

TRINITY COLLEGE DUBLIN

Conference Paper

Media Ownership and the Tone of News Coverage of Labour Unions: Evidence from a Quasi-Experimental Approach

For Presentation at the PSAI Annual Conference 2015

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17/10/15



IRISH RESEARCH COUNCIL
An Chomhairle um Thaighde in Éirinn

Funded by Irish Research Council Government of Ireland Postgraduate Award Scheme 2014/15

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Introduction

The degree to which the identities and concentration of ownership of media organisations has an effect in shaping the nature of the news content these organisations produce has long been a hotly contested topic among scholars, policy makers, political activists and the citizenry at large. From William Randolph Hearst through to Rupert Murdoch, there has been significant debate around the level of input these individual media moguls have had in shaping the news production and news construction decisions of their journalists and editors as well as the effects that potential interference may have on consumers' political and social attitudes further down the line. Variation in influence over the tone and shape that news coverage takes by different types of owners is of substantive importance for policy makers and regulators concerned about the diversity of content and opinion in the news market as well as political scientists, media economists and other communication scholars interested in the provision of information on political, economic and social issues to the citizenry.

Social science scholarship in this area has long struggled to identify whether, firstly, such influence by owners is actually a significant explanatory factor in determining the content of news stories or whether news content tends to be driven by demand-side factors (e.g. Mullainathan and Shleifer, 2005, Gentzkow and Shapiro, 2010) and secondly, if owner influence on news content does in fact exist, whether such influence is actually a systematic product of different structures of media ownership (Lacy, 1991). Building on theoretical innovations from the industrial organisation literature and new avenues in media politics and in contrast to traditional critical media scholarship that presents commercial media preferences as largely monolithic, I identify key patterns in the development of these organisations which tend to facilitate or inhibit the organisational ability and preferential incentives of media owners to portray unions negatively. I argue that the 'managerial revolution' in diversely-owned corporate organisations allows for greater freedom for journalists and editors who seek to present issues in a more objective or positive fashion while family-owned media firms have remained relatively constrained by the ideology of those ultimately in charge.

Significant difficulties arise in the empirical literature in identifying ownership effects on content due to a relative lack of variation in the identity of media owners over time, potential endogeneity concerns when studying the takeover of individual news outlets as the takeover and the shape of content may be causally endogenous to one another or rational anticipation of desired changes in news content by journalists.

It is clearly not possible to address such causality concerns by randomly assigning ownership of newspapers to families or corporations. Therefore, this paper takes

a novel empirical approach by using a natural experimental design in which the form of ownership of a news organization changes while additional potential explanatory variables are held constant or otherwise restricted so as to constitute an 'exogenous shock' and an example of "as if" random assignment (Dunning, 2008). Using newly collected data, changes in the nature of news content, conceptualised here as the tone of newspaper coverage of labour unions and measured via text analysis procedures, are therefore argued to causally emanate from the change in the concentration of firm-level ownership from family control to a more diffuse corporate structure and the transformation in the organisational structures, incentives and opportunities for interference that an ownership change brings about.

The key research question is therefore:

RQ: Does a change in the concentration of ownership and control of a media organisation impact on the tone of its coverage of labour unions?

Relationship to Broader Project and Motivation

This paper forms part of a broader project examining the role of media content and the media organisations that produce it in shaping the attitudes of citizens to labour unions in liberal market economies. In light of the substantial evidence about the primacy of demand-side concerns in the production of much news content (e.g. Mullainathan and Shleifer, 2005, Gentzkow and Shapiro, 2010), examination of supply-side ownership effects on news content necessitates the selection of an issue area and institutional framework where demand-side preferences are relatively constrained and supply-side preferences/incentives are sizeable.

In this paper and my wider project, I concentrate on the coverage of labour unions within the context of liberal market economies (Hall and Soskice, 2001), where owners of commercial media organisations are likely to have incentives to intervene to shape the nature and tone of news content. The rationale behind this follows from Gentzkow and Shapiro (2010), who propose ownership effects in issue areas "where the financial interest of the owner is strong relative to the likely interest of the reader." The institutional conflictual relationship of owners in liberal market economies to organised labour means that their comparative advantage and profits are best realised through approaches which maximise their ability to take control of other commercial entities and depress wage cost. Negative coverage of unions can aid them in achieving these goals. The systemic relationships of a variety of capitalism are more encompassing in this way than partisan preferences. Therefore, interference in coverage will be more beneficial to owners than in issue areas in which consumers may themselves have clear and strongly-held preferences with the potential for adverse effects on consumption and profits.

Media coverage of labour unions appears to be a ripe topic for analysis given common claims about anti-union media coverage in the literature. This project

contributes rigorous empirical testing of a mechanism to the long-running contention that mass media are systematically biased in their coverage of unions (e.g. Page and Shapiro, 1992; Parenti, 1993; Gitlin, 2003). This paper also represents an important theoretical foundation for later work as it attempts to identify the effects of differences in the structure of media ownership, that is, corporate vs. individual or family ownership, on the tone of the content these organisations produce.

Literature Review: Ownership and Influence

Critical political economy scholars have long been concerned with the issue of commercial media ownership and the potential for owners to influence the news coverage produced by their organisation (e.g. Bagdikian, 2004; Herman and Chomsky, 1988). The focus here is on the domain of economic influences as a source of influence (Hanitzsch and Mellado, 2011) such as profit maximisation and the need to obtain and retain advertisers and advertising revenues. A difficulty with much of this work is the assumption of monolithic preferences which does not account for structural variation in media organisations. The critical school tends to exclude considerations of owner influence emanating from the organisational structure of the media organisation and the degree of control that owners can exercise within outlets, as distinct from market processes which constrain all commercial media organisations.

A second strand of literature grounded in industrial organisation focuses on the effects of within-firm structural factors in determining the incentives and ability of owners to interfere in the newsgathering and news production processes carried out by journalists and editors. An understanding of internal media organisational practices suggests that journalists and editors have a tendency to present coverage in an independent manner wherein they exercise their journalistic freedom to produce preferable stories and the tone of stories therefore may result from underlying political preferences on the part of the journalist or what they consider to be the facts on the ground (Zaller, 1999). All else equal, journalists' independence would only be constrained by editors' requirements or 'line' which is in turn a product of editors' own independence. This tends towards the randomly-assigned framing of stories following from the divergent preferences of independent journalists and/or independent editors. Ownership complicates this independence as "ownership bestows control" (Grossman and Hart, 1986) and owners can therefore restrict independence by instituting their own 'line' onto media practitioners.

A key theoretical development is the idea of a non-pecuniary benefit or 'amenity potential' available to owners of media organisations who wish to influence the coverage their outlets produce so as to access potential influence over the consumers of their media product (Demsetz and Lehn, 1985; Demsetz, 1989; Hanretty, 2014). Demsetz (1989) argues that the private, non-financial benefits or 'amenity potential' accruing from ownership of a substantial media outlet outweighs by far the 'amenity potential' associated with owning a firm in the vast

majority of industries. In order to access these utility gains, media owners will necessarily have to exercise their control on occasions when it is incentivised. Access to such non-financial utility is contingent upon the capacity to control the media organisation and the ability to restrict the vast majority of these utility benefits for oneself.

