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Competition and Ideological Diversity: Historical Evidence from US Newspapers[†]

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We study the competitive forces which shaped ideological diversity in the US press in the early twentieth century. We find that households preferred like-minded news and that newspapers used their political orientation to differentiate from competitors. We formulate a model of newspaper demand, entry, and political affiliation choice in which newspapers compete for both readers and advertisers. We use a combination of estimation and calibration to identify the model's parameters from novel data on newspaper circulation, costs, and revenues. The estimated model implies that competition enhances ideological diversity, that the market undersupplies diversity, and that optimal competition policy requires accounting for the two-sidedness of the news market. (*JEL* D72, K21, L13, L41, L82, N42, N72)

Decentralized markets may not supply the socially optimal variety of products (Steiner 1952; Dixit and Stiglitz 1977; Mankiw and Whinston 1986). This is especially true of the news media, because diversity of news and opinion can have beneficial effects on political competition that is not internalized by the market participants (Becker 1958; Downs 1957). According to the US Supreme Court, "the widest possible dissemination of information from diverse and antagonistic sources is essential to the welfare of the public" (*Associated Press v. United States* 1945).

Competition policy toward media has long been shaped by the perceived importance of these political externalities. The Postal Act of 1792 created massive subsidies for newspaper distribution (Kielbowicz 1983, 1990).[1] Joint operating agreements, in which newspapers effectively colluded on subscription and advertising sales but

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[1] Under the 1792 act, a four-page letter cost \$1 to mail 450 miles; a newspaper of the same size cost 1.5 cents (Kielbowicz 1983). Debate over the details of the subsidy concerned, among other things, the appropriate diversity of news provision from local and national sources (Kielbowicz 1983; John 2009).

remained editorially separate, began in 1933 and later became a legislated exception to the Sherman Act (Busterna and Picard 1993).[2] The Communications Act of 1934 empowered the Federal Communications Commission to limit concentration of control over broadcast spectrum (Candeub 2007). Concerns about diversity of viewpoints played a major role in the federal antitrust action against the Associated Press, which ended with the 1945 Supreme Court decision quoted above. Antitrust exemptions, ownership regulation, and explicit subsidies remain important policies in the United States and elsewhere.[3]

We present a historical study of the economic forces that determine ideological diversity, and the impact of policies designed to increase it, using novel data from US daily newspapers in 1924. In this period, hundreds of cities across the country had multiple competing papers, affording us a large cross-section of experiments which can be used to identify competitive interactions. Most newspapers had current or past affiliations with either the Republican or Democratic party, providing a convenient proxy for the political slant of their content (Gentzkow, Glaeser, and Goldin 2006; Hamilton 2006). Ideology was one of the main dimensions of differentiation along which competitive lines were drawn. Television had not been introduced, and radio was still in its infancy, so newspapers were for most Americans the only source of daily political information. Whether a given town had only Republican papers, only Democratic papers, or papers spanning both sides of the political spectrum thus had a dramatic effect on the range of views to which its voters were exposed (Galvis, Snyder, and Song 2012).

We model newspaper competition in this period in a framework that endogenizes decisions over entry, political orientation, subscription prices, and advertising rates. The model embeds Gentzkow's (2007) multiple-discrete-choice demand framework in a sequential entry game in the spirit of Bresnahan and Reiss (1991) and Mazzeo (2002). In the model, newspapers first decide whether to enter the market, then choose either Republican or Democratic affiliation, taking into account household demand, the responses of other entering newspapers, and the effect of affiliation choice on subscription and advertising prices. The model allows households to exhibit a preference for newspapers whose ideology matches their own, and to regard newspapers with the same political affiliation as more substitutable than newspapers with different affiliations. The advertising model is stylized, but it captures the key prediction from the theory literature on two-sided markets that advertising-market competition depends on the extent of overlap in newspapers' readership (Armstrong 2002; Anderson, Foros, and Kind 2011; Ambrus, Calvano, and Reisinger 2013).

Our key results hinge on the strength of newspapers' incentives to differentiate ideologically from their competitors. In our model, these incentives are governed by two parameters. First, they depend on the extent to which same-affiliation

[2] The Newspaper Preservation Act of 1970, which established the antitrust exemption for joint operating agreements, states its goal as "maintaining a newspaper press editorially and reportorially independent and competitive in all parts of the United States."

[3] House Speaker Nancy Pelosi recently asked Attorney General Eric Holder to consider First Amendment issues when deciding antitrust enforcement for local newspaper consolidation (Pelosi 2009). The Federal Communications Commission (FCC) continues to regulate broadcast media ownership "on the theory that diversification of mass media ownership serves the public interest by promoting diversity of program and service viewpoints" (FCC 2010). The proposed Newspaper Revitalization Act would grant newspapers an implicit federal subsidy in the form of nonprofit status (Priest 2011). Explicit subsidies to the press are common in Europe (Murschetz 1998).

newspapers are closer substitutes than opposite-affiliation papers. This determines the gains to differentiation through standard Hotelling channels. Second, they depend on the extent of diminishing returns to impressions in the advertising market. This determines the overall intensity of advertising competition, and thus the incentive to differentiate in order to soften this competition.

