



APPENDIX FIGURE 1. SPATIAL DECAY IN NEWSPAPER SHIPMENTS
AND DEMOGRAPHIC CORRELATIONS

Notes: Data are from the US Census and the Audit Bureau of Circulation data described in Section IC. The first two lines show the correlation coefficient of fraction Republican and fraction white for counties located in the same state, at different centroid distances. Republican vote share is the average Republican share of the two-party vote in presidential elections from 1868 to 1928. The third line shows the share of newspaper circulation in county 2 accounted for by newspapers headquartered in county 1, for counties located at different centroid distances. Only counties containing at least one market in the sample described in Section IB are included.

The twelfth row presents estimates from a specification in which we allow greater flexibility in the way in which consumer ideology affects the affiliations of newspapers that are available in a given town. In particular, we assume that the probability that a given newspaper available in town t is Republican is $\text{logit}^{-1}(\mu_\rho^0 + \mu_\rho^1 \text{logit}(\rho_t) + \mu_\rho^2 \text{logit}(\rho_t))$.

The thirteenth and fourteenth rows extend the demand model to allow the utility from reading a newspaper to depend on a quality shifter. In particular, we assume that the utility of bundle \mathcal{B} is shifted by $\sum_{j \in \mathcal{B}} \alpha_d d_j$, where d_j is a quality shifter and α_d is a parameter that we estimate. In the thirteenth row, d_j is the distance from the town to the newspaper's home market. In the fourteenth row, d_j is the circulation of the newspaper in its home market.

The fifteenth row replaces our measure of consumer ideology for each market, the average share of the two-party presidential vote going to Republicans over the period 1868 to 1928, with the population-weighted average of the measure across the market and all of the hinterland towns served by newspapers headquartered in the market. For towns with no hinterland circulation, this corresponds to our usual measure of consumer ideology.

The sixteenth row replaces all prices in our demand data with the mean price. The seventeenth row allows price to enter as a quality shifter.

None of these changes to model specification changes the qualitative conclusions from comparing across counterfactuals.

The remaining rows of the table present estimates from various subsets of the main estimation sample. The sample in the eighteenth row tightens the population restrictions defining the universe of potential daily newspaper markets by

25 percent, by excluding all market pairs containing a market with population smaller than 3,750 or larger than 75,000. The sample in the nineteenth row excludes any market pair containing one or more independent newspapers in 1924. The sample in the twentieth row excludes any market pair containing one or more unaffiliated newspapers as of 1924. The sample in the twenty-first row excludes any market pair containing a market within 100km of any of the ten most populous cities as of the 1920 Census. The sample in the twenty-second row drops any town pair for which our town-level circulation data omit a newspaper in at least one town's nearest news market. The sample in the twenty-third row excludes any market pair containing a pair of papers in different markets that are owned by the same chain as of 1932. (Our ownership data are from the 1932 *Editor and Publisher Yearbook*. The earlier annual directories that we use to construct our main sample do not include lists of chain-owned newspapers.) The sample in the twenty-fourth row excludes any town pair for which a town's population is in the top 10 percent. The sample in the twenty-fifth row excludes any town pair for which a town's population is in the bottom 10 percent. The sample in the twenty-sixth row excludes any market pair containing a market in the South.

None of these changes to the sample changes our qualitative conclusions. As we would expect, removing markets in the South meaningfully affects our quantitative results. Because of the dominance of the Democratic party, Southern markets demand (and receive) little diversity, so removing Southern markets increases baseline diversity and increases the scope for welfare gains from improving diversity.

