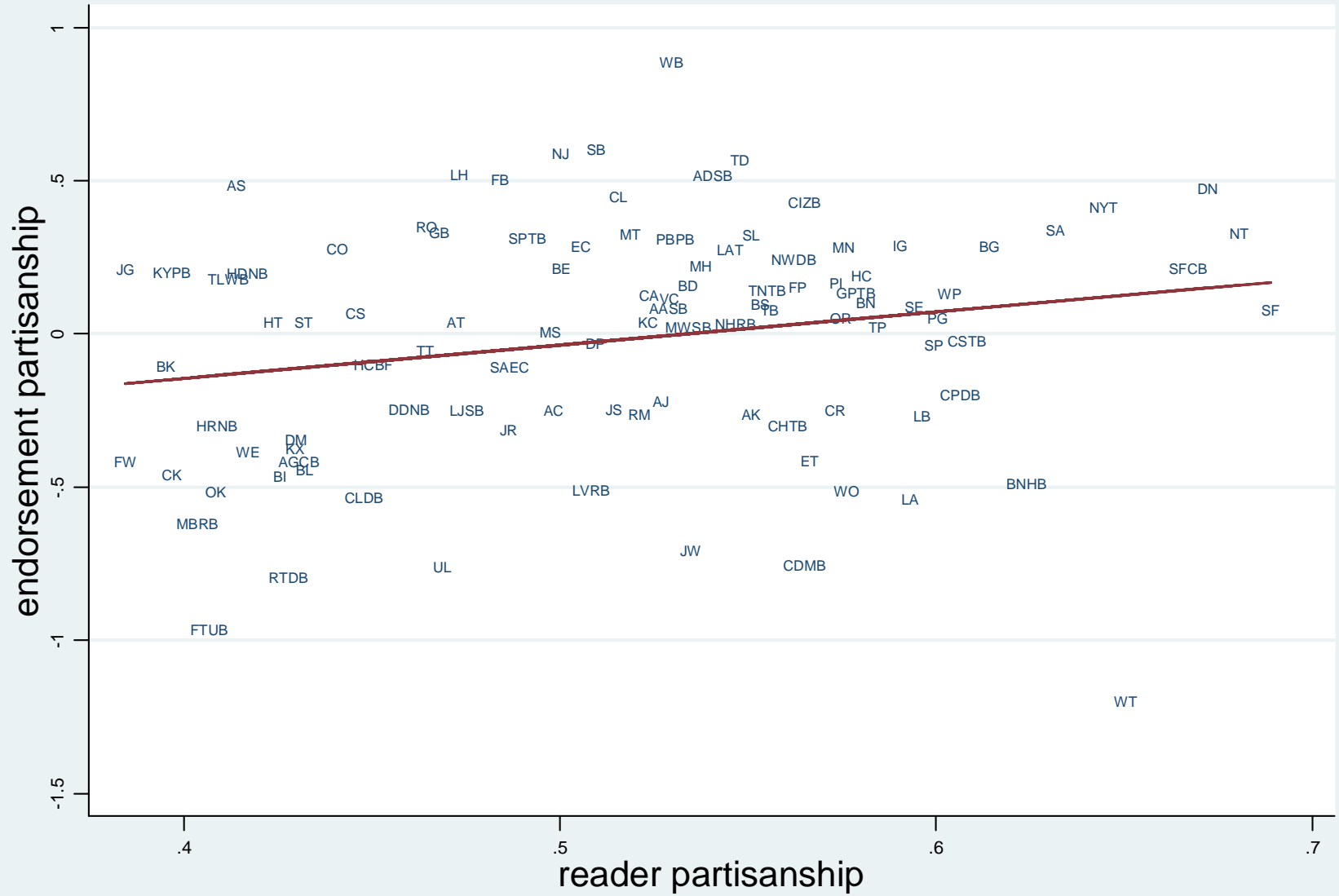




Fig. 5: Endorsement policy and partisan coverage of unemployment

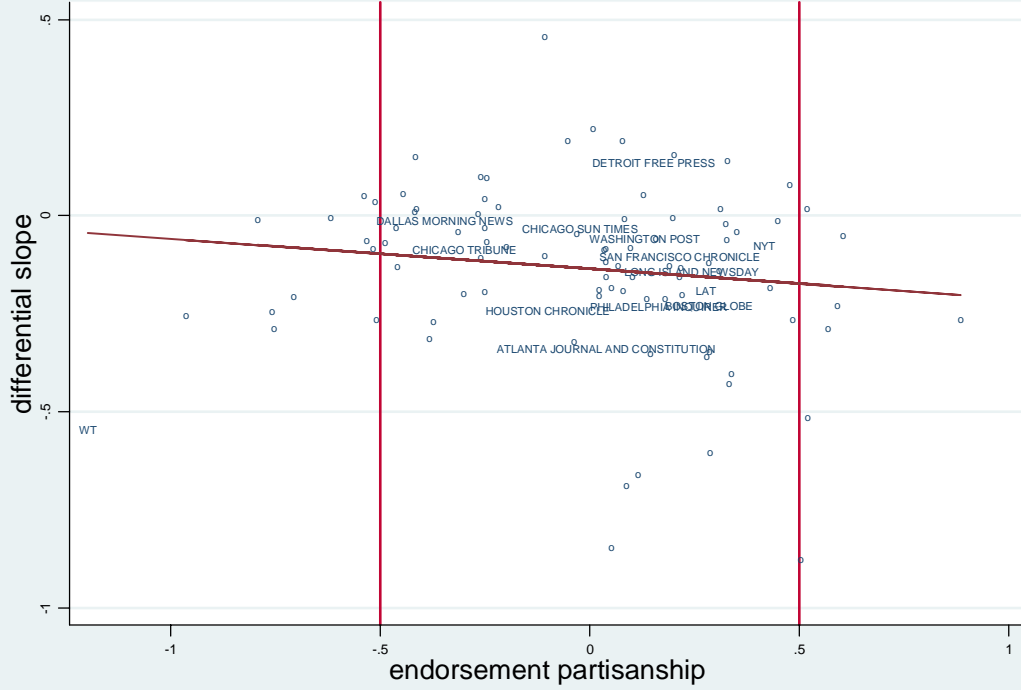


Fig. 6: Reader partisanship and partisan coverage of unemployment

