

*Working paper series*

**Whose News?  
Class-Biased Economic Reporting  
in the United States**

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March 2020

<https://equitablegrowth.org/working-papers/whose-news-class-biased-economic-reporting-in-the-united-states/>

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# Whose News?

## Class-Biased Economic Reporting in the United States

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November 11, 2019<sup>†</sup>

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<sup>†</sup>We are grateful to Keith Banting, Martin Gilens, Torben Iversen, Mark Kayser, Paul Kellstedt, Mark Pickup, Jonas Pontusson, David Rueda, Stuart Soroka, and Lori Young for very helpful comments on earlier drafts. We also benefitted greatly from feedback from audiences at: the 27th Annual Conference of the Society for the Advancement of Socio-Economics, London (Jun. 2015), the American Political Science Association Annual Meeting, Philadelphia (Aug.31–Sep.4, 2016), a workshop on “Social and Political Inequality” at the Vienna University of Economics (Sep. 23–24, 2016), the Canadian Political Science Association Annual Meeting, Vancouver (Jun. 2019), the University of Gothenburg, the University of Zürich, the University of Konstanz, the University of Cologne, the University of Mannheim, and the Hertie School of Governance. Alberto Alcaraz, Emily Beatty, Rachel Darby, Abu Kamat, Emil Lauritsen, Katie Lay, Leise Sandeman, Arian Zand, and Amy Zhang provided extremely valuable research assistance. We thank Johanna Dunaway for access to her newspaper ownership data.

# Whose News?

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Word count:  $\approx 12,200$

### Abstract

There is substantial evidence that voters' choices are shaped by assessments of the state of the economy and that these assessments, in turn, are influenced by the news. But how does the economic news track the welfare of different income groups in an era of rising inequality? *Whose* economy does the news cover? Drawing on a large new dataset of U.S. news content, we demonstrate that the tone of the economic news strongly and disproportionately tracks the fortunes of the richest households, with little sensitivity to income changes among the non-rich. Further, we present evidence that this "class bias" emerges not from pro-rich journalistic preferences but, rather, from the interaction of the media's focus on economic *aggregates* with structural features of the relationship between economic growth and distribution. The findings yield a novel explanation of distributionally perverse electoral patterns and demonstrate how the structure of the economy conditions economic accountability.

# 1 Introduction

The news media play a powerful role in informing citizens’ judgments of the social impact of government activity. This is especially true in relation to citizen evaluations of the national economy (Hetherington 1996; Boydstun et al. 2018) – a massive and multi-dimensional phenomenon in regards to which direct experience may be of limited relevance (Mutz 1992). Voters’ choices on Election Day are, in turn, profoundly influenced by their assessments of the state of the economy (Lewis-Beck 1988; Duch and Stevenson 2006). But what is the nature of the economic reality presented by the media? Scholars have made some progress on the issue, exploring the news media’s differential responsiveness to levels and changes of various economic parameters (Soroka 2006, 2012; Soroka et al. 2015). What we know little about, however, is *whose* material welfare the economic news reflects. In particular, how responsive is economic reporting to developments affecting different income groups? Put differently, when voters turn to the news media for an assessment of economic performance, does the signal that they receive reflect the fortunes of most households or of those located at particular points in the income distribution—whether the middle, the bottom, or the top?

We argue in this paper that the economic news in the United States has, over the last 40 years, painted a portrait of the economy that strongly and disproportionately tracks the welfare of the very rich. Analyzing a vast, original dataset of news articles from 32 high-circulation U.S. newspapers over the last three decades, we uncover clear evidence that reporting on the U.S. economy is *class-biased*:<sup>1</sup> the evaluative content of economic news becomes more positive (negative) as the incomes of the very rich grow (shrink), and is largely *uncorrelated* with change in the incomes of less well-off Americans, once growth in incomes at the top is taken into account. Put simply, good economic news tracks, above all, the fortunes of the most affluent.

We then seek to understand how this pattern arises. Rather than reflecting a conscious bias in favor of the interests of the very rich, class-biased economic news, we argue, stems largely from the media’s focus on charting economic performance in the *aggregate*. Central to our account is

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<sup>1</sup>We follow the nomenclature of “class-biased economic voting” coined by Bartels (2008), but acknowledge that standard sociological approaches to class are not purely income-based.

the breakdown, over the past thirty years, of the relationship between aggregate economic growth and the welfare of the average American. In the first few decades after World War II, aggregate growth and employment were strongly correlated with the incomes of lower- and middle-income Americans. Since the mid-1980s, however, aggregate economic expansion and contraction have been far more closely tied to the rise and fall of top incomes than to changes in the incomes of the non-rich, likely because of changes in the underlying drivers of growth itself. Moreover, top-end inequality has become a procyclical phenomenon, rising when the economy as a whole is doing well and falling when aggregate performance flags.

This macroeconomic pattern has profound consequences for the informational context in which citizens operate. It means that economic reporting focused on economic aggregates yields a news environment that most powerfully reflects gains and losses for the most affluent members of society. Class-biased economic news, in short, emerges from journalistic efforts to track the ups and downs of the business cycle, together with a general neglect of the question of who exactly is winning or losing beneath the surface of aggregate performance.

Consistent with our argument, we show that the correlation between economic news tone and growth in top incomes largely disappears once indicators of aggregate expansion and contraction are accounted for. Further, in examining the distribution of media attention to distinct economic phenomena, we find that aggregate expansion – and its correlates, like employment and corporate performance – are far more likely to be mentioned than phenomena related to the distribution of income or wealth. We also show that class-biased dynamics in economic news tone are generic across media outlets varying in ownership structure and partisan orientation. This finding suggests that class-biased economic news reflects a pervasive understanding of the economy as an aggregate phenomenon, rather than a cognitive shortcut for time-pressured reporters in profit-centered newsrooms or an ideological preference imposed by owners, editors, or consumers.

Beyond its direct findings, the analysis below highlights a weak link in the chain of electoral accountability. To the extent that voters’ perceptions of the national economy are shaped by the media (Hetherington 1996; Boydstun et al. 2018; Nadeau et al. 1999; Soroka 2006), the “economy” on which most voters have been voting has, in an important sense, not been *theirs*.

This finding also helps to explain puzzling patterns uncovered in previous political economy research. They provide an explanation, for instance, of why incumbents presiding over sharp increases in economic inequality in the United States have not been penalized at the ballot box by economy-centered voters (see also Bartels 2008; Hacker and Pierson 2011; Gilens 2012; Hicks et al. 2016). To the extent that the paper’s results travel, moreover, they suggest a novel explanation of the broader disconnect between levels of inequality and levels of redistribution (Milanovic 2000; Corneo and Grüner 2002; Kenworthy and McCall 2008; Kelly and Enns 2010), *contra* the predictions of the classic Meltzer and Richard (1981) model.<sup>2</sup> Where the fruits of economic expansion are captured largely by the most affluent, a news media focused on economic aggregates will spawn an informational environment that directly undercuts non-rich citizens’ pursuit of their distributive interests. It is precisely when income inequality is increasing that the tone of economic reporting has turned most positive, likely boosting voters’ assessments of national economic performance.

Moreover, the paper’s findings suggest important interactions between mass political behavior and national growth models: they imply that mechanisms of economic accountability will often hinge on the *structure* of the economy itself. The structures of capitalist economies vary markedly across time and space in ways that condition the relationship between aggregate growth and distribution. For instance, the Varieties of Capitalism literature has identified wide variation in interlocking patterns of inter-firm cooperation, labor market skill-formation, labor representation, and social protection across market economies, yielding different dominant economic sectors and distributions of income (Hall and Soskice 2001; Hall and Gingerich 2009). Similarly, the “growth models” approach points to political economy structures that favor either domestic consumption or exports as a source of economic growth (Baccaro and Pontusson 2016); these models, in turn, likely imply quite distinct economic structures and distributional dynamics. Moreover, it is clear that deindustrialization and the concomitant transition to the service economy have profoundly shaped the structure of economies, but in ways that are quite distinct across countries (Iversen and Wren 1998; Iversen and Cusack 2000; Wren 2013).

The argument of this paper implies that different forms of capitalism may generate differ-

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<sup>2</sup>But see Finseraas (2009) for some evidence in support of the model.

ent informational challenges for citizens. Where production regimes or growth models spread macroeconomic gains and losses broadly, the average citizen may be well served by a news environment that signals how well the economy as a whole is doing. But forms of capitalism that decouple the welfare of most households from aggregate growth create much greater informational requirements for political accountability for economic outcomes – requirements to which prevailing patterns of economic reporting may be poorly suited.

In the next section, we theorize a mechanism through which a journalistic focus on economic aggregates interacts with distributional features of the macroeconomy to generate economic news that is disproportionately sensitive to the welfare of the rich. Turning to empirical assessment in Section 3, we detail our procedures for sampling newspapers and news articles and for measuring the tone of the economic news across our 32-newspaper sample. In Section 4, we validate the resulting tone measure by demonstrating its ability to predict mass economic perceptions, conditional on objective economic conditions, across the income distribution. We turn next, in Section 5, to estimating descriptive relationships between news tone and incomes gains and losses at different points along the income scale, and then undertake multiple tests of our theorized mechanism and probe a set of alternative explanations in Section 6. In the concluding section, we reflect on the implications of our findings for understanding the politics of inequality in the United States and, possibly, in capitalist democracies more generally.