REFERENCES

- Ackerberg, Daniel A., and Marc Rysman.** 2005. "Unobserved Product Differentiation in Discrete-Choice Models: Estimating Price Elasticities and Welfare Effects." *RAND Journal of Economics* 36 (4): 771–88.
- Aguirregabiria, Victor, and Aviv Nevo.** 2013. "Recent Developments in Empirical IO: Dynamic Demand and Dynamic Games." In *Advances in Economics and Econometrics*, Tenth World Congress. Vol.3, edited by Daron Acemoglu, Manuel Arellano, and Eddie Deckel, 53–122. Cambridge: Cambridge University Press.
- Altonji, Joseph G., Todd E. Elder, and Christopher R. Taber.** 2005. "Selection on Observed and Unobserved Variables: Assessing the Effectiveness of Catholic Schools." *Journal of Political Economy* 113 (1): 151–84.
- Ambros, Attila, Emilio Calvano, and Markus Reisinger.** 2013. "Either or Both Competition: A 'Two-sided' Theory of Advertising with Overlapping Viewerships." Unpublished.
- Anderson, Simon P., Øystein Foros, and Hans Jarle Kind.** 2010. "Hotelling Competition with Multi-Purchasing: Time Magazine, Newsweek, or Both?" Unpublished.
- Anderson, Simon P., Øystein Foros, and Hans Jarle Kind.** 2011. "Competition for Advertisers in Media Markets." Unpublished.
- Anderson, Simon P., and John McLaren.** 2012. "Media Mergers and Media Bias with Rational Consumers." *Journal of the European Economic Association* 10 (4): 831–59.
- Anderson, Simon P., Andre de Palma, and Jacques-Francois Thisse.** 1992. *Discrete Choice Theory of Product Differentiation*. Cambridge: MIT Press.
- Antonielli, Marco, and Lapo Filistrucchi.** 2012. "Collusion and the Political Differentiation of Newspapers." Tilburg Law and Economics Center (TILEC) Discussion Paper 2012-014.
- Arcidiacono, Peter, and Robert A. Miller.** 2011. "Conditional Choice Probability Estimation of Dynamic Discrete Choice Models with Unobserved Heterogeneity." *Econometrica* 79 (6): 1823–67.
- Argentesi, Elena, and Lapo Filistrucchi.** 2007. "Estimating Market Power in a Two-Sided Market: The Case of Newspapers." *Journal of Applied Econometrics* 22 (7): 1247–66.
- Armstrong, Mark.** 2002. "Competition in Two-sided Markets." Unpublished.
- Bajari, Patrick, and Ali Hortacsu.** 2003. "The Winner's Curse, Reserve Prices, and Endogenous Entry: Empirical Insights from eBay Auctions." *RAND Journal of Economics* 34 (2): 329–55.

