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Matthew Gentzkow, Winner of the 2014 Clark Medal

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The 2014 John Bates Clark Medal of the American Economic Association was awarded to Matthew Gentzkow of the University of Chicago Booth School of Business. The citation recognized Matt's "fundamental contributions to our understanding of the economic forces driving the creation of media products, the changing nature and role of media in the digital environment, and the effect of media on education and civic engagement." In addition to his work on the media, Matt has made a number of significant contributions to empirical industrial organization more broadly, as well as to applied economic theory. In this essay, I highlight some of these contributions, which are listed on Table 1. I will be referring to these papers by their number on this list.

Matt earned both his AB in 1997, and, after a brief career in the theatre, his PhD in 2004 from Harvard, where he began to work on the media. At Harvard he also met Jesse Shapiro, his close friend and collaborator. I was one of Matt's (as well as Jesse's) thesis advisors. From Harvard, both Matt and Jesse moved to Chicago Booth School, where their research truly thrived and they contributed to a fantastic group of applied economists.

Background on Economics of the Media

After journalists played a prominent role in uncovering the Watergate conspiracies of the early 1970s, US newspapers for a time enjoyed an extraordinary

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Table 1
Selected Papers by Matthew Gentzkow

1. "The Rise of the Fourth Estate: How Newspapers Became Informative and Why it Mattered," (with Edward L. Glaeser and Claudia Goldin). 2006. Chap. 7 in *Corruption and Reform: Lessons from America's Economic History,* edited by Edward L. Glaeser and Claudia Goldin. University of Chicago Press.
2. "Media Bias and Reputation," (with Jesse M. Shapiro). 2006. *Journal of Political Economy* 114(2): 280–316.
3. "Television and Voter Turnout." 2006. *Quarterly Journal of Economics* 121(3): 931–72.
4. "Valuing New Goods in a Model with Complementarity: Online Newspapers." 2007. *American Economic Review* 97(3): 713–44.
5. "Preschool Television Viewing and Adolescent Test Scores: Historical Evidence from the Coleman Study," (with Jesse M. Shapiro). 2008. *Quarterly Journal of Economics* 123(1): 279–323.
6. "What Drives Media Slant? Evidence from U.S. Daily Newspapers" (with Jesse M. Shapiro). 2010. *Econometrica* 78(1): 35–71.
7. "Bayesian Persuasion," (with Emir Kamenica). 2011. *American Economic Review* 101(6): 2590–2615.
8. "Ideological Segregation Online and Offline," (with Jesse M. Shapiro). 2011. *Quarterly Journal of Economics* 126(4): 1799–1839.
9. "The Effect of Newspaper Entry and Exit on Electoral Politics," (with Jesse M. Shapiro and Michael Sinkinson). 2011. *American Economic Review* 101(7): 2980–3018.
10. "The Evolution of Brand Preferences: Evidence from Consumer Migration," (with Bart Bronnenberg and Jean-Pierre Dubé). 2012. *American Economic Review* 102(6): 2472–2508.
11. "Competition and Ideological Diversity: Historical Evidence from US Newspapers," (with Jesse M. Shapiro and Michael Sinkinson). 2014. *American Economic Review* 104(10): 3073–3114.
12. "Competition in Persuasion," (with Emir Kamenica). 2011. NBER Working Paper 17436.
13. "Do Pharmacists Buy Bayer: Sophisticated Shoppers and the Brand Premium," (with Bart Bronnenberg, Jean-Pierre H. Dubé, and Jesse M. Shapiro). 2013. Chicago Booth Research Paper No. 14-17. Available at SSRN: http://ssrn.com/abstract=2460893.

reputation for objectivity. Just as intended by the US Constitution, the narrative ran, the Fourth Estate found and reported the unvarnished truth about dishonest and corrupt politicians and brought it to the attention of voters. Newspapers, of course, used editorial pages to express opinions, but the news sections stuck to the facts. This reputation of the media was bolstered by the protections for freedom of the press in the US Constitution, various pieces of regulation, as well as Supreme Court rulings that made it close-to-impossible to win a lawsuit for libel against a newspaper (because such a lawsuit had to prove malice and reckless disregard for the truth, rather than just falsehood and negligence). While economists developed rather cynical views of politics (with public choice theory) and of regulation (with regulatory capture theory), they mostly bought into a "normative" model of the press. Even as economists accumulated theories and evidence on self-serving behavior of politicians and regulators, they left the study of the press—the profit-seeking, competitive press—largely to First Amendment scholars.