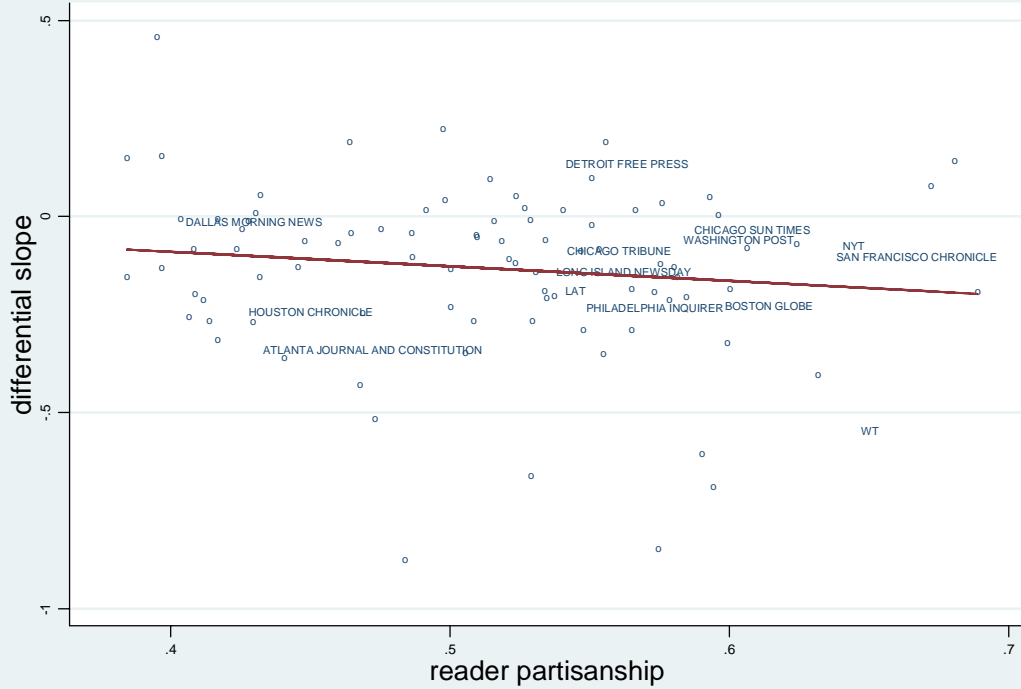


Fig. 7: Endorsement policy and partisan coverage of inflation

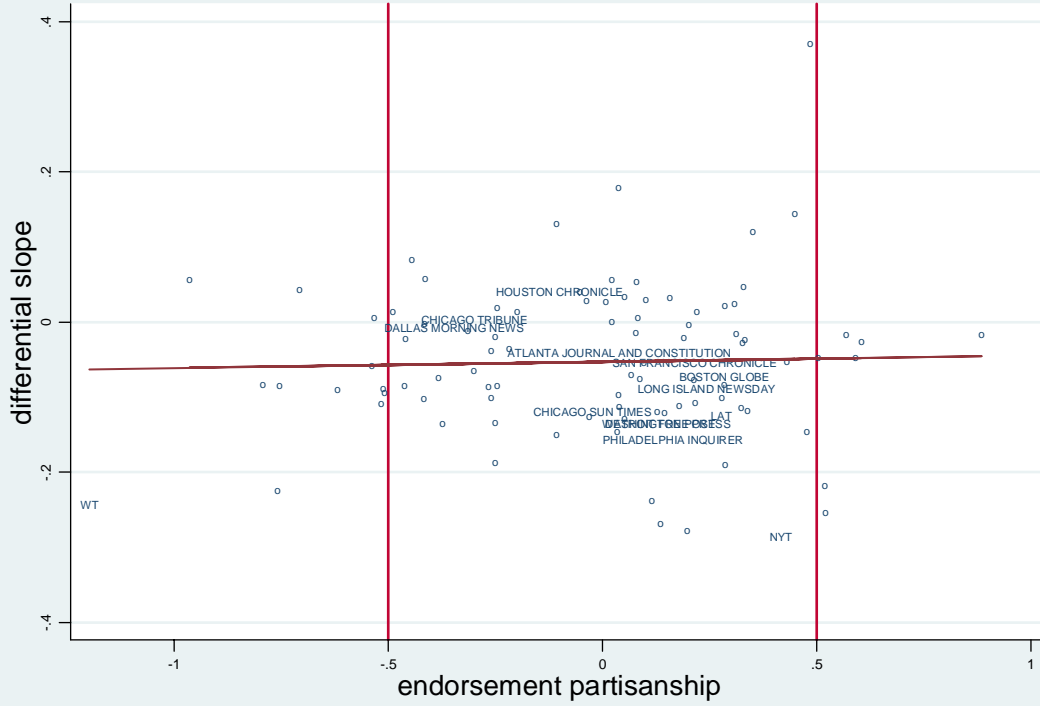


Fig. 8: Reader partisanship and