## 2 Mechanisms of Class-Biased Economic News Coverage

In referring to “class-biased” news, we refer to *a differential in the sensitivity of the valence of economic news to the economic welfare of different socioeconomic groups*. Given empirical trends in the income distribution since the 1970s, our specific focus is on news responsiveness to the fortunes of the very rich as compared to the rest of the population. Of particular interest is the possibility of an *upward* bias: one in which the tone of news coverage of the economy is more strongly associated with the welfare of (or developments that affect the welfare of) the very rich than the non-rich.

Prior work on bias in news coverage has focused on a range of sources. These include the economic interests of corporate owners (e.g. Herman and Chomsky 1988; Gilens and Hertzman 2000), the upper-middle-class composition of the journalistic profession (e.g. Gans 2004), and the ideological preferences of news audiences (e.g. Gentzkow and Shapiro 2010). A central, shared feature of these varied accounts is their focus on *the interests or preferences* of producers or consumers of the news. Economic or partisan bias in media content, in these accounts, arises from the disproportionate influence on that content of actors with particular material interests or ideological worldviews.

In contrast, the argument that we advance here focuses on an *implicit* source of bias in economic news coverage, one that emerges from the interaction of ostensibly neutral journalistic practices and structural biases in the drivers of economic growth.

## 2.1 Covering the “Business Cycle”

As a starting point for our argument, we posit the operation among journalists of an understanding – a “mental model” – of the economy that positions the promotion of *aggregate expansion* as the central, if not exclusive, objective of economic management. In his classic study, Gans (2004, 46) finds that “responsible capitalism” is among the core values of American journalism and that, in economic reporting, “[e]conomic growth is always a positive phenomenon.” “Good” and “bad” economic news, then, are defined by developments that signal or reflect an upturn or a downturn, respectively, in the business cycle, especially in output and its close correlate, employment. In this framework, moreover, distributional questions as such are generally not salient, on the assumption that the benefits of economic growth are typically broadly distributed: as the common aphorism goes, “a rising tide lifts all boats.”

On this understanding of economic performance as a primarily aggregate-level phenomenon, reporters can be expected to focus on broad indicators of economic expansion and contraction, such as GDP growth and the unemployment rate. They may also attend to an array of indicators understood to be predictors or symptoms of aggregate growth. Given a common view of “business



conditions” as a core economic foundation, we would expect corporate earnings and valuations (i.e., share prices) to receive special attention. The continuous movement of the stock market is likely to be a particular focus of economic coverage, given that it seemingly provides a daily update on the overall health of the economy and also plays to journalists’ strong bias toward novelty and change (Soroka et al. 2015). Importantly, in reporting on market indices or corporate profits, journalists need not do so out of a specific concern with their immediate implications for those most directly affected – e.g., shareholders – but because of the light that these indicators seem to shed on the *overall* state of the economy. As Gans (2004, 46) aptly notes, “when anchormen gave the stock market report, even the most detached ones looked cheerful when the market had had a good day, assuming this to be of universal benefit to the nation and the economy.”

How might a journalistic focus on economic aggregates generate a class bias in economic news? In principle, it need not. When economic gains and losses are equally distributed, a focus on the business cycle will be equally sensitive to the fortunes of all income groups. As we show in the next section, however, there is strong reason to believe that, for the last quarter century, a journalistic tendency to view growth and employment as ultimate yardsticks of economic performance would be likely to generate class-biased economic news.

## **2.2 Aggregates and Distribution in the U.S. Economy Since 1980**

For much of the postwar era, aggregate growth and employment were relatively closely related to the incomes of the non-rich. Yet this historical relationship appears to have broken down over the last 35 years. Among the early work recognizing the emergence of this disconnect was Cutler and Katz (1991), who noted that the economic expansion of 1983–1989 was accompanied by rising inequality in the distribution of income and minimal poverty reduction. For the 1947 to 1989 period, Cutler and Katz find low unemployment to be strongly associated with rising income shares for the bottom three quintiles and falling shares for the top two. However, *after* 1983, incomes in the bottom quintile fell between 0.5 and 1.0 percentage points more than macroeconomic variables would predict, given average postwar relationships, while incomes in

the top quintile rose by between 1 and 4 percentage points more.

More recent work has confirmed that, over multiple business cycles, it is the very rich whose fortunes rise fastest and fall most steeply with the business cycle. Guvenen et al. (2014) find that in the recessions of 2000–2002 and 2007–2010, while the poor suffered more than those in middle incomes, the (pre-recession) richest 1 percent saw sharper income drops than any group in the bottom 99 percent. At the trough of the Great Recession, in 2008, percentage losses for the top 1 percent were about double that for the median earner, while losses for the top 0.1 percent were about three times as large (see also Wiczer 2014). Since 1985, a 1 percentage point drop in GDP growth has been correlated with a 4.55 percent drop in the incomes of the top 0.1 percent, but a 1.08 percent *increase* in the income of the median earner. Similar findings hold for unemployment: a one-point rise in the male unemployment rate is associated with an average income loss of 6.87 percent for the top 0.1 percent, but only a 1.77 percent loss at the median (Guvenen et al. 2014). The very rich also gain more than the median during expansions. During the 1993–2000 and 2002–2007 expansions, the incomes of the top 1 percent grew by 98.7 percent and 61.8 percent, respectively, while the incomes of the bottom 99 percent grew by only 20.3 percent and 6.8 percent, respectively (Saez 2016). Bivens and Shierholz (2018) likewise point to cyclicalities in inequality, showing that the wages of the bottom 90 percent of earners *rose* as a share of personal income, from 45.8 to 51.1 percent, during the Great Recession and then *fell* back to 46.6 percent in 2015 as the economy recovered.

Why have top incomes become so exceptionally sensitive to aggregate fluctuations? Explanations are contested, but several studies point to changes in the distribution of demand for skills driven by trade and technical change. Cutler and Katz (1991) argue that, during the recovery of the 1980s, while aggregate employment rose – a phenomenon that, on its own, would have benefited lower-paid workers – this aggregate development was overwhelmed by an increase in relative demand for higher-, as compared to lower-, skilled labor, generating a net increase in wage dispersion and income inequality. Aghion et al. (1999) contend that technological change, especially the spread of general-purpose technologies, has become a key driver of both economic growth and earnings inequality by creating a growing skill premium, particularly as the supply

of higher-end skills fails to keep pace with rising demand (see also, more recently, Goldin and Katz 2007). Parker and Vissing-Jorgensen (2010) argue that rapid advances in information and communications technology allow higher-skilled workers to scale their work and handle larger production inputs, a development that simultaneously increases their income shares and makes their incomes more sensitive to the rise and fall of the macroeconomy.

It is, moreover, not hard to see why journalistic frames and prevailing mental models might be insensitive to these recent distributional dynamics. For one thing, making sense of distribution is far more complex than tracking economic aggregates; while aggregates move only up or down, distribution is intrinsically multi-dimensional. Second, distribution implicates contested values about who *should* win or lose, and by how much, while there has generally been broad consensus on the merits of high growth and low unemployment. Further, for the first several decades of the postwar era, a focus on economic aggregates *worked*: the key indicators of growth and employment had an excellent track record in capturing broad welfare gains and losses (Cutler and Katz 1991). To the extent that mental models are “sticky,” it is not surprising that journalists’ “growth-is-good” outlook has survived changes in the underlying structure of the economy that were themselves difficult to observe.

In sum, the relationship between the U.S. macroeconomy and distribution over the last quarter century implies that the tone of news focused on economic aggregates, like growth and unemployment, will be characterized by a distinct bias toward the interests of the very rich – even without any conscious intention from those in the journalism business of delivering a skewed portrait of the economy. To the extent that growth and wage inequality arise from a common source, “good” economic times – understood in aggregate terms – will tend to be accompanied by rising concentrations of income at the top. We should, on this logic, thus expect economic news focused on the business cycle to more closely track the incomes of the very rich than the incomes of the non-rich, and we should expect the news to become more *positive* as income inequality – understood as an income skew toward the very top – rises. Given the steep concentration of company shareholding among the very rich,<sup>3</sup> economic assessments tied to corporate or stock

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<sup>3</sup>Among the top 1 percent of earners in 2013, 92.8 percent owned \$5,000 or more in stocks, while only 30.3 percent of those in the middle 3 income quintiles did. Moreover 76.6 percent of the top 1 percent, and only 6.6 percent of the middle 60 percent, were business owners (Wolff 2016).

market performance will likewise be disproportionately correlated with welfare at the top of the income scale.

## 2.3 A Causal Model

We can usefully formalize the core argument as a simple causal model (Pearl 2009):

$$NewsTone \leftarrow GrowthAndEmployment \leftarrow \mathbf{X} \rightarrow Inequality \quad (1)$$

where  $\mathbf{X}$  denotes a set of inequality-inducing drivers of growth and employment, such as trade or skill-biased technological change. In this model, the drivers of growth simultaneously generate aggregate expansion and higher inequality (understood as higher income shares for the very rich). Economic aggregates, in turn, drive the positivity or negativity of the economic news, resulting in a positive correlation between inequality and news tone. Class-biased news arises here from media actors placing a positive value on features of the economy that are systematically correlated with rising inequality, owing to common causes of these features of the economy and of rising inequality.