In identifying the ownership of media organisations, Djankov et al. (2003) provides a relatively simple model which seeks to identify an 'ultimate ownership interest' via the share holdings of proximate owners. A proximate owner who controls more than 20% of the company is assessed to see if this proximate owner is an individual or family, employee group or the state and if so is identified as the ultimate owner. If not, this proximate owner is examined to discern whether there is an ultimate owner of this proximate owner. If so, they are deemed the ultimate owner of the media organisation and if no controlling share exists, ownership is deemed to be widely held. The level of concentration of ownership can thus be identified using the industry standard Bureau Van Dijk Independence Indicator (BvD, 2004) which characterizes the independence of a company with regard to its shareholders. The measure calculates the direct and controlling interests of a firm and categorises companies based on whether any individual shareholder exceeds thresholds of ownership share of the firm (see Table 1).

BvD Independence Categories	Ownership Shares of any One Individual Shareholder
Indicator A	Direct or total ownership not to exceed 25%
Indicator B	Direct or total ownership not to exceed 50% (One or more shareholders own more than 25%)
Indicator C	Direct or total ownership exceeds 50.01% / One shareholder exceeds 50.01% but precise share is unknown
Indicator D	Direct ownership exceeds 50.01%

Table 1: Bureau Van Dijk Independence Indicators from BvD Database (2004). This table covers major categories.

Empirically, Hanretty (2014) finds owner influence is greatest where ownership is concentrated in the hands of individuals/families whereas diverse corporate ownership tends to "set free" editors and journalists who can employ their preference for independence as shareholding groups have competing perspectives and are unable to easily control editors. While Hanretty's organisational logic and findings are convincing, key questions remain. Measurement of influence relies on an expert survey of perceived influence of owners which does not aid our understanding of how news coverage itself varies depending on the influence of owners. Also, the incentives of owners to interfere in the newspaper will vary by issue area and with a generalised measure of influence, we cannot be sure how forms of ownership affect the coverage of any distinct issue.

David Demers examines the impact of different structures of organisation within media outlets on newsroom practices and content output from a media economics perspective (e.g. Demers, 1993; Demers, 1996, Demers and Merskin, 2000). His contention is that corporate ownership has positive effects on news production in clear contrast to critical scholars. Evidence from surveys of journalists suggests moves from structures where ownership is concentrated in the hands of an individual/ family to broader corporate structures does not increase economic pressures or restrictions on journalists' perceived independence and instead increases are reported in the freedom felt by journalists and editors and perceived improvements in product quality (Demers, 1999). The difficulties here are the reliance on self-reported perceptions by journalists rather than direct effects on content while ownership is only one element of organisational structure and therefore isolating the causal effect of ownership becomes more difficult.

Finally, Dunaway (2008, 2013) directly addresses the impact of forms of ownership on the degree of negatively, positively and neutrally toned news coverage. In this case, the tone of news coverage of political campaigns is examined and the author, in contrast to Demers, finds significant negative effects of corporate ownership on the degree of issue coverage as opposed to 'image' or 'horserace' coverage. However, there are positive effects of corporate ownership on the amount of positive news coverage when compared with firms with more concentrated ownership. These results offer additional motivation for the examination of an issue area where owner intervention may not run up against strong consumer preferences.

Theory

Access to the 'amenity potential' and non-pecuniary benefits described above is argued here to be a function of the degree of control that an owner has over the media organisation which logically follows from the level of concentration of ownership of the firm and the voting rights stock associated with the ownership share and individual or family has accrued. In contrast, corporate ownership, where ownership is relatively 'unconcentrated' (i.e. no dominant individual/family shareholder) is such that the various ownership blocs struggle to exercise the degree of control over the organisation and its output so as to be able to access the non-pecuniary benefits potentially on offer. This is particularly the case as publically-traded corporate media shareholder blocs often have divergent incentive structures and thus are likely to have more divergent preferences for content output. For example, a media organisation such as the UK-based Trinity Mirror Group with very low concentration of ownership includes a diverse set of shareholders from banking and investment companies to a Trinity Mirror employee bloc to the county of Yorkshire's local government pension fund. These are all entities with incentives and preferences that are likely to vary in their political and socio-economic outlook and therefore any political basis for the selection of editors and/or influence on editorial decisions and content is unlikely to be as clear and coherent as would be the case in a corporate media entity where one or two

owners had substantial control.

The 'industrial organisation of the media' literature as well as broader conceptions of organisational behaviour in the corporate sector allows us to more concretely specify how and when the independence of editors (as managers) and journalists (as news production entrepreneurs) is likely to be maximised and minimised. In contrast to the assumptions of critical accounts, the now widely-accepted 'managerial revolution' thesis posits that the dilution of ownership control in corporate entities requires the devolution of day-to-day control of operations to managers (in this case editors) due to the increasing number of capital sources with a stake in the company and the greater diffusion of professional investors who own or more likely operate assorted investment portfolios not limited to individual companies (e.g. Berle & Means, 1932; Galbraith, 1971) In virtually all forms of commercial organisation, this requires the array of diverse shareholding interests to relinquish a large degree of control to technocratic managers or those with more direct expertise in the running of the particular form of firm and familiarity with its regular operations. In the case of media organisations, this requires ceding control to editors (the management) who have substantial leeway to operate according to their own preferences which, particularly in the media sector in which independence is as key a source of individual utility (Zaller, 1999), are likely to deviate from those of owners (Demers, 1999). This follows from the theoretical propositions of the 'managerial revolution' in which diverse shareholding blocs face substantial difficulties in forming coherent voting sets so as to block management drives for greater independence. Where ownership is concentrated and director voting rights enable the relatively easy development of owner win-sets, owner influence becomes substantially easier to execute and editors/managers are far more easily constrained. Similarly, due to the inability of any one shareholder to select and thus control the editor, each shareholder is likely to be further inclined to defer to an editor with the requisite technocratic expertise but a desire for relative independence.

There is the potential for clear variation between corporate and more concentrated ownership in their ability to exercise many of the forms of overt owner control outlined by media scholars (e.g. Bagdikian, 2004) and media professionals (e.g. Evans, 1984) such as memos and phone calls to editors, presence on the newsroom floor and in planning meetings, involvement in hiring and firing and direct contact with reporters. The diffusion of ownership in corporate organisation limits interference and the need for editors and/or journalists to feel the need to bow to the interests of any one shareholder. Similarly, more covert or institutionalised control in which the editor and/or journalists "rationally anticipate" the tone the owner may desire is inhibited by the difficulty in identifying which shareholder's interests and preferences to internalise. Where such interference is present, it largely derives from the 'amenity potential' available from control of a media organisation with a direct input into the discourse of public life (Demsetz, 1989). The realisation of this utility through interference is largely dependent on clear control of the firm and the excludability of this utility from a

range of other owners and therefore is compatible with relatively concentrated rather than 'deconcentrated' ownership.