partisan coverage of inflation

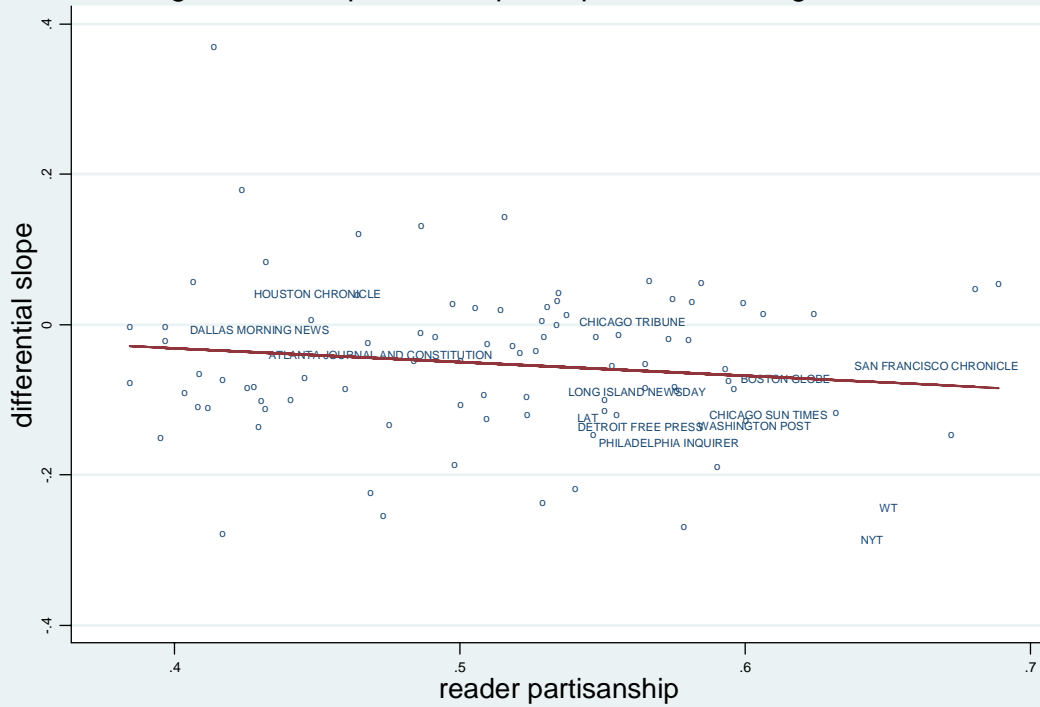


Fig. 9: Endorsement policy and partisan coverage of budget deficit

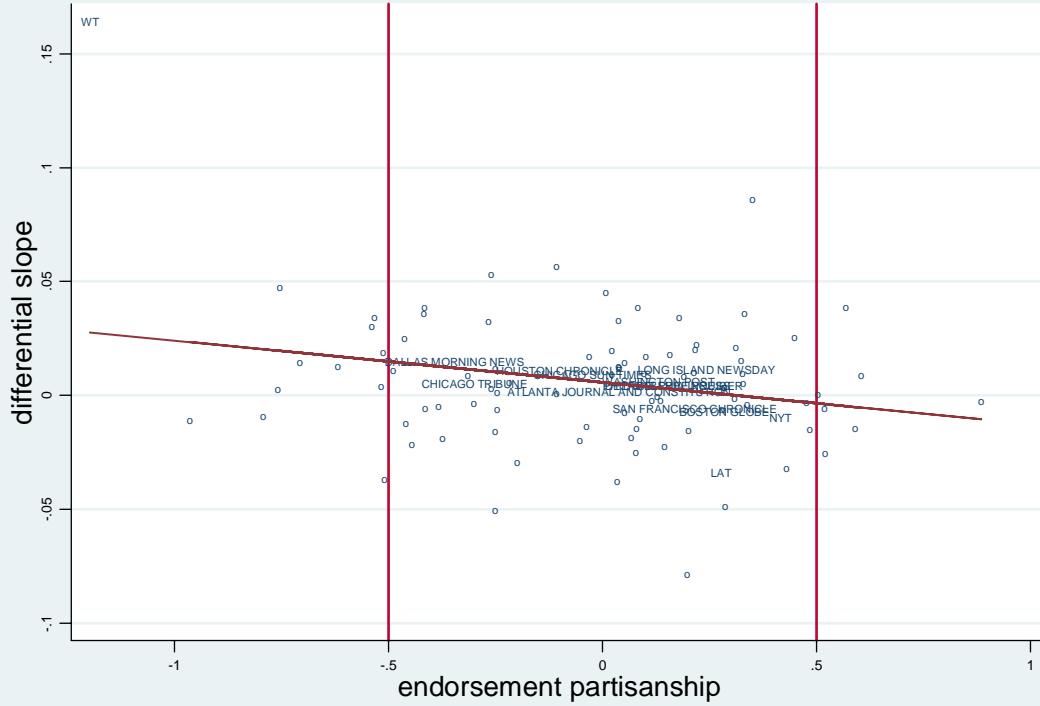


