TNITNEWS

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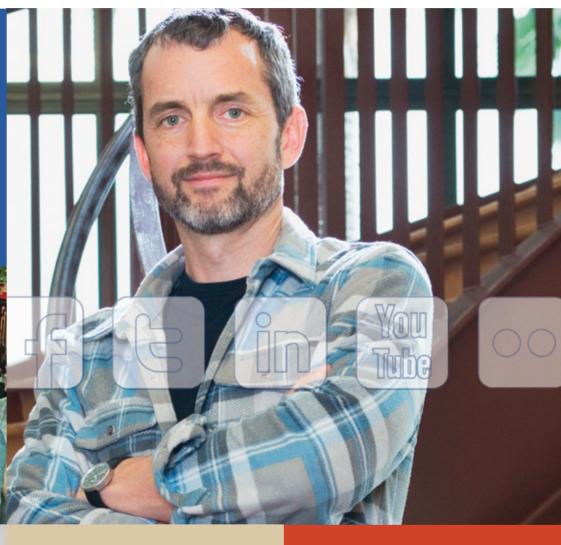
Toulouse School of Economics

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Welcome to Heidi Williams

New member of the TNIT Network

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CALL FOR PAPERS

Tenth conference on:

THE ECONOMICS OF INTELLECTUAL PROPERTY, SOFTWARE AND THE INTERNET *(p.8)*

Toulouse, January 12-13, 2017

TNIT NEWS

Dear Readers

We have all heard or read so many discussions along the theme "the dispersion of media is creating polarization and social media is even worse in this respect" that we all have a tendency as taking it as granted. And indeed, it seems obvious that if I get lots of my news from social media, my friends will send me links to stories that tend to confirm my prejudices, which are presumably very similar to theirs.

However, as TNIT member Matthew Gentzkow points out in this issue of our Newsletter, there has been much less research on the role of social media, whereas there has been quite a lot of serious data grounded research on polarization and media – Matt participated in much of this work.

In the article which is the center piece of this issue of the Newsletter, Matt discusses the research which has been done, draws it together and shows that there is no reason to believe that social media is indeed a major contributor to polarization.

As the political discussion is becoming much more tense in a number of countries, it is important that we identify the root causes of the strains so that we can work on them.

Matt is the best possible guide through this issue. An imaginative scholar who recently moved to Stanford from the University of Chicago, he has done pioneering work on, among others, the media industry and on ideological segregation. He also works in economic theory and has recently begun doing some work on the health industry. Up to the arrival of Heidi Williams in the network, he was the newest member of TNIT and an enthusiastic and energetic participant. And he had the good taste to marry a French woman!

We are very proud to be able to present his work.

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NEWS

We are extremely happy to welcome Heidi Williams to the TNIT network. Heidi is one of the world's foremost expert on the economics of innovation and intellectual property.

More about Heidi Williams ✚

On the other hand, we are sad to announce that Mike Whinston has decided that he had too many other commitments and has resigned from the network. Mike was one of the original members and has been tremendously important to the development of TNIT.

Thanks Mike!

Congratulations to Jonathan Levin for his appointment as the Dean of Stanford Business School and Susan Athey for the 2016 Jean-Jacques Laffont Prize which will be held in November 2016 at Toulouse.

More about TNIT members ✚

The 2016 annual meeting will take place on

Sept. 30 and Oct. 1

at the Microsoft head office in Redmond, Seattle.

Stanford's Matt Gentzkow on Polarization

by Ananya Sen

Toulouse School of Economics

More about A. Sen ✚

The term 'political polarization' is invariably associated with modern day politics across the world, be it Donald Trump vs. Hillary Clinton (vs. Bernie Sanders) or the rhetoric around Brexit. There is a sense that different sections of the general public take a hard stance on various issues and find it extremely difficult to reach a consensus, much more so than the preceding decades. Matt Gentzkow has conducted ground breaking research on these issues.

