



How to communicate large-scale social challenges: The problem of the disappearing American corporation

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Edited by Baruch Fischhoff, Carnegie Mellon University, Pittsburgh, PA, and approved August 21, 2018 (received for review April 16, 2018)

Social science has distinct advantages and challenges when it comes to communicating its findings to the public. Its topics are often highly accessible to the general public, yet its findings may be counterintuitive and politically contentious. Conveying recent changes in the organization of the American economy provides an illustration of the difficulties and opportunities for engaging the public. The declining number of public corporations in the United States is associated with a shrinking middle class, lower opportunities for upward mobility, and a fraying social safety net, with important implications for individuals and public policy. Attempting to convey this set of findings to a broad public has demonstrated that some strategies and communication channels work better than others, and that some online media are particularly effective.

science communication | corporate governance | sociology

Social scientists face similar challenges to natural scientists when they seek to convey research findings and their implications to a broad audience. Although findings may have important implications for policy and practice, those implications can be counterintuitive, controversial, or just too complex to be accessible for nonspecialists. Moreover, the media available for conveying research findings have greatly expanded. Which media are most useful depend on the audience.

In this article, I share my experiences in attempting to convey a set of social science findings to a broad audience of nonscientists, and what I have learned about different communication channels. I first describe research on how the American corporation has transformed over the past few decades and the foreseeable social problems this is creating. In short, the American economy and its social safety net have been organized around the public corporation for most of the 20th century, but the number of public corporations has been in decline for two decades. As a result, widely shared mental models of how the American economy is organized no longer provide good guides for action. However, communicating these findings and their implications creates challenges: Replacing entrenched mental models is difficult; descriptions of the economy are inherently perceived as political; and the contemporary media environment, particularly social media, favors vivid anecdotes and novel results over more “tectonic” social science. I share the challenges I have faced in trying to get these findings into the broader policy discourse, and the insights learned from the science of science communication.

The Surprising Disappearance of American Corporations

Since the turn of the 20th century, the public corporation has been the most important type of organization in the American economy. “Public corporations” are firms whose ownership shares are traded on a stock market—they are “public” in the sense that their shares can be bought and sold by the public, rather than being private firms owned by families or other investors. One of the benefits of being a public corporation is the ability to raise capital at a large scale. An AT&T or a General Motors required vast amounts of capital to support long-lived investments (e.g., in telephone networks or factories). Thus, the

bigger the firm, the more likely it was to go public. The ranks of the largest businesses have been dominated by public corporations for generations. The Fortune 500 firms with the largest revenues are overwhelmingly made up of public corporations such as Apple, Walmart, GM, GE, and JP Morgan Chase.

For much of the 20th century, the number of public corporations grew with the population and the economy. “Going public” [listing shares on the stock market through an initial public offering (IPO)] was a standard step in the growth of a business. However, since the late 1990s, the number of public corporations in the United States has been in decline.

Fig. 1 shows the number of listed corporations in the United States from 1980 to 2016, according to the World Bank. The number peaked in 1996 and has been in almost continuous decline since. A recent review documents that this decline in numbers corresponds with shifts in the types of listed companies: The remaining firms tend to be older, bigger, and hold less tangible assets than listed firms in prior decades (1). Declining corporations is not a global phenomenon: Their numbers are increasing in China and India, for instance, and staying stable in Germany (2). However, in the United States, public corporations have been in decline for two decades, even as the population and gross domestic product continue to expand.