Fig. 10: Reader partisanship and partisan coverage of budget deficit

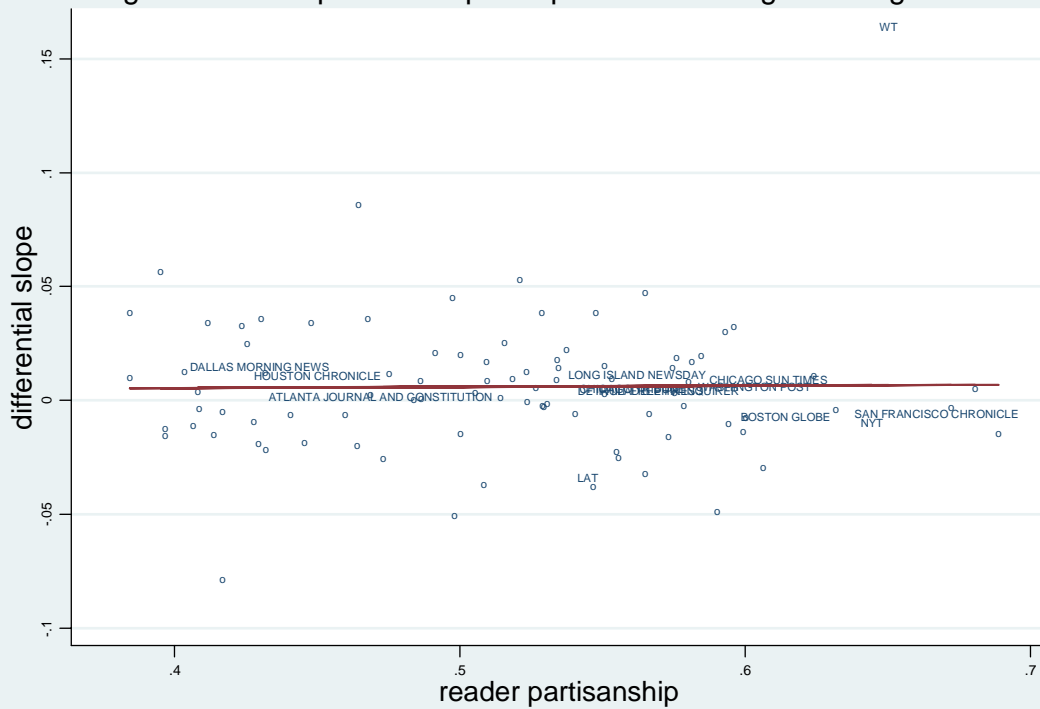


Fig. 11: Endorsement policy and partisan coverage of trade deficit

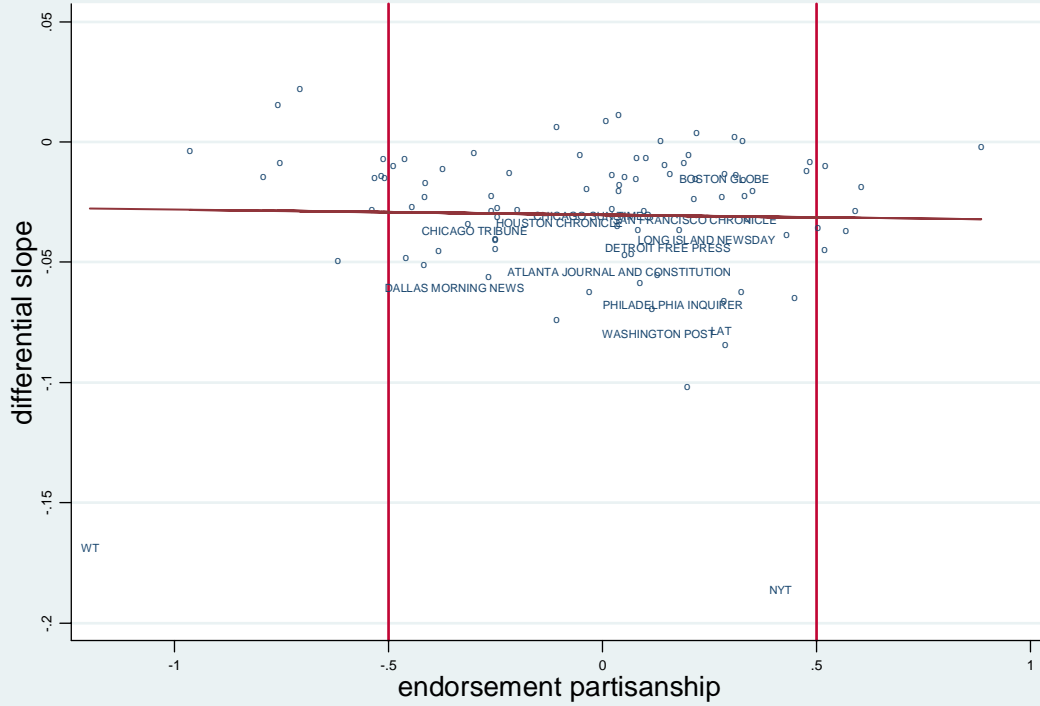