There is a sense that different sections of the general public take a hard stance on various issues and find it extremely difficult to reach a consensus, much more so than the preceding decades. This phenomenon has been attributed, in part, to the rise of the Internet in general and social media in particular. The fact that individuals might want their own beliefs reaffirmed would lead them to seek such news online which could in turn lead to an `echo chamber' effect. If we look at the big picture, these concerns are extremely important since it is crucial that individual have correct beliefs about different issues so that they make informed decision in a democratic society and not be swayed by their preconceptions, stereotypes and echo chambers. These are some of the issues that Matthew Gentzkow's research deals with and while studying whether actual data supports these widely held beliefs.

Gentzkow and Shapiro (2011) analyze whether people are more segregated in the way they consume their online news relative to their offline news consumption and other offline personal interactions. Using the isolation index, a standard measure used in quantifying the extent of racial segregation, they find that in absolute terms the level of segregation of online news consumption is low. Moreover, online news consumption is only slightly more segregated than offline news consumption while it is lower than offline personal interactions with family and friends. Further more they did not find any evidence of this segregation becoming more severe over time. This was a surprising result, which goes against the wisdom of the day. They highlight that this is happening despite a large number of news outlets with extreme views available online, most of the online traffic is driven by mainstream centrist news websites. They however do not analyze the role of social media (Facebook, Twitter etc.) in online news consumption and ideological segregation. This research gap is being filled slowly but surely and shows that the ideological segregation in social media is similar to offline social interactions but still much lower than conventional wisdom would suggest.

Relatedly, there are concerns regarding an increase in partisan language used by politicians which could have fuelled a more polarized political environment overall. The language used by politicians can have a direct impact on the way the general public thinks about issues (for example `death tax' vs `estate tax') and also indirectly because news outlets start using these phrases in their own articles (Gentzkow and Shapiro, 2010). Gentzkow et al. (2016) develop a structural model to see how the use of partisan language has changed over time in the U.S. Congress. Again, contrary to conventional wisdom, they find that partisanship of political language has increased over the past couple of decades and has reached unparalleled levels. The exact reason for this increased partisanship and how it would potentially affect political polarization in the electorate remain open questions.

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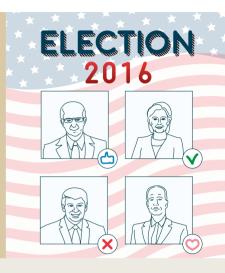[3] http://web.stanford.edu/~gentzkow/research/politext.pdf

Social Media and Political Polarization

by Matthew Gentzkow

Professor of Economics,
Stanford University

More about M. Gentzkow ✚

ELECTION 2016

As the 2016 election moves closer, America seems ever more divided. Those pulling for single- payer national health insurance, free college for all, and higher top tax rates (all guided by the benevolent hand of President Bernie Sanders) might as well be on a different planet from those dreaming of Obamacare's repeal, a Mexican border wall, flat income taxes, and the inauguration of President Donald J. Trump.

What brought us to this impasse? Rising inequality, bombings in Paris, racial divisions, Megyn Kelly… the list goes on. But what stands out for many people as an especially obvious culprit is the explosion of digital media, with its echo chambers and filter bubbles allowing partisans of each side to live in worlds where their prejudices, preconceptions, and worst fears are amplified and repeated back to them a hundred times a day.

While the digital-media-as-villain story can seem so transparently true that actually looking at the data to confirm it would be superfluous, academic research thus far actually provides surprisingly little support. As often happens, popular perception gets the broad outlines right but the magnitudes and proportions all wrong.

Yes the Internet makes available a much wider range of viewpoints than we ever had before, including loud voices on both the left and right which are sometimes shockingly extreme. But extreme sites account for only a small share of consumption. Most people get most of their digital news from large, mainstream sources, and many of those that top the list on the left (CNN, USA Today, Yahoo, etc.) rank similarly high for consumers on the right. Moreover, as hard as it may be for those steeped in the tech world to believe, digital media as a whole still account for a relatively small share of total news consumption - 8 percent, as of 2013, according to a McKinsey report, compared to 41 percent for television and 35 percent for print newspapers.

In a recent blog post [1], I discuss evidence on trends in polarization and the role of digital media in more detail.

While I find this research largely convincing (full disclosure: I wrote some of it myself), it suffers from one glaring omission: the role of social media. Many of the key data come from almost ten years ago: an eternity given the current pace of change, and before the social revolution had fully taken hold. Only recently have new studies emerged that begin to fill in the gaps and shed light on whether the rise of social media has significantly reversed the earlier conclusions.