Therefore control over news content is limited in less concentrated firms for three reasons: firstly, the diversity of shareholders and their incentives limits the scope for political bases for editor selection and limits on editor independence when reporting to directors during his/her term. Secondly, the diversity of shareholders limits the ability of individual shareholders to exert influence over editors and journalists day-to-day. Thirdly, the incentive to control content is reduced due to the difficulties in personally accruing the non-pecuniary benefits of influence for any individual shareholder. The firm under concentrated ownership therefore 'succeeds' in producing the type of coverage of unions that owners desire because the ability and incentives to produce it is greater than under diverse ownership.

All taken together, these factors produce the major hypothesis:

H1: *Under less concentrated ownership, the tone of the coverage of labour unions will be relatively more positive.*

The null hypothesis is that there is no significant difference in tone between different forms of ownership which may result from a number of alternative explanations. Firstly, under the critical political economy approach, there is unlikely to be any significant difference in tone between commercial media with concentrated ownership and less concentrated corporate ownership as the fundamental preferences of capitalist media owners remain the same and these preferences are institutionalised within the newsroom. Scholars focusing more on demand-side explanations would similarly posit that there should be no significant change in tone as a result of a shift in ownership from concentrated to relatively less concentrated ownership. Any such changes would likely be driven by demand-side shifts; it is most likely therefore that a relative weakening of labour unions within the newspaper market would result in a more negative tone to the coverage of these actors in the relevant media.

Research Design

This paper employs a relatively novel natural experiment approach which seeks to identify a plausibly exogenous 'shock' to the ownership of a media outlet (the Baltimore Sun) through a takeover and trace any potential resultant change in the tone of the coverage of labour unions as a result of this. To this end, the paper collects and analyses Baltimore Sun coverage of labour unions for a six year period before and a six year period after the newspaper changes ownership from the Chandler family to the corporate Tribune Company in 2000. In this way, it seeks to address concerns raised about previous studies of ownership effects in which the ownership of the media outlet does not change and therefore isolating the independent effect of ownership and making causal inferences becomes problematic. While there are of course concerns about whether certain supposed natural experimental designs do in fact achieve the desired 'as-if random' assumption (e.g. Dunning, 2008; Sekhon & Titiunik, 2012), I therefore discuss

the rationale behind the particular case selection in some detail below and the plausibility of considering the assignment of distinct values in the independent variable (ownership) to be as-if random.

The Baltimore Sun and the 2000 Takeover of Times Mirror

The Baltimore Sun presents an interesting case to test the above theory against as its takeover had certain unique components. Firstly, an 'as-if' random assignment in this case necessarily requires that the takeover of the newspaper was not directly related to the tone of the particular newspaper. The Baltimore Sun satisfies this condition as it was clearly not the primary target of the takeover of the Chandler family-controlled Times Mirror company (concentrated ownership) that owned it prior to 2000 by corporate media conglomerate (unconcentrated ownership) the Tribune Company.¹ The Baltimore Sun was, at best, the third most important newspaper under the ownership of Times Mirror and the Chandler family with the Tribune Company's takeover of Times Mirror being almost entirely directed at acquiring the Los Angeles Times, the fourth largest newspaper in the US by circulation at the time (AdAge, 2015), and access to its very high circulation and the potential advertising revenues available from the lucrative Los Angeles media market. The LA Times was considered the "crown jewel" in the Chandler family collection (DePamphilis, 2003; Jones, 2009) and occupied a place of prominence not just due to its daily readership of over 1.03 million but also the gravitas acquired through its extensive foreign reporting apparatus and its status as one of the US's four dominant quality newspapers having won 23 Pulitzer prizes under Chandler ownership (Jones, 2009; LATimes.com, 2015).

Compared to these, the Baltimore Sun lagged considerably behind in the priorities of the Tribune Company given that it ranked 27th in the US by circulation at the time. The circulation figures (see Table 1) underline the difference between the LA Times and Newsday and the Sun which possessed a far smaller circulation in a lower-income market than many of the Tribune's other assets especially the newly-acquired LA Times.

	Average Daily Circulation (2000)
<i>Los Angeles Times</i>	1,033,399 (4 th)
<i>Chicago Tribune</i>	617,097 (7 th)
<i>Newsday</i>	576,345 (8 th)
Baltimore Sun	315,306 (27 th)

Table 2: Tribune Company Newspapers Circulation after 2000 takeover of Times Mirror. National rank in brackets. Data: AdAge Datacenter.

It is reasonably clear from these figures that the financial benefits of the takeover to the corporate Tribune Company were likely to accrue both in terms of circulation and advertising revenues from the LA Times and Newsday with the Baltimore Sun

¹ This was, at the time, the largest newspaper acquisition in US history.

representing something of a makeweight in the deal. For this reason, any desired alterations to the news coverage of purchased Times Mirror Company were likely to be focused on those newspapers with large audiences and national political sway. The Baltimore Sun was unlikely to rank particularly high as an outlet to take an active role in shaping the news content of.

A second concern in assessing the potential independent impact of a change in the form of ownership on the tone of news content is that editors and employees of the newspaper being taken over may rationally anticipate the takeover. That is, the journalists and editor may attempt to give the new or anticipated owners what they want by altering coverage even before the takeover takes place thus altering the tone and making causal inference regarding the independent effect of the takeover more difficult. A series of reports regarding the takeover from contemporary sources and later analysis (e.g. (DePamphilis, 2003; New York Times, 2000) outlined the secrecy behind the deal with negotiations between the Chandlers who owned Times Mirror and the purchasing Tribune Company conducted behind the back even of Times Mirror CEO Mark Wiles. Wiles himself reported to the New York Times (Barringer & Holson, 2000) that he was unaware of the deal and in fact unaware that the company was in any way available for sale. These reports were further underlined by former Times Mirror CFO and Chandler family advisor Thomas Unterman who negotiated the deal with Tribune and who confirmed that the deal had been agreed between the parties without the knowledge of Wiles as CEO who was told of the takeover at the beginning of March 2000. Under conditions in which the CEO of a media organisation is unaware of the sale of the company, subordinate editors and journalists are unlikely to be aware of the deal so as to rationally anticipate tone changes desired by new owners. Therefore for my purposes, I identify March 1st 2000 as the point at which the 'shock' or treatment is applied as it then became common knowledge.

While it is central to the notion of natural experiments that the assignment process itself restricts the need for control for confounding variables statistically (Dunning, 2012), it is worth considering the advantages of this particular case with respect to alternative causal factors. Firstly, focusing on a distinct metropolitan area prior to- and post-takeover allows us to hold reasonably constant the underlying demographics and political landscape of the region. In particular, changes in partisan preferences and electoral effects are limited in Baltimore given its status as a Democratic stronghold where a Republican has only once held the position of mayor in modern times and left office in 1967 and no Republican has been elected to the City Council since 1939 (Reutter, 2011). The Baltimore city and county area has voted Democratic in every Presidential election in the time period under analysis (Leip, 2015). We may therefore consider the underlying political conditions to be held more or less constant. Similarly, the potential for effects of competition on news tone is also likely to be minimal in the Baltimore Sun case. The Sun is by a distance the highest circulation newspaper in the Baltimore metropolitan area in the time period under examination (AdAge, 2015) and faces little in the way of market competition.