Matthew Gentzkow

Over the following decades, this image of the media began to change. One important development was the publication in the early 2000s of a series of fire-breathing exposés by right-wing journalists (Coulter 2003; Goldberg 2003) and left-wing journalists (Alterman 2003) accusing the media as a whole of extreme reporting slant. The right saw a left-wing slant; the left detected an equally pernicious right-wing slant. These books, as well as the growing prominence of television stations often accused of political partisanship—like CNN and Fox News—led some economists to become interested in the objectivity of the media. Several obvious questions stood out.

First, is media news reporting actually slanted? Is it the case that, editorial pages aside, media outlets report unbiased news, or alternatively, through commission or omission, do they deliberately bias their reporting?

Second, if reporting is biased, what is the reason? Is such bias driven by the supply-side, as when reporting reflects the prejudices of an outlet's owners or journalists? Indeed, the journalistic accounts of the media bias in the early 2000s took it for granted that the biases of owners and reporters drove the slant. Alternatively, is the slant driven by demand, as when news outlets cater to the preferences of their audience to maintain or increase their readership or viewership?

Third, what is the effect of media competition on accuracy and bias? Does competition increase the accuracy of reporting by individual outlets so even a consumer of only one source gets better information? Alternatively, does competition make it easier for the "whole truth" to come out from the perspective of a

hypothetical reader who samples many media sources even when individual outlets are biased? In this regard, does a typical media consumer rely on one source of news or seek truth by sampling a variety of sources?

Finally, does media reporting actually matter for individual understanding and action? Does it affect knowledge? Does it influence participation in the political process? Does it influence how people vote? Do television and newspapers have the same effects, or different ones?

In a very short decade, economic research has obtained fairly clear answers to at least some of these questions. To a large extent, this is the consequence of Gentzkow's work, both on his own and with Jesse Shapiro. In the process, economists have arrived at a much deeper and more thorough understanding of the workings of the Fourth Estate, leaving First Amendment scholars behind.

Media Bias

A pair of theoretical papers published in the mid-2000s clarified the role of competition in shaping media bias when newspapers cater to the demand of their readers. In Mullainathan and Shleifer (2005), my coauthor and I consider the case of two profit-maximizing newspapers deciding where to locate on a segment of readers differentiated by their ideological preferences. In our model, by assumption, readers consciously trade off accuracy of a news source against a preference for information that confirms their beliefs. As a consequence, readers are willing to pay more for a newspaper whose slant reflects their own bias. In equilibrium, competition leads newspapers to cater to biased readers through slant.

The underlying logic can be understood in terms of the famous Hotelling (1929) model, which begins with an example of two producers facing a set of consumers evenly distributed along a segment, which Hotelling analogizes both to a geographic segment like Main Street in a town and also to an ideological segment like the political spectrum. Hotelling argues that if the consumers will give their business to whoever is nearest to them, then the two producers will have an incentive to cluster in the middle of the segment. If one producer moved either left or right, that producer would lose customers as the other producer would move in that same direction while just remaining on the longer side of the segment. In contrast, if the producers can charge more if they move closer to their customers, then instead of clustering, the producers have an incentive to choose separate locations. In Mullainathan and Shleifer, we show that in a competitive equilibrium with two newspapers, both will report biased news to readers who are willing to pay for slant, but with opposite ideological slants. In fact, adding additional newspapers would lead to segregation of readers across sources closest to their biases, and might lead to reduced accuracy of individual outlets. At the same time, a reader exposed to all sources will obtain more accurate information through averaging out the slants.

Unlike in Mullainathan and Shleifer (2005), where we simply assume a taste for confirming news even if coverage is inaccurate, Gentzkow and Shapiro [2] make

the more subtle, and perhaps more plausible, assumption that readers rationally prefer sources consistent with their priors because they sincerely believe that those sources are more accurate. They report (p. 286) the results of a survey in which "nearly 30 percent of the respondents who described themselves as conservative indicated that they thought they could believe all or most of what the Fox Cable News Network says. In contrast, less than 15 percent of self-described liberals said that they could believe all or most of what the network reports." Gentzkow and Shapiro then build a model in which newspapers slant the news toward the priors of their readers to establish a reputation for quality. As in Mullainathan and Shleifer, this model generates slanted reporting in equilibrium. However, the model predicts that competition reduces such bias, because inaccurate reporting would damage newspaper reputation in the long run.

