# Media Ownership as Political Investment: The Case of *Israel Hayom*<sup>\*</sup>

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#### Abstract

Can the ultra-rich shape electoral results by controlling media outlets that openly propagate their political interests? How consumers discount slanted media coverage is a question gaining urgency as a growing number of billionaires mix ownership of major media outlets with business interests and political agendas. We study this question in the context of Israel, where billionaire Sheldon Adelson launched in 2007 *Israel Hayom*, a right-leaning newspaper. Handed out for free, it soon became the most widely read newspaper nationally. Utilizing local media exposure data since the launch, our analysis indicates that the newspaper exerted significant electoral influence, primarily benefiting Netanyahu and his Likud party. This shift helped bring about a sea-change in the right's dominance of national politics. Our results highlight the immense impact the ultra-rich can exert in shaping politics through media ownership.

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## 1 Introduction

Political equality is continuously challenged by the influence of money on politics. Rising economic inequality, together with the increased reliance of political campaigns on unprecedented levels of private contributions (Bonica et al., 2013), have meant that the rich exert far greater political influence than citizens with lesser means. This is evidenced, for example, by the close alignment between the policy preferences of higher income citizens and the policies politicians choose to advance (Gilens, 2012), and a "revolving door" between public service and the lobbying industry, which ensures that interests of the affluent are well represented among government officials (Blanes i Vidal, Draca and Fons-Rosen, 2012).

One insufficiently discussed route by which the super-rich can obtain outsized political clout is through ownership of media outlets. This allows owners to influence the content reported by the outlets they control and possibly affect both public opinion and voting in a way that advances their ideological or partisan preferences. Control over news content, in turn, provides owners with a valuable asset from which politicians seek to benefit.

In certain cases, as with Rupert Murdoch—owner of numerous media outlets, including Fox News, Wall Street Journal, and various British tabloids—media control has generated not only immense profits, but also exceptional political access and influence (Wolff, 2008). In other instances, as in Turkey and Hungary, wealthy businessmen with close ties to the government acquired existing media outlets at the strong behest of the leadership—Erdoğan and Orbàn, respectively—who sought to use those outlets to promulgate their political message.<sup>1</sup> And yet in other cases, such as Berlusconi in Italy and Blocher in Switzerland, business tycoons have leveraged their ownership of media outlets to advance their *own* political ambitions and seek elected office (Durante, Pinotti and Tesei, 2019; Spirig, 2019).

When media outlets are used to advance the owners' political agenda, a natural worry is that the news media does not fill one of its crucial roles in a democracy, namely helping ensure that politicians are held accountable for their actions and performance. Rather than holding power accountable, the concern is that media outlets become 'lapdogs rather than watchdogs', i.e., biased

<sup>&</sup>lt;sup>1</sup>On the country-specific cases cited above, see "Orbàn and His Allies Cement Control of Hungary's News Media", New York Times, 11/29/2018; "Media Ownership Monitor: Turkey" https://turkey.mom-rsf.org/.

news providers that serve primarily as a vehicle for promoting the partisan and ideological agenda of their owners.

Yet such concerns might be overblown. Seminal political economy models suggest that under private media ownership, consumers' ideology could be sufficiently strong to ensure that owners' profit motive will dominate the motive to influence the electorate (Prat and Strömberg, 2013).<sup>2</sup> Importantly, this prediction rests on three key assumptions. First, that owners of news media outlets prioritize profit-making. Second, that news media markets are competitive.<sup>3</sup> Third, that consumers are able to detect the slant of the news and have a preference for news outlets that are congruent with their own worldview (Gentzkow, Shapiro and Sinkinson, 2014). When these assumptions are met, consumers are expected to respond to ideological control of one outlet by increasing consumption of other outlets that are either of greater quality (Besley and Prat, 2006) or more in line with their own ideology (Durante and Knight, 2012). As such, media outlets with a widely-known slant should have only limited political influence. A positive correlation between media slant and voting preference is, by this view, largely demand-driven, i.e., dictated by the selection of consumers into readership (or viewership) of news outlets that have a slant congruent with their own (Gentzkow, Shapiro and Sinkinson, 2011).

However, there are several reasons—pertaining to owners, markets and consumers—why slanted media may nonetheless influence their consumers' voting behavior, even in advanced democracies.<sup>4</sup> First, growing evidence suggests that some owners prioritize political influence over profitmaking (Martin and Yurukoglu, 2017). This is important because the less owners care about profit, the less they need their media outlet to cater to the preferred slant of the median consumer. Instead, they can try to attract non-congruent consumers by increasing the value proposition their media outlet offers, either by increasing its quality and availability and/or by reducing its price.<sup>5</sup>

<sup>&</sup>lt;sup>2</sup>Increased media competition likely reduces ideological bias (Gentzkow and Shapiro, 2006), but also overall quality (Cagé, n.d.).

<sup>&</sup>lt;sup>3</sup>Competitiveness means that consumers face a sizable menu of options, which allows them to choose a news outlet based not only on its ideological slant, but also on its quality and price. In truly competitive markets, for a given combination of quality and price, profit-driven owners can only pursue customers by distinguishing themselves on the political slant margin.

<sup>&</sup>lt;sup>4</sup>See DellaVigna et al. (2014) and Puglisi and Snyder Jr (2016) for useful reviews.

<sup>&</sup>lt;sup>5</sup>Even if media owners are exclusively influence-driven, they can increase the outlet's slant only to a certain point,

Second, media markets are not perfectly elastic; consumers adjust slowly to changes in the slant of the media they consume (Martin and McCrain, 2019). In addition, news markets in many countries offer a relatively limited set of options, even in the digital era (Noam, 2016). Taken together, the implication of these points is that the more media owners care about influencing the electorate and the more concentrated the news market, the more citizens will consume news from media outlets that are distinct from their ideological ideal point.

Under these conditions, the impact of owner-driven slant on political outcomes crucially depends on whether consumers can adequately discount political slant in the information provided by the media outlet they regularly consume. Yet there are good reasons to believe that they cannot adequately discount, and are therefore persuadable. For example, evidence indicates that many consumers underestimate the slant in media content (Eyster and Rabin, 2010), and fail to account for repetition in the information they receive (DeMarzo, Vayanos and Zwiebel, 2003). Inadequate discounting may be particularly prevalent when at least part of the media's reporting is deemed informative (Gehlbach and Sonin, 2014).

Notably, slanted media can influence voter behavior even if it does not alter consumers' beliefs; for example, it may increase turnout of ideologically-congruent consumers by reinforcing existing political attitudes, without changing them (Hopkins and Ladd, 2014). Indeed, the more information is aligned with one's priors, the less likely the discounting of biased information (Taber and Lodge, 2006).<sup>6</sup> Whether media outlets with a widely-known ideological slant shape public opinion and ultimately electoral outcomes is, therefore, an empirical question.

Empirical studies of slanted media effects offer mixed findings. Some studies of media influence, primarily in authoritarian regimes and weakly institutionalized quasi-democracies, find evidence that biased reporting does indeed affect voter behavior (Adena et al., 2015; DellaVigna et al., 2014; Enikolopov, Petrova and Zhuravskaya, 2011; Peisakhin and Rozenas, 2018). Yet media effect is less clear-cut in established democracies characterized by relatively competitive and independent media markets, stable party systems, and political parties with relatively known ideological platforms. While some studies find evidence of large slanted media effects on voter behavior (Barone, D'Acunto

beyond which those who could (potentially) be influenced stop consuming their outlet.

<sup>&</sup>lt;sup>6</sup>Closely related, having access to media outlets that contradict their prior beliefs may discourage them from participating in elections, particularly when exposed to negative messaging.

and Narciso, 2015; Gerber, Karlan and Bergan, 2009), other studies find moderate (Martin and Yurukoglu, 2017), small (DellaVigna and Kaplan, 2007), or null effects (Gentzkow, Shapiro and Sinkinson, 2011; Hainmueller, 2012; Spirig, 2019). In sum, the question of whether and how *owner supply-based changes* of the media affect voter behavior in mature democracies over the long-haul, is still a matter of debate (Puglisi and Snyder Jr, 2016). In this paper, we seek to make theoretical and empirical contributions to this debate.

Our study focuses on the case of *Israel Hayom* (henceforth I-H), an Israeli daily newspaper owned by Sheldon Adelson, an American billionaire and casino-mogul who is also one of the largest donors to the Republican Party. Adelson, at the encouragement of then opposition leader Benjamin Netanyahu, launched the newspaper in 2007 in order to "balance" an alleged liberal media landscape. The newspaper was to be handed out for free,<sup>7</sup> with the management proclaiming that over time, a large readership will allow it to make a profit from advertising (in fact, I-H loses about \$27 million a year).<sup>8</sup> Despite accusations by critics that I-H is systematically biased to the right and is dedicated to promoting Netanyahu's political agenda, within only four years of circulation it became the most widely read newspaper nationally. Our analysis aims to evaluate the effect that the rise of I-H has had on voting behavior in Israel and on Netanyahu's success in gaining and staying in power for over a decade.

We first analyze the text of hundreds of *Israel Hayom* issues, and compare them to the content published in *Yediot*—Israel's most mainstream (i.e., secular, centrist) newspaper—over this time period. We find that I-H's right-wing slant manifested itself not only in more right-leaning coverage of the same news items (framing bias), but also in the news domains it chose to cover (issue bias), and in the use of visuals (e.g., choice of front page pictures) that were more favorable to the right, and specifically to Netanyahu and the Likud party.

We then utilize data on locality-level exposure rates to I-H over an 8-year period (and 3 election cycles) and find a strong positive relationship between higher rates of readership and increased support for the right bloc. Consistent with our automated text analysis, the Likud is the main

<sup>&</sup>lt;sup>7</sup>This business model is not unique to I-H. In a wide array of countries, free papers have fairly sizable readerships estimated in 2016 at 2.57 million (France), 2.3 million (UK), or 1.15 million (Austria) (*World Data Trends 2016*).

<sup>&</sup>lt;sup>8</sup>Uri Blau, "Adelson's pro-Netanyahu Free Daily Newspaper Lost \$190 Million in Seven Years," *Haaretz*, January 10th, 2017.

beneficiary. We use a set of empirical approaches—two-way fixed effects and difference-in-difference estimation in levels, as well as an instrumental variable estimation that alleviates concerns of reverse causality. Our instrumental variable exploits exposure rates to *Yediot*, in the period just prior to I-H's launch. We show that before the launch, *Yediot* readership had zero correlation with voting to the right bloc in four separate elections. However, after the launch, *Yediot* readership strongly predicts subsequent I-H exposure and positively correlates—using reduced form regressions—with voting for the right bloc. This change to took place even though, as we demonstrate, *Yediot* did not shift its coverage rightward.

While our three empirical approaches produce comparable findings, we place a higher weight on the IV estimates: a one standard deviation increase in the instrument's value is associated with about a 1.5% increase in right bloc vote share in each of three post-2007 elections: 2009, 2013 and 2015. This is a substantively meaningful effect in the Israeli context, where elections are often decided on narrow margins. When comparing localities at the 25th percentile of exposure to the newspaper to localities at the 75th percentile, we find that the latter's voting for right-bloc parties was 2.1 percentage points higher. As these estimates are based on the localized effects of I-H, they likely reflect a lower-bound of the newspaper's overall national impact.

The shift in vote we observe was not a result of I-H mobilizing new voters, as we find that exposure to I-H had no effect on turnout. Instead, the evidence indicates that the effect came about primarily by a rightward shift in localities with a more ideologically balanced electorate (i.e., not in localities with a strong dominance of either left or right). Analysis of individual-level data suggests that this shift was likely due to the effect of I-H's coverage on its readers' views on security issues and Netanyahu's qualities as a leader.

Our findings contribute to the existing literature in several ways. First, they speak to the debate regarding the sources and impact of media slant (Puglisi and Snyder Jr, 2016); specifically, whether media bias reflects the preferences of the consumers (demand-side) or the ideology of owners (supply-side). While influential political economy models that downplay supply-driven slant generally assume that owners prioritize profit, our study indicates that owner-driven media slant can be widely known, yet still electorally influential, when media owners are sufficiently wealthy and politically motivated.

Second, the findings have implications for the regulation of media markets. If consumers'

political behavior changes with exposure to biased media, then policymakers cannot treat news media as a 'regular' consumer good. Instead, regulators should pay attention to the prospect of interested individuals (including non-citizens) exerting outsized political influence by obtaining control of media outlets—sometimes at the urging of connected politicians—thereby bypassing campaign finance laws.

This concern is of growing urgency, given the trend of ultra-rich individuals buying control of major news outlets.<sup>9</sup> Some have celebrated these investors as potential saviors of the struggling print media (by funding larger newsrooms and investing in new technologies to broaden the customer base), but our study suggests that these investments provide the owners with powerful tools that can be used to influence public discourse and sway the behavior of persuadable voters.

Finally, our results contribute to the study of politics in Israel. While left and right used to be evenly balanced rival camps in the 1980s and 1990s, the right has gained unprecedented dominance in recent years, with Netanyahu's premiership spanning over a decade, making him the longest serving Israeli prime minister. There are a multitude of reasons for this rightward shift (Manekin, Grossman and Mitts, 2019), but our study points to an important and heretofore understudied factor: the successful launch of *Israel Hayom*. Given that the newspaper's foreign owner seems intent on maintaining its operation despite its loss-generating business model, the influence of this outlet deserves a rigorous examination.

## 2 Background and Context

Over the past decade, few issues in Israeli politics have been as contested as the entry and rapid rise of the daily *Israel Hayom* (which translates to Israel Today). Its dramatic success, and subsequent political significance, have come after decades in which the Israeli printed newspaper market was dominated by a single daily, *Yediot Ahronot* ('Latest News'). '*Yediot*', as the newspaper is commonly referred, as well as its weaker competitor *Maariv*, cater to a Jewish and relatively secular read-

<sup>&</sup>lt;sup>9</sup>David Gelles, "Billionaires Can Seem Like Saviors to Media Companies, but They Come With Risks," *New York Times*, October 19, 2018.

ership that is broadly regarded as the political mainstream.<sup>10</sup> In addition, several low-circulation newspapers operate beside them and cater to narrower political constituencies.

Against this backdrop, Sheldon Adelson launched I-H in July 2007. The long-standing relationship between conservative Adelson and Benjamin Netanyahu, then opposition leader and former prime minister, alarmed the latter's opponents. They worried that the new daily would be used as a vehicle for Netanyahu to broaden his and the Likud party's public appeal as well as that of the right-wing bloc, more generally.

The incoming editorial team described I-H as a "patriotic newspaper." Denying that the daily was a Likud pamphlet, incoming editor Amos Regev announced that I-H "has only one agenda: to tell the truth." Nonetheless, the newspaper's coverage was widely panned as being tilted toward the right and specifically, as catering to Netanyahu's personal, partisan and ideological agendas.

Key to the marketing strategy of I-H was its decision to hand out the daily newspaper at no cost.<sup>11</sup> Little was said about its business model, but the public line pronounced by the editor of I-H was that over time, as the newspaper grew in market share, it would become profitable through advertising revenue. Starting with an initial distribution of 250,000 copies, I-H quickly caught the public's attention, in part because of the very visible presence of its "army" of delivery personnel, dressed with red overalls, handing out the free newspaper in shopping malls, large intersections and bus and train stations.

With the rise in I-H circulation—by the end of 2008 I-H had reached 20% national exposure (Figure 1), surpassing *Maariv* as the second most read newspaper in the country—other newspaper outlets soon called foul. Specifically, I-H was accused of violating Israel's anti-trust legislation and the country's campaign finance laws. Nonetheless, and owing much to the support of the Israeli political Right, the newspaper continued to operate without disruption and to grow in circulation. Soon it began widening its geographical spread to cover new towns and locales further out from its initial delivery routes. By late 2010, I-H had equaled the market exposure rate of the long-dominant *Yediot*, and has since established itself as the most widely read newspaper in the country. By 2015, the last year in our dataset, it boasted an impressive 40 percent exposure rate.

 $<sup>^{10}</sup>$ The market share of *Yediot Ahronot* and *Maariv* in the first half of 2007, just prior to *Israel Hayom's* launch was 40% and 18%, respectively.

<sup>&</sup>lt;sup>11</sup>To be clear, the format of I-H is comparable to standard newspapers such as its competitors *Yediot* and *Maariv*.



Figure 1: Israel Hayom Readership Over Time

*Note:* Figure provides information on the share of Jewish adult population that reads *Israel Hayom*, at least several times a week overtime. Readership information is self-reported and is based on surveys of representative samples conducted twice yearly. Red line represents *lowess* fit, weighted by media markets' (our unit of observation) population (in 1,000). Source: Kantar Media.

Importantly, I-H's emphasis on a format with a mainstream appeal and relatively high quality content, combined with its freebie business model, allowed it to reach a vast and *ideologically diverse* audience. As Figure 2 shows, readership of I-H is, as expected, highest among right-leaning voters: 77% of respondents on the right report reading the newspaper at least once or twice a week, while 41% report reading it more frequently. Among centrist voters, 70% report reading I-H at least once a week, and 33% multiple times a week. Consistent with our theoretical framework, even left-leaning individuals frequently read the newspaper: 55% of left-leaning voters read the newspaper at least once a week, and 19%, read it at least several times a week. In sum, many Israelis who are not already supporters of the right bloc are routinely exposed to *Israel Hayom*.

Since its inception, I-H was criticized for exhibiting a right-wing bias, and for parroting the Likud's talking points. Indeed, evidence suggests that Netanyahu's office frequently advised the newspaper's chief editor in selecting the front-page headlines and images.<sup>12</sup>

<sup>&</sup>lt;sup>12</sup>A Freedom of Information appeal forced Netanyahu to make public his log of calls with both I-H's owner and chief editor. Between 2012-2015, Netanyahu spoke an average 0.75 and 1.5 times a week with the two, respectively. Prior to the 2013 election, Netanyahu and I-H's editor spoke 15 times in 19 days. Many of these calls were in the hour before the next day's front-page headlines were finalized. See: https://bit.ly/2TCWy1t.



Figure 2: Consumers' Ideology and Israel Hayom Readership

Our Ideology measure is based on a seven-points self-identification right-left scale that has been collapsed into 3 categories: Right (1-3); Center (4), and Left (5-7 on the scale). *Israel Hayom* readership is measured on a four-point scale. **Source**: Authors' original survey in 2016 with a national representative sample (N=2438).

The importance of I-H to Netanyahu was made evident when he decided in December 2014 to disperse the Knesset and call for a snap election, two years ahead of schedule. This unprecedented act was taken as a means to undermine a legislative move that, had it passed, would have severely harmed I-H. In particular, the proposed legislation required all nation-wide newspapers to charge a minimum fee, thus undermining I-H's marketing model.<sup>13</sup> Netanyahu emerged victorious from the March 2015 elections, with the Likud garnering 30 (out of 120) seats in parliament and the right bloc forming a robust coalition. After his re-election, Netanyahu forced all parties joining his coalition to commit to only support media-related legislation that the Communications Minister sponsors. Tellingly, Netanyahu appointed himself to serve (also) as the Communications Minister and killed the bill.

<sup>&</sup>lt;sup>13</sup>The legislation stipulated that newspapers will be required to charge at least 75% of the price of the cheapest newspaper among the four newspapers with the largest circulation. Netanyahu's phone call logs reveal that in the evening after the vote, Netanyahu spoke with I-H's owner three times. See: https://bit.ly/2VZYWku

A final twist in the tale came to light in January 2017. As part of a police investigation on an unrelated matter, the police uncovered recordings from meetings held before the 2015 elections, in which Netanyahu is heard discussing with Arnon Mozes, the owner and Managing Editor of *Yediot Ahronot*, a possible deal: Prime Minister Netanyahu would dissuade I-H from publishing a special weekend edition, a particularly lucrative source of revenue. In return, Mozes promised to provide Netanyahu with supportive coverage, and vowed to "ensure that you remain prime minister."<sup>14</sup> These conversations form the basis of Natanayhu's recent bribery indictment.

Whether the printed media has the power to influence electoral outcomes as Mozes suggested, even in the age of Internet and Cable news, is an open question with broad implications. To begin addressing the question, we first explore right-wing bias in *Israel Hayom's* reporting, before examining whether such reporting had influenced voting behavior in Israel.

## 3 Israel Hayom's Political Coverage

To what extent was I-H's news coverage tilted to the right and how strongly did it favor Netanyahu and the Likud bias? Political bias can take a number of forms. A news outlet can be selective in what it covers (*issue bias*), what aspects of the issues it chooses to include (*facts bias*), and how facts are presented (*framing bias*). The news coverage of I-H is commonly described as slanted in favor of the right, yet these assertions are typically impressionistic and anecdotal.

In this section, we quantify the ideological slant of I-H in several ways. The analysis shows the newspaper is more right-leaning than its main centrist competitor, and that such slant is increasing over time. We show that I-H's right-wing slant takes various dimensions: issue, facts and framing biases are all present and prominent. This makes it much harder for consumers—even those who are aware of its political agenda—to fully discount its slant. The section is technically detailed and goes through the different tests we conduct to quantify I-H's slant. Readers less technically inclined can skip to the next section, where we begin to assess how exposure to I-H's coverage affected voting behavior.

To quantify I-H's slant, we conducted an automated text analysis of the newspaper since the day of its inception, and compared it to the coverage of *Yediot*, commonly regarded as the most

<sup>&</sup>lt;sup>14</sup>"Media Mogul Told Netanyahu: We'll Make Sure You Remain Prime Minister", *Haaretz*, January 14, 2017.

centrist mainstream media outlet in Israel. This comparison allows us to assess not only differences in coverage, but also whether those differences varied over time.

To carry out this analysis we downloaded all 2,339 issues from I-H's archive starting from the first issue (July 30, 2007) up until the end of  $2015.^{15}$  We also downloaded one randomly-selected issue per week of *Yediot* between July 4, 2007 and December 28, 2016 – which resulted in 444 issues. In section **B** of the SI, we describe our text preprocessing steps.

To identify right-wing language, we used political party platforms from 2003 to 2013. We draw on those platforms to generate a vocabulary that represents political issues on a left-right ideological space. For this purpose, we use all available platforms of right- and left-parties. We exclude centrist parties to allow for an easier detection of ideological content.<sup>16</sup> Following Gentzkow and Shapiro (2010), we measured right-wing slant in *Israel Hayom* and *Yediot* by comparing the usage of phrases in these newspapers with their frequency in political party platforms.

First, using Gentzkow and Shapiro (2010)  $\chi^2$  statistic, we identified the most partial phrases: those that are most likely to appear in party platforms on the left and right. Reassuringly, right-wing phrases that received high partial partial scores generally refer to issues commonly associated with right-wing ideology, such as the Jewish nature of the state of Israel and law and order. Left-wing phrases that received a high score relate to a more diverse set of policy issues, such as education, human rights, inequality, and the environment.<sup>17</sup>

Second, we mapped each phrase to a measure of ideology that is derived from its frequency in party platforms. The idea is to scale partial phrases, such that phrases appearing more frequently in right-wing platforms receive higher score. To generate the ideology score, we divide the frequency of each phrase *i* in right-wing platforms (k = 1, ..., R) by the total frequency of phrase *i* in all party platforms (k = 1, ..., K):

$$\phi_i = \frac{\sum_{k=1}^R p_i}{\sum_{k=1}^K p_i}$$

The result is a score  $(\phi_i)$  ranging between 0 and 1 in which higher values reflect greater similarity

<sup>16</sup>The platforms were downloaded The Israel Democracy Institute's website at https://bit.ly/2rTpYgL.

<sup>&</sup>lt;sup>15</sup>The archive was accessed via https://bit.ly/2ZMA53e

 $<sup>^{17}\</sup>mathrm{See}$  SI Table SI-2, for a list of the top 100 partisan phrases.

with right-wing platforms.

Third, we identified these phrases in the issues of I-H and Yediot and calculated their frequency in different parts of the newspaper (front pages, news sections, and op-eds). To do so, we first trimmed the document-term matrices of each newspaper corpus to include only the partisan phrases identified in the first step. We multiply our trimmed document term matrices (one for each newspaper corpus), in which the rows are the issues and the columns are the partisan phrases, with a vector of the  $\phi$  scores for each phrase. This results in a document-level vector giving the average right-wing slant for each newspaper issue. To make interpretation easier, we normalize this value to range between 0 and 1, where values closer to upper range reflect greater usage of right-wing language in these newspapers.

**Right-Wing Slant.** To compare the right-wing slant of the newspapers, we analyze issues of the two papers that were published on the same day. This allows for a cleaner comparison, as events that were driving reporting in both newspapers are held constant. We first examine only the front pages of each issue (cover-page and the first spread), and then the coverage in the news-related pages (approximately the first 15 pages, excluding the front pages), as well as op-eds.

Figure 3 shows the average right-wing slant in the different sections. If no media slant existed, we would expect to see similar levels of right-wing language in both newspapers. Yet as the figure makes clear, right-wing slant in I-H was higher than in *Yediot*—a pattern that is evident in all three sections of the newspaper. We find that the difference in slant is largest in the front pages.<sup>18</sup> Tellingly, we also find that the newspapers discuss similar issues using different phrases. For example, when discussing Jewish settlements in the West Bank, I-H tends to use the term "Judea and Samaria," while *Yediot* uses "Settlements" instead; when reporting on immigration, I-H uses the term "infiltrator" more frequently while *Yediot* tends to use "asylum seeker" instead.<sup>19</sup>

In Figure 4, we examine how slant varied over time. The left panel shows the average right-wing slant in the front pages. While in earlier time periods the frequency of right wing content in I-H and *Yediot* was largely similar, starting in 2010, the front pages of I-H began to display significantly higher levels of right-leaning content. By 2015, the front pages of I-H had, on average, over 27

<sup>&</sup>lt;sup>18</sup>See SI, Table SI-4 for results in tabular form.

<sup>&</sup>lt;sup>19</sup>See SI, Section B.3 for more details.



Figure 3: Right-Wing Slant in Israel Hayom and Yediot Ahronot

*Note:* The figure presents predicted values, along with 95% confidence intervals, from linear regressions of our rightwing slant measure on a newspaper indicator (I-H, *Yediot*), calculated for the front pages for each newspaper, the rest of the news section and the op-eds (excluding the front page). The vertical dashed line shows the average slant across all sections and issues.

percent more right-wing content than *Yediot*, a difference that surpasses the baseline variation in slant that exists between right and left party platforms, which is 22%.<sup>20</sup> The right panel shows that this difference is not as present in the rest of the news pages. These findings highlight that the *location* of ideological slant matters: while overall news coverage is broadly similar, right-wing slant in I-H tends to be stronger in the front pages, and as we show in the SI – in headlines.

**Positive Coverage of Netanyahu and the Likud.** Unlike majoritarian electoral systems, Israel's proportional representation system allows separating ideological from partian bias. We thus turn to examine possible differences between the two newspapers in the coverage of Netanyahu and the Likud. Drawing on a reference text consisting of positive coverage extracted from a random sample of these newspapers,<sup>21</sup> we estimated the frequency of phrases that were commonly used to

<sup>&</sup>lt;sup>20</sup>See SI, Table SI-3 for full tabular results.

<sup>&</sup>lt;sup>21</sup>Our reference text here is drawn from newspaper paragraphs that research assistants (RAs) identified as reflecting positive coverage of Netanyahu, his family, and the Likud party. RAs coded 208 I-H and *Yediot* issues, in which they identified 136 paragraphs conveying positive coverage in I-H and 121 paragraphs conveying positive coverage in *Yediot*.



Figure 4: Right-Wing Slant Over Time

*Note:* The figure presents the average right-wing slant in I-H (red) and *Yediot* (green) over time, calculated from the frequency of partian phrases in each newspaper issue published between 2008 and 2015. The left panel focuses on the slant in first three pages. The right panel focuses on slant in the news pages (excluding the front pages). While right-wing slant in the front pages of I-H increased over the years, it remained unchanged in *Yediot*.

describe Netanyahu and the Likud positively in each newspaper.<sup>22</sup> Figure 5 shows the average level of positive coverage in the front pages, the rest news pages, as well as the op-eds. As with rightwing slant, we find that positive coverage is higher in I-H than *Yediot* in the front pages and the news sections. We do not find a difference in positive coverage in the op-eds.<sup>23</sup> Interestingly, our analysis shows that op-eds have overall much lower levels of right-wing slant and positive coverage (see bottom row in Figures 3 and 5), which illustrates how slant can vary in different parts of the newspaper. Taken together, these results indicate that the coverage of I-H was consistently more favorable to the right, and specifically to Netanyahu and the Likud, than the coverage by *Yediot*, its chief competitor.

**Issue Bias.** To examine whether I-H tended to emphasize in its front pages different issues as compared to *Yediot*, we estimate a structural topic model with fifteen topics. The model draws on

 $<sup>^{22}</sup>$ We created a coverage score that sums the frequency of phrases used to described Netanyahu and the Likud positively in each issue. We trimmed the document-term-matrices of each newspaper to include the phrases used in the paragraphs identified by our research assistants as reflecting positive coverage, and calculated their total frequency of these terms in each issue. We normalized the positive-coverage phrase frequency to range between 0 and 1, where 1 reflects high usage of these terms.

<sup>&</sup>lt;sup>23</sup>See SI, Table SI-4 for a tabular version of these results.



Figure 5: Positive Coverage Slant in Israel Hayom and Yediot Ahronot

*Note:* The figure presents predicted values, along with 95% confidence intervals, from ordinary least squares regressions of the positive coverage score on a newspaper indicator (I-H, *Yediot*), calculated for the first three pages of each newspaper, the rest of the news section and the op-eds. The vertical dashed line reflects the average positive coverage across all issues.

phrase frequencies, the structure of each newspaper issue, and issue-level metadata to inductively discover topics in the newspapers' front pages (Lucas et al., 2015). In Figure 6, positive coefficients reflect topics that are more frequently used in the front pages of *Yediot*, while negative coefficients reflect topics that are more prevalent in I-H. The words next to each coefficient represent the top words associated with each topic.

We find that the editors of I-H tend to emphasize in the front pages security-related issues, such as the Iranian nuclear threat (topic 3), terrorist attacks (topic 11), and the Palestinian Authority (topic 12), while the editors of *Yediot* highlight issues related to crime (topic 13) and the economy (topic 8). It is noteworthy that security threats, which have been shown to drive voting for the right in Israel (Getmansky and Zeitzoff, 2014; Grossman, Manekin and Miodownik, 2015), are significantly more prevalent in I-H.

Beyond the systemically right-leaning coverage, we also analyzed whether I-H's choice of headline and front page picture reflected a certain ideological bent. To this end, we extracted headlines and pictures from I-H and Yediot published over a six-month period, scrambled their order, and asked coders to assess the political slant of each respective item. The results, reported in SI, Section B.4, again reveal a systematic right-wing slant in I-H.



Figure 6: Topic Prevalence in the Front Pages of Israel Hayom and Yediot (2008-2015)

*Note:* The figure reports estimates from a Structural Topic Model with 15 topics discussed in the front pages of I-H and *Yediot* between 2008 and 2016. Positive coefficients reflect topics that were more frequently discussed in the front pages of *Yediot*, while negative coefficients reflect topics that were more prevalent in the front pages of I-H.

## 4 Data and Empirical Strategy

Did the slanted coverage of I-H affect how Israelis vote? The country has a nation-wide proportional representation electoral system, in which citizens cast votes for a preferred (closed list) party, not candidates. To form a government, parties must form a coalition that gains the support of a plurality of Knesset members. Thus, the relative size of the ideological 'blocs' plays a key role in determining who can form a coalition. As Israel's electorate is split between right and left blocs, voting within blocs may be strategic while across them it is not. We therefore focus our analysis on the effect of I-H exposure on the share of votes that the right bloc has obtained.<sup>24</sup>

We calculate each party's vote share at the locality level from public files published by the Internal Ministry and the National Election Commission.<sup>25</sup> Our measure of the right bloc's share includes all votes for the *Likud* (Unity), *Bayit Yehudi* (Jewish Home), *Israel Beytenu* (Israel Our

<sup>&</sup>lt;sup>24</sup>See Berrebi and Klor (2008) and Getmansky and Zeitzoff (2014) for a similar approach.

<sup>&</sup>lt;sup>25</sup>Data can be accessed on the government website: https://www.bechirot.gov.il/

Home), *Moledet* (Homeland), *Tzomet* (Crossroads) and *Ihud Leumi* (National Unity) parties.<sup>26</sup> Following our findings in the text analysis, we also examine the effect of the newspaper's coverage on the vote share of the Likud party.

Unlike voting records, both newspaper circulation and readership data are not publicly available in Israel. We thus purchased proprietary data on media exposure (*readership, not circulation*) for all major media outlets from Kantar Media, a marketing firm that collects and sells media market information. Media exposure figures are based on representative surveys that Kantar Media conducts every six months. Kantar disaggregates the country into media markets of the size of about 150k adult residents (SI, Figure 7, right panel).<sup>27</sup> These estimates are widely used as the industry standard for media exposure and are the key metrics for pricing of media advertising space in Israel.

Two limitations of the data should be noted. First, Arab Israelis, who account for one fifth of the population, consume mostly Arabic-speaking media outlets. These outlets are tracked using a different media poll and are thus not part of the analysis. Second, Kantar does not share media exposure information for specific media markets in periods when its surveys have samples below a minimal threshold (that differs as a function of the media market's size). Our data thus includes complete media exposure information that covers the entire period for only 25 of the 29 markets. With these data we use spatial merging to assign each locality the exposure estimate of the media market in which it belongs (Figure 7, left panel). This likely introduces some measurement error, since the assigned value cannot account for potential heterogeneity in newspaper exposure within media markets. Aggregating from the locality to the media market and running the analysis at that level produces equivalent results.

#### Bivariate relationship overtime

We first explore the bivariate relationship between I-H exposure and right bloc electoral support. To simplify data visualization, we use media markets as the unit of analysis; in subsequent regres-

<sup>&</sup>lt;sup>26</sup>While generally supportive of the agenda of the ideological right, ultra-orthodox parties have not been historically part of the right bloc (at least not until 2019), but rather 'king-makers' in the sense that they could potentially join any bloc in forming a government.

<sup>&</sup>lt;sup>27</sup>Kantar Media's estimates of media exposure in each unit are based on samples that range between about 100 and 300 respondents per media market.



*Note:* Left panel plots the localities included within their respective media markets. The right panel heat map records exposure to *Israel Hayom* in 2008 at the media-market level.

sion analyses we revert to the locality level (results are equivalent since all analysis is population weighted). The left panels in Figure 8 show the relationship between support for the right bloc in various time periods and I-H exposure in the six months preceding the 2013 and 2015 elections. The light gray line shows the mean vote share for the right bloc in the four elections preceding I-H's launch (1996, 1999, 2003, 2006), and the darker gray line shows the right bloc's vote share in 2006—the last election before the launch of I-H. These two lines show a slightly negative relationship: areas with higher exposure to *Israel Hayom* were somewhat less supportive of the right bloc before I-H launched.<sup>28</sup> However, this relationship became positive after the market entry of the newspaper, as can be seen in the black line in the left panels in Figure 8.

The right panels in Figure 8 illustrate this shift more clearly. The Y-axis of each panel presents the *difference* in support for the right bloc between the election of interest and the mean of the four elections in the pre-IH period (1996-2006). The top (bottom) right panel presents the change between the 2013 (2015) and the four pre-IH elections. As the figure shows, there is a positive relationship between I-H exposure and the *change* in the vote for the right bloc. Notably, this is true for both periods.

#### Estimation strategy

To test the electoral implications of I-H exposure, we employ several different estimation strategies. We use these approaches in tandem to strengthen our inference. As we show below, our results are consistent across all empirical strategies. This increases our confidence that the positive relationship we identify between I-H exposure and voting to the right bloc (and the Likud party) is likely causal.

In our first approach, we estimate a series of two-way fixed effects (2FE) models. Several characteristics of Israel's towns and municipalities—e.g., peripheriality, religiosity, education, ethnic and racial mix—account for the variation in readership of a secular Hebrew daily such as *Israel Hayom*. The core assumption of the 2FE model is that locality factors that are correlated with both variation in I-H readership and right bloc voting are either observed overtime (and thus accounted for) or are time-invariant unobservables that are differentiated out when adding locality fixed effects. Formally, we run the following model:

$$y_{it} = \alpha_i + \gamma_t + \tau I H_{it} + \beta X_{it} + \epsilon_{it} \tag{1}$$

where  $y_{it}$  is the vote share for the right bloc (or any of the main political parties) in locality i in election t;  $\alpha_i$  captures locality fixed effects and  $\gamma_t$  captures idiosyncratic election-year shocks;  $IH_{it}$ 

 $<sup>^{28}</sup>$ More information on parallel trends is provided in SI, Section D.



Figure 8: Right Bloc Vote Share Change: Pre and Post I-H Launch

*Note:* In the left panels, we plot the right bloc vote share in the pre-I-H period (gray lines) and in the post I-H launch period (black line) as a function of I-H exposure in the six months prior to the 2013 (top panel) and 2015 (bottom) elections. Light gray lines capture the mean vote share across all pre-2007 elections (1996, 1999, 2003 and 2006); dark gray lines are for 2006, the last election before IH's launch. In the top (bottom) right right panel, we plot again on the x-axis I-H exposure prior to the 2013 (2015) election against the difference in right bloc vote share between the 2013 (2015) elections and the four pre-2007 elections (y-axis). In all panels, slopes capture the bivariate relation using linear fit, weighted by media markets' population.

is locality's *i* exposure to *Israel Hayom* in levels in each election period (value is set to zero for the pre-2007 elections);  $X_{it}$  is a vector of interactions between election-year indicators and locality characteristics from before the I-H launch—measured in 2007 for the 2008 census—commonly associated with voting patterns in Israel. These include the locality's log adult population, share of Jewish population, log distance to Tel Aviv, share of European descendants (Ashkenazi), share Asian descendants, share with high-school matriculation, and age distribution (share of the population that is in each of the following age brackets: 18-29, 30-49, 50-65, and above 66). By flexibly controlling for these covariates, we are able to account for the possibility that those factors have a differential association with right bloc voting overtime. Finally, in some specifications we further control flexibly for the value of the dependent variable (right bloc or Likud vote share) in the first baseline, pre I-H period. Given the nature of the media data, we adopt a conservative approach and cluster standard errors at the media market level.

The 2FE is the workhorse model of much empirical social science, in part due to its equivalence to the difference-in-differences (DiD) estimator under a simple setting with two time periods. However, this is not the case with a dynamic treatment and multiple time periods (Imai and Kim, 2019). In our second specification, we therefore run three different two-period DiD regressions, one for each post I-H launch  $t \in [2009, 2013, 2015]$ . In each of these three DiD models, the dependent variable is the *change* in vote share for a given political bloc or party between the election year t and the mean vote share in the pre-launch period  $t_o$ ; formally:

$$\Delta y_i = \tau \Delta I H_i + \beta X_i + \epsilon_i \tag{2}$$

In these models,  $\Delta IH_i$  is I-H exposure in the six months before each of the three post-launch elections (since the pre-launch exposure is zero); and  $X_i$  is a vector of the same pre-IH launch locality covariates, including the baseline vote share of the dependent variable, as described above. In effect, those models become cross-sectional OLS regressions, in which we estimate the slope in the right panels of Figure 8.

#### Instrumental variable regressions

The 2FE and the DiD models above are informative starting points, but they do not account for the possibility that time variant unobserved factors can both cause I-H exposure to increase overtime and to predispose people to vote for right parties. We thus supplant the models in equation 2 using an instrumental variable design. We instrument exposure to *Israel Hayom* ( $\Delta IH$ ) using data

on readership of *Yediot*, the main mainstream newspaper in the first half of 2007, just prior to I-H's entry into the market. The idea—building on Kearney and Levine (2015)—is that those who already read mainstream dailies in Hebrew are more likely to switch to I-H because of its similarity to the product that they used to consume and the fact that it is both handed out for free and is widely available (rather than due to political congruence).

A key assumption in selecting our IV is that there is a latent dimension underlying the inclination to read the mainstream dailies. Recall, I-H had explicitly adopted an almost identical format to other popular mainstream daily newspapers. This inclination reflects a number of individual characteristics: some degree of interest in current events; willingness and ability to free up time to dedicate to reading; a preference for (or tolerance of) news coverage that is generally 'middle-of-theroad' in its style—less in-depth than high-brow papers (e.g., *Haaretz*) but more sophisticated than typical tabloids—and the orientation of the paper is within the bounds of the Israeli mainstream: not veering too far too the left or right, and embracing consensus topics such as the IDF or Israeli success stories overseas. Given that I-H tried to mimic the format of its mainstream competitors, it is more than likely that it appealed to many of their readers, especially given its availability and being free. We therefore expect that the level of readership of *Yediot* in a given locality in the pre-IH period will be a strong predictor of the share of locals that will read I-H after its launch.

Indeed, the first-stage estimation of our instrument (i.e., the relationship between *Yediot* readership in the first half of 2007 and subsequent exposure rates to I-H) is very strong. In each election year post-2007 (2009, 2013 and 2015), as well as when we pool across election years, the *F*-statistics is comfortably above the threshold of 10 (Figure 9). Next, we explore the instrument's (conditional) exogeneity assumption.

First, we regress *Yediot* readership in 2007 on our list of locality covariates (see SI, Figure SI-11). We find that observables accounts for a large share of the variation in *Yediot* readership in 2007 ( $R^2 = 0.64$ ). This reduces the concern that conditional on covariates, *Yediot* readership is still associated with unobservables that also have a strong empirical relationship with right bloc voting.

Second, we test whether our instrument explains voting for the right bloc in the period preceding the launch of I-H. A positive relationship would suggest that political orientations are factored in the choice of *Yediot* readership, rendering the exogeneity assumption improbable. Table 1 analyzes voting in the four elections for which we have data prior to the launch of *Israel Hayom*. Consistent





*Note:* Figure plots the relationship between *Yediot* 2007 readership and I-H exposure overtime at the media market level, weighted by population size. The F-statistic values in 2009, 2013 and 2015 are 18.71, 80.62 and 46.78 respectively.

with the notion that *Yediot* is overall a centrist media outlet, we find that *Yediot* readership in 2007 does *not* explain voting to the right in 1996-2006. In fact, in the bivariate regressions (Table 1, odd columns), *Yediot* 2007 readership explains practically *zero* of the variation in right bloc vote share (using  $R^2$ ), and except for 2003, the slope is both small and negative.

By contrast, our instrument has strong explanatory power for right bloc voting in the post-IH launch period. In Table 2, we report reduced form regressions for each post-2007 elections (using the model described in equation 2, replacing I-H with *Yediot* 2007 readership). Across all specifications and post-IH launch years, our instrument has positive and significant relationship with right block vote share (see also SI, Figure SI-12).

In SI Section G we assess other potential threats to the IV assumptions. In particular, we examine whether the IV is capturing something other than I-H readership. A potential violation of the exclusion restriction could arise if *Yediot*, in response to the right-wing slant of IH, increased its right slant too. Qualitative evidence, as well as Figure 4, indicates that this was not the case, nor

DV: right bloc vote share	1996		1999		2003		2006	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Yediot readership 2007	-0.065	0.245	-0.146	0.022	0.284	0.350	-0.068	0.186
	(0.190)	(0.227)	(0.162)	(0.178)	(0.219)	(0.232)	(0.202)	(0.211)
Constant	41.144***	18.180	$32.115^{***}$	20.464	$31.925^{***}$	-21.927	$30.997^{***}$	-2.484
	(7.903)	(18.677)	(6.801)	(14.691)	(9.144)	(23.527)	(8.428)	(21.453)
Covariates	no	yes	no	yes	no	yes	no	yes
R2	0.00	0.30	0.01	0.30	0.03	0.37	0.00	0.40
Ν	931	931	931	931	931	931	931	931

Table 1: Instrument Exogeneity: IV and Locality Voting Pre-2007

In this table we regress *Yediot* newspaper readership in the first half of 2007 (our instrument) on right bloc vote share in all four elections prior to the launch of I-H. We weight observations by locality adult population, and cluster standard errors at the media market level. \*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1.

DV: right bloc vote share	2009		201	.3	2015		
	(1)	(2)	(3)	(4)	(5)	(6)	
Yediot readership 2007	0.292***	0.280***	0.324***	0.215**	0.396***	0.265**	
	(0.048)	(0.078)	(0.049)	(0.080)	(0.058)	(0.103)	
Constant	-9.865***	-23.522	-13.093***	-20.565	-15.754***	-29.890	
	(2.888)	(14.502)	(2.852)	(13.323)	(3.422)	(21.591)	
Covariates	no	yes	no	yes	no	yes	
R2	0.25	0.57	0.20	0.49	0.20	0.44	
Ν	931	931	931	931	931	931	

Table 2: Reduced-Form Regressions: IV and Locality Voting Post-2	Table 2:	Reduced-Form	Regressions:	IV	and Locality	Voting	Post-200'
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In this table we regress right bloc vote share in 2009, 2013 and 2015 on *Yediot* newspaper readership in the first half of 2007 (our instrument). We weight observations by locality adult population, and cluster standard errors at the media market level. \*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1.

that the instrument captures residents' general attentiveness to the news (SI, Table SI-17). We also show formal tests of the parallel trends assumption underlying the IV estimates (SI, Figure SI-12), and conduct a sensitivity analysis ('union of confidence interval') that indicates how implausibly large the direct effect of *Yediot* on support for the right needs to be for it to account for the IV effect that we observe (SI, Figure SI-10).

## 5 Results: Israel Hayom and Voting

In Table 3, we report findings from the two-way fixed effects models described in equation 1. In all models, the relationship between I-H and both right bloc and Likud vote share is positive and

significant. These results also hold when the models control flexibly for pre-IH covariates and baseline levels of vote share. Since 2FE models do not account for time-variant factors, we add controls for time-varying locality observables in the models reported in columns 2, 3, 5 and 6. These models account for the possibility that changes over time in demographic characteristics at the locality level might impact voting differently in different election periods.

	I	Right Bloc	:	Likud		
	(1)	(2)	(3)	(4)	(5)	(6)
I-H exposure	$0.136^{**}$	0.094**	0.103**	0.200***	$0.147^{***}$	0.129**
	(0.059)	(0.039)	(0.038)	(0.050)	(0.048)	(0.047)
Constant	$35.043^{***}$	67.067**	62.836**	$19.599^{***}$	$54.120^{*}$	$50.302^{*}$
	(1.576)	(27.620)	(28.575)	(1.345)	(26.831)	(26.356)
Covariates	no	yes	yes	no	yes	yes
Base DV	no	no	yes	no	no	yes
R2	0.95	0.97	0.97	0.88	0.93	0.94
Ν	3724	3724	3724	3724	3724	3724

Table 3: Two-way Fixed Effects Models

Note: **DV: vote share in levels.** In all models, pre-2007 elections are collapsed into a single pre-IH period. Some models (covariates=yes) control flexibly for locality (pre-IH launch) covariates. When Base DV=yes, we also control for baseline vote share levels. We weight observations by locality adult population, and cluster standard errors at the media market level. \*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1.

Next, we turn to the difference-in-difference two-period estimations (equation 2). Tables 4 and 5 report the relationship between I-H exposure and voting for the right bloc with ordinary least squares and the *Yediot* instrument, respectively. Tables 6 and 7 show the results when the dependent variable is vote share for the Likud party.

Starting with the right bloc, we find a consistent positive effect in the 2013 and 2015 elections in both the OLS specification and when I-H is instrumented with *Yediot* readership. Focusing on the IV models, the point estimate in 2013 (Table 5, column 4) indicates that a percentage point increase in exposure to I-H is associated with 0.22 percentage point increase in the right bloc's vote share. Holding all else equal, a shift from a locality in the bottom quartile of I-H exposure (25th percentile) to the top quartile (75th percentile) is associated with an increase in 2.5 percentage points support for the right. We find a very similar effect size in 2015 (see Table 5, column 6).

An alternative way to assess I-H's substantive effect is to multiply the instrumented I-H coefficient by the magnitude of the variation induced by the instrument (see Martin and Yurukoglu (2017) for similar approach). A one standard deviation increase in *Yediot* 2007 readership contributes to 2.36, 5.93 and 6.57 percentage points increase in I-H exposure in 2009, 2013 and 2015, respectively. When multiplying by the instrumented I-H coefficients reported in Table 5, we estimate I-H's effect on right bloc vote share to be 1.54 percentage points (in 2009), 1.30 (in 2013), and 1.53 (in 2015). To translate vote share to seats, we further multiply right bloc's vote share by 0.9 (the share of Jews in the electorate) and then by 1.2 (given that there are 120 Knesset seats). Our estimates suggest that IH contributed about 2 seats in each of the post-2007 elections. Given the close nature of political competition in Israel between blocs, these changes are consequential.

As expected, the one difference between the OLS and the IV results pertains to the 2009 elections. Recall that in 2008, I-H circulation was limited to 250k copies due to the fact that the newspaper did not yet set up an elaborate national distribution system. This meant that I-H copies were distributed disproportionally in central locations, but the circulation was limited in the periphery (see SI, Figure SI-6). This helps explain the weak negative bivariate relationship in the OLS model with no controls. By contrast, in the IV model—which is based on residents' reading habits of the mainstream *Yediot* and differencing out the logistical aspect of the newspaper distribution—the sign of the coefficient in 2009 is large, positive and significant (column 1-2).

Finally, it is important to emphasize that the effects we report in this article are localized. Since we are using variation in I-H exposure across media markets to study changes in voting patterns at the local level, we are unable to capture national shifts in voting patterns induced by *Israel Hayom*. Our estimates should therefore be treated as lower-bound effects of the national impact of the newspaper.

#### Robustness

To ensure the robustness of our findings, we also estimate several alternative models. First, we show that our three empirical strategies are robust to different model variations. Second, we conduct a series of additional tests that strengthen our confidence in the results described above. This section briefly describes these robustness tests and refers to the SI for more details.

Starting with the two-way-fixed-effects models, we show that results are robust to using all four pre-2007 elections rather than collapsing them into a single pre-IH average (SI, Table SI-5), and when the unit of analysis is the media market rather than the locality (SI, Table SI-6). As for the

	20	)09	201	.3	2015		
	(1)	(2)	(3)	(4)	(5)	(6)	
I-H exposure	-0.055	-0.050	0.295***	0.148*	0.336***	0.242**	
	(0.132)	(0.091)	(0.076)	(0.077)	(0.095)	(0.099)	
Constant	3.286	-28.999*	$-11.671^{***}$	-25.164*	$-12.538^{**}$	-43.453**	
	(4.292)	(15.851)	(3.795)	(12.346)	(4.584)	(19.615)	
Covariates	no	yes	no	yes	no	yes	
Base DV	yes	yes	yes	yes	yes	yes	
R2	0.14	0.54	0.21	0.49	0.21	0.47	
Ν	931	931	931	931	931	931	

Table 4: DiD Models (Right Bloc - OLS)

*Note:* **DV** is the change in right bloc vote share. Two-period DiD models. We weight observations by locality adult population, and cluster standard errors at the media market level. \*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1.

	200	2009		13	2015		
	(1)	(2)	(3)	(4)	(5)	(6)	
I-H exposure	0.606***	0.656**	0.352***	0.220***	0.413***	0.233***	
Constant	$(0.145) \\ -14.116^{***} \\ (4.089)$	(0.280) -21.380 (17.433)	(0.037) -13.880*** (1.909)	(0.067) -26.790** (11.069)	(0.066) -15.420*** (2.991)	(0.084) -42.949** (19.510)	
Covariates	no	yes	no	yes	no	yes	
Base DV	yes	yes	yes	yes	yes	yes	
R2	-0.35	0.21	0.20	0.48	0.20	0.47	
Ν	931	931	931	931	931	931	

Table 5: Two-period DiD Models (Right Bloc - IV)

*Note:* **DV: change in right bloc vote share**. Two-period DiD (IV) models. I-H exposure is instrumented with *yediot* readership in the first 6 months of 2007. We weight observations by locality adult population, and cluster standard errors at the media market level. \*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1.

	20	2009		013	2015		
	(1)	(2)	(3)	(4)	(5)	(6)	
I-H exposure	-0.041	0.016	0.263**	0.125	0.109	0.182**	
	(0.052)	(0.041)	(0.097)	(0.093)	(0.075)	(0.077)	
Constant	$3.093^{*}$	-6.327	-7.041	-27.036**	-3.502	-31.540**	
	(1.801)	(4.512)	(4.311)	(12.243)	(3.496)	(14.053)	
Covariates	no	yes	no	yes	no	yes	
Base DV	yes	yes	yes	yes	yes	yes	
R2	0.01	0.21	0.13	0.59	0.10	0.37	
Ν	931	931	931	931	931	931	

Table 6: Two-period DiD models (Likud- OLS)

*Note:* **DV** is the Likud vote share. Two-period DiD models. We weight observations by locality adult population, and cluster standard errors at the media market level. \*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1.

	2009		20	013	2	015
	(1)	(2)	(3)	(4)	(5)	(6)
I-H exposure	-0.078	0.049	0.327***	0.260***	0.074	0.237***
	(0.103)	(0.113)	(0.043)	(0.063)	(0.054)	(0.084)
Constant	3.873	-5.879	-9.157***	-30.206***	-2.442	-34.389**
	(3.098)	(4.251)	(1.809)	(10.710)	(2.168)	(13.584)
Covariates	no	yes	no	yes	no	yes
Base DV	yes	yes	yes	yes	yes	yes
R2	0.00	0.20	0.13	0.57	0.10	0.36
Ν	931	931	931	931	931	931

Table 7: Two-period DiD models (Likud- IV)

*Note:* **DV** is the Likud vote share. Two-period DiD (IV) models. I-H exposure is instrumented with *yediot* readership in the first 6 months of 2007. We weight observations by locality adult population, and cluster standard errors at the media market level. \*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1.

two-period DiD models, we test robustness for bootstrapping standard errors using wild bootstrap, which is especially useful when large-sample assumptions may not hold (Roodman et al., 2019), as well as when logging the I-H exposure variable (Tables SI-7 and SI-8). We further test robustness to dropping the Haredi town Bnei Brak that records very low rates of I-H exposure due to the strong norm among Haredi Jews to avoid consuming secular media (Tables SI-9 and SI-10). We then examine a specification in which we replace our measure of newspaper exposure (in the year before an election), with the cumulative average exposure to I-H in the entire period between the elections. The results, presented in Tables SI-11 and SI-12, are positive and significant, and in fact slightly larger once accounting for the cumulative effect. We further test robustness using a different definition of the right bloc. Specifically, we include small parties that did not pass the minimal threshold for representation in the Knesset, but that clearly have a right-wing platform. The results are somewhat stronger when using this broader definition of the right bloc vote (Table SI-13).

In SI Section E.3, we show that the results are robust to estimating first-difference models, and in SI, Section F we run a set of spatial regressions to rule out the possibility that results are driven by spatial dependence between neighboring media markets. In sum, we find that our results hold across a wide array of alternative specifications.

#### The Electoral Effect of I-H by Party

Our analysis reveals a consistent, positive and sizable relationship between increased exposure to *Israel Hayom* and support for the right bloc. To gauge the source of the positive composite effect, Figure 10 presents the effects of I-H exposure (instrumented by *Yediot* readership) on support for the main parties in levels, pooled over elections. The results indicate that Netanyahu's Likud party was the main beneficiary—the increase in its vote share drives almost the entire change in voting for the right bloc. The increase in the Likud vote appears to have come in part at the expense of support for parties like Shas, Labor, and Bayit Yehudi.

Figure 10: I-H Effect by Party



*Note:* DV: Party Vote Share in Levels. Key input variable: I-H exposure instrumented by *Yediot* readership in 2007. In all models we control for the interaction between election period and the full set of covariates described above. BY stands for the Bayit Yehudi party.

## 6 Mechanisms

What explains *Israel Hayom*'s effect on voting for the right in Israel? We explore two possible mechanisms. First, using turnout data, we explore whether I-H mobilized right leaning voters. Second, we explore a persuasion channel in two complementary ways. We begin with testing whether the effect of I-H is stronger where more persuadable voters reside. We then use individual level survey data to test another observable implication of a persuasion channel: namely, whether exposure to I-H associated with a corresponding rightward shift in public opinion. Previewing our results, we only find evidence consistent with the persuasion mechanism.

#### Mobilizing Channel: Turnout

We find no evidence that I-H affected turnout. This is the case when I-H exposure is unconditional or conditional on mean right bloc vote share prior to 2007 (SI, Table SI-19). Note that since we only have locality-level turnout data, we treat this finding as suggestive.

#### **Persuasion Channel**

**Conditional I-H effect**. Our IV models effectively estimate the effect of I-H exposure for *compliers*: those who used to read *Yeditot* and began reading I-H because of value proposition—similar format, handed out for free—and not due to its ideological stance. In the context of Israel, we expect those compliers to be more centrist and less likely to vote for parties on the extremes. These voters have, on average, less aversion to voting for a party on the other side of the ideological divide and in that sense are more persuadable. While we do not have individual-level data on voting, one observable implication of the persuasion channel is that I-H effect should be higher in localities in which the median voter is located closer to the ideological center. We test this by estimating our preferred IV models on subsets of the data defined by pre-2007 vote share for the right. Indeed, we find evidence that the effect of I-H exposure on support for the right was strongest in 'centrist' localities, i.e., ones with a more even split between the ideological camps. Indeed, Table 8 offers evidence consistent with this expectation: the I-H effect appears concentrated and largest in the centrist localities. In localities that lean more heavily toward the right or the left, the effect is well below statistical significance.

**Public opinion**. We use individual-level survey data from a nationally representative sample, collected as part of the Israeli National Election Study (INES).<sup>29</sup> Using residence information, we assign each respondent the exposure level of the media market of her locality. We use this measure as proxy for I-H exposure, since INES does not include information on respondents' media consumption. Drawing on data from before (2006) and after (2009) the launch of the newspaper,

<sup>&</sup>lt;sup>29</sup>INES is not a panel survey hence our analysis entails comparison of two cross-sections with controls for media market fixed effects. Conclusions about attitude change related to I-H exposure can therefore be deduced only with respect to exposure at the locality level, which means the analysis is subject to ecological inference limitations.

	$\mathbf{L}_{\mathbf{c}}$	Left localities			Center localities			<b>Right</b> localities		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
I-H exposure	0.025	0.053	0.064	0.095	0.202**	0.227*	-0.003	-0.168	-0.166	
	(0.017)	(0.048)	(0.082)	(0.056)	(0.097)	(0.134)	(0.040)	(0.193)	(0.133)	
Constant	-54.050***	5.219	21.506	$130.602^{**}$	-32.132**	-45.052*	44.815	-20.604	12.632	
	(5.146)	(16.679)	(22.993)	(51.914)	(14.007)	(25.147)	(27.395)	(22.518)	(30.364)	
Ideology	Left	Left	Left	Center	Center	Center	Right	Right	Right	
Model	Pooled	DiD-2013	DiD-2015	Pooled	DiD-2013	DiD-2015	Pooled	DiD-2013	DiD-2015	
Covariates	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
R2	0.88	0.37	0.40	0.96	0.63	0.55	0.95	0.42	0.47	
Ν	1244	311	311	1240	310	310	1240	310	310	

Table 8: DV: Vote Share of the Right Bloc

Note: Pooled refers to two-way fixed effects (equation 1); DiD refer to two-period difference-in-difference models, where I-H exposure is again instrumented using Yediot exposure in 2007 (equation 2). \*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1

we run the following difference-in-difference estimation:

$$y_{imt} = IH_{im} + Post_t + \beta * (IH_{im} \times Post_t) + \psi X_{imt} + \epsilon_{imt}$$

where  $y_{imt}$  is the outcome of interest for individual *i* in locality *m* in year *t* (2006 or 2009);  $IH_{im}$  is individual's (proxy) exposure to I-H; *Post* is indicator that equals 1 for the year 2009 and zero for 2006; and  $X_{imt}$  is a vector of individual-level covariates: sex, age, academic degree (binary), economic class (4-categories) and religiosity (4-categories). In all models, standard errors are clustered at the media market level, and observations are weighted by the number of respondents per locality.  $\beta$  is the difference-in-differences between (individuals within) municipalities with varying degree of I-H penetration, before and after the launch of I-H.

We begin by examining I-H's relationship with respondents' party identification. We use a binary measure of whether a given party is the one that the individual "feels closest to." Table 9 shows that higher exposure to I-H is associated with increased identification with the Likud party. Consistent with results reported earlier, I-H exposure is also associated with a drop in support for Kadima, a centrist party that was the main rival of the Likud in the 2009 election.

The INES data allows us to explore some of the reasons for this shift in support for Likud. Specifically, we examine additional outcomes that pertain to different channels through which I-H

	Likud	Kadima	Labor	Shas	BY	IB
I-H exposure	-0.012	0.031	0.010	-0.028	-0.014	0.011
	(0.012)	(0.020)	(0.016)	(0.028)	(0.021)	(0.014)
Post	0.076***	-0.184***	-0.023	-0.035	-0.050*	$0.055^{***}$
	(0.015)	(0.019)	(0.018)	(0.032)	(0.026)	(0.014)
$\textbf{I-H} \times \textbf{Post}$	$0.047^{**}$	-0.024	-0.000	-0.030	0.024	-0.015
	(0.017)	(0.016)	(0.019)	(0.046)	(0.025)	(0.020)
Constant	0.096	$0.362^{***}$	0.088	-0.044	0.023	$0.255^{***}$
	(0.073)	(0.067)	(0.058)	(0.055)	(0.041)	(0.063)
R2	0.03	0.09	0.01	0.25	0.05	0.04
Ν	2099	2099	2099	2099	2099	2099

Table 9: INES: Evaluation of Political Parties

Notes: Evaluation of Parties. Difference-in-difference regressions. In all models, we cluster standard errors at the media market area and include weights proportional to the number of survey respondents from each Israeli locality. The dependent variable are series of binary indicators of the political party the respondent feels closest to. p<0.10, \*\* p<0.05, \*\*\* p<0.01

may have increased support for the right. Figure 11 presents the results.<sup>30</sup>

We find that I-H exposure is associated with a rightward shift in people's self-placement on the left-right scale. Exploring respondents' stance on specific issues, this rightward shift appears to have come from growing intransigence on the security front vis-à-vis the Palestinians. Specifically, exposure to I-H is associated with growing opposition to active government efforts to reach a peace accord with the Palestinians. This includes greater skepticism in the chances of attaining peace, increased opposition to talks with the Palestinian leadership as well as to evacuating settlements as part of a future peace deal. In contrast, we find little movement on the question regarding the desirability of a two-state solution or in respondents' degree of concern about a possible escalation of violence.

Given that some measurement noise is likely on any single item, we also generate an index that incorporates all the separate outcome variables in columns (2-8).<sup>31</sup> Consistent with the persuasion channel, I-H exposure is strongly correlated with a rightward shift on the summary index. In contrast, we find no evidence of an association between I-H exposure and respondents' views on an economic dimension. Individuals residing in locales with higher exposure rates to I-H are no more likely to oppose government intervention in the market or to report stronger support for socialist

 $<sup>^{30}</sup>$ SI Table SI-21, shows equivalent results in tabular form.

<sup>&</sup>lt;sup>31</sup>The index is the mean of standardized outcomes, weighted by their variance.

policies over a capitalist alternative. These results are consistent with the substantive focus of I-H, which as we demonstrate in Figure 6, has been overwhelmingly on security matters rather than on social-economic ones.

Finally, we investigate whether the positive I-H coverage of the Likud leader Benjamin Netanyahu (demonstrated above), was effective in changing readers' opinion. We find that the pro-Netanyahu coverage was effective in that residents of areas with greater exposure to I-H were more likely to view Netanyahu in a favorable light (SI, Table SI-20). Specifically, higher I-H exposure is associated with a positive shift in the evaluations of Netanyahu's qualities as a leader, including assessments of him as "patriotic" and an "effective deal maker").

To summarize, we find that areas with higher exposure to I-H grew more favorable of the Likud, an effect that appears to have come primarily from shift rightward on the Palestinian issue. Furthermore, greater I-H exposure is associated with a more favorable view of Netanyahu and his qualities as a leader. Both findings are consistent with our automated text analysis.

## 7 Conclusion

Ownership of media outlets by wealthy individuals is a growing phenomenon. Some of the owners have clear ideological convictions and can potentially influence the political slant of their outlet's coverage. In the case of Sheldon Adelson's *Israel Hayom*, we find evidence of multiple ways in which such slant takes place: the choice of topics to cover, the content of the coverage itself, and the selection of the front page's main headline and picture. While some theoretical models assume readers discount (or even push back against) overtly biased news, the multiple facets of slant we find, some of them rather subtle, can make it difficult for even sophisticated readers to fully discount bias. Indeed, our analysis reveals sizable electoral effects of I-H coverage on vote share for the right bloc, and the Likud in particular.

One unique feature of the Israeli setting, as compared to those studied in other papers on media influence, is the country's multi-party, proportional representation electoral system. While we show that the overall right bloc benefited from the launch of I-H, our analysis also suggests that the Likud and its leader (Netanyahu) were the main beneficiaries of the newspaper's coverage and widespread readership. This suggests that while targeting of news to benefit a specific party might seem more challenging—as other parties in the same ideological bloc are competing for the same



Figure 11: INES: Right-left Position and Attitudes

Notes: Right Attitudes (higher values indicate a position that is more hawkish / right). Difference-in-difference regressions. In all models, we cluster standard errors at the media-market area level and include weights proportional to the number of survey respondents from each Israeli locality. Peace The outcome in (column 2) is a binary variable indicating that the respondent believes that peace with Palestinians is not possible; Goals indicates a belief that Palestinians' ultimate goal is to destroy the state of Israel; Violence is a four point scale measuring the extent to which respondents are concerned with Arab violence; Two-States is a four point scale measuring opposing to a Two-States solution to the Israeli-Palestinian conflict; Talks is a four point scale measuring opposing to resuming peace talks with the Palestinian Authority; Settlements is a four point scale measures in the West Bank as part of a peace deal; Right scale measures right-left self placement on a 10 points scale. Index is a weighted summary index of the above variables. Importantly, the outcomes in Table SI-21 columns 9 (support for increased government involvement in the economy) and column 10 (support social vs. market based solutions) are placebo outcomes that are not part of the Hawkish positions index.

set of voters—it is still a possible endeavor. How media slant differs in two-party and multi-party electoral systems is an important question worthy of more rigorous examination in future work.

The influence of I-H probably extends beyond its direct effect on the readers. It may also stem from the fact that morning programs in both television and radio often follow-up on the main newspapers' leading stories. I-H's focus on specific issues deemed beneficial to the agenda of the political right—security, particularly terrorism and the threat posed by Iran—is therefore echoed in other media outlets as well. Measuring I-H's full impact on public opinion and voting thus requires looking beyond the localized effects of the newspaper's readership. Additional work, using a different research design, will be better suited to take on this task.

Finally, in assessing the external validity of our findings, one might argue that Israel represents a particularly hard case for a media outlet to exert influence because the country is polarized politically and voters are relatively well-informed.<sup>32</sup> It is therefore a setting in which influencing voting behavior is likely to be more difficult than in low-information environments or where polarization is low. On the other hand, Israel may offer an easier setting for a newspaper to exert influence because of the country's size and concentrated media market. A newspaper can therefore attain more easily a national audience, particularly if it is handed out for free. Which of these contrasting characteristics has a stronger impact on the newspaper's ability to exert influence is ultimately an empirical question that we hope future research will address.

<sup>&</sup>lt;sup>32</sup>See cross-national analysis of World Values Survey data in Mutz (2006, p. 49).

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## SUPPLEMENTARY INFORMATION — For Online Publication —

Α	Descriptive Statistics	SI-2							
в	Newspaper Text AnalysisB.1Method for Calculating Media SlantB.2Results in Tabular FormB.3Further Inspection of 'Framing Bias'B.4Ideological Slant of Front Page Headline and Picture	<b>SI-2</b> SI-4 SI-5 SI-5 SI-8							
С	Limited Circulation in 2008	<b>SI-10</b>							
D	) Parallel Trends								
Е	Robustness checksE.1 Two-way Fixed Effects ModelsE.2 Two-period DiD ModelsE.3 First-difference (change) models	<b>SI-12</b> SI-12 SI-13 SI-17							
F	Spatial Regressions and Spatial AutocorrelationF.1Overview of ProcessF.2Spatial Analysis Results	<b>SI-18</b> SI-18 SI-19							
G	Threats to Identification	<b>SI-20</b>							
н	MechanismH.1Mobilization mechanism: conditional I-H effect on turnoutH.2Persuasion: The Israel National Election Studies (INES)	<b>SI-24</b> SI-24 SI-25							

## A Descriptive Statistics

Variable	Mean	Std. Dev.	Min.	Max.	Ν
Right bloc vote share	33.575	24.623	0	97.235	3724
Likud vote share	18.744	13.718	0	69.811	3724
Israel Beytenu vote share	3.867	4.889	0	43.241	2793
Bait Yehudi vote share	10.012	16.064	0	85.876	3724
Shas vote share	5.688	9.525	0	70.989	3724
Kadima vote share	17.067	15.378	0	64.644	2793
Labor vote share	24.264	18.971	0	81.137	3724
Israel Hayom exposure	24.528	18.137	0	54.639	3724
Yediot 2007 exposure (instrument)	38.659	6.774	16.367	50.026	3724
Adult population (log)	6.443	1.367	4.174	12.908	3724
Distance to Tel Aviv (log)	4.288	0.666	1.728	5.375	3724
Share Ashkenazi descent	21.766	11.816	0.2	70.400	3724
Share Asia descent	10.614	10.798	0.3	60.2	3724
Percent Jewish	97.191	4.68	45.8	100	3724
Share Matriculation	25.775	7.876	2.6	72.7	3724
Pop share: 18-29 age group	0.091	0.038	0.017	0.859	3724
Pop share: 30-49 age group	0.127	0.027	0	0.324	3724
Pop share: 50-65 age group	0.075	0.026	0	0.305	3724
Pop share: 66+ age group	0.039	0.026	0	0.254	3724

Table SI-1: Descriptive Statistics Table (Locality level)

## **B** Newspaper Text Analysis

In this study, we conduct an automated text analysis to quantitatively measure right-wing slant in Israeli daily newspapers. To acquire the data, we downloaded PDF versions of I-H and *Yediot* issues published between 2007 and 2016 from their digital archives, and turned them into text files using optical character recognition. To identify right-wing language, we used PDFs of Israeli political party platforms from 2003 to 2013 that we manually digitized. Interestingly, and consistent with the idea that Adelson lured readers by not only reducing price but also by increasing quality, the length of I-H has been steadily increasing over time (Figure SI-1)

We pre-processed the Hebrew text by cleaning the files and stemming the words. Cleaning text files includes removing stop words, conjunctions, symbols, and numbers. Stemming reduces the dimensionality of text data by combining phrases with similar meaning into one 'stem.' In English, stemming usually consists of removing word endings such as "ing" or "ly." In Hebrew, stemming is a more complicated process, as words take a variety of forms which makes the process of transforming them to their roots problematic. We used an algorithm developed by the Technion - Israel Institute of Technology (Itai and Wintner, 2008), to stem Hebrew words.

The stemming process works as follows. First, each textual file (a newspaper issue, a party platform, etc.) is processed by a tokenizer, which breaks the text into words while preserving sentence structure, and outputs the result to an XML file. Second, the tokenized files are analyzed by a morphological analyzer, which takes each token (i.e., each word) and extracts all of its possible interpretations. Each interpretation consists of a core lexicon item – i.e., the stem of the word—and



Figure SI-1: The Length of Israel Hayom Over Time

*Note:* The figure plots the length, in characters, for 2,339 *Israel Hayom* issues published between July 30, 2007 and December 28, 2015. The length of the newspaper's issues slightly increased in length over the years. In 2010, the newspaper introduced longer weekend editions, which also increased over time.

part of speech possibility. The output of the morphological analyzer results in several possible stems for each word in the corpus. To decide which stem is most appropriate, we applied a preference rule which gave a higher priority to proper names and nouns, as political issues in Hebrew usually consist of these forms.<sup>33</sup>

We use the stemmed versions of the I-H, *Yediot*, and party platform copora to generate documentterm-matrices. A document-term-matrix (DTM) quantifies a body of text by counting number of times each term appears in a document. In our study, the documents are newspaper issues and the terms are two-word phrases ("bigrams"). We use bigrams because they are useful for providing context without expanding the dimensionality of the dataset too much. The output of this process is a matrix in which the rows are the newspaper issues and the columns are two-word phrases. We have a separate DTM for each newspaper, as well as for each reference text—political party platforms and positive coverage paragraphs.

Table SI-2 shows the 100 most partial phrases identified by the Gentzkow and Shapiro (2010)  $\chi^2$  statistic. Panel A shows phrases used more often in right-wing party platforms. Panel B shows phrases used more often in left-wing party platforms.

<sup>&</sup>lt;sup>33</sup>The preference rule is as follows: Proper name > Noun > Adjective > Participle > Verb

	A. Phrases Used M	fore Often by Right-Wing	Parties	
governtment.likud	government.continue	land.israel	israel.home	environment
as.well	government.act	arab.country	judea.samaria	people.country
israel.act	research.development	country.jew	people.israel	movement.act
jewish.state	israel.government	safety.roads	jewish.home	woman.status
prime.minister	existence.state	jewish.country	continue.act	israel.movement
science.technology	jewish.land	young.couple	promote.status	unity.people
benjamin.netanyahu	establish.state	israeli.economy	organized.crime	create.space
israel.must	economic.growth	act.government	oslo.accords	veteran
government.encourage	main.rabbinate	act.establish	israel.continue	in.addition
core.book	situation.in	continue.expand	continue.policy	citizenship.law
	B. Phrases Used I	More Often by Left-Wing	Parties	
labor.party	state.israel	work.promote	issue.come	promote.issue
education.system	israeli.society	public.transportation	human.rights	books
enact.law	government.head	law.enforcement	arab.settlement	cooperation
israeli.citizen	animals	with.disabilities	israel.state	human.resources
arab.population	basic.law	human.people	labor.market	increase.budget
government.israel	resource.allocation	minimize.gap	health.services	job
minimum.wage	senior.citizen	achieve.goal	formulate.plan	health.system
arab.citizen	healthcare.basket	labor.right	guarantee.right	live.dignity
equal.rights	inequality	environment.protection	quality.life	basic.right
next.goal	priority	social.justice	elected.knesset	school

Table SI-2: Most Partisan Phrases from Israeli Party Platforms

*Note:* The Table presents the top 100 partial phrases identified by the Gentzkow and Shapiro (2010)  $\chi^2$  statistic. Panel A shows phrases used more often in right-wing party platforms. Panel B shows phrases used more often in left-wing party platforms. The phrases were translated from Hebrew to English by the authors.

### B.1 Method for Calculating Media Slant

Using Gentzkow and Shapiro's  $\chi^2$  statistic, we identify the most partial phrases—those that are most likely to appear in party platforms on the left and right. We find that many right-wing phrases that received high partial partial scores refer to issues commonly associated with right-wing ideology, such as the Jewish nature of the state of Israel and law and order. Left-wing phrases that received a high score relate to a more diverse set of policy issues, such as education, human rights, inequality, and the environment.<sup>34</sup>

Second, we map each phrase to a measure of ideology that is derived from its frequency in party platforms. The idea is to scale partial phrases, such that phrases appearing more frequently in right-wing platforms receive higher score. To generate the ideology score, we divide the frequency of each phrase i in right-wing platforms (k = 1, ..., R) by the total frequency of phrase i in all party platforms (k = 1, ..., R) by the total frequency of phrase i in all party platforms (k = 1, ..., R).

$$\phi_i = \frac{\sum_{k=1}^R p_i}{\sum_{k=1}^K p_i}$$

The result is a score  $(\phi_i)$  ranging between 0 and 1 in which higher values reflect greater similarity with right-wing platforms.

Third, we identified these phrases in the issues of I-H and Yediot and calculated their frequency

<sup>&</sup>lt;sup>34</sup>See Table SI-2 in the SI for a list of the top 100 partian phrases.

in different parts of the newspaper (front pages, news sections, and op-eds). To do so, we first trimmed the document-term matrices of each newspaper corpus to include only the partisan phrases identified in the first step. We then multiplied the raw frequency of each partisan phrase with its right-wing score ( $\phi$ ) to get an average slant measure for each of these sections in each newspaper issue.<sup>35</sup> To make interpretation easier, we normalized this value to range between 0 to and 1, where values closer to 1 reflect greater usage of right-wing language in these newspapers.

#### B.2 Results in Tabular Form

Table SI-3 presents the average right-wing slant in the front pages of I-H and *Yediot*, as well as the percent change of the difference between the newspapers. While the difference in slant was small in the first few years, by 2015, the front pages of I-H had over 27 percent more right-wing content than *Yediot*.

Columns (1) and (3) in Table SI-4 present estimations from regressions of the right-wing slant and positive coverage scores on an indicator of I-H. As shown visually in the article, right-leaning content and positive coverage were significantly higher in I-H when compared to *Yediot*. Note that these regressions compare issues published on the same day; thus, the difference cannot be driven by differences in news items.

Year	Mean (Yediot)	Mean (I-H)	% Change
2008	0.26	0.28	6.40
2009	0.28	0.30	8.45
2010	0.28	0.30	8.40
2011	0.30	0.33	12.04
2012	0.25	0.29	18.18
2013	0.28	0.36	25.76
2014	0.29	0.34	17.63
2015	0.26	0.34	27.62

Table SI-3: Right-Wing Slant in I-H vs. Yediot

*Note:* The table shows the average right-wing slant in *Israel Hayom* and *Yediot* over time, as well as the percent change in the difference in the yearly means.

#### **B.3** Further Inspection of 'Framing Bias'

To further examine framing bias in I-H and *Yediot*, we conducted two additional analyses. First, we identified right-leaning and left-leaning phrases that describe the same political issues, and measured their usage in the two newspapers. Figure SI-2 shows that Jewish settlements in the West Bank tend to be described in I-H with the term "Judea and Samaria" more frequently than *Yediot*, while in *Yediot* the term "settlements" is used more frequently than I-H. The term Judea and Samaria refers to the biblical name of the West Bank region – this phrase is a commonly used by the political right in Israel. Figure SI-3 shows phrases used in the newspapers to discuss the issue of migration. We find that the term "asylum seeker" is used more frequently in *Yediot* than I-H, while the opposite is the case with the use of the alternative term "infiltrator".

<sup>&</sup>lt;sup>35</sup>We multiply our trimmed document term matrices (one for each newspaper corpus), in which the rows are the issues and the columns are the partian phrases, with a vector of the  $\phi$  scores for each phrase. This results in a document-level vector giving the average right-wing slant for each newspaper issue.

	F	Right-wing slant		Р	ositive coverage	
	(1)	(2)	(3)	(4)	(5)	(6)
	Front page	News pages	Op-Éds	Front page	News pages	Op-Eds
Israel Hayom	$0.044^{***}$	$0.021^{*}$	0.026***	0.060***	0.032***	-0.002
	(0.012)	(0.012)	(0.007)	(0.011)	(0.012)	(0.007)
Constant	0.276***	0.291***	0.175***	0.273***	0.306***	$0.119^{***}$
	(0.009)	(0.008)	(0.006)	(0.008)	(0.009)	(0.005)
Observations	718	718	560	718	718	560
$\mathbb{R}^2$	0.018	0.004	0.022	0.042	0.010	0.0002

Table SI-4: Right-Wing Slant and Positive Coverage in I-H and Yediot

*Note:* The table reports estimations from linear regressions of the right-wing slant and positive coverage scores on an indicator of I-H. The regressions compare issues published on the same day. The number of observations for op-eds is lower because some newspaper issues did not include op-eds. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Second, we examined whether the two newspapers covered security-related issues with different language. For this purpose, we estimated a structural topic model with fifteen topics, where we used the type of newspaper (I-H or *Yediot*) as a topical content covariate. As Roberts et al. (2014) explain, a topical content variable "allows for the vocabulary used to talk about a particular topic to vary" (p. 18). That is, while a given topic estimated by the structural topic model can be present in both newspapers, the words (or vocabulary) that each newspaper uses to describe the topic are different. Examining variation in topical content between I-H and *Yediot* is useful for examining framing bias.

Figure SI-4 shows which (Hebrew) words within the 'security' topic are associated more with I-H (red) versus *Yediot* (blue). The figure shows that while I-H tends to describe security-related news with words such as "terrorist attack," "terrorist," and "terrorism," *Yediot* tends to talk about security more with words such as "Hezbollah," "execution", and "Lebanon," and "soldier."



Figure SI-2: Slant in Reporting on Settlements

*Note:* The figure shows the average frequency of phrases used to describe Jewish settlements in the West Bank. I-H tends to use the term "Judea and Samaria" more frequently than *Yediot*, while *Yediot* uses "settlements" more frequently than I-H.



Figure SI-3: Slant in Reporting on Asylum Seekers

*Note:* The figure shows the average frequency of phrases used to describe asylum seekers. I-H tends to use the term "invaders" more frequently than *Yediot*, while *Yediot* uses "asylum seekers" more frequently than I-H.



Figure SI-4: Topical Perspective: Security

Security

*Note:* The figure presents results from a Structural Topic Model with 15 topics discussed in the news pages of I-H and *Yediot* between 2008 and 2016. The figure shows the words within the "security" topic were more associated with *Israel Hayom* (red) and *Yediot Ahronot* (blue). The size of the word is proportional to its frequency in the newspapers.

#### B.4 Ideological Slant of Front Page Headline and Picture

**Headline Slant.** The textual analysis demonstrated that I-H's coverage was systematically more right-leaning and pro-Netanyahu than *Yediot*. This was particularly notable in the first three pages of the newspaper. This analysis, however, does not capture the full extent of the variation in the coverage, as front page's main headline and picture have an outside presence in the framing of the day's main topic. To get a sense of whether indeed there is a difference between the newspapers on this dimension, we conducted the following exercise. First, we extracted all main headlines from I-H and its chief competitor *Yediot*, as published during the six months in the run-up to the 2009 elections.<sup>36</sup> Taking all headers, we scrambled their order and two coders were then asked to read each of the headlines and classify whether the message was clearly tilted to the left, neutral, or clearly tilted to the right. We then combined the two sets of codings and had a third coder review instances in which the coders had opposing interpretations of the header (i.e. one left, the other right). In instances where one interpreted the header as consistent with the left (right) and the other viewed the content as neutral, we coded the headers as 'leaning' left (right). We also carried out the same exercise with the front page's main image, classifying each image by its political tilt (see online appendix for complete details on the coding procedures).

Figure SI-5 presents the distribution of the headline coding. The plurality of headers (40% and 58% in I-H and Yediot, respectively) were coded by both coders as neutral, i.e., as a statement that did not clearly benefit or adhere to the views of one of the two political camps. Headers more consistent with leftist positions were 23 (I-H) and 20 percent (Yediot), a statistically insignificant difference. In contrast, whereas only 22% of the headers in Yediot appeared to be right leaning, the corresponding figure at I-H was 41% (p>0.01). The gap was even more notable when focusing only on headers that were unambiguously tilted to the right: 21% in I-H versus 6% in Yediot. Clearly, front page headlines in I-H are more consistent with the right's position.

<sup>&</sup>lt;sup>36</sup>These headers included only the issues published Sunday through Thursday, as at the time, I-H did not publish a weekend edition on Fridays. To keep the comparison as tight as possible, we focus only on the 161 days in which both newspapers issued copies.



Figure SI-5: Ideological Slant of First Page Headlines

Note: The figure reports the ideological position of front-page headlines in the six-month period leading to the 2009 elections as coded by 'newspaper blind' research assistants.

## C Limited Circulation in 2008

In the first year of its operation, *Israel Hayom* printed a rather limited number of copies (250,000) and focused most of its free distribution in major junctions, shopping malls, and bus and train stations relatively close to its printing press in Tel Aviv. As the left panel of Figure SI-6 demonstrates, this induced a negative correlation between I-H exposure in the six months prior to the February 2009 election, and distance to Tel Aviv. By 2010, I-H put in place an elaborate circulation system that allowed it to reach all towns in the country, such that there was no longer a relationship between the newspaper exposure and distance to Tel Aviv (Figure SI-6, right panel).

Since Tel Aviv and its surrounding is more likely, on average, to support centrist and center-left parties, the limited circulation before 2010 induced a negative correlation between I-H exposure and right bloc vote share, which becomes positive once accounted for propensity to read secular mainstream dailies (our study's instrument).



Figure SI-6: Israel Hayom Exposure by distance to printing house in Tel Aviv. The unit of observation is the media market, with observations weighted by population.

## **D** Parallel Trends

One was to assess the parallel trend assumption is to compare the relationship between I-H exposure and voting to the right before and after I-H launch. We begin with eye balling the data in Figure SI-7: in all 7 panels the x-axis is *Israel Hayom* exposure in the six months leading to 2015 elections, while the y-axis is the right block vote share both pre-IH launch (1996, 1999, 2003 and 2006 elections), and post-IH launch (2009, 2013, and 2015). In Figure SI-9 we report estimates of the slopes of these bivariate relations, weighting observations by locality's adult population. With the exception on 2003, slopes in pre-IH period (1996, 1999 and 2006) are negative, while there are positive (and significantly different) in all post-IH elections.



Figure SI-7: Parallel Trends: Bivariate Correlation

Israel Hayom 2014





Figure SI-9: Parallel Trends

## E Robustness checks

In this section we report robustness checks that strengthen our confidence in the models reported in the main text.

#### E.1 Two-way Fixed Effects Models

The first strategy reported in the main text is two-way fixed effects (2FE) models that account for the time-invariant characteristics of Israel's towns and municipalities and for idiosyncratic electionyear shocks. Recall in the main text (Table 3), we averaged all pre-2007 elections into a single pre-election period. We thus test robustness for using instead *all pre-2007 elections*, setting the value of *Israel-Hayom* in those four elections to zero. Results, reported in Table SI-5, remain unchanged. In addition, we report in Table SI-6 results where the unit of observation at the media market level, rather than localities.

	I	Right bloc			Likud	
	(1)	(2)	(3)	(4)	(5)	(6)
I-H exposure	$0.188^{***}$ (0.070)	$0.126^{***}$ (0.049)	$0.132^{***}$ (0.048)	$0.172^{***}$ (0.054)	$0.139^{***}$ (0.049)	$0.133^{***}$ (0.048)
Constant	$33.767^{***}$ (1.152)	84.177** (32.986)	81.505** (33.067)	$20.647^{***}$ (0.878)	$55.773^{**}$ (23.112)	$57.998^{**}$ (23.459)
Covariates	no	yes	yes	no	yes	yes
Base DV	No	No	yes	No	No	yes
R2	0.91	0.95	0.95	0.88	0.93	0.95
Ν	6517	6517	6517	6517	6517	6517

Table SI-5: 2FE: use all pre-IH election years

*Note:* Two-way fixed effects models using all pre-2007 election years (1996, 1999, 2003, and 2006) disaggregated. For the four pre- 2007 elections, the value of *Israel-Hayom* is zero. \*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1.

	Right	bloc	Likud			
	(1)	(2)	(3)	(4)		
I-H exposure	$0.122^{**}$ (0.055)	$0.114^{*}$ (0.060)	$0.166^{***}$ (0.057)	$0.141^{*}$ (0.077)		
Constant	$\begin{array}{r} 44.137^{***} \\ (0.895) \end{array}$	$\begin{array}{c} 493.014^{*} \\ (239.672) \end{array}$	$20.561^{***}$ (0.928)	$145.953 \\ (170.142)$		
Covariates R2 N	no 0.93 175	yes 0.98 175	no 0.92 175	yes 0.97 175		

Table SI-6: 2FE: Media-Market Level

Note: Two-way fixed effects models at the media market level. For the four pre- 2007 elections, the value of *Israel-Hayom* is zero.  $^{***}p < 0.01$ ,  $^{**}p < 0.05$ ,  $^*p < 0.1$ .

#### E.2 Two-period DiD Models

Next we explore robustness to running separate two-period Difference-in-Difference regressions, one for each post I-H launch elections  $t \in [2009, 2013, 2015]$ . Recall that in each of these three models, the dependent variable is the *change* in vote share for a given political bloc or party between the election year t and the mean vote share in the pre-launch period  $t_o$ .

We begin with testing robustness for rescaling the key independent variable, I-H exposure, in natural log. See Table SI-7 for the effect of log I-H on right bloc voting and Table SI-8 for its effect on the Likud vote share.

As discussed in the main text, one observation (Bnei Brak) is somewhat of an outlier with disproportionally low I-H exposure (Bnei Brak is an ultra-orthodox city with strong norm against reading secular newspapers). Thus in Tables SI-9 and SI-10 we report similar DiD models, dropping Bnei Brak. Results are robust.

	20	009	20	13	20	15	20	09	20	13	20	015
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
I-H (log)	0.433	0.515	10.477***	6.140**	10.599***	7.884***	10.391***	10.142***	11.765***	7.760***	12.676***	7.694***
	(2.505)	(1.506)	(2.184)	(2.399)	(2.540)	(2.703)	(3.069)	(3.681)	(1.203)	(2.218)	(2.545)	(2.674)
Constant	0.466	-29.126*	-37.992***	-40.334***	$-37.451^{***}$	-60.192**	$-31.299^{***}$	-41.603**	-42.646***	-45.221***	-44.806***	-59.482***
	(8.090)	(16.539)	(8.317)	(13.388)	(9.543)	(21.661)	(9.647)	(16.317)	(4.069)	(11.921)	(9.209)	(22.150)
Model	OLS	OLS	OLS	OLS	OLS	OLS	IV	IV	IV	IV	IV	IV
Covariates	no	yes	no	yes	no	yes	no	yes	no	yes	no	yes
Base DV	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
R2	0.14	0.54	0.22	0.50	0.21	0.46	-0.22	0.33	0.22	0.49	0.21	0.46
Ν	931	931	931	931	931	931	931	931	931	931	931	931

Table SI-7: Two-period DiD Models (I-H Logged)

*Note:* **Dependent variable: right bloc vote share**. In all models our key independent variable *Israel-Hayom* exposure is logged. Observations are weighted by locality's adult population, and standard errors are clustered at the media market. \*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1

Table SI-8:	Two-period DiD	Models	(I-H Logged)
-------------	----------------	--------	--------------

	20	09	2013		2015		20	09	20	)13		2015
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
I-H (log)	-0.403	0.654	$9.160^{***}$	$5.436^{*}$	$3.596^{*}$	$6.619^{***}$	-1.379	0.761	$11.030^{***}$	$9.097^{***}$	2.316	$7.780^{***}$
Constant	(1.048) 3.407 (3.604)	(0.830) -7.323 (4.283)	(2.333) $-29.781^{**}$ (11.018)	(2.092) -40.637*** (14.470)	(1.931) $-12.080^{*}$ (7.005)	(2.193) -46.655*** (15.956)	(1.500) 6.216 (6.632)	(1.032) -7.450 (4.804)	$-36.199^{***}$ (6.073)	(2.043) $-51.770^{***}$ (12.931)	(1.003) -7.843 (4.800)	(2.004) -50.982*** (17.002)
Model	OLS	OLS	OLS	OLS	OLS	OLS	IV	IV	IV	IV	IV	IV
Covariates	no	yes	no	yes	no	yes	no	yes	no	yes	no	yes
Base DV	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
R2	0.00	0.21	0.13	0.60	0.11	0.37	-0.01	0.21	0.13	0.59	0.10	0.37
Ν	931	931	931	931	931	931	931	931	931	931	931	931

Note: Dependent variable: Likud vote share. In all models our key independent variable Israel-Hayom exposure is logged. Observations are weighted by locality's adult population, and standard errors are clustered at the media market. \*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1

	20	09	2013		20	15	20	09	20	13	20	15
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
I-H exposure	-0.161	-0.132	0.264**	0.126	0.309**	0.226*	0.657***	0.708	0.328***	0.192***	0.405***	0.208**
	(0.108)	(0.090)	(0.096)	(0.084)	(0.123)	(0.115)	(0.197)	(0.437)	(0.043)	(0.071)	(0.090)	(0.096)
Constant	$7.776^{***}$	-23.421	-9.937*	$-23.334^{*}$	-11.047*	$-41.775^{*}$	$-15.810^{**}$	-22.598	$-12.656^{***}$	$-25.075^{**}$	$-15.047^{***}$	-40.799**
	(2.721)	(16.427)	(4.969)	(13.081)	(6.275)	(20.739)	(6.633)	(17.801)	(2.437)	(11.674)	(4.391)	(20.520)
Model	OLS	OLS	OLS	OLS	OLS	OLS	IV	IV	IV	IV	IV	IV
Covariates	no	yes	no	yes	no	yes	no	yes	no	yes	no	yes
Base DV	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
R2	0.14	0.53	0.14	0.45	0.14	0.42	-0.56	0.09	0.13	0.44	0.13	0.42
Ν	930	930	930	930	930	930	930	930	930	930	930	930

Table SI-9: Two-period DiD Models (Excl. Outlier)

*Note:* **Dependent variable: right bloc vote share**. In all models reported in this table, we drop Bnei Brak. Regression models weight observations by locality's adult population. Standard errors are clustered at the media market. \*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1

#### Table SI-10: Two-period DiD Models (Excl. Outlier)

	200	)9	20	2013 20		015	200	9	20	13	2	015
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
I-H exposure	-0.081*	-0.039	0.255**	0.101	0.091	$0.155^{*}$	-0.205***	-0.099	0.333***	0.235***	0.040	0.205**
	(0.043)	(0.031)	(0.122)	(0.104)	(0.094)	(0.084)	(0.065)	(0.108)	(0.049)	(0.075)	(0.055)	(0.086)
Constant	$5.109^{***}$	-3.126	-6.583	-25.125*	-2.396	-28.846*	8.084***	-3.418	-9.480***	$-28.796^{**}$	-0.611	-31.616**
	(1.013)	(4.632)	(5.913)	(12.910)	(4.734)	(14.967)	(1.605)	(4.896)	(2.618)	(11.301)	(2.307)	(14.277)
Model	OLS	OLS	OLS	OLS	OLS	OLS	IV	IV	IV	IV	IV	IV
Covariates	no	yes	no	yes	no	yes	no	yes	no	yes	no	yes
Base DV	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
R2	0.03	0.24	0.10	0.58	0.07	0.35	-0.04	0.23	0.09	0.57	0.06	0.35
Ν	930	930	930	930	930	930	930	930	930	930	930	930

*Note:* **Dependent variable: Likud party vote share**. In all models reported in this table, we drop Bnei Brak. Regression models weight observations by locality's adult population. Standard errors are clustered at the media market. \*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1

Next, we explore whether our findings are sensitive to the measurement of the study's key independent variable, *Israel Hayom*. In the main text I-H exposure is measured as the recorded exposure in the six months prior to elections. In Tables SI-11 (DV: right bloc vote share) and SI-12 (DV: Likud party vote share), we use instead the mean cumulative exposure to Israel Hayom in the entire period between elections. For example for the February 2013 elections, we use the mean exposure in 2009-2012 as our key explanatory variable. As Tables SI-11 and SI-12 show, our findings are robust to this definition of I-H exposure.

	2013		20	15	201	13	20	15
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
I-H (cumulative)	0.300***	0.124	0.320***	0.179	0.451***	0.294***	0.401***	0.253***
	(0.102)	(0.093)	(0.103)	(0.126)	(0.059)	(0.101)	(0.051)	(0.094)
Constant	$-10.802^{**}$	-23.229	$-12.093^{**}$	-37.564*	$-16.178^{***}$	-25.159*	$-15.162^{***}$	-40.346**
	(4.141)	(13.888)	(4.955)	(20.133)	(2.578)	(12.944)	(2.579)	(19.561)
Model	OLS	OLS	OLS	OLS	IV	IV	IV	IV
Covariates	no	yes	no	yes	no	yes	no	yes
Base DV	yes	yes	yes	yes	yes	yes	yes	yes
R2	0.12	0.47	0.18	0.44	0.10	0.45	0.18	0.44
Ν	931	931	931	931	931	931	931	931

Table SI-11: Two-period DiD Models (Cumulative Exposure)

Note: Dependent variable: right bloc vote share. In all models reported in this table, *Israel Hayom* is measured as the mean exposure in the entire period between elections (instead of the six months before elections as in the main text). Regression models weight observations by locality's adult population. Standard errors are clustered at the media market. \*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1

	2013		2	015	20	13	2	015
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
I-H (cumulative)	0.215	0.110	0.072	0.152	0.418***	0.345***	0.072	0.257***
	(0.132)	(0.118)	(0.081)	(0.103)	(0.083)	(0.093)	(0.051)	(0.092)
Constant	-4.917	-25.307*	-2.369	-27.731*	-11.101***	-27.865**	-2.360	-31.740**
	(4.700)	(13.438)	(3.644)	(14.162)	(2.823)	(12.655)	(2.108)	(13.269)
Model	OLS	OLS	OLS	OLS	IV	IV	IV	IV
Covariates	no	yes	no	yes	no	yes	no	yes
Base DV	yes	yes	yes	yes	yes	yes	yes	yes
R2	0.06	0.58	0.09	0.35	0.03	0.56	0.09	0.33
Ν	931	931	931	931	931	931	931	931

Table SI-12: Two-period DiD Models (Cumulative Exposure)

Note: Dependent variable: Likud party vote share. In all models reported in this table, *Israel Hayom* is measured as the mean exposure in the entire period between elections (instead of the six months before elections as in the main text). Regression models weight observations by locality's adult population. Standard errors are clustered at the media market. \*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1

Finally, in Table SI-13 we show that results are robust to using alternative measure of right bloc, which includes in addition seeral small parties that failed to pass Israel's relatively high threshold.

	200	9	203	13	2015		
	(1)	(2)	(3)	(4)	(5)	(6)	
I-H exposure	$0.695^{***}$	$0.593^{**}$	$0.294^{***}$	$0.238^{***}$	$0.240^{***}$	$0.327^{***}$	
Constant	(0.105) -15.621*** (4.717)	(0.253) -26.931 (17.662)	(0.040) -12.823*** (2.169)	(0.006) -24.607** (10.352)	(0.048) -9.555*** (2.984)	(0.098) -38.049* (20.002)	
Covariates	no	yes	no	yes	no	yes	
Base DV	yes	yes	yes	yes	yes	yes	
R2	-0.50	0.25	0.22	0.49	0.19	0.42	
Ν	931	931	931	931	931	931	

Table SI-13: Two-period DiD Models (Alternative Measure of Right Bloc)

Note: Dependent variable: right bloc vote share. In all models the dependent variable, right bloc, includes in addition small parties that failed to pass Israel's relatively high threshold. The key independent variable  $\Delta$ IH is instrumented using Yediot exposure in 2006 Regression models weight observations by locality's adult population. Standard errors are clustered at the media market. \*\*\* p < 0.01, \*\* p < 0.05, \*p < 0.1

#### E.3 First-difference (change) models

Next, we explore robustness of our results to fitting first-difference models. We disaggregate the data into three between elections periods: (a) Pre-IH launch (mean 1996-2006 elections) to 2009 period; (b) 2009-2013 period; and (c) 2013-2015 period. We then estimate the following OLS regressions separately for each period:

$$\Delta y_{ip} = \tau \Delta I H_{ip} + y_{i,t-1} + \beta X_{ip} + \epsilon_{ip} \tag{3}$$

We report results in Table SI-14. Consistent with the two-period DiD models, we find that I=H had a significant positive effect in 2013 and 2015, but not in the Feb 2009 election (when 2009 election does not account for the limited circulation in 2008).

	20	)09	2	013	2015	
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta$ I-H exposure	-0.050	-0.050	0.011	0.049*	0.162**	0.103**
	(0.091)	(0.091)	(0.026)	(0.027)	(0.062)	(0.041)
Right bloc (lagged)	. ,	0.207***		-0.275***	. ,	$0.295^{***}$
		(0.051)		(0.050)		(0.054)
Constant	-28.999*	-28.999*	1.711	-5.714	-13.757	-5.837
	(15.851)	(15.851)	(4.192)	(5.563)	(9.289)	(5.513)
Covariates	yes	yes	yes	yes	yes	yes
Lag DV	no	yes	no	yes	no	yes
Base DV	yes	yes	yes	yes	yes	yes
R2	0.54	0.54	0.41	0.52	0.31	0.46
Ν	931	931	931	931	931	931

Table SI-14: First-difference Models (by Election Year)

Note: **DV: right block vote share**. First-difference regressions, by election year. Regression models weight observations by locality's adult population. Standard errors are clustered at the media market. \*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1

## F Spatial Regressions and Spatial Autocorrelation

We now check for the presence of spatial patterns in the predictive performance of our models. If a model more consistently overpredicts or underpredicts for a group of observations sharing similar geographic characteristics, the residuals of the model are correlated, suggesting the presence of a confounder that the model is not taking into account. If the model consistently overpredicts or underpredicts among observations of neighboring spatial location, the residuals can be said to possess spatial autocorrelation, which indicates that there is some information embedded in the geographic pattern which is not being captured by the model. Spatial autocorrelation in residuals violates the assumptions of OLS model. A failure to capture this information in the model can thus lead to biased estimations.

Our units of observation for this exercise are the 25 media markets; contiguous geographies at which media exposure levels are measured. If the data contains spatially patterned information not captured by the model, the natural solution is to add to the model a variable that would contain this confounding information. Common ways of doing this include converting the OLS regression into a spatial lag or spatial error regression models.

#### F.1 Overview of Process

In practice, testing and correcting for spatial autocorrelation follows a fairly standard procedure. The first step is to define what the spatial relationship between the observations is, i.e. which observations are closer to one another. Second, the original OLS model is tested to see if spatial autocorrelation is present in the residuals, via the computation of a Moran's I statistic. If spatial autocorrelation is not present, the model is accepted as is, and none of the following steps are necessary. If spatial autocorrelation is present, then a spatial lag model can be fit and its residuals' tested for spatial autocorrelation. If spatial autocorrelation is not present in the residuals may proceed with a spatial lag model. If spatial autocorrelation persists in the residuals of the spatial lag model, then a spatial error model may be attempted, using the residuals of the original regression, and its results duly tested for spatial autocorrelation. Further methods may be attempted should this fail; however, the trial and error procedure is the same.

In this analysis, we define neighbors based on contiguity (shared border). Specifically, we use *Queen contiguity* (meaning that two media markets which touch at so much as a single point along their boundaries are considered neighbors), and contiguity is only measured to the first degree (there is no significance given to indirect "neighbor of neighbor" relationships). As can be seen in Figure 7, some media markets only have a single neighbor, while others have as many as 6.

With neighbors defined, we then proceed to test our initial OLS regressions for spatial autocorrelation. Our original OLS regressions are a set of regressions varying on dependent variables, inclusion of covariates, and election-year. Due to concerns about the suitability of this method to panel data, this analysis is only performed on the two-period DiD cross-sectional regressions, which are central to this study.

The test used for spatial autocorrelation is the Moran's I statistic, which indicates the level of spatially autocorrelation found in a set of values of varying geographical distance to one another. Moran's I tests the null hypothesis, i.e. that there is no spatial autocorrelation. The definition of geographical distance, i.e. the distance weighting matrix used, is the same as that used on computing spatial lagged values of treatment variables and of residuals for use in spatial lag and spatial error models. To test for spatial autocorrelation in the performance of a model, Moran's I is computed upon the residuals of the model using the distance weighting matrix. The p-value

of the Moran's I statistic is of particular relevance. If the p-value is acceptably low, then there is a low chance of making a mistake if we reject the null hypothesis of no spatial autocorrelation. If the p-value is not acceptably low, then the chance of making a mistake is too high, and we stick with the null hypothesis that there is no spatial autocorrelation. The acceptable limit for p-values is subjective and varies according to researcher preference.

Following convention, we further track the significance of the treatment variable throughout the different iterations of models. For each model, we also report the value of the coefficient of the treatment variable, i.e. the extent to which the dependent variable changes in response to a oneunit change in exposure to I-H exposure. The significance of this coefficient is indicated through asterisks presented with the coefficients according to the index provided with each table.

#### F.2 Spatial Analysis Results

Cross Sectional DiD regressions for years 2013 and 2015 are tested in Table SI-15. We find evidence of spatial autocorrelation in most base models (those including only the treatment variable, *Israel Hayom* exposure). While adding a spatial lag alone does little to remove spatial autocorrelation from the remaining models, adding the specified selection of covariates successfully account for spatial autocorrelation. Adding the spatial error component on top of covariates further decreases the probability of spatial autocorrelation in all models.

	Likud 2013	Likud 2015	Right bloc 2013	Right bloc 2015
Base	0.003	0.000	0.001	0.002
With Covariates	0.416	0.507	0.582	0.583
Spatial Lag	0.003	0.000	0.000	0.001
Spatial Lag with Covariates	0.424	0.525	0.661	0.610
Spatial Error with Covariates	0.821	0.913	0.890	0.861

Table SI-15: P values of Moran's I for Regressions

Table SI-16 presents the magnitude and significance of *Israel Hayom* exposure variable in each of the above regressions. I-H exposure is more significant in predicting values for some years and dependent variables; however, some common strands emerge. The direction of the effect of this variable is consistently positive, suggesting that vote share for both Likud and the parties included within right bloc always increases with exposure to *Israel Hayom*. In addition, with the exception several spatial lag regressions, the coefficient for the treatment variable is significant in all regression models.

Table SI-16: The Magnitude and Significance of Exposure to Israel Hayom

	Likud 2013	Likud 2015	Right bloc 2013	Right bloc 2015
Base	$0.225^{*}$	$0.252^{*}$	0.037	0.298*
With Covariates	$0.366^{**}$	$0.298^{**}$	$0.223^{*}$	$0.331^{*}$
Spatial Lag	0.237.	$0.25^{*}$	0.083	0.289.
Spatial Lag with Covariates	$0.375^{**}$	$0.297^{**}$	$0.264^{*}$	$0.329^{*}$
Spatial Error with Covariates	$0.338^{**}$	$0.286^{**}$	$0.212^{*}$	$0.315^{*}$

On the whole, the above analysis suggests that for years and dependent variables, spatial autocorrelation can be corrected for through the inclusion of covariates, or through the use of a spatial error model with covariates. For all models, correcting for spatial autocorrelation does not result in the coefficient of the treatment variable becoming insignificant.

## G Threats to Identification

We address the likely endogenous relationship between I-H readership and political orientation using an instrumental variable approach. The use of the instrument generated results that are largely consistent with the regression analyses that use instead a direct measure of I-H exposure. Below, we discuss and address two potential concerns with our instrumental variable design.

First, a key concern with the use of any instrument is a possible violation of the exclusion restriction assumption. Notably, our study's instrument—exposure to *Yediot* in the period before the launch of I-H—is positively correlated with the level of *Yediot*'s readership in subsequent years. The concern is that if *Yediot* shifted its news coverage rightwards during the years we analyze, perhaps due to the competition posed by I-H, then our instrument may be capturing the direct effect of *Yediot's* coverage rather than that of I-H.

Reassuringly, we do not find evidence that *Yediot* shifted it's coverage to the right following the launch of I-H. As shown above in Figure 4 (left panel), starting in 2009, while the front pages of I-H began displaying significantly higher levels of right-leaning slant, the content of *Yediot* exhibited no such pattern. Furthermore, we find a similar flat trend in *Yediot*'s reporting over time when analyzing the sentiment of the coverage of Netanyahu and the Likud party rather than the right bloc as a whole. That we do not find evidence of rightward shift in *Yediot*'s coverage in response to I-H's rise reduces concerns of violation of the exclusion restriction.

Nonetheless, we test formally how big needs to be (an hypothetical) violation of the exclusion restriction for the effect of I-H on voting to be no different than zero. Using Conley, Hansen and Rossi (2012) 'union of confidence interval' sensitivity analysis method, we relax the exclusion restriction assumption and show that only when the size of the direct effect of *Yediot* on the right bloc's vote share is about 2/3 of the effect of I-H, our main results are no longer significant (SI, Figure SI-10). We believe that an effect size this large is highly unlikely given the difference between I-H's right slant and that of its main competitor.

Second, our instrument may simply be capturing the level of attentiveness to the news. Consider the possibility that real-world events during the period in question were more compatible with a right-wing world view—for example, due to further deterioration in Israeli-Palestinian relations or increased regional instability following the Arab Spring. In this case, higher exposure to the news would likely lead to a larger shift in support for the right, irrespective of the specific media outlet which people used to consume news.

To address this possibility, we examine whether an alternative instrument for I-H readership, one which captures news attentiveness (rather than likelihood of exposure to I-H) produces similar results. Instead of relying solely on *Yediot* readership, in the alternative instrument we include exposure to all national dailies: *Maariv, Haaretz, Makor Rishon, Calacalist, Globes*, and *Jerusalem Post*. Using this alternative instrument, we do not find a significant I-H effect on right bloc voting (Table SI-17). This suggests that our main instrument is not simply capturing attentiveness to the news.

Our difference-in-difference estimation must assume parallel trends; namely, that I-H readership exposure is unrelated to a long-term rightward trend in the population. Above we have shown graphical evidence of the parallel trend assumption (Figure SI-9). Addressing more formally possible violation of the parallel trend assumption, we run two simple Placebo tests: assigning first I-H exposure in the six months before the 2009 election to the equivalent period before the 2006 elections (1-lag), and then repeating the process with the 2013 level of exposure (2-lag). As Table SI-18 makes clear, in both cases, I-H exposure in 2009 and 2013 are not positively correlated with right-bloc vote in 2006, suggesting the long-term right shift trend is not stronger in locales with higher levels of I-H exposure.

#### Figure SI-10: Sensitivity Analysis



#### Sensitivity Analysis: Union of Confidence Interval

*Note:* Figure explores the robustness of the instrumental variables analysis reported in the main text in Table 5. Here we use one of the methods suggested by Conley et al. (2012): the union of confidence intervals. The basic idea of Conley et al. (2012) is to relax the exclusion restriction assumption and ask how big needs to be the direct effect of the instrument (*Yediot* exposure in 2007) on the DV (right bloc or Likud vote share), for us to conclude that the endogenous variable (IH) has no effect.

	Right	t bloc	Lik	ud
	(1)	(2)	(3)	(4)
I-H exposure	-0.602	-1.563	-0.140	-1.085
	(0.682)	(1.089)	(0.391)	(0.710)
Constant	17.127	4.276	12.513	3.743
	(19.877)	(32.737)	(12.195)	(20.992)
Base DV	yes	yes	yes	yes
Covariates	no	yes	no	yes
R2	0.61	0.44	0.34	0.24
Ν	3724	3724	3724	3724

Table SI-17: Does I-H simply Capture Attentiveness?

*Note:* DV: right bloc vote share. The regressions models reported herein are pooled IV, using the proxy of attentiveness instead of the IV used in the paper (*Yediot 2007* readership)

Finally, to be valid, the instrument should be exogenous, and ideally – random conditional on observables. In Figure SI-11 we show the relationship between *Yediot* readership in the first half of 2007 and the set of pre-IH covariates.

In Figure SI-12 (right bloc) and Figure SI-13 (Likud party), we show both pre-2007 parallel trends (top panel) and post-2007 reduced form "second" stage (bottom panel) of our study's instrument—*Yediot* readership in first half of 2007. As the figures makes clear, the post-2007 correlates between the instrument and vote share represent a clear break from the pre-IH launch (pre-2007) trends.

	Right	Bloc	Lil	cud
	(1)	(2)	(3)	(4)
I-H exposure (1-lag)	$-0.247^{***}$ (0.077)		-0.111* (0.066)	
I-H exposure (2-lag)	()	0.060 (0.056)	()	$-0.080^{***}$ (0.027)
Constant	$35.522^{***}$ (0.478)	$32.968^{***}$ (0.956)	$21.878^{***}$ (0.407)	$22.561^{***}$ (0.465)
lag structure R2 N	1-year 0.92 3724	2-years 0.91 3724	1-year 0.93 3724	2-years 0.93 3724

Table SI-18: Placebo Test

*Note:* Using only elections in the period prior to I-H's launch (1996, 1999, 2003 and 2006), we report the results of two-way fixed effects models as in equation 1. In columns 1-2 the DV is right bloc vote share and in columns 3-4 the DV is the Likud vote share. In columns 1 and 3, we assign prior to the 2006 election, I-H exposure level in 2009, and in columns 2 and 4, we assign prior to 2006 election the 2013 exposure level.





DV: Yediot readership in the first half of 2007. All input variables have been standardized to have mean zero and standard deviation unity. Thus the coefficient represent the association between a one standard deviation increase in each input covariate on locality's *Yediot* readership in percentage points, holding all other covariates at their mean value.



Figure SI-12: Pre-Israel Hayom Right Bloc Vote Share by Yediot Readership in 2007

Figure SI-13: Pre-Israel Hayom Likud Vote Share by Yediot Readership in 2007



## H Mechanism

In this section, we report results for additional analysis that pertain to the two possible mechanisms accounting for the positive effect of I-H exposure on right bloc vote share: (a) mobilization, and (b) persuasion.

## H.1 Mobilization mechanism: conditional I-H effect on turnout

	Left localities		Center l	Center localities		calities	All localities	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
I-H exposure	-0.009	-0.010	-0.033	0.018	0.015	0.008	-0.021	0.011
<b>a</b>	(0.033)	(0.020)	(0.030)	(0.014)	(0.023)	(0.020)	(0.024)	(0.016)
Constant	75.984***	71.284***	68.083***	66.242***	65.939***	41.322**	67.878***	69.644***
	(0.874)	(15.264)	(0.814)	(12.270)	(0.644)	(18.501)	(0.636)	(13.509)
Sample	Left	Left	Center	Center	Right	Right	Pooled	Pooled
Covariates	No	Yes	No	Yes	No	Yes	No	Yes
R2	0.89	0.92	0.96	0.98	0.96	0.98	0.96	0.97
Ν	1244	1244	1240	1240	1240	1240	3724	3724

Table SI-19: DV: Turnout

Note: DV: turnout at the locality level. All models herein are two-way fixed effects (equation 1). \*\*\* p < 0.01, \*\* p < 0.05, \*p < 0.1

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### H.2 Persuasion: The Israel National Election Studies (INES)

The main goal of the Israel National Election Studies (INES) project is to investigate voting patterns, public opinion, and political participation in Israel. Starting in 1969, INES has been conducting pre-election surveys based using national representatives samples. Surveys, which are conducted just prior to Knesset elections, use a different sample across rounds. Key to our needs, INES surveys address a wide range of substantive themes including partisanship; left vs. right positions; and perceptions and evaluations of the major parties and candidates.

	Index	Support 1-10	Leader	Trustworthy	Patriotic	Deal maker
	(1)	(2)	(3)	(4)	(5)	(6)
I-H exposure	-0.062**	-0.040	-0.034	-0.018**	-0.024	-0.033*
-	(0.028)	(0.087)	(0.022)	(0.008)	(0.014)	(0.017)
Post	0.054	1.247***	$0.045^{**}$	0.005	-0.000	0.007
	(0.035)	(0.087)	(0.021)	(0.014)	(0.013)	(0.027)
I-H $\times$ Post	0.093**	$0.183^{**}$	$0.064^{***}$	0.017	$0.055^{***}$	$0.074^{**}$
	(0.043)	(0.084)	(0.021)	(0.015)	(0.017)	(0.030)
Constant	-0.359***	3.775***	$0.552^{***}$	$0.071^{*}$	0.085	0.439***
	(0.127)	(0.410)	(0.042)	(0.036)	(0.072)	(0.056)
R2	0.04	0.07	0.03	0.02	0.03	0.04
Ν	2736	2736	2736	2736	2736	2736

Table SI-20: INES: Evaluation of Netanyahu

Notes: Evaluation of Netanyahu. Difference-in-difference regressions. In all regressions, we cluster standard errors at the media market area level and include weights proportional to the number of survey respondents from each Israeli locality. Support 1-10 (column 2) capture respondents general rating of Binyamin Netanyahu on a 10 points scale, whereby higher values indicate a better score; Leader, Trustworthy, Patriotic, Deal maker capture leadership qualities that were presented to respondents along a list of Israeli politicians. These variables are binary, receiving a value of 1 when the respondent indicated Netanyahu to be the leader with the highest level of that quality, and zero otherwise. Finally, index is a weighted summary index of the above variables with mean zero and standard deviation equals one. p<0.10, \*\* p<0.05, \*\*\* p<0.01.

	Index	Peace	Goals	Violence	Two-States	Talks	Settlements	Right scale	Gov Intervention	Socialism
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
I-H exposure	$-0.153^{**}$	-0.024 (0.023)	-0.026	-0.051	-0.028	$-0.106^{***}$ (0.032)	$-0.101^{*}$ (0.054)	-0.225 (0.196)	0.014 (0.017)	0.007 (0.015)
Post	$-0.126^{*}$	(0.029) (0.031)	$0.105^{**}$ (0.039)	$-0.160^{***}$	0.044 (0.060)	$-0.058^{*}$	$-0.344^{***}$ (0.057)	(0.100) $(0.407^{**})$ (0.152)	(0.011) $0.513^{***}$ (0.016)	$0.086^{***}$ (0.017)
I-H $\times$ Post	(0.004) $0.196^{**}$	(0.051) $0.056^{**}$ (0.024)	(0.039) (0.039)	-0.006	0.064	(0.030) $0.135^{***}$	(0.001) $0.182^{***}$ (0.062)	(0.102) $0.440^{*}$	0.004	-0.003
Constant	(0.073) $-0.301^{*}$ (0.164)	(0.024) $0.642^{***}$ (0.072)	(0.030) $0.653^{***}$ (0.071)	(0.040) $3.291^{***}$ (0.170)	(0.039) $2.283^{***}$ (0.116)	(0.030) $1.814^{***}$ (0.081)	(0.002) $2.437^{***}$ (0.126)	(0.223) $4.527^{***}$ (0.295)	(0.019) $0.136^{*}$ (0.066)	(0.013) $0.665^{***}$ (0.048)
R2 N	0.11 2736	$0.06 \\ 2736$	$0.05 \\ 2736$	$0.07 \\ 2736$	$\begin{array}{c} 0.17\\ 2736\end{array}$	$\begin{array}{c} 0.04\\ 2736\end{array}$	$0.06 \\ 2736$	$0.13 \\ 2736$	$\begin{array}{c} 0.24\\ 2736\end{array}$	$\begin{array}{c} 0.06\\ 2588\end{array}$

Table SI-21: INES: Right-left Position and Attitudes

Notes: Right Attitudes (higher values indicate a position that is more Hawkish / right). Difference-in-difference regressions. In all models, we cluster standard errors at the media-market area level and include weights proportional to the number of survey respondents from each Israeli locality. *Peace* (column 2) is a binary variable indicating that the respondent believes that peace with Palestinians is not possible; *Goals* indicates a belief that Palestinians' ultimate goal is to destroy the state of Israel; *Violence* is a four point scale measuring the extent to which respondents are concerned with Arab violence; *Two-States* is a four point scale measuring opposing to a Two-States solution to the Israeli-Palestinian conflict; *Talks* is a four point scale measuring peace talks with the Palestinian Authority; *Settlements* is a four point scale measuring level of disagreement to return territories in the West Bank as part of a peace deal; *Right scale* measures right-left self placement on a 10 points scale. *Index* is a weighted summary index of the above variables. Importantly, the outcomes in columns 9 (support for increased government involvement in the economy) and column 10 (support social vs. market based solutions) are placebo outcomes that are not part of the Hawkish positions index. p<0.05, \*\*\* p<0.001