

# Media Bias during Political Transition: Evidence from Chile in 1985 – 2000\*

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## Abstract

This article presents a novel data set to estimate the ideological bias of four national newspapers in Chile for the period 1985–2000: *El Mercurio*, *La Tercera*, *La Época* and *La Nación*. Comparing the language used by deputies in Congress with that used by newspapers in their reports, the results show a substantial ideological bias in the main media outlets, based on their ideological positions. *El Mercurio* and *La Tercera* tend to use language more similar to that used by right-wing sectors represented in Congress, while *La Época* tends to use language similar to that used by a center-left congressperson. *La Nación*, the government daily, changes its bias depending on which political party has control of the government. Finally, there is evidence of a systematic bias to the right among the main newspapers during the dictatorship period (1985–1989). However, bias evolves from a highly concentrated rightward bias to a more pluralistic environment during the transition period (1990–2000). In line with the literature, this transition probably had positive effects on political accountability, even when there was still media bias.

**Keywords:** ideological bias, media markets, political language, newspapers.

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# 1 Introduction

Newspapers and media are relevant for different reasons. First, they provide valuable information to citizens, consumers, and media firms. Second, they play a role in shaping opinion, potentially influencing how citizens and voters take political positions on a variety of issues in public debate. Third, they play an auditing role for both the government and the private sector.<sup>1</sup> Beyond their informative role, there is evidence that media systematically filter and bias the information they transmit based on their ideological perspectives (Groseclose and Milyo (2005); Gentzkow and Shapiro (2010); Gans and Leigh (2012); Puglisi and Snyder Jr (2015)).

This selection of information can influence the decisions of citizens and voters in many ways: directly, by impacting their preferences towards certain candidates (Enikolopov et al. (2011); González and Prem (2018)) or indirectly by determining the public agenda (Puglisi and Snyder Jr (2011); Larcinese et al. (2011)).<sup>2</sup> Newspapers and media can also influence citizens by affecting their actions beyond politics, such as fertility decisions (Kearney and Levine, 2015), divorce rates (Chong and Ferrara, 2009) and market prices (Svensson and Yanagizawa, 2009).

In this paper, we focus on measuring the ideological bias of newspapers in Chile during a period of transition from a dictatorial to a democratic regime. We define a biased outlet as a newspaper that systematically tends to use language similar to that used strategically by a political sector represented in the chamber of deputies. We use a methodology that allows us to position the newspapers according to their political affinity, answering, in particular, the following question: if a newspaper’s news reports were a discourse in the chamber of deputies, in which political sector would it be positioned?

Measuring ideological bias in newspapers in Chile is relevant for at least three reasons. First, newspapers are a central element of political debate and public opinion formation. Second, the newspaper

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<sup>1</sup>An example of the audit role of newspapers is the uncovering and follow-up of corruption cases. Evidence suggests that the appearance of corruption scandals in the press is a sign of greater concern about and vigilance against corruption (Fisman and Golden, 2017).

<sup>2</sup>The theory of agenda-setting has its roots in the work of Lippmann (1922) and was empirically explored by McCombs and Shaw (1972). More recent articles have revived this agenda. For instance, Puglisi and Snyder Jr (2011) measures the frequency number of stories on various topics as a function of which party controls the presidency. The authors find that media systematically cover more Democratic issues when the president is a Republican and vice versa. Larcinese et al. (2011) analyzes economic news coverage for a sample of 102 newspapers between 1996 and 2005. Authors find that pro-democracy newspapers systematically give greater coverage to high unemployment when the incumbent is Republican relative to newspapers with pro-Republican editorials.

industry in Chile is characterized by its high concentration, with newspaper supply concentrated in two large companies.<sup>3</sup> Third, national opinion polls place national newspapers as systematically biased towards the right of the political spectrum.<sup>4</sup>

With the purpose of exemplifying what we understand by ideological positions, we present five headlines from the main newspapers on October 6, 1988: *El Mercurio*, *La Tercera*, *La Nación*, *La Época* y *Fortín Mapocho*. This date is notable for the publication of the results of the plebiscite that ended the dictatorship of Augusto Pinochet, giving way to a democratic government. The headlines were the following:<sup>5</sup>

**El Mercurio:** “Contabilizado el 71,73% de las mesas. No: 53,31%; Sí: 44,34%.” (**“71.3% of polls returned. No: 53.31%; Yes: 44.34”**)

**La Tercera:** “¡Triunfa el no!” (**“Victory for No!”**)

**La Nación:** “Computo Parcial: El Sí obtiene un 51,3%.” (**“Partial count: 51.3% vote Yes”**)

**La Época:** “AMPLIO TRIUNFO DEL NO” (**“TOTAL VICTORY FOR NO”**)

**Fortín Mapocho:** “¡Adiós General, Adiós Carnaval! Gobierno reconoció el triunfo del No” (**“Goodbye General, Goodbye Carnaval! Government confirms No victory”**)

All the newspapers’ headlines are based on the same raw facts: the triumph of the “No” recognized by the dictatorship. However, through omission, choice of words, tone of the message, or varying the credibility of the source, each newspaper provides a different impression of what happened. For

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<sup>3</sup>Mercurio SAP and El Consorcio Periodístico de Chile (Copesa) have dominated the print media market in Chile for decades. The first company owns the newspapers *El Mercurio*, *Las Últimas Noticias* (LUN), and *La Segunda*, as well as 21 regional newspapers including, most notably, *El Mercurio de Valparaíso*. Copesa owns the newspapers *La Tercera*, *La Cuarta*, *Pulso*, and the free daily *La Hora*. *El Mercurio* is controlled by the Edwards Family, while *La Tercera*, in its inception controlled by the Pico Cañas family, is currently controlled by Alvaro Saieh. According to the report of the Latin American Observatory of Media and Convergence (OBSERVACOM) *El Mercurio* and *La Tercera* concentrate 80% of the readership and 84% of the advertising expenditures for 2014.

<sup>4</sup>According to data from the ICSO-UDP national survey for 2010, people consider most newspapers to be biased towards the right. In this survey, people were asked: “As you know, traditionally in our country people define political positions as closer to the left or closer to the right. Using a scale of 1 to 10, where 1 is left and 10 is right, where would you place the following media in terms of their political stance?” On average results gave the following ranking: *El Mercurio*: 7.77; *La Tercera*: 6.56; *La Segunda*: 6.27; *La Nación*: 6.03; *LUN* : 5.63; *Publímetro*: 5.56; *La Hora*: 5.52; *La Cuarta*: 5.12.

<sup>5</sup>To see the original covers click [here](#).

instance, the headline of the daily newspaper *La Nación* stands out and ignores the results. This type of information choice is what we consider a signal of media bias in this article.<sup>6</sup>

To measure bias, we used the methodology proposed by [Gentzkow and Shapiro \(2010\)](#), estimating the ideological position of the four major national newspapers in the period 1985–2000: *El Mercurio*, *La Tercera*, *La Época* y *la Nación*. The main idea of this methodology is to use the interventions of deputies in Congress as a measure of politically charged language. First, we examined the set of phrases used by members of the chamber of deputies during 1990–2000 and identified which of these phrases are most used, in an ideological sense, by the two major sectors represented in Congress.<sup>7</sup> Based on these phrases, the relationship between the use of certain phrases and the ideology of the deputies is estimated. Then, based on a representative sample of newspapers for the period 1985–2000, we obtain the frequency at which each of these phrases appears in the news report. Using the estimators obtained from the first stage and the frequency with which these phrases appear in newspapers, we estimate an index that allows us to rank the media according to ideological affinity. This index indicates how similar the news report is to the speeches of a certain sector in Congress, which corresponds to our measure of ideological bias.

The estimation strategy is based on two assumptions. First, the language used by deputies must reveal ideological positions and not randomness. In particular, deputies from different political sectors need to refer to the same issues using different phrases, which must be related to the ideological positions they represent. Secondly, this estimate implicitly assumes a one-dimensional political spectrum both for politicians and for the ordering of the newspapers, based on ideological posture. We consider that the decade studied, characterized by its high degree of polarization, reasonably justifies that these assumptions are fulfilled.

Data were obtained from two sources. First, all seasonal bulletins of the National Congress were downloaded from the website of the Chamber of Deputies for the period 1990–2000. Each bulletin

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<sup>6</sup>Two arguments allow us to situate these headlines as examples of the ideological position of the media and not as isolated examples. First, the reported fact is highly political, thus increasing the probability that the newspaper will be able to have a political position on what happened. Secondly, it is a verifiable fact. When the facts reported by media are verifiable detect bias is much simpler ([Gentzkow and Shapiro, 2006](#)).

<sup>7</sup>Two sectors were defined for our analysis: right-wing parties are represented by *Unión Demócrata Independiente* (UDI) and *Renovación Nacional* (RN) and center-left parties are represented by *Democracia Cristiana* (DC), *Partido Socialista* (PS), *Partido Radical* (PR) and *Partido por la Democracia* (PPD).

was processed in such a way as to obtain all the interventions of each one of the deputies in office for each year. In addition to the speeches, for each deputy, we have data on their party affiliation, which is used as a proxy measure for the ideology of deputies. Newspaper information was obtained from the depository of the National Library and Universidad Diego Portales (UDP). Each newspaper was processed to extract the text and create a database with all the phrases used by these newspapers in the policy section of the national news.

The results confirm findings of previous national literature: there is a substantial ideological bias in the main media outlets based on ideological positions. Therefore, three main results arise. First, there is the systematic use of strategic language by deputies. The use of ideologically charged phrases according to the ideological positions they represent is a rule rather than an exception. Second, our estimates confirm an arrangement of the newspapers based on ideological positions. Systematically, the newspapers *El Mercurio* and *La Tercera* tend to use a language more similar to that used by the right-wing sectors represented in Congress, while *La Época* tends to use a language similar to that used by center-left members of congress. On the other hand, *la Nación*, the government daily, changes its bias depending on which political party has control of the government. Finally, there is evidence of a systematic bias to the right of the main newspapers during the dictatorship period. However, this bias evolves from a highly concentrated rightward bias to a relative pluralistic environment during the transition period.