These theoretical models helped clarify some of the basic issues on newspaper competition. Still, they would have been remained mere theoretical possibilities had Gentzkow and Shapiro [6] not written a wonderful empirical paper in 2010 examining the sources of media bias. The challenge was to measure the political orientation of different newspaper outlets, which in modern days all see themselves as independent. At the casual level, Gentzkow and Shapiro recognized that the words newspapers use reflect their bias. For instance, on May 18, 2004, the liberal *Washington Post* headline read "After Decades of Courting and Waiting, Same-Sex Couples Line Up Early for a Marriage Made in Massachusetts." On the same day, the conservative *Washington Times* headline read "Homosexuals 'marry' in Massachusetts." As a more recent example, consider the November 30, 2013, headlines as the US government rushed to repair the HealthCare.gov website. According to the *Washington Post*, "HealthCare.gov will meet deadline for fixes, White House Officials say." According to *USA Today*, "Deadline's here: Is Healthcare.gov fixed? Sort of." According to the *Wall Street Journal*, "Health Site Is Improving But Likely to Miss Saturday Deadline." But how can one turn these kinds of anecdotes into data?

Building on the work of Groseclose and Mylo (2005), Gentzkow and Shapiro [6] found a solution. They developed a measure of media slant based on the proximity of an outlet's language to that of Republicans and Democrats in Congress, using a dataset of all the phrases in the Congressional Record in 2005 categorized by the party of the speaker of the phrase. In 2005, for example Democrats in Congress disproportionately referred to a "war in Iraq," while Republicans referred to a "war on terror." Gentzkow and Shapiro then collected data on the use of these highly diagnostic phrases in US daily newspapers and used these data to place news outlets on the ideological spectrum comparable to members of Congress.

In addition to this large methodological advance in how to measure partisan newspaper slant, the paper used detailed information on newspaper circulation and voting patterns across space to estimate a model of the demand for slant and to show that—consistent with the theory—consumers gravitate to like-minded sources, giving the newspapers an incentive to tailor their content to their readers. They also show that newspapers respond to that incentive and that variation in reader ideology explains a large portion of the variation in slant across US daily newspapers.

As important, Gentzkow and Shapiro [6] show that, after controlling for a newspaper's audience, the identity of its owner does not affect its slant.[1] Two newspapers with the same owner look no more similar in their slant than newspapers with different owners. Ownership regulation in the US and elsewhere is based on the premise a news outlet's owner determines how it spins the news. Gentzkow and Shapiro produced the first large-scale test of this hypothesis, which showed that, contrary to the conventional wisdom and regulatory stance, demand is much more influential in shaping content than supply as proxied by ownership.

US newspaper markets today mostly have a single major newspaper, so to look at the effects of competition between newspapers on ideology, Gentzkow, Shapiro, and Michael Sinkinson [11] turn to the past. At the turn of the 20th century, many US cities had multiple competing newspapers, and newspapers commonly expressed explicit partisan affiliations. Gentzkow, Shapiro, and Sinkinson assembled the US Newspaper Panel, a complete census of English-language daily newspapers in all presidential election years from 1872–2004. They also collected geographically disaggregated data on newspaper circulation in 1924, as well as income statements from a small sample of newspapers. Using these data, they estimate a quantitative model of newspaper competition in which news outlets compete for both readers and advertisers.

An important aspect of the Gentzkow, Shapiro, and Sinkinson [11] estimation strategy is to deal with complementarity and substitution between different outlets. They rely on and extend an earlier paper of Gentzkow's [4], which looked at competition between print and online newspapers, and in particular examined the question of whether print and online versions of the same newspaper are complements or substitutes. Gentzkow found that print and online newspapers are substitutes, and measured the magnitude of crowding out from the introduction of online versions. In the process, he developed a tractable framework for discrete-choice demand in which consumers buy bundles of products rather than single items.