- Baldasty, Gerald J.** 1992. *The Commercialization of News in the Nineteenth Century*. Madison: University of Wisconsin Press.
- Becker, Gary S.** 1958. "Competition and Democracy." *Journal of Law and Economics* 1: 105–09.
- Berry, Steven, Alon Eizenberg, and Joel Waldfogel.** 2013. "Optimal Product Variety in Radio Markets." Unpublished.
- Berry, Steven, James Levinsohn, and Ariel Pakes.** 1995. "Automobile Prices in Market Equilibrium." *Econometrica* 63 (4): 841–90.
- Berry, Steven T., and Joel Waldfogel.** 1999. "Free Entry and Social Inefficiency in Radio Broadcasting." *RAND Journal of Economics* 30 (3): 397–420.
- Berry, Steven T., and Joel Waldfogel.** 2001. "Do Mergers Increase Product Variety? Evidence from Radio Broadcasting." *Quarterly Journal of Economics* 116 (3): 1009–25.
- Berry, Steven, and Joel Waldfogel.** 2010. "Product Quality and Market Size." *Journal of Industrial Economics* 58 (1): 1–31.
- Bogart, Leo.** 1981. *Press and Public: Who Reads What When Where and Why in American Newspapers*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Borenstein, Severin, and Janet Netz.** 1999. "Why Do All the Flights Leave at 8am? Competition and Departure-time Differentiation in Airline Markets." *International Journal of Industrial Organization* 17(5): 611–640.
- Bresnahan, Timothy F., and Peter C. Reiss.** 1991. "Entry and Competition in Concentrated Markets." *Journal of Political Economy* 99 (5): 977–1009.
- Brock, William A., and Steven N. Durlauf.** 2007. "Identification of Binary Choice Models with Social Interactions." *Journal of Econometrics* 140 (1): 52–75.
- Burnham, Walter Dean.** 1965. "The Changing Shape of the American Political Universe." *American Political Science Review* 59 (1): 7–28.
- Busterna, John C., and Robert G. Picard.** 1993. *Joint Operating Agreements: Newspaper Preservation Act and Its Application (Panel Answer Book Series)*. Norwood, NJ: Ablex Publishing Corporation.
- Candeub, Adam.** 2007. "Media Ownership Regulation, the First Amendment, and Democracy's Future." *Media Ownership Regulation* 41 (4): 1547–1611.
- Chandra, Ambarish.** 2009. "Symposium on Advertising and Disclosure: Targeted Advertising: The Role of Subscriber Characteristics in Media Markets." *Journal of Industrial Economics* 57 (1): 58–84.
- Chandra, Ambarish, and Allan Collard-Wexler.** 2009. "Mergers in Two-Sided Markets: An Application to the Canadian Newspaper Industry." *Journal of Economics and Management Strategy* 18 (4): 1045–70.
- Chiang, Chun-Fang.** 2010. "Political Differentiation in Newspaper Markets." Unpublished.
- Chiang, Chun-Fang, and Brian Knight.** 2011. "Media Bias and Influence: Evidence from Newspaper Endorsements." *Review of Economic Studies* 78 (3): 795–820.
- Collard-Wexler, Allan.** Forthcoming. "Mergers and Sunk Costs: An Application to the Ready-Mix Concrete Industry." *American Economic Journal: Microeconomics*.
- Costa, Dora L.** 2001. "Estimating Real Income in the United States from 1888 to 1994: Correcting CPI Bias Using Engel Curves." *Journal of Political Economy* 109 (6): 1288–1310.
- Dertouzos, James N., and William B. Trautman.** 1990. "Economic Effects of Media Concentration: Estimates from a Model of the Newspaper Firm." *Journal of Industrial Economics* 39 (1): 1–14.
- Dewenter, Ralf, Justus Haucap, and Tobias Wenzel.** 2011. "Semi-collusion in Media Markets." *International Review of Law and Economics* 31 (2): 92–8.
- Dixit, Avinash K., and Joseph E. Stiglitz.** 1977. "Monopolistic Competition and Optimum Product Diversity." *American Economic Review* 67 (3): 297–308.
- Downs, Anthony.** 1957. "An Economic Theory of Political Action in a Democracy." *Journal of Political Economy* 65: 135–50.
- Draganska, Michaela, Michael Mazzeo, and Katja Seim.** 2009. "Beyond Plain Vanilla: Modeling Joint Product Assortment and Pricing Decisions." *Quantitative Marketing and Economics* 7 (2): 105–46.
- Einav, Liran.** 2007. "Seasonality in the U.S. Motion Picture Industry." *RAND Journal of Economics* 38 (1): 127–45.
- Einav, Liran.** 2010. "Not All Rivals Look Alike: Estimating an Equilibrium Model of the Release Date Timing Game." *Economic Inquiry* 48 (2): 369–90.
- Einav, Liran, Amy Finkelstein, and Mark R. Cullen.** 2010. "Estimating Welfare in Insurance Markets Using Variation in Prices." *Quarterly Journal of Economics* 125 (3): 877–921.
- Ekelund, Robert Burton, and Robert F. Hébert.** 1999. *Secret Origins of Modern Microeconomics: Dupuit and the Engineers*. Chicago: University of Chicago Press.
- Erikson, Robert S., and Kent L. Tedin.** 1981. "The 1928–1936 Partisan Realignment: The Case for the Conversion Hypothesis." *American Political Science Review* 75 (4): 951–62.

