The Effect of Newspaper Quality on the Accuracy of Economic Reporting

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April 2009

Abstract

I test the accuracy of economic news reporting across different qualities of newspaper. I do so by conducting searches of keywords that capture either a positive or negative view of the economy in the headline and first paragraphs of four different papers: the New York Times, the New York Daily News, the Boston Globe and the Boston Herald. The results are then used to create a "good news" and "bad news" index from 1995 to 2005. Finally, key economic indicators from the same time period are gathered to determine how well the indexes follow the true state of the economy. The difference in accuracy between the New York newspapers was found to be considerably larger than the difference between the Boston newspapers. These results support the theory that larger market sizes and greater competition leads to a larger deviation away from the preferences of the median consumer.

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I. Introduction

In today's economic environment, public awareness of the economy has greatly increased. From daytime talk hosts advising listeners how to save money at the mall to obnoxious salesmen clamoring about how the downturn has made it the perfect time to sell gold jewelry, it is increasingly difficult to escape references to today's economic climate. This constant barrage may influence perceptions of the economy and perceptions are not necessarily reflective of reality. Indeed, the news media makes judgments about which facts deserve our attention at any moment in time. It is fair to assume that not all people follow important economic variables on a daily basis and have the economic understanding to make their own judgments on the variables' meaning.

In his analysis of information constraints, Sims (2003) gives one example of this by illustrating the potential consequences of moving the Fed Funds Rate report from one newspaper page to another. Sims notes that the Fed Funds Rate is typically reported in the back of the business section every day. The majority of readers do not follow daily changes. However, if the *New York Times* were to run a story about a Fed Funds Rate increase on the front page, many more readers will likely respond to the change. Sims concludes that "the treatment that newspapers (and TV) give the news affects the way people react to it, creating a common component to the idiosyncratic error generated by information-processing". In this way, the media acts as an intermediary between economic data and public perception. Several studies find that the tone and volume of economic reporting does affect consumer sentiment

(Doms and Morin 2004, Alsem and Brekman 2004). From this, it is possible to conclude that the public's increased attention toward the economy may not only be a direct result of higher unemployment, for example, but is also due to greater media coverage. It is easy to see from picking up a current newspaper that the extent of reporting on the economy has gone from being primarily confined to the business and politics sections to sections ranging from fashion to sports.

However, the idea that public perception of the economy depends on the tone and volume of economic reporting creates another problem. If economic reporting deviates from the state of the actual economy, then public perception of the economy can deviate from the actual economy as well. Therefore, the degree of reporting accuracy is vital if the public is to correctly understand the state of the economy. The economy is one subject that newspaper journalists in particular believe they do a very good job in reporting. Two-thirds of journalists believe that "major daily newspapers do an "excellent" or "good" job covering the economy, which is at least 20 percentage points higher than their confidence in public broadcasting and weekly newsmagazines and 11 *times* higher than their confidence in network television (Crotaeu 1998). In this paper, we will measure how accurately reporting of the economy is across 4 different newspapers of varying reputation. To control for local effects we compare a newspaper perceived to be high quality and a paper perceived to be low quality for each of two cities (New York and Boston). We examine a ten year period from 1995-2005 and see if economic reporting closely follows changes in actual economic output.

II. **Literature Review**

Although the amount of research on news reporting has increased over the last decade, there has been very little effort to apply these newly formed theories on the media to economic reporting. This is especially surprising considering several studies have produced evidence that the volume and tone of economic reporting helps explain variations in consumer sentiment (Doms and Morin 2004, Brakman and Alsem 2004). Doms and Morin (2004) speculate that the reasons why economic reporting deviates with economic fundamentals includes the relative importance of other news events, the effect of the political cycle, and the incentive to make economic news more memorable to readers. Each of these factors has been explored individually. The attempt to make news more memorable by "slanting" the news towards consumers' prior beliefs has been documented by Mullainathan and Shleifer (2002, 2005), Gentzkow and Shapiro (2006a, 2006b), and others. Media slant due to the political cycle has been empirically researched and tested by Lott and Hassett (2004) and Groseclose and Milyo (2005). Finally, possible factors that may affect how media outlets choose to focus their news coverage range from an outlet's proximity to a larger market (which can affect whether an outlet focuses on national or local news) to competition (which can affect whether an outlet focuses on higher quality or lower quality news). It is important to note that although research has been done on all three subjects, only possible effects on economic reporting stemming from the political cycle have been empirically tested.