Fig. 12: Reader partisanship and partisan coverage of trade deficit

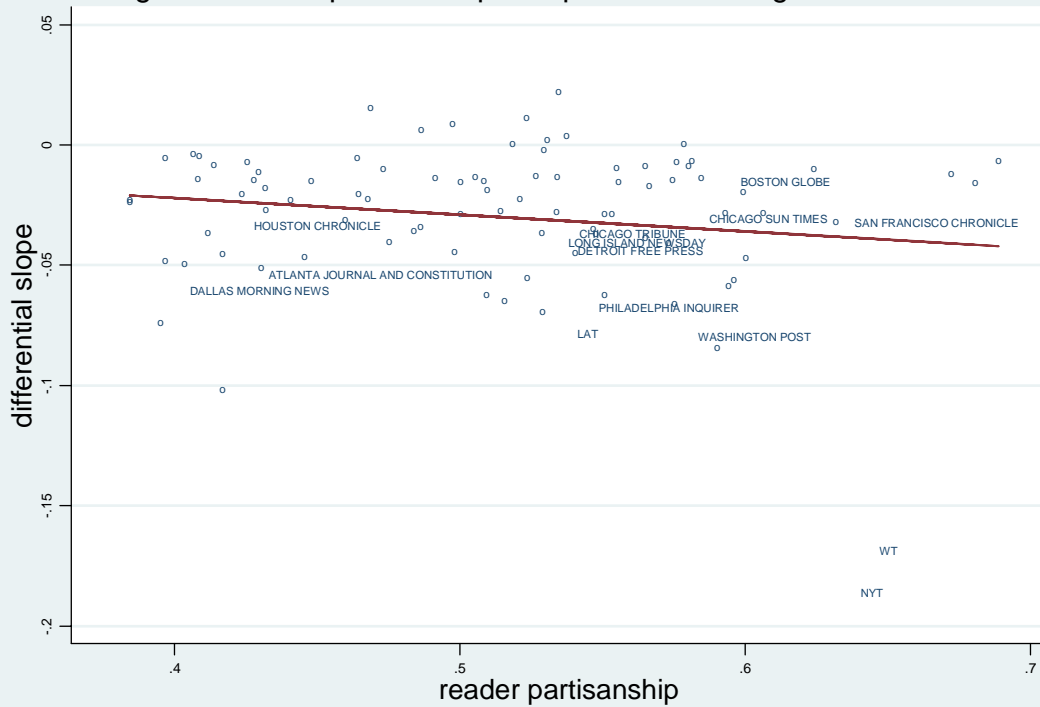
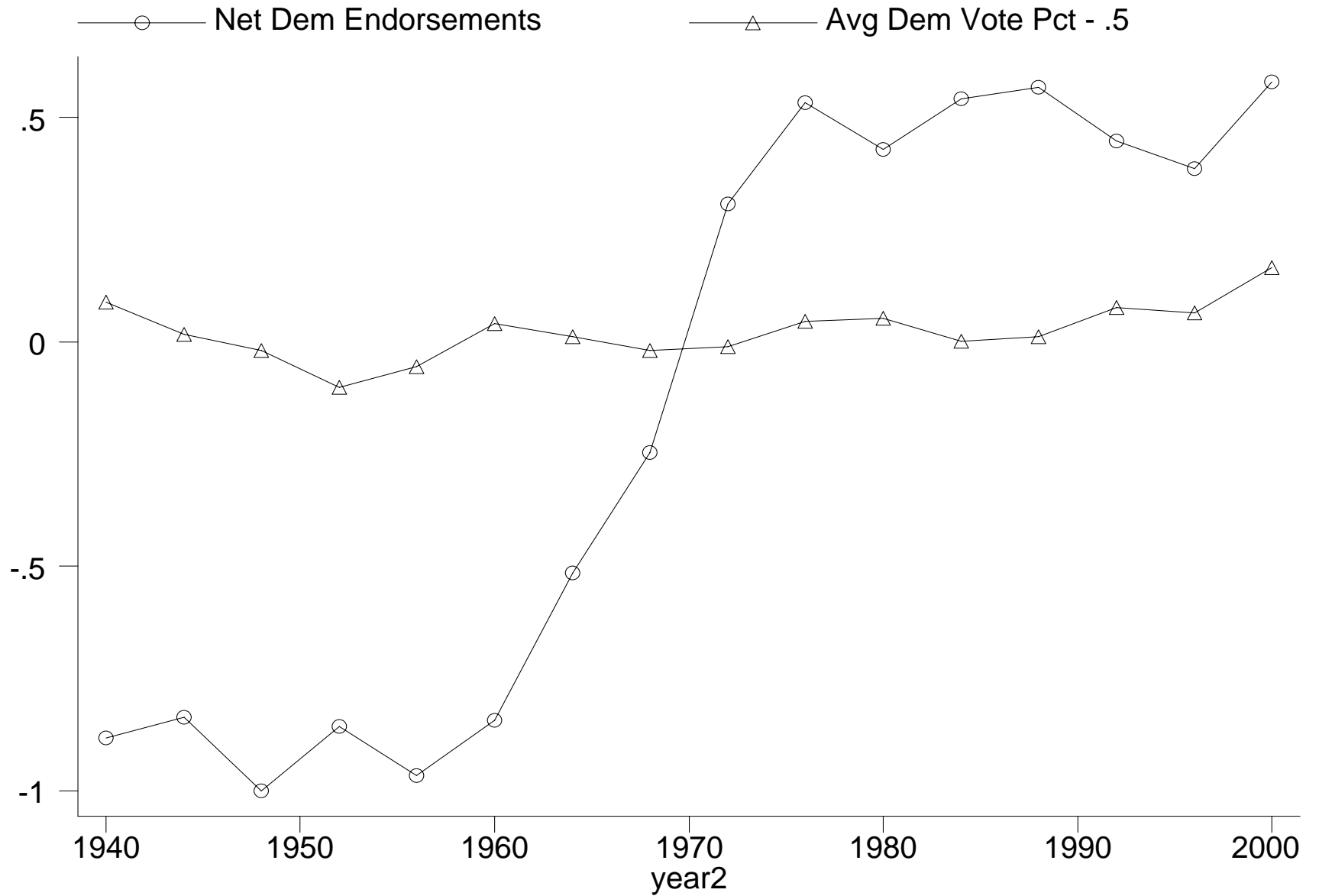
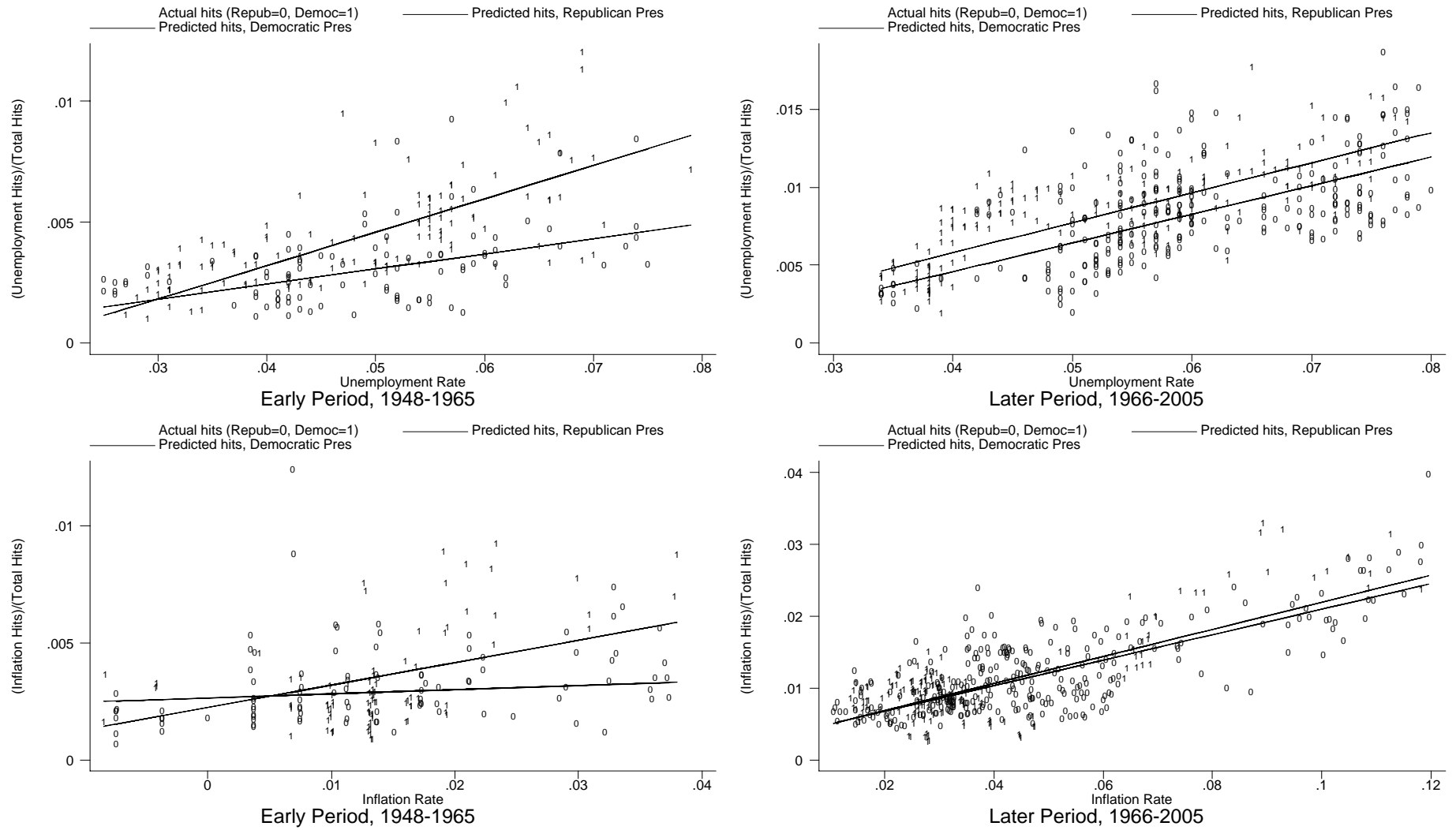