Here are a few of these recent data points.

> **Yes the Internet makes available a much wider range of viewpoints than we ever had before**

The Facebook News Feed

Possibly the best known study of the way people consume news and opinion on social media is analysis of Facebook data by Eytan Bakshy, Solomon Messing, and Lada Adamic, published in Science in 2015 [2]. The authors tackle head-on the hypothesis advanced by Eli Pariser [3] and others that algorithmic filtering may place people in ideological "filter bubbles."

The authors begin with data on 10.1 million US Facebook users who declare their political orientation to be "conservative," "moderate," or "liberal."

They first show that, as expected, peoples' friends tend to share their political views, though to a smaller extent than some might have supposed.

For both conservatives and liberals, roughly two thirds of friends (among those who declare some orientation) have the same political views, with the remainder evenly split among moderates and those with opposite views.

Next, the authors look at the overall distribution of news content shared within these networks between July, 2014 and January, 2015. They use a machine learning algorithm to zero in on "hard news" content, then assign each hard news article an ideological score based on the average orientation of users that shared it. The set of all such articles shared shows clear clusters of conservative and liberal articles, with those from sites such as Fox News consistently categorized as conservative, and those from sites such as Huffington Post consistently categorized as liberal. Overall, 45 percent of content is conservative, 40 percent is liberal, and the remainder is classified as "neutral."

Finally, the authors measure the extent to which various stages of social media diffusion – what articles get shared within a friendship network, which of these the Facebook algorithm chooses for the news feed, and which of these the user ultimately chooses to click on – filter out ideologically cross-cutting content. Each of these stages indeed induces some filtering, but the magnitude – particularly the magnitude of filtering by the news feed algorithm – is quite small, at least relative to some visions of what could happening (such as the one painted in Eli Pariser's widely viewed TED talk [4]).

Begin with conservatives. With no filtering at all – that is, if they read randomly selected articles from the universe of those shared by all Facebook users – 40 percent of what they see would be ideologically cross-cutting. Choosing randomly from what is shared would reduce this to about 35 percent. Restricting to what is actually shown in the news feed (the key step according to the Pariser argument) has a tiny effect, reducing the number by maybe a percentage point. And restricting to what the user actually clicks brings the number down to 29 percent. Not a nirvana of ideological open mindedness, but not exactly a dystopian filter bubble either.

The picture is similar for liberals, with the difference that liberals are actually less likely than conservatives to share cross-cutting content in the first place. Random selection would mean liberals see 45 percent cross-cutting stories. The friendship network cuts this down sharply to about 24 percent. The news feed again reduces it by maybe a percentage point. And selectivity in clicks brings it down to 20 percent.

Your Friends are Not What You Think They Are

An earlier study [link] by Sharad Goel, Winter Mason, and Duncan J. Watts in the 2010 Journal of Personality and Social Psychology [5] offers one explanation for why we might imagine the ideological bubbles we and others live in to be more restricted than they really are.

The authors surveyed 2,504 Facebook users in early 2008, asking their views on a wide range of political and social issues, as well as their overall political orientation. Respondents were also asked to predict their friends' responses to the same questions. The sample was designed so that, in many cases, when A was asked to predict the responses of her friend B, B was a respondent to the survey as well.

> **That we imagine our friends all agree with us is not necessarily great news for the health of our democracy**

Not surprisingly, the results showed that friends tend to think alike: the probability of agreeing with a friend on a random question was 75 percent, significantly higher than the 63 percent we would see if friends were matched at random.

The striking finding, however, is that people think their friends agree with them even more than they really do: the rate at which respondents predict their friends agree with them is 80 percent.

This result echoes a large body of literature in psychology suggesting that people may project their own views onto others, and perceive higher levels of consensus than actually exists. That we imagine our friends all agree with us is not necessarily great news for the health of our democracy, but it does mean that the particular danger of like-minded echo chambers could appear bigger than it is.

Political Junkies on Twitter

Of course there is more to social media than just Facebook. In a recent working paper [6], Yosh Halberstam and Brian Knight study the patterns of information diffusion and follower links on Twitter.