One possible explanation of these numbers is simple industry concentration: A few successful firms are getting bigger and bigger, buying up their competitors and increasing the level of industry concentration (and presumably the potential harm to consumers). Comprehensive data on firms that joined or left major US stock markets since the start of 2000 belie this interpretation, however (3). There is not a singular “centripetal” tendency toward industry consolidation, but a diverse set of industry dynamics. Four broad sectors account for the biggest losses in public companies since 2000: software and telecoms, banking, computers and electronic products, and drugs. Software and online services, along with telecommunications, lost hundreds of companies during the 2000 dot-com crash. Failures rather than mergers account for most of the decline in this sector. Banking, in contrast, experienced a long-running merger wave, leaving four very large national banks by 2010 (although there was a wave of failures during the financial crisis of 2008–2010). Computer and electronic products saw both failures and mergers amid a widespread shift to the use of offshore vendors

This paper results from the Arthur M. Sackler Colloquium of the National Academy of Sciences, “The Science of Science Communication III” held November 16–17, 2017, at the National Academy of Sciences in Washington, DC. The complete program and audio files of most presentations are available on the NAS Web site at www.nasonline.org/Science_Communication_III.

Author contributions: G.F.D. wrote the paper.

The author declares no conflict of interest.

This article is a PNAS Direct Submission.

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Published online November 26, 2018.

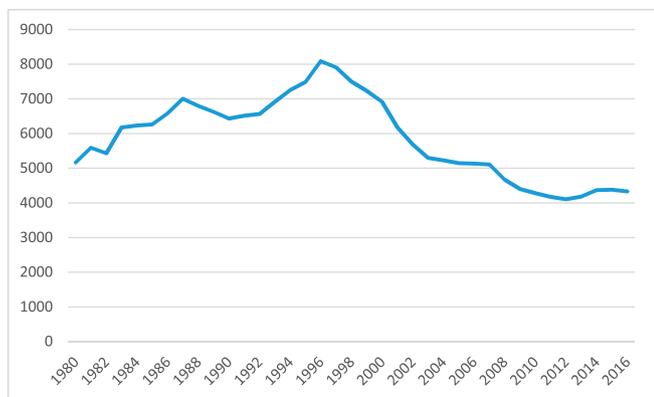


Fig. 1. Number of public corporations in the United States, 1980–2016.

for production, particularly after China joined the World Trade Organization in 2001. Last, the traditional pharmaceutical industry has become more concentrated through acquisitions large and small. For instance, Pfizer acquired Warner Lambert (2000), Pharmacia (2002), Wyeth (2009), and several smaller firms. At the same time, biotech is one of the largest sources of IPOs; biotech firms frequently end up being acquired by bigger pharma companies.

In short, the declining number of public firms is not a simple story of industry becoming more concentrated through mergers: each industry has its own dynamics. Meanwhile, the corporate names that have effectively vanished include many pillars of the 20th century economy, from old-school industrials (Westinghouse, Eastman Kodak, Bethlehem Steel) to big-box retailers (Borders, Toys “R” Us, Circuit City) to investment banks (Lehman Brothers, Bear Stearns, Merrill Lynch).

If old companies were dying off while new ones were being born to replace them, there would be less cause for concern. However, the rate of IPOs per year has not come close to its peak in the 1990s and is insufficient to replace disappearing firms. Fig. 2 shows the number of IPOs per year since 1980 (4). The late 1990s were notable for the dot-com boom, in which hundreds of new technology companies went public—many of which evaporated in the 2000 stock market crash. However, although the stock market recovered after 2000, the IPO market did not. The number of IPOs in the 5 y between 2013 and 2017—a period during which the Standard and Poor’s 500 (S&P500) index nearly doubled—was less than the number in 1996 alone. Indeed, although discussions of entrepreneurship are pervasive in universities and in the media, there is not much evidence of it on the ground: the Kauffman Foundation reports that startup density (the proportion of businesses with at least one employee that are less than a year old) has been in decline for four decades and stands at one-half the rate it was in the late 1970s (5).