Our article advances the previous literature in two ways. The first contribution lies in the way we measure ideological bias through an estimation that allows newspapers to be compared with each other in a reproducible way. This strategy also minimizes subjective criteria on the part of the researcher. Our second contribution relates to the historical context in which we measure ideological bias. This measurement is framed in a highly polarized political context for a lower-middle-income country by the standards of the time. Focusing on this context allows us to determine how to generalize the results found in the literature outside developing countries. Therefore, our article is an advance for the national literature that previously documented newspaper bias in Chile.<sup>8</sup>

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<sup>8</sup>Navia and Osorio (2015) makes an ideological bias measurement for *El Mercurio* and *La Tercera*; however, its measurement is based on the tone of the news and not on a language comparison as is our case. Moreover, like much of this literature, bias is measured by subjective criteria (classification according to research assistant's opinions).

The remainder of the paper is organized as follows: Section 2 discusses this paper within media bias literature; Section 3 describes the database that plays a central role in this paper; Section 4 explains the empirical strategy used to estimate media bias; Section 5 presents the main results and Section 6 discusses them in line with the literature; finally, Section 7 provides the conclusion, and is followed by two appendices.

## **2 Media Bias: an overview**

The systematic study of the media market is quite new in economics. In recent years a significant number of contributions and a broad spectrum of research questions have arisen about the relationship between media bias and citizens' behavior. This section summarizes a specific topic of media literature from an economic perspective; in particular, it reviews both theoretical and empirical evidence of the market dynamics that determine media bias. The section is ordered as follows: It begins by formally defining media bias, introducing the basic model that allows literature to be organized and explain why bias can exist even in the context of firms that maximize profits and buyers as rational consumers of information. After that, we review the empirical evidence of media bias focusing on a partisan and ideological bias. We focus the evidence first on supply-side forces that determine bias in equilibrium (e.g., political preferences of media owners or journalists) and then turn to demand-side forces (e.g., consumers' beliefs and preferences). We also review some insights about the relationship between media bias and competition in the marketplace.

### **2.1 What is media bias?**

One of the most common charges leveled against the media is that they are ideologically biased. But what does this mean? Is it only a way to say that the media does not give consumers accurate or desired information, or it is simply to say that the media outlet has a political position? Loosely speaking, media bias arises when news outlets base their stories or news reports on the same events, but manage to convey strikingly different impressions of what transpired. These systematic differences

in the mapping from facts to news reports are called media bias in the literature ([Gentzkow et al., 2015](#)).

Media bias can take several forms: in favor of the government, in favor of a particular political party, ideologically, in favor of some minorities, or even in favor of some industries that advertise heavily in the outlet. Notwithstanding the foregoing, some authors have tried to classify media bias into distinct kinds. For instance, [Prat and Strömberg \(2011\)](#) divide bias into four categories:

- **Issue bias:** Media outlets can be selective in what issues they cover.
- **Fact bias:** Media outlets can define what aspects of a specific issue they exclude..
- **Framing bias:** Media outlets can define how the facts are presented.
- **Ideological stand bias:** Media outlets can define how the facts are commented upon.

On the other hand, [Sobbrio \(2014\)](#) summarized the main mechanism inducing a bias in media as follows:

- **Selective omission of information:** Media outlets can create bias in their news by selecting which information to report to media viewers on a given issue. Therefore, bias is a result of the omission of information.
- **Issue selection or Agenda Setting:** The source of bias arising from the choice of which type of information is reported to the viewers. Media outlets can generate bias in their news defining what topics are relevant and what topics are not.
- **Framing:** Media outlets may create bias using language that would tend to sway the reader to the right or the left on political issues.<sup>9</sup>
- **Slanted endogenous information acquisition:** Media bias can arise from the way editors and journalists gather information in the first place. According to Sobbrio, “The bias in media outlet’s news reports may be the result of the slanted optimal information acquisition strategy of its editors/journalist” ([Sobbrio, 2011](#)).

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<sup>9</sup>This definition of framing is coming from [Gentzkow and Shapiro \(2010\)](#).

These categories are related to each other. All have common categories and differences. The above categories are not mutually exclusive; in general, media bias is probably a mix of all of them. Nonetheless, these categories can be summarized in two categories following the classification of media slant provided by [Gentzkow et al. \(2015\)](#): distortion and filtering.

Distortion arises when news reports are direct statements about raw facts. In this case, the omission of facts is included as a special case. The notion of objective reporting is easily defined in this framework: a media outlet that ignores the event or reports a number other than the official information engages in distortion. Distortion takes place when there are measurable facts or events that are so salient that they would have been reported, for example, a relevant political event or a corruption scandal involving a high-ranking politician. Filtering arises when a media outlet can offer only a summary of events, in this case, media outlets only have the option to report all the facts that they know it. The notion of objective reporting does not apply here. However, the outlets can still slant news through a proper filtering strategy as partisan filtering, that is, a selection of facts based on the political preferences of the audiences, editors, or journalists. In this way, following [Prat and Strömberg \(2011\)](#) fact and framing bias are versions of distortion, while issue and ideological stand bias are subcategories of filtering. Following [Sobbrio \(2014\)](#), agenda-setting and framing are versions of filtering, while the selective omission of information and slanted endogenous information acquisition are versions of distortion.<sup>10</sup> This paper puts the focus on filtering; specifically, our measure of bias is related to ideological/partisan bias.

We can introduce a model that allows us to understand distortion and filtering in a context of an economic model. There is an unobserved state of world  $\theta \in L, R$ , whose values we associate with outcomes favorable to left and right sides of a one-dimensional political spectrum.<sup>11</sup> Define the row facts gathered by a news outlet to be a random variable  $s \in S$  whose distribution depends on  $\theta$ . Finally, define a news report by  $n \in N$ . A reporting strategy  $\sigma$  is a possibly stochastic mapping from

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<sup>10</sup>There are other types of bias treated in the economic literature which are at a greater distance from the categories of [Gentzkow et al. \(2015\)](#) For instance, [Qian and Yanagizawa-Drott \(2017\)](#) show evidence of a pro-government bias in the coverage of foreign policy, while [Larcinese \(2007\)](#) shows evidence of some outlets in the UK that “over-provide” news that is of interest to audiences that are more valuable to advertisers.

<sup>11</sup>The studies related to media bias usually assume a one-dimensional issue space. This assumption is plausible when the political environment is highly polarized. We argue that assumption is a fact in the case of Chile during the 1990s.



$S$  to  $N$ .

Based on this model, we can define bias as a partial order on reporting strategies. We say a strategy  $\sigma$  is biased to the right (left) of  $\sigma'$  if a consumer who believed a firm's strategy was  $\sigma'$  would tend to shift her belief to the right (left) if the firm deviated to  $\sigma$ . Moreover, let  $\mu(n|\sigma)$  be a Bayesian consumer's posterior probability that the state  $R$  when she observes  $n$  from a firm believed to be playing strategy  $\sigma$ . Let  $\lambda(\hat{\sigma}|\sigma)$  be the distribution of  $\mu$  when a consumer believes a firm is playing  $\sigma$  and it actually plays  $\hat{\sigma}$ . Two reporting strategies  $\sigma$  and  $\sigma'$  are consistent if for each of them  $n$  has the same support -the set of  $n$  that can be reported is the same- and they preserve the relative meaning of reports.<sup>12</sup>

Based on these assumptions, we say  $\sigma$  is biased to the right (left) of  $\sigma'$  if:

- $\sigma$  and  $\sigma'$  are consistent.
- $\lambda(\sigma|\sigma')$  first-order stochastically dominates (is dominated by)  $\lambda(\sigma'|\sigma')$ .

Based on these statements we can define distortion as a case where  $N = S$ . In this case, the reports are objective statements about the value of  $s$  and it is possible to define a truthful strategy (one where  $\sigma(s) = s$ ) and the amount of bias (the area between  $\sigma(s)$  y  $s$ ). This definition implies that  $\sigma$  is biased to the right of  $\sigma'$  if, at every  $s$ , it shifts probability towards false reports relatively favorable to  $R$ . An omission is a special case where one of the elements of  $S$  is a null signal that provides no additional information about the state.<sup>13</sup>

Filtering is modeled as a case where  $N$  has lower dimensionality than  $S$ , that is, the media outlets must select some raw facts to report news. In this case,  $\sigma$  is biased to the right of  $\sigma'$  if whenever  $\sigma$  selects an element  $s_i$  and  $\sigma'$  selects an element  $s_j$  such as  $s_j \neq s_i$ ,  $s_i$  is more favorable to  $R$  than  $s_j$ .<sup>14</sup>

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<sup>12</sup>Preserves relative meaning implies that :  $\mu(n|\sigma) > \mu(n'|\sigma) \leftrightarrow \mu(n|\sigma') > \mu(n'|\sigma') \quad \forall n, n' \in N$ .

<sup>13</sup>Gentzkow et al. (2015) gives the following example: suppose  $S$  consists of either scandal in  $R$  party, a scandal in  $L$  party or  $\emptyset$  (no information). Suppose the strategies are constrained so either  $n = s$  or  $n = \emptyset$  (firms can hide information about scandals, but it cannot manufacture scandals.) Then,  $\sigma$  is biased to the right of  $\sigma'$  if it is relatively more likely to hide  $R$  scandals and relatively less likely to hide  $L$  scandals.

<sup>14</sup>The definition is analogous in a continuous case where  $\sigma$  is biased to the right of  $\sigma'$  if  $\sigma$  shifts probability mass from summary reports relatively favorable to  $L$  to reports relatively favorable to  $R$ .