We have further argued that, in a search for indicators of the overall health of the economy, journalists are likely to pay particular attention to gauges of corporate performance, such as corporate profits and stock market performance, yielding the following data-generating process:

$$NewsTone \leftarrow CorporatePerformance \rightarrow Inequality \quad (2)$$

Again, a positive correlation between news tone and inequality emerges from their common cause, corporate performance itself.<sup>4</sup>

We return to these causal models in Section 6 when we derive and test empirical predictions of the “covering the business cycle” mechanism.

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<sup>4</sup>One subtle structural difference between Equation 1 and Equation 2 is that, in the former, it is the underlying drivers of growth and employment that cause inequality while in the latter, the phenomenon that drives news tone is itself a cause of inequality.

### 3 Measuring Economic News Tone

In subsequent sections, we assess the presence, magnitude, and sources of class bias in economic news. The cornerstone of these analyses is an over-time measure of *economic news tone* that we develop from a large set of high-circulation U.S. newspapers. In this section, we describe the construction of this measure.

We measure the tone of the economic news reported in *newspapers* because of the availability of a longer time series of content for a larger number of sources than would be available for other media, such as broadcast or cable news or news websites. Newspapers were selected for inclusion based on three criteria. First, as we aim to characterize the news environment inhabited by the American voter, our news sources had to collectively capture a substantial share of the media environment. We thus limited the sample to sources in the top 50 in print circulation based on data from the Alliance for Audited Media. Second, the sources had to be available for download as full text via *Lexis*, *Lexis-Nexis Academic* or *Factiva*. Third, newspapers had to be available over a sufficiently long period of time to enable well-powered time series analysis. Thus, we set a publication start date cutoff of 1994. A total of 32 newspapers met these criteria and entered our sample.

We selected all stories from these newspapers, across the entire time period for which content was available, that mention the word “economy” or “economic” in the body of the text, along with a mention of the United States or any of the 50 states. The full downloaded sample amounted to 2,460,000 articles.

Our data allow us to further restrict the sample of articles in helpful ways.<sup>5</sup> First, we excluded articles that appeared in the business section of a newspaper because this section (a) is less likely to be read and (b) has focus on the stock market and corporate earnings, which would likely bias results toward a finding of class-biased media responsiveness. Second, we used a machine learning approach to classify articles as being predominantly about economic developments in the U.S. by focusing on the headline and first 400 characters of each article (denoted as “Lede-

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<sup>5</sup>Table A1 summarizes the effects of these sample restrictions. N.b. sections, tables, and figures with letter indexing are found in the accompanying Supplementary Material.

relevant”),<sup>6</sup> and then restricted the sample on this basis, in order to reduce the share of “false positives” – articles that contained one of our search terms but were not in fact about the U.S. economy. The results reported in the main text of this paper are based on the sample the excludes the business section and that has been classified as relating to the economy in the headline or lede.

Our measure of tone was constructed by applying the Lexicoder Sentiment Dictionary (LSD) to our sample of articles (Young and Soroka 2012). This dictionary, which has 6,016 words coded for positive and negative connotations, together with the *Lexicoder* program, yields counts of positive and negative words for each article. Each article was given a tone score defined as  $Tone = (\text{number of positive words} - \text{number of negative words}) / \text{total number of words}$  – which captures the general “charge” of the article, while adjusting for the article’s amount of neutral content. This Lexicoder-based measure has been found to produce comparable results to those produced by human coders when applied to news content (Young and Soroka 2012).

To generate sample sizes within units that minimize noise and to align with the temporal units for which economic variables are observed, we aggregate article-level *Lexicoder* scores up to newspaper-quarter mean tone scores. Figure 1 conveys a sense of the temporal variation in the resulting tone variable, plotting the by-quarter circulation-weighted mean of the variable through our sample period.<sup>7</sup> The series has face validity, in the sense it broadly tracks our intuitions about macroeconomic dynamics in the United States during the sample period, with dips in around the periods of recession (indicated by vertical shading).

## 4 Tone Predicts Economic Perceptions Across the Income Distribution

Does our dependent variable – the machine-coded tone of the economic news – in fact track the tone of economic news and, in particular, of the information that reaches a substantial share of

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<sup>6</sup>Full details of the procedure and classifier performance are provided in Section A.

<sup>7</sup>This figure is illustrative, only. Its construction does not account for entry to and exit from the sample of various newspapers at different points in time.

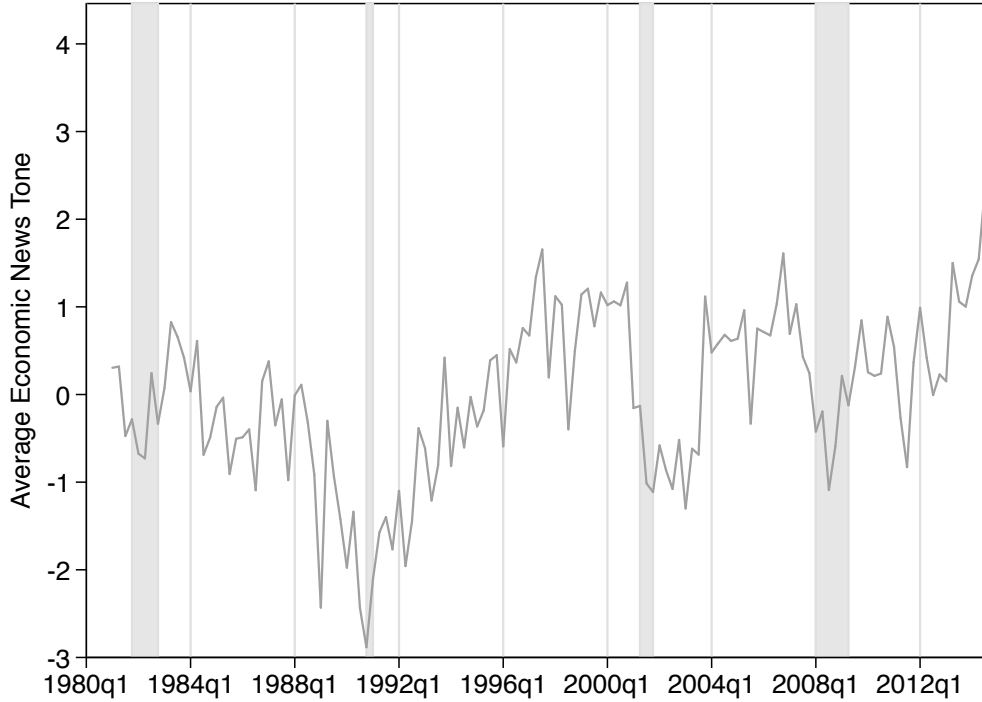


Figure 1: Time series plot of the mean of our standardized, circulation-weighted quarterly measure of the tone of newspaper reporting about the economy. Vertical shading indicates recessionary period as defined by the Federal Reserve of St. Louis's FRED database series (USRECQ).

American voters? LSD-based newspaper tone measures have previously been validated against both human-coded measures and a range of other computer-coded measures (Young and Soroka 2012) and shown to be correlated with the unemployment rate (Soroka 2012). In this section, we empirically assess the validity of our measure by showing that it performs well in predicting mass economic perceptions. The aim of this exercise is not to establish a direct causal effect of our tone measure on economic perceptions. Citizens are likely gathering information on the state of the economy from a variety of media sources (other newspapers, network TV, cable, the internet) not directly incorporated into our measure. Rather, we seek to establish that our tone measure is well *correlated* with the informational environment shaping citizens' economic judgments.

We do this by establishing (i) that our tone measure predicts mass economic perceptions, (ii) that it does so *conditional* on aggregate economic performance, (iii) that it does so specifically for the perceptions of lower- and middle-income citizens, groups of particular normative importance

for the paper’s analysis, and (iv) that these relationships are unlikely to derive from endogeneity of news tone to perceptions.

We assess the relationship between news tone and economic perceptions by estimating models for each of three dependent variables based on survey questions that are asked monthly by the “Survey of Consumer Attitudes and Behavior.” The three questions are:

1. Would you say that at the present time business conditions are better or worse than they were a year ago?

Respondents were given the choice of “Better now,” “About the same,” or “Worse now,” and we use these responses to calculate a by-quarter aggregated measure, *RetroBus<sub>t</sub>*.

2. During the last few months, have you heard of any favorable or unfavorable changes in business conditions?

From this question, we similarly construct a quarterly measure of perceptions of economic conditions, *NewsBus<sub>t</sub>*.

3. As the economic policy of the government – I mean steps taken to fight inflation or unemployment – would you say the government is doing a good job, only fair, or a poor job?

Respondents were given the choice of “Good job”, “Only Fair”, “Poor Job”, and “Don’t Know.” From this question, we similarly construct a quarterly measure of perceptions of government handling of the economy, *GovtHandling<sub>t</sub>*, based on “Good” minus “Poor” responses.

We note that these questions each get at economic perceptions in somewhat different ways, asking respondents (1) to evaluate the economy, (2) to recall information they have received about the economy, and (3) to assess the government’s economic performance, of particular relevance to mechanisms of economic accountability.