Finally, changes in the comparative power of unions in the Baltimore area may be expected to affect the tone of stories. Baltimore and Maryland experienced a similar pattern to most other US states/metropolitan areas in the late 1990s and early 2000s with a fall in coverage from 18.9% in 1994 down to 15.9% in 2006 (see Hirsch & MacPherson, 2015). This may raise concerns that changes in the newspaper's tone in its coverage of unions may have resulted from this weakening of union strength rather than as a result of a change in ownership. A reassuring component of the form the takeover takes and the hypothesis under examination is that the tone of coverage of unions is hypothesised to become relatively more positive post-2000 after the takeover. If changes in the tone of coverage of unions follow from changes in the relative power of unions on the demand-side, this would surely be expected to produce more negatively-toned coverage as there are fewer readers covered under union agreements.

Dependent Variable: Tone as a key component of news coverage

To identify shifts in the way unions are covered in news media, a scheme must be devised to examine how coverage changes. Quantitatively, one could employ measures of the frequency of reporting on unions, the topic(s) that union coverage relates to, or the tone, negative or positive, that stories are presented in. The limited literature looking at media coverage of unions has tended to focus on one or both of the former (e.g. Schmidt, 1993; Walsh, 1988; Philo and Hewitt, 1976) but these do not tell us much about the way in which such material is presented and the way in which journalistic professionals are treating or being told to treat the issue.

The selection of topics to cover by journalists is likely to interact with the desired tone of the reporting as it is more difficult to present 'good news' in a negative light for example than 'bad news' in a negative way. The tone of the story will likely partially reflect the topic of that story but newsgathering processes in quality newspapers are such that journalists retain considerable leeway both in the stories they select and the way in which they present them (see for example. Gans, 1979). If stories about labour unions are positive or negative in tone, this will result from an interaction between journalists' story selection and the language they use to present the story but both elements should be captured in the tone of the story. In the context of the broader project to which this paper contributes, I am concerned with the effects of differences in the form of media coverage on citizens' attitudes. There is significant evidence to illustrate that the media-opinion relationship is likely to be shaped by the tone of stories which offers a broad indication about the way in which the issue is being covered and is important in determining news effects on attitudinal outcomes (e.g. Schuck & de Vreese, 2006; Hopmann et al., 2010; de Vreese & Boomgarden, 2006).

This paper examines tone as a major constituent of the frames media operatives and organisations apply to the coverage of labour unions. In line with other literature, tone may be conceptualised as the relative positivity or negativity of news stories produced by a media outlet (e.g. Dunaway, 2013). I measure tone

quantitatively as a percentage of net positivity of words within an article divided by the length of the article (see below). The text analysis is conducted using the Lexicoder Sentiment Dictionary (Young & Soroka, 2012) which was developed specifically for the purpose of examining news content and the realm of economic news in which labour unions may be considered to be broadly positioned (Young and Soroka, 2012b). The sentiment dictionary and software has recently been successfully used in analysis of the effects of media tone and economic perceptions (see Soroka, Stecula & Wlezien, forthcoming). I discuss the data collection and computation of tone scores for stories in more detail below. To maximise observations, tone is generally aggregated at the story level.

Finally, it is worth stating explicitly that this paper does not attempt to identify all the potential variables that may affect tone or explain variation in the tone of news coverage across time and space. Such a generalised exploration of news tone is beyond the remit of this paper. The purpose of the case selection and research design here is to examine whether there is specifically an effect of media ownership on tone within a purposefully selected context.

Data Collection

The measurement of the key independent or treatment variable, i.e. the shift from concentrated family ownership to less concentrated corporate ownership, was conducted using the Bureau Van Dijk's database (2004) and the examination of filing reports, historical accounts and relevant contemporary news reports. The Times Mirror Company pre-takeover was controlled by the Chandler family who owned more than 65% of the voting shares in the company and had exercised near-complete control over the company for many decades before the acquisition in 2000 (Shaw and Hofmeister, 2000; Barringer & Holson, 2000; Halberstam, 1979; DePamphilis, 2003; Jones, 2009). This gave the company a BvD independence categorisation at level D indicating the highest category of concentration of ownership. By contrast, the owner after the takeover, Tribune Media Company, had a diversified corporate structure of ownership with no shareholder owning more than 25% of the voting shares at any point for which records are available giving a BvD independence score of A indicating the lowest category of concentration.² These records are supported by news, historical and industry accounts of the deal (e.g. Tribune Media, 2000; DePamphilis, 2003).

In order to measure the tone of news content, news stories were first scraped from the Baltimore Sun online archives for a six-year period before and six-year period after the takeover in 2000 thereby covering the period 1994-2006. This was so as to maximise the number of potential observations in the dataset. 1401 relevant stories were collected in total with 830 stories were collected from the period 1994-1999, 111 stories were collected from the year of the takeover in 2000 and 460 stories were collected from the 2001-2006 period. The drop in the

² BvD ownership records are not available for every period in the early 2000s. However, the categorisation is correct based on Tribune's own reports from March 2000.

absolute number of stories post takeover is in line with overall trends in media coverage of labour over time identified by Philo & Hewitt (1976) and Schmidt (1993).

A search term methodology³ was derived from a similar study by Bruno (2009) examining media coverage of unions and adapted to aid in the collection of stories that had a significant union-related component and therefore lent validity to the measurement of tone of union coverage. I attempted to identify union content quantitatively by counting the use of labour signifiers in an article but sometimes due to simple variation in language usage, stories that clearly focused on labour union activities/organisation would invoke alternate language around “employees” or “workers” that fell outside the labour signifier group but were deemed to relate to the same topic. There is a clear trade-off here between quantitative and qualitative measures of tone. Complex human coding of tone is necessarily more subjective and can create inter-coder reliability problems but less attention perhaps needs to be paid in selecting which stories to analyse in the first instance. The quantitative measure here applies a precise formula to measuring tone but requires more care in selecting stories so as to ensure they match the topic that is under consideration.

Methodology

The tone of these stories was then analysed using Stuart Soroka’s Lexicoder Sentiment Dictionary (LSD) and accompanying Lexicoder software (Daku, Soroka and Young, 2011). The LSD contains two large valence categories for positive and negative sentiment, comprising 4,567 unique entries. Using a sentiment dictionary developed for general news content to analyse coverage of unions specifically is of course not ideal. The Lexicoder approach is employed here in order to aid in comparative study with other work on similar topics using similar software and due to the reliability advantages it conveys particularly in relation to alternative qualitative measures and relatively arbitrary and logistically difficult dictionary design particularly in this single-coder context.

Following the completion of specifically-designed pre-processing procedures, Lexicoder employs a relatively simple, bag-of-words approach which computes from the dictionary list the number of ‘positive’ and ‘negative’ words per article and then measures net tone using the following easy-to-understand formula⁴:

$$\frac{\#Positive\ words - \#Negative\ words}{\#total\ number\ of\ words}$$

The word total here includes all words in the article (positive, negative, and without tone). The measure thus captures both the direction and magnitude of

³ See Appendix.