## 2.2 Why does media bias exist? Theory

There are two main categories in which each theoretical model related to media bias may be framed. Part of the literature proposes supply-side explanations of media bias, that is, the bias in media reports is a result of the preferences for biased news of editors, journalists, media owners, lobbyists, advertisers, or the incumbent government – the agents on the supply- side of the market for news. The other category – demand-driven bias – explains the presence of bias without assuming incentives to induce bias from the supply-side of the marketplace. In this case, media bias arises from the preferences of the consumers for biased news.<sup>15</sup>

### 2.2.1 Supply-driven media bias

Firms may prefer consumers to take particular decisions. We assume there are incentives that are internal to the firm rather than external, for instance, firms can be pressured by governments or advertisers instead of editors or media owners. The baseline model considers a maximizing profit firm with a favorite bias. The firm obtains gains from advertising activities. In this setting, firms face a trade-off between political influence and direct media profit. If a media firm wants to bias the news because of the owner’s or editor’s preferences, it could face a reduction in the demand of the outlet, followed by a decrease in profits. This behavior could be rational if firms value political influence and are willing to reduce profits to influence political actions. This simple baseline model has the following main predictions:

- Supply-side can drive both distortion and filtering in equilibrium even when consumers are rational and sophisticated.
- Competition generally reduces distortion and decreases bias in equilibrium.<sup>16</sup> In this case,

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<sup>15</sup>If viewers always (and only) value accuracy in news reports, in a competitive environment any supply- driven media bias should fade away. The result is analogous to a model of Bertrand’s competition. The first approach to tackling this issue has been to assume that readers simply do not value accuracy. That is, consumers may have exogenous preferences for acquiring information from a like-minded source. This is the case of [Mullainathan and Shleifer \(2005\)](#).

<sup>16</sup>In the baseline case, competition aligns the incentives among media firms to give consumers what they want. It is assumed that consumers value unbiased news. In equilibrium media, bias will be equal to zero. This result is analogous to the traditional model of Bertrand competition.

competition tends to align outcomes with the consumer’s preferences, which in the baseline case is for unbiased news.

- Competition tends to increase consumer welfare although it may decrease total surplus if we consider the ideological payoff of owners.<sup>17</sup>

Some literature has extended these intuitions. For instance, [Baron \(2006\)](#) identifies journalists’ preferences as the main driver of media bias from the supply side. In this case, media outlets may find it optimal to allow a certain degree of discretion to journalists. Journalists give value to the possibility of influencing their reports and accept lower pay to do this. This behavior is rational if we assume that journalists want to advance their career concerns or political preferences. In this context, competition may increase average bias in news reports since it may increase incentives to media outlets to grant greater discretion to the journalist in order to reduce labor cost<sup>18</sup> Editors can also play a role, for instance, [Ansolabehere and Snyder Jr \(2006\)](#) find a large pro-Republican bias in political endorsements made by many big-city newspapers during 1940 -1950.

[Anderson and McLaren \(2012\)](#) propose that the utility function of media owners incorporates both the desire to maximize profits and the desire to influence the political choices of their consumers. This case fits very well with the baseline model: competition is crucial to reduce the bias in equilibrium. However, the authors stress a political implication in this case: media mergers may also lead to a perverse effect on media bias. Merging not only has an effect on pricing behavior; it also could have consequences for bias in equilibrium. In this sense, the relationship between competition and bias is key for regulation purposes in the media market.

Lobbyists also can play a role in inducing the media to supply biased information to their viewers. They can use different instruments: offer direct payments ([Petrova, 2012](#)), provide media with hard information in support of their preferred policy ([Baron, 2005](#)), or exert effort to influence the overall evidence found by media on a given issue ([Sobbrío, 2011](#)).

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<sup>17</sup>If we assume a social welfare function as a weighted average of the utility functions of media owners and consumers, where the relative weight of consumers is higher than the weight of media owners. It would be necessary for an important decrease of welfare from media owners to offset the increase of consumers’ welfare. Then, the general case should be understood as an increase of social surplus.

<sup>18</sup>Competition can pressure low-quality firms to act in this manner.

Advertisers may also exert pressure on news media to influence their content. They may induce news media to only cover issues preferred by specific groups (e.g., valuable groups for advertisers) or they may simply want the media to produce favorable news reports, for instance, hiding any negative information concerning their products. As documented in [Ellman and Germano \(2009\)](#)), this type of distortion has been quite evident in the case of tobacco companies exerting pressure on US media to hide negative information on the adverse consequences of tobacco products. Nevertheless, some authors argue that the development of advertising has allowed news media to afford to be politically independent.

[Navia and Osorio \(2015\)](#) examine the presence of bias in Chile’s two main daily news outlets: *El Mercurio* and *La Tercera*. They analyze their principal headlines in the first 100 days of the rule of different presidents. They identify a bias in favor of the political right as compared to the center-left presidents. The authors argue that both newspapers have historically been associated with the political right and that this is the source of bias for the Chilean case.

The model of media capture proposed by [Besley and Prat \(2006\)](#) is a case of external incentives to influence consumers’ behavior, that is, outside media firms. The authors consider a model where the incumbent government may influence media reports by offering a transfer to a media outlet to not reveal bad news. In this setting, competition also plays a role: more media outlets make it costlier for the government to capture the whole media sector.

### **2.2.2 Demand-driven media bias**

The other potential driver of bias is demand from consumers themselves. In this context, consumers tend to choose media whose bias matches their preferences or prior beliefs. This point is very relevant, and it produces some results different from the case where media bias arises from the supply-side of the market for news.

In a framework of supply-drive bias, if viewers always and only value full accuracy in news reports, in a competitive media market supply-driven media bias should fade away. The opposite is true in a context of demand-driven bias; even profit-maximizing media firms that do not care directly

about influencing consumers' beliefs may choose biased reports in equilibrium. The conclusion of the literature on demand-driven bias differs in several ways from those where bias originates on the supply side. First, the relationship between competition and bias is ambiguous.<sup>19</sup> When consumers themselves demand bias, competition may lead to more extreme biases that cater to these tastes. This result follows the standard Hotelling Logic.<sup>20</sup> Second, demand-side incentives will drive filtering bias but will usually not lead to distortion if consumers are rational and prefer more information to less.<sup>21</sup> Third, the broader effects of competition on welfare are ambiguous. There are negative political externalities of more polarized media outlets, although the consumers are better off.

Why would consumers demand confirmatory news? The literature has identified three categories of incentives that could be at play: delegation, psychological utility, and reputation. Delegation is based on the idea that consumers whose preferences (priors or beliefs) favor state  $R(L)$  will tend to get higher (subjective) expected utility from right-biased signals. Then, even rational consumers will exhibit a preference for confirmatory news. In this setting, signals only have value if it affects consumers' actions, that is, the relevant signals are such that  $A = A_R$  if  $n = r$  and  $A = A_L$  if  $n = l$  where  $A$  is the consumer action. Note that basing one's action on such a signal is equivalent to delegating one's decision to the media outlet. Then, the mapping from the underlying signal  $s$  to the consumer's action  $A$  becomes simply the reporting rule  $\sigma$ .

The psychological utility is the case in which consumers get direct utility from news whose bias matches their own beliefs. Such preferences could result from a taste for self-image, consistency, or a desire to avoid complexity. [Mullainathan and Shleifer \(2005\)](#) incorporate psychological utility to explain their results. They assume that news media readers are interested in the value of a variable  $l \sim N(0, v)$ . Consumers have some prior belief about  $l$  which can be biased but have the correct variance. The news media receives information about  $l$  (i.e.  $d = l + \varepsilon$ ) and then may decide to bias

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<sup>19</sup>The role of competition in the media industry is different than in other sectors. For instance, if there is a merger among media firms, besides the classical effects on price, quality, and selection, media pluralism could be affected. If media pluralism is affected – under the assumption that this is related to political coverage – society could be worse off due to less political accountability from media outlets. Then, in the context of the media industry, the standard competition policies could be insufficient and even counterproductive.

<sup>20</sup>A duopolist may adopt more extreme bias than a monopolist if the each caters to a single part of the ideological spectrum, while the monopolist tries to appeal to both.

<sup>21</sup>The exception is when firms have reputational concerns, as in ([Gentzkow and Shapiro, 2006](#)).

the news reporting  $n = d + s$ . In this setting, if consumers are rational, they would not like the news media to add any slant in their news reports. If consumers are rational, regardless of the level of competition in the market, the equilibrium bias will be zero. Nevertheless, if readers have utility from receiving news consistent with their prior belief (psychological utility) in the presence of readers holding different prior beliefs, competition in the market for news will tend to increase media bias. Therefore, in a setting with confirmatory bias, the main driver of bias is the distribution of priors in the population.

Reputation is the last reason why consumers would want to receive confirmatory news. A rational consumer who is uncertain about the accuracy of an information source will tend to judge it to be higher quality when its reports match the consumer’s prior beliefs. Then, firms can have incentives to produce confirmatory news to improve their reputations and increase their future demand. This observation was applied to the media market by [Gentzkow and Shapiro \(2006\)](#). This model allows the authors to explain why empirically bias is lower for news on events where the “truth” is revealed very quickly (e.g., sports results or weather news). The opposite is true when the facts are truly difficult to corroborate (e.g., the effects on earth of climate change). In this case, competition again plays a role. Specifically, the presence of several firms allows readers to cross-check firms’ reports. Therefore, this kind of competition reduces equilibrium bias.<sup>22</sup>

## 2.3 Does Media bias exist? Empirical Evidence

There is a considerable amount of literature focused on providing empirical results showing the presence of a systematic bias in the market for news. [Groseclore and Milyo \(2005\)](#) developed the first empirical strategy to measure implicit bias.<sup>23</sup> The authors measure the ideological position of news media based on similarities between the think tanks cited by media outlets and think tanks cited by congresspeople. The results show that most US news media outlets receive scores on the left of the

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<sup>22</sup>The simplicity with which information can be verified is increasing in the number of media outlets. Consequently, competition decreases bias in equilibrium under reputation concerns.