We take the per-quarter mean of responses to each survey question to construct our time series for each dependent variable. As these dependent variables are measured at the national level, we create a national-level measure of our tone variable by taking a weighted average of  $Tone_{i,t}$ , where the weights are given by the relative magnitudes of the circulation numbers for the respective newspapers.<sup>8</sup> We standardize the resulting measure such that it has a mean of zero and a standard deviation of 1; yielding  $\overline{Tone}_t$  as the main explanatory variable in the models.

We model dynamic specifications of these perceptions using the Error Correction Model (ECM) specification and estimate by OLS. All models include a time trend, quarterly-seasonal fixed effects, and newspaper-inclusion fixed effects to take into account the fact that, due to data availability, some newspapers enter our sample earlier than others and some leave the sample for a period. We present two models for each dependent variable: one that only includes our tone variables as substantive predictors and another that also includes macroeconomic controls: the current change and one-period lag of GDP growth and the unemployment rate.<sup>9</sup>

The results for each of the economic perceptions variables are shown in Table 1. In Models 1, 3, and 5, we see that the association of  $\overline{Tone}_t$  with economic perceptions is both large and precisely estimated, for all perception measures. In Models 2, 4, and 6, we add the macroeconomic controls. The inclusion of these macroeconomic variables makes for a harder test insofar as it accounts for the possibility that objective economic conditions drive both news tone and perceptions. In these specifications, the coefficient on  $\overline{Tone}_t$  remains large and quite precisely estimated, indicating that our tone measure is well-correlated with perceptions above and beyond any *joint* effect of economic conditions on tone and perceptions.

As the models are dynamic, it is possible to calculate the long-run effect of  $\overline{Tone}_t$  on each of the economic perceptions. From the long-run equilibrium of the models that include the macroeconomic controls, we find that a standard deviation change in  $\overline{Tone}_t$  yields the following changes in economic perceptions: 0.81 ( $p = 0.00$ ) standard deviations for  $RetroBus_t$ ; 0.78 ( $p = 0.00$ ) standard deviations for  $NewsBus_t$ , and; 1.01 ( $p = 0.00$ ) standard deviations for

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<sup>8</sup>As we have these data only for 2014, the weighting is based on circulation figures for that year.

<sup>9</sup>Our notation is such that  $\delta$  indicates the one-period growth rate of a variable and  $\Delta$  indicates a first difference. Thus, e.g., the first difference of GDP growth is denoted as  $\Delta\delta GDP_t$ .

$GovtHandling_t$  – all of which are substantively large.

	(1)		(2)		(3)		(4)		(5)		(6)	
	b	se	b	se	b	se	b	se	b	se	b	se
$RetroBus_{t-1}$	-0.30	0.05	-0.43	0.05								
$NewsBus_{t-1}$					-0.40	0.07	-0.68	0.08				
$GovtHandling_{t-1}$									-0.25	0.06	-0.25	0.06
$\Delta Tone_t$	0.27	0.06	0.21	0.05	0.42	0.09	0.36	0.08	0.13	0.06	0.17	0.06
$\overline{Tone}_{t-1}$	0.39	0.08	0.35	0.07	0.43	0.11	0.53	0.09	0.19	0.06	0.25	0.07
$Time_t$	-0.065	0.11	-0.30	0.14	0.014	0.15	-0.55	0.19	-0.43	0.16	-0.39	0.19
$\Delta \delta GDP_t^{Std}$			0.13	0.07			0.24	0.09			0.050	0.08
$\delta GDP_{t-1}^{Std}$			0.25	0.10			0.38	0.14			0.089	0.11
$\Delta Unemp_t$			-0.12	0.06			-0.14	0.08			0.13	0.06
$Unemp_{t-1}$			0.13	0.05			0.33	0.07			-0.0064	0.06
Newspaper FE	Yes		Yes		Yes		Yes		Yes		Yes	
Seasonal FE	Yes		Yes		Yes		Yes		Yes		Yes	
$R^2$	0.46		0.62		0.43		0.62		0.29		0.33	
$N$	135		135		135		135		135		135	
Portmanteau $Q$	49.0		47.2		49.3		30.3		41.2		43.9	
Portmanteau $Q: p$	0.16		0.20		0.15		0.87		0.42		0.31	

Table 1: Models of economic perceptions of: current business conditions compared to one year ago ( $RetroBus$ ); recently hearing of positive or negative changes in business conditions ( $NewsBus$ ), and; views on government performance on economic policy ( $GovtHandling$ ). Parameter estimates for an OLS regression, with an error-correction specification. Time range is 1981–2014, inclusive, with newspapers entering the sample at different points. Newspapers and entry dates as indicated in Table A1.

We might further wonder, however, to what degree our tone measure captures the informational environment of citizens at different points on the income distribution. The consumption of economic news may vary across income groups. For the purposes of this paper’s analysis, it would be problematic if, for instance, our tone measure tracked the perceptions only of the most affluent, and not those of lower- and middle-income citizens. The Survey of Consumers data allow us to break down the responsiveness of perceptions by income tercile. Table 2 displays estimates for bottom-tercile ( $Inc1$ ) and then middle-tercile ( $Inc2$ ) respondents, respectively, for each economic perception dependent variable. Across the models we see strong evidence that the perceptions of both lower- and middle-income citizens are strongly associated with our measure of national economic news tone.

Finally, we speak to possible concerns about the direction of causality: might our news tone measure be driven by mass economic perceptions? As reported in Section D of the Supplementary Materials, we conduct Granger causality tests, showing that the evidence is more consistent with tone causing perceptions than with perceptions driving news tone.

	(1)		(2)		(3)		(4)		(5)		(6)	
	b	se	b	se	b	se	b	se	b	se	b	se
$RetroBus_{t-1}^{Inc1}$	-0.44	0.05										
$RetroBus_{t-1}^{Inc2}$			-0.47	0.05								
$NewsBus_{t-1}^{Inc1}$					-0.62	0.07						
$NewsBus_{t-1}^{Inc2}$							-0.71	0.08				
$GovtHandling_{t-1}^{Inc1}$									-0.27	0.07		
$GovtHandling_{t-1}^{Inc2}$											-0.30	0.07
$\Delta Tone_t$	0.20	0.06	0.20	0.06	0.31	0.08	0.35	0.08	0.17	0.08	0.22	0.07
$Tone_{t-1}$	0.36	0.07	0.35	0.07	0.49	0.10	0.56	0.10	0.23	0.09	0.23	0.08
$Time_t$	-0.38	0.16	-0.27	0.15	-0.43	0.20	-0.59	0.21	-0.43	0.24	-0.48	0.22
$\Delta \delta GDP_t^{Std}$	0.028	0.07	0.16	0.07	0.12	0.10	0.25	0.10	0.061	0.10	0.048	0.09
$\delta GDP_{t-1}^{Std}$	0.15	0.11	0.25	0.11	0.24	0.14	0.36	0.15	0.079	0.14	0.077	0.13
$\Delta Unemp_t$	-0.15	0.06	-0.14	0.06	-0.18	0.09	-0.15	0.09	0.15	0.08	0.13	0.07
$Unemp_{t-1}$	0.100	0.06	0.088	0.06	0.25	0.08	0.31	0.08	0.024	0.08	-0.031	0.07
Newspaper FE	Yes		Yes		Yes		Yes		Yes		Yes	
Seasonal FE	Yes		Yes		Yes		Yes		Yes		Yes	
$R^2$	0.60		0.61		0.58		0.61		0.30		0.34	
$N$	135		135		135		135		135		135	
Portmanteau $Q$	50.8		48.7		35.6		37.4		34.7		38.7	
Portmanteau $Q: p$	0.12		0.16		0.67		0.59		0.71		0.53	

Table 2: Models of economic perceptions of: current business conditions compared to one year ago (*RetroBus*); recently hearing of positive or negative changes in business conditions (*NewsBus*), and; views on government performance on economic policy (*GovtHandling*). Models 1, 3, and 5 are estimated using economic perceptions of only those in the bottom income tercile. Models 2, 4, and 6 are estimated using economic perceptions of only those in the middle income tercile. Parameter estimates for an OLS regression, with an error-correction specification. Time range is 1981–2014, inclusive, with newspapers entering the sample at different points. Newspapers and entry dates as indicated in Table A1.

## 5 National Descriptive Patterns

We now turn to the core question: does good (bad) economic news tend to appear in periods of broad economic gains (losses) or in periods of gains (losses) concentrated on particular income strata? Insofar as mass perceptions of the economy are influenced by news tone and votes are shaped by economic perceptions, this descriptive question is of central importance for the workings of democratic accountability for the economy.

To answer this question, we estimate a series of regression models in which economic news tone is the dependent variable and our core regressors are income growth rates at various parts of the income distribution. Specifically, we use growth in pre-tax income from the World Inequality Database (Alvaredo et al. 2017). These data provide information on the annual income levels at many points on the U.S. national income distribution, allowing us to construct mean-income growth rates for a large range of income deciles, quintiles, and various subsets of the top decile of the distribution.