⁴ A second run is conducted using a negation dictionary to pick up negated positive and negated negative words in articles. This improves performance non-trivially as outlined in Young and Soroka (2012).

tone, controlling for article size. As values tend to be relatively small due to the mechanics of the measure, I follow Soroka, Stecula & Wlezien (2015) and multiply the net tone measure by 100. I choose to present net positivity as in the above formula for ease of interpretation so positive integers represent greater positivity in tone and negative integers indicate greater negativity. Scores around zero indicate relative neutrality in tone.

Young and Soroka (2012b) outline in detail the LSD's significant performance advantages in the analysis of news content when compared with alternative generalised sentiment dictionaries and when compared with human coding. Finally, data is analysed using a number of methods generally appropriate to natural experiment, pre- and post-treatment designs including difference in means tests, treatment effects models and reduced-form localised regression (Dunning, 2012).

Results

The distribution of union-related stories by year is illustrated in Figure 1. As mentioned above, there is a decline in the frequency of stories that closely concern unions over time. The six-year period post-collection ensures that the sample size remains reasonably large given the increased performance of Lexicoder/LSD as the number of observations and corpus size increases. One may wonder why there was such a small number of stories in 1995 but there does not seem to be any systematic reason for this.⁵ Summary statistics relating to variation in the tone of news coverage are presented in Table 3. The nature of the LSD net tone measure means that values do not tend to be especially large even when multiplied by 100. There is some evidence to suggest that this is due to a relative conservatism in the identification of positive and negative words compared to other dictionaries as well as the proportional nature of the measure.

The average tone of a newspaper article concerning labour unions in each year of the study is illustrated in Figure 2. This basic graph illustrates a broad clustering of the pre- and post-takeover averages as relatively more negative and relatively more positive on the left- and right-hand side of the figure respectively. This offers a preliminary indication that there is indeed a difference in the tone, i.e. the net positivity here, between stories under the Chandler family ownership and then relatively more positive tone of stories under Tribune corporate ownership later on. We see some variation by year but there is a certain degree of consistency particularly of the post-takeover tone which never falls below a pre-takeover yearly average at any point after 2000.

	N	Mean	SD	Minimum	Maximum
Net Tone	1401	0.1416556	1.46427	-7.366071	4.761905

Table 3: Summary statistics for net tone of articles

⁵ Alternative union-related search terms and search terms relating to other substantive issues were tried with results produced as usual. Exclusion of 1995 entries does not affect the results.