Figure 13: Dynamics of Democratic vote in California and LA Times endorsements



**Figure 14: Coverage of unemployment and inflation on the LA Times.**



**Los Angeles Times, Pre- and Post- Otis Chandler**

**Table 1: variable definitions**

<b>symbol</b>	<b>variable</b>	<b>definition</b>	<b>source</b>
$EV_{U_t}$	Unemployment	U.S. monthly unemployment rate	BLS, LNS 14000000
$EV_{I_t}$	Inflation	Monthly inflation rate, on annual basis	BLS, CPI data, CUUR0000SA0
$EV_{B_t}$	Budget deficit	Quarterly federal deficit, as percentage of GDP	BEA: NIPA Tables 3.2 and 1.1.5
$EV_{T_t}$	Trade deficit	Quarterly trade deficit, as percentage of GDP	BEA: NIPA Tables 4.1 and 1.1.5
$n_{jt}^U$	Relative frequency of unemployment stories	Relative frequency of unemployment stories during month t on newspaper j	electronic search on www.NewsLibrary.com: (unemployment OR jobless)
$n_{jt}^I$	Relative frequency of inflation stories	Relative frequency of inflation stories during month t on newspaper j	electronic search on www.NewsLibrary.com: (inflation)
$n_{jt}^B$	Relative frequency of budget deficit stories	Relative frequency of budget deficit/surplus stories during quarter t on newspaper j	electronic search on www.NewsLibrary.com: "government debt" OR "government surplus" OR "government deficit" OR "federal debt" OR "federal surplus" OR "federal deficit"
$n_{jt}^T$	Relative frequency of trade deficit stories	Relative frequency of trade deficit/surplus stories during quarter t on newspaper j	electronic search on www.NewsLibrary.com: ("trade balance" OR "trade deficit" OR "trade surplus")

**Table 2: summary statistics, 1996-2005**

<b>symbol</b>	<b>variable</b>	<b>Obs.</b>	<b>Mean</b>	<b>Median</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
$EV_{U_t}$	Monthly unemployment rate	120	5.013	5.100	0.672	3.800	6.300
$EV_{I_t}$	Monthly inflation rate	120	2.514	2.579	0.759	1.067	4.687
$EV_{B_t}$	Quarterly budget deficit	40	1.047	1.229	1.936	-2.209	4.114
$EV_{T_t}$	Quarterly trade deficit	40	3.432	3.604	1.579	1.070	6.166
$n_{jt}^U$	Relative frequency of unemployment stories on newspaper j during month t	12004	0.689	0.633	0.372	0	3.138
$n_{jt}^I$	Relative frequency of inflation stories on newspaper j during month t	12004	0.564	0.474	0.394	0	3.824
$n_{jt}^B$	Relative frequency of budget deficit stories on newspaper j during quarter t	4009	0.123	0.102	0.099	0	1.887
$n_{jt}^T$	Relative frequency of trade deficit stories on newspaper j during quarter t	4009	0.056	0.039	0.059	0	0.539
$NE_j$	Endorsement partisanship of newspaper j	101	-0.005	0.053	0.364	-0.963	0.886
$NR_j$	Reader partisanship of newspaper j	101	0.517	0.524	0.074	0.384	0.689

Notes: all economic figures and relative frequencies of stories are expressed in percentage points.



**Table 3: Endorsement partisanship and agenda bias in the coverage of economic issues**

Specification	unemployment			inflation			budget deficit			trade deficit		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	A	B	C	A	B	C	A	B	C	A	B	C
DP x EV x NE	-0.127** [2.29]	-0.125** [2.25]	-0.119** [2.17]	0.009 [0.33]	0.01 [0.35]	0.011 [0.42]	-0.009 [1.55]	-0.008 [1.50]	-0.008 [1.49]	-0.015* [1.93]	-0.015* [1.91]	-0.014* [1.75]
EV	0.154*** [10.82]	-	-	0.075*** [9.55]	-	-	-0.003** [2.13]	-	-	0.020*** [9.42]	-	-
Change in EV	0.213*** [10.35]	-	-	-0.024*** [6.05]	-	-	-0.009*** [6.04]	-	-	-0.007** [2.57]	-	-
DP	0.690*** [6.60]	-	-	0.426*** [11.39]	-	-	0.023*** [4.82]	-	-	0.140*** [12.13]	-	-
DP x EV	-0.105*** [4.56]	-	-	-0.066*** [7.12]	-	-	0.005** [2.26]	-	-	-0.032*** [10.95]	-	-
DP x NE	0.549** [2.17]	0.537** [2.11]	-	-0.074 [0.72]	-0.075 [0.72]	-	-0.023 [1.50]	-0.023 [1.52]	-	0.049 [1.60]	0.049 [1.59]	-
NE x EV	0.094*** [3.21]	0.093*** [3.14]	-	-0.004 [0.25]	-0.005 [0.26]	-	0.005 [1.32]	0.005 [1.28]	-	0.010* [1.91]	0.010* [1.89]	-
ln(total number of articles)	0.015 [0.49]	0.012 [0.38]	0.028 [1.24]	0.043 [1.56]	0.047* [1.69]	0.032** [2.05]	-0.019 [1.02]	-0.019 [1.03]	-0.02 [0.93]	0.009** [2.33]	0.009** [2.18]	0.004* [1.94]
Newspaper fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Date dummies	no	yes	yes	no	yes	yes	no	yes	yes	no	yes	yes
Newspaper-specific slope w.r.t. EV	no	no	yes	no	no	yes	no	no	yes	no	no	yes
Newspaper-specific slope w.r.t. DP	no	no	yes	no	no	yes	no	no	yes	no	no	yes
Observations	12004	12004	12004	12004	12004	12004	4009	4009	4009	4009	4009	4009
R-squared	0.45	0.54	0.63	0.54	0.6	0.72	0.27	0.52	0.61	0.57	0.62	0.72

Notes: the table displays the output of fixed-effects regressions, with the relative frequency of stories about each economic issue (unemployment, inflation, the budget deficit and the trade deficit) as the dependent variable. Observations are at the monthly level for unemployment and inflation, and at the quarterly level for the budget and the trade deficit.

DP is a dummy equal to 1 when the president is a Democrat, EV stands for "Economic Variable", NE is the newspaper-specific propensity to endorse Democratic vs. Republican candidates. Interacted variables are defined accordingly. The focus is on the triple interaction between the endorsement score, the Democratic president dummy and the relevant economic variable. Standard errors are clustered at the newspaper level; robust t statistics are reported in parentheses below each coefficient. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table 4: Reader partisanship and agenda bias in the coverage of economic issues**