In Gentzkow, Shapiro, and Sinkinson [11], the authors find that competition is a key driver of ideological diversity: newspapers differentiate ideologically as a strategy to soften competition for advertisers and for readers, in line with theoretical models. They also find that the market undersupplies diversity, in the sense that a policymaker concerned with consumer and producer welfare would want more markets in which readers can choose to read both a local Republican paper and a local Democratic paper. Interestingly, they consider two kinds of subsidies for newspapers: subsidies for newspaper distribution of the sort first created by the Postal Act of 1792, which continued to be important to newspapers at least up through the 1920s, and the indirect subsidies provided by the Newspaper Preservation Act

[1] Of course, the Gentzkow and Shapiro [6] paper is focused on private newspapers in the United States today. In other countries, newspapers and television stations are often either owned (Djankov, McLiesh, Nenova, and Shleifer 2003) or subverted (Besley and Prat 2006) by the government, so politicization of the press is a much greater issue. In the United States historically, newspapers were affiliated with political parties and toed the party line (Gentzkow, Glaeser, and Goldin [1]).

of 1970, which allow newspapers in a city to sign a joint operating agreement that often combines the business operations of the two papers while keeping the news operations separate. They find that such subsidies can improve the functioning of the market for news, delivering more value to the participants in the market as well as more diversity in the marketplace of ideas.

These empirical studies of newspaper competition answer quite conclusively the first two questions: news reporting is indeed slanted, and the principal reason for slant is catering to reader demand. Unbiased news reporting is a myth, not the reality, of US media.

The third question—do readers end up exposed only to biased news?—is harder to answer, since it requires knowing the extent to which readers are exposed to one or multiple sources of news. To address this question, Gentzkow and Shapiro [8] move away from newspapers and study the effect of the Internet on the ideological diversity of the American news diet. One might worry that the increase in choice among news suppliers as a result of the Internet would allow news consumers to self-segregate, reading only news that confirms their preconceptions. Gentzkow and Shapiro test this claim using data from a panel of Internet users for which they have a survey-based measure of political ideology and tracking data on online news consumption. They find that ideological segregation is surprisingly low online. The average conservative's news outlet on the Internet is about as conservative as usatoday.com; the average liberal's is as liberal as cnn.com. Strikingly, the Internet is less ideologically segregated than US residential geography: two people using the same news website are less likely to have an ideology in common than two people living in the same zip code.

Effects of the Media

Measuring media bias and understanding the interplay between industry competition and ideology in the media industry are important accomplishments. Of course, we also want to know whether the media, biased or otherwise, has any effect on politics. For example, does reading a newspaper or watching television make people more likely to vote? In addition, does the bias of the news sources actually affect how viewers vote? For obvious reasons, these questions are difficult to answer. Readers of newspapers might vote because they are stimulated by newspapers to participate. Or prospective voters might read newspapers because they seek information. Or some factor such as an interest in politics, either general or partisan, could drive both newspaper reading and voting. For example, Fox News might persuade people to vote Republican or, alternatively, Republican voters might choose to watch Fox News.

One solution to these identification problems is to focus on (preferably exogenously determined) entry—or exit—by news organizations into local markets, and to examine its consequences on the amount and type of voting. Gentzkow has also been a pioneer in this line of research. In Gentzkow [3], he uses variation across

markets in the timing of the introduction to television in the United States to identify its impact on voter turnout. He estimates a huge negative effect: the availability of television accounts for between one-quarter and one-half of the total decline in voter turnout since the 1950s. Matt argues that a principal reason for this is substitution in media consumption away from newspapers, which provide more political coverage and thus stimulate more interest in voting. In line with this conjecture, he shows "that the entry of television in a market coincided with sharp drops in consumption of newspapers and radio" as well as a decline "in political knowledge as measured by election surveys." Also "both the information and turnout effects were largest in off-year congressional elections, which receive extensive coverage in newspapers but little or no coverage on television" (p. 931).

Gentzkow, Shapiro, and Sinkinson [9] use their US Newspaper Panel to consider the effects of newspapers on voting. Specifically, they focus on entries and exits of US daily newspapers between 1869 and 2004 to estimate effects on voter turnout and voter partisanship. They find that newspapers have a large effect in raising voter turnout, especially in the period before the introduction of broadcast media. However, the political affiliation of entering newspapers does not affect the partisan composition of an area's vote. The latter result contrasts with another important finding, by DellaVigna and Kaplan (2007), that the entry of Fox News does sway some voters toward voting Republican. An interpretation consistent with these findings is that newspapers motivate but don't persuade, while television does the opposite.