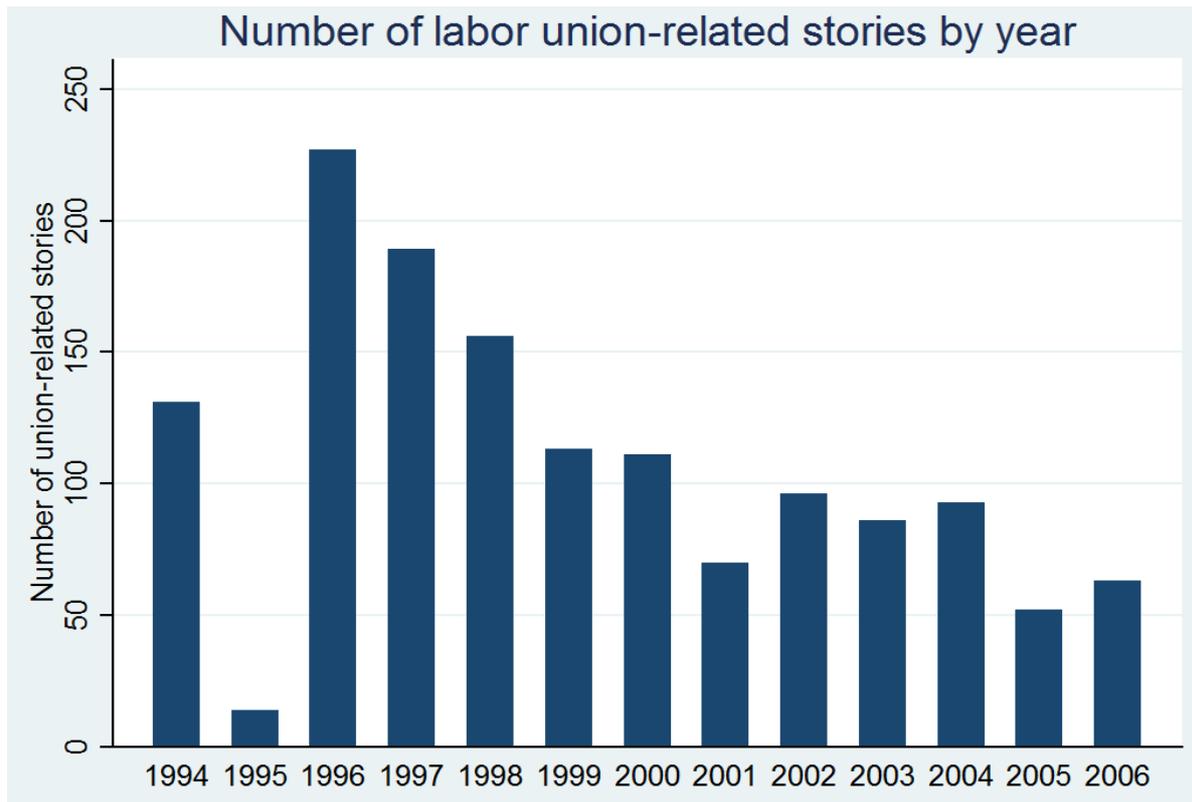


Figure 1: Union Stories by Year

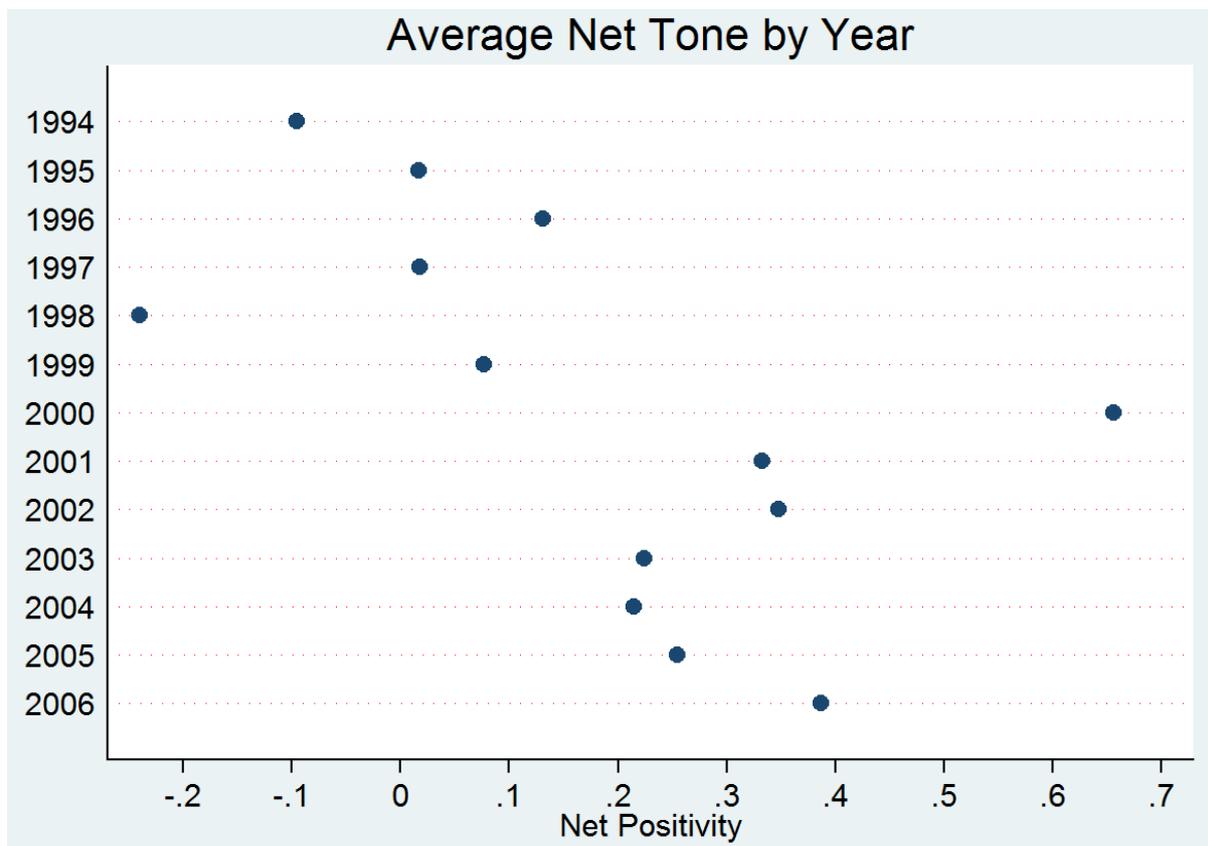


Figure 2: Average Story Tone by Year

I begin the examination of an ownership effect with a simple two-sample

difference-in-means test examining the mean of samples before the date the takeover was reported, 1st March 2000, and after that date. These results are displayed in Table 4. There is a highly statistically significant difference, at the 99% level, between the tone of coverage after the takeover as compared to under Chandler ownership and in the direction expected in line with hypothesis 1 and hypothesis 2 above. The mean of the pre-takeover tone while negative is however not statistically distinguishable from zero but this need not as important as it appears that we are interested in whether there has been a relative change in ownership between the two forms of ownership.

The ownership influence of the Chandler family with their traditional antipathy to organized labour (Halberstam, 1979) may have the effect in left-leaning Baltimore of reining in to the centre any editors and journalists keen to exercise their own preferences or appeal to demand-side preferences more readily but the Chandlers were unlikely to be willing to sacrifice the bottom line to the extent that they would force through a vehement anti-union position which may be seen as unacceptably extreme and potentially harm readership. The ownership effect here is to limit the tone to relative neutrality while under diversified corporate ownership the tone becomes more positive. The average treatment effect of the takeover is a 0.32 percentage-point increase in the tone of a union-related story which although perhaps small substantively (due to a certain extent to the nature of the measure) is an important finding given the kind of quality broadsheet newspaper being assessed here which tend to be relatively restrictive in emotive tonal language when compared to their tabloid brethren.

Variable	N	Mean	Std. Err.	95% Conf. Interval	
Post-Takeover Tone	553	0.3395218	0.0586827	0.2242531	0.4547905
Pre-Takeover Tone	848	0.0126226	0.0516318	-0.0887186	0.1139638
Difference		0.3268992	0.0781633	0.1735535	0.4802449

Table 4: Difference-in-Means Test of Tone of Union Coverage before and after Takeover. Difference is significant at $p < 0.01$ level.

Treatment-Effects

Having observed results that seem to indicate a treatment effect, we can consider in more detail the distribution of such effects across the post-treatment periods. In order to do this, I now consider the treatment effects on story tone in the years just before and after the takeover. The year in this formulation represents the 'treatment' so stories in the years 2000-2006 (that is, post- March 1st 2000) have received the 'treatment' while a year such as 1994 or 1996 represents a 'control group' which has not received the treatment. The specification of these models attempts to 'zoom in' on the treatment effect so as to aid in causal inference. This is achieved by assessing the effect of being assigned to the 1999 and Jan-Feb

2000 'control group' (coded together as 1999) rather than the post-March 1st 2000 'treatment' group. These results are outlined in Table 5. While the number of observations is quite limited given the concentration on just two years the estimates continue to be in the hypothesised direction but drops short of statistical significance at conventional levels. This sounds a note of caution in determining a causal effect of the takeover on tone but the direction of the estimate is such that the findings are at least worthy of further examination. Additional investigations (not presented here) comparing various pre-takeover control years against post-takeover treatment years indicate consistent positive point estimates in line with the theory even if these results vary with regard to whether they are statistically significant at the 95% level.

	Coefficient	Robust Std. Error	z	P> z
ATE – 1 vs 0 (2000 v 1999)	0.3745523	0.2129712	1.76	0.079
Number of Observations= 224				

Table 5: Treatment-effects model comparing groups either side of the cut-off. 2000 'treatment' group is post the March 1st takeover announcement.

Limited-Observations Regression

One alternative approach to causal inference is a regression discontinuity design (Dunning, 2012; Hahn, Todd & Van der Klaauw, 2001) but the limited number of observations around the cut-off inhibit a genuine RD model. In this vein, I present an informal limited-observations regression in table 6 examining solely observations from a 12-month period before and after the takeover as a form of basic intention-to-treat analysis and localised linear regression (Dunning, 2012, p.87). This conveys an informal estimate similar to an RD design but is intended as a "complement rather than a solution" to more formalised parametric procedures (Lee & Lemieux, 2009). There are of course concerns about the reliability of comparing observations (stories) from a period of this size either side of the takeover but given the limited observations available, it may be indicative. We do in fact see a statistically significant effect in the hypothesised positive direction on the tone of a story if it occurred post-takeover. This is again suggestive that there is a causal effect of the ownership change.

	Coefficient	Robust Error	Std. t	P> z
Takeover	0.5648145	0.2155039	2.62	0.009
N= 222. R-squared=0.0303. Adj R-squared=0.0259.				

Table 6: Simple Linear Regression using observations limited either side of the cut-off i.e. 1/3/1999-1/3/2001.