<sup>23</sup>There are two categories of media bias: explicit and implicit bias. Explicit bias is related to the opinions in the editorial section. Journalists’ norms allow the free display of opinions in this section. Implicit media bias is related to the indirect political behavior of media outlets reflected in their news. This paper puts the focus on implicit media bias.

average member of Congress.

[Gentzkow and Shapiro \(2010\)](#) investigate a more direct way to assess media bias. Their approach is also based on a comparison between congresspeople’s speeches and media outlet news. However, their methodology compared the frequency of ideologically slanted words in a given newspaper. These slanted words are obtained directly from congresspeople’s speeches in the US Congress through statistical methods. This approach provides evidence of media bias based on ideological or partisan explanations. The main assumption behind their results is the observation that Republican and Democratic politicians use different languages to refer to the same issues. The authors claim that if this observation is true – there are several partisan phrases used by the parties to speak about the same issue – the same type of language is used by news media to frame their news reports to sway readers to the left or right of the political spectrum. The results suggest that US newspapers indeed show systematic ideological status. Moreover, their results suggest that media bias is mainly a demand-driven phenomenon. Our paper is based on this methodology framework.

[Gans and Leigh \(2012\)](#) measure media bias based on similarities between the public intellectuals mentioned by media outlets and the public intellectuals mentioned by federal members of Congress in Australia. They also use a comparison approach to measure bias, that is, the first estimate the partisan leaning of each public intellectual in their sample by computing the degree to which members of the Conservative Party rather than the Labor Party positively mentions the intellectual. They do not find convincing evidence of bias towards one side of the political spectrum.<sup>24</sup>

## 3 Data

### 3.1 Congressional Record and Congressperson Data

The data used to measure bias in newspapers is based on the bulletins of the Chilean Chamber of Deputies during the period 1990-2000. We do not have speeches from deputies for the years 1985 to 1989. During this period, the Congress was closed by the dictatorship. For that reason

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<sup>24</sup>An attractive aspect of comparison measures is that they manage to capture different categories of bias simultaneously: agenda setting, issue bias, and ideological context are considered.

we use deputies’ speeches from 1990 as a measure of the political language of this period for the main estimations.<sup>25</sup> The bulletins of the Chamber of Deputies were downloaded from its website ([www.camara.cl](http://www.camara.cl)). A script read through a raw text detects speakers and segment speeches for each member over a year. Therefore, our initial data set contains information on all the interventions of Deputy  $i$  in year  $t$ . We interpret our data (each floor speech in the Congress) as a list of words. We process this list of words in a way to analyze the variation of partisan language and identifying political ideas.<sup>26</sup>

We process the data in the following way: first, we remove capitalization and punctuation, tokenize the text into sentences and words. We also develop a list of words for exclusion from the corpus.<sup>27</sup> We also remove stop words such as “*como*”, “*donde*”, “*en*”, “*cuando*” among others. In addition, we exclude familiar words in congress speeches, such as “*Señor presidente*” or “*he dicho*” and we also remove other non-policy words such as weekdays (e.g., “*lunes*”) and the name of Chilean regions (e.g., “*Arica*”, “*Atacama*” among others). Finally, a script produces counts by the speaker of two- and three-word (bigrams and trigrams) phrases in the deputies’ record.

We wish to focus on deputies’ speeches, so we excluded speeches of other authorities that sometimes speak in the Congress (e.g., ministers or organizations from civil society). In addition to their interventions, for each deputy, we have data on their party affiliation. ; this is used in the first instance as an ideological measure. In particular, we assign a variable that reflects the ideological ordering of parties on a political spectrum from right to left, where a higher value implies that the party is more to the right.<sup>28</sup> As a second measure of ideology, we use data from the *Centro de Estudios Públicos* (CEP) survey, which allows us to rank parties according to how people situate within the political spectrum.<sup>29</sup> These two measures of ideology are used to obtain the relationship

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<sup>25</sup>We also limit our focus on the speeches from the Chamber of Deputies instead of Senate speeches for two reasons: i) We avoid issues of weighting speech between the Senate and the Chamber of Deputies; ii) In the Chilean political context, it is more plausible that the deputies speak in a strategic way.

<sup>26</sup>For more details on the process to select ideological phrases, see Appendix B.

<sup>27</sup>Corpus is the entire set of phrases and words.

<sup>28</sup>The parties are ordered from the farthest to right to the farthest to the left as follows: UDI, RN, DC, PS, PR, PPD. A value of 1 is assigned to the leftmost party (in this case the PPD) and a value of 6 to the rightmost party (in this case the UDI). Note that this ordering is only relative, so the magnitudes are only referential.

<sup>29</sup>CEP survey has two questions that we use to rank the political parties of the time in a one-dimensional political spectrum. The first question: ‘As you know, traditionally in our country people define political positions as closest to the left, center or right. In this card, we represent the different political positions. Please indicate to me, with which



between the use of party phrases and the ideology of the deputies who use them.

### 3.2 Newspaper data

Our bias measurement is performed for the four most relevant national newspapers of the period 1985–2000. We consider the newspapers *El Mercurio*, *La Tercera*, *La Nación* y *la Época*. The first two represent the main newspapers in the country both in terms of readers and influence. Historically, both media outlets have been related to the most conservative sectors of the country (Navia and Osorio, 2015). The newspaper *La Nación*<sup>30</sup> corresponds to the government newspaper, while the newspaper *La Época* was presented as an opposition newspaper that managed to compete with *El Mercurio* and *La Tercera*. From the total news of each newspaper, we only consider the national news of politics. The international news and sports section, among others, were intentionally excluded. Each of the sample newspapers was scanned from the National Library and Universidad Diego Portales depository. The text of each of these documents was extracted and the same processing of the text was carried out as for the interventions of the deputies.

However, the process of obtaining newspaper data presented additional difficulties because it was necessary to scan each of the newspapers and then extract the news. For details on the process of obtaining data from newspapers, see Appendix A.

## 4 Estimating media bias using political language

The methodology used to measure newspaper bias is based on a comparison of the number of politically charged phrases, in an ideological sense, used by members of Congress with those used by

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you identify more or with which position you are most sympathetic.” The possible answers are: Right, Center-right, Center, Center-left, Left, Independent, None, Doesn’t know, Doesn’t respond. The second question indicates: “Of the following political parties presented on this card, with which of them do you identify most or sympathize most?” Based on these two questions, an ideological index was constructed for each party. This index considers the personal positions of each of the respondents and the party affinity. This measure has the advantage of considering that for the same party there may be sympathizers with different personal political positions which are weighted according to the relative importance concerning the total of mentions.

<sup>30</sup>Besley and Prat (2006) develops a model where even in a context of press freedom the government can influence the media through its funding policies. In this sense, the case of the newspaper *La Nación* is relevant. It is interesting to test whether the ideological index we calculate succeeds in capturing the change of controller that this media underwent from the transition to democracy. Our results confirm this finding.

newspapers. This methodological approach is based on the article by [Gentzkow and Shapiro \(2010\)](#). To determine these phrases, we use the interventions of deputies in Congress under the assumption that their speeches in the chamber use phrases in a strategic sense based on the political positions they represent. This comparison allows us to determine whether the language used by newspapers is more similar to that used by the set of right (left) deputies of a one-dimensional political spectrum. Therefore, we can index newspapers according to the politically charged phrases they use when reporting the news.

## 4.1 Selection Phrases for Analysis

We analyze speeches in order to identify political ideas. In this sense, the procedure is as follows: As a first step, we restricted our analysis to phrases of two and three consecutive words (bigrams and trigrams). To construct these short phrases, we strip phrases consisting of common conjunctions, prepositions, auxiliary verbs, numbers, pronouns, and articles among others.<sup>31</sup> We also restrict ourselves to collecting the roots of individual words. Our data record the frequency of use of each of the remaining bigrams and trigrams for each member of the chamber of deputies.

After these filters, our sample of phrases is enormous. Subsequently, we begin limiting our sample to the 2000 most polarized phrases including bigrams and trigrams. For the main estimates, we only use bigrams for simplicity. Following [Gentzkow and Shapiro \(2010\)](#), we order the phrases using Pearson’s chi-squared statistic. Define  $f_{plt}^R$  and  $f_{plt}^L$  as the number of times phrase  $p$  of length  $l$  (two or three words) is used by the parties of the right and left side of the political spectrum, respectively, during year  $t$ . Let  $\sim f_{plt}^R$  and  $\sim f_{plt}^L$  denote the total occurrences of length- $l$  phrases that are not phrase  $p$  spoken by each political group, respectively. Let  $F_{lt}^R = \sum_p f_{plt}^R$  and  $F_{lt}^L = \sum_p f_{plt}^L$  be the summed frequencies of all phrases of length  $l$  used by each political group, respectively, at year  $t$ . Finally, let  $\sim f_{plt}^R = F_{lt}^R - f_{plt}^R$  and  $\sim f_{plt}^L = F_{lt}^L - f_{plt}^L$  the total number of time phrases of length  $l \in 2, 3$  besides  $p$  (but still in the pre-selected sample) were used by each political group, respectively, during year  $t$ . Then construct Pearson’s  $\chi_{plt}^2$  statistic for each phrase  $p$  of length  $l \in 2, 3$  as:

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<sup>31</sup>For details about the procedure, see [Appendix B](#).

$$\chi_{plt}^2 = \frac{(f_{plt}^R \cdot \sim f_{plt}^L - f_{plt}^L \cdot \sim f_{plt}^R)^2}{F_{lt}^R \cdot F_{lt}^L (f_{plt}^R + f_{plt}^L)(\sim f_{plt}^R + \sim f_{plt}^L)} \quad (1)$$

This metric rank phrases by their association with a particular group of political parties. As shown in [Gentzkow and Shapiro \(2010\)](#) if the frequencies  $f_{plt}^R$  and  $f_{plt}^L$  are drawn from multinomial distributions,  $\chi_{plt}^2$  provides a test statistic for the null that phrase  $p$  is used equally by the political groups during year  $t$ . This statistic conveniently summarizes the political asymmetry in the use of the phrase. Moreover, this is a better way to measure political asymmetry than other statistics as relative ratios. Relative ratios and other similar statistics could produce a pattern only for a sampling error. For instance, if a deputy mentions an uncommon phrase in their speech, it will be scored as a very partisan phrase because it will have been used only by a political group. However, it will have a low probability of being included in our restricted sample because it is said only once and therefore does not have a high probability of being representative of the entire political group.