Although recent studies have concluded that any effects of media reporting on consumer confidence are weak, the relationship between consumer confidence and economic performance is controversial (Jansen 2003, Ludvigson 2004). In their attempt to show that reporting on the economy can affect confidence, Doms and Morin (2004) also discovered that economic reporting did not follow the actual state of the economy in certain time periods.

Doms and Morin (2004) find that at certain times there are unexplained spikes in reporting and these spikes drive changes in sentiment. Alsem and Brekman (2004) find similar results, but instead

focus their empirical research on economic reporting's effect on consumer confidence relative to producer confidence (which is assumed to be unaffected by economic reporting). They conclude that variations in economic reporting do affect sentiment, but the impact is small and is only a short-term phenomenon. Lott and Hassett (2004) take a step further and claim that economic headlines are much more important in determining the public's perceptions than the underlying economic data. Like Doms and Morin (2004), they run statistical tests to measure the effects of recent headlines on the opinions of the public (they use a Gallup Poll survey that asks participants whether economic conditions are getting better or worse). Like Doms and Morin (2004), Lott and Hassett find that media coverage of the economy does affect public perceptions significantly, and the impact of news coverage remains unchanged when actual economic numbers from prior months are included.

Although the effects of reporting on consumer sentiment have been documented, there is a lack of research on why economic reporting does not follow the path of the actual economy in the first place. The presence of large differences between media reporting and actual events has been described by Glassner (1999), who reports that the amount of coverage a story receives in the media is not related to the risks the public faces or what is actually happening over time. In particular, stories that instill a sense of fear tend to be more prevalent. Smith (1988) observes that the media spends much more time reporting "bad" economic news than reporting "good" economic news. Lott and Hassett (2004) dispute this notion in economic reporting and find that good economic news is covered more prevalently than bad economic news. This begs the question of why this is the case, and what factors if any affect the media's reporting preferences.

The media's incentive to slant the news has been heavily researched over the last several years. Most empirical research on media slant focuses on political reporting (Gentzkow and Shapiro 2006, Groseclose and Milyo 2005). This is most likely due to the fact that bias in political reporting is the most controversial and observable. In a recent study, DellaVigna and Kaplan (2006) found that Fox News

convinced 3% to 28% of its viewers to vote Republican. In addition to political reporting's controversial

nature, keyword searches used in empirical research are more easily identifiable for political topics.

Several possibilities have been offered as to the determinants of media slant, including the preferences

of journalists (Barron 2006), owners (Bresley and Pratt 2004) pressure from politicians (Bresley and Pratt

2006), and finally the incentive to make news more memorable (Mullainathan and Shleifer 2002).

Gentzkow and Shapiro (2006b) test these individual theories and conclude that the incentive to make

news more memorable (which increases with more competition) is the only factor that may hold true.

Mullainathan and Shleifer (2002, 2005) argue that individuals enjoy, remember, and find more credible

stories that are consistent with their prior beliefs, a claim that is widely accepted within the psychology

and communication literatures (Graber 1984, Severin and Tankard 1992).

Posner (2005) suggests that consumers enjoy hearing their beliefs confirmed by the media

specifically because journalists are able to convey these beliefs in a more articulate, authoritative, and

prestigious way. Categorical thinkers will dismiss or ignore information that conflicts with prior beliefs

unless the news is significant enough to change the person's category (Mullainathan and Shleifer 2002).

Possible reasons for why categorical thinkers dismiss conflicting information include information-

processing heuristics or a subconscious process of justification (Gentzkow and Shapiro 2008). Gentzkow

and Shapiro (2006a) also show that a similar bias will occur even if the readers are fully rational. In

addition, consumers prefer news that tells a memorable story from a single point of view, referred to in

the media industry as the "narrative imperative" (Mullainathan and Shleifer 2002, Severing and Tankard

1992).

This "demand side" news bias will occur because newspapers are willing to sacrifice accurate

reporting to cater to consumers' beliefs.   They do so by either ignoring contradicting reports or subtly

slanting contradictory news in a conforming way (Mullainathan and Shleifer 2002). Gentzkow and

Shapiro (2006a) point out that this demand side slant is more prevalent when news is difficult to

observe, observations are not concrete, or validity takes a long time to confirm. Economic news may certainly fall into these categories, especially during times where the direction the economy is heading in is not fully agreed to by economists. Mullainanthan and Shleifer (2005) give one example of media slant where two newspapers report the same economic data in two different ways. The Bureau of Labor Statistics released data that showed the unemployment rate rising from 6.1% to 6.3%. One newspaper article highlighted the rate increase and compared the current situation to the Great Depression. The other newspaper article highlighted the fact that the unemployment rate only increased slightly, and called the data release "encouraging". Both articles cite economists to support their stance.

When competition increases, the amount of slant can increase via three different routes (Mullainathan and Shleifer 2002, 2005). First, the competitive environment offers more incentive for newspapers to try and conform to consumers' priors. Secondly, competition creates an "add-on" effect where the reporting of one paper will affect the beliefs of the readers which in turn will persuade other papers to slant in the same direction. Third, newspapers will slant away from the median consumer through a process of consumer self-segregation in competitive newspaper markets. Consumers will only read the news outlets which conform to their beliefs, and individual outlets will react to this by slanting the news in a direction that attracts readers with a specific set of beliefs. This effect is particularly strong when beliefs of the consumer are heterogeneous (Mullainathan and Shleifer 2005). Sunstein (2006) argues that self-segregating media slant has especially become a problem with the introduction of the internet. The wide range of news sources available on the internet makes it possible for an "echo chamber" effect where readers are able to ignore all news that contradicts their preconceived notions. Although the opinion of the average consumer will become more biased in such a situation, a "conscientious" reader who desires to understand all sides of a story will benefit by having different viewpoints available to them.

Several attempts have been made to measure media slant, but gathering of empirical data has proven difficult. The gathering of news data for empirical studies on ideological content usually consists of hand collection and coding of articles (Pritchard 2002). This has made data collection tedious and has restricted analysis to only several outlets at a time. Groseclose and Milyo (2005) attempt to measure media bias in political news by comparing the number of think-tank citations used by politicians and reporters. However, this process has come under scrutiny for several reasons, including the fact that reporters and politicians may choose which think-tanks to cite for entirely different reasons. For example, think-tanks that Democrats tend to cite may be more reliable for reporting purposes than think-tanks Republicans cite. Furthermore, their index was not created to analyze determinants of slant (Gentzkow and Shapiro 2006b), and the procedures are difficult to apply to economic news.

Gentzkow and Shapiro (2006b) use a slightly different means to measure news slant in politics. They examine congressional records for keywords or phrases that are used by one party much more than the other. The analysis is based on the assumption that these words and phrases are used by politicians for persuasion purposes. They then use this measure to create a Hotelling model of newspaper demand where a consumer's desire to read a newspaper depends on the match between newspaper's slant and the consumer's prior beliefs. They use zip code level newspaper circulation data and regional party affiliation statistics to measure a profit-maximizing level of slant.   Finally, they compare their estimated profit maximizing level of slant with actual slant of newspapers and conclude that newspapers do not slant to the right or to the left of the estimated profit-maximizing level.   Their findings seem to support the notion that newspapers slant stories in the direction of their reader's beliefs. They also test possible effects of competition and find that papers in more competitive markets tend to have more slant, although they caution that this conclusion is questionable due to the relatively low number of newspapers in multipaper areas used in the sample.

The incentive to make news more memorable is not the only common reason given for the diversion between the actual economy and economic reporting. Doms and Morin (2004) suggest that the political cycle may also have an effect on economic reporting, although they later concluded that any effect of the political cycle was small. However, a possible connection between political media slant and reporting of economic events was explored by Lott and Hassett (2004). Their results suggest that American newspapers report more positive economic news when Democrats are in office than when Republicans are in office. They collected articles around the time important data was released concerning GDP, durable goods, retail sales, and unemployment. They focused their classification efforts on headlines because they were easier to objectively classify and they assumed headlines create a stronger image in the minds of the reader. In the case of unemployment, 44% of the headlines under the Clinton Administration were deemed positive while the same number was only 23% for George W. Bush. Among the largest newspapers, *the New York Times*, *the Chicago Tribune*, *the Washington Post*, and the Associated Press were the least likely to report positive news during Republican administrations, while the Houston Chronicle was the only paper to have a slight Republican bias (although the latter was not statistically significant).

Another possible factor in the media's reporting of the economy is the relative importance of other news stories (Doms and Morin 2004). Any analysis of individual outlets' economic reporting must take into account the possibility that some outlets place greater importance on certain types of news than others. When two media markets are geographically close, outlets in the smaller market will tend to focus more on local news. Therefore, an outlet's reporting on the economy may differ if the outlet places a greater importance on the local economy or the national one. Another factor to take into take into consideration is an outlet's desire for "soft" news, or news that is primarily designed to entertain rather than provide information.

Downs (1957), Coase (1974), and Posner ((1986) contend that consumer often do not realize

that there are social gains to learning information. Therefore, consumers may choose to ignore "hard"

news that can help them cast informed votes or invest their money properly in favor of news that is

entertaining. This observation supports Hamilton's (2004) assertion that the quality of news on the USA

Network has fallen since cable competition increased in the 1980s. Historical changes in the quality of

news have also been empirically examined by Slattery and Hakanen (1992), who found that the

percentage of news about government, education, and politics in several Pennsylvania media markets

fell from 54 percent in 1976 to 15 percent in 1992. Meanwhile, the percentage of news rated as

sensationalistic or human interest rose from 25 percent to 48 percent. Pressure to maximize profits is

one well-documented reason for the rise in sensationalistic journalism (Mcmanus 1994).   Competition

may not only increase the incentives for news outlet to slant stories toward consumers' priors, but also

seems to increase the incentives to report the types of stories consumers desire (Zaller 1999). If

consumers do not internalize the social gains of reading informative news (such as economic news),

than it follows that a more competitive environment will produce news outlets that put more emphasis

on entertainment.

There have been several different theories on why news quality differs both from outlet to

outlet and why quality changes over an extended period of time. News quality, as defined by Zaller

(1999), is information about matters of general political or social significance. This definition is rather

vague and ambiguous, but Zaller chooses this particular description because it is this aspect of

contemporary news quality that is most often critiqued by communication scholars (Zaller 1999). Some

have blamed the differences in news quality on personal preferences of journalists (Patterson 1994),

takeover of large media enterprises by profit-maximizing corporations (Bagdikian 1992), a mix between

cultural, political, and institutional factors (Blumler and Guervitch 1995), and market competition

(Mcmanus 1994, Hamilton 2004, Zaller 1999). In a paper conducted to study the effects of competition

on news quality, Zaller (1999) compares the quality of news outlets within the same regional markets, across regional markets, across different mediums, and finally across nations. Zaller (1999) observes that the quality of local television news is generally perceived to be lower than the quality of local newspapers.   In addition, the quality of American local newspapers is generally perceived to be higher than the quality of British local newspapers. Zaller (1999) believes the reason for this is because American newspapers   enjoy monopolies over local competitors with few exceptions, whereas competition in television news and British newspapers is fiercer.   Zaller hypothesizes that newspapers with greater competitive pressures should exhibit lesser quality news.

To test this hypothesis, Zaller creates a measure of news quality that consists of the ratio of Monica Lewinsky articles to the number of articles concerning other prominent news during the same time period, including Bosnia, the federal budget deficit, Social Security and Medicare. The results showed that the highest Monica Lewinsky quotients did occur in newspapers in more competitive markets. However, two other important factors explained the variation in the Lewinsky quotient. First, small to medium size competitive markets did not have any newspapers with high Lewinsky quotients. In other words, competition only affected news quality in the largest markets. Zaller suggests that larger markets have more profits to be realized by repositioning down-market than smaller ones. Therefore, the incentives to switch to low quality news are higher in large markets. The abandonment of "socially relevant" news is associated with a combination of market size and competition, not competition alone. He also discovers a similar trend in television journalism.   Zaller (1999) concludes that the necessary combination of market size and competition needed to pressure media outlets to lower their quality of reporting occurs less often in newspapers than television.

The second notable observation from Zaller's results is that not all newspapers in competitive markets had a high Lewinsky quotient. In fact, local markets that included a newspaper with a very high Lewinsky quotient usually had another paper with a very low Lewinsky quotient (for example the *New*

York Daily News and *Boston Herald* had the highest quotients, whereas the *New York Times* and *Boston Globe* placed near the bottom). These results suggest the possibility that competition affects news quality in a fashion similar to how Mullainathan and Shleifer (2002, 2005) propose competition affects media slant, where the market forces outlets to move away from the quality demands of the median consumer and instead splits them into those who cater to consumers desiring high quality news and those who cater to consumers desiring low quality news.

The individual theories discussed so far help explain why there may be differences in economic reporting across a variety of newspapers. Some possible effects, such as the political cycle, differences in local economies and one market's proximity to another market are difficult to measure in an empirical study because doing so would require a comparison between newspapers from different geographic areas. Therefore in order to control for these factors, we limit our analysis to measuring effects of quality within the same geographic market. From studies conducted by Zaller (1999), Mullainathan and Shleifer (2005), Gentzkow and Shapiro (2006b), and others, we should expect that newspapers from larger markets have larger differences in economic reporting accuracy then newspapers from smaller markets.

III. Data & Method

We measured the accuracy of economic reporting across different newspapers by closely following the empirical design of Doms and Morin (2004). Doms and Morin (2004) create indexes that were based on the number of articles that contain key words or phrases in the headline or first paragraph of 30 large papers over a 26 year period. Key words such as "recession" and "economic slowdown" were used to create a "bad news" index, "economic recovery" and "economic growth" for a

"good news "index, and "unemployment" and "layoff" for an unemployment index.[1] These searches

were also filtered out to exclude articles on topics ranging from international economics to baseball.

From these searches, they were able to create three indexes.[2] Next, the three indexes were used to

gauge how much of the variation in the news indexes are explained by the state of the economy.

Regressions were run on all three indexes under the following model:

$$N_{jt} = \alpha_0 + \alpha_1 ES_t + \alpha_2 SPF_t$$

where the α's are the parameters to be estimated, N is the jth index at time t, ES is a vector of

economic information available at time t, and SPF is a vector of forecasts from the Survey of Professional

Forecasters available at time t. The residuals from these regressions were particularly large in several

time periods, namely the recession index during the early 1990s, the recovery index in the mid 1980s,

and the unemployment index in the early 2000s.

For our design, we use a similar procedure but instead focus on four individual newspapers: *The

New York Times, the New York Daily News, the Boston Herald,* and *the Boston Globe.* Two papers were

chosen from each market, one that is perceived to be "low quality" and one that is perceived to be "high

quality". This was done to control for several factors such as local economic conditions and differences

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[1] Bad news index search consisted of the following terms: "recession", "economic slowdown", "layoffs", and "job cuts". Good news index search consisted of "economic" and "recovery" within 3 words of each other. "Japan" was excluded from all searches.

[2] Doms and Morin (2004)control for quality by taking random samples from each quarter to ensure that the keyword searches captured the tone of the articles they were intended to (for example, articles with the word recession captured some negative viewpoint of the economy). They concluded that the ratio of articles capturing the correct tone to the articles not capturing the correct tone was relatively constant over the time series. As a further step in quality control, they used questions from the Michigan Survey of Consumer Sentiment asking consumers whether they recently read news that was favorable or unfavorable and made sure the responses were correlated to the appropriate index.

in reporting preferences across metropolitan areas. The Boston and New York markets were chosen specifically because they included one newspaper that was "high quality" and one that was "low quality" according to the Monica Lewinsky quotient measured by Zaller (1999). Chicago was the only other large metropolitan area that had two competitive newspapers on opposite ends of the quality spectrum, but data for the Chicago papers could not be retrieved in the same manner as the Boston and New York newspapers.