Specification	unemployment			inflation			budget deficit			trade deficit		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	A	B	C	A	B	C	A	B	C	A	B	C
DP x EV x NR	-0.281 [0.97]	-0.282 [0.98]	-0.264 [0.91]	-0.08 [0.62]	-0.057 [0.46]	-0.076 [0.57]	-0.065*** [2.70]	-0.065*** [2.69]	-0.065** [2.61]	-0.04 [0.83]	-0.039 [0.81]	-0.037 [0.74]
EV	0.035 [0.30]	-	-	0.029 [0.56]	-	-	-0.014 [1.35]	-	-	0.006 [0.39]	-	-
Change in EV	0.213*** [10.44]	-	-	-0.024*** [6.05]	-	-	-0.009*** [6.03]	-	-	-0.007** [2.57]	-	-
DP	0.143 [0.21]	-	-	0.36 [1.26]	-	-	0.045 [1.39]	-	-	0.063 [0.68]	-	-
DP x EV	0.042 [0.28]	-	-	-0.025 [0.36]	-	-	0.039*** [2.92]	-	-	-0.011 [0.44]	-	-
DP x NR	1.048 [0.79]	1.042 [0.79]	-	0.129 [0.24]	0.072 [0.14]	-	-0.042 [0.69]	-0.04 [0.66]	-	0.148 [0.80]	0.145 [0.78]	-
NR x EV	0.229 [0.96]	0.226 [0.95]	-	0.089 [0.95]	0.064 [0.76]	-	0.021 [1.07]	0.021 [1.08]	-	0.027 [0.87]	0.026 [0.85]	-
ln(total number of articles)	0.02 [0.65]	0.017 [0.55]	0.029 [1.27]	0.046 [1.64]	0.050* [1.76]	0.032** [2.11]	-0.017 [0.94]	-0.017 [0.95]	-0.02 [0.89]	0.009** [2.36]	0.009** [2.22]	0.004* [1.88]
Newspaper fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Date dummies	no	yes	yes	no	yes	yes	no	yes	yes	no	yes	yes
Newspaper-specific slope w.r.t. EV	no	no	yes	no	no	yes	no	no	yes	no	no	yes
Newspaper-specific slope w.r.t. DP	no	no	yes	no	no	yes	no	no	yes	no	no	yes
Observations	12004	12004	12004	12004	12004	12004	4009	4009	4009	4009	4009	4009
R-squared	0.45	0.53	0.63	0.54	0.6	0.72	0.27	0.52	0.62	0.57	0.62	0.72

Notes: the table displays the output of fixed-effects regressions, with the relative frequency of stories about each economic issue (unemployment, inflation, the budget deficit and the trade deficit) as the dependent variable. Observations are at the monthly level for unemployment and inflation, and at the quarterly level for the budget and the trade deficit. NR is the circulation-weighted Democratic partisanship of voters for each newspaper. See notes to Table 3 for the explanation of the other variables.

Standard errors are clustered at the newspaper level; robust t statistics are reported in parentheses below each coefficient. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table 5: Reader partisanship, endorsement partisanship and agenda bias in the coverage of economic issues**

Specification	unemployment			inflation			budget deficit			trade deficit		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	A	B	C	A	B	C	A	B	C	A	B	C
DP x EV x NR	-0.113 [0.37]	-0.117 [0.39]	-0.107 [0.35]	-0.101 [0.67]	-0.075 [0.53]	-0.1 [0.65]	-0.057** [2.13]	-0.058** [2.16]	-0.058** [2.09]	-0.021 [0.45]	-0.02 [0.43]	-0.018 [0.39]
DP x EV x NE	-0.120** [2.08]	-0.118** [2.04]	-0.113* [1.96]	0.015 [0.47]	0.014 [0.45]	0.017 [0.55]	-0.005 [0.83]	-0.005 [0.77]	-0.005 [0.78]	-0.014* [1.94]	-0.014* [1.92]	-0.013* [1.77]
EV	0.099 [0.85]	-	-	0.021 [0.35]	-	-	-0.011 [1.05]	-	-	0.013 [0.77]	-	-
Change in EV	0.213*** [10.36]	-	-	-0.024*** [6.05]	-	-	-0.009*** [6.03]	-	-	-0.007** [2.57]	-	-
DP	0.532 [0.74]	-	-	0.295 [0.88]	-	-	0.03 [0.94]	-	-	0.096 [1.05]	-	-
DP x EV	-0.046 [0.29]	-	-	-0.014 [0.18]	-	-	0.034** [2.35]	-	-	-0.021 [0.90]	-	-
DP x NR	0.305 [0.22]	0.316 [0.23]	-	0.254 [0.41]	0.19 [0.31]	-	-0.012 [0.20]	-0.01 [0.16]	-	0.086 [0.48]	0.083 [0.46]	-
NR x EV	0.106 [0.45]	0.106 [0.45]	-	0.103 [0.91]	0.075 [0.75]	-	0.015 [0.76]	0.015 [0.78]	-	0.015 [0.46]	0.014 [0.44]	-
DP x NE	0.530** [2.00]	0.518* [1.95]	-	-0.089 [0.73]	-0.086 [0.71]	-	-0.022 [1.44]	-0.022 [1.47]	-	0.044 [1.54]	0.044 [1.53]	-
NE x EV	0.088*** [3.28]	0.086*** [3.20]	-	-0.01 [0.48]	-0.009 [0.42]	-	0.004 [1.10]	0.004 [1.05]	-	0.009* [1.73]	0.009* [1.72]	-
ln(total number of articles)	0.015 [0.50]	0.012 [0.40]	0.028 [1.24]	0.043 [1.60]	0.047* [1.73]	0.032** [2.06]	-0.018 [0.99]	-0.018 [1.00]	-0.02 [0.90]	0.009** [2.42]	0.009** [2.26]	0.004* [1.94]
Newspaper fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Date dummies	no	yes	yes	no	yes	yes	no	yes	yes	no	yes	yes
Newspaper-specific slope w.r.t. EV	no	no	yes	no	no	yes	no	no	yes	no	no	yes
Newspaper-specific slope w.r.t. DP	no	no	yes	no	no	yes	no	no	yes	no	no	yes
Observations	12004	12004	12004	12004	12004	12004	4009	4009	4009	4009	4009	4009
R-squared	0.45	0.54	0.63	0.54	0.6	0.72	0.27	0.52	0.62	0.58	0.62	0.72

Notes: the table displays the output of fixed-effects regressions, with the relative frequency of stories about each economic issue (unemployment, inflation, the budget deficit and the trade deficit) as the dependent variable. Observations are at the monthly level for unemployment and inflation, and at the quarterly level for the budget and the trade deficit. NR is the circulation-weighted Democratic partisanship of voters for each newspaper. See notes to Table 3 for the explanation of the other variables.