## 4.2 Mapping political Phrases to newspaper ideology

Let the phrases in our sample indexed by  $p \in 1, \dots, P$  (ignore phrase length and year for notational convenience). For each deputy  $d \in D$ , we observe ideology  $y_d$  and phrase frequency  $\{f_{pd}\}_{p=1}^P$ . Let  $\sim f_{pd} = \frac{f_{pd}}{\sum_{p=1}^P f_{pd}}$  denote the relative frequency of phrase  $p$  in the speech of deputy  $d$ .

We have a set of newspapers  $n$  in  $N$  for which we observe phrase frequencies  $\{f_{pn}\}_{p=1}^P$  but not ideology  $y_n$ . We estimate ideology for newspapers as follows:

- For each phrase  $p$ , we regress  $\sim f_{pd}$  on  $y_d$  for the sample of deputies, obtaining intercept and slope parameters  $a_p$  and  $b_p$ , respectively.
- For each newspaper  $n$ , we regress  $(\sim f_{pn} - a_p)$  on  $b_p$  for the sample of phrases, obtaining slope estimate as follows:

$$\hat{y}_n = \frac{\sum_{p=1}^P b_p (\sim f_{pn} - a_p)}{\sum_{p=1}^P b_p^2} \quad (2)$$

This approach can be understood as follows. We use deputies – whose ideology is observed – to estimate the relationship between the use of phrase  $p$  and the ideology of the speaker. We use the relationship obtained in the first stage to infer the ideology of newspapers by asking whether a given newspaper tends to use phrases favored more by the rightest members of the Chamber of Deputies. The interpretation of the estimators is the following: if the use of any phrase  $p$  is not correlated with the ideology of the deputies ( $b_p = 0$ ), the use of this phrase will not contribute to the estimate  $\hat{y}_n$ . However, if the phrase  $p$  is used mostly by right-wing deputies ( $b_p > 0$ ), the estimator of it would contribute to the estimate of  $\hat{y}_n$ . In particular, the estimator will judge a newspaper that mostly uses this phrase as one more linked to right-wing political positions. Finally, if newspaper phrase frequencies are given by  $\sim f_{pn} = a_p + b_p y_n + e_{pn}$  with  $E(e_{pn}|b_p) = 0 \quad \forall n$ , then  $E(\hat{y}_n) = y_n \quad \forall n \in N$ .

## 5 Results

### 5.1 Phrase selection: evidence of strategic political language

Table 1 shows the most representative phrases used by the political sectors represented in Congress ranked from highest to lowest by  $\chi_{pl}^2$  for the year 2000. Panel A shows the phrases most used by the center-left sector while panel B shows the phrases most used by the right-wing sector. Table 2 shows the most representative phrases, but considering the year 1997.<sup>32</sup>

The selection procedure identifies an important number of phrases, despite referring to the same topics, that are used by the different sectors strategically according to the political position they represent. For example, we can see how the phrases vary in themes in which these sectors have strong political differences, such as native people, divorce law, and human rights issues.

Phrases such as *pueblos indigenas* and *pueblos originarios* are identified as the most representative phrases of the center-left conglomerate, while phrases such *pueblo mapuche*, *chileno mapuche* and *pueblo chileno mapuche* are selected as the most representative phrases of the right-wing conglomerate. Another example of the use of strategic language is the use of phrases related to human rights

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<sup>32</sup>These years are chosen to illustrate the use of strategic language. Potentially, these kinds of comparisons can be made for each year of the entire period.

Table 1: Selected phrases for the year 2000.

Panel A: Phrases used mostly by center-left deputies			
<i>Two-word phrases</i>			
<b>pueblos indigenas</b>	educacion superior	humanos nacionalidad	musica chilena
<b>pueblos originarios</b>	corte suprema	naturales bienes	basica media
<i>desaparicion forzada</i>	desarrollo humano	servicios sanitarios	comunas rurales
espacio publico	consejo defensa	organizacion mundial	mundial comercio
<i>derechos humanos</i>	accidental recibidos	nacionales ambiente	adquisicion acciones
forzada personas	formacion deporte	igualdad oportunidades	viviendas sociales
naciones unidas	ausentarse superior	personas juridicas	nivel superior
organizaciones comunitarias	superior contar	informante relaciones	jornada escolar
recursos naturales	sesionar simultaneamente	escasos recursos	salud ambiente
metros cuadrados	nacionalidad ciudadania	permiso constitucional	escolar completa
<i>Three-word phrases</i>			
<i>desaparicion forzada personas</i>	jornada escolar completa	<i>familiares detenidos desaparecidos</i>	vecinos organizaciones comunitarias
informante relaciones exteriores	empresa servicios sanitarios	auxilio escolar becas	comunidad economica europea
<i>derechos humanos nacionalidad</i>	superior contar dirigirse	junta auxilio escolar	artistas interpretes ejecutantes
humanos nacionalidad ciudadania	<i>violaciones derechos humanos</i>	ensenanza basica media	interamericana desaparicion forzada
recursos naturales bienes	cultura deportes recreacion	asamblea naciones unidas	servicio salud ambiente
naturales bienes nacionales	educacion cultura deportes	constitucional ausentarse superior	presupuestos sector publico
ausentarse superior contar	escuelas conductores profesionales	<i>agrupacion familiares detenidos</i>	convencion naciones unidas
bienes nacionales ambiente	organica constitucional ensenanza	superintendencia electricidad combustibles	concedera permiso constitucional
indice desarrollo humano	tecnico nivel superior	gases efecto invernadero	convencion interamericana desaparicion
organizacion mundial comercio	permiso constitucional ausentarse	fondo desarrollo institucional	santander central hispano

**Notes:** \*They are considered to be parties of center-left: DC, PPD, PS, PR, while the centre-right parties are represented by the UDI and RN \*\* Phrases in italics relate to the theme of the defense of human rights. \*\*\* Phrases in bold are related to native people issues. \*\*\*\* The phrases are ordered from highest to lowest according to the value of the chi-square statistic. \*\*\*\*\* The 40 most representative sentences were chosen for explanatory purposes.

Panel B: Phrases used mostly by right-wing parties			
<i>two-word phrases</i>			
libertad provisional	fondo garantia	internacional petroleo	campana presidencial
<b>pueblo mapuche</b>	convenio berna	flota industrial	moneda extranjera
pequenos mineros	lineas aereas	diagnostico disposicion	municipalidad tome
jubilados montepiadas	derecho autor	indemnizacion evento	jardin botanico
imagen corporativa	presion inflacionaria	emergencia agricola	precio internacional
transporte aereo	pena afflictiva	patentes automoviles	plano regulador
corte penal	mercado valores	puesta presentes	literarias artisticas
solucionar problemas	grupo pescadores	<b>chileno mapuche</b>	universidad catolica
impuesto especifico	trafico drogas	accion penal	consumo drogas
libertad ensenanza	obras portuarias	mediana mineria	tasas interes
<i>three-word phrases</i>			
corte penal internacional	grupo pescadores artesanales	caja prevision defensa	suscribimos venimos presentar
diagnostico disposicion residuos	estudio diagnostico disposicion	partes contratantes comprometen	merezca pena afflictiva
precio internacional petroleo	permanente sistematico reiterado	residuos domiciliarios industriales	precio paridad importacion
obras literarias artisticas	votaciones populares escrutinios	ambito facultades constitucionales	comerciales casas particulares
fomento mediana mineria	sistematico reiterado trafico	voluntarios cruz roja	nacionales obras publicas
tratado incorpora corte	fondo desarrollo deporte	reserva fuente informacion	colector aguas lluvia
incorpora corte penal	prescripcion accion penal	taxis cualquiera modalidades	dispongan tratados internacionales
<b>pueblo chileno mapuche</b>	economia social mercado	relacion directa ideas	calle avenida matta
diplomaticos oficiales especiales	ministros corte suprema	informacion gestion derechos	fundacion nino patria
pasaportes diplomaticos oficiales	sistema areas silvestres	perjuicio dispongan tratados	beneficio libertad provisional

**Notes:** \*They are considered to be parties of center-left a: DC, PPD, PS, PR, while the centre-right parties are represented by the UDI and RN \*\* Phrases in italics relate to the theme of the defence of human rights. \*\*\* Phrases in bold are related to native people issues. \*\*\*\* The phrases are ordered from highest to lowest according to the value of the chi-square statistic. \*\*\*\*\* The 40 most representative sentences were chosen for explanatory purposes.

issues. Phrases such as *desaparición forzada*, *derechos humanos*, *desaparación forzada de personas*, *familiares detenidos desaparecidos* and *violaciones de derechos humanos* are identified within the most representative phrases of the center-left conglomerate, while there are no phrases related to this topic in the right-wing conglomerate.

Table 2: Selected phrases for the year 1997.