Another follow-up study partially redeems television, although in a nonpolitical sphere. Gentzkow and Shapiro [5] "use heterogeneity in the timing of television's introduction to different local markets to identify the effect of preschool television exposure on standardized test scores during adolescence" (p. 279). Contrary to conventional wisdom, watching TV makes you smarter: "an additional year of preschool television exposure raises average adolescent test scores by about .02 standard deviations" (p. 294). Based on my own teenage experience, I am particularly sympathetic to their finding that these positive effects of television on test scores "are largest for youngsters from households where English is not the primary language" (p. 279).

Economics of Brands and Branding

Consumer brands raise fascinating issues for economics. Why are consumers attached to some brands that they then buy repeatedly? Why do they pay a premium for brands? Do brands represent superior products or are they just trusted by consumers who could buy equally good unbranded items?

Bronnenberg, Dubé, and Gentzkow [10] present some remarkable facts about brand loyalty by looking at consumers who move from one city to another. They show that movers continue to buy the brands they bought in their places of previous residence, even if their new city is dominated by another brand. The paper shows

that brand preferences form endogenously based on where consumption started, are highly persistent, and explain 40 percent of geographic variation in market shares. Put differently, there are Coke cities and Pepsi cities, and people growing up in a Coke city would continue to drink Coke even if they move to a Pepsi city. Brand preferences are almost addictive.

Bronnenberg, Dubé, Gentzkow, and Shapiro [13] address a different question about brands: do brands reflect superior objective quality? They ask whether specialists, such as doctors or chefs, buy branded products or generic ones. They find that although even experts often buy branded products, experts are much more likely than nonexperts to buy generics and avoid brands. They interpret this finding as suggesting that branding is a mechanism for conveying quality information to uninformed buyers, information for which these buyers willingly pay. This quality information is already known to experts, who therefore do not need to pay for it.

Economics of Persuasion

Persuasion has been central to economics beginning at least with Stigler's (1961) work on advertising, which interpreted advertising as provision of information to potential buyers. Two decades later, Grossman and Hart (1980), Milgrom (1981), and Milgrom and Roberts (1986) proved a paradoxical result about persuasion. If the persuader has information that the audience does not have, and the persuader cannot lie, then the persuader will have to disclose truthfully all of the information that the persuader has, for failure to disclose any individual item would be interpreted as hiding the worst facts. Ugly truth is better than selective omission, since the latter means the truth is even uglier. The finding appears to suggest that, with rational parties, persuasion through selective disclosure of information does not work: the best one can do is tell the whole truth.[2]

Kamenica and Gentzkow [7] take a fresh look at this problem, reframe it, and obtain some quite unexpected results. Rather than focusing on the persuader with superior information, they ask a different question: supposing the persuader and the audience begin with the same information, can the persuader design a test, which the audience will see the results of, that would actually further the goals of the persuader? In concrete terms, can a prosecutor look for evidence, with the judge knowing exactly what type of evidence the prosecutor is looking for, how the prosecutor is looking for it, and what the prosecutor finds, that will make the judge more likely to convict? Can an advertiser design a "taste test," with the potential customers knowing exactly what the advertiser is doing, that would increase demand?

[2] A Spring 2008 symposium on "The Economics of Persuasion" in this journal features Paul Milgrom's summary of his work in this area, Matthew Gentzkow and Jesse Shapiro's overview of the research on accuracy in media, and Peter Leeson's cross-country study of the relationship between media freedom, political knowledge, and participation.

At first glance the answer might seem to be "no." Indeed, there is a precise sense in which persuasion is difficult in such settings: a Bayesian audience cannot expect to be surprised, so its expected posterior is always equal to the prior. Thus, a persuader interested in changing the audience's average posterior is out of luck.

What Kamenica and Gentzkow [12] show is that the "no-surprise-on-average" property of the Bayes' Rule summarizes all the restrictions. With the right choice of tests, the persuader can in principle achieve any distribution of posterior beliefs on the part of the audience subject to the "no-surprise-on-average" constraint. This insight yields a beautiful geometric representation of the persuader's problem. It allows Kamenica and Gentzkow to show that if the persuader has a payoff that is nonlinear in the audience's belief, then persuasion is possible in the sense that the persuader can design a test that furthers the goals of the persuader. It also allows for a precise characterization of the optimal testing regime for a variety of interesting problems.