Standard errors are clustered at the newspaper level; robust t statistics are reported in parentheses below each coefficient. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table 6: Reader partisanship, endorsement partisanship and agenda bias: lagged economic variable**

Specification	unemployment			inflation			budget deficit			trade deficit		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	A	B	C	A	B	C	A	B	C	A	B	C
DP x lagged EV x NR	-0.132 [0.45]	-0.13 [0.45]	-0.129 [0.44]	-0.085 [0.59]	-0.059 [0.43]	-0.079 [0.54]	-0.028 [1.02]	-0.028 [1.04]	-0.027 [0.96]	-0.025 [0.50]	-0.024 [0.48]	-0.02 [0.40]
DP x lagged EV x NE	-0.127** [2.10]	-0.126** [2.08]	-0.122** [2.02]	0.017 [0.55]	0.017 [0.55]	0.02 [0.64]	-0.008 [1.25]	-0.008 [1.37]	-0.008 [1.34]	-0.014* [1.73]	-0.014* [1.72]	-0.012 [1.55]
lagged EV	0.101 [0.97]	-	-	0.018 [0.30]	-	-	0.014 [1.65]	-	-	0.016 [0.89]	-	-
Change in lagged EV	0.222*** [10.08]	-	-	-0.021*** [5.65]	-	-	-0.009*** [6.04]	-	-	-0.006** [2.43]	-	-
DP	0.448 [0.65]	-	-	0.27 [0.82]	-	-	0.102*** [3.02]	-	-	0.105 [1.11]	-	-
DP x lagged EV	-0.029 [0.19]	-	-	-0.007 [0.09]	-	-	0.002 [0.14]	-	-	-0.023 [0.93]	-	-
DP x NR	0.385 [0.30]	0.371 [0.29]	-	0.223 [0.37]	0.162 [0.27]	-	-0.073 [1.13]	-0.073 [1.11]	-	0.089 [0.47]	0.085 [0.45]	-
NR x lagged EV	0.081 [0.39]	0.079 [0.39]	-	0.095 [0.87]	0.069 [0.71]	-	-0.008 [0.53]	-0.008 [0.51]	-	0.014 [0.41]	0.013 [0.39]	-
DP x NE	0.565** [2.00]	0.560* [1.98]	-	-0.095 [0.78]	-0.094 [0.76]	-	-0.017 [1.24]	-0.018 [1.29]	-	0.044 [1.43]	0.044 [1.42]	-
NE x lagged EV	0.092*** [3.30]	0.090*** [3.22]	-	-0.007 [0.35]	-0.007 [0.32]	-	0.006* [1.90]	0.005* [1.89]	-	0.009* [1.68]	0.009* [1.67]	-
ln(total number of articles)	0.015 [0.47]	0.012 [0.38]	0.029 [1.32]	0.043 [1.61]	0.047* [1.72]	0.032** [2.17]	-0.02 [1.05]	-0.019 [1.02]	-0.021 [0.94]	0.009** [2.38]	0.009** [2.23]	0.004* [1.83]
Newspaper fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Date dummies	no	yes	yes	no	yes	yes	no	yes	yes	no	yes	yes
Newspaper-specific slope w.r.t. EV	no	no	yes	no	no	yes	no	no	yes	no	no	yes
Newspaper-specific slope w.r.t. DP	no	no	yes	no	no	yes	no	no	yes	no	no	yes
Observations	11996	11996	11996	11996	11996	11996	4001	4001	4001	4001	4001	4001
R-squared	0.45	0.54	0.63	0.53	0.6	0.72	0.3	0.52	0.61	0.58	0.62	0.72

Notes: the table displays the output of fixed-effects regressions, with the relative frequency of stories about each economic issue (unemployment, inflation, the budget deficit and the trade deficit) as the dependent variable. Observations are at the monthly level for unemployment and inflation, and at the quarterly level for the budget and the trade deficit. The economic figure is lagged one month for unemployment and inflation, and lagged one quarter for the budget deficit and the trade deficit. NR is the circulation-weighted Democratic partisanship of voters for each newspaper. See notes to Table 3 for the explanation of the other variables.

Standard errors are clustered at the newspaper level; robust t statistics are reported in parentheses below each coefficient. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table 7: Unemployment news, further robustness checks**

Specification	controlling for state-level unemployment			excluding editorials		
	(1) A	(2) B	(3) C	(4) A	(5) B	(6) C
DP x EV x NR	-0.137 [0.44]	-0.154 [0.50]	-0.126 [0.40]	0.007 [0.03]	0.002 [0.01]	0.012 [0.04]
DP x EV x NE	-0.132** [2.29]	-0.128** [2.20]	-0.124** [2.13]	-0.105** [2.09]	-0.103** [2.05]	-0.100** [2.00]
EV	0.086 [0.72]	-	-	0.068 [0.63]	-	-
Change in EV	0.175*** [7.97]	-	-	0.204*** [10.40]	-	-
DP	0.529 [0.72]	-	-	0.615 [0.98]	-	-
DP x EV	-0.034 [0.21]	-	-	-0.084 [0.60]	-	-
NR x EV	0.332 [0.24]	0.401 [0.28]	-	-0.125 [0.10]	-0.107 [0.09]	-
DP x NR	0.067 [0.30]	0.074 [0.33]	-	0.087 [0.41]	0.086 [0.40]	-
NE x EV	0.588** [2.24]	0.568** [2.14]	-	0.438* [1.92]	0.428* [1.86]	-
DP x NE	0.094*** [3.59]	0.091*** [3.40]	-	0.060** [2.45]	0.059** [2.37]	-
ln(total number of articles)	0.016 [0.51]	0.012 [0.40]	0.029 [1.30]	0.012 [0.39]	0.01 [0.33]	0.027 [1.31]
state unemployment rate	0.041* [1.96]	0.045** [2.16]	0.033 [1.58]	-	-	-
change in state unemp. rate	0.094*** [5.16]	0.054** [2.50]	0.071*** [4.19]	-	-	-
Newspaper fixed effects	yes	yes	yes	yes	yes	yes
Date dummies	no	yes	yes	no	yes	yes
Newspaper-specific slope w.r.t. EV	no	no	yes	no	no	yes
Newspaper-specific slope w.r.t. DP	no	no	yes	no	no	yes
Editorials included	yes	yes	yes	no	no	no
Observations	12004	12004	12004	11986	11986	11986
R-squared	0.46	0.54	0.64	0.47	0.54	0.64

Notes: the table displays the output of fixed-effects regressions. In the first three columns the dependent variable is the relative frequency of total stories about unemployment. In the last three columns the dependent variable is computed excluding editorials. See notes to Table 3 for the explanation of the other variables.

Standard errors are clustered at the newspaper level; robust t statistics are reported in parentheses below each coefficient. \* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%