Panel A: Phrases used mostly by center-left deputies			
<i>two-word phrases</i>			
colonia dignidad	particulares subvencionados	via interrupcion	pueblos indigenas
colegio profesores	obras publicas	derecho real	consejo defensa
<i>senadores designados</i>	registro civil	ocuparse constitucional	enfrentar problemas
<b>matrimonio civil</b>	financiamiento compartido	potable alcantarillado	arancel consular
derechos humanos	cruz roja	unidades tributarias	servicios sanitarios
escolar completa	casas comerciales	violaciones derechos	secretario presidencia
comisiones unidas	salario minimo	jornada escolar	comisiones educacion
colegios particulares	<b>sociedad conyugal</b>	gestion inversion	ensenanza basica
regimen militar	servicios inteligencia	completa diurna	capacitacion laboral
pensiones alimenticias	organica constitucional	tarifas electricas	derecho familia
<i>three-word phrases</i>			
jornada escolar completa	pago pensiones alimenticias	superacion extrema pobreza	caracter organico constitucional
agua potable alcantarillado	derecho real aprovechamiento	alcantarillado tratamiento aguas	regimen juridico aguas
colegios particulares subvencionados	<b>actual matrimonio civil</b>	<b>accion divorcio irrenunciable</b>	desempeno funciones criticas
escolar completa diurna	unidad subvencion educacional	servicio agua potable	fundacion asistencia familia
violaciones derechos humanos	prueba aptitud academica	organica constitucional calificado	concesion derechos aprovechamiento
consumo drogas ilegales	agua potable rural	organizacion atribuciones tribunales	ensenanza basica media
educacion cultura deportes	drenaje aguas lluvias	<i>institucion senadores designados</i>	renta meses indemnizacion
cultura deportes recreacion	economia fomento desarrollo	delito lavado dinero	universal derechos humanos
superintendencia electricidad combustibles	corporacion administrativa judicial	expendio bebidas alcoholicas	cobertura agua potable
asociacion chilena municipalidades	regimen jornada escolar	sector publico privado	evacuacion drenaje aguas

Notes: \* They are considered as parties of center-left a: DC, PPD, PS, PR, while centre-right parties are represented by UDI and RN \*\* Phrases in bold are phrases related to marriage (related to discussion of divorce law) \*\*\* Phrases in italics are related to appointed senators. \*\*\*\* The 40 most representative sentences were chosen for explanatory purposes.

Table 2 also shows evidence of the use of strategic language by deputies, in particular for two themes: appointed senators and divorce law. The phrases *matrimonio civil*, *sociedad conyugal*, *acción matrimonio civil*, *actual matrimonio civil* are identified as the most representative of the center-left conglomerate, while phrases such as *padres separados*, *la institución del matrimonio* and *matrimonio caracter indisoluble*, *hijos de padres separados* and *hijos de padres divorciados* are selected within the most representative phrases of the right-wing conglomerate. Another example of strategic language is the use of phrases related to appointed senators. The phrase *senadores designados* is identified within the most representative phrases of the center-left conglomerate, while the phrase *senadores institucionales* is found within the most representative phrases within the center-right conglomerate.

We argue that in the two cases described above, in particular those relating to the issues of native people and divorce law, there is evidence of strategic language. Both coalitions refer to same issues using language that seeks to emphasize aspects related to the political position they represent. In

Panel B: Phrases used mostly by right-wing parties			
<i>two-word phrases</i>			
valores extranjeros	plano regulador	emergencia agricola	caso particular
libertad provisional	independencia judicial	providencias necesarias	<i>senadores institucionales</i>
acusacion constitucional	trabajadores ferrocarril	tareas nacionales	ministros corte
pequenos medianos	modernizacion justicia	países vecinos	banco central
jubilados montepiadas	enriquecimiento ilicito	sector minero	mercado asignador
extranjeros cdv	aumentos capital	reajuste sector	undecima duodecima
mediana minerias	invierno altiplanico	sentido correcto	afan servicio
aguas subterранеas	gente mar	<b>institucion matrimonio</b>	aguas elqui
medianos mineros	<b>padres separados</b>	gasto social	comunidad caribe
corporaciones viales	depositario valores	vida publica	plantas tecnica
<i>three-word phrases</i>			
pequenos medianos mineros	autonomia independencia judicial	<b>matrimonio caracter indisoluble</b>	derechos agua empresas
valores extranjeros cdv	ministros cortes apelaciones	arsenico aguas elqui	programa accion desertificacion
ministros corte suprema	inscripcion valores extranjeros	sociedad fomento fabril	otorgo libertad provisional
depositario valores extranjeros	tomen providencias necesarias	programas proyectos cooperacion	<b>hijos padres divorciados</b>
reajuste sector publico	acusacion constitucional causal	servicio local medido	<b>hijos padres separados</b>
pequeno propietario forestal	facultad derecho universidad	gobernador chacabuco rosende	padre braun hecht
juzgado crimen mar	venta bebidas alcoholicas	dano actual inminente	home marker value
economia social mercado	fisicas hectareas riego	grave dano actual	secreto sumario corte
pequenos medianos productores	hectareas fisicas hectareas	organizacion maritima internacional	libertad provisional persona
duracion mandato presidencial	libertad provisional procesado	causales acusacion constitucional	alfredo lacoste cortes

**Notes:** \* They are considered as parties of center-left a: DC, PPD, PS, PR, while centre-right parties are represented by UDI and RN \*\* Phrases in bold are phrases related to marriage (related to discussion of divorce law) \*\*\* Phrases in italics are related to appointed senators. \*\*\*\* The 40 most representative sentences were chosen for explanatory purposes.

the first case, the right-wing parties seek to emphasize the association between native people and nationality (e.g., *pueblo chileno mapuche*). In contrast, the center-left parties emphasize the concept of native people itself, distancing the discussion from the debate on nationality. In the second case, related to the discussion of the divorce law, one can appreciate the emphasis placed by the right-wing parties on marriage as an indissoluble institution (e.g., *matrimonio caracter indisoluble*); in contrast, center-left parties emphasize the role of this institution within civil laws (e.g., *matrimonio civil*).

## 5.2 Media bias estimation: implicit media bias

Table 3: Estimation of Newspaper Implicit Bias, 1985 - 2000

	Ideology Measure I				Ideology Measure II			
	<u>El Mercurio</u>	<u>La Tercera</u>	<u>La Época</u>	<u>La Nación</u>	<u>El Mercurio</u>	<u>La Tercera</u>	<u>La Época</u>	<u>La Nación</u>
Ideological Bias Estimator	11.68 (3.56)	10.38 (4.07)	-12.17 (10.02)	-5.26 (5.01)	5.50 (2.08)	5.32 (2.30)	-8.53 (5.67)	-2.59 (2.69)
No. of Obs.	155	122	53	102	155	122	53	102

**Notes:** Standard errors are in parenthesis. Party affiliation is used as an ideological measure in the first case (ideology measure I) while ideological measure II is taken from CEP survey, which allow us to rank parties according to how people situate them within the political spectrum. The estimation use 2000 representative bigrams as an input, trigrams are not using for this estimation.

Table 3 shows the estimate of the ideological position of the four major newspapers when reporting their news for the period 1985-2000. *El Mercurio* and *La Tercera* tend to use a language more similar to that used by the right-wing sectors represented in the Chamber of Deputies while *La Época* and *La*

*Nación* tends to use a language similar to that used by center-left deputies. The results are robust to the use of different ideological measures. In terms of magnitude, it is possible to place *El Mercurio* as the newspaper closest to positions to the right of the political spectrum while *La Época* is the newspaper with the greatest inclination to left-wing political positions in the reporting of its news. The estimates in Table 3 are consistent with previous qualitative evidence in the literature that has reported the existence of ideological bias in newspaper reports in Chile.



### 5.3 Media bias estimation: explicit media bias

Table 4: Estimation of Newspaper Explicit bias, 1985 - 2000

	Ideology Measure I				Ideology Measure II			
	<u>El Mercurio</u>	<u>La Tercera</u>	<u>La Época</u>	<u>La Nación</u>	<u>El Mercurio</u>	<u>La Tercera</u>	<u>La Época</u>	<u>La Nación</u>
Ideological Bias Estimator	1.23 (7.40)	-20.03 (21.56)	-3.34 (8.95)	4.39 (9.71)	-2.21 (4.21)	-9.84 (11.50)	-1.51 (5.18)	2.20 (4.98)
No. of Obs.	58	20	52	15	58	20	52	15

**Notes:** Standard errors are in parenthesis. Party affiliation is used as an ideological measure in the first case (ideology measure I) while ideological measure II is taken from CEP survey, which allow us to rank parties according to how people situate them within the political spectrum. The estimation use 2000 representative bigrams as an input, trigrams are not using for this estimation.

Table 4 shows the estimate of the ideological bias of using editorials and letters to the editor instead of news reports. *El Mercurio* and *La Nación* tend to use a language in their opinion content which is more similar to that used by the right-wing sectors represented in the chamber of deputies while *La Época* and *La Tercera* tends to use a language similar to that used by center-left deputies. The results differ from those implicit media bias estimations. However, the sample size in these estimations is small, and consequently, the standard errors are large. Therefore, the results are not statistically significant.

### 5.4 Media Bias estimation with changes in political language

Table 5 shows the estimate of the ideological position of the four main newspapers when reporting their news for the period 1985-2000. Unlike the estimate in Table 3, we now consider the variation year by year in the political discourse in Congress. Then, the estimates consider the main phrases used by deputies for each year instead of considering the entire period. Throughout the period *El Mercurio* and the *La Tercera* consistently show ideological positions closer to the right of the political spectrum. Similarly, *La Época* consistently shows ideological positions close to the left of the political spectrum. Even more interesting is the case of *La Nación*, the government daily, which changes its bias depending on which political party has control of the government. Therefore, results are consistent with the main estimates; however, the sample size in these estimations is small, and consequently, the standard errors are large and the results are not statistically significant.