Although data on Twitter posts and links are easily available, direct measures Twitter users' political views are not. A key innovation of this study is to develop a proxy: the party of the political candidates a user follows. Of course most users do not follow any political candidates, and so restricting attention to these users necessarily isolates those who are most politically partisan and engaged. Though it is far from a representative sample, this is a population of particular interest for understanding larger trends in political polarization.

The authors focus on a sample of 2.2 million users who follow at least one US House candidate in the 2012 election. They define users to be liberal if they follow only or mainly Democratic candidates, and conservative if the follow only or mainly Republican candidates. They measure all links among the users (defined as one following another), as well as a large sample of retweets of both posts by the House candidates and posts mentioning the candidates.

As we would expect, the authors find that users are significantly more likely to follow and engage with those of the same political orientation. The overall degree of ideological segregation in the follower network is similar to what my co-authors and I found in an earlier study [7] for offline social networks, and significantly higher than what we found for news and opinion consumption online.

> **The overall degree of ideological segregation in the follower network is significantly higher than what we found for news and opinion consumption online.**

Partly as a result, users are much more likely to be exposed to like-minded retweets. 90 percent of candidate retweets liberals are exposed to originate with Democratic candidates, and 90 percent of retweets conservatives are exposed to originate with Republican candidates. Of course this may be less surprising since we have defined ideologies based on the kinds of candidates the users follow. Exposure to tweets mentioning candidate names is a bit more balanced, though still ideologically selected.

Putting Social Media in Context

A final recent data point comes from work conducted at Microsoft Research by Seth Flaxman, Sharad Goel, and Justin Rao [8]. They study the browsing behavior of a sample of 1.3 million Internet Explorer (IE) users in March-May 2013, focusing on consumption of news and opinion

articles. Their main question is how consumption via social media differs from consumption through other channels such as direct browsing, search, or news aggregators, and how social media affects overall patterns of ideological segregation.

For their main analysis, they focus on a small subset of users (roughly 4 percent) who read news and opinion regularly, and they limit attention to the 100 most visited sites.

They reach three striking conclusions. First, consistent with fears that social media are exacerbating polarization, they find that opinion content accessed via social media is indeed substantially more segregated ideologically – that is, more likely to be either consistently conservative or consistently liberal – than opinion content accessed via other channels. Editorials, op-eds, and other opinion pieces are popular fodder for Facebook feeds, and as Bakshy et al.'s (2015) study would suggest, it looks like people are much more likely to see and click on content that shares a consistent ideological profile (presumably one that matches the user's own).

Second, while the opinion content people see through social media is on the whole less diverse, it actually includes more content from opposite extremes of the political spectrum than what they see through other channels. People may mostly see stories shared by like-minded friends, but they also occasionally bump into very different points of view. This is less likely to happen when people are navigating to news sites directly

Finally, the net effect on peoples' news and opinion diets is ultimately quite small. Opinion content accounts for only a sliver (6 percent) of total consumption and the ideological segregation we see in socially accessed opinion content does not hold for regular news. Moreover, the share of news and opinion that people reach through social media is actually very small: only about 6 percent of news and 10 percent of opinion. We may eventually reach a point where social sharing is a dominant mode of accessing news and information, but we are not there yet.

One way to understand this is to remember that sharing substantive news articles is just not the main thing people share on social media. Cat videos and embarrassing celebrity photos are of course far more popular. Only 1 out of every 300 outbound clicks from Facebook is to what Flaxman and co-authors identify as a hard news article.

This study is an important and exciting contribution, providing the first detailed look at the importance of social media in an overall news consumption landscape. It requires one important caveat however: The data come from a very unusual segment of the population: heavy news users who happen to have installed the IE toolbar. The later criterion may be especially important: by 2013, use of IE had declined significantly from its peak, and presumably

only a subset of those who did use it installed the toolbar. To the extent that these users

tended to be older or less inclined to adopt new technologies, the findings might understate the importance of social media for the US population as a whole.

Conclusion

Will social media deepen our divisions and lead us ever deeper into ideological echo chambers? The truth is, we don't yet know. The studies above only scratch the surface of what is currently happening, and they of course cannot predict how the situation will change in the future.

To the extent we can tell, the data suggest that the degree of ideological segregation in digital media remains substantially lower th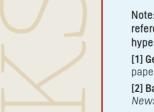an much of the popular discussion would suggest. There is no question that Facebook feeds and Twitter networks expose users to less ideologically cross-cutting content than they would see if they randomly sampled from what is available. This is true for all the reasons we would expect: people connect with those more likely to share their views, these users mainly share content they agree with, algorithmic selection like Facebook's news feed may enhance the selection (though the data suggest only slightly), and what users actually choose to read is likely to tilt even further toward their own views

But random selection is not the right benchmark. Before social media, people got news from direct navigation to websites or search, from content shared through email, from traditional media, and by actually talking to their friends and acquaintances. Selective exposure is strong in all of these channels. The evidence we have suggests it may be stronger in social media than in some alternatives (like directly access news) and weaker than in others (face-to-face relationships). Either way, the magnitude of the differences may be smaller than sometimes supposed.

More importantly, content mediated through social media probably remains a small part of most users' news diets. Traditional media are still the most important by far, and within the digital realm direct navigation still swamps social. One day we may get all of our news through Facebook (along with, its shareholders presumably hope, our advertising, online purchases, movies, video games, and college courses). If we do, the repercussions for our democracy could be profound.

Remember, though, that American politics offers plenty of pressing problems that exist right now in 2016. Thankfully, it would seem a dramatic increase in polarization driven by social media can be removed from the list.

> **One day we may get all of our news through Facebook. If we do, the repercussions for our democracy could be profound.**

LINKS

Note: I included reference numbers in square brackets in the text rather than standard author-date references. My thought was that when the piece is "published" these could all be replaced with hyperlinks and the actual references omitted.

[1] **Gentzkow, Matthew.** "Polarization in 2016." Toulouse Network of Information Technology white paper.

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Tenth conference on:

The Economics of Intellectual Property, Software and the Internet

Toulouse, January 12-13, 2017

➜ **THE OBJECTIVE OF THE CONFERENCE,** organized by the Jean-Jacques Laffont Chair on the Digital Economy at the Toulouse School of Economics, is to discuss recent academic contributions to the understanding of the digital economy and its consequences for modern societies. Theoretical, econometric, experimental or policy oriented contributions at all welcome.

We welcome submissions from scholars working in law, political science, psychology and sociology as well as economics.

➜ **TOPICS TO BE COVERED** include *(this list is suggestive and not exhaustive)*:

☛ *The industrial organization of the software and internet industries:* Competition, regulation and antitrust policy; contractual relationships; strategies of firms; social networks; industry 4.0 and the economics of data exchange.

☛ *The effect of IT and of the Internet on economic organization:* Internet advertising; new technologies of information and the organization of firms; international trade; e-Commerce; taxation; the economics of cloud computing.

☛ *Intellectual property in digital goods:* The economics of R&D; standards and the joint management of intellectual property rights; open innovation; copyright and the economics of cultural industries; the European Single Digital Market.

☛ *Access to information:* Scarce attention and the role of gatekeepers, including media; Internet search; the economics of APIs; privacy; freedom of information and the rights of citizens; open data and open government; cybersecurity.

➜ **THE ORGANIZING COMMITTEE** is composed of

Alexandre de Cornière: ✚ *Online CV*

Jacques Crémer: ✚ *Online CV*

and Paul Seabright: ✚ *Online CV*

➜ **PROSPECTIVE PARTICIPANTS** are invited to pre-register and/or submit papers by sending an email to *softint@tse-fr.eu*.

Papers should be received by 7 October 2016 (abstracts will be considered, but papers are more likely to be accepted). A decision will be made by 21 October 2016.

➜ **REGISTRATION FEES**: €500 *(includes lunches, conference dinner and coffee breaks).* Waived for speakers and discussants, special rates for certain other attendees.

Travel on the basis of economy class, accommodation and local expenses will be provided for speakers and discussants. For further information contact the conference secretariat:

E-mail: softint@tse-fr.eu
www.idei.fr

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