Keyword searches in the headlines or first paragraphs were done for each newspaper during the years 1995-2005 on a quarterly level using the Lexus Nexus Academic database. The keywords used were nearly identical to those used by Doms and Morin (2004). The only difference is that the "unemployment" index and the "recession" index were aggregated into one "bad news" index. In a further step to improve quality, the search was narrowed to a list of specific subjects, including business forecasts, economic news, and unemployment data. This was done to minimize the amount of non-economic articles that were being included in the index. Finally, data on unemployment, the consumer price index, the S&P 500 index, and projected GDP growth from one to four quarter out were also collected on the quarterly level. These economic indicators were used as independent variables in regressions for each index of each newspaper. The Durbin-Watson test and the Prais-Winston Method were used to detect and correct autocorrelation problems that were inherent in using unemployment, the S&P 500 index, and projected GDP growth as independent variables.

IV.   Results

The first observation that was apparent in the indexes is that there is a significant difference in the means of the four newspapers. The mean of the *New York* Times is six times larger then the mean of the *New York Daily News*. This was expected considering that the *Times* publishes many more economic articles not just concerning the economy of the United

States but the economies of other countries as well. On the other hand, the *Daily News* usually spends little print-space on economic news coverage. The initial regressions done without correcting for autocorrelation showed that the "bad news" index followed the economy much better then the "good news" index for all papers. This should be expected considering keywords used to indicate bad economic news were much easier to pinpoint. By plotting the good news index for all four papers on a graph, the "good news" index was found to increase during times of economic turmoil, not economic expansion. This is most likely due to the fact that terms like "economic recovery" are more likely to be used in headlines during and immediately after economic downturns. For example, the headlines "Recession Imminent" and "Recovery Nowhere in Sight" are both used in the same month. Similarly, the headlines "Experts Say Recession Is Over" and "Economic Recovery in Full Swing" are also both used in the same month to describe similar events. Therefore, because the economic indicators explain the bad news index much better and because the good news index fails at following times of economic expansion, the remainder of the analysis will focus on the results from the bad news index.

Calculations of the Durbin-Watson statistics for all four papers concluded that the regression models suffered from serial correlation.   After the results were corrected for autocorrelation using the Prais-Winston Method, the four regressions were all found to be significant using the global-F-test. As for the individual economic indicators, the only indicator that was significant (at a 95% level) for all four regressions was the current GDP level. Interestingly, the unemployment rate and the GDP forecast one quarter out were significant for the two Boston newspapers but not for the two New York newspapers. The GDP forecast four

quarters out was also significant for the Boston Herald. As for the meaning of the coefficients, the only variables whose coefficients were consistent are GDP growth in the current quarter and projected GDP growth in the next quarter. Both coefficients are negative for all four papers, which was expected considering higher GDP growth should mean less bad news. Interestingly, the unemployment coefficient was very different for all four newspapers ranging from very high for the *Boston Globe* to negative for the *Daily News*.

To compare how well the economic indicators explain the bad news index of each paper, we compare each regression's r-squared value (adjusted for the number of independent variables used). The r-squared is used to make the comparison between newspapers because it represents the percentage of the variation in the indexes explained by the regression. A higher r-squared means that the economic indicators explain a significant portion of the changes in the index.   Surprisingly, the Boston newspapers have the highest amount of variation explained by the regression, with a .732 adjusted r-squared for the *Herald* and a .718 adjusted r-squared for the *Globe*. The difference in variation explained between the New York newspapers was much larger. The *New York Times*' adjusted r-squared was .634 while the *New York Daily News*'s r-squared was only .503. These results suggest that the difference in economic reporting accuracy between the Boston newspapers is very small, whereas the difference between the New York newspapers is considerably larger. These results seem to support the theory that larger market-sizes and/or greater competition leads to a greater deviation away from the reading preferences of the median consumer.

V. <u>Conclusion</u>

Although the regression results seem to support the theory that greater deviations occur in larger markets, some discretion should be used in making this connection. First, the keyword searches in the headline or first paragraph may not have been effective in accurately portraying the volume of economic news. Readers who are familiar with the *New York Times* and the *Boston Herald* will probably agree that it difficult to call the *Herald* a more accurate reporter of economic news then the *Times*, as these results suggest. It is possible that because that the *Boston Herald* reports less economic news, the articles in which the keywords are used are almost always about the state of the current economy. The *New York Times*, on the other hand, makes use of keywords such as "recession" and "unemployment" much more often and therefore searches catch more articles not associated with the current US economy. However, by this logic a similar result should also occur with *the Daily News*, which it does not. Another possibility is that the two Boston newspapers cover similar stories and therefore use similar headlines, whereas *the New York Times* and *New York Daily* News do not because the *Times* caters to a much wider geographic market. Finally, only two geographic markets were analyzed.   The results would have been much more conclusive had several more large US markets been used. However, most markets do not have one low quality paper and one high quality newspaper. In other words, most markets are not large enough to support both a low-quality newspaper and a high-quality newspaper.