Table 5: Estimation of Newspaper Implicit bias by year, 1985 - 2000

Ideology measure I				Ideology measure II					
	El Mercurio	La Tercera	La Época	La Nación		El Mercurio	La Tercera	La Época	La Nación
1985	6.14	6.13		-3.17	1985	4.76	4.58		-4.84
	(0.93)	(0.60)		(9.98)		(0.67)	(0.46)		(7.45)
	14	28		3		14	28		3
1986	4.10	2.68		2.75	1986	3.00	2.30		1.42
	(1.21)	(0.98)		(1.65)		(1.02)	(0.73)		(1.48)
	14	30		15		14	30		15
1987	4.30	3.92	4.15	1.40	1987	3.06	3.01	3.34	0.93
	(0.98)	(0.53)	(1.31)	(0.47)		(0.72)	(0.39)	(0.91)	(0.31)
	22	33	14	14		22	33	14	27
1988	4.52	4.60	-0.23	5.17	1988	3.44	3.42	-0.05	3.87
	(0.47)	(0.48)	(0.38)	(0.74)		(0.35)	(0.37)	(0.35)	(0.31)
	21	33	9	24		21	33	9	24
1989	3.27	5.10	0.91	0.91	1989	2.60	3.81	0.99	1.60
	(0.77)	(0.43)	(0.86)	(0.86)		(0.56)	(0.31)	(0.64)	(0.87)
	19	14	13	13		19	14	13	28
1990	0.96	3.43	-0.60	3.12	1990	1.02	2.94	-0.16	2.57
	(1.71)	(1.35)	(1.11)	(0.89)		(1.29)	(1.00)	(0.90)	(0.66)
	18	20	10	23		18	20	10	23
1991	-3.28	3.48	-8.00	1.68	1991	2.21	4.12	0.97	4.23
	(1.33)	(0.61)	(0.00)	(2.37)		(0.30)	(0.15)	(0.00)	(0.60)
	19	32	2	17		19	32	2	17
1992	1.57	10.75	7.59	6.33	1992	1.01	7.17	5.36	4.47
	(1.56)	(7.32)	(2.68)	(0.10)		(0.99)	(4.09)	(1.79)	(0.37)
	15	16	7	5		15	16	7	5
1993	5.00	3.74	9.68	-47.83	1993	3.42	2.81	7.84	-20.43
	(1.40)	(1.76)	(10.98)	(24.22)		(0.97)	(1.09)	(8.79)	(12.93)
	26	18	6	8		26	18	6	8
1994	5.03	4.76	-8.73	-0.87	1994	3.52	3.52	-2.27	0.72
	(0.94)	(2.81)	(25.02)	(1.94)		(0.56)	(1.36)	(11.26)	(0.84)
	47	23	12	12		47	23	12	12
1995	2.18	10.10	-2.09	10.00	1995	2.97	7.08	-1.49	7.77
	(1.57)	(3.00)	(2.58)	(5.77)		(1.22)	(2.37)	(1.83)	(4.35)
	56	24	23	14		56	24	23	14
1996	3.30	17.70	-10.37	0.01	1996	3.95	8.63	-8.08	-1.25
	(1.77)	(13.11)	(8.81)	(9.04)		(0.83)	(5.13)	(3.64)	(5.20)
	69	29	18	19		69	29	18	19
1997	4.94	-0.50	2.72	-2.81	1997	3.81	4.12	8.04	14.98
	(3.13)	(4.96)	(9.47)	(10.76)		(1.55)	(2.32)	(7.97)	(6.36)
	57	23	24	19		57	23	24	19
1998	3.12	4.27	-19.21	-10.20	1998	2.49	3.15	11.62	-9.07
	(1.16)	(0.66)	(48.20)	(3.50)		(0.94)	(0.52)	(34.77)	(3.59)
	82	106	17	13		82	106	17	13
1999	2.93	4.54		6.19	1999	2.07	2.64		3.95
	(1.55)	(5.08)		(4.94)		(1.01)	(2.93)		(3.00)
	45	25		16		45	25		16
2000	5.00	-7.98		6.14	2000	3.80	-4.83		3.78
	(2.07)	(4.61)		(9.59)		(1.40)	(3.28)		(6.70)
	45	11		8		45	11		8

**Notes:** Standard errors are in parenthesis. Party affiliation is used as a ideological measure in the first case (ideology measure I) while ideological measure II is taken from CEP survey, which allow us to rank parties according to how people situate them within the political spectrum. The estimation use 2000 representative bigrams as an input, trigrams are not using for this estimation.

## 5.5 Competition and media bias: entry and exit effects

Table 6: Estimation of newspaper implicit bias: entry/exists effects on media bias, 1985-2000

Ideology measure I					Ideology measure II				
	El Mercurio	La Tercera	La Época	La Nación		El Mercurio	La Tercera	La Época	La Nación
<b>1985 - 1987</b>	4.37 (0.46) 42	3.84 (0.38) 71		4.07 (0.73) 29	<b>1985 - 1987</b>	3.27 (0.34) 42	2.95 (0.28) 71		3.24 (0.52) 29
<b>1988 - 1997</b>	5.98 (1.46) 162	-5.68 (4.90) 84	-53.87 (16.24) 54	8.76 (2.23) 128	<b>1988 - 1997</b>	2.79 (0.89) 162	-5.26 (2.73) 84	-30.19 (7.02) 54	3.17 (1.28) 128
<b>1998 - 2000</b>	9.66 (3.72) 45	-6.75 (4.47) 58		-34.19 (7.05) 18	<b>1998 - 2000</b>	8.42 (2.98) 45	-4.16 (3.78) 58		-28.44 (5.39) 18

**Notes:** Standard errors are in parenthesis. Party affiliation is used as an ideological measure in the first case (ideology measure I) while ideological measure II is taken from CEP survey. which allows us to rank parties according to how people situate them within the political spectrum. The estimation uses 2000 representative bigrams as an input, trigrams are not used for this estimation.

The relationship between the degree of competition within the market and media bias is not univocal. Model predictions change according to the source of the bias. For instance, in a framework of supply-driven bias if viewers always and only value full accuracy in news reports in a competitive media market bias should fade away. The opposite is true in the context of demand-driven bias. In this setting, when consumers themselves demand bias, competition may lead to more extreme bias.

In this context, Table 6 estimates the ideological bias of the main newspapers before and after the entry/exit of the newspaper *La Época* to understand the effects of competition on media bias. Therefore, the estimation is made separately for three periods: before the entry of the newspaper (1985-1987), during its circulation (1988-1997), and after its exit from the market (1998-2000).

Before the entry of *La Época*, all major newspapers show an ideological position closer to the right of the political spectrum. As it enters circulation the positions of the other newspapers are modified. *El Mercurio* tends to extremes in its positions, situating itself more on the right of the political spectrum along with *La Nación*. On the other hand, *La Época* and the *La Tercera* show ideological positions closer to the left. A particular case is *La Tercera*, a newspaper that moves between different ideological positions. The results are maintained once the circulation of *La Época* ends. Table 6 is therefore consistent with the hypothesis that competition in the media tends to lead to extremes in the ideological positions of newspapers in line with the predictions of the demand-driven bias models.

## 5.6 Newspaper bias during a political transition period

Table 7: Estimation of newspaper implicit bias during a political transition period, 1985-2000

Ideology measure I					Ideology measure II				
	El Mercurio	La Tercera	La Época	La Nación		El Mercurio	La Tercera	La Época	La Nación
<b>1985 - 1990</b>	2.84 (0.33) 74	3.81 (0.30) 109	1.08 (0.51) 32	2.51 (0.39) 86	<b>1985 - 1990</b>	2.22 (0.24) 74	2.98 (0.22) 109	1.28 (0.40) 32	2.01 (0.29) 86
<b>1991 - 2000</b>	5.21 (2.06) 181	20.70 (5.35) 104	-3.62 (13.89) 34	-5.33 (6.54) 58	<b>1991 - 2000</b>	3.36 (1.10) 181	9.98 (3.03) 104	-0.53 (7.72) 34	-2.89 (3.63) 58

**Notes:** Standard errors are in parenthesis. Party affiliation is used as an ideological measure in the first case (ideology measure I) while ideological measure II is taken from CEP survey, which allows us to rank parties according to how people situate them within the political spectrum. The estimation uses 2000 representative bigrams as an input; trigrams are not used for this estimation for simplicity.

A relevant feature of the period we are considering is the political transition from a dictatorial to a democratic regime. In this context, Table 7 estimates the ideological position of the periods before and after this political transition to understand the effects of a political transition on media bias. In this sense, the estimation is made separately for two periods: dictatorship (1985-1990) and democratic transition (1991-2000).

During the period of dictatorship, all media outlets tend to have ideological positions closer to the right of the political spectrum. However, this bias evolves from a highly concentrated rightward bias during the dictatorship years to a more pluralistic environment during the transition period. An interesting result emerges from *La Nación*, the government daily, which one changes its bias depending on which political party has control of the government. Table 7 is therefore consistent with the previous findings of the relationship between political capture and media bias.

## 6 What are the welfare effects of media bias?

The results of this article suggest the existence of an ideologically biased media market in Chile during the 1990s. In the literature, this type of environment is called balanced environment. Unlike an unbiased environment, where voters are informed by a news outlet that shares their policy preference, in balanced environments voters receive news reports from two or more biased media outlets, ideologically located to the right and the left of the voter. Consequently, the voter is exposed to

diverse viewpoints (Wolton, 2017).

This article also shows evidence of a systematic bias to the right of the main newspapers during the dictatorship period. This media environment is called right-wing biased environment in the literature. In this context, voter information comes from a single right-wing. In this setting, an important question emerges: what are the consequences of media bias on welfare in a context of balanced and right-wing biased environments? Even though there is no direct empirical evidence of the effect of media bias on policy and welfare, three theoretical insights about this relation will be discussed according to the main results of this article.

