DOES AMERICA HAVE AN ANTITRUST PROBLEM?

Markets are becoming more concentrated—and, arguably, less competitive

Plus:
A better way to calculate hospital rankings
How to manage a global team
“The challenges of cleaning a bathroom are varied, unexpected, and fascinating.”

Page 74
In 2016, American voters’ anger was directed toward the Washington elite, with cries to “drain the swamp.” In 2020, the electorate’s frustrations seem likely to be channeled toward the technology behemoths of Silicon Valley, with calls to “break them up.”

“Today’s big tech companies have too much power—too much power over our economy, our society, and our democracy,” Elizabeth Warren, the Democratic presidential hopeful, argued in March 2019.

Meanwhile President Donald Trump reckons that Amazon—a company headed by his bête noire Jeff Bezos, who also owns the Washington Post—has a “huge antitrust problem.” Trump has praised the European Union for dishing out multibillion-dollar fines to companies such as Google.

Our cover story on the revival of antitrust (page 28) notes that while it may make political sense to pledge to take on the tech giants, policy makers need to understand how these tech conglomerates are formed before deciding whether to confront them—and how to do so. The policy teams working for Trump, Warren, and other politicians should familiarize themselves with the related research of Chicago Booth’s Brent Neiman, Chad Syverson, Thomas Wollmann, and Luigi Zingales, to create informed proposals that might have the desired outcome.

Using data to improve health care and education
Hospital rankings are critical for medical facilities, health-care professionals, and patients. The rating a hospital receives affects its reputation, its negotiations with insurance companies, and, of course, public health. Yet Booth’s Dan Adelman has identified a significant flaw in the federal system used to rate hospitals: a hospital can improve in all areas and yet still see its rating drop. Adelman also proposes a solution to the ratings problem (page 24).

This issue is full of other research that points to ways to potentially improve public policy, such as restructuring vocational training in secondary school (page 15) and understanding who benefits the most from attending community colleges (page 21). There are also insights from findings that use historical data, illustrating why policies such as the Trump administration’s ban on visitors from some majority-Muslim countries could adversely affect US companies (page 13).

With so much policy-relevant research, you might feel moved to clip articles from this issue and send them to your elected representatives. Even better, visit our website (just google “Chicago Booth Review”) and share the articles, videos, and interactive charts you find there.

We’d love to hear from you about anything you find in this issue or on our website. Do you think the big tech firms should be broken up? Add your voice to the conversation on this important debate.

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Demand for niche products is growing

No shareholder primacy, less accountability

Multinational companies help spread recessions

Executive surveys forecast business outcomes

The real cost of discrimination: A case study from Nazi Germany

To find an honest stockbroker, check out the auditor

Why do some companies ignore new technology?

Can employers change gender norms?

How Norway reduced the earnings gap

How (in)accurate is machine learning?

Whistle-blowers act out of a sense of morality

Chad Syverson on keeping markets competitive

When saying ‘I’m sorry’ and ‘thank you’ makes a big difference

How to nudge consumers to pay off credit-card debt

Are plastic straws a leading indicator?

Community college pays off for some students—not all

A manipulation index could prevent derivatives fraud

Why repeat experiences are underrated

Experts are often bad at predicting test results

A problem with hospital ratings—and how to fix it

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When rich folks move downtown, inequality gets worse

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Raghuram G. Rajan, the Katherine Dusak Miller Distinguished Service Professor of Finance, is the author, most recently, of The Third Pillar: How Markets and the State Leave the Community Behind. From 2013 to 2016, Rajan was the governor of the Reserve Bank of India. A member of the Group of Thirty, a consortium of financiers and academics, he currently teaches a course on international corporate finance at Booth. (Page 14)

Luigi Zingales, the Robert C. McCormack Distinguished Service Professor of Entrepreneurship and Finance and the Charles M. Harper Faculty Fellow, joined Chicago Booth in 1992. A past president of the American Finance Association, coauthor with Raghuram G. Rajan of Saving Capitalism from the Capitalists, and author of A Capitalism for the People, he currently directs Booth’s Stigler Center for the Study of the Economy and the State and cohosts the podcast Capitalisr. (Page 28)
Amy Ward, the Rothman Family Professor of Operations Management, is interested in promoting efficiency in the service industry—including at airlines, hospitals, call centers, and online marketplaces. Her research addresses the challenges of designing and implementing policies that respond to the randomness and variability in customer arrival and processing times. (Page 36)

Waverly Deutsch, clinical professor at Chicago Booth and the Polsky Director of the UChicago Global Entrepreneurs Network, teaches the Global New Venture Challenge class and is a coach for the annual New Venture Challenge. Her research focuses on the execution issues entrepreneurs face as they grow their businesses—especially marketing, sales, operations, and team building—and is featured in a regular column in Chicago Booth Review. (Page 66)
Find the articles to which these comments refer at Review.ChicagoBooth.edu.

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Comments may be edited for clarity and/or space.

CAN ENTREPRENEURSHIP EXIST IN CHINA?

Don’t underestimate China’s entrepreneurs—steal them (Fall 2019)

Of course they have built up a coterie of science researchers of meaningful strength. They have obviously used our universities and research institutions to jump-start their efforts over the years. And of course, the government supports their version of entrepreneurs with focused investments in areas of government priority. But do they allow the freedom of entrepreneurial choice found in the United States and elsewhere in the free world? Not really. They do not even allow freedom of speech, reading materials, communications, or movement. How much of the entrepreneurial decisions are independent of foreign entrepreneurial and corporate initiation is still not clear to me. Is managed entrepreneurship a more appropriate description?

—Raymond Willis

We’re too arrogant to see that the ship has already sailed.

—Chan Bridges

Without protecting people’s intellectual properties, is China going to be a good place for entrepreneurs anyway?

—Shan Ru Lin

“Ever rush out to buy a GE refrigerator? Yea. I didn’t think so.”

— BRAD SZOLLOSE

NO LOVE LOST FOR GE

Three strategy lessons from GE’s decline (Fall 2019)

After GE bought the company my wife worked at, it shipped all the jobs to India and laid everyone off. Have boycotted GE since and won’t shed a tear if it goes under.

—Jim Senecal

GE’s never spent time and effort building its consumer brand. Ever rush out to buy a GE refrigerator? Yea. I didn’t think so.

—Brad Szollose

Kodak, Sears, GE. Great stories of avoiding upheaval ending up in upheaval.

—Dennis VanHartesvelt

Jack Welch was the ruination of GE, and similar management philosophies are serving to destroy other American companies. He emphasized and rewarded cost reduction while neglecting deteriorating quality and customer satisfaction. He and his lieutenants were rewarded with great wealth while the company was dissolving from beneath them.

—Larry Andrews

When maneuvering capital and rigging finance becomes more important than production and delivery in a technology company . . .

—Werner Yzelman

People are the reason GE failed. [Former CEO Jeff] Immelt reversed the organizational changes and implemented strategies that caused talent to leave. Talk to the guys on the front lines of the business. They know what happened.

—Joshua Dobson
WOULD THIS WORK FOR GUNS?

A plain way to cut smoking rates (Fall 2019)

We can be this explicit with antismoking packaging, advertising, education … finding that it’s effective on any number of levels, but somehow we have not used this when it comes to gun violence. In fact, it’s the opposite. We continue to glorify it, use it for entertainment, and worse.

—John Gury

I SEE YOU TOO, BOSS

Overcome the odds to become a great boss (Fall 2019)

In [author and entrepreneur] Seth Godin’s latest talk, he uses the Zulu greetings sawubona and sikhona, which are loosely translated as “I see you,” and “I am here to be seen,” to reflect the humanity in our relationships. Sawubona means that I see you as a whole person, all of you, with nothing to hide. I see your soul. Sikhona means that I am here to be seen, all of me, with nothing to hide: please look into my soul. Before one is a boss or a staff, she is a human being. Without that recognition, almost every single piece of advice on “how to become an effective xxxxx” is moot and useless.

—Joseph Lee

FREE CLIMBING, FREE MARKETS

What the success of rock climbing tells us about economic growth (Fall 2019)

“There is nothing technological that stopped human beings from climbing in much this way centuries ago” is one of a number of glaringly inaccurate statements in this piece. What about all the gear—rope, harness, cams—Alex Honnold used to practice and wire the route up to the point he free soloed it?

—Damien Gildea

You make some interesting and valid points. Just curious why you didn’t mention climbing gyms and how they made Alex Honnold’s climb possible? Without Honnold’s home climbing gym in Sacramento, California, there never would have been a free solo of El Cap. Gyms made climbers much stronger, and that combined with Honnold’s fearless mind opened the door to what he did.

—Matt Niswonger

My rock-climbing sons would challenge a couple of details here, but [the column was] a great way to make these concepts more accessible.

—Daniel Weintraub

Alongside Kenya’s Eliud Kipchoge smashing the marathon world record and the people of Afghanistan and Pakistan taking the final steps to get polio off the planet, this is an excellent read!

—Nick Horslien

FOR-PROFIT SCHOOLS RESPOND

Who’s at fault for student-loan defaults? (Summer 2019)

I was disappointed with your recent article on student debt and the crisis in higher education, which contained many misleading statements, misuses of data from outdated studies (most from 2009), and selectively researched articles.

While there have been examples of schools in the for-profit sector that produced poor outcomes for students, you can find many similar cases in the public and nonprofit sectors—cases that persist to this day, as there is little substantive accountability for traditional higher education relative to for-profit institutions. Many poor-performing for-profit schools have closed due to the effectiveness of market forces.

“I reject the suggestion that we focus on minimizing costs and do not care about students’ career outcomes.”

—MARK DREYFUS

The premise that market-based schools want to cheat on delivering education and services to enhance the bottom line is preposterous. I reject the suggestion that we focus on minimizing costs and do not care about students’ career outcomes. We are a service-based business. If we do not provide a service, we will not stay in business. The better the service you deliver, the more customers you attract, the higher the margins. Education is largely driven by reputation and referrals. Isn’t Booth’s brand based on its outcomes and not its ability to cut costs? Cutting costs is not the way to more customers and more profits. I am the president of East Coast Polytechnic Institute (ECPI University) and have been an educator for 35 years, and my skills-based institution has been laser focused on outcomes and service for students, which has allowed us to gain market share and improve quality. We have thrived in a turbulent market and outperformed our competitors in the public sector.

The idea that tax-paying schools “target” nontraditional students or are predatory marketers is a fallacy. The reality is that there are large segments of the population who are ill-served by community colleges and who never finish because of poor service and poor attention to outcomes.

Adults also find services and schedules at public universities “targeted” to traditional students. By filling the need for faster programs, high engagement, career services, and hands-on instruction, the tax-paying sector outperforms on every metric with this demographic when looking at completion rates, time to completion, and graduate employment. A handful of large online schools cause bimodal sector outcomes that disproportionately weigh on the aggregate data in many (so-called) studies, misrepresenting the outcomes of the vast majority of for-profit colleges.