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Variable	Obs	Mean	Std. Dev.	Min	Max
New York Times	45	66.31111	47.82773	20	232
New York Daily News	45	11.02222	12.43801	0	44
Boston Globe	44	40.45455	35.0511	1	147
Boston Herald	44	18.65909	14.44628	4	65
Unemployment	45	5.095556	0.683559	3.8	6.2
CPI	45	171.4533	13.79897	149.5	199.2
Stockindex	45	1013.689	286.002	459.21	1498.58
Spfcurrent	45	4.740623	1.242691	-0.64581	6.563994
Spf1quarter	45	4.958522	0.812064	2.101112	6.278378
Spf2quarter	45	5.059984	0.621769	3.402238	5.906904
Spf3quarter	45	5.111481	0.539936	3.576686	5.895877
Spf4quarter	45	5.193663	0.615148	3.646895	6.953981

NewYorkTimes$_{it}$= number of articles found in the New York Times with "bad news" keywords in the headline/first paragraph during quarter t.

NewYorkDailyNews$_{it}$= number of articles found in the New York Daily News with "bad news" keywords in the headline/first paragraph during quarter t.

BostonGlobe$_{it}$= number of articles found in the Boston Globe with "bad news" keywords in the headline/first paragraph during quarter t.

BostonHerald$_{it}$= number of articles found in the Boston Herald with "bad news" keywords in the headline/first paragraph during quarter t.

Unemployment$_{it}$= national unemployment rate announced during the first month of quarter t.

CPI$_{it}$= consumer price index announced during first month of quarter t.

StockIndex$_{it}$= Opening Rate of S&P500 index in quarter t.

SPFCurrent$_{it}$= Percent change in real GDP for the quarter t.

SPF1Quarter$_{it}$= Percent change in real GDP for the quarter t-1 according to the Survey of Professional Forecasters

SPFQuarter2$_{it}$= Percent change in real GDP for quarter t-2 according to the Survey of Professional Forecasters

SPFQuarter3$_{it}$= Percent change in real GDP for quarter t-3 according to the Survey of Professional Forecasters

SPFQuarter4$_{it}$= Percent change in real GDP for quarter t-4 according to the Survey of Professional Forecasters

Table 2.

	New York Times	New York Daily News	Boston Globe	Boston Herald
Variable	1	2	3	4
Unemployment	2.32	-4.298	27.395***	9.267**
	(15.82)	(4.838)	(10.075)	(4.034)
CPI	-0.740	.222	-.324	-0.151
	(0.736)	(.223)	(0.482)	(0.192)
StockIndex	0.017	-.007	0.061**	0.014
	(.043)	(.013)	(0.028)	(0.011)
SPFcurrent	-22.018***	-6.792***	-13.914***	-5.537***
	(5.47)	(1.819)	(3.854)	(1.804)
SPFt-1	-12.67*	-1.022	-13.594**	-7.903**
	(8.789)	(3.024)	(6.425)	(3.186)
SPFt-2	5.714	1.097	1.471	3.72
	(10.301)	(3.63)	(7.763)	(4.072)
SPFt-3	17.40	5.542	4.79	1.32
	(11.485)	(3.898)	(8.293)	(4.069)
SPFt-4	9.989	2.40	10.862	6.497**
	(9.48)	(3.131)	(6.695)	(3.12)
N	45	45	45	45
R^2	0.70	0.59	0.77	0.78

Adjusted R^2	0.63	0.50	0.72	0.73
F-Value	15.70***	6.57***	14.71***	15.70***

Standard errors in parentheses. *** = significant at 0.01, ** = significant at 0.05, * = significant at 0.1.