The first insight is related to the information content of media. The benchmark for evaluating it is the Blackwell (1951) ordering.<sup>33</sup> In the case of distortion bias, a truthful reporting strategy is weakly more informative – in the Blackwell sense – than any biased strategy, and so consumers cannot be better off seeing a biased report.<sup>34</sup> In this sense, information matters, and society will be better off with more informative signals. According to this argument, biased media outlets therefore tend to reduce voters' welfare since they provide less information (Bernhardt et al., 2008).

However, more biased media is not always less informative for all consumers. For instance, Chan and Suen (2008) study the effects of newspapers' ideological stands, such as endorsements and policy recommendations. In their model, profit-maximizing newspapers first select ideological positions. This shows that a more biased (less centrist) media is not less informative to all consumers. A partisan reader gets more decision-relevant information from a newspaper with the same partisan bias. On the other hand, Duggan and Martinelli (2011) study issue bias and find that pro-incumbent media should cover issues when there is less uncertainty, whereas a media outlet favoring the challenger should cover issues when there is much uncertainty to gamble for resurrection. If mass media give each issue equal coverage, it may be worse for voters than would be partisan media. Therefore, the *balanced environment* observed in Chile during the 1990s is not necessary less informative for consumers according to these facts.

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<sup>33</sup>A reporting strategy  $\sigma$  is Blackwell more informative than  $\sigma'$  if  $\sigma'$  can be produced by combining  $\sigma$  with random noise.

<sup>34</sup>This statement is not possible in the case of filtering bias where two reporting strategies are not typically ordered by Blackwell informativeness.

The second one is related to the link between information, media bias, and consumer behavior. If media can influence the desired consumer behavior, irrespective of whether media is biased or not, it could be used as a tool of political control.<sup>35</sup> Moreover, if there is some degree of implicit media bias, a media outlet can influence citizens -especially, the less informed and vulnerable ones- without social control or transparency. This argument is related to the role of mass media on political accountability.

However, and perhaps surprisingly, biased news may also improve political accountability. The reason is that not all forms of bias destroy information. A media outlet can express a bias by being selective in which issues it covers (issue bias), which facts of the issues it includes or excludes (facts bias), and how it is commented (ideological stand bias). Distortion of facts reduces information. Conversely, the ideological stands of a right-wing newspaper may be more informative to a right-wing reader than those of a centrist newspaper. Similarly, information about issues that feature prominently in left-wing newspapers may be more relevant and valuable to left-wing consumers (Strömberg, 2015).

Nevertheless, our results suggest a systematic bias to the right of the main newspapers during the dictatorship period. In this setting, political accountability is affected by a lack of pluralism with consequences for consumer welfare. However, our results show that media bias evolves from a highly concentrated rightward bias to a more pluralistic environment during the transition period. Therefore, the political accountability made by the media improves due to the transition from a *right-wing biased environment* to a *balanced environment* despite the existence of ideologically biased media.

Finally, political information may have important externalities beyond the direct effect of private consumer welfare. For instance, Bernhardt et al. (2008) study the political effects of demand-driven facts bias. They assume that left-wing readers get more utility when they read positive news about left-wing candidates and negative news about right-wing candidates, and conversely for right-wing voters. Consequently, left-wing media do not publish negative facts about left-wing politicians. The

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<sup>35</sup>This idea is not far away from reality. Several countries around the world do not have a free press and there are some cases where media capture (from specific groups or even government) is the rule rather than the exception.

readers understand that this coverage is missing and expect the left-wing candidates to be as corrupt as the average politician. A left-wing politician who is more corrupt than the average may become elected, although he or she would not have been so if full information were provided. In this case, media bias could be valuable in a private sense - consumers enjoy the good news about of their candidates - but harmful for the society - the entire society finally choose a corrupt politician-. Our results are consistent with this evidence.

Similarly, [Wolton \(2017\)](#) shows that the voter is always less informed by biased news providers (whether the environment is balanced or not) than with an unbiased outlet. However, taking into account equilibrium effects, he finds that the voter is better off with two (or even one) biased news providers than with an unbiased outlet. In particular, his analysis reveals that an unbiased news provider is good for political selection, but bad for control of politicians' behavior, whereas the reverse holds for biased outlets. Therefore, bias it is not necessarily bad for democracy. Because of officeholders' strategic responses, a biased or balanced media environment can yield higher voter welfare than an unbiased environment.

## 7 Conclusion

The literature teaches that news outlets are politically biased and this has effects on economic and political outcomes ([Puglisi and Snyder Jr, 2015](#)). In this context, this article is a contribution the national literature, which has previously reported, with qualitative evidence, the existence of ideological bias in newspapers in Chile. The main contribution lies in the way in which we measure ideological bias through an estimation that allows newspapers to be compared with each other in a reproducible way, minimizing subjective criteria on the part of the researcher. Our secondary contribution relates to the historical context in which we measure ideological bias. This measurement is framed in a highly polarized political context for a lower-middle-income country by the standards of the time. Focusing on this context allows us to determine how to generalize the results found in the literature outside developing countries.

In this context, this paper estimates the ideological position of the four main national newspapers

of the period 1985–2000 – *El Mercurio*, *La Tercera*, *La Época* y *la Nación* – using a novel data set. The results confirm findings from the previous literature: there is a substantial ideological bias in the main media outlets based on ideological positions. *El Mercurio* and *La Tercera* tend to use language more similar to that used by the right-wing sectors represented in Congress, while *La Época* tends to use a language similar to that used by center-left congresspeople. On the other hand, *La Nación*, the government daily, changes its bias depending on who has control of the government.

Also, the results suggest a systematic bias to the right of the main newspapers during the dictatorship period. However, this bias evolves from a highly concentrated rightward bias to a more pluralistic environment during the transition period. According to the literature, this transition probably had positive effects on political accountability and then positive welfare effects. Even more interesting is the fact that a balanced environment in ideological terms, such as that observed in the 1990s in Chile, was not necessarily detrimental in terms of social welfare, despite the existence of media bias.



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# Appendix

## A Data sources of Newspapers Searches

The main empirical fact emerging from this article is the systematic implicit media bias of newspapers reporting during the 1990s. As we show in Table 3, *El Mercurio* and *La Tercera* tend to use a language more similar to that used by the right-wing sectors represented in Congress, while *La Época* tends to use a language similar to that used by the center-left congresspeople while *La Nación*, the government daily, changes its bias depending on which political party has control of the government. To establish this relationship, one needs to know the news report for each newspaper. In this appendix, we explain how we obtained information about the news reporting of these media outlets.

To capture the data, we proceeded along four steps. First, we randomly selected two days for each year of the period analyzed. The first day was selected in March, while the second day was selected during September. We selected these days without restrictions. Second, four research assistants scanned the newspapers for the selected days from the archives of the National Library and the Universidad Diego Portales. For example, Figure 1 shows a news item that was scanned from the national political news section of the newspaper *La Época* on March 23, 1993.

Third, we selected the news from the national policy section for each of these newspapers. Pages with editorial content and letters to the editor were also selected. Fourth, all content from these sections was automatically extracted using the Acrobat XI text recognition package. Figure 2 shows the result of the automatic extraction of the text of the news item. Errors derived from the quality of the original document are observed. These errors were corrected by research assistants to minimize them.

In this way, we obtained the national news reports and opinion content for each of the four main national newspapers that make up this research in a format that allows us to make the main estimates.



Figure 1: Extract of news from the national political section. *La Época*, March 23, 1993.

La directiva central del Partido Socialdemocrata resolvió ayer apoyar la candidatura presidencial del senador Eduardo Frei Ruiz, Tagle, reconociendo en él la figura más apropiada para encabezar a la Concertación en el próximo proceso electoral de diciembre.

La Socialdemocracia reitera su convencimiento más profundo de que es necesario mantener la unidad de la coalición, de la cual forma parte, para continuar cumpliendo las tareas que piden al pueblo chileno lograr un desarrollo socio-económico más justo y perfeccionar la institucionalidad vigente, hasta lograr su plena democratización.

Finalmente la Socialdemocracia insiste públicamente ante sus pares de la Concertación en la necesidad de lograr la designación del candidato único a la Presidencia de la República y conformar una lista parlamentaria que asegure concretar en el futuro Congresos las tareas señaladas.

Figure 2: Example of Automatic Text Extraction.

## B Selection Phrases from Congressional Record

Appendix B describes how the text data were assembled and used to construct our measure of ideological political language. The raw text Chamber of Deputies was obtained from its website ([www.camara.cl](http://www.camara.cl)). A script reads through the text, detects dates and speakers, and segments speeches for each member. Next, we remove capitalization and punctuation, and tokenize the text into sentences and words. We also restrict ourselves to collecting the roots where possible. Therefore, our initial data set contains information on all the interventions of the deputy  $i$  in year  $t$ . Data were stored and analyzed as a relational database. The segmentation and processing of text are implemented using the R Natural Language Toolkit package. Our statistical estimates were produced using Stata.

We have developed a relatively aggressive list of words for exclusion from the corpus. We remove stop words such as “*como*”, “*donde*”, “*en*”, “*cuando*” among others. We also exclude familiar words in congress speeches as a “*Señor presidente*” or “*he dicho*” and we also removed other non-policy words as weekdays (e.g., “*lunes*”) and the name of Chilean regions (e.g., “*Arica*”, “*Atacama*” among others). Finally, a script produces counts by the speaker of two- and three- word (bigrams and trigrams) phrases in the deputies’ record.

After these filters, our sample of phrases is enormous. Therefore we begin limiting our sample to the 2000 most polarized phrases including bigrams and trigrams. Following [Gentzkow and Shapiro \(2010\)](#), we order the phrases using Pearson’s chi-squared statistic. For the main estimates, we only use bigrams for simplicity. The full phrase feature set for our empirical analysis is available on request from the authors.