Moreover, although entrepreneurs are often referred to as “job creators,” IPO companies in the United States create very few jobs. The median IPO firm after 2000 grew by just 51 employees by the end of 2014, and this was often due to acquisitions (6). Technology firms in particular typically maintain very small employment rolls. In 2015, “the combined global workforces of Facebook, Yelp, Zynga, LinkedIn, Zillow, Tableau, Zulilly, and Box [were] smaller than the number of people who lost their jobs when Circuit City was liquidated in 2009. Throw in Google and it’s still less than the number who worked at Blockbuster in 2005” (7).

There are several possible explanations for the decline in public corporations, such as regulations that raise the cost of being listed on a stock market, but the low employment figures of IPO firms hint at the most plausible one: Public corporations are

no longer the most economical way to do business. The original rationale for public corporations was the need to raise capital on a large scale to invest in tangible assets such as factories, warehouses, railroad tracks, stores, and so on. Economies of scale meant that larger firms produced goods or services at a lower cost than smaller firms: It was cheapest to produce all of the Model Ts in one giant factory in Detroit, staffed by tens of thousands of workers and administered by a large white collar staff. Over the past two generations, however, it has become increasingly feasible to “rent” the inputs to a firm rather than buying them, from factories and distribution channels to programmers and payroll processors. Vizio famously became the best-selling brand of flat-screen televisions in the United States with a staff of just 200, relying on offshore assemblers for production and big box retailers for distribution. Netflix is a global media firm yet has only 5,500 employees around the world, of which 600 are temps. Its products are virtual, and it has historically rented server space from its competitor Amazon. Blockbuster, in contrast, had 90,000 employees at its peak, spread among thousands of stores in strip malls across America, stocked with millions of physical products.

If the major inputs needed for a firm can be rented rather than bought, it becomes feasible to launch and grow a firm at lower cost. In addition, as more of the economy takes the form of services and virtual goods, firms can be very large in revenues and profits but small in assets and employment, reducing the need to be a public corporation. In short, the vanishing corporation in the United States most likely represents a broad shift in the organization of the economy. In the United States, in many sectors, it is cheaper on balance to organize commercial activity in forms other than public corporations.

The Problem with Vanishing Corporations

One might respond to the declining number of corporations with indifference, or even enthusiasm. Theodore Roosevelt attributed many of the societal problems of the early 20th century—growing inequality, more concentrated economic power, corporate money corrupting politics, financiers wielding outside influence—to the corporatization of the economy (8). A century later, Roosevelt’s list of pathologies sounds surprisingly contemporary.

However, during the intervening years, the United States built a robust system of laws and regulations to rein in the corporation and channel its powers for social benefit, due in large part to reforms started during the Progressive Era. The large corporation underwrote the growth of the American middle class, particularly after the labor reforms of the 1930s and the standardization of human resource practices during the Second World War. Large, long-lasting employers created systems of “internal labor markets,” which gave individual workers legible career paths that allowed

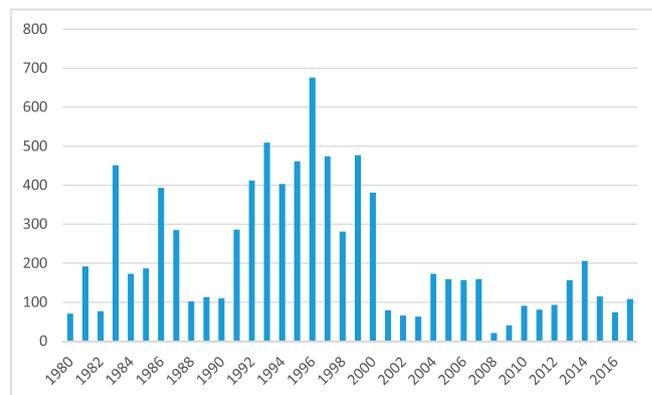


Fig. 2. Number of initial public offerings per year, 1980–2017.

people to hire in at entry level after high school or college and work their way up, often all of the way through to retirement. Giant bureaucracies like Westinghouse or Eastman Kodak or DuPont offered career stability for families and philanthropic benefits for the communities where they operated.

Surprisingly, bigger firms are associated with lower income inequality at the national level. In the United States, as more of the workforce was employed at the biggest firms, inequality declined, while as firms downsized, inequality increased. Around the world, the economies with the biggest domestic firms (e.g., the Scandinavian countries) have the lowest inequality, while countries with high inequality (Brazil, Bangladesh) have relatively small domestic firms (9). Moreover, while the biggest US firms in 1980 were career employers (AT&T, GM, Ford, GE, and Sears were the top five), in 2010 9 of the 12 biggest employers were in retail, where employment tenures are low, hours worked short, and opportunities for advancement limited. “Offline retail” housed in brick-and-mortar outlets is also undergoing a substantial shakeout that is highly likely to result in large-scale job losses.

Large corporate employers also served as a foundation for America’s idiosyncratic social welfare system. Whereas most Western democracies created government-organized systems of health care provision in the years after World War II, the United States evolved an employer-based system in which heads of households and their dependents received health insurance through their employer. This system was largely created through union contracts in the auto industry and spread widely from there. The traditional “defined benefit” pension, in which retirees received a regular check on behalf of their employer, became standard practice after the so-called “Treaty of Detroit” in 1950.

The idea that health insurance and retirement income security should be provided by employers rather than by governments only makes sense if one expects employees to stay at their jobs for an extended period—perhaps their entire career—and if firms are likely to outlive their workers. Both of these may have been plausible in the 1950s but are much less so now. Moreover, the expectation that employers will provide costly health and retirement benefits for full-time employees makes it less attractive to hire full-time employees and more appealing to use contractors and part-timers, or to outsource labor entirely. Even the most successful and profitable corporations of the 21st century rely heavily on externalized labor: In early 2018, Google had more contractors than direct employees, and their numbers were expected to increase as the company moves into new lines of business (10). This is one of the reasons that the biggest employers today are smaller, relatively speaking, than the biggest employers 40 y ago.

Public corporations are also easier to regulate than private companies. In the United States, corporate law and much business law is made at the state level, rather than the federal level. On the other hand, securities law—which applies only to public corporations—is made at the federal level. This means that if Congress wants to regulate business, it often does so via securities laws, such as the Foreign Corrupt Practices Act. The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, passed in response to the financial crisis that began in 2008, includes a number of provisions aimed at regulating the behavior of listed companies that do not apply to private businesses. Section 1502, requiring disclosure of the use of conflict minerals from the Democratic Republic of Congo, applied to Hewlett-Packard (a public corporation) but not to Dell (which had gone private), even though both are vast multinational entities. Thus, public corporations provide a set of hand-holds for federal oversight that private firms do not.

Last, a shrinking stock market leaves fewer alternatives for long-term savings (e.g., for college and retirement). Most

American households are invested in the stock markets, and their ability to retire comfortably relies on these investments. However, the shrinking number of listed corporations, coupled with the increasing use of passive index funds invested in indices such as the S&P500, means that more and more people are relying on investments in a smaller and smaller universe of corporations.

In short, large public corporations were a crucial foundation for the postwar prosperity of American families. Conversely, the decline in public corporations is associated with a declining middle class, lower upward mobility, greater inequality, a fraying social safety net, and a lessened ability to exercise democratic control over the economy.

The disappearance of the public corporation is a complex social problem with parallels to anthropogenic climate change. It is a slow-moving yet observable phenomenon with both predictable and surprising consequences. In particular, it has large implications for where and how social welfare services such as health care, wage stability, and retirement security can be provided. However, although it has received occasional attention from business executives (11), it has received at best desultory policy attention. There is no “save the corporations” social movement (nor, indeed, should there be).

How to Convey the Issue to the Public

I have been publishing academic work about the changing nature of the public corporation since I completed my PhD in 1990. Until 10 y ago, my efforts were almost entirely focused on academic research in peer-reviewed journals, aimed at colleagues in the social sciences. Over time, it became clear that, in the absence of thoughtful policy responses, the disappearance of the traditional corporation would have large-scale untoward consequences. I therefore sought to inform how the public understood the changing corporate economy.

Communicating social science findings to the public poses unique challenges for the science of communication. On the one hand, the social world is immediately accessible. Plant closings and unemployment are easy for anyone to grasp (Donald Trump’s inaugural speech alluded to “rusted out factories scattered like tombstones across the landscape of our nation”), and even if the Gini coefficient is an abstract measure of income inequality, most people understand that the 1% are different from the rest of us. Metaphors are rife when describing the economy’s “growth,” industry “ecosystems,” and market “crashes.” We effortlessly refer to corporations as persons (12), and sometimes even award them commensurate constitutional rights. In many ways, social scientists have it easy when communicating their work.

However, there are three distinct challenges for conveying economic change today. First, replacing an outdated-but-entrenched model or metaphor can be more difficult than starting with a blank slate. Second, the economy is inherently political, and thus findings may not be seen by the public or policymakers as neutral. Third, the contemporary media environment has created new dynamics and hazards for communicating social science. Each of these plays out in efforts to convey how the corporate landscape has changed.

Change in the organization of the economy is highly relevant for both private and public decisions, from choices about whether to attend college to national trade policies. For individuals, planning for education and careers requires having a mental model to guide choices. The corporate system provided a clear narrative for upward mobility: Get good grades in school, attend the best college you can get into, study something practical, get a job at a name-brand corporation, and your future is set. “Climbing the corporate ladder” was an apt description of a durable pathway to economic security. However, the most vivid exemplars of success in recent times shunned this advice: Bill

Gates, Steve Jobs, and Mark Zuckerberg were all college dropouts who made their billions despite avoiding corporate careers. The so-called gig economy consists of a series of short-term engagements with no legible pathway to mobility. Meanwhile, those who climb onto the corporate ladder often find themselves getting laid off before they have paid off their student loan debt.

Best practice in science communication requires assessing what people already know and designing communications to fill in the gaps between what they know and what they need to know (13). The fact that just over one-half of American households are invested in the stock market should make it easier to convey changes in the corporate sector. However, even the most readily assessed factual information about the economy is now politicized. A March 2016 poll of registered voters asked respondents several questions about the economy and found stark differences in responses based on political affiliations (14). When asked “Do you think the stock market has gone up or down since Barack Obama became President?,” 74% of those who voted for Obama in 2012 believed that the market had gone up, while 56% of those who voted for Mitt Romney believed it had gone down. In fact, the S&P500 index increased by 150% from the day of Obama’s inauguration to early March 2016 (from 805 to 2001). Seventy-one percent of Obama voters believed that unemployment had declined under Obama, while 66% of Romney voters believed it had actually increased. In reality, unemployment declined by nearly one-half during this period. Anyone with a smartphone could uncover the correct answers to these questions in under 30 s, yet large parts of the populace held radically inaccurate views of recent economic history. The challenge for conveying more subtle patterns, with potentially contentious implications, is evident.

Moreover, search engines and social media have become predominant sources of scientific information for most Americans, creating an environment that favors flashy and sensational findings, often unmediated by scientifically literate gatekeepers (15). Describing slow-moving, large-scale shifts may not be as clickworthy as, say, new diet tips.

Public policy is also informed by stylized facts about how the economy works. Our mental models of the economy and the actors in it drive the kinds of public policies we get. For instance, many commentators allude to the malign effects of “big corporations” and their dominance of the economy. If big is bad, then perhaps small is beautiful.

However, what is a big corporation?

In 2017, the grocery chain Kroger had 449,000 employees. Facebook had just 25,105. Kroger brought in \$123 billion in revenues; Facebook, only \$41 billion. Kroger sells tangible products to consumers at thousands of physical stores. Facebook sells consumer attention to advertisers. Which, then, is bigger? In terms of employment, it takes 18 Facebooks to make one Kroger; Kroger is three times as big as Facebook in revenues. However, when it comes to market capitalization—the stock market value of their all shares outstanding—Kroger is worth roughly \$20 billion, while Facebook is valued at over one-half trillion dollars at this writing. (In early 2018, Facebook’s market capitalization dropped by more than the value of all of Kroger’s shares on at least four separate days, and on July 26, 2018, Facebook’s value dropped by five Krogers in a single trading session.)

As this example demonstrates, there are different ways to be “big,” and they need not correlate. Social scientists often convey their findings using metaphors that by their nature are imprecise. When translated into policy, this lack of precision can enable fuzzy policy thinking. If big corporations need to be broken up because they are too powerful, then should we be going after Kroger, or Facebook?

Commentators today routinely conflate different senses of bigness. For instance, some analysts attribute stagnant wages to increased corporate concentration. Historically, corporate

concentration is measured in terms of market share in a primary industry (that is, the percentage of an industry’s sales accounted for by the largest firms). However, the proposed mechanism for keeping wages down is “labor monopsony” (i.e., an employer having bargaining power over employees by virtue of being the only, or biggest, employer in a particular industry). Today, however, as demonstrated by Facebook and Netflix, firms can be dominant in market share with trivially few employees. Indeed, Facebook’s median employee earned over \$240,000 in 2017, suggesting that industry concentration may not be that bad for employee pay.

Conveying a better understanding of social science theory and findings to the public poses several challenges. Some of these are familiar: The fact that most people live in society means that they often have strongly formed opinions and their own access to data in the form of lived experiences. Others are of a more recent vintage. The rise of social media, coupled with nobly intended efforts to make our work more accessible to the broad public, can encourage “TED talk research” or “clickbait research.” The first can entail simplified solutions to complex problems (say, that standing in a “power pose” can make you feel more powerful and cause your body to release powerful hormones). The second includes novel-but-suspect findings (say, that kids will choose vegetables featuring a fun sticker in preference to a cookie).

In light of these challenges, how is it possible to influence the dialogue about social issues such as the decline of the public corporation? There are currently a large number of communication channels that can be used to convey social science findings and implications, from journal articles and university press books to social media.

Academic journal articles. The limitations of academic journal articles as vehicles to communicate with the public are well known. They are written for a specialist audience and generally are the wrong format to convey broad implications of one’s findings. (There are exceptions: Watson and Crick’s two-page contribution to the journal *Nature* in 1953 seems to have had some broad impacts.)

Academic books. Books written for a university press, like journal articles, go through a thoughtful review process and allow room to convey the broad policy implications of a line of research. However, with rare exceptions, university press books do not cross over beyond the bounds of the academy. Thus, they are well-suited to promotion and tenure cases, less so for changing policy discourse.

Mass-market books. Books published by general interest publishers have some chance of breaking out into a broad readership. Some publishers are also well-equipped to support this effort with marketing. However, the number of books published in any given year in the United States is in the hundreds of thousands; the number actually read, considerably fewer. Given contemporary patterns of readership, books are a challenging way to get ideas into the hands of the public.

Short articles or posts for general interest outlets. For better or worse, there are now countless online publishers with fairly divergent publication models. I have sampled a fair number of these outlets as an author and have found that if one’s goal is respectful dialogue, it is very, very difficult to accomplish this online. Selective outlets with paywalls typically get limited readership. Accessible outlets without paywalls often attract large numbers of trolls with limited reading comprehension and an incapacity to read beyond the first paragraph before penning their rebuttal.

Curated and/or verified outlets. By far the most productive experience I have had in writing for the general public is in verified outlets, in which authors are vetted for their credibility. *The Conversation* is one such venue: it publishes relatively short

pieces online by faculty who teach at higher education institutions, on topics across the academic spectrum (from biology and astronomy to business and policy). Articles link to original sources for those who want to dig into the underlying research, but writers work with professional editors on staff who can turn academic prose into something accessible to general readers. Moreover, the articles are published under a Creative Commons license such that other publishers (e.g., *Time*, *Newsweek*) can republish the work under their own banner, as long as they credit and link to the original publication and do not alter the content. Thanks to this unique model, the pieces I have published have been republished in outlets around the world, receiving readerships averaging over 25,000 each, and have been followed by inquiries from other press outlets.

Traditional news outlets. Although it is possible to write directly for magazines and newspapers, this is a fairly laborious way to reach one's audience. On the other hand, it is generally worthwhile to be accessible to reporters, particularly in the wake of other publications. Pieces published in *The Conversation* often yield opportunities for interviews with the press, particularly when the topic is currently in the news.

The recent stream of research on the science of science communication, summarized in the 2016 volume *Communicating Science Effectively*, yields several useful insights for conveying social science findings to a broad public and help interpret my experience. In retrospect, it was naive to imagine that books describing broad social trends would, in themselves, gain traction in public discourse. On the other hand, human interest stories can be highly effective at drawing attention to tectonic shifts. In September 2017, *The New York Times* published a widely shared piece entitled "To Understand Rising Inequality, Consider the Janitors at Two Top Companies, Then and Now" (16). The article contrasted the careers of Gail Evans, who worked as a janitor at Eastman Kodak in the 1980s, and Marta Ramos, who cleaned Apple's headquarters at the time of the article. Evans took college classes after work, and ultimately worked her way up to being the company's chief technology officer, thanks to Kodak's internal career ladders and generous employee benefits. Ramos, on the other hand, worked for an external contractor and had no clear career pathway beyond her current position. The contrast between the two companies and two eras was stark, and engagingly illustrated the individual consequences of the shifting nature of the corporate economy. On the other hand, the article inevitably lacked the large-scale evidence necessary to inform policy or practice.

How to bridge the gap between the human interest stories beloved by journalists and the systematic research done by social

scientists? The volume of media coverage varies according to an issue's perceived political relevance and to events happening in the ambient environment. Thus, one strategy for gaining media currency is to explicitly connect events in the news to research findings that help interpret them. During the 2016 election cycle, news outlets uncovered the peculiar fact that not a single Fortune 100 CEO had donated to Donald Trump's political campaign, whereas one-third had donated to Mitt Romney's campaign in 2012. This was puzzling: how did Trump manage to succeed politically with so little support from big business? With my collaborator Johan Chu, I wrote a piece for *The Conversation* describing how changes in corporate America accounted for this surprising disconnect, and managed to gain some visibility for our findings in the media (along with follow-up requests from journalists) (17). This approach—using newsworthy events as an opportunity to provide rapid online contextualization based on research, and being highly accessible to journalists—has turned out to be especially productive at getting social science findings into the larger discourse.

The lesson, then, is to use current events or human interest stories as an opportunity to provide a research-based context via online outlets. These posts "can be written quickly and immediately, responding to new events, issues, or debates, and bypassing the need to convince a journalist" of its merits beforehand (18). They thus provide a cadence that is more responsive to the researcher, and a bridge to the underlying research findings.

Conclusion

Conveying foreseeable disasters arising from the social world shares similarities with communicating risks from the natural sciences. The vanishing American corporation is a large-scale shift in the organization of the American economy and creates a number of strains that require thoughtful policy responses, and new strategies for individuals grappling with choices about education and careers. Conveying a new understanding of economic organization has proven challenging: It is complex and runs counter to established narrative and metaphors about how the economy works; economic findings are inherently political and can be contentious, particularly when they require policy responses; and the contemporary media environment works against nuanced explanations. My experience suggests that some forms of online content, interpreting events in the news by providing research-based context, can be an especially effective way to communicate social science to the broader public.

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