To estimate the demand side of the model, we use data on 1924 daily newspaper circulation by town. These data allow us to compare the circulation of a given newspaper across many towns with differing ideology. Descriptive analysis shows that a 10 percentage point increase in a town's Republican vote share increases circulation of Republican papers relative to Democratic papers by 10 percent. This fact pins down consumers' taste for like-minded news in our model. The relative substitutability of same-affiliation papers is identified by variation in relative circulation with respect to the number of papers of each type. We find that adding a second Republican paper to a town with one Republican and one Democratic newspaper reduces the relative circulation of the existing Republican paper by 4 percent.

We calibrate several model parameters. Because we do not have price instruments we believe are credible, we estimate the price coefficient by imposing the assumption that observed prices satisfy firms' first-order conditions. Because our circulation data do not record overlap in the readership of different papers, we calibrate the overlap predicted by our model to match that observed in a set of historical readership surveys. We calibrate marginal costs and advertisers' willingness to pay to match historical data for a set of representative newspapers. Large markups over marginal costs and significant overlap in readership both suggest that newspapers were highly differentiated products.

To estimate the entry, affiliation choice, and advertising parameters of the model, we use data on the order of entry and observed affiliations in each 1924 newspaper market. Controlling for the fraction Republican, our descriptive analysis suggests that adding an additional Republican incumbent reduces an entering paper's likelihood of choosing a Republican affiliation by 15 percentage points. This relationship identifies the strength of differentiation incentives overall. Since the demand estimates pin down the Hotelling portion of these incentives, the residual is attributed in our model to diminishing returns to advertising. The relationship between population and the observed number of firms identifies the parameters of the distribution of fixed costs.

An important concern is that the correlations we exploit for identification may be confounded with unobserved variation in consumer ideology or preferences, biasing downward the estimated incentive to differentiate and the estimated substitutability of same-affiliation newspapers (Aguirregabiria and Nevo 2013). We address these issues by allowing explicitly for unobserved variation in household ideology, using a novel identification strategy which exploits correlation across markets that are close enough to share similar characteristics but far enough apart that their newspapers do not compete. We assume in the spirit of Murphy and Topel (1990) and Altonji, Elder, and Taber (2005) that the spatial correlation in unobservable dimensions of ideology matches that of observable measures. The resulting spatial structure allows us to infer the distribution of market-level unobservables, much as panel structure facilitates recovering this distribution in dynamic settings (e.g., Collard-Wexler forthcoming; see also Arcidiacono and Miller 2011).

We use the estimated model to measure the importance of competitive forces relative to other incentives in shaping the ideological diversity of the news market. We measure diversity by the number of markets with at least one newspaper affiliated with each party, the share of households living in such markets, and the share of households reading at least one newspaper affiliated with each party. We find that the incentive to differentiate from competitors in order to attract more readers and soften price and advertising competition (Mullainathan and Shleifer 2005) increases diversity significantly, offsetting a strong incentive to cater to the tastes of majority consumers (George and Waldfogel 2003).

Next, we compare the market outcomes to those that would be chosen by a social planner maximizing economic welfare, but ignoring any externalities from diversity. Relative to the first best, market entry is inefficiently low, market prices are inefficiently high, and the market incentive to differentiate politically from competitors is inefficiently weak. Thus, there is no conflict between the policy goals of maximizing economic welfare and preserving diversity in the marketplace of ideas. Policies aimed at the latter goal are likely to also be beneficial from the perspective of the former.

Finally, we consider a range of competition policy experiments. Allowing newspapers to collude on circulation prices reduces economic welfare and has mixed effects on diversity. By contrast, allowing newspapers to collude on *advertising* prices increases both economic welfare and diversity. Advertising prices rise, leading circulation prices to fall as newspapers compete intensely for readers (Rochet and Tirole 2006; Dewenter, Haucap, and Wenzel 2011). Entry increases dramatically. Consumer surplus increases, significant profit is transferred from advertisers to newspapers, and the share of households who read diverse papers increases significantly. The contrasting effects of circulation and advertising price collusion highlight the importance of accounting for the two-sided nature of media markets in policy evaluation. When we allow newspapers to form joint operating agreements and collude on both circulation and advertising prices, diversity increases at no cost to economic welfare. We show that joint ownership (in which one entity has the exclusive right to open and operate newspapers in a market) reduces welfare and diversity, while an explicit subsidy (modeled on the US postal subsidy system) increases both welfare and diversity.

Throughout our analysis, we treat consumer ideology, as measured by Republican vote shares, as exogenous to newspaper affiliations. This decision follows our finding in Gentzkow, Shapiro, and Sinkinson (2011) that the entry or exit of a partisan newspaper does not change the expected party vote share. Importantly, this assumption is consistent with large political externalities to ideological diversity. A newspaper's party affiliation need not affect expected vote shares, since rational voters will take an outlet's bias into account in updating their beliefs (Chiang and Knight 2011). Yet diverse media may still provide more information in aggregate (Anderson and McLaren 2012), making beliefs more correlated with the truth even if though they may not change on average. For example, if Democratic papers report more aggressively on scandals affecting Republican politicians and vice versa (Gentzkow, Glaeser, and Goldin 2006; Galvis, Snyder, and Song 2012), having a newspaper from each party will tend to maximize the chance that consumers learn about a given scandal. In the online Appendix to this paper, we offer a formal model which captures these ideas.