Taken together, these results indicate that the effects of a takeover lag somewhat as changing the structure of the organisation takes some time with the need to

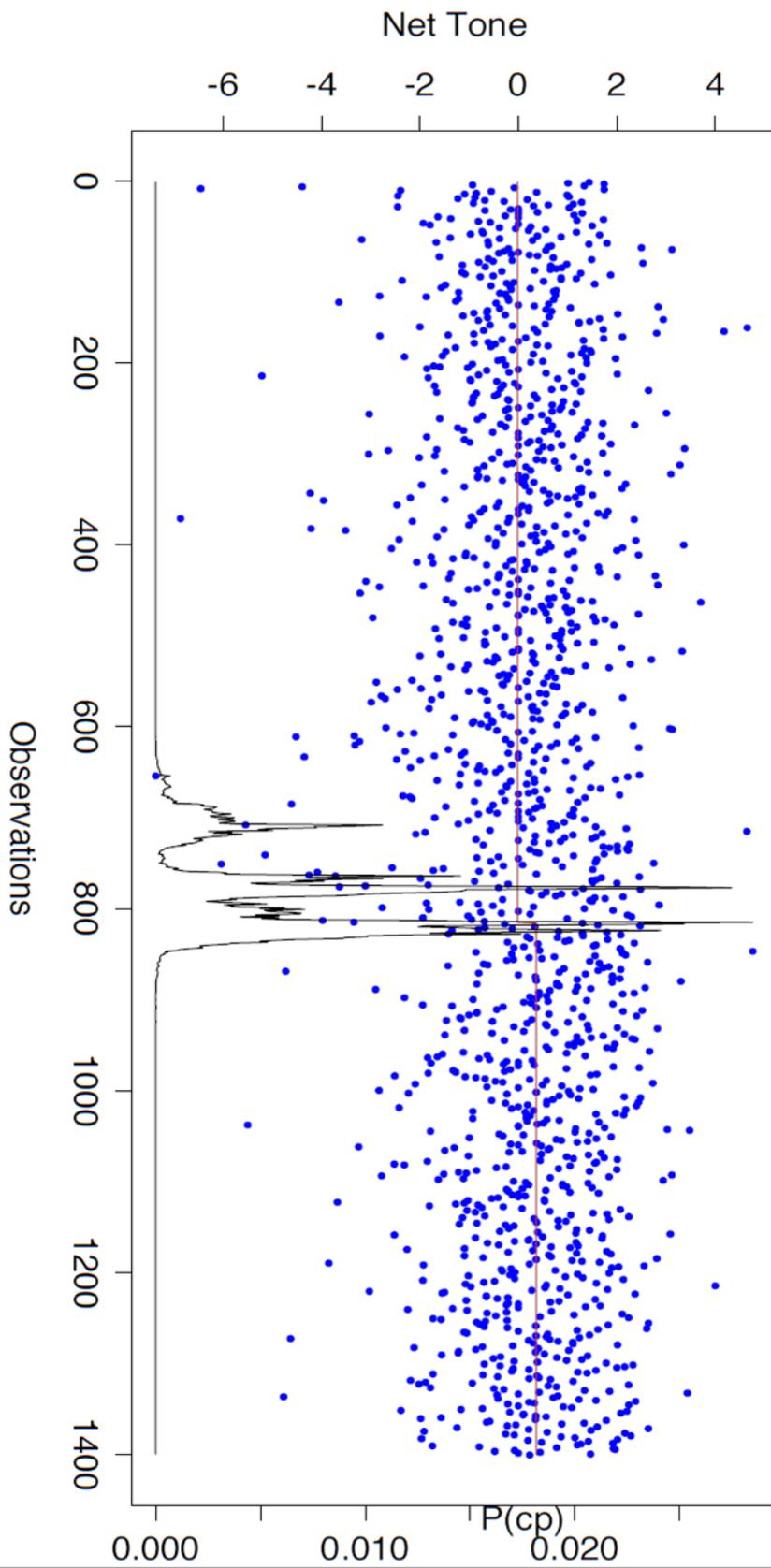
possibly replace editors from the previous regime and institute new newsgathering and production practices. Journalists and new editors may also require a certain degree of time under the new ownership regime to realise the relative increase in their independence or to come around to the idea of focusing more on demand-side preferences. The overall treatment effect of ownership in increasing the relative positivity of union-related coverage may reflect this even if we cannot definitively observe it precisely around the takeover cut-off.

An alternative Bayesian approach

Change point models offer an alternative approach to determining a point when the tone of the coverage of unions changes which contrasts significantly with the parametric tests conducted thus far. Until now, the tests have involved the assumption of a structural break in the net tone of coverage in early March 2000 when the takeover was announced and have tested whether there is a significant difference in the average tone before and after this point. However, there is a comparable Bayesian approach which treats the location of the change point as a parameter to be estimated and assumes the timing to be uncertain. This enables a change point detected before the takeover date to count against the hypothesised pattern of effects (Western & Kleykamp, 2004). In this way, the data is allowed to 'speak for itself.' I therefore employ a Bayesian change point model using Monte Carlo Markov Chain (MCMC) techniques. The results are displayed graphically for ease of interpretation in Figure 3 below.

Using a credible probability interval with a conventional 95% significance level, the singular structural break in tone that emerges is approximate to the date the takeover was announced and is in the direction hypothesised. There is no evidence of a statistically meaningful change point prior to the takeover or indeed in the years afterward. Similarly, the credible interval indicates that it was the announcement of the deal which triggered the change in tone rather than the handover itself which suggests strongly that journalists and the editorial team, knowing they would very shortly be transferring to new corporate ownership and were no longer plausibly subject to Chandler family instructions began to afford themselves greater independence in the reporting of unions and likely other comparable issues. These results further strengthen inferences that the change to corporate ownership, via the Tribune takeover, was indeed the key causal factor in altering the tone of coverage in the Baltimore Sun and that this effect appears to be driven directly by the loosening of credible control over journalistic staff as the family owners announced they would imminently be relinquishing hold over the company.

Figure 3: Bayesian MCMC Change-Point Model across Range of Observations



The Baltimore Sun and the Pittsburgh Post-Gazette: A Difference-in-Differences Approach

Having concentrated solely on the useful attributes of the Baltimore Sun case for causal inference to this point and established strong support for the theoretical claims advanced above, it is now helpful to examine potential ownership effects in comparison to a baseline control case which did not experience an ownership change. By comparing the tone of coverage of unions before and after the takeover in Baltimore across the two newspapers, we can establish whether there is a difference between the treatment group and the control group over time and more conclusively illustrate that the change in tone of Baltimore Sun coverage was specific to the ownership change it underwent and not indicative of broader trends across many newspapers.

To this end, I selected the Pittsburgh Post-Gazette as a control group case as it displays similar characteristics to the Baltimore Sun on a number of relevant social and contextual indicators while remaining under family ownership throughout. The Post-Gazette has remained under Block family ownership since 1927 without meaningful interruption even if at times between the 1960s and 1980s joint operating agreements meant that some advertising and sales responsibilities were spun off to the Press Company. However since 1992, even these non-editorial departments have returned to Block family control. The paper therefore does not undergo any comparable ownership change 'treatment' as was the case with the Baltimore Sun.

The Post-Gazette, like The Sun, was also the dominant metropolitan newspaper throughout the time period under analysis as major local market competition essentially folded in 1992 leaving the Post-Gazette without a major rival whose coverage and slant it could potentially be influenced by. While Pittsburgh does not dominate Pennsylvania in the manner that Baltimore dominates Maryland, the pre-eminence of the Post-Gazette in its geographical locale is comparable to The Sun given that Pittsburgh and Philadelphia sit at extreme opposite ends of the state and the city newspapers of each are not in direct competition with each other. The Post-Gazette was the 41st most read newspaper in the US in the time period under examination with a circulation comparable to the Baltimore Sun in terms of proportionality to each city's population. The paper is also stylistically similar to the Sun in its broadsheet design, orientation towards the quality end of the market and reputation⁶.