Notationally, we refer to growth rates of variables with  $\delta$ , and first differences with  $\Delta$ . The percentile ranges defining each income group are superscripted. We thus denote the growth rate of, say, the first decile of the income distribution as  $\delta Inc^{P0-10}$ . To allow comparisons of partial correlations, all explanatory and dependent variables are standardized such that they have a zero mean and unit standard deviation.

The income growth variables are all measured annually and at the national level. However, we want the evidence presented here to be comparable with that presented in Section 6 – where we exploit both between-newspaper variation and other variables that are available at the quarterly resolution (as is our dependent variable). Consequently, our unit of analysis is the newspaper-quarter. In order to better match the income data to the unit of analysis, we adopt a procedure akin to that of Palmer and Whitten (1999), whereby we calculate annual growth rates, assign those to the third quarter of each year, and then linearly interpolate the remaining quarterly growth rates. In Table A16, we show that the inferences shown in Figure 2 are unaffected if we, instead, replicate the annual growth rates four times – one for each quarter – for each year.

Our approach is to observe which income-growth rates are more and less reliably associated with news tone, in a descriptive rather than causal sense. We employ multivariate analysis so that we can assess the correlation between news tone and each income-growth measure *conditional* on the other growth measures. This allows us to estimate how closely news tone tracks income growth for one income group *above and beyond* its correlation with income growth for other groups. However, our goal, together with the structure of our data, raises the potential for inferences to be undermined by either or both of temporal and spatial autocorrelation in the errors.

A common approach to dealing with temporal autocorrelation is to introduce a lagged dependent variable (LDV, or longer lags). However, it is far from clear that the LDV belongs in the model on theoretical grounds – i.e. that the LDV actually causes future realisations of the DV – and there are emerging concerns about this kind of specification in the presence of unit fixed effects (FE), which we do believe belong in the model (Plümper and Troeger 2019). An alternative approach is to treat the two types of autocorrelation as nuisance to be corrected for,

thus removing the need for inclusion of LDVs. Under both approaches, corrections can also be applied to account for spatial autocorrelation.

As we do not wish our inferences to be driven by model specification choices in this regard, we present results from (a) a heavily dynamic specification, with four lags of the DV, and (b) a static specification that explicitly adjusts standard errors for correlation across panels and autocorrelation up to four lags.<sup>10</sup> We provide a more extended discussion of estimation issues in Section F.

We begin the estimation by regressing tone on a set of growth rates of different income quantiles such that they collectively cover the whole distribution, allowing us to observe the partial correlation between tone and growth in one part of the distribution conditional on growth in all other parts. We present results from models using income quintiles, mitigating the intercorrelation problem that arise when using deciles.

Our baseline descriptive results are presented in Figure 2, which shows separate estimates based on our dynamic and static specifications.<sup>11</sup> While estimates vary by model specification, several patterns emerge. We begin by focusing on the top two estimates for each quintile, which represent models in which all five quintiles are included.

First, we find no evidence that the income growth of the poorest 40% of the population has any association with the tone of economic news.

Second, we observe evidence of a positive association between income growth around the median (third quintile) and news tone, together with a negative association for the income growth of the fourth (i.e. second-richest) quintile. These two results, however, must be interpreted with caution because of a very high bivariate correlation between income growth for the third and fourth quintiles (0.96). This correlation likely explains the particularly wide confidence intervals for these two sets of estimates and makes it doubtful that the partial correlations for these two quintiles can be reliably separated from one another when both included in the model.

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<sup>10</sup>All models include newspaper-specific intercepts and trends, as well as quarter-of-year dummies. The dynamic specifications use the standard error correction proposed by Beck and Katz (1995) while the static specifications use the correction proposed by Driscoll and Kraay (1998).

<sup>11</sup>See Table A15 for the full results table.

We thus re-estimate the associations with models that exclude the fourth quintile. In Figure 2, the third and fourth result displayed for each quintile (except the fourth) derive from these new models. We now get considerably more precise point estimates for the middle quintile that are now on the other side of and indistinguishable from zero.

Finally, across all four specifications, income growth for the top quintile displays a reliably positive association with news tone. Indeed, it is the only quintile for which this – or anything even close to it – is true. Note, too, that the top-quintile point estimates appear small only because they are plotted on a scale that must accommodate the wide confidence intervals on other estimates. The correlations are, in fact, substantively large: depending on the specification, a standard deviation difference in income growth for the top quintile is associated with a 13–33% of a standard deviation difference in news tone (instantaneously); put differently, a percentage point difference in income growth for the top quintile is associated with a 20–50% of a standard deviation difference in news tone.

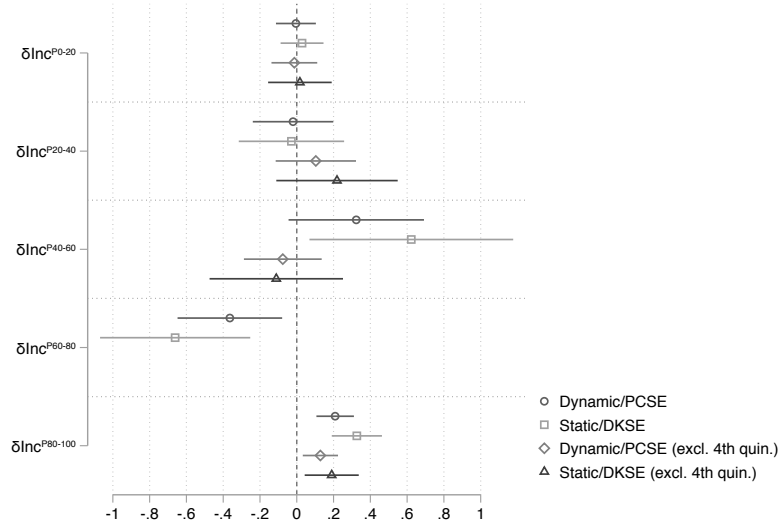


Figure 2: Descriptive inferences regarding the association between the tone of economic news reporting across newspapers ( $Tone_{i,t}$ ) and income growth each quintile in the income distribution. Full results shown in Table A15.

Given the extreme concentration of incomes at the *very* top of the income scale in recent decades, a key question is whether the association between top *quintile* income growth and news tone is in fact driven by income growth at the very top of the distribution, i.e., in the top-most slice of the top quintile. To address this issue, we estimate a further set of four models, for which

the results are depicted in Figure 3.<sup>12</sup> In each of the four models, we include a different top-end income quantile: top-10%, top-5%, top-1%, or top-0.1%. For these models, we drop second- and fourth-quintile income growth as predictors since the previous results imply that they are not empirically relevant. In addition to controlling for income growth rates for bottom and middle fifths of the income distribution, we also include income growth for the ninth decile to control for the possibility that the bottom half of the top quintile is actually driving the results in Figure 2.

As can be seen from Figure 3, the evidence strongly indicates that the top-quintile growth association with news tone is entirely driven by income growth within the top decile. Indeed, there is remarkable stability in the estimated top-income coefficients as we move through models employing top-10%, top-5%, top-1%, and top-0.1% income growth. Moreover, we continue to see no association between middle- or bottom-quintile income growth and news tone.

A further, striking feature of these results may not, at first, be apparent. In a normative sense, the coefficients for the different income groups should be re-scaled to reflect the relative sizes of the populations to which they correspond. Thus, the stability of the point estimates as we move to progressively higher income parts of the distribution should be weighed against the fact that the coefficient for  $P99.9 - 100$  represents an association of news tone with changes in the welfare of a population that is 1/100th the size of the population in the  $P90 - 100$  group, and 1/200th the size of the population in the  $P40 - 60$  or  $P0 - 20$  groups. Thus, the very top-end correlations imply not just that good and bad economic news track the fortunes of an extremely affluent group, but that they track the fortunes of an extremely *small* group – while displaying no relationship to the changing welfare of the masses of citizens in the middle and at the bottom of the income distribution.

As we have estimated models using national-level economic indicators, one potential concern might be a form of ecological fallacy: the geographic regions in which inequality is rising may not be the regions in which positive economic news is being reported. In analyses reported in Section G, we address this possibility by modeling each newspaper’s economic news tone as a function of economic developments at that newspaper’s state level. We find that news tone

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<sup>12</sup>See Table A17 for full results.

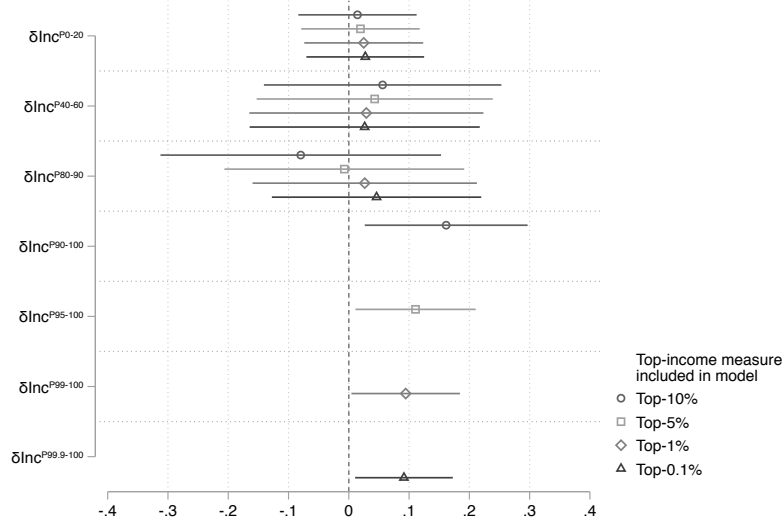


Figure 3: Descriptive inferences regarding the association between the tone of economic news reporting across newspapers ( $Tone_{i,t}$ ) and income growth at sparse income quintiles and top-incomes. Figure reports estimates of four models, each using a different top-income measure. Full results shown in Table A17.

at the state level is also disproportionately correlated with income gains and losses of the rich within the state as compared with those of the non-rich.