To take a specific example, suppose the murderer's blood is left at the crime scene. We know the defendant has blood type A. Suppose that the judge's and the prosecutor's prior belief that the defendant is guilty of murder is .3; their information is completely symmetric. Suppose the judge convicts if the posterior probability of guilt is above .5, so absent an investigation the judge would always acquit. If, instead, the prosecutor publicly conducts a fully informative investigation that perfectly reveals guilt, he can increase the prior odds of conviction from 0 to 30 percent, that is, convicting all the guilty and acquitting all the innocent: because the judge's action is nonlinear in beliefs, the prosecutor can benefit from providing full information despite the "no-surprise-on-average" constraint.

Perhaps more surprisingly, Kamenica and Gentzkow [7] show that the prosecutor can do even better by performing a less-informative investigation. To illustrate, the prosecutor proposes to the judge to test the type of blood at the crime scene. If the defendant is indeed guilty, the crime-scene blood is always type A: $\Pr(\text{A}|\text{Guilty}) = 1$. If the defendant is innocent, the crime-scene blood is of type A 42 percent of the time, given blood type frequencies in the US population: $\Pr(\text{A}|\text{Innocent}) = .42$. With this test, the posterior probability of guilt is just above .5 whenever the test indicates type A blood, so the judge convicts whenever the test comes back type A. More precisely, by Bayes' Rule,

$$\begin{aligned}\Pr(\text{Guilty}|\text{A}) &= [\Pr(\text{A}|\text{Guilty}) * \Pr(\text{Guilty})]\backslash[\Pr(\text{A}|\text{Guilty}) * \Pr(\text{Guilty}) \\ &\quad + \Pr(\text{A}|\text{Innocent}) * \Pr(\text{Innocent})] \\ &= [1 * .3]/[1 * .3 + .42 * .7] > .5.\end{aligned}$$

With a prior of .3 of guilt, this test, if conducted and reported truthfully, yields a prior probability of conviction of $.3 * 1 + .7 * .42 = .594$. With symmetric beliefs, and the judge and the prosecutor both knowing exactly what is going on, the prosecutor can raise the odds of conviction all the way to 60 percent despite the parties

knowing that only 30 percent of the defendants are guilty. In this very precise way, persuasion is effective.

In follow-up work, Gentzkow and Kamenica [12] extend this analysis to the case of multiple persuaders, who choose what information to gather and communicate to a receiver who can take actions that affect their welfare. They show that competition among persuaders necessarily increases the amount of information being revealed. This result connects with the earlier finding of Gentzkow and Shapiro [2] that competition among news outlets necessarily increases accuracy.

Summary

Ten years ago, we knew almost nothing about how newspapers actually report news. There were questions, but no answers—just media hype. Today, we actually have answers to many of the questions that were raised initially. We know that media reporting is systematically slanted, that slant is largely driven by demand, and that competition allows more of the viewpoints to get out. We also know that media influence their audiences for sure in getting them to participate in politics and sometimes in how they vote as well. At the same time, we have many new questions about the media: How exactly do they persuade? How do readers decide how many sources to attend to? How will the rise of new digital platforms and revenue models affect media content and political discourse? That media economics is now a full-fledged field is significantly a consequence of the contributions made by Matthew Gentzkow.

After rereading Matt's papers, and reading some for the first time, I am struck by his openness to different ways of doing economics. He has an uncanny ability to rely on different approaches, depending on what the problem he is considering calls for. Sometimes he uses quasi-experimental evidence to identify the effects he is interested in; other times he estimates full structural models. Some papers deal with small data sets; others rely on frontier big data techniques. Several of the papers contain practical econometric advances that have become useful to subsequent researchers. Sometimes Matt uses the simplest models that only summarize the verbal ideas; other papers, such as the work on persuasion, contain significant contributions to economic theory. Much of his work is extremely neoclassical, but some is behavioral as well. Some papers deal with abstract conceptual issues; others are solidly grounded in practical concerns, including regulatory ones.

This range is admirable not just for its own sake. My sense is that when areas of economics conclude that there is only one correct way of analyzing a problem, they stagnate. Our discipline is not far enough along to settle down in this way. Openness to new ways of doing things is essential for making progress. I would go further and conjecture that such openness is the hallmark of 21st century economics. The fact that Matthew Gentzkow along with his remarkable collaborators and several other recent winners of the John Bates Clark Medal embrace such openness is both a testimony to their talents and very good news for our field.

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