- Fan, Ying.** 2013. "Ownership Consolidation and Product Characteristics: A Study of the US Daily Newspaper Market." *American Economic Review* 103 (5): 1598–1628.
- Federal Communications Commission (FCC).** 2010. "Notice of inquiry." FCC 10-92. Washington, DC.
- Field, Alexander J.** 2006. "Newspapers and Periodicals—Number and Circulation, By Type: 1850-1967. In *The Historical Statistics of the United States*, edited by Susan B. Carter, Scott Sigmund Gartner, Michael R. Haines, Alan L. Olmstead, Richard Sutch, and Gavin Wright, 253–66. New York: Cambridge University Press.
- Gabszewicz, Jean J., Didier Laussel, and Nathalie Sonnac.** 2001. "Press Advertising and the Ascent of the 'Pensée Unique.'" *European Economic Review* 45 (4-6): 641–51.
- Gabszewicz, Jean J., Didier Laussel, and Nathalie Sonnac.** 2002. "Press Advertising and the Political Differentiation of Newspapers." *Journal of Public Economic Theory* 4 (3): 317–34.
- Galvis, Ángela Fonseca, James M. Snyder, Jr., and B. K. Song.** 2012. "Newspaper Market Structure and Behavior: Partisan Coverage of Political Scandals in the US from 1870 to 1910." Unpublished.
- Gentzkow, Matthew.** 2007. "Valuing New Goods in a Model with Complementarity: Online Newspapers." *American Economic Review* 97 (3): 713–44.
- Gentzkow, Matthew, Edward L. Glaeser, and Claudia Goldin.** 2006. "The Rise of the Fourth Estate: How Newspapers Became Informative and Why it Mattered." In *National Bureau of Economic Research Corruption and Reform: Lessons from America's Economic History*, edited by Edward L. Glaeser and Claudia Goldin, 187–230. Chicago: University of Chicago Press.
- Gentzkow, Matthew, Nathan Petek, Jesse M. Shapiro, and Michael Sinkinson.** Forthcoming. "Do Newspapers Serve the State? Incumbent Party Influence on the US Press, 1869–1928." *Journal of the European Economic Association*.
- Gentzkow, Matthew, and Jesse M. Shapiro.** 2010. "What Drives Media Slant? Evidence from U.S. Daily Newspapers." *Econometrica* 78 (1): 35–71.
- Gentzkow, Matthew, Jesse M. Shapiro, and Michael Sinkinson.** 2011. "The Effect of Newspaper Entry and Exit on Electoral Politics." *American Economic Review* 101 (7): 2980–3018.
- Gentzkow, Matthew, Jesse M. Shapiro, and Michael Sinkinson.** 2014. "Competition and Ideological Diversity: Historical Evidence from US Newspapers: Dataset." *American Economic Review*. <http://dx.doi.org/10.1257/aer.104.10.3073>.
- George, Lisa, and Joel Waldfogel.** 2003. "Who Affects Whom in Daily Newspaper Markets?" *Journal of Political Economy* 111 (4): 765–84.
- Greeley, Horace.** 1872. *The Autobiography of Horace Greeley: Recollections of a Busy Life*. New York: E.B. Treat.
- Hamilton, James T.** 2006. *All the News That's Fit to Sell: How the Market Transforms Information into News*. Princeton: Princeton University Press.
- Heiss, Florian, and Viktor Winschel.** 2008. "Likelihood Approximation by Numerical Integration on Sparse Grids." *Journal of Econometrics* 144 (1): 62–80.
- Hotelling, Harold.** 1938. "The General Welfare in Relation to Problems of Taxation and of Railway and Utility Rates." *Econometrica* 6 (3): 242–69.
- Irmen, Andreas, and Jacques-François Thisse.** 1998. "Competition in Multi-characteristics Spaces: Hotelling Was Almost Right." *Journal of Economic Theory* 78 (1): 76–102.
- Jeziorski, Przemysław.** Forthcoming. "Effects of Mergers in Two-Sided Markets: Examination of the U.S. Radio Industry." *American Economic Journal: Microeconomics*.
- John, Richard R.** Spreading the News: *The American Postal System from Franklin to Morse*. Cambridge: Harvard University Press. Google eBook.
- Kaiser, Ulrich, and Minjae Song.** 2009. "Do Media Consumers Really Dislike Advertising? An Empirical Assessment of the Role of Advertising in Print Media Markets." *International Journal of Industrial Organization* 27 (2): 292–301.
- Kaiser, Ulrich, and Julian Wright.** 2006. "Price Structure in Two-Sided Markets: Evidence from the Magazine Industry." *International Journal of Industrial Organization* 24 (1): 1–28.
- Kaplan, Richard L.** 2002. *Politics and the American Press: The Rise of Objectivity, 1965–1920*. Cambridge: Cambridge University Press.
- Kielbowicz, Richard B.** 1983. "The Press, Post Office, and Flow of News in the Early Republic." *Journal of the Early Republic* 3 (3): 255–80.
- Kielbowicz, Richard B.** 1990. "Postal Subsidies for the Press and the Business of Mass Culture, 1880–1920." *Business History Review* 64 (3): 451–88.
- Kielbowicz, Richard B.** 1994. "Cost Accounting in the Service of Policy Reform: Postal Rate Making, 1875–1926." *Social Science Quarterly* 75 (2): 284–99.
- Kind, Hans Jarle, Guttorm Schjelderup, and Frank Stähler.** 2013. "Newspaper Differentiation and Investments in Journalism: The Role of Tax Policy." *Economica* 80 (317): 131–48.