Socio-economically, Pittsburgh also bears reasonable similarities to Baltimore. Both are industrial cities generally classified as within the Rust belt and experiencing similar patterns of traditional industry decline. Politically, Pittsburgh has leant Democratic in mayoral and congressional elections in recent decades

⁶ See for example mondotimes.com entry.

while union coverage in the two cities sat at similar levels across the time period⁷. While there are of course differences along certain demographic lines, these major indicators strongly suggest that the major news market and demand-side characteristics are such that we should expect the coverage provided by the newspapers to be broadly comparable absent ownership effects.

Following an identical search scheme as in the Baltimore Sun case and using LexisNexis, I identified 1,888 relevant stories relating to labour unions in the Pittsburgh Post-Gazette archives over the same time period of 1994-2006. I again employed the same pre-processing and Lexicoder Sentiment analysis procedures in order to calculate the net positivity tone of each union-related article for the second newspaper.

First, the results of a classic comparison of means test of the average tone before the Baltimore Sun takeover was announced are displayed in Table 7. As we can see, there is no statistically significant difference between the average tone of union-related articles when both newspapers were under concentrated family ownership. In other results not displayed here, there is also no significant change in the tone of Post-Gazette coverage of unions before and after 2000 when the Baltimore Sun was taken over.

Variable	N	Mean	Std. Err.	95% Conf. Interval	
Post-Gazette Tone (Pre-BS Treatment)	1,036	0.0672936	0.046473	-0.0238984	0.1584857
Baltimore Sun Pre-Takeover Tone	848	0.0126226	0.0516318	-0.0887186	0.1139638
Difference		0.0546711	0.0694664	-0.0815718	0.190914

Table 7: Difference in Means test of average tone before Baltimore Sun takeover

As demonstrated above, we did however see a significant positive change in the tone of coverage of unions for the Baltimore Sun from the announcement of the takeover by the Tribune Corporation onwards. Table 8 now displays results of a difference in means test between the tone of coverage for the Baltimore Sun after the takeover versus the tone of coverage by the Pittsburgh Post-gazette which did not undergo an ownership change and remained under family ownership. Here we see a significant difference between Post-Gazette and Baltimore Sun coverage with the Sun displaying a more positive tone but this is only true after the takeover and not before.

⁷ 18.9% in Baltimore in 1994 falling to 17.2% in 2000 and down to 15.9% in 2006 while Pittsburgh stood at 22.6% in 1994, 19.7% in 2000 and 15.5% in 2006 (unionstats.com).

Variable	N	Mean	Std. Err.	95% Conf. Interval	
Post-Gazette Tone (Post-BS Treatment)	852	0.1281808	0.052505	0.0251264	0.2312352
Baltimore Sun Post-Takeover Tone	553	0.3395218	0.0586827	0.2242531	0.4547905
Difference		-0.211341	0.0787428	-0.365822	-0.05686

Table 8: Difference in Means Test between Post-Gazette and Baltimore Sun tone of coverage after Sun takeover

Finally, we consider classic difference-in-difference regression results in Table 9. In this case, the tone score (net positivity) for both newspapers is the dependent variable and the explanatory variables are a Baltimore Sun dummy, a post-takeover announcement dummy and the interaction of Baltimore Sun and post-takeover. As expected, the only statistically significant effect is for the interaction demonstrating that the only significant change to the tone of coverage of unions occurred at the Baltimore Sun and this is true only after the takeover. Taken together with all of the previous evidence, we see that the move from family ownership to diversified corporate ownership increased the positivity of the coverage of unions in comparison both to the paper itself beforehand and compared to a similar newspaper which did not undergo a move away from family ownership. As argued above, this emanates from the increase in journalistic and editorial independence under corporate ownership as opposed to media outlets under closely controlled family influence.

DV: Net Positivity	Coefficient	Robust Error	Std. t	P> z
Baltimore Sun*Post-Takeover	0.266012	0.1065924	2.50	0.013
Post-Takeover	0.0608872	0.0688519	0.88	0.377
Baltimore Sun	-.0546711	0.0689409	-0.79	0.428
Constant	0.0672936	0.0462524	1.45	0.146

N= 3,289. R-squared=0.0054. Adj R-squared=0.0045.

Table 9: D-I-D Regression examining differential effects of newspaper and takeover on net tone of coverage of unions.

Conclusion and Next Steps

This paper leverages the unique circumstances surrounding the takeover of the Baltimore Sun in 2000 as part of a natural experiment research design which seeks to identify the effect of a change in the structure of media company ownership on the tone of its coverage of a specific issue area. A broad set of results indicate in line with the theoretical premise offered here that corporate ownership is associated with relatively more positively-toned coverage of labour unions while concentrated family ownership appears to produce more negative coverage. These results are robust to within-newspaper analysis, Bayesian change-point analysis and a difference-in-differences design comparing the Baltimore Sun to a control case which remained solely under family ownership throughout.

In contrast with both traditional critical scholarship on the political economy of the media and more recent work stressing the demand-led nature of coverage, this paper suggests that in specific issue areas additional non-financial incentives and organisational capacity leads individuals and families to direct the tone of coverage along their desired 'line' while diversified corporate ownership actually frees editors and journalists to present news about unions in a manner that they consider to be more in line with their own preferences or the perceived preferences of their readers.

To the extent that an ownership effect is detected here, it is still difficult both to isolate this effect to the instance of takeover as precisely as is desirable but also importantly, to identify whether it is journalists and editors' own independence under corporate ownership that leads to more positively-toned coverage or whether corporate ownership instead leads newsroom professionals to cater more to what they believe the demand-side wants. It is not realistically possible to ascertain the relative importance of these factors in a paper such as this. Subsequent sections of my project will seek to examine the relative responsiveness of journalists and editors to these kinds of factors by engaging in a series of semi-structured interviews with relevant individuals. Similarly, any difference in coverage identified here between individual and family-owned media organisations remains restricted to the commercial sector but says little about the effects of variation in the structure of public media organisations on union coverage even when public organisations are a major player in certain media landscapes among the liberal market economies. Later research will seek to examine differences between these sub-sections of the media. Finally, investigation of the relationship between media organisations, coverage of unions and citizens' attitudes to unions must say something about whether differently-toned coverage affects citizens' perceptions of unions.

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Appendix: Data Collection Guidelines

1. Period identification:
 - a. 1st January 1994 – 1st March 2000 (Pre-Takeover)
 - b. 2nd March 2000 – 31st December 2006
2. Search Term Methodology:
 - a. Keyword phrases in Headlines/Body: "unions" "labor", "union"
 - b. Keyword phrases in Body of stories: "labor unions" "organized labor," "labor organization" "labor movement," "big labor"
3. Sections of Newspaper:
 - a. All news content: News (later called Telegraph), National, Metro, Business, Local
 - b. Excludes editorials, obituaries etc.,
 - c. Examples of excluded results from search terms: same-sex unions, credit unions, "labor of love", Labor Day,
4. Coding Procedure (Excel):
 - a. ID, Body, Weekday, Month, Year, Section, Page, Headline