The lack of transparency and accountability in the nonprofit and public-university sectors perpetuates ever-increasing tuition, building sprees, and administrative bloat. The market needs to see total cost, median time to completion, graduation rate, and graduate employment salaries by program. We need to see this not only for all students at all colleges, but also for the subset of veterans.
Where will the incentive come from for universities to slow the growth of tuition and fees, if not through competition, and exposing colleges and programs that have poor outcomes?

—Mark Dreyfus
President, ECPI University

I was very disappointed to read the article on student-loan defaults by Howard R. Gold in the Summer 2019 edition of Chicago Booth Review. I found his argument was more akin to the ideological bashing that detractors of for-profit career colleges make rather than the free-market, rigorous thinking I expected from the University of Chicago. There was a great deal more research he could have done to balance his story to truly help readers understand the role we play in American society and the economy.

While I cannot dispute the data that was presented in the article, or that a disproportionate number of students from for-profit colleges default on their loans, I take exception to the tone of the article, the incorrect information that was provided, and the lack of balance in presenting for-profit colleges. I particularly reject the notion, suggested in the article, that for-profit colleges have no motive to assist students with job placement; from both a regulatory and business perspective, students’ success in the job market is critical for career colleges.

What is the right amount of regulation in our industry? That is the crux of a debate taking place among some educators and policy makers. At one end of the spectrum are those that believe that career colleges are inherently evil and that society needs to be protected through strict regulation, if not the downright prohibition of career colleges. On the other end of the spectrum, there are those that believe that beyond basic consumer protection against fraud and abuse, the regulation of career colleges should be limited.

I think there is one thing we can all agree on: our society and economy are better off with more education, not less. Hence, the key questions we should be asking include:

• Who should be providing the capital to create education capacity in the United States—the private sector, the public sector, or both?
• If we want private, tax-paying capital to fund education, what is the appropriate level of safeguards that need to be put in place to protect the consumers?
• What is the appropriate level of safeguards that will still attract private capital through risk-adjusted rates of return?
• Is there a point at which we can provide an appropriate level of consumer protection and still attract private capital? If not, are we as a society better off deterring private investment in education and the education capacity that comes with it? Will public financing and not-for-profit capital be able to create the supply of education that will meet US demand?

At the end of the day, private capital in the US is very flexible and has many options. We have relatively efficient capital markets. Regulators can effectively shut out private investment in career schools by making adequate profitability unobtainable. As it stands, investing in for-profit colleges is no guarantee of riskless, obscene profits. As the past few years have demonstrated, education is a risky business, and there is the potential to lose a lot of money investing in it.

And as recent hearings on Capitol Hill demonstrate, the resistance to private capital’s investment in education has not abated. Despite Congress’s repeated assertions of only wanting to get rid of the “bad apples” in for-profit education, the regulations that are being discussed would drive out all of the apples, good and bad.

“IT IS DIFFICULT IN TODAY’S POLITICAL ENVIRONMENT TO HAVE THOUGHTFUL, DISPASSIONATE DISCUSSIONS ABOUT ANY TOPIC.”

—JIM TOLBERT

It is difficult in today’s political environment to have thoughtful, dispassionate discussions about any topic. Ideology and rhetoric get in the way. If we can better frame the debate around career colleges in terms of what is objectively best for society, I think we can get to the “right” solution.

Public funding for higher education, particularly community colleges, went into decline during the Great Recession—it has still not fully recovered—which contributed to a severe shortage of supply to meet the demand for cheaper public postsecondary education. Are we better off not having sufficient capacity to meet the demand for education and thereby address one of the primary causes of income inequality in the country? There is a compelling argument as to why our country needs all of the education capacity we can get, in both the for-profit and the not-for-profit sectors.

—Jim Tolbert
CEO, Vista College
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Demand for niche products is growing

Marketers will have to cater to increasingly narrow tastes

In the old days—say, 1980—many consumers shopped for specific brands that offered a limited number of products in each category. For example, Frito-Lay’s Tostitos tortilla chips, first distributed nationally in 1980, offered one chip style and only two flavors.

Now, consumers have a vast range of options, as brands split categories of goods into ever smaller niches. Shoppers increasingly select these niche products, according to Chicago Booth’s Brent Neiman and Joseph S. Vavra.

To study niche consumption trends from 2004 to 2016, the researchers used Nielsen Homescan Data from Booth’s Kilts Center for Marketing. They looked at weekly purchasing patterns from 170,000 households across the United States, representing nearly 700 million individual transactions and 118 product groups.

Their findings suggest that consumers generally benefit from a proliferation of niche items because they can more easily find products that match their unique tastes. Frito-Lay, for example, offers

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Proliferation of niche products

As brands have increased their product varieties, consumers' loyalties have accordingly split into segments.

Individually, households have concentrated their purchasing on fewer discrete products . . .

Household average number of products per shopping category

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. . . but collectively, households have bought more discrete products as choices have proliferated

Overall number of product varieties purchased per category

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Brands that once marketed just a couple of general varieties now cater to an abundance of niche consumer tastes

Individually, households have concentrated their purchasing on fewer discrete products . . .

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Multinational companies help spread recessions

The Great Recession a decade ago was one example of how economic cycles across the world can move in parallel, a phenomenon that economists don’t fully understand. It could be that a common event, such as a surge in oil prices, affects many economies at the same time—or perhaps linkages between countries transmit economic shocks from one country to the world economy.

One such linkage is multinational corporations, according to Marcus Biermann, a postdoctoral scholar at the Catholic University of Louvain, and Chicago Booth’s Kilian Huber, who explored the role of multinationals in spreading the global recession by analyzing the ripple effects of one German bank’s struggles during the 2008–09 financial crisis.

Commerzbank was Germany’s second-biggest commercial lender, behind Deutsche Bank. Losses on trading and investments abroad hammered the bank, especially after Lehman Brothers collapsed in September 2008. Commerzbank’s capital fell by 68 percent between December 2007 and December 2009, which forced the bank to reduce its aggregate lending stock by 17 percent. Biermann and Huber find that this pullback in credit available to German parent companies affected subsidiaries in other countries, thus helping to transmit the economic contraction.

The researchers based their analysis on two sets of data: information from a credit-rating company on relationships between banks and corporations, and data on international units and corporate balance sheets from the German central bank. They used these data to compare the operations of foreign affiliates of companies hit by the Commerzbank credit crunch with the operations of those that weren’t. German companies tend to form close relationships with one or just a few banks, the researchers point out. The high cost of switching banks meant that Commerzbank’s lending clampdown imposed a hardship from which the multinationals couldn’t easily escape.

When Commerzbank cut lending, the bank debt of companies highly dependent on Commerzbank plunged and remained persistently low until 2015, the study finds. Biermann and Huber link this with sharply reduced sales by these companies’ foreign units, which didn’t fully recover for three years. The researchers find that because the parent companies couldn’t borrow from Commerzbank, they withdrew equity and borrowed money from their affiliates, which constrained the foreign units’ operations.

“The average affiliate in a country outside Germany experienced a decrease in sales of approximately 10 percent” as the parent companies tapped the units for cash, the researchers report. “Our calculations suggest that there were large effects on aggregate sales in countries where German affiliates play an important role in the aggregate economy.”

Specificaly, Biermann and Huber calculate that if a financial shock of a similar size to the Commerzbank lending cut hit multinationals based outside the United States, it could reduce sales in the US by more than 1 percent, a result of the companies’ internal networks transmitting the shock to their American units. A similar event affecting parent companies outside the European Union could lower sales in the EU by more than 2 percent.

“Taken together, our results document how multinationals transmit financial shocks from one country to the global economy,” the researchers write. “The results in our paper suggest that if global economic integration through multinational firms continues, global business cycles may become even more synchronized in the future.”—Bob Simison

NO SHAREHOLDER PRIMACY, LESS ACCOUNTABILITY

“If you give managers free rein to do whatever they want, to benefit whatever stakeholder constituency they want, you lose the ability to police them in any meaningful way. We can say, ‘Managers lied, or distorted some numbers, and this hurt shareholders.’ But if we don’t really know whose objectives [companies are] maximizing, it becomes harder for regulators to step in and say, ‘This is something you did that hurts this constituency whom you’re supposed to be accountable to.’ I’m worried that this would just give them free rein to not be regulated at all.”

—KATE WALDOCK, of Georgetown University, cohost of the Capitalism? podcast
Executive surveys forecast business outcomes

Consider the 2008–09 financial crisis, the June 2016 Brexit referendum, or recent trade tensions between the United States and China. Developments such as these create uncertainty and undermine business confidence, hurting capital investment and growth. Indeed, unresolved trade tensions lowered gross investment in the US manufacturing sector by 4 percent, or $22 billion, in 2018, according to the January 2019 Survey of Business Uncertainty.

The SBU is a monthly survey of US business executives designed, tested, and now managed by the Federal Reserve Bank of Atlanta’s David E. Altig (an adjunct professor at Chicago Booth), Brent Meyer, and Nicholas Parker; Stanford’s Jose Maria Barrero and Nicholas Bloom; and Booth’s Steven J. Davis. The survey collects executives’ subjective, scaled views about how their companies will fare in the upcoming year.

The core survey questions let executives supply data for what is known in statistics as a five-point subjective probability distribution. For example, in forecasting how many employees their company will have 12 months hence, respondents assign values to a lowest, low, medium, high, and highest possible future outcome. Respondents then attach a percentage likelihood to each possible outcome.

Using these probability distributions, the researchers calculated growth-rate forecasts for sales, employment, and investment for every business covered by the survey. They also calculated the subjective uncertainty levels of the executives making the forecasts. Because the SBU includes questions about past and current business outcomes, the researchers were able to compare forecasts with the eventual, realized outcomes. Respondents also regularly answer questions about the perceived effects of economic and policy shifts—the 2017 Tax Cuts and Jobs Act, for example—on their companies.

Using survey data from October 2014 to February 2019, the researchers find that subjective expectations help predict actual growth-rate outcomes. When respondents expressed more certainty regarding their expectations for growth rates in employment, sales, and investment, their predictions proved more accurate. On the other hand, when respondents expressed higher uncertainty, they were more likely to make large errors in predicting actual outcomes. This pattern indicates that the companies actually facing uncertain futures perceive this uncertainty, the researchers say.

Moreover, the researchers’ Business Expectations Index (an average based on companies’ expectations for sales growth, employment growth, and capital-expenditures growth) demonstrates a high correlation with economic indicators such as industrial production. For example, in months when industrial production grows, survey respondents tend to have more-optimistic expectations. At the same time, the Business Uncertainty Index (also created through averaging) tends to move with the one-year CBOE Volatility Index, a measure of expected stock market volatility.

Measuring US business leaders’ optimism

The researchers find that indices based on data from their Survey of Business Uncertainty track the Industrial Production Index and the CBOE Volatility Index.

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Measuring US business leaders’ optimism

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Business Expectations Index
Higher = greater optimism

Business Uncertainty Index
Higher = greater uncertainty

Industrial Production Index
Growth rate, smoothed

CBOE One-Year Volatility Index
Middle of month, smoothed

The core survey questions let executives supply data for what is known in statistics as a five-point subjective probability distribution. For example, in forecasting how many employees their company will have 12 months hence, respondents assign values to a lowest, low, medium, high, and highest possible future outcome. Respondents then attach a percentage likelihood to each possible outcome.

Using these probability distributions, the researchers calculated growth-rate forecasts for sales, employment, and investment for every business covered by the survey. They also calculated the subjective uncertainty levels of the executives making the forecasts. Because the SBU includes questions about past and current business outcomes, the researchers were able to compare forecasts with the eventual, realized outcomes. Respondents also regularly answer questions about the perceived effects of economic and policy shifts—the 2017 Tax Cuts and Jobs Act, for example—on their companies.

Using survey data from October 2014 to February 2019, the researchers find that subjective expectations help predict actual growth-rate outcomes. When respondents expressed more certainty regarding their expectations for growth rates in employment, sales, and investment, their predictions proved more accurate. On the other hand, when respondents expressed higher uncertainty, they were more likely to make large errors in predicting actual outcomes. This pattern indicates that the companies actually facing uncertain futures perceive this uncertainty, the researchers say.

Moreover, the researchers’ Business Expectations Index (an average based on companies’ expectations for sales growth, employment growth, and capital-expenditures growth) demonstrates a high correlation with economic indicators such as industrial production. For example, in months when industrial production grows, survey respondents tend to have more-optimistic expectations. At the same time, the Business Uncertainty Index (also created through averaging) tends to move with the one-year CBOE Volatility Index, a measure of expected stock market volatility.

Measuring US business leaders’ optimism

The researchers find that indices based on data from their Survey of Business Uncertainty track the Industrial Production Index and the CBOE Volatility Index.

Business Expectations Index
Higher = greater optimism

Business Uncertainty Index
Higher = greater uncertainty

Industrial Production Index
Growth rate, smoothed

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THE REAL COST OF DISCRIMINATION: A CASE STUDY FROM NAZI GERMANY

POLICIES SUCH as the Trump administration’s ban on visitors from a string of majority-Muslim countries are likely to harm American companies, research suggests.

Chicago Booth’s Kilian Huber and University of Munich’s Volker Lindenthal and Fabian Waldinger draw their conclusion from a study of companies in Nazi Germany. Purging Jewish managers from German companies reduced the aggregate market valuation of all companies listed on the Berlin Stock Exchange by approximately 5 percent between 1933 and 1943, or nearly 2 percent of the German gross national product, they find.

The researchers collected data on 30,000 managerial positions at German companies that had been listed on the Berlin Stock Exchange in 1932, when Hitler was on the path to becoming the leader of the country. At the time, Jews held about 15 percent of senior management positions in these companies.

After the Nazis took power in 1933, those managers either left or were forced out of their positions. The share prices of these companies then declined relative to companies that had never employed Jewish executives. The share prices of companies that lost Jewish managers started falling in 1933 and remained persistently 10 percent lower than the share prices of peer companies that had never had Jews in senior positions.

Dividend payments and returns on assets also fell significantly after 1933 for companies affected by the purge. Companies that lost Jewish managers saw dividends fall by 7.5 percent, while returns on assets fell about 4 percentage points. This means that the loss of Jewish managers led to real losses in efficiency and profitability.

The issue, according to the researchers, is likely that the companies affected by the purge lost the beneficial characteristics of these senior managers. Jewish managers were twice as likely to hold the honorary title of kommerzienrat (councillor of commerce) and two and a half times as likely to have held a supervisory position in another company. Huber, Lindenthal, and Waldinger find that the total number of executives with managerial experience fell, as did the total number of managers with university degrees. Some 45 percent of Jewish managers held university degrees, compared with 36 percent overall. The number of connections these companies had to others, in the form of seats on other companies’ boards, fell substantially as well.

The Nazi era in Germany is an extreme example of systematized discrimination against a particular group of individuals, acknowledge the researchers, but they write that “even less severe forms of discrimination can lead to a loss of talent.” The US trav- el ban is one such example, suggest Huber, Lindenthal, and Waldinger, who add that highly paid continental Europeans leaving the United Kingdom as a result of Brexit could also bring negative consequences.

—Robin I. Mording


To find an honest stockbroker, check out the auditor

One way to check out the character of a stockbroker in the United States is to log on to BrokerCheck, a website operated by the Financial Industry Regulatory Authority. It offers free information about all advisers and any known instances of misconduct. There is a lot to wade through: in 2017, there were 3,726 broker-dealers in the US, employing more than 630,000 advisers registered with FINRA.

To narrow the field of potential broker-dealers, learn which CPA firm is auditing the brokerage, researchers suggest. An auditor’s track record of accepting high-misconduct stockbroker clients, which tends to predict their new clients’ future misconduct, is closely tied to the reputation of the auditor, according to the Public Company Accounting Oversight Board’s Jonathan Aaron Cook, Notre Dame’s Zachary T. Kowaleski, Chicago Booth’s Michael Minnis, MIT’s Andrew Sutherland, and University of Wisconsin at Madison’s Karla M. Johnstone.

Using audited reports, the BrokerCheck database, and misconduct records, the researchers find a positive correlation between an auditor’s previous record of accepting high-misconduct clients and the likelihood that new clients then engaged in misconduct. Although the researchers’ primary focus was on the brokerage industry, they extended their analysis to all US public companies. They find a similar correlation, leading them to conclude that auditors’ track records of accepting high-misconduct clients predict their new clients’ future misconduct.

One comforting note: auditors with clients making initial public offerings appear to be less willing to accept high-misconduct brokerages, the researchers find. These clients are particularly sensitive to an auditor’s reputation because of information-asymmetry issues and litigation risk. And when a mismatch does occur between a brokerage with a high misconduct rate and a high-reputation auditor, the relationship doesn’t last long.

The researchers’ findings could provide a useful reference point for the 56 percent of American investors who rely on financial advisers. —Martin Daks

Go to Review.ChicagoBooth.edu to see a longer version of this article, as well as citations for research mentioned.
credit checks are a low-cost way to reduce the number of borrowers who default on loans. But in India, where credit bureaus and checks are relatively new, banks that faced lower competition in their formative years were less willing to adopt them, according to research by Prachi Mishra of Goldman Sachs, Johns Hopkins’s Nagpurnanand Prabhala, and Chicago Booth’s Raghuram G. Rajan. This insight, they say, could generally explain why some institutions fail to seize on new business tools.

India’s banking sector has grown significantly in recent years, as has access to credit. The total number of borrowers in the country increased by almost 20 percent between 2015 and 2016 alone. But unlike in the United States, banks in India hadn’t historically checked retail borrowers’ credit before making loans. Credit bureaus—the institutions that monitor and provide information about borrowers’ creditworthiness, and which play a large role in the US financial system—really only started operating in India around 2007, when legislation passed requiring banks to submit data to bureaus.

The researchers saw in this environment a way to study how organizations adopt—or don’t—a technology or practice. As of March 2015, the end of the data period studied, India had 96 major banks with a collective $1 trillion in outstanding credit. State-owned public-sector banks, many of them nationalized in 1969 and 1980, accounted for around 70 percent of that credit. New private-sector banks, which were authorized after 1991, had another 20 percent of the credit market.

Mishra, Prabhala, and Rajan analyzed data on lenders’ credit inquiries from one of the country’s biggest credit bureaus, with most of the analysis using data between the years 2006 and 2015, and find that new private banks adopted credit checks faster than state-owned banks. In 2015, new private banks ran credit checks before making 88 percent of their loans, double the rate at state-owned banks.

The gap was driven by checks on existing customers. Both types of banks were relatively quick to integrate credit checks into their business practices for new customers. Public-sector banks made credit inquiries for over 95 percent of loans to new customers, as did new private banks. But in 2015, new private banks inquired about 90 percent of loans to existing borrowers, while state-owned banks did so for only 48 percent. This was the case even though state-owned banks, had they adopted credit checks more widely, could have reduced loan-delinquency rates in their lending portfolios by 30–40 percent, the researchers argue.

Neither state ownership nor size explains the slow pace of change, the researchers say, basing their conclusion on the behavior of a third type of banking institution: old private banks, private-sector institutions that were deemed too small to be nationalized. Much like public-sector banks, they quickly adopted the practice of performing credit checks for new clients, but not for existing customers.

Organizational culture may best explain why public-sector banks were slower to implement credit checks, the researchers conclude. “The legacy banks grew in an uncompetitive environment in which banks were protected from entry, which diminished profitability concerns and let them go the extra mile for the existing clients,” the researchers write. “The new private banks emerged in a more competitive era after India’s economic liberalization. In the post-reform environment, each transaction had to stand on its own merits.”

The narrowing gap between public-sector and new private banks’ use of credit inquiries suggests that public-sector banks may be feeling pressure to compete. But the broader finding suggests that the economic environment during which institutions emerge may have long-lasting effects on both the organization’s culture and its willingness to adopt valuable new offerings. – Dwyer Gunn


Legacy banks were slow to embrace India’s credit bureaus

Only newer private banks were quick to adopt the practice of running credit checks on existing customers applying for new loans.

Share of loan inquiries involving a credit-score check when the customer had previously borrowed from the same bank

<table>
<thead>
<tr>
<th>Public-sector banks</th>
<th>Newer private banks</th>
<th>Older private banks</th>
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Mishra et al., 2019
How Norway reduced the earnings gap

In the United States, a vision has emerged that emphasizes increasing access to alternative educational models while ensuring that students who choose these pathways can still ultimately pursue higher education. Many states are exploring or have launched high-school apprenticeship programs, and there’s been renewed interest in an approach aimed at restructuring high schools to create alternative pathways that lead to higher education or the workplace.

American reformers may find further inspiration in the results of a 25-year-old overhaul of vocational education in Norway. Research by Chicago Booth’s Marianne Bertrand and Jack Mountjoy, along with University of Chicago’s Magne Mogstad, suggests the reforms helped reduce the eventual earnings gap experienced by poor students, particularly boys, although with some unintended consequences.

The changes, known as Reform 94, increased access to apprenticeships and altered the country’s vocational-track high-school degrees to allow graduates to attend college after a semester of supplemental academic courses. Before the changes, students in Norway who obtained vocational-track degrees had to re-start high school and secure an academic diploma if they wanted to attend college.

Bertrand, Mogstad, and Mountjoy explored how this restructuring affected educational attainment, labor-market results, and social outcomes. Using data from Norway’s Central Population Register and several supplementary sources, the researchers compared two groups of students—those born just after the January 1, 1978, cutoff date for eligibility and those born just before.

The researchers find that Reform 94 increased initial enrollment in vocational-track high-school programs by more than 20 percent. While enrollment in academic-track programs decreased slightly, the reform raised overall high-school matriculation. Disadvantaged male students—those in the bottom third of the predicted grade-point-average distribution among all males—were particularly affected: after the reform, they were 50 percent more likely to be enrolled in high school at the age of 16.

The effects of the intervention differed significantly by gender. Among disadvantaged men, the reform increased earnings by 5 percent and reduced the likelihood of criminal charges during the teenage years. At the same time, the increase in the percentage of male students who gained a vocational degree was offset by a decline in the percentage who completed an academic degree—the reform did not reduce the overall high-school dropout rate.

Despite the shift to vocational degrees, the change did not decrease the likelihood of a man attending college before age 30 or completing a college degree. The researchers conclude that men “simply swapped terminal academic high school degrees for terminal degrees from the newly reformed vocational track.”

Among women, however, Reform 94 increased high-school completion rates, by 20 percent for disadvantaged female students. The effect was driven by an increase in the percentage of female students who completed both vocational and academic high-school programs. Most of these women completed vocational degrees first, followed by six months of supplementary coursework to obtain an academic degree under the new system. Yet the researchers do not find that the reform had a statistically significant effect on college attendance or completion rates for women.

The researchers also find only a small, statistically insignificant effect on adult earnings for women, which they attribute to occupational choices. The bulk of the additional vocational degrees earned by women as a result of Reform 94 were in lower-paid service fields. Men, by contrast, were more likely to obtain degrees in skilled trades paying higher wages. A similar finding holds for apprenticeships. While both men and women completed more apprenticeships as a result of Reform 94, women tended to focus on apprenticeships in lower-paying fields. As a result, the reform had the perverse effect of worsening the earnings gender gap by about 8 percent.

Nonetheless, Reform 94 notched some notable victories. “Overall, the reform reduced the gap in adult earnings between disadvantaged and less disadvantaged children by about 20 percent, and it was particularly effective at improving social mobility among men, with the gap in adult earnings between disadvantaged and less disadvantaged men decreasing by close to 30 percent,” the researchers find. —Dwyer Gunn


How (in)accurate is machine learning?

Executives and others are increasingly using data when assessing business policies, comparing marketing strategies, and making other decisions. In particular, they use machine learning to analyze data—and use the results to make decisions.

But how much can an executive trust a recommendation generated by machine learning? Recognizing that uncertainty is involved, and could produce expensive mistakes, Chicago Booth’s Max Farrell, Tengyuan Liang, and Sanjog Misra have sought to quantify this uncertainty so that decision makers can take it into account.

In the past few years, machine-learning methods have come to dominate data analysis in academia and industry. One type of learning in particular—deep learning, where computers learn through iterations to recognize important features—has become a mainstay in modern business practice. It is at the base of many applications, from digital image recognition to language processing and virtual assistants such as Apple’s Siri and the Amazon Alexa.

Many people are treating deep-learning models as though they are able to learn unassailable truths, and Farrell, Liang, and Misra point out that the supposed truths are actually uncertain. Deep learning might produce the right answer to a question, or it might not: if a business is using a deep-learning model to guide decision-making, and some potentially large investments, that’s an important distinction. Therefore it’s crucial to understand how close deep-learning models can come to finding out truths, and how quickly they can do so.

Deep-learning structure

One widely used type of deep learning, known as a multilayer perceptron, is used in many applications.
WHISTLE-BLOWERS ACT OUT OF A SENSE OF MORALITY

SAY YOU WITNESS a co-worker subtly misleading a client. Do you report it?

Chicago Booth postdoctoral scholar James A. Dungan, Boston College’s Liane Young, and Northwestern’s Adam Waytz looked at what goes into the calculation people make when considering whether to report bad behavior. Moral concerns figure highly, they find, above employees’ feelings about their employers, fear of reprisal, and satisfaction with the recognition and rewards they receive at their job.

The researchers analyzed data from more than 42,000 participants in the ongoing Merit Principles Survey, which has polled US government employees since 1979. Respondents answer questions about their past experiences with unethical behavior, the approaches they’d take in dealing with future unethical behavior, and their personal characteristics, including their concern for others and their feelings about their organizations.

Concern for others was the strongest predictor of whistle-blowing, the researchers find. This was true both of people who had already blown the whistle on bad behavior and of people who expected they might in the future.

Loyalty to an immediate community was also linked to whistle-blowing, but in an inverse way. “The greater people’s concern for loyalty, the less likely they were to blow the whistle,” write the researchers.

Organizational factors—such as people’s perceptions about their employer, their concern for their job, and their level of motivation or engagement—were largely unconnected to whether people spoke up. The only ones that appeared to matter were how fair people perceived their organization to be, as well as the extent to which the organization educated its employees about ways to expose bad behavior and the rights of whistle-blowers. The data suggest these two factors were linked to whether whistle-blowers opted to address the unethical behavior through internal or external avenues.

Dungan, Young, and Waytz carried out a second experiment that polled 150 people who were told only that they would be completing a workplace survey.

The results mirrored those of the first experiment, albeit with one additional finding: participants proved poor at predicting the importance of the two key variables connected to whistle-blowing—concern for others and loyalty. Instead, they predicted that organizational factors would be much more important than they actually appear to be.

The study suggests that morality is a key driver for whistle-blowing. Companies—and regulators—wishing to encourage whistle-blowing may want to highlight the importance of personal ethics and moral courage, rather than technical variables such as rewards for whistle-blowing.

“Much of the current advice within organizations focuses on structural changes—making people do the right thing by increasing the benefits of blowing whistles,” Dungan says. “But by ignoring people’s moral concerns, their efforts may not be as effective as they could be. This mistake likely stems from seeing morality as black and white, rather than acknowledging the conflicting moral concerns that whistleblowers must grapple with.”—Alice G. Walton

The researchers studied the effectiveness of—and uncertainty involved in—deep-learning models theoretically and conceptually. When it comes to a simple prediction task, it’s easy enough to evaluate a model’s performance. For example, when training an algorithm to separate pictures of cats and dogs, people can simply look at the pictures and decide if the model is reliable. It’s trickier to determine how well a model performs in predicting consumers’ reactions to advertisements or discounts. A shopper may see an ad and make a purchase, but it’s hard to say the ad caused the purchase. Who knows what the shopper was thinking? In these cases, how accurate the model is, and how much data is required to get close to a trustworthy result, cannot be known for sure. The researchers derived explicit bounds for the uncertainty, answering the question of how close deep-learning methods can get to the best-possible model given the data at hand.

Farrell, Liang, and Misra illustrated their findings empirically by describing an experiment conducted with a large US consumer products company. The company, which the researchers don’t name, sells its products directly to consumers and sends out catalogs to boost sales. The experiment involved data on about 300,000 customers, two-thirds of whom received a catalog.

The researchers compared the results (6 percent of people made a purchase within three months of the catalog campaign, spending an average of $118) with those of eight deep-learning predictive models, evaluating the success of each. They computed the level of uncertainty resulting from each deep-learning model, showing how this uncertainty would feature in decision-making. Their results suggest that deep learning can have excellent performance when properly used.

As people and businesses increasingly rely on data to guide decisions, these findings about deep learning can have broad applications. For example, say a doctor turns to similar data analysis when trying to assess whether to treat a patient with a particular drug. Knowing the level of uncertainty in the analysis could help the doctor make a potentially life-or-death call. “The end goal,” says Misra, “is making robust decisions.”

—Chana Schoenberger


A lot of research suggests corporate concentration is increasing. Is that bad for competition? We don’t know. There are cases where increasing concentration can imply a less competitive market. In other cases, it’s the sign of more competition in a market.

It’s not the concentration that’s the problem, per se, but a company’s use of its dominant position to do things to keep innovation and competitors out of the market. And when there are strong network effects (where the value of a good increases to the user when more people use the product), you can get really concentrated markets. You can get big, and stay big just because you’re big, even if you’re inferior. That’s an additional concern in tech or network markets in general, and that’s a valid worry.
**Q2**

What should policy makers or regulators do, if anything? There’s the general principle that you can’t unscramble eggs. So, first, scrutinize potential mergers carefully. Pay more attention to the mergers that are currently exempted from reporting. There were entire industries that were basically rolled up under the nose of antitrust regulators, simply because each individual merger was under the reporting threshold. But if you do 100 of those, you’ve had one giant merger. It seems like that’s something they need to have a better handle on.

They also need to think about the Facebook-WhatsApp issue of buying your competitor when it’s a startup. Yes, you can buy smaller companies because they have important skills or capital that’s easier to acquire than try to build. But you can also do it so that you don’t face competition from them in the future. It’s hard to know which of these is going on, but regulators need to think more about these issues.

**Q3**

What about after the fact? That’s trickier. Some people say you have to leave the eggs, that they’re already scrambled. I don’t think that’s right, but it is a mess, generally, to break up companies. And it’s not like there’s lots of historical examples where things have gone really well. AT&T went OK, and that was a giant breakup. But breaking up companies is the nuclear option.

**Q4**

Break up Facebook, yay or nay? I’m not sure. I don’t think so. This doesn’t mean you don’t scrutinize Facebook’s competitive actions, because it could be engaging in noncompetitive behavior, and the law forbids that. But I’m not sure breaking it up is the solution.

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**WHEN SAYING ‘I’M SORRY’ AND ‘THANK YOU’ MAKES A BIG DIFFERENCE**

between people matter a lot, suggests research by Chicago Booth’s Shereen Chaudhry and Carnegie Mellon’s George Loewenstein. They propose that thanking and apologizing involve costs and benefits, and working from this framework, they uncover a host of predictable patterns in conversation that people engage in to help maintain social cohesion.

In the study, the researchers connect four sentiments—thanking, apologizing, bragging, and blaming—that were previously considered distinct. Chaudhry and Loewenstein argue that these four sentiments involve trade-offs between conveying warmth and competence.

For instance, thanking and apologizing both project warmth and thoughtfulness on the part of a speaker, but also hint at weakness or incompetence. Blaming and bragging make a speaker appear more competent, but at the risk of appearing less warm. These effects are different from the point of view of a receiver: receiving a thank you or an apology makes a receiver seem competent and warm.

The researchers’ theory describes how people will converse about credit and blame, predicting, for example, that both people in an exchange would prefer a thank you over a brag. And people engage in subtle coordination in conversations to help bring about thanking.

Chaudhry and Loewenstein had pairs of strangers complete an online math game in which the results of the higher scorer determined the earnings of both players. The researchers rigged the game so that one player’s version was much easier, leading to a higher score. After they were done, some of the pairs were given the opportunity to chat, and the researchers observed how they communicated.

Most chats—almost 70 percent—involved thanking, while bragging showed up in less than 15 percent of the conversations. The researchers observed that when a thank you wasn’t immediately offered, the person who wanted to hear it would often subtly prompt the partner to offer one. This may be a method of keeping things pleasant, but still eliciting a thank you where one is due.

There were consequences to this: pairs that were allowed to chat, versus those that weren’t given the opportunity, were more likely to want to work together in a follow-up task—likely because thanks was expressed. For the low-performing partner, exhibiting warmth helped compensate for what they appeared to lack in competence.

Chaudhry says that the findings imply workplaces would do well to encourage positive communication around credit and blame.

The theory also helps explain why women tend to apologize more than men, a finding of University of Pittsburgh’s Karina Schumann and University of Waterloo’s Michael Ross. It is generally understood, on the basis of societal expectations, that women should appear warmer, says Chaudhry. “Apologizing may include a cost to one’s competence, but apologizing may have more benefit for women than men—but not apologizing may have more cost. The opposite is true for men.”—Alice G. Walton
How to nudge consumers to pay off credit-card debt

Buying a car, piece of furniture, or big appliance? Chances are that you’ll be offered low- or no-interest credit—but only for so long. The catch is that the promotional rates usually disappear after some months and reset to a much higher level. If you aren’t paying attention, you could be surprised.

Consumers shouldn’t let that happen if their goal is to repay the money quickly, according to Shirley Zhang, a recent Chicago Booth PhD graduate, and Booth’s Abigail Sussman and Christopher K. Hsee. Their research suggests that consumers could benefit by focusing on when the higher costs will kick in, a subtle way of motivating people to pay up faster.

Consumers use the timing of an interest-rate jump as a decision point, the researchers suggest. Beating an increase by paying off the debt becomes a motivating goal. However, the goal-setting process emerges only when consumers believe it’s possible to repay the debt in time and when they know the deadline for the rate reset, the researchers find.

They conducted a series of experiments that mirrored real credit-card payment decisions and had consequential outcomes for the participants, who received both fixed and bonus compensation.

In one experiment, participants received a statement for a credit card with a 0 percent introductory rate. The researchers told the participants to imagine they had paid the minimum amount for five months, and then randomly assigned people to one of three groups. One group heard that the 0 percent rate had expired at the end of the previous month. Members of another group were told it would expire the next month, and those in a third learned they had five months before a higher rate would apply. Participants were asked to choose a monthly payment ranging from $200 to $1,000 a month.

Members of the five-month group said they’d pay much more every month than those in groups with the earlier expirations. The researchers explained to all participants the overall cost of the loan across all conditions as they were making their choices.

Zhang, Sussman, and Hsee label this repayment pattern the “expediting effect”—a rate increase in a more distant period expedited the decision to repay. People in the five-month group put themselves on faster payoff schedules even though their interest costs would still be the lowest.

“Rather than leveraging changes in interest rates as a hidden complexity intended to deceive consumers, lenders can use explicit changes in rates to encourage timely repayment,” the researchers write.

Money-management apps could help fill this role by setting calendar reminders well in advance of rate increases. These apps could calculate the ideal timing of such a reminder on the basis of a consumer’s financial circumstances, the researchers write. Debt Manager is one of the few available financial apps that lets consumers see all of the statistics for their debts if an interest rate were to change, although it doesn’t yet have the built-in calendar functionality the researchers suggest. Most money-management apps help consumers repay loans by organizing debt from highest to lowest interest rate and incorporating payment due dates, but don’t have explicit reminders for imminent changes in rates.

“Following these reminders, budget planning tools could go ahead recommending feasible repayment plans to those consumers, thereby helping consumers to save on interest costs,” the researchers write. Consumers who choose a payment plan and stick with it each month “may be particularly effective at reducing debt when rates are increasing in the future,” they write, adding that explicit reminders of changes in rates by credit-card companies or other lenders would also signal transparency as well as concern for their customer base, which could spur brand loyalty.

—Alex Verkhivker


A different interest-rate offer could influence people’s bill-paying habits

Beating an upcoming rate increase can motivate people to pay off their debt, although only if they believe the deadline is reasonable.

How long study participants said they would take to pay off a credit card

<table>
<thead>
<tr>
<th>Rate</th>
<th>Average Payoff</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>8.3 months</td>
</tr>
<tr>
<td>0%</td>
<td>6.5 months</td>
</tr>
</tbody>
</table>

Zhang et al., 2019

0% rate: 1 month

Average payoff: 8.3 months

0% rate: 4 months

Average payoff: 6.5 months

Zhang et al., 2019
Community college pays off for some students—not all

Higher education leads to greater lifetime income and equips graduates with the human capital they’ll need to succeed in a knowledge economy, according to a host of studies conducted over the past two decades. This insight has shaped policy, with US state and local governments increasing access to community colleges to help students, especially those from disadvantaged communities, increase their earnings and enter the middle class.

Such policies work better for some students than others, finds Chicago Booth’s Jack Mountjoy. This is in part because community colleges divert a substantial minority of high-school graduates from gaining a four-year college degree, which would likely result in even higher lifetime earnings.

Mountjoy accessed a database covering the state of Texas that included 761,000 students in four-year colleges and universities (both public and private) and 732,000 in community colleges. He tracked students from high school on, and then linked their educational outcomes with data from the Texas Workforce Commission, which measures quarterly earnings at every job for Texas employees covered by the state’s unemployment insurance system. Mountjoy developed and applied a new econometric methodology on this rich data to disentangle the impacts of community-college enrollment on the outcomes of students who

**Financial boost**

Community-college access helped those who otherwise would have dropped out.

**Average annual earnings around ages 28–30**

| People who went to a two-year community college when they otherwise would have quit school | $29,912 |
| People who never went to college | $24,564 |

Mountjoy estimates that by age 30, those who wouldn’t have attended any college would earn 22 percent more by enrolling in community college—an especially healthy return given that the average community-college entrant can qualify for enough grant aid to pay no tuition, according to the College Board. “Diverted students, on the other hand, . . . end up with lower average outcomes as a result of starting college at a two-year instead of a four-year institution,” and over time these losses add up to outweigh any up-front tuition savings.

Overall, Mountjoy finds, community college can boost outcomes, particularly for disadvantaged students and those who would otherwise not attend college. But it doesn’t work for everyone, and it’s certainly no panacea.—Howard R. Gold


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ARE PLASTIC STRAWS A LEADING INDICATOR?

“It was interesting to see what happened in London. We went in the span of two to three months from having plastic straws everywhere to having no plastic straws anywhere. I was shocked to see the speed by which this developed, and it all started with consumers. It got to a point where the politicians no longer had a choice and basically had to get involved. It became such a social outcry. I think this can happen on a lot of social issues. [CEOs] have to tackle it, and they are. They’re working very hard to make sure that their products are as environmentally friendly as possible. The moment the pressure starts building, people are going to want to be ahead of the game.”

—LAMBERTUS J. “BART” BECHT, Chairman and Senior Partner at Bansk Group, in October at Chicago Booth’s Distinguished Speaker Series
A manipulation index could prevent derivatives fraud

Proving manipulation in the derivatives markets is tough. Regulators must provide evidence that a trader intended to manipulate markets, meaning that a case without explicit email or telephone communications to prove the motive is likely to fail.

But derivatives-market overseers could take a more quantitative approach akin to that of antitrust regulators, argues Chicago Booth’s Anthony Lee Zhang. Rather than look for monopolies run by people with a stated intent to manipulate consumer prices, antitrust regulators analyze companies according to the Herfindahl-Hirschman Index, which measures market-share concentration within industries. When a company’s dominance over a sector triggers the index, regulators investigate and intervene.

There is money to be made in manipulating derivatives markets, which dwarf equity markets and the global economy. The global derivatives market represents more than $500 trillion in face value, according to the Bank of International Settlements, compared to the world’s total GDP of $88 trillion.

Investors and speculators who hold cash-settled derivatives contracts, such as futures on the S&P 500, have positions that can generate enormous payoffs depending on the performance of the underlying index or asset. If you hold a contract that pays if the S&P 500 tanks, you might be rooting for such an outcome. You might even, if you had the means, force such an outcome by trading S&P stocks to drive the index lower. (The S&P 500 isn’t actually a likely target because it’s large, liquid, and hard to manipulate. But fraud can flourish in more obscure, less liquid indexes.)

Index values are determined by the values of the constituents in each index, and there’s no limit to the total number of derivatives contracts that can be written against any index or individual security. Regulators impose position limits, to cap how many contracts any individual trader can hold in a market, but these limits are imperfect, says Zhang. Regulators have to balance the risk of manipulation against the risk of obstructing legitimate trading, and “they don’t know how large a trader’s contract positions can be before the trader’s manipulation incentives become too large,” he says.

An investor with a big derivatives position written on a thinly traded index has a large financial incentive to manipulate the value of that index so that the contract pays off. To calculate this risk more precisely, Zhang developed a method for looking at specific derivatives contract markets to determine, like an antitrust regulator, whether a market is vulnerable to manipulation. To quantify the risk, he turned to a game-theory model that has been used to study high-frequency trading and dark pools but hasn’t before been applied to derivatives-market regulation.

Zhang also proposes a relatively simple manipulation index, which can be calculated by using the volume of derivatives contracts, the volume of the underlying market, and the largest agent’s capacity share (a technical term that can, in some cases, be tied to the size of the derivative position of the largest trader).

“I propose a simple rule-of-thumb for detecting manipulable contract markets: if the manipulation index for a given market is higher than 0.7, the market is potentially vulnerable to manipulation,” he writes.

When Zhang applied this index to large and liquid markets such as the London Bullion Market Association, CME Cattle Futures, and the ICE Brent Crude Index, he found little cause to worry that contract holders are rigging markets. But the more obscure ICE HSC Basis Futures Index, which measures the difference in price between two other natural-gas-futures contracts, set off alarms.

The manipulation index could perhaps form the basis for a structural regulatory solution where regulators concentrate their attention on those markets most vulnerable to economically motivated bad actors.—Michael Maiello

WHY REPEAT EXPERIENCES ARE UNDERRATED

NEXT TIME you pick a movie to watch, consider one you’ve watched before. Research by Chicago Booth’s Ed O’Brien suggests that repeat experiences are more pleasurable than people expect them to be—and can be just as enjoyable, or more so, than entirely new experiences.

Past research has suggested that when it comes to leisure activities, people are intuitively drawn to new experiences. O’Brien’s research probed the subject further, finding that people also explicitly avoid repeating experiences—an aversion that he argues is due to a misperception of how little they’ll enjoy the repetition.

O’Brien conducted a series of seven experiments. In three of them, participants completed a leisure activity once—either visiting a museum exhibit, watching a movie, or playing a video game—and reported their enjoyment of it. Then some participants were asked to predict how much they’d enjoy repeating the same activity they’d just experienced, while others actually repeated the activities and reported their enjoyment. In some cases, enjoyment of the activity among those who actually experienced repetition declined somewhat, and in other cases it didn’t, but in every case, the predictors significantly over-estimated how much repeating the activity would weigh on the enjoyment of it.

The expectation that a repeated experience will be less enjoyable is so strong that people will make sacrifices to avoid it. In one study, which involved participants watching short virtual walking tours of cities, some viewers were asked after the first tour whether they wanted to rewatch that city’s tour or watch a tour of a new city. Ninety-two percent of the sample opted for a new city—and most were willing to give up, on average, 12 percent of their study-participation payment to avoid rewatching a tour.

Granted, the offer to trade earnings for novelty carries the underlying implication that repetition is undesirable and could have pushed some participants to pay up to avoid a dull experience. But if that were true, the offer would have prompted the few people who opted to rewatch the tour to change their minds—and it didn’t.

So why are repeated experiences more enjoyable than we expect? Two of O’Brien’s experiments suggest it’s because they’re not repeated exactly: each time you rewatch a movie, revisit a museum, or reread a book, you discover new aspects of it that make the experience at least partially novel. In contrast, when you imagine repeating an experience, your mind simply re-plays the same old experience again and again.

The results are relevant beyond one’s choice of leisure activities. O’Brien points out that students may skip a class because they have already heard a particular lecture or learned a concept, and by skipping it, they miss the opportunity of continued learning that their attendance might promote.

“These findings . . . remind us that the past may sometimes feel just as ‘new,’ and as enjoyable, as the future—at least, not as dull as it plays out in one’s mind,” O’Brien writes. “Repetition too could add an unforeseen spice to life.” —Andrew Clark


Experts are often bad at predicting test results

Companies such as Amazon, Google, and Uber run hundreds of online tests every month, with results guiding their business decisions and strategies. They also regularly make forecasts and predictions about what’s worth testing.

But while test results are generally trustworthy, experts’ predictions are not, according to research by University of California at Berkeley’s Stefano DellaVigna and Chicago Booth’s Devin G. Pope.

“People are not as skilled at forecasting results and determining what can be generalized as they assume. And that should be serious food for thought for companies,” says Pope.

The researchers wanted to determine the extent to which test results can be trusted and generalized. Can a company have confidence in a test when its results suggest that a certain type of online banner ad leads to increased sales? Or would those results change depending on the demographics of people tested or the parameters of the test?

DellaVigna and Pope devised a simple A/B button-pushing task and made various alterations to test the robustness of the results. In some cases, they changed the demographics of the volunteers performing the task. In other cases, they changed the task itself—from a button-pushing to a coding exercise. Their test produced similar results despite the variations.

DellaVigna and Pope then asked 70 behavioral experts, as well as economics PhD students and the participants who had performed the tasks, to estimate how they thought the results would vary. “The experts have, at best, a mixed record in their ability to predict how much design changes affect the results,” says Pope.

This has significant implications for academics, whose decisions about what to study and how to advise students are affected by the robustness of research findings. Moreover, if experts can’t be trusted to predict and interpret study results, businesses may want to rethink how much trust they put in their own tests. Even if results are trustworthy, the underlying assumptions that guided the tests might not be.—Aíne Doris

A problem with hospital ratings—and how to fix it

Until recently, Chicago’s Rush University Medical Center boasted the maximum of 5 stars in the Centers for Medicare and Medicaid Services (CMS) hospital rating system. Data used to compute the July 2018 rating indicated that the hospital had improved in many areas, so it came as a shock when hospital administrators got a preview of the new ratings and Rush had dropped to 3 stars, according to Chicago Booth’s Dan Adelman.

Even a hospital that improves in every single metric can experience a rating drop, says Adelman. This indicates a problem with the current CMS system—and he suggests a way to address it.

The CMS rating system organizes hundreds of hospital metrics into seven categories: mortality, safety of care, readmission, patient experience, effectiveness of care, timeliness of care, and efficient use of medical imaging. It then uses what statisticians call a latent variable model, which gives weight to metrics that are statistically correlated but not necessarily indicative of a hospital’s performance.

The latent variable model assumes that in each category, there is a single, unknowable factor driving performance measures. If a few metrics in a category are correlated, the model assumes that they are driven by the latent variable and thereby gives them more weight when computing the hospital’s score.

For example, a hospital’s Patient Safety and Adverse Events Composite, known as PSI-90, takes into account a number of factors including hospital mistakes, patient falls, and infection rates. Until recently, the PSI-90 had been given the most weight in performance measures, but thanks to stronger correlations in the data used to calculate the July 2018 ratings, a new factor was given more weight: complications from knee and hip surgeries.

The problem is that these surgeries affect far fewer patients and might not be applicable to all hospitals, yet the knee and hip surgeries became a big factor by which all hospital systems were rated.

Hospitals view their individual rating before the CMS releases the information to the public, but hospital uproar over the new results caused the CMS to delay their publication until February. It also modified the ratings, so that PSI-90 now dominates again. Rush was bumped from 3 stars to 4.

Adelman argues that ratings shifts from small changes in correlations result in “knife-edge” instability that renders the evaluation system meaningless for patients who might rely on it when choosing a facility for their care. Hospitals, which use the ratings to negotiate with insurance companies for payments, cannot determine where to focus efforts toward improving. The ratings also affect a hospital’s reputation, which in turn affects patient volume and payor mix (an industry term that refers to the distribution of more-profitable patients, who use private insurance, and less-profitable ones, on public insurance). And when patients are attracted to hospitals that rate higher but have worse outcomes, that hurts the overall health of people in an area.

“It’s like developing a grading scheme for school,” Adelman says. “The teacher gives the grading scale out at the beginning of the semester and tells everyone the weights for attendance, quizzes, papers, and tests. But this is like going through the semester and then telling everyone where...
the weight is at the end based on how the students perform. And every semester that might change.”

A benefit of the CMS rating model is that it doesn’t require anyone at the CMS or its affiliates to manually determine the weight of each metric, says Adelman, which could introduce bias and opinions. Rather, the model chooses how to weigh each metric, and additional metrics are easily integrated.

Adelman argues that the same could be accomplished with a model he has created that relies not on correlation but on patient representation and the measurement of hospitals against best performers. In his model, each hospital gets its own unique weights. A measure that affects more people is given more weight.

To weigh particular measures for Hospital A, Adelman’s model compares it to other hospitals that are more efficient and better performing along key dimensions. These hospitals are combined to create a “virtual hospital” that sits between Hospital A and an ideal hospital that achieves the maximum performance along every measure. The virtual hospital thus dominates Hospital A. The idea is reminiscent of portfolio optimization in finance, in which investors seek to maximize a portfolio’s return by taking combinations of investments on the efficient frontier, the point at which investments achieve the best risk-adjusted return. Rather than combine investments that are measured by risk and return, Adelman’s model combines hospitals that perform most efficiently on the basis of factors such as mortality and readmissions. The model then finds measure weights that score Hospital A as close as possible to the virtual hospital as measured under the same weights, and maximizes Hospital A’s score.

This model eliminates the possibility that a hospital would receive a lower rating even if it improves in all metrics, according to Adelman. “Measure weights obey desirable structural properties under reasonable conditions, including that scores improve when hospitals improve, and that better-performing hospitals score higher,” he says.

Adelman warns that his model is designed to combat the problems with the latent variable model but does not address other concerns in hospital rankings—including those related to underlying measures, steps in the methodology, or the ratings system itself.—Brian Wallheimer

**WHAT’S DRIVING UNIVERSITIES TO USE MORE ADJUNCT FACULTY**

**OVER THE PAST** several years, policy makers and economists have increasingly voiced concerns about apparent labor-market monopsonies—markets in which employers have the power to set wages—in certain industries and areas of the country. Some have further suggested that monopsony power may help explain the slow wage growth of recent decades.

One such market, according to Chicago Booth’s Austan D. Goolsbee and Chad Syverson, is higher education. They find that US institutions of higher education have meaningful monopsony power over tenure-track faculty, although not over nontenure-track faculty—which could help explain the rising use of adjunct instructors in recent years.

Researchers have long suggested that institutions of higher education may hold monopsony power stemming from both their labor practices and the high switching costs that tenured faculty members face when changing schools. Using data from the Integrated Postsecondary Education Data System, Goolsbee and Syverson tested this theory over the period from 2002 to 2017, across 1,650 institutions.

They find that the power appears greatest over full professors, lessening for associate professors, and lower still for assistant professors. This finding is consistent with “tenure track faculty’s willingness or ability to switch to another employer falling with rank, a result we find intuitive,” they write. On the other hand, the researchers do not find any such power over nontenure-track faculty.

Turning to the determinants, the researchers find that monopsony power is related to institution size: the larger schools in their study sample had more power. Moreover, they find a strong relationship between prestige and monopsony power. School prestige is measured by the Carnegie Classification, a framework for classifying US colleges and universities. More-prestigious schools, especially doctoral universities with high research output, had higher monopsony power over tenure-track faculty. Schools whose incoming students had the highest SAT scores also held greater monopsony power than other schools; in fact, such power was concentrated among the 400 schools in the top quartile of student SAT scores. Schools with lower scores seemed to have no monopsony power over even tenure-track faculty.

Some observers of the higher-education industry have suggested that the monopsony power of academic institutions can explain their growing use of adjunct faculty. “The presence of market power over the tenure track part of the faculty gives universities an incentive to shift to non-tenure track labor when demand rises (in order to prevent driving up tenure track wages),” write Goolsbee and Syverson. Consistent with this theory, they find that schools with more monopsony power—for example, larger schools and those whose incoming students have higher SAT scores—saw a bigger increase in the share of nontenure-track faculty over the time period studied. They conclude that “monopsony has likely played some role in the rise of adjunct faculty in recent years.”—Dwyer Gunn


**It’s like a grading scheme for school except the scale changes and is revealed at the end of the semester.**
Likelihood that a US household in a given income bracket was in a downtown area
100 largest US metro areas

- People in the lowest income brackets were more likely to live downtown.
- More likely to live downtown vs. average household income bracket
- Less likely to live downtown
- People in middle income brackets were more likely to live farther out toward the suburbs.

When rich folks move downtown, inequality gets worse

As the rich in the United States get richer, they have been moving from the suburbs to downtown, boosting the demand for luxury amenities. While this process of gentrification has long been decried for pushing out poor people, it also measurably worsens income inequality, according to University of California at Berkeley’s Victor Couture and Cecile Gaubert, University of Pennsylvania’s Jessie Handbury, and Chicago Booth’s Erik Hurst.

The researchers analyzed US Census data from 1970, 1990, and 2000, along with the Census Bureau’s American Community Survey from 2012 through 2016. They find not only that the income gap between the wealthiest 10 percent and the poorest 10 percent widened by 19 points over 1990–2014, but also that gentrification contributed another 1.7 points to that gap.

This additional welfare calculation addresses the economic fallout for poorer residents, who had to pay more for downtown housing as the influx of wealthy residents drove up prices at restaurants and bars, along with the cost of entertainment and personal services. “Poorer residents, who are mostly renters,” the researchers write, “have a choice between paying higher rents for a bundle of amenities that they do not value as much and moving out of downtown.”

—CBR
DOES AMERICA HAVE AN ANTITRUST PROBLEM?

Markets are becoming more concentrated—and, arguably, less competitive

BY JEFF COCKRELL
ILLUSTRATION BY EDMON DE HARO
To those who are worried about the state of contemporary American politics—those who are concerned about the historically high levels of polarization between the two main political parties, who despair of the disappearance of anything that could be called common ground, who bristle at the apparent unwillingness of any occupant of national, state, or local office to recognize the common sense or basic human decency of any proposal coming from the opposite side of the aisle—we offer you this single harmonious word of relief: antitrust.

A vocal concern for the power held by some of the United States’ most dominant companies—especially tech giants such as Facebook, Amazon, and Google—may be the only shared material among the talking points of President Donald Trump and the Democrats vying to run against him in 2020. Trump has asserted that the US should follow the European Union’s lead in handing down large fines to big tech companies for antitrust violations, and during his presidential campaign, he charged that Amazon has a “huge antitrust problem.” A number of prominent Democrats, including Bernie Sanders and Elizabeth Warren, are on the same page, having suggested that many such companies may need to be broken up. In July, the Department of Justice (DOJ) announced that it was “reviewing whether and how market-leading online platforms have achieved market power and are engaging in practices that have reduced competition, stifled innovation, or otherwise harmed consumers.”

The same month, Facebook acknowledged it was the subject of a Federal Trade Commission (FTC) investigation, which reportedly probed questions such as whether Facebook strategically acquired nascent competitors before they could develop into greater threats.

And in September, attorneys general for 50 US states and territories announced an investigation into whether Google’s dominance in online search and search advertising has created anticompetitive conditions—what Louisiana attorney general Jeff Landry, a Republican, called “an absolutely existential threat to our virtual marketplace.” Google took in nearly 75 percent of all US search-ad revenue in 2018, says data-research company eMarketer. On average, more than nine out of every 10 online searches are done through Google or its YouTube subsidiary, according to some estimates.

Concerns about competition are not unique to the tech industry. Aggregate levels of US industrial concentration—or how market share is divided among manufacturing companies—began to increase in the early 1980s after decades of relatively little change, according to research by Chicago Booth’s Sam Peltzman. The trend continued into the 21st century. Between 1987 and 2007, average concentration—as measured by the Herfindahl-Hirschman index, a commonly used gauge of market concentration—within the 386 industries included in his analysis increased by 32 percent.

If this trend toward more-concentrated industries has been accompanied by a small number of companies expanding their market power as a result of diminished competitive pressures, the effects could be momentous. In fact, some research suggests the exercise of market power could be responsible for everything from higher prices to reduced investment to the steadily diminishing share of the US economy that’s enjoyed by the labor force.

But policy makers seeking to address this issue should first consider a few critical questions. Are markets in fact becoming less competitive? If so, what are the best ways to address corporate giants? Would more-aggressive antitrust enforcement—or even breaking up, say, Facebook—be a real cure for growing market power and produce more-balanced, competitive markets? Granted, there’s little consensus about even the most fundamental of these questions right now—and a compelling need for answers.

Is market power growing?

Between the 1960s and the ’80s, merger policy in the US underwent dramatic changes, transforming, in the words of the late Robert Pitofsky of Georgetown, a former chairman of the FTC, from “the most stringent antimerger policy in the world” to “an extremely lenient merger policy, regularly allowing billion-dollar mergers to go through without government challenge, even when they involved direct competitors.”

In 1982, the DOJ introduced its Horizontal Merger Guidelines, reflecting a shift in the US’s approach to horizontal mergers, or mergers of competitors. Whereas before, the courts had
Even in concentrated industries, incumbents may need to behave competitively if they fear that new entrants to the market could overtake them.
According to traditional economic theory, in a perfectly competitive market, the price of a good should equal its marginal cost. The gap between price and marginal cost is known as the markup; the higher the markup, the less competition is doing to keep prices at a more efficient level.

Some research in recent years has found evidence that markups have indeed gone up over time. Jan De Loecker of KU Leuven, Jan Eeckhout of Pompeu Fabra University, and Harvard’s Gabriel Unger looked at 60 years of data from publicly traded US companies and find that after decades of stability, markups have experienced two periods of pronounced growth since 1980. The researchers’ findings suggest that average markups hovered around 1.2–1.3 (that is, prices were 20–30 percent greater than marginal cost) from 1955 to 1980, but rose to 1.61 (prices were 61 percent greater than marginal cost) by 2016. Such growth could represent a substantial increase in market power.

De Loecker, Eeckhout, and Unger also find that this trend in markups isn’t visible across all companies—in fact, for the median company in their analysis, markups have stayed largely stable. Rather, the overall average has been pushed higher by companies in the top half of the markup distribution, and especially by those in the top 10 percent, which have seen steep increases in markup levels.

About a quarter of the increase in markups the researchers document comes from overhead expenses—many of which are not factored into marginal cost—having grown over time, they say. They give the example of a tech company that spends heavily to develop a new piece of software, which can then be produced in large quantities at low marginal cost. In this case, the marginal cost doesn’t reflect the huge expense of creating the product in the first place. But “while overhead costs have increased, markups have increased even more and firms charge an excess markup that more than compensates for overhead,” they write.

However, markups are difficult to observe. “There is an issue that price is kind of easy to measure, but marginal cost is a really hard thing to measure,” Syverson says.

De Loecker, Eeckhout, and Unger estimated markups in part by using an accounting measure, cost of goods sold (COGS), that includes all of a company’s costs that are directly traceable to a unit of output. However, University of Chicago PhD candidate James Traina argues that COGS doesn’t include important marketing and management expenses that have grown over time. Factoring those expenses into companies’ costs, “I find that public firm markups increased only modestly since the 1980s,” Traina wrote in a post for ProMarket, a blog published by Chicago Booth’s Stigler Center for the Study of the Economy and the State. “Moreover, this increase is within historical variation—measured markups have increased from 1980-2010 as much as they have decreased from 1950-1980.”

Markups are not the only way to measure market power, however. “Profits are
a better indicator (of market power) than markups,” Zingales says, adding that it’s problematic if a market has highly profitable companies but few new entrants. “We know entry has been going down over time, by many measures, and profitability of the incumbents, especially the largest firms, has been going up. All this is consistent with some market power.”

This, too, invites debate. The growth, or lack thereof, of profits is disputed territory in the economics literature. In research he started as a PhD student at Chicago Booth, London Business School’s Simcha Barkai examined what portion of US economic output has gone to labor, capital investment—such as the facilities, machinery, and technology used for production—and profit over time. He finds that labor’s share of the economy has gone down, a prominent trend in the economics literature since 1980 reveals that profit share levels in the 1960s and 1970s generally exceeded the levels reached today.”

In that case, is rising market power really pushing up profits, at the expense of workers and consumers? Or, once capital costs are calculated differently, are profits rising less than suggested by these recent studies? Karabarbounis and Neiman lean toward the latter conclusion.

**Why would market power be expanding?**

But let’s assume that market power is growing broadly. If that were true, what might be causing it? Research suggests a number of policies that may be helping it along—and not all of them fall within the traditional bounds of antitrust.

For example, research from Princeton’s Ernest Liu and Atif Mian and Chicago Booth’s Amir Sufi finds that the low interest rates experienced in the US and many other developed economies since the 2008–09 financial crisis may have contributed to declining competition.

Although low interest rates have traditionally been assumed to encourage business spending, the researchers argue that as rates fall, bigger companies can use them to make bigger investments—in new equipment, for example—than their smaller competitors. These more-significant investments carry bigger productivity payoffs, increasing the competitive gap between the big companies and their rivals. If rates are low enough, eventually both big and small companies will lose the incentive to invest, as the small companies will fall hopelessly behind in market share, relieving some of the competitive pressure on their bigger rivals.

Policy around intellectual property (IP) may also be a contributor to declining competition. Research from Stanford’s Mordecai Kurz suggests that rising monopoly power has accompanied the information-technology revolution, and has been protected by the US’s system of patents and other IP rights.

Kurz documents the growth of surplus wealth—the difference between a company’s total wealth and the capital it employs—generated by publicly traded US companies and finds that greater surplus wealth is associated with companies that have been most transformed by IT innovations. He also finds that the rate of surplus-wealth generation over the years has gone up.
Perhaps market power is growing, and not because of any single policy or set of policies. Perhaps it is growing because of a change in the nature of American commerce.
days of the telephone industry, customers signed on for service with a specific network, and could only call other customers of that network. Competitive advantages naturally accrued to the biggest networks. The solution, imposed by regulators, was forced interoperability: the networks all had to work together, allowing customers to call each other regardless of which network they used.

Zingales advocates a similar regulatory approach to social media networks. “How do we solve the problem (of network externalities)?” he asks. “We force interoperability, so that I can access Facebook through Pinterest, and vice versa. That will, in my view, restore competition to the market.”

However, network effects are not the only competitive idiosyncrasy of digital markets. In a policy brief reporting on the findings of the Stigler Center Committee on Digital Platforms—consisting of 30 academics and policy makers, who spent more than a year studying how digital platforms affect not only markets but also the media, personal privacy, and political systems—Zingales and Stigler Center fellow Filippo Maria Lancieri identified a number of other concerns that encourage monopolization:

i. strong economies of scale and scope (companies are encouraged to extend a product to more people, or to develop new features);
ii. marginal costs close to zero (the cost of adding another person is low);
iii. high and increasing returns to the use of data (the more data you control, the better your product);
iv. and low distribution costs that allow for a global reach.

In addition to forced interoperability, the committee’s recommendations for countering these issues include creating special merger guidelines for digital platforms and giving special scrutiny to how factors such as product design and data control affect competitiveness.

How should policy makers react?

Naturally, the policy responses to these phenomena depend critically upon answers to some of the above questions. If concentration is growing but market power isn’t, the antitrust establishment may be doing exactly what it should. As Syverson points out, concentration itself is not an indicator of a problem. If market power is expanding due to specific policy decisions, such as the threshold amendment to the Hart-Scott-Rodino Act, it may be necessary for policy makers to revisit, revise, or undo them. However, given that some policies relevant to competition, such as interest-rate levels, aren’t specifically antitrust issues, altering them in the service of healthier markets would have to be weighed against their effects on other areas of the economy.

But perhaps market power is growing, and not because of any single policy or set of policies. Perhaps it is growing because of a change in the nature of American commerce—such as the superstar-firm dynamic described by MIT’s Autor and his coresearchers. Monopolies have traditionally been studied as a microeconomic phenomenon, and policy responses to them tend to be individualized: the blocking of specific mergers or, in more extreme cases, the breaking up of specific companies. But if monopoly power is growing economy-wide, does that call for a broader and more fundamental response?

“The issue is, what’s the criterion that you use to declare something as noncompetitive in a way that’s easily comparable across industries?” Syverson says. Some have suggested that size—measured by total asset value, for instance—could be such a criterion, but “I think that is just taking a hatchet to a birthday cake,” he says. “It’s ridiculously blunt.”

If market power is so pervasive that it’s become a macro-economic issue, Syverson says, that would require regulators to systematically work their way through markets one at a time, rather than make a policy adjustment that would affect all markets simultaneously.

Such an approach would be daunting for policy makers, but it is potentially critical. If markets are indeed becoming less competitive, that could mean not only paying higher prices for worse products, but also enduring lower wages, fewer innovations, and less business investment, as well as a smaller, slower-growing economy. It’s no surprise, then, that competitive markets are a matter near to the heart of most economists—and, perhaps increasingly, a salient part of politicians’ message to voters.—CBR

Go to Review.ChicagoBooth.edu to see citations for research mentioned in this article.
As life moves faster, everyone’s patience is wearing thin. Who gets to the head of the line quickest?

BY CHANA R. SCHOENBERGER
ILLUSTRATIONS BY SAM PEET
tocks are processed in milliseconds. Chauffeured cars can be summoned almost instantly. Yet people are still routinely made to slow down and cool their heels. We wait in lines at the grocery store and the doctor’s office, on the phone with customer service, and virtually when buying concert tickets or waiting for a website to load.

But as consumers are coming to expect ever-faster service, companies are looking for ways to keep lines moving. Customers are, too, and have found some shortcuts. For example, if you're stuck on hold with an automated phone system, it may fast-track you if you swear, according to the technology news site TNW.

Researchers specializing in queuing theory may have better solutions. For most of the past century, operations researchers developed systems to reduce lines, and they were largely successful at streamlining factories, telephone exchanges, and other tasks. But with the service sector now dominating the economy, some recognize that they need a new approach, one that takes into account human behavior. Many lines that form these days are affected by people’s quirks and biases—including their propensity to swear or hang up when frustrated by circuitous automated phone systems. Anticipating these reactions could help one person cut the line, but could also help many people more quickly get what they’re waiting for.

Get in the queue
Queuing theory is a branch of mathematics that optimizes waiting times. Some of the earliest work was done at the turn of the 20th century by the Danish mathematician Agner Krarup Erlang, who tried to predict load times for the telephone exchange so that people could pick up a receiver and hear a dial tone rather than a busy signal.

Since then, much work in the field has focused on waiting times in automated environments, such as manufacturing, or on fairness and scheduling in computer science. Consider a semiconductor factory, where silicon wafers are made for use in electronic devices. Research has developed ways to organize the factory so that each wafer is fabricated in the fastest and most efficient way. These factories are in some ways an ideal test case for wait times. The goods produced are delicate and expensive, giving companies an incentive to carefully but expeditiously move them through the production line and out the door. No company wants to build up unnecessary inventory and get stuck paying for storage.

Traditional queuing theory assumed that jobs would wait forever to be processed. Those silicon wafers, after all, are inert and not going anywhere on their own accord.

But over a few decades, the manufacturing sector has contracted while service has expanded to represent roughly two-thirds of US economic activity. The trend has taken hold across the globe: according to the World Bank, the service sector added 65 percent in value to overall GDP in 2017, versus 62 percent in 1997. As this has happened, queuing theorists have become more interested in the human side of queues. In hospitals, restaurants, and shops, lines comprise people, not inanimate objects. People are at the front of lines, too, routing patients to hospital beds, leading hungry patrons to tables, or ringing up purchases.

With $200 billion in annual revenues, according to outsourcing expert CustomerServ, the call-center business represents a particularly good example of an industry that involves both long wait times as well as that crucial factor of human reactions. At call centers, both customers and customer-service agents are masses of feelings, biases, and restlessness. “We need to develop formulas that take into account human behavior; for example, customers hanging up,” says Chicago Booth’s Amy R. Ward.

This requires different math than used in the factory context. Most academics look at queuing theory by using stylized models that involve exponential distributions and require finite-state dimension. These models mostly reveal the way things should behave, but not the way things actually happen in the real world, says Amber Puha of California State University at San Marcos. Puha studies measure-valued processes, a tool that allows for writing equations to track how long every customer in a line has been waiting, and how long every customer being helped has been speaking to an agent.

To set up the kind of queuing problem that presents itself at a call center, Puha, Ward, and other operations researchers first divide customers into classes depending, for example, on the type of service desired. One person calling a bank might want to know her account balance, while another might want to report a stolen credit card. The goal is to design control policies that push customers through the process as quickly as possible. For most companies, the point at which someone calls in and needs to be paired with an agent is the start of the challenge. Quality of service is measured by short wait times, and the first point of contact affects the company’s reputation.
Queuing considerations

When establishing rules for how to route waiting customers, operations such as call centers have to decide whether to treat people more or less equally or to favor some over others.

A first-come-first-served approach is considered fair but can be insufficient when designing queuing systems that balance business priorities with human behavior.

When designing queuing systems, researchers split waiting customers into different classes—for example, people whose needs are more urgent or people with VIP status whom businesses deem more valuable.

Then they distribute wait times that may favor one group over another. If there must be, say, 10 minutes of waiting on average, should one customer group wait one minute while the other group waits nine minutes, or should the split be 50–50, or something else?

Customers who refuse to wait provide an example of how human behavior can short-circuit a traditional queuing model. People hang up when they’re frustrated. Wafers do not. “We’re interested in more fully understanding the implications of this, how to maximize revenue, minimize customer dissatisfaction, and maximize customers being happy with the service,” says Puha.

In one project, Puha and Ward set up a mathematical model that incorporates different types of customers, and use a probability model to distribute them, seeking to capture the behavior of frustrated humans hanging up when on hold. Then they analyzed how the system works when the number of call-center agents is very large.

The researchers thought first about what happens when call-center agents can do anything, such as speak every language. “Because this phenomenon of how abandonment [when customers hang up, or abandon a transaction] affects the overall system performance is not particularly well understood, it’s interesting to understand it even when agents are fully cross-trained,” Puha says. After that, they could study what happens when an agent has a specialization, such as speaking only English, or only Spanish. Would people calling in still hang up at the same rate?

Inequality on the line

A model that seeks to optimize the queue reflects a company’s goals and priorities, which typically include fairness. When establishing rules for how to route people, a company has to decide whether to treat customers more or less equally or to favor some over others. Will some groups of callers be forced to wait longer than others, on the basis of their frequent-flyer tier, hotel loyalty points, or order history? Say a customer has a credit card designed for big spenders, for which she pays a hefty annual fee. When she calls customer service and types in her credit-card number, should she be routed to a shorter queue for high-value customers? In many cases, companies have decided that yes, she should get this priority treatment.

Consequently, the conversation with the service representative who answers your call may be more pleasant and efficient when you are a member of a group the company wants to keep happy, and companies can use mathematical models to ensure this happens. “I can look at the solution to that optimization problem, rank the classes [by how valuable they are to me], and serve my highest priority customers first,” says Ward. “But that optimization problem is not capturing adverse consequences from treating customers unequally.”
Many of the problems Ward formulates focus on averages. If a center’s average wait time is one minute, that could be because everyone waits for one minute—or it could be because 98 percent of customers have no wait at all, while 2 percent of them wait for an hour. Those tails can have an impact on a business, so it makes sense to design a problem that incorporates both average and variability, Ward says.

The model Ward and Puha wrote can include fairness constraints. For example, given the number of agents staffed and the customer demand, there must be a certain amount of waiting, say 10 minutes on average. The question is: Should one customer group have one minute of waiting and the other group have nine minutes, or should the split be 50-50, or something else? In different situations, a company may need to be more or less worried about treating customers more or less equally, she says.

This ties in to the more general problem of social inequality, an issue that isn’t accounted for in call-center models but is very much a concern in real life. Routing a VIP customer to a shorter queue may make business sense, but it’s another reason people have disparate experiences that cause them to have differing views about, say, access to resources.

The business decision a company has to make involves where on the axis of fairness it wants to sit. Taking into consideration a company’s priorities, call-center executives have to decide how many resources to allocate, such as the number of agents who answer the phones. In addition to where customers are placed in line, a model also determines what agent they are routed to. Pairing customers with agents requires companies to decide how many employees to hire at different skill levels. A call center’s scheduling algorithm can take into account which employees can serve which types of customers. Of course, it’s more expensive to hire only agents with top-level skills. Moreover, if the VIP customer is routed to a high-skilled agent when several other customers are waiting on hold, the decision affects everyone’s wait times, and those of future customers.

The next stage for managers is to give people incentives to do the most efficient thing. “The first step in solving the scheduling problem is to assume the employees will do exactly what I want,” says Ward. “Then I can deliver the same quality of service to different customer classes as somebody else, but with fewer employees, so my model would allow you to be more efficient. But what if the employees do not behave consistent with my solution?”

Agents are people too
Fairness and efficiency are concerns with respect to the way queuing models treat not only customers but also the call-center agents who interact with them. These representatives offer another set of potential behavioral issues that can crop up when humans don’t do what the algorithm dictates. Agents can have bad days, or be tired, or need coffee, or feel berated. They may work quickly or slowly. They have their own preferences for the types of calls they want to answer, and in some cases even dictate whether they will see a variety of call types, for instance.

“If we think of higher-touch services where humans are providing the service, the human element kicks in both on the customer side and the server side,” says New York University’s Mor Armony. Armony has coauthored two papers with Ward, and has studied how to route calls to provide for agents to have time to take breaks. But here is the conundrum: Suppose you are the most-effective employee. Thanks to your efficiency, you tend to get more work routed your way, and you may take steps to protect yourself and your time if your manager fails to do so. An academic referee that produces quality reviews quickly will likely be asked to review more papers, so that person may decide to take longer to return reviews in order to keep the workload in check.

Raga Gopalakrishnan of Queen’s University in Kingston, Ontario, and Ward are conducting research together, and their investigations include how to account for agent burnout, how to design systems so that more-efficient agents don’t feel as though they are being punished when they are assigned more work than others, and how such considerations interact with customer behavior (less work being done by the agents means higher wait times for the customers).

Gopalakrishnan and Ward are currently looking at the strategic behavior of both customers and agents. In their model, an agent will choose how quickly to work. While customers in a call center can’t necessarily see where they are in a queue, customers in a grocery store often can, and both

Agents can have bad days, or be tired, or need coffee, or feel berated.
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HOW TO ALLOCATE SUBSIDIZED HOUSING MORE EFFICIENTLY

Waiting lists can be used to allocate scarce goods, be they hard-to-get preschool slots or organs needed for transplants. But poorly designed lists can be inefficient and unfair, finds Chicago Booth’s Jacob Leshno, who suggests a better version.

To study this issue, Leshno looked at the system used to assign subsidized housing in the United States. Americans who qualify for subsidized apartