

Repositioning and Cost-Cutting: The Impact of Competition on Platform Strategies

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Abstract. Organizational structures are increasingly complex. In particular, more firms today operate as multisided platforms. In this paper, we study how platform firms use repositioning and cost-cutting in response to competition, elucidate external and internal factors that constrain or enable these responses, and examine how the firms' responses affect their performance. Our empirical context is the U.S. newspaper industry, which has experienced increased competition following the entry of Craigslist, an online provider of classified ads. We find that when Craigslist enters a newspaper's market, the newspaper repositions itself away from other newspapers by changing its content. This results in greater differentiation between newspapers in a market, but occurs primarily in markets in which reader preferences are heterogeneous. When reader preferences are homogeneous, newspapers are more likely to engage in cost-cutting. Both responses are more pronounced for newspaper firms whose sister firms have already experienced Craigslist's entry. We also find that failure to design the right response harms competitive viability. These findings offer important implications for many platform firms operating in today's digital economy.

Supplemental Material: The online appendix is available at <https://doi.org/10.1287/stsc.2017.0027>.

Keywords: multisided markets • platform strategies • repositioning • cost-cutting • intrafirm learning

Introduction

A number of studies have examined organizational responses to competition (e.g., Hofer 1980; Love and Nohria 2005; Gimeno et al. 2006; Casadesus-Masanell and Zhu 2010, 2013; Katila et al. 2012; Wang and Shaver 2014). Such studies typically focus on competing organizations serving a single group of customers. However, an increasing number of firms today operate as platforms: intermediaries that enable direct interactions between two or more customer or participant groups (e.g., Rochet and Tirole 2003; Eisenmann et al. 2011; Piezunka 2011, 2013; Boudreau 2012; Zhu and Iansiti 2012; Gawer and Cusumano 2014; Wareham et al. 2014; Cennamo and Panico 2015; Kapoor and Agarwal 2015). Platforms are fundamental to the business model of a wide array of firms such as Uber, Lyft, Airbnb, TaskRabbit, Upwork, and other "sharing economy" firms; Google, Yahoo, Microsoft, and other search engines; Facebook, LinkedIn, Twitter, and other social networking sites; and firms in other industries as diverse as credit cards, operating systems, trade shows, and video games. The markets for platforms are often described as multi-sided because multiple groups, such as consumers and third-party businesses—say, application providers or advertisers—need access to the same platform to interact.

The multisided nature of these businesses makes organizational operations more complex to manage. First, these platforms are more susceptible to competition. The multisided structure of their markets allows them to generate revenues from parties on different sides of their markets. At the same time, as these parties are out of their direct control, rivals can emerge on any side of the market and often from different industries to lure these parties away. For example, Pinterest, a popular digital economy platform that allows users to create and share collections of visual bookmarks, generates revenues from advertisers. But it competes for advertising dollars with sites such as Google, and for both advertising dollars and user attention with sites such as Facebook, Twitter, and YouTube.

Being multisided also makes it harder for platforms to design optimal responses to competition. Because different sides of a multisided market are often interdependent and such interdependencies may not be symmetric,¹ a platform needs to consider the links between the various sides of its market carefully when changing its strategy, as any strategic change on one side will necessitate a strategic change on the other sides (Rochet and Tirole 2003, 2006; Sun and Zhu 2013; Seamans and Zhu 2014; Jin and Rysman 2015). In addition, a platform needs to factor in the complex choices that rival firms are making. Given such complexity,

we expect that organizational learning is particularly important to firms operating in multisided markets as they respond to competition (e.g., Kalnins and Mayer 2004, Kim et al. 2009). Finally, we expect that failure to design the right response will harm a firm's competitive viability.

Prior theoretical and empirical studies have examined how platforms in multisided markets respond to competition (e.g., Economides and Katsamakos 2006, Cennamo and Santalo 2013, Seamans and Zhu 2014, Jin and Rysman 2015). Much of this work has focused on changes in pricing decisions, but firms have other response options. For example, studies (e.g., George and Waldfogel 2006, Gimeno et al. 2006, Wang and Shaver 2014) have shown that firms use repositioning to increase their product differentiation or to reduce market overlap when new competitors emerge, and have also demonstrated the effectiveness of cost-cutting strategies (e.g., Hofer 1980, Love and Nohria 2005)—including outsourcing (e.g., Poppo and Zenger 1998, Weigelt 2009) and downsizing (e.g., Robbins and Pearce 1992, Morrow et al. 2004)—in reversing performance deterioration. The platforms literature, however, is silent about the conditions under which platforms choose repositioning or cost-cutting in response to competition. Unlike tactical decisions such as pricing, strategic moves in complex environments—such as multisided markets—often require substantial changes to firm operations and it is not clear whether and how platforms adopt these moves in response to competition. Our study also highlights that any response in such an environment depends on internal and external conditions.

We draw from the literature on repositioning, cost-cutting, multisided markets, and organizational learning to address three questions: (1) Do platforms engage in both repositioning and cost-cutting to respond to competition? (2) How do platforms' external and internal conditions constrain or enable repositioning and cost-cutting? (3) How do these strategic responses affect platforms' competitive viability?

We use a unique panel data set of over 900 U.S. daily newspapers from 2000 to 2007. Newspapers can be viewed as platforms operating in multisided markets: they connect advertisers on one side to readers on the other side. We match information on local newspapers to data on the timing of Craigslist's entry into their markets. We focus on the entry of Craigslist, an online provider of classified ads, because its staggered entry into different markets provides an exogenous change in competitive intensity for classified ads for the incumbent newspapers. Although the competition only increases on the advertising side, we find that newspapers may respond by changing strategy on both the subscriber and the advertiser sides. We also find that whether a newspaper uses repositioning

or cost-cutting strategies depends on external demand factors, such as customer heterogeneity; and on internal capabilities, such as learning from the experience of a "sister firm" owned by the same parent corporation. We also show that newspapers that fail to adjust their strategies appropriately are more likely to exit. Finally, we conduct post-hoc analyses to explore how newspapers avoid coordination mistakes when repositioning.

Our study relates to several streams of literature. First, we add to the literature on multisided markets by examining how firms in such markets respond to competition and the effect of those responses on competitive viability. We show that firm strategies in such markets can go well beyond pricing responses and focus on strategic moves such as repositioning and cost-cutting. A number of theoretical studies in this literature look at the positioning strategies of platforms in multisided markets (e.g., Gabszewicz et al. 2001, 2006; Peitz and Valletti 2008, Godes et al. 2009, Gal-Or et al. 2012) and find that as advertisers' willingness to pay for each reader increases, media platforms are incentivized to lower prices and cater to majority taste in order to increase the number of viewers they can sell to their advertisers. On the other hand, when competition reduces demand from advertisers, media firms will differentiate from each other in order to raise subscription prices, enabling them to capture more value on the subscriber side. We provide empirical evidence of such repositioning and, to the best of our knowledge, we are the first to link failure to reposition to competitive viability, complementing existing work by Seamans and Zhu (2014).² Our paper is also the first to examine internal and external factors that moderate platform responses to competition.

We draw on strategy literature to explicate conditions under which platform firms will respond to competition. Although newspaper firms could undertake many strategies—such as going online, developing more opinion pieces, and forming strategic alliances—our data allow us to focus on two: repositioning and cost-cutting. We draw from demand-side strategy literature (e.g., Danneels 2004, Priem 2007, Adner and Snow 2010, Ye et al. 2012) to argue that the extent to which firms reposition depends on their external demand conditions: when customer preferences are heterogeneous (homogeneous), then two firms will find it easier (harder) to reposition themselves away from each other. We further argue that when repositioning is difficult, firms will turn to cost-cutting (Robbins and Pearce 1992, Love and Nohria 2005).³ More generally, as indicated in Seamans (2012), few studies have examined how firms coordinate various strategies when responding to competition. One exception is Wang and Shaver (2016), who find that, in most cases, firms respond to competition by simultaneously changing their positioning and product launch

strategies. We contribute to this literature by looking at how firms choose between repositioning and cost-cutting in response to competition. We also draw from the strategy literature on intrafirm learning (e.g., Darr et al. 1995, Baum and Ingram 1998, Kalnins and Mayer 2004, Kim et al. 2009, Zollo and Reuer 2010) to argue that firms will be more likely to recognize and respond to competition if they have sister firms that have already done so.

We discuss our empirical setting in the next section and then describe our theory development and hypotheses. After describing data and variables, we present our results and robustness tests. We conclude by discussing the implications of the findings and ideas for future research.

Empirical Setting

We choose the newspaper industry as our empirical setting for a number of reasons. First, newspapers are platforms operating in multi-sided markets: they connect advertisers on one side to readers on the other side (e.g., Armstrong 2006). Historically, newspapers have made much of their revenue from advertising; Vogel (2011) reports that revenues from classified ads historically accounted for 40%, on average, of a newspaper's total revenue.

Second, there are hundreds of local newspaper markets in the United States, with great variation in reader characteristics and preferences. Our research design takes advantage of the differences across these many markets.

Third, online advertising provides a large shock to newspapers. Adjusting for inflation, newspaper ad revenue grew from about \$20 billion in 1950 to a peak of about \$65 billion in 2000, before dropping back to about \$20 billion in 2013.⁴ The rise of online advertising throughout the 2000s, particularly on portals such as Yahoo and on search engines such as Google, accounted for a significant amount of this drop. At the same time, as shown in Athey et al. (2016), as online media consumption increases, the number of switching consumers increases and ad revenue for content providers falls. In addition, many newspapers were affected by the entry of Craigslist, a website that provides online classified listings, in most cases for free.⁵ Craigslist ads are easy to search and—unlike newspaper ads—are updated in real time. It is thus not surprising that the introduction of Craigslist into a market has been reported to result in a large drop in local newspapers' classified ad revenues (Gurun and Butler 2012, Seamans and Zhu 2014).

Fourth, the pattern of Craigslist's expansion allows us to establish a causal relationship.⁶ Craigslist began its service in 1995, expanded into nine more U.S. markets in 2000, four each in 2001 and 2002, 16 in 2003, 30 in 2004, 55 in 2005, and many more since then.

By 2013, it was available in more than 700 local markets in 70 countries.⁷ Had this rival entered all these markets at once, it would have been difficult to establish a causal relationship, as Craigslist's effects on newspapers could have easily been attributed to other events that took place around the same time.

Fifth, Craigslist's web pages for all of its markets are similar at any given time, so we do not have to control for Craigslist's product differences across markets.

We also run a series of hazard analyses to predict Craigslist's entry into a market and find no evidence that newspaper characteristics predict Craigslist's entry.⁸ Thus, while we do not believe that Craigslist's entry into markets is random, the evidence suggests that it is plausibly exogenous to the factors on which we focus in this study; that is, it is independent of the strategic designs made by newspapers in those markets.⁹

Theory and Hypotheses

In this section, we develop our hypotheses on (a) the effect of Craigslist's entry on newspaper repositioning and cost-cutting strategies, (b) the extent to which these strategies are constrained or enabled by external and internal factors, and (c) the effect of these strategies on newspapers' competitive viability.

Repositioning and Cost-Cutting

To begin, we draw from a stream of formal theoretical literature on positioning strategies in media markets (e.g., Steiner 1952, Beebe 1977, Anderson and Gabszewicz 2006, Gabszewicz et al. 2006), which models media markets as two-sided markets with readers on one side and advertisers on the other.¹⁰ A central prediction of this literature is that media platforms, when incentivized by ad revenue, want to charge a low price and cater to the majority taste on the reader side. This allows the platforms to attract many readers whose attention (or "eyeballs") they can then sell to advertisers to maximize profits. Because they are catering to mass markets on the reader side, the platforms do not differentiate themselves by offering different content. In extreme cases, when advertisers' willingness to pay for readers is sufficiently high, media platforms may produce identical content catering to the majority taste, resulting in zero differentiation between platforms (Anderson and Gabszewicz 2006). As an example, if 80% of the population likes watching sports and the rest like watching history, in a duopolistic market, the two competing TV channels that generate revenue entirely through ads will both offer sports programs and split the market.

When competition on the advertiser side significantly reduces advertisers' willingness to pay, these media platforms will no longer have such strong incentives to attract a large number of readers, but will

instead seek to generate more profits from readers. To this end, they will differentiate themselves more in terms of their content so that they can raise their prices on the reader side, capturing more value there. In extreme cases, when advertisers' willingness to pay becomes sufficiently close to zero, the market essentially becomes a one-sided market and media platforms will maximize their content differentiation to capture maximum value from their readers. Differentiation in this case is not in relation to entrants, as it often is in studies of one-sided markets, but rather *in relation to other incumbents*.¹¹

In our setting, Craigslist offers classified ad services but does not offer editorial and news content. Hence, its entry dramatically reduces classified advertisers' willingness to pay for newspaper advertising in the markets it has entered.¹² We therefore expect that local newspapers will reposition away from each other to increase their differentiation from each other on the reader (content) side. We state this formally as:¹³

Hypothesis 1. *Following Craigslist's entry into a market, newspapers in that market increase their content differentiation from each other.*¹⁴

At the same time, the literature on cost-cutting suggests that it is a good "retrenchment" strategy following increased competition (Hofer 1980, Morrow et al. 2004). Moreover, there are many examples in the popular press of newspapers cutting costs in response to online threats (e.g., Meyer 2009). We therefore posit:

Hypothesis 2. *Following Craigslist's entry into a market, newspapers in that market will engage in cost-cutting.*

External and Internal Factors

Our first two hypotheses predict the average effects of Craigslist's entry on newspapers. In practice, one might expect that a firm's ability to differentiate depends on the heterogeneity of its readers. Indeed, Adner and Snow (2010) report on several case studies of incumbent firms "retreating" in the face of new technology to serve specific customer segments instead of competing head-on with new entrants. But that's only possible if there is heterogeneity in the customer base.

In the newspaper industry, if a market is segmented by groups of readers with different tastes, then different newspapers can target different groups. Better targeting increases the customer's willingness to pay, allowing a newspaper to increase its prices and capture greater value (e.g., Priem 2007). Newspapers in such markets are therefore more likely to choose repositioning strategies than those in less segmented markets.

As a stylized example, imagine that readers in a market are uniformly distributed along a line depending on their tastes or preferences. Conceptually, such a market has greater reader heterogeneity than a market in which the readers are tightly bunched in one area of

that line. Specifically, imagine that the readers are uniformly distributed along the interval $[0,1]$ in the first market and along the interval $[0.33,0.67]$ in the second market, and that both markets are served by two newspapers. What happens when those newspapers move from minimal to maximal differentiation? That is, what happens when they move from $[0.5,0.5]$ to the far ends of their intervals? The first market, having a wider interval, will have more differentiation. In our own setting, this implies that newspapers will be able to differentiate more from each other in markets with more heterogeneity of reader preferences. We state this prediction formally as:

Hypothesis 3. *Following Craigslist's entry, newspapers in markets with greater reader heterogeneity are more likely to increase differentiation.*

Hypothesis 3 also suggests that newspapers' abilities to differentiate in response to competition decrease as reader preferences converge. When newspapers in such situations cannot differentiate to increase consumer willingness to pay, we expect that they will adopt other strategies—such as cost-cutting—that allow them to capture value.¹⁵ We focus on cost-cutting as the alternative strategy in our study because differentiation and cost leadership are the two most important business-level strategies (Porter 1980), and cost-cutting has received considerable attention in this particular industry. We therefore posit:

Hypothesis 4. *Following Craigslist's entry, newspapers in markets with less reader heterogeneity are more likely to engage in cost-cutting.*

Hypotheses 3 and 4 focus on how a firm's response to competition is constrained by external factors, but the response may also be influenced by internal factors. Indeed, research shows that both internal and external factors matter during times of turbulence (Danneels and Sethi 2011). Firms that are part of multi-unit companies have sister firms, and the strategy literature has examined many of the resulting learning benefits. For example, new business processes are more easily rolled out across firms owned by a parent company (Darr et al. 1995, Winter and Szulanski 2001, Schulz 2003, Kalnins and Mayer 2004). Parent companies can benchmark and monitor their business units' activities (Baum and Ingram 1998, Kalnins and Mayer 2004, Lu and Wedig 2013). Sister firms can also serve as listening posts to learn about changes in the external environment (Gassmann and Gaso 2004); information about which responses to local shocks work can be transmitted to other business units via the parent (Argote 2012), making it easier for those firms to respond when the time comes (Kogut and Zander 1992).

In our context, Craigslist enters different markets at different times. We expect that newspapers which

experience Craigslist's entry relay their experience and the need to respond to Craigslist's entry to their sister newspapers, which are then better able to adopt effective responses when Craigslist eventually enters their markets. In short, newspapers which have a sister newspaper that has been affected by Craigslist's entry learn to fear Craigslist's entry into their own markets. This expectation is in line with the findings in the learning literature that past experiences can generate learning that enhances growth, competitiveness, and survival (e.g., Huber 1991, Baum and Ingram 1998, Dencker et al. 2009).

We therefore posit that newspapers with sister newspapers that have already faced the challenge of Craigslist's entry will be more likely to exhibit the strategic responses outlined in Hypotheses 3 and 4:

Hypothesis 5A. *Following Craigslist's entry, newspapers in markets with greater reader heterogeneity will be more likely to increase differentiation if they have sister newspapers that have already been affected by Craigslist.*

Hypothesis 5B. *Following Craigslist's entry, newspapers in markets with less reader heterogeneity will be more likely to engage in cost-cutting if they have sister newspapers that have already been affected by Craigslist.*

Competitive Viability

Finally, we expect firms that do not respond appropriately to Craigslist's entry to become less competitive. When a firm in a multisided market faces increased competition on one of its sides, it should either cut costs or else reposition itself on the other side to increase differentiation; newspapers that do neither are more likely to exit the market (Chatain 2011). We therefore posit:

Hypothesis 6. *Newspapers that deviate from the appropriate differentiation and cost-cutting strategies will be more likely to exit.*

Data and Variables

Our data set combines information from multiple sources. Table 1 provides summary statistics of the variables discussed next. Our data set includes data from 2000, 2002–2005, and 2007 for 915 daily newspapers; we do not have data for 2001 and 2006. As describe next, while we use ZIP-level data to identify competitors, our analyses are performed at the county level to match Craigslist's entry pattern.

Dependent Variables

Measure of Newspaper Differentiation. Information on newspaper characteristics comes from two sources. We obtain yearly ZIP-Code circulation data from the Audit Bureau of Circulations (ABC), a leading auditor of periodical information in the United States and many other

countries, and use this circulation data to identify each newspaper's competitors.¹⁶ ABC does not collect circulation data for low-circulation small-town newspapers, so we supplement its data with data from editions of *Editor & Publisher International Yearbook* (E&P) and assume that these small newspapers only circulate in the counties in which they are based.¹⁷ The E&P yearbooks contain data on virtually every newspaper in the United States, which has been used extensively, not only for newspaper studies (e.g., George and Waldfoegel 2006, Chandra 2009, Gentzkow and Shapiro 2010), but also by the U.S. Census to compile summary statistics for the annual *Statistical Abstract of the United States*. E&P provides parent-firm information for each newspaper. We consider two newspapers competitors if they circulate in the same ZIP Code and do not have the same parent.¹⁸ Because we are interested in newspapers with a predominantly local focus—those that would be competing with Craigslist for local classified ads—we remove *The New York Times*, *The Wall Street Journal*, and *USA Today* from our sample.

To construct our differentiation measure, we categorize each editor's job title for each newspaper covered in E&P into one of 11 types: arts, business, entertainment, home, local/regional, national/foreign, special topics, sports, style/lifestyle, technology, and travel. While a count of reporters in each category would allow us to create a more detailed measure of a newspaper's content, we do not have that data and rely instead on editor titles. Following George and Waldfoegel (2003), our assumption is that, for a given newspaper, the editor types are positively correlated with its content.¹⁹

Following recent work on strategic positioning (Sweeting 2010, Wang and Shaver 2014), we use these content profiles to construct a measure of differentiation between competing newspapers. To measure newspaper firm i 's positions relative to other newspapers in year t , we first use data on its topical types to construct a vector V_{it} with 11 elements indicating whether the newspaper has an editor for one of the 11 types of content. We then use ZIP-level circulation data to identify C_i , the set of newspaper i 's competitors. We compute the distance in editor-type space between newspaper i and its competitor j , $j \in C_i$, in year t as the angle distance (in radians) between their product-location vectors V_{it} and V_{jt} (normalized by $\pi/2$):

$$Dist_{ij,t} = \left(\cos^{-1} \frac{V_{it} \cdot V_{jt}}{\|V_{it}\| \|V_{jt}\|} \right) \bigg/ \left(\frac{\pi}{2} \right).$$

The distance measure is between 0 and 1. When two newspapers have identical sets of editor types, the distance measure is 0; but when there is no overlap between the editor types—that is, they offer entirely different content—the distance measure is 1.

Table 1. Summary Statistics

Variable	Mean	Std. dev.	Min	Max	Distribution			Data source
					10th	50th	90th	
<i>Differentiation</i>	0.454	0.200	0.000	1.000	0.238	0.454	0.685	ABC, E&P
<i>Ad representative</i>	0.508	0.500	0.000	1.000	0.000	1.000	1.000	E&P
<i>No. of news services</i>	4.181	3.428	0.000	12.000	0.000	3.000	9.000	E&P
<i>No. of names</i>	4.008	4.216	0.000	53.000	0.000	4.000	8.000	E&P
<i>No. of positions</i>	4.977	4.525	0.000	54.000	1.000	4.000	9.000	E&P
<i>No. of names/No. of positions</i>	0.657	0.420	0.000	1.000	0.000	0.875	1.000	E&P
<i>Survival (daily)</i>	0.778	0.416	0.000	1.000	0.000	1.000	1.000	E&P, websites
<i>Survival (newspaper)</i>	0.907	0.291	0.000	1.000	1.000	1.000	1.000	E&P, websites
<i>Craigslist entry</i>	0.144	0.351	0.000	1.000	0.000	0.000	1.000	craigslist.org
<i>Sister experience</i>	0.339	0.473	0.000	1.000	0.000	0.000	1.000	E&P, craigslist.org
<i>No. of competitors</i>	8.214	10.615	1.000	211.000	2.000	6.000	15.000	ABC, E&P
<i>No. of ISPs</i>	0.049	0.054	0.000	0.816	0.008	0.033	0.112	FCC
<i>Black heterogeneity</i>	0.109	0.124	0.002	0.499	0.010	0.054	0.307	Census
<i>Hispanic heterogeneity</i>	0.106	0.126	0.006	0.500	0.014	0.049	0.320	Census
<i>Political heterogeneity</i>	0.476	0.032	0.163	0.500	0.444	0.483	0.499	Uselectionatlas.org

It is likely that a newspaper cares most about the competitor whose content portfolio (i.e., its product space) is most similar to its own. Indeed, studies have shown that firms of a similar type compete more aggressively than do firms of different types (e.g., Chiou 2009). We therefore create our differentiation measure for each newspaper i by computing the minimum of all the distance measures between it and its competitors at time t :²⁰

$$Diff_{it} = \min_{j \in C_i} \{Dist_{ij,t}\}.$$

Cost-Cutting Measures. Ideally, we would have annual cost expenditures for each newspaper in our sample. Lacking this data, we use data from E&P to construct three proxies for newspaper-level cost-cutting on both sides of the market. We create a dummy variable, *ad representative* _{it} , which is 1 for each year t in which newspaper firm i uses an advertising representative to sell advertising space, and 0 otherwise. Our second measure is a count variable, *no. of news services* _{it} , which counts the number of news services (such as the Associated Press and the PR Newswire Association) newspaper i uses in year t . These two variables measure outsourcing activities on the advertiser and reader sides. Ad reps are often paid on commissions instead of salary and hence are less costly²¹ and the cost of acquiring a news story from the Associated Press is considerably lower than the cost of producing the same story by the newspaper's own staff.²² Through the use of ad reps and news services, newspaper firms could also restructure their costs from fixed to variable costs and thus gain greater financial flexibility.

In some cases, newspapers will retain the same number of editorial positions over time, but will reduce headcount by assigning a single editor to cover several of them. We therefore also construct a ratio of the

number of individuals to the number of editorial positions for each newspaper. To do this, we create the variable *no. of positions* _{it} , which counts the number of editor types that newspaper i employs in year t , and *no. of names* _{it} which counts the number of unique names associated with those positions. We then compute the ratio *no. of names/no. of positions* _{it} for newspaper i in year t . A drop in this ratio indicates that the newspaper is relying on the same editor to cover more content areas. While the variable of interest is the ratio, we also report results for the numerator and denominator separately in all tables.

Newspaper Survival Measures. As our study focuses on daily newspapers, we look at whether a newspaper offers a daily subscription service in each year to determine whether it still operates in the daily newspaper segment. We construct a variable, *survival (daily)* _{i} , which is 1 if the newspaper firm continues to offer daily editions in 2014 and 0 otherwise. A newspaper may stop offering daily editions and focus instead on other product lines, such as weekly newspapers or online news services. Therefore, we also construct a variable, *survival (newspaper)* _{i} , which measures whether a newspaper still exists at all as of 2014. We use data from the 2014 online edition of E&P for both variables. We verify the E&P data by checking individual websites for each newspaper in our sample. Among the 428 daily newspapers in our sample that have experienced Craigslist's entry, 93 no longer offered daily newspaper editions in 2014 and, of those, 16 had ceased operations altogether.

Independent Variables

Craigslist's Entry. Information on craigslist.org shows that it entered 308 markets during our study period.²³ We create a dummy variable, *Craigslist entry* _{mt} , which

equals 1 for the years t after Craigslist enters the newspaper's local market m and 0 otherwise. We define the relevant market to be the county in which the newspaper is based, an approach consistent with other research in this area (e.g., Gentzkow and Shapiro 2010, Gentzkow et al. 2011) and with Craigslist's product offerings, which sometimes vary by county or by state.²⁴

Measures of Reader Heterogeneity. To test Hypothesis 3—that newspapers in markets with greater reader heterogeneity are more likely to increase differentiation following Craigslist's entry—we need to measure differences in reader heterogeneity across markets. We rely on findings from economics and political science on the relationship between demographic characteristics and preferences for types of news to create three measures of reader heterogeneity. In the political science literature, Hamilton (2004) and Baum (2005) show that liberal and conservative readers have different preferences for news content. In the economics literature, George and Waldfogel (2003) show that black and Hispanic readers' preferences for news content differs from that of non-Hispanic white readers. Building on these studies, we use historical voting patterns and demographic data on race and ethnicity to construct measures of reader heterogeneity, as explained below. We then study the extent to which market-level reader heterogeneity affects differentiation between newspapers following Craigslist's entry. We note that, while markets may be heterogeneous across other demographic dimensions, such as age, income, and education, we are not aware of research linking differences in these dimensions to preferences for news types. We therefore focus our analyses on the political, racial, and ethnic dimensions indicated earlier.

We use data from Leip (2000) on the percent of voters in a market who voted for George W. Bush in 2000, which we call $pct\ conservative_m$; $pct\ liberal_m$ is $1 - pct\ conservative_m$. The variable $political\ heterogeneity_m$ is computed as $1 - (pct\ liberal_m^2 + pct\ conservative_m^2)$; the higher its value, the greater the political heterogeneity of market m .²⁵ We collect demographic data on the fractions of the population that are Black ($pct\ black_m$) and Hispanic ($pct\ Hispanic_m$) at the market level for the year 2000 from the U.S. Census Bureau.²⁶ We construct $black\ heterogeneity_m$ and $Hispanic\ heterogeneity_m$ following a procedure similar to our construction of $political\ heterogeneity_m$. Reader heterogeneity increases as these variables increase in value. To preface some of our results, note that the literature shows that heterogeneity of reader preferences are more apparent when using $pct\ black$ than when using $pct\ Hispanic$ and $pct\ liberal$.

Other Newspaper- and Market-Level Variables. Newspaper firms with many competitors are more likely to

have low differentiation. To account for this, we create a count variable, $number\ of\ competitors_{it}$.

We also use ABC and E&P data to identify parents of newspaper firms in each year and use this information to identify sister firms of each newspaper in each year. For a newspaper that experiences Craigslist's entry in year t , we can identify whether any of its sister firms have already faced the same challenge prior to year t , in which case the variable $sister\ experience_{it}$ equals 1.

It is also important to control for a market's Internet penetration, so that the effect of Craigslist's entry is in addition to any other Internet effects. Kolko (2010) shows that the number of Internet service providers (ISPs) in a market is positively correlated with broadband availability. Hence, we collect information on the number of ISPs at the ZIP-Code level from 2000 to 2007 from the Federal Communications Commission (FCC)²⁷ and average this information across all ZIP Codes in each market in each year. To measure Internet penetration, we construct $number\ of\ ISPs_{mt}$ as that average divided by the market's population.

Results

Differentiation and Cost-Cutting. We use the following regression specifications:

$$Diff_{it} = \beta_0 + \beta_1 Craigslist\ entry_{mt} + X_{imt}B + \gamma_i + \eta_t + \varepsilon_{it}, \quad (1)$$

$$Cost-cutting\ measures_{it} = \beta_0 + \beta_1 Craigslist\ entry_{mt} + X_{imt}B + \gamma_i + \eta_t + \varepsilon_{it}, \quad (2)$$

where $Diff_{it}$, the cost-cutting measures, and $Craigslist\ entry_{mt}$ are as described and X_{imt} includes time-varying newspaper- and market-level characteristics, $number\ of\ competitors_{it}$, and $number\ of\ ISPs_{mt}$. We also include newspaper fixed effects γ_i to control for newspaper-specific unobservables and calendar-year fixed effects η_t to control for "macro" shocks that hit all newspapers similarly, such as the growing popularity of online advertising via Google and other search engines and portals.

Table 2 reports results from linear probability models. In Model (1), we look at newspapers' differentiation strategies in response to Craigslist's entry and find that the coefficient of $Craigslist\ entry_{mt}$ is significant and positive, supporting Hypothesis 1. The magnitude of the coefficient suggests that newspaper differentiation increases by about 5% following the entry of Craigslist.²⁸ Recall that differentiation is measured as the minimum distance between a newspaper and all its competitors, so newspapers with more competitors are more likely to have lower differentiation values. As expected, the coefficient of $number\ of\ competitors_{it}$ is negative and significant.²⁹ We then

Table 2. Effect of Craigslist's Entry on Newspaper's Differentiation and Cost-Cutting Strategies

Dependent variable	(1) Differentiation	(2) Ad representative	(3) No. of news services	(4) No. of names	(5) No. of positions	(6) No. of names/ No. of positions
<i>Craigslist entry</i>	0.021* [0.012]	0.044** [0.020]	-0.131 [0.103]	0.138 [0.266]	0.018 [0.281]	0.033 [0.022]
<i>Number of competitors</i>	-0.008*** [0.002]	-0.004* [0.002]	0.023 [0.014]	-0.006 [0.028]	-0.014 [0.030]	-0.003 [0.003]
<i>Number of ISPs</i>	0.209** [0.105]	-0.133 [0.167]	6.287*** [1.161]	1.251 [1.644]	-0.457 [1.829]	-0.117 [0.196]
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Newspaper fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
No. of observations	4,182	4,182	4,182	4,182	4,182	4,182
No. of newspapers	915	915	915	915	915	915
Adjusted R-squared	0.039	0.024	0.87	0.074	0.062	0.020

Notes. The table reports regression results on several newspapers' differentiation and cost-cutting strategies, 2000–2007. *Differentiation* measures the distance between a newspaper and its closest competitor. *Ad representative* is a dummy variable that equals 1 if the newspaper relied on an advertising representative. *No. of news services* is a count of the number of external news services used by the newspaper. *No. of names* is a count of the number of unique names of editors at the newspaper. *No. of positions* is a count of the number of editorial positions at the newspaper. *Craigslist entry* is a dummy variable that equals 1 for all years after Craigslist enters the county in which the newspaper is based, and 0 otherwise. Heteroskedasticity-adjusted standard errors are included in brackets.

*Significant at 10%; **significant at 5%; ***significant at 1%.

repeat the analysis using each of the cost-cutting measures as the dependent variables in Models (2)–(6) (for informational purposes, we report the results on *no. of names_{it}* and *no. of positions_{it}*, the numerator and denominator, respectively, for the ratio *no. of names/no. of positions_{it}* that we investigate in Model (6)). We find the coefficient of *Craigslist entry_{mt}* insignificant, except in Model (2), in which *ad representative_{it}* is the dependent variable. Thus we do not find strong support for Hypothesis 2.

One might be concerned that in some instances there is a major repositioning not because the focal firm has substantially changed its editorial focus but because its nearest competitor exited. We therefore conduct a robustness check by excluding all newspaper observations in which the nearest competitor has exited the market.³⁰ In our sample, only 93 newspapers exited the daily newspaper businesses during the study period and not all of them were the nearest competitors of other newspapers. Therefore, our results remain similar after dropping these observations.

External Moderators of Differentiation and Cost-Cutting. Which markets see the most post-Craigslist differentiation? We draw from the literature on readership preferences (e.g., George and Waldfogel 2003, Baum 2005) to identify market-level reader heterogeneity that might determine where the largest changes in differentiation occur. We use these characteristics in specifications of the following form:

$$\begin{aligned} Diff_{it} = & \beta_0 + \beta_1 \text{Craigslist entry}_{mt} + \beta_2 \text{Craigslist entry}_{mt} \\ & \times \text{Reader heterogeneity}_m + X_{imt} B + \gamma_i \\ & + \eta_t + \varepsilon_{it}, \end{aligned} \quad (3)$$

where *Reader heterogeneity_m* includes several measures we construct based on demographic characteristics, such as *black heterogeneity_m*, *Hispanic heterogeneity_m*, and *political heterogeneity_m*, and where the other variables are as previously described.

We report the results in Model (1) of Table 3. Consistent with research showing that differences in reader preferences are particularly sharp across black and white readers (George and Waldfogel 2003), we find that amongst the three interaction variables, only *Craigslist entry_{mt} × black heterogeneity_m* is positive and significant, supporting Hypothesis 3 that the increase in newspaper differentiation is more pronounced in markets with greater customer heterogeneity.

To investigate whether newspapers are more likely to cut costs when they cannot differentiate, we run regressions of the following type:

$$\begin{aligned} \text{Cost-cutting measure}_{it} \\ = & \beta_0 + \beta_1 \text{Craigslist entry}_{mt} + \beta_2 \text{Craigslist entry}_{mt} \\ & \times \text{Reader heterogeneity}_m + X_{imt} B + \gamma_i + \eta_t + \varepsilon_{it}. \end{aligned} \quad (4)$$

Note that when testing Hypothesis 4, we expect an inverse relationship between reader heterogeneity characteristics and cost-cutting measures. The results are presented in Models (2)–(6) of Table 3. Model (2) investigates the effect on *ad representative_{it}*. The coefficient on *Craigslist entry_{mt} × black heterogeneity_m* is negative and significant, meaning that as black heterogeneity in a market decreases, the probability of a newspaper using an ad representative increases. In Model (3), we investigate the effect on *no. of news services_{it}*. The coefficients on both *Craigslist entry_{mt} × black heterogeneity_m* and *Craigslist entry_{mt} × Hispanic heterogeneity_m* are negative

Table 3. Impact of Market Conditions on Newspapers' Differentiation and Cost-Cutting Strategies

Dependent variable	(1) Differentiation	(2) Ad representative	(3) No. of news services	(4) No. of names	(5) No. of positions	(6) No. of names/ No. of positions
<i>Craigslist entry</i>	−0.026 [0.070]	0.282** [0.128]	0.795 [1.091]	−10.438 [10.991]	−9.872 [11.145]	0.261 [0.172]
<i>Craigslist entry</i> × <i>Black heterogeneity</i>	0.149** [0.067]	−0.256** [0.115]	−2.571*** [0.740]	0.311 [1.494]	−0.199 [1.670]	0.336*** [0.119]
<i>Craigslist entry</i> × <i>Hispanic heterogeneity</i>	0.009 [0.080]	−0.082 [0.135]	−1.004* [0.564]	−0.014 [1.773]	−0.249 [1.979]	0.027 [0.113]
<i>Craigslist entry</i> × <i>Political heterogeneity</i>	0.061 [0.142]	−0.415 [0.264]	−1.047 [2.265]	22.224 [22.957]	20.967 [23.278]	−0.569 [0.356]
<i>No. of competitors</i>	−0.008*** [0.002]	−0.004* [0.002]	0.023 [0.014]	−0.008 [0.027]	−0.016 [0.029]	−0.003 [0.003]
<i>No. of ISPs</i>	0.215** [0.105]	−0.15 [0.169]	6.042*** [1.100]	0.944 [1.555]	−0.803 [1.756]	−0.092 [0.195]
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Newspaper fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
No. of observations	4,182	4,182	4,182	4,182	4,182	4,182
No. of newspapers	915	915	915	915	915	915
Adjusted R-squared	0.042	0.025	0.871	0.082	0.068	0.022

Notes. The table reports regression results on several differentiation and cost-cutting strategies, 2000–2007. *Differentiation* measures the distance between a newspaper and its closest competitor. *Ad representative* equals 1 if the newspaper relied on an advertising representative and 0 otherwise. *No. of news services* is a count of the newspaper's external news services. *No. of names* is a count of the unique names of the newspaper's editors. *No. of positions* is a count of the newspaper's editorial positions. *Craigslist entry* equals 1 for years after Craigslist enters the county in which the newspaper is based, and 0 otherwise. Heteroskedasticity-adjusted standard errors are included in brackets.

*Significant at 10%; **significant at 5%; ***significant at 1%.

and significant, meaning that as black or Hispanic heterogeneity in a market decreases, the number of news services used by a newspaper increases. For informational purposes, we next report in Models (4) and (5) the results on *no. of names_{it}* and *no. of positions_{it}*, the numerator and denominator, respectively, for the ratio that we investigate in Model (6). None of the interaction coefficients are significant in Models (4) and (5). In Model (6), we investigate the effect on *no. of names/no. of positions_{it}*. The coefficient on *Craigslist entry_{mt}* × *black heterogeneity_m* is positive and significant, meaning that as black heterogeneity in a market decreases, the probability of a newspaper using one person to cover multiple editorial positions increases. The results presented in Models (2)–(6) of Table 3 support Hypothesis 4; following Craigslist's entry into markets with little reader heterogeneity—and thus little opportunity to succeed by differentiating—newspapers will engage in cost-cutting activities.

Internal Moderators of Differentiation and Cost-Cutting. We next investigate the extent to which differentiation and cost-cutting are moderated by the experiences of sister organizations. We partition all newspapers that have experienced Craigslist's entry into two groups based on whether or not, at the time Craigslist entered their markets, one or more of their sister organizations had already experienced Craigslist's entry.

We repeat the analysis in Table 3 for each group separately and report the results in Panels A and B of Table 4. The results remain significant only for newspapers with sister experiences (*sister experience_{it}* = 1). As with the results in Table 3, the interaction variable, *Craigslist entry_{mt}* × *black heterogeneity_m*, is significant for all models except *no. of names_{it}* and *no. of positions_{it}* in Panel A, but is insignificant for all models in Panel B. These results support Hypotheses 5A and 5B that intra-firm learning from the experience of sister organizations moderates newspapers' strategies.³¹

Newspaper Survival. We next link newspapers' strategies with their chances of survival. Our theory development and empirical analysis so far have shown that differentiation is a newspaper's optimal response to Craigslist's entry when it is possible, but when it is too difficult, the optimal response is to cut costs. We thus expect that newspapers affected by Craigslist's entries that do neither will underperform those that do one or the other.

To test this relationship, we first compute residuals for each model in Table 3 (except Models (4) and (5)) and average them across all years after Craigslist's entry for each affected newspaper. Based on these average residuals, we identify newspapers that are in the bottom decile of all newspapers based on how responsive they are to Craigslist's entry, in terms of both

Table 4. The Impact of Intra-Organizational Experience on Newspapers' Differentiation and Cost-Cutting Strategies

Dependent variable	(1) Differentiation	(2) Ad representative	(3) No. of news services	(4) No. of names	(5) No. of positions	(6) No. of names/ No. of positions
Panel A: Focal newspapers with a sister newspaper already affected by Craigslist's entry						
<i>Craigslist entry</i>	-0.195 [0.162]	0.123 [0.268]	0.923 [1.297]	1.134 [2.213]	2.053 [3.681]	0.064 [0.305]
<i>Craigslist entry</i> × <i>Black heterogeneity</i>	0.155* [0.079]	-0.384*** [0.133]	-4.065*** [1.117]	0.178 [1.610]	-0.831 [1.767]	0.473*** [0.147]
<i>Craigslist entry</i> × <i>Hispanic heterogeneity</i>	0.041 [0.095]	-0.06 [0.176]	-0.06 [0.176]	-1.979 [1.922]	-2.011 [2.224]	-0.04 [0.145]
<i>Craigslist entry</i> × <i>Political heterogeneity</i>	0.459 [0.337]	-0.151 [0.536]	0.164 [2.495]	-0.44 [5.163]	-3.303 [8.021]	-0.057 [0.638]
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Newspaper fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
No. of observations	1,419	1,419	1,419	1,419	1,419	1,419
No. of newspapers	279	279	279	279	279	279
Adjusted R-squared	0.081	0.04	0.833	0.111	0.1	0.035
Panel B: Focal newspapers without a sister newspaper already affected by Craigslist's entry						
<i>Craigslist entry</i>	0.135* [0.071]	0.229 [0.212]	1.354 [1.526]	-16.729 [16.767]	-16.734 [16.856]	0.387 [0.254]
<i>Craigslist entry</i> × <i>Black heterogeneity</i>	0.101 [0.094]	-0.28 [0.241]	-0.999 [1.043]	-1.098 [3.248]	0.393 [3.414]	-0.145 [0.320]
<i>Craigslist entry</i> × <i>Hispanic heterogeneity</i>	-0.083 [0.100]	0.009 [0.201]	-0.927 [1.110]	2.802 [3.026]	2.191 [3.083]	0.233 [0.235]
<i>Craigslist entry</i> × <i>Political heterogeneity</i>	-0.207 [0.138]	-0.342 [0.436]	-1.287 [3.207]	35.995 [35.377]	36.071 [35.564]	-0.819 [0.514]
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Newspaper fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
No. of observations	831	832	832	832	832	832
No. of newspapers	180	180	180	180	180	180
Adjusted R-squared	0.028	0.031	0.815	0.129	0.109	0.042

Notes. The table reports regression results on several differentiation and cost-cutting strategies, 2000–2007. Panels A and B are for the subsets of newspapers for which *sister experience* equals 1 and 0, respectively. Heteroskedasticity-adjusted standard errors are included in brackets.

*Significant at 10%; **significant at 5%; ***significant at 1%.

differentiation and cost-cutting. We then construct a variable, *outlier (low response)_i*, which is 1 if a newspaper is in that bottom decile and 0 otherwise, and run a hazard model to predict the survival of newspapers affected by Craigslist's entry. Table 5 reports the regression results. We include a number of controls that might affect newspaper survival, such as circulation, age, number of competitors, number of ISPs, and whether any sisters have experienced Craigslist's entry. We also include a number of demographic variables, such as the percentage of the population that is black, Hispanic, or Republican and that rents, has a college degree, is below the poverty line, or is a student; together with market characteristics that could affect newspaper demand, such as population, median

age, and per capita income. Since our observations on survival are cross-sectional, we take averages of these measures across the study years for each newspaper.

Models (1)–(3) of Table 5 use *survival (daily)_i* as the dependent variable. Results from Models (1) and (2) show that, indeed, low response in differentiation and cost-cutting to Craigslist's entry significantly decreases the chance of remaining a daily newspaper. In Model (3), we add a new variable, *outlier (high response)_i*—which is 1 if a newspaper is in the top decile, based on its response to Craigslist's entry, and 0 otherwise—to examine whether responses that are too strong might be suboptimal; we find that strong responses yield negative consequences. Model (4) repeats the analysis in Model (3) with a new dependent variable, *survival*

Table 5. Survival of Newspapers

Dependent variable	(1) Survival (daily)	(2) Survival (daily)	(3) Survival (daily)	(4) Survival (newspaper)
Outlier (low response)	-0.393** [0.173]	-0.347** [0.173]	-0.371** [0.175]	-0.670** [0.272]
Outlier (high response)			-0.386** [0.175]	0.250 [0.358]
log(<i>circulation</i>)	0.192** [0.096]	0.168* [0.098]	0.172* [0.097]	0.121 [0.158]
log(<i>newspaper age</i>)	0.195 [0.150]	0.140 [0.142]	0.127 [0.144]	0.512** [0.205]
No. of competitors	-0.008 [0.007]	-0.004 [0.007]	-0.002 [0.007]	0.020 [0.019]
No. of ISPs	5.786** [2.874]	1.246 [2.848]	1.176 [2.863]	1.541 [4.941]
Sister experience	-0.081 [0.160]	-0.188 [0.166]	-0.214 [0.168]	-0.576** [0.253]
Pct black	-0.644 [0.705]	-0.431 [0.866]	-0.494 [0.845]	1.075 [1.174]
Pct Hispanic	0.088 [0.503]	0.004 [0.717]	0.094 [0.716]	0.883 [1.057]
Pct Republican	0.304 [0.677]	-0.602 [0.868]	-0.513 [0.867]	1.508 [1.487]
Pct renters		-0.830 [1.258]	-0.768 [1.247]	-1.450 [1.686]
Pct college degree		-2.184 [2.413]	-2.197 [2.438]	1.017 [3.164]
Pct poverty		6.838 [4.384]	7.289* [4.418]	10.914 [8.291]
Pct students		4.130** [1.947]	3.764* [1.944]	7.489* [3.875]
Median age		0.014 [0.030]	0.008 [0.030]	0.090** [0.045]
log(<i>population</i>)		-0.000 [0.004]	-0.002 [0.004]	0.012* [0.007]
Per capita income		-2.268 [2.328]	-2.212 [2.336]	-3.339 [2.474]
Observations	428	428	428	428
Pseudo R-squared	0.0345	0.0703	0.0806	0.198

Notes. In Models (1)–(3), *survival (daily)* is 1 if the newspaper firm still sells daily newspapers in 2014 and 0 otherwise. In Model (4), *survival (newspaper)* is 1 if the newspaper firm still exists in 2014 and 0 otherwise. Heteroskedasticity-adjusted standard errors are included in brackets.

*Significant at 10%; **significant at 5%; ***significant at 1%.

(*newspaper*)₁, and finds that a low response decreases the likelihood of surviving in the newspaper industry, though the effect on high response is no longer significant. We therefore find support for Hypothesis 6 that newspapers that do not respond to Craigslist’s entry by altering their strategies appropriately are more likely to exit.

Avoiding Coordination Mistakes During Repositioning

Unlike Wang and Shaver’s (2016) finding that firms in their setting tend to take multiple strategic actions

jointly as a competitive response, firms in our setting do not engage in repositioning and cost-cutting simultaneously, but choose between the responses depending on external conditions. In addition, the stronger results on repositioning suggest that firms prioritize repositioning over cost cutting. There is some evidence, however, that this is primarily a behavior of “inexperienced” organizations, by which we mean those lacking a sister newspaper that has experienced Craigslist’s entry.

To elucidate this point, it is informative to compare the results in column 1 across the two panels in Table 4. In Panel A, we find a noisy insignificant coefficient on Craigslist’s entry and positive (in all cases) and significant (in one case) coefficients on the interaction with measures of reader heterogeneity. In Panel B, we find a positive and significant coefficient on Craigslist’s entry and noisy insignificant coefficients on the interaction with measures of reader heterogeneity. These results suggests that newspapers without sister experience reposition themselves following Craigslist’s entry, without considering the demand environment (Panel B), those with sister experience do so only when the demand environment is appropriate (Panel A).

Repositioning is arguably more difficult to implement correctly than cost-cutting. Cost-cutting only involves changes in the business model, while repositioning requires coordination (implicit or explicit) with other organizations because it is not clear *ex ante* how competing newspapers will decide which new positions to occupy. Coordination within an organization is hard enough and even harder when trying to coordinate across organizations (Argyres 1995, Agarwal et al. 2012, Karim et al. 2016). Moreover, repositioning mistakes can be costly (Menon and Yao 2013, Argyres et al. 2015). For example, consider the hypothetical newspaper market previously described with both newspapers located at 0.5, and consumers arrayed uniformly on the interval from 0 to 1. If the newspapers want to fully differentiate, one would move from 0.5 to 0 and the other from 0.5 to 1. But how do they decide which does which? If they move simultaneously, they might both reposition to 0 or both to 1. In short, the newspapers are faced with a classic coordination game. In such a setting, focal points become important, as these will help the players select between multiple equilibria (Schelling 1960).

In the newspaper setting, a natural focal point would be the current relative “hardness” (local and foreign news, economy, and science) or “softness” (entertainment, sports, and lifestyle) of each newspaper’s content. Thus, one might expect that newspapers already favoring soft or hard news before Craigslist’s entry will increase their proportion of that type of news in response to Craigslist’s entry. These ideas are consistent with studies showing that firm strategies are

often path-dependent (e.g., Helfat and Lieberman 2002, McGahan and Mitchell 2003) and that preexisting resource profiles can shape future outcomes between firms (Agarwal et al. 2012). To investigate in more detail, we conduct post-hoc analyses of how newspapers use focal points to avoid coordination mistakes during repositioning.

Studies have shown that preferences for media products differ across demographic and ideological categories. For example, George and Waldfoegel (2003) show that market populations with higher percentages of black readers exhibit greater preferences for soft news rather than hard news. Thus, following Craigslist's entry into a market with a heterogeneous reader population, we expect newspapers to adjust their positions by changing their composition in terms of soft and hard news content. To examine this empirically, we classify business, local/regional, national/foreign, and technology news as hard news and the rest as soft news. We then construct two variables: $pct\ hard\ news_{it}$ is the number of editors of hard-news content at newspaper i for year t divided by $no.\ of\ positions_{it}$; $pct\ soft\ news_{it}$ is $1 - pct\ hard\ news_{it}$.

To investigate these ideas, we use specifications of the following type:

$$\begin{aligned} & pct\ hard\ news_{it} \\ &= \theta_0 + \theta_1\ Craigslist\ entry_{mt} + \theta_2\ Craigslist\ entry_{mt} \\ &\quad \times black\ heterogeneity_m + \theta_3\ Craigslist\ entry_{mt} \\ &\quad \times black\ heterogeneity_m \cdot type\ h_i + X_{mt}B + \lambda_i \\ &\quad + \eta_t + \varepsilon_{it}, \end{aligned} \quad (5A)$$

$$\begin{aligned} & pct\ soft\ news_{it} \\ &= \theta_0 + \theta_1\ Craigslist\ entry_{mt} + \theta_2\ Craigslist\ entry_{mt} \\ &\quad \times black\ heterogeneity_m + \theta_3\ Craigslist\ entry_{mt} \\ &\quad \times black\ heterogeneity_m \cdot type\ s_i + X_{mt}B + \lambda_i \\ &\quad + \eta_t + \varepsilon_{it}, \end{aligned} \quad (5B)$$

where $type\ h_i$ ($type\ s_i$) equals 1 if the newspaper had the highest proportion of hard (soft) news content among all newspapers in its home market in 2000 and equals 0 otherwise. Since we define the variables $type\ h_i$ and $type\ s_i$ using data from 2000, we restrict our analyses of Equations (5A) and (5B) to years 2001–2007. We focus exclusively on $black\ heterogeneity_m$, since our results suggest that this is the only dimension of reader heterogeneity along which newspapers differentiate. Our results³² suggest that following Craigslist's entry into a market with a heterogeneous reader population, newspapers previously known for either hard or soft content offer even more of the same.

Conclusion and Limitations

The goal of our paper is to better understand how firms engage in repositioning and cost-cutting in the

multisided platform markets that are increasingly prevalent in the digital economy. We focus in particular on the internal and external conditions that enable and constrain platform owners' responses to a changing competitive landscape. Whereas much previous work focuses on pricing responses, we examine repositioning and cost-cutting strategies. We provide evidence that in our context, the U.S. newspaper industry, repositioning effects are stronger in markets in which readers are more likely to have heterogeneous tastes for news and newspapers cut costs when reader heterogeneity is low. These results point to the important role that demand conditions play in strategy (e.g., Priem 2007, Adner and Snow 2010, Ye et al. 2012). Looking at internal factors, we show that interorganizational learning is important for newspapers to adopt the right strategies in response to Craigslist's market entry. These results point to the important role that organizational learning (e.g., Kalnins and Mayer 2004, Kim et al. 2009, Zollo and Reuer 2010) plays in understanding platform strategies in multisided markets. Finally, we link newspapers' strategies to their competitive viability, finding that newspapers that do not respond to Craigslist's entry are less likely to survive.

Our study highlights the complexity of operating as a platform owner. Compared to a traditional firm in a one-sided market, a firm operating in a multisided market has many more strategic tools with which to respond to competition, but this in turn can make it harder to design an optimal response. We show that learning becomes important in such settings; platform organizations that benefit from their sister organizations' experiences are substantially more likely to respond appropriately. Platform owners also need to be cognizant that market conditions on different sides of their markets may enhance or constrain their ability to change their strategies. In the newspaper industry, diversity of consumer preferences affects platforms' propensities to adopt either differentiation or cost-cutting strategies.

Limitations. The robustness of our analyses depends on the assumption that Craigslist's entry is a quasi-exogenous competitive shock to one side of a newspaper's market. We conduct additional tests to help assure that our results are robust. First, recall that our empirical approach uses a panel data set with newspaper fixed effects and an indicator for Craigslist's entry. This allows us to compare differentiation and cost-cutting before and after Craigslist enters. However, Bertrand et al. (2004) caution that such an approach may suffer from serial correlation. We therefore follow their suggestion and perform before-and-after robustness tests in which we collapse the panel data set to the pre-entry period and the post-entry period. Our results remain robust.³³

To examine how the timing of Craigslist's entry affects newspapers' strategies, we run a series of lead and lag regressions that replace *Craigslist entry*_{mt} with dummy variables for years before and after Craigslist's entry. If Craigslist's entry decisions are correlated to newspaper characteristics, we might observe significant correlations between our dependent variables and these interaction variables even before its actual entry. We find, however, that coefficients become significant only post-entry and show no evidence of significance pre-entry.³⁴ These results further support our assumption that Craigslist's entry is exogenous with respect to newspaper characteristics.

Another potential limitation is our inability to measure reader preferences other than by using coarse voting patterns and demographics. However, our study is heavily grounded in prior research in this area (George and Waldfogel 2003, Hamilton 2004, Baum 2005). We also assume that reader preferences do not vary over time and thus that newspaper repositioning following Craigslist's entry is in response to that competitive shock rather than to changes in reader preferences. Given the short time-span of our data set (2000–2007), this seems to be a relatively safe assumption. In fact, research has shown that it is difficult to shift reader preferences much over time. For example, Listokin and Snyder (2010) and Gentzkow et al. (2011) find no link between news content and local voting behaviors.³⁵

While the short time span of our data set helps control for any changing reader preferences, it also restricts our ability to trace out longer-term effects.³⁶ Future researchers might consider using a longer time frame together with more detailed organization-level data to study the conditions under which firms can rebound from initial mistakes in a multi-sided market (in our context, if a newspaper tries unsuccessfully to differentiate and then corrects its course by cost-cutting instead) or to tease out the underlying mechanisms by which learning from sister units occurs in a multi-sided market. For example, larger multi-unit firms may be able to take advantage of organizational slack (Cyert and March 1963, Levinthal and March 1993) to rebound or learn more quickly than smaller multi-unit firms. On the other hand, larger multi-unit firms may have larger bureaucracies or more rigid routines that create organizational inertia, potentially leading to slower learning (Nelson and Winter 1982, Hannan and Freeman 1984, Greve 1996). Organizational inertia may be particularly acute in a multisided market, in which strategies on one side need to be carefully balanced against strategies on other sides. On the other hand, many multisided markets are technology-enabled (such as Uber, Google, Facebook, and other examples listed in the introduction) and Argote (2011) notes that technology-enabled settings allow for easier knowledge transfer. In summary, although much

general work has been done on organizational learning (Argote 2012), it remains an open question how these concepts apply in a multisided market. We provide some initial results, leaving many interesting follow-up questions to future research.

We have deliberately grounded our study in a specific industry context: the U.S. newspaper industry. One benefit of this approach is that we can take advantage of institutional features of this industry, such as the quasi-exogenous entry of Craigslist and the hundreds of local newspaper markets with their varied reader characteristics. One potential cost of our focus on a specific industry might be that our findings cannot be generalized more broadly. However, we have intentionally focused our study on responses (repositioning and cost-cutting) and internal and external factors (intrafirm learning and consumer demand) that should generalize to other settings. More broadly, organizations in many industries frequently face competitive threats from technological innovations (e.g., Hill and Rothaermel 2003, Schilling 2013) and industries with multisided markets are becoming more common (e.g., Eisenmann 2007, Gawer and Cusumano 2014), so future research can extend our approach to other contexts. Moreover, while in our setting Craigslist does not appear to react to newspapers' strategies, in other settings, it will be interesting to consider potential strategic moves by the entrants as well.

Finally, while prior studies often focused on one type of strategy that platform firms use to respond to competition (pricing) we document two other choices (repositioning and cost-cutting); and there are still others, including launching online businesses, creating new content, reselling services to other newspapers, and changing the formal governance structure of an organization, the last being one which other researchers (e.g., Pickard and Stearns 2011) have suggested as a possibility. To the extent that newspapers in our sample were undertaking some of these other responses rather than the two we measured, we would expect this to bias our results toward zero. More generally, the growth of platforms in many industries provides great opportunities for strategy scholars. These firms often need to design different strategies on each side of their markets, yet these strategies are interdependent. How firms select and coordinate multiple strategies will therefore be an important and fruitful research area.

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Endnotes

¹For example, in the case of Uber, drivers' utility increases with the number of app users and vice versa. But in the case of Facebook, while advertisers' utility increases with the number of Facebook users, users' utility does not necessarily increase with the number of advertisers.

²Seamans and Zhu (2014) use data on classified ad pricing, display ad pricing, subscription rates, circulation, and differentiation to study how Craigslist entry affects strategic choices across different sides of a newspaper's market. That paper does not investigate the role of cost-cutting, demand-side heterogeneity, or intrafirm learning or the effects of firm strategies on market exit, as we do here.

³These two strategies are not necessarily mutually exclusive and we do not imply that there are no others. We discuss other possible strategies in the concluding section.

⁴<http://www.aei.org/publication/chart-of-the-day-newspaper-advertising-revenue-will-likely-continue-its-decade-long-free-fall-to-below-1950-levels/>, accessed August 2016.

⁵Craigslist charges for job listings in a few cities and for apartment listings in New York City. Source: <http://www.craigslist.org/about/factsheet>, accessed August 2016.

⁶See geographic and temporal expansion pattern graphs in online Appendix 1.

⁷<http://www.craigslist.org/about/>, accessed August 2016.

⁸Appendix 3 online provides the results of these hazard analyses, in which we test the relationship between the likelihood of Craigslist's entry into a county on demographic variables at the county level and newspaper characteristics which have been averaged across all the newspapers in the county. We find that newspaper characteristics do not predict Craigslist's entry likelihood.

⁹Gurun and Butler (2012), Kroft and Pope (2014) and Bennett et al. (2015) also find that, in different settings, Craigslist's entry is exogenous to their outcomes of interest.

¹⁰These models are typically based on a set of general assumptions. For example, the reader side is described by a standard Hotelling (1929) location model with quadratic costs. Advertisers' willingness to pay increases with the number of readers.

¹¹In a typical (one-sided) differentiation game, a new entrant enters the market, causing incumbents to reposition themselves in response to increased competition. Studies have shown that incumbents may choose to move away from or closer to the entrant, depending on market conditions (e.g., de Figueiredo and Silverman 2007, Polidoro and Toh 2011, Cennamo and Santalo 2013, Wang and Shaver 2014).

¹²It is possible that some newspaper readers receive value not only from the editorial and news content, but also from the advertising content. Many of these purchases are likely to be one-off purchases when a reader searches for something like a job or an apartment and are unlikely to constitute a significant portion of newspaper demand. Indeed, as shown empirically in Argentesi and Filistrucchi (2007), on average, demand for a newspaper on its subscriber side is independent of the number of ads it carries.

¹³Hypothesis 1 is a baseline prediction already stated in prior theoretical work (in particular, Gabszewicz et al. 2006). Also, as noted in the introduction, Seamans and Zhu (2014) find evidence that newspapers which depend heavily on classified-ad revenue increase their differentiation following Craigslist's entry.

¹⁴Note that in line with previous work on the media industry (e.g., Anderson and Gabszewicz 2006, Gabszewicz et al. 2006, Della Vigna

and Kaplan 2007, Gentzkow and Shapiro 2010), we focus on horizontal rather than vertical differentiation. It is possible that firms take actions to change their vertical differentiation (see, for example, Benner and Waldfogel 2016) and we leave this topic for future research.

¹⁵Analysis of a full range of possible strategies is outside the scope of this paper. In the concluding section, we discuss other strategies that would be interesting to investigate.

¹⁶Note that we intentionally use subscription-based circulation data because it seems unlikely that many people subscribe to newspapers solely to read classifieds. That would likely be a one-off purchase when searching for something like a job or a car.

¹⁷E&P only provides aggregate circulation data for each newspaper.

¹⁸Twenty-five newspapers (2.6%) do not have any competitors based on their ZIP-level circulation data and are not included in our sample of 915 newspapers.

¹⁹To further justify our use of editor positions to proxy for newspaper content, we use www.newslibrary.com to collect information on the number of articles of different content types in a newspaper. We are able to match 257 newspapers in newslibrary.com to our data set for the year 2000. We identify content produced by each of these newspapers by searching newslibrary.com for articles with the words "arts," "business," "entertainment," "international," "sports," "style," and "technology" and find high correlations between editor type and article content, as shown in online Appendix 4. Other research, such as Gentzkow and Shapiro (2010), also relies on newslibrary.com for news content analysis.

²⁰We conduct robustness checks using two alternative measures of differentiation and report the results in online Appendix 5. First, it is possible that a newspaper mainly cares about its most significant competitor and cares little or nothing about others. Therefore, as one alternative differentiation measure, after computing the distance measures between newspaper i and each of its competitors, we use ZIP-Code circulation data to identify newspaper i 's most significant competitor, using the market overlap between it and each of its competitors, following the procedure used by Chen (1996) and Alcácer (2006). We then define $Diff_{it}$ to be the distance between newspaper i and its most significant competitor in year t . Second, it is possible that a newspaper cares about how it differentiates from the average competitor in its market. We therefore define another alternate differentiation measure for each newspaper i by taking the average of the distance measures between it and all its competitors. We obtain similar results using these measures.

²¹See, for example, <http://adboomadvertising.com/blog/out-sourced-advertising-sales-or-in-house-which-offers-more-value-2/>, accessed October 2016.

²²See, for example, <http://www.niemanlab.org/2011/04/the-news-economics-of-story-cost-accounting/>, accessed October 2016.

²³The company lists the dates and locations of its expansion at <http://www.craigslist.org/about/expansion>. From November 2006, the site lists only the number of cities entered, so we supplement this with information from historical snapshots of Craigslist's websites found on the Internet Archive (<https://archive.org>).

²⁴The relevant newspaper market has been alternately defined at smaller and larger levels, including the ZIP Code (Chandra 2009) and metropolitan statistical area (MSA) (George and Waldfogel 2006).

²⁵The sum $pct\ liberal_m^2 + pct\ conservative_m^2$ is bounded below at 0.5, which occurs in those markets in which half vote liberal and half vote conservative. We consider such markets to be those with the greatest political heterogeneity. In contrast, markets in which either $pct\ liberal_m$ or $pct\ conservative_m$ is close to 1 are those with little political heterogeneity.

²⁶Downloaded from the U.S. Census Bureau at <http://factfinder.census.gov>; accessed May 2013.

²⁷ Available from the FCC website at <http://www.fcc.gov/wcb/iatd/comp.html>, accessed August 2016.

²⁸ The mean of $Diff_{it}$ for newspapers before Craigslist's entry is 0.419. Hence, we compute the percentage increase as $0.021/0.419 = 5\%$.

²⁹ We replicate all our main results after dropping the controls for number of competitors and number of ISPs; the results are similar to those reported here (see online Appendix 11).

³⁰ Results are presented in online Appendix 2.

³¹ For robustness, we also replicate Tables 4(A) and 4(B) after dropping single-unit newspaper firms. See online Appendix 9 for results.

³² See online Appendix 6 for results.

³³ See online Appendix 7 for results.

³⁴ See online Appendix 8 for results.

³⁵ See, however, Della Vigna and Kaplan (2007) for a counterexample.

³⁶ In additional analyses reported in online Appendix 10, we find that the more time that has elapsed since a sister newspaper was affected by Craigslist's entry, the stronger the focal newspaper's response to Craigslist's entry into its own market. This is consistent with our learning argument. However, we lack sufficient organization-level data to probe the role of organizational bureaucracies, organizational inertia, or other mechanisms.

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