Overall, then, the descriptive picture is one in which voters are receiving a portrait of the national economy that is tilted strongly toward the interests of those with the highest incomes. In this light, and given the stability of the inferences regarding these top incomes, we focus in the remainder of the paper on the top-1% (i.e.  $P99 - 100$ ) as our top-income group of interest. This avoids a large proliferation of models, while also focusing our inferences on a subset of the population that is undeniably extremely affluent.

## 6 Explaining Class Bias in Economic News

We turn now to explanations for the normatively troubling association between economic news tone and top-income growth. We focus first on examining empirical implications of a mechanism in which class bias arises from the central mechanism we have theorized, in which a journalistic focus on covering the business cycle interacts with the distributional structure of aggregate gains and losses. We next examine evidence for alternative explanations grounded in the costs



of news production and owners’ or reporters’ distributional preferences.<sup>13</sup> For brevity, the models presented in this section all deploy our dynamic specification panel specification, with newspaper-quarters as the unit of observation.

## 6.1 Economic News as Business-Cycle Coverage

We first examine whether the strong upward class bias in economic news derives in part from journalistic understandings of the economy in which economic performance is largely equated with movements in macroeconomic aggregates, in particular, GDP and unemployment. Returning to the causal model in Equation 1, we can derive a number of predictions. First, news tone should be positively correlated with inequality. Second, news tone should be correlated positively with GDP growth and negatively with unemployment rates. A third prediction – and one more central to the aggregate-centered journalism explanation for class-biased economic news – is that any correlation between inequality and news tone should be weaker *conditional* on the macroeconomic aggregates than it is unconditionally. In the language of Pearl (2009), conditioning on the macroeconomic aggregates should, under this causal model, “block” the path running between news tone and inequality, eliminating any correlation between the two that arises from this path (while possibly preserving other sources of correlation).

We test these predictions at the national level via a set of statistical models reported in Table 4. We begin by translating the descriptive results for quantile-specific income growth rates, reported in Section 5, into a corresponding summary result for change in income *inequality*. To the extent that the news is more responsive to income gains and losses for the rich than to those for the non-rich, it stands to reason that positive news tone should also be positively correlated with changes in income inequality in the form of changing income shares for the very rich. We demonstrate this point empirically in Models 1 and 2. Model 1 shows, consistent with results in Section 5, that news tone responds strongly and positively to income growth for the top 1 percent, conditional on income growth in the middle and bottom quintiles, and that news tone is uncorrelated with growth at the bottom and in the middle of the income scale. Model 2 then

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<sup>13</sup>Section C provides full details of the sources of all variables that we use in this section.

directly estimates the association of news tone with changes in income inequality, defined here as growth in the income share captured by the top 1 percent. We observe a positive and quite precisely estimated association between news tone and change in top-end income inequality.

In Model 3, we add current-quarter GDP growth to the equation alongside growth in top-1-percent income share. Consistent with the second prediction, we see that GDP growth is a powerful, positive predictor of news tone. Further, consistent with the third prediction, we see that conditioning on GDP growth dramatically reduces the original correlation (from Model 2) between news tone and growth in top-1-percent income share, cutting the coefficient estimate in half. In Model 4, we test the same two predictions with respect to GDP growth’s close correlate, the unemployment rate. Placing change in the unemployment rate on the right-hand side of the model, alongside growth in top-income share, we see both that unemployment change is a strong negative predictor of news tone (second prediction) and that its inclusion in the model similarly slashes the correlation between news tone and top-income share in half (third prediction). In Model 5, we include both macroeconomic indicators in the model, achieving a further reduction in the tone-inequality association.

We also note that the estimated effect of GDP growth is substantially reduced by the inclusion of unemployment in the model. One possible reason is that unemployment coverage swamps GDP coverage because the unemployment rate is officially reported much more frequently (monthly) than the growth rate (quarterly). A second possibility is that the effect of GDP growth on news tone is partly mediated by change in unemployment. Journalists might directly attend more to employment because of its seemingly more direct relationship to households’ material welfare.

As we have estimated models using national-level economic indicators, one potential concern might be a form of ecological fallacy: the geographic regions in which inequality is rising may not be the regions in which positive economic news is being reported. Compositional effects could thus lead national-level inferences astray if we operate only with aggregate economic measures.

We address this possibility by modeling each newspaper’s economic news tone as a function of economic developments at the newspaper’s state level. We match each newspaper to the state in which it operates, and then merge state-level distributional income-growth data that have

been calculated using the same methodology as employed for our national data (Sommeiller et al. 2016). Due to data limitations at the state level, we capture non-rich income growth as growth in the mean income of the bottom 90 percent.

Model 1 in Table 3 gives the basic descriptive pattern at the state level, with each newspaper’s tone modeled as a function of income growth among the richest 1 percent in the state and of income growth among the bottom 90 percent in the state (as well as newspaper and seasonal fixed effects, newspaper trends, and four lags of the dependent variable, as in our national-level models). Newspaper-level news tone is associated with income growth among the bottom 90 percent within the state; however, conditional on bottom-90-percent growth, news tone is further associated with income growth among the top 1 percent in the newspaper’s state. Moreover, the coefficients for rich and non-rich state-level growth rates are similar despite the fact that the latter group is *90 times larger* than the former. That the economic news is roughly as responsive to the fortunes of the two groups implies a dramatic upward class bias in the response to the state-level distribution of gains and losses. We can observe this bias even more simply in Model 2, where we model news tone as a function of state-level top-income shares, and observe the same strong positive association between news tone and top-end inequality at the state level that we find at the national level.<sup>14</sup>

To be clear, the model estimates that we present cannot tell us whether journalists are reporting on either of the *particular* indicators included in our analyses. They may well be doing so to a great extent. Yet the results are also consistent with journalistic coverage of any number of close correlates of aggregate expansion and contraction, such as business or consumer confidence, retail sales, manufacturing activity, inventories, interest rates, or corporate performance. When reporters cite these auxiliary measures, they are typically doing so in an effort to characterize the overall state of the economy. Whether journalists have taken their cue from growth or unemployment figures themselves or from various “leading” or “lagging” indicators, they appear to have been tracking aggregate processes of recession and recovery that, at least for the last 25 to 30 years, have been concentrating losses and gains, respectively, at the very top of the income

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<sup>14</sup>Section G expands on this state-level approach, showing robustness of the ‘covering the business cycle’ argument to measurement of economic variables at this unit of analysis.

	(1)			(2)		
	b	se	p	b	se	p
$\delta Inc_{s,t}^{P99-100}$	0.11	0.03	0.00			
$\Delta IncShare_{s,t}^{P99-100}$				0.10	0.03	0.00
$\delta Inc_{s,t}^{P0-90}$	0.16	0.07	0.01			
Newspaper FE	Yes			Yes		
Newspaper Trends	Yes			Yes		
Seasonal FE	Yes			Yes		
4 lags of DV	Yes			Yes		
$R^2$	0.34			0.33		
$N$	2775			2775		
$N$ newspapers	32			32		
Mean $T_i$	86.7			86.7		
Min $T_i$	56			56		
Max $T_i$	127			127		
Min $Year_{i,t}$	1982			1982		
Max $Year_{i,t}$	2013			2013		
Corr.	psar1			psar1		
AR1-p	0.94			0.77		

Table 3: Estimates of the association between the tone of economic news reporting across newspapers ( $Tone_{i,t}$ ) and state-level predictors. All models estimated by OLS with Beck and Katz (1995) panel corrected standard errors.

scale.

	(1)			(2)			(3)			(4)			(5)		
	b	se	p	b	se	p	b	se	p	b	se	p	b	se	p
$\delta Inc_t^{P99-100}$	0.10	0.04	0.01												
$\Delta IncShare_t^{P99-100}$				0.09	0.03	0.00	0.05	0.03	0.08	0.04	0.03	0.16	0.04	0.03	0.23
$\delta Inc_t^{P0-20}$	0.02	0.05	0.64												
$\delta Inc_t^{P40-60}$	0.05	0.06	0.38												
$\delta GDP_t$							0.14	0.05	0.01				0.07	0.07	0.30
$\Delta Unemp_t$										-0.11	0.04	0.00	-0.08	0.04	0.04
Newspaper FE	Yes			Yes			Yes			Yes			Yes		
Newspaper Trends	Yes			Yes			Yes			Yes			Yes		
Seasonal FE	Yes			Yes			Yes			Yes			Yes		
4 lags of DV	Yes			Yes			Yes			Yes			Yes		
$R^2$	0.34			0.32			0.33			0.34			0.34		
$N$	2842			2842			2842			2842			2842		
$N$ newspapers	32			32			32			32			32		
Mean $T_i$	88.8			88.8			88.8			88.8			88.8		
Min $T_i$	60			60			60			60			60		
Max $T_i$	128			128			128			128			128		
Min $Year_{i,t}$	1982			1982			1982			1982			1982		
Max $Year_{i,t}$	2014			2014			2014			2014			2014		
Corr.	psar1			psar1			psar1			psar1			psar1		
AR1-p	0.78			0.95			0.35			0.73			0.95		

Table 4: Estimates of the association between the tone of economic news reporting across newspapers ( $Tone_{i,t}$ ) and aggregate economic variables. panel corrected standard errors.

### 6.1.1 Corporate Performance

As discussed in Section 6, to the extent that journalists seek to report on signs of aggregate economic expansion or contraction, they are likely to attend closely not only to macroeconomic aggregates but also to corporate performance. A thriving corporate sector is commonly seen as a

key pillar of economic success, and markers of corporate performance represent lagging or leading indicators of overall expansion or contraction. In turn, corporate performance, particularly as reflected in asset values, is likely to be much more strongly correlated with the fortunes of the rich than with those of the rest of the population, given the strong upward skew in the distribution of asset ownership. We have captured underlying logic in the causal graph in Equation 2.

The causal logic in Equation 2 has two distinctive empirical implications: (1) corporate performance should be correlated with news tone and (2) controlling for corporate performance should reduce the size of the correlation between top-end inequality and news tone since conditioning on corporate performance blocks a path connecting these two variables (Pearl (2009)). We capture corporate performance empirically using stock-market indices, for two reasons. First, leading stock-market indices are likely to capture the performance of those corporations whose earnings are most likely to be newsworthy. Second, as discussed in Section 2, financial markets are likely to be accorded special weight by novelty-seeking news media because they are the most frequently measured national economic phenomena.

In our primary analyses, we operationalize movements in the U.S. stock market using the New York Stock Exchange Composite Index ( $NYSE_t$ )<sup>15</sup>. In Table 5, we employ this measure to report tests parallel to those performed for macroeconomic aggregates in Section 6.1. For ease of reference, we provide under Model 1 the previously reported baseline national-level descriptive association between news tone and change in top-1 percent income share. In Model 2, we introduce NYSE stock market movements into the model and observe a strong, positive, and quite precisely estimated effect: a one standard-deviation increase in the size of the average stock-market gain in a quarter is associated with roughly a 14 percent improvement in news tone. Further, the parameter point-estimate for top income-share change drops from 0.08 to 0.05. These results are thus consistent with a mechanism in which financial-market movements are both a driver of news tone and generate part of the association between news tone and top-end inequality.

Given that financial market developments are likely to be correlated with growth and unem-

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<sup>15</sup>Constructed from Moody's NYSE Equity Indices: NYSE Composite series.

ployment, we cannot assume that each provides independent explanatory purchase on the class bias in economic news. In Models 3 and 4 we thus add, successively, GDP growth and change in unemployment to the model. Focusing on Model 4, we see that including both macroeconomic aggregates further reduces the point estimate for the coefficient on change in top-income share; more than 60 percent of the unconditional association is now gone while the associated standard error remains stable throughout. Meanwhile, both unemployment change and NYSE movements remain strong predictors of news tone; the coefficient on each variable is unaffected by the inclusion of the other.<sup>16</sup> Using both measures, stock market movements emerge in the full specification (Model-4) as by far the strongest single driver of news tone at the national level (judging by the standardized coefficient point-estimates and relatively small standard errors).

	(1)			(2)			(3)			(4)		
	b	se	p	b	se	p	b	se	p	b	se	p
$\Delta IncShare_t^{P99-100}$	0.09	0.03	0.00	0.06	0.02	0.00	0.06	0.02	0.02	0.04	0.03	0.13
$\delta NYSE_t$				0.14	0.02	0.00	0.13	0.03	0.00	0.13	0.02	0.00
$\delta GDP_t$							0.04	0.05	0.43	-0.03	0.06	0.62
$\Delta Unemp_t$										-0.08	0.03	0.02
Newspaper FE	Yes			Yes			Yes			Yes		
Newspaper Trends	Yes			Yes			Yes			Yes		
Seasonal FE	Yes			Yes			Yes			Yes		
4 lags of DV	Yes			Yes			Yes			Yes		
$R^2$	0.32			0.36			0.36			0.37		
$N$	2842			2771			2771			2771		
$N$ newspapers	32			32			32			32		
Mean $T_i$	88.8			86.6			86.6			86.6		
Min $T_i$	60			56			56			56		
Max $T_i$	128			125			125			125		
Min $Year_{i,t}$	1982			1982			1982			1982		
Max $Year_{i,t}$	2014			2013			2013			2013		
Corr.	psar1			psar1			psar1			psar1		
AR1-p	0.95			0.49			0.41			0.80		

Table 5: Estimates of the association between the tone of economic news reporting across newspapers ( $Tone_{i,t}$ ), change in top-1 percent income share, and growth in NYSE composite index, as well as macroeconomic aggregates, growth and change in unemployment. Panel corrected standard errors.

Finally, in Section G, we conduct a parallel analysis for state-level relationships. A third of the unconditional association between state-level inequality and state-level news tone disappears when the financial-market indicator is added to the model. Moreover, the coefficient is reduced by three-quarters in a model including stock movements and state-level macroeconomic aggregates.

In sum, we find considerable evidence of the operation of a mechanism in which stock-market gains generate both higher concentrations of income at the top, at both the national and state levels, and more positive economic news. We emphasize, further, that we are picking

<sup>16</sup>In Table A20, we show that a very similar pattern holds when financial market movements are captured using change in the S&P 500 index.

up all effects strictly *outside* of business sections, where we might reasonably expect a focus on financial markets and developments favoring the most affluent.

### 6.1.2 Topic Salience

The analysis of mechanisms to this point has focused on implications relating to expected conditional correlations between news tone and various economic developments. We turn now to a distinct form of evidence, asking which economic developments the news actually covers. Are the inferences we have drawn from the model estimates above consistent with the actual distribution of media attention across economic phenomena?

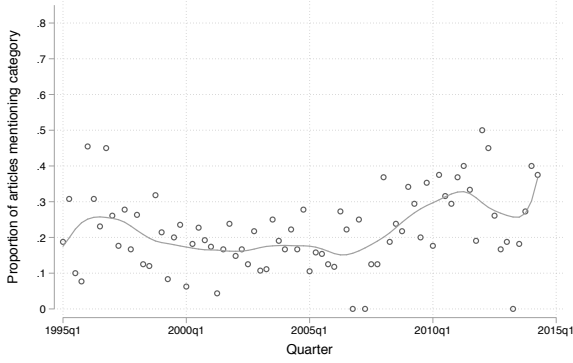
Figure 4 displays, for a key set of topics, the results of human coding of a random subsample ( $N = 2000$ ) of our sample of economic news articles.<sup>17</sup> Each article was coded for whether or not it mentioned each of a wide set of economic phenomena; coding was non-mutually exclusive such that a given article could be coded as mentioning multiple phenomena.

The figure’s four panels report results for the four economic developments that have featured on the right-hand side of the statistical models in this paper, displaying for each the proportion of news articles over time that mention that topic. Comparing overall levels of attention, we see that employment, corporate performance, and the aggregate economy feature prominently in economic reporting, consistent with our inferences from the models. Perhaps most striking, and of central importance to our theoretical claims, is the predominance of references to the economy as an undifferentiated aggregate. Moreover, we see that inequality – defined as any mention of the distribution of (or disparities in) material resources, or of poverty – receives vanishingly little attention. We extend the analysis in Section B, showing results for a set of additional economic phenomena with major distributional implications — average, median, or low-end earnings; poverty and material need; and executive compensation. Of these categories, only poverty and material need are consistently mentioned in more than 10 percent of the sample, and all are far less prominent than mentions of the aggregate economy or corporate performance

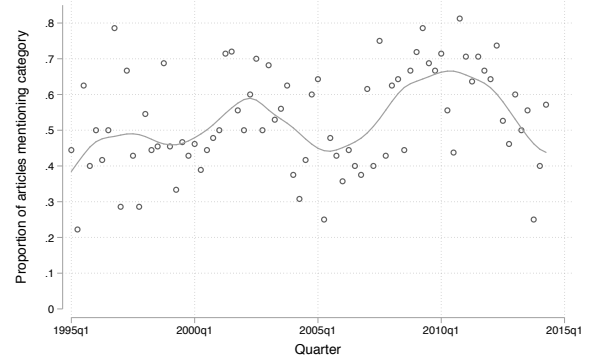
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<sup>17</sup>See Section B for details of the category coding procedure, and discussion of the reliability of the resulting data. Due to extra training requirements, the held-out subsample for the aggregated-economy topic is somewhat smaller ( $N = 1580$ ).

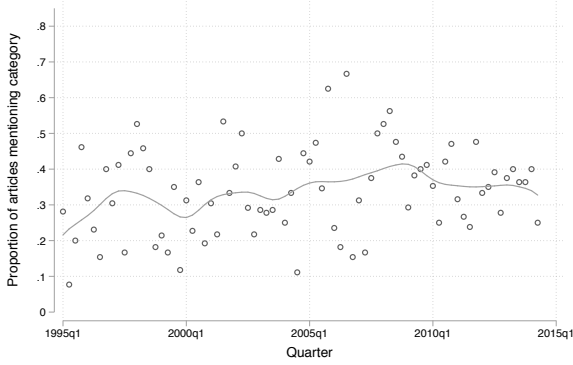
(see Figure A2.). On the whole, patterns of topic salience lend considerable further support to a model of economic reporting in which journalists cover the business cycle, paying little heed to the matter of *who* loses or gains as the economy expands and contracts.



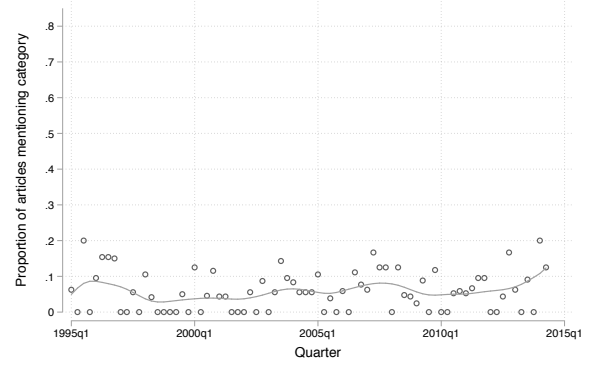
(a) Employment



(b) Aggregated Economy



(c) Corporate



(d) Inequality

Figure 4: Scatter plots of the proportion of newspaper articles mentioning various topics, as categorized by a human coder, by quarter. Lowess curves are shown to smooth noise in the series.

## 6.2 Alternative Mechanisms

As noted in Section 2, prior work on skewed patterns of reporting has focused on the interests or preferences of those actors who produce or consume the news. The socioeconomic composition of the journalistic profession, the distributional interests of wealthy owners, or the ideological leanings of readers might generate news that is more attentive to or favorable toward the interests of high-income households or capital. We lack micro-level measures of the distributional preferences of either owners or reporters that would allow for direct tests of these mechanisms. A reasonable proxy for those preferences, however, might be found in the measure of newspaper



“slant” developed by Gentzkow and Shapiro (2010). Gentzkow and Shapiro (2010) estimate the similarity between the language used by a news outlet and the language employed by Republican as compared to Democratic lawmakers as captured in the Congressional Record. To the extent that the news reflects owners’, journalists’, or readers’ distributional or ideological preferences,<sup>18</sup> those preferences should also be reflected in partisan alignments, given the two parties’ widely differing stances on distributional issues. Put differently, if class-biased news derives from less-egalitarian motives or attitudes among those who direct, produce, or consume the news, that class bias should be stronger among more Republican-aligned newspapers than among more Democratic-aligned newspapers.

In Table A12 in Section H, we report the details and results of analyses testing for the moderating effect of partisan slant on class bias in economic news coverage. We find that Democratic-leaning newspapers are no less likely to deliver class-biased economic news than are Republican-leaning outlets, suggesting it is unlikely that class-biased reporting arises from editorial or owner preferences that favor the interests of the rich.

We might also consider a variant of our “covering the business cycle” logic that focuses more on the *costs* of news production than on pervasive and deep-seated *understandings* of the economy. Growth-oriented reporting might emerge from editors’ and reporters’ need to economize on time and other resources. Just as Dunaway and Lawrence (2015, 45) argue that “game frame” campaign reporting is less costly than issue-oriented reporting,<sup>19</sup> it may be easier and cheaper for news rooms to track aggregate developments than to dig in to distributional dynamics unfolding beneath the surface. Reporters may, thus, operate on a “covering the business cycle” model not because of its strong postwar track record or deep cognitive embeddedness, but because it is a low-cost (even if misleading) method of summarizing economic complexity.

We can test for this possibility by exploiting variation in the strength of economizing pressures both across newspapers in our sample and over time. Dunaway (2008) and Dunaway and

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<sup>18</sup>Gentzkow and Shapiro themselves present evidence that consumer ideology matters more for news slant than owners’ preferences.

<sup>19</sup>Dunaway (2008) and Dunaway and Lawrence (2015) also argue that stronger profit-seeking imperatives in public companies generate stronger pressures to produce news that meets audience demand, but we focus here on the implications for cost-cutting.

Lawrence (2015) argue that news organizations that are owned by publicly traded corporations – under pressure to meet quarterly earnings targets and boost share values – face stronger short-run profit-seeking imperatives than outlets that are privately held. Moreover, they find that newspapers owned by public companies produce more “game frame” and less substantive coverage of issues than the privately held papers. Along similar lines, if class-biased reporting emerges from a focus on aggregates as a cost-cutting news-production model, then we should expect this bias to be stronger for newspapers owned by publicly traded companies than for privately held companies. We should further expect the bias, and the conditioning effect of ownership, to be stronger after 2000, when the sector as a whole saw a reversal of fortune as print revenues began to plunge.

We report details and results of national and state-level models, interacting public-company ownership with aggregate economic indicators and top-income shares in both the full period and post-2000, in Tables A14 and A14 in Section H.<sup>20</sup> Across the specifications tested, however, we see little evidence that a focus on aggregates is concentrated among newspapers under greater cost-cutting or profit-maximizing pressures, operationalized via ownership type and time period. The one exception appears to be a greater focus on state-level mean-income growth among newspapers owned by public companies apparent (Models 3 and 4, Table A14). This greater focus on mean income, however, does not cash out as greater class bias for this group of newspapers, as we see in the lack of an interaction with state-level top-income shares in Table A14 (Models 3 and 4). These results as a whole provide little support for the notion that class-biased news emerges from cost-cutting journalistic methods.

## 7 Conclusion

In periods in which the income shares of the very richest Americans have been expanding, evaluations of the economy in the country’s leading newspapers grew increasingly positive. Conversely, in periods of falling inequality, the tone of economic news has been more negative. Put simply,

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<sup>20</sup>We thank Johanna Dunaway for sharing data that forms part of our ownership measure.

as the rich have gotten (relatively) richer, the economic news has gotten better. Our analysis suggests that class-biased economic news arises not from a conscious bias toward the welfare of the most affluent, but from journalists' efforts to capture broad developments in the economy through a focus on aggregate growth. Thus, the analysis presented here suggests that a class-biased informational environment, shaped by skewed economic news, may partially reconcile nominal political equality with rapidly mounting economic inequality.

This finding provides a fairly natural explanation for the puzzling pattern of class-biased economic voting in the U.S. documented by Bartels (2008). It is not terribly surprising that non-rich voters more strongly support incumbents overseeing disproportionate gains for the rich if the favorability of the news environment systematically tracks the relative welfare of the rich. Importantly, moreover, class-biased economic news may distort economic voting patterns even if voters take personal, pocketbook developments into account. While there has been considerable debate over the relative strength of egocentric and sociotropic considerations in economic voting (e.g. Healy et al. 2017; Kinder and Kiewiet 1979), class-biased reporting on the national economy will matter if at least some substantial portion of the economic vote is sociotropic.<sup>21</sup> Even if non-rich citizens vote on a mix of egocentric and national economic evaluations, class-biased news will tend to generate sociotropic evaluations that weigh against these voters' personal economic interests.

Further, class-biased economic news may explain a disconnect between distributional outcomes and citizen demands in a broader set of capitalist democracies (Hicks et al. 2016; Milanovic 2000; Corneo and Grüner 2002; Kenworthy and McCall 2008). Findings from Parker and Vissing-Jorgensen (2010) suggest that the relationships we uncover in the U.S. might unfold in other countries, but to varying degrees. To the extent that disproportionately high top-end income cyclicity is driven by skill-biased technological change, we would expect it to occur more broadly in contexts in which the "race" between technology and education (Goldin and Katz 2007) has tended to be won by technology, generating growing wage differentials between more-

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<sup>21</sup>The evidence for the role of national economic outcomes in political evaluations is, of course, quite strong (Lewis-Beck 1988; Duch and Stevenson 2006). Even Healy et al. (2017), who present compelling new evidence of the role of personal economic gains and losses in voting behavior, find that sociotropic evaluations matter about equally.

and less-skilled workers. Parker and Vissing-Jorgensen (2010) find across a set of 10 countries that growing top 1% income shares is associated with increasing cyclicalness of top-1% incomes. Over the last few decades, top-incomes became much more cyclical in the U.S., Canada, Portugal, and India, while top-income cyclicalness held steady or fell in Sweden, Italy, Japan, France, Ireland, and Singapore. If economic reporting is widely grounded in a focus on macroeconomic aggregates, that focus ought to generate a stronger class bias in economic reporting in the first set of countries than in the second.

Much could be at stake in extending the present analysis to additional national contexts. Indeed, the normative implications of this paper’s argument are especially troubling in comparative terms. If top-end cyclicalness and growing wage differentials travel together, then a media that covers the business cycle will generate a *stronger* pro-rich skew in news content in the very places where class-biased reporting will be most misleading to non-rich citizens. That is, journalistic assessments of economic performance as an aggregate phenomenon will most closely track the welfare of the rich precisely in those contexts in which the fortunes of the very rich diverge most sharply from the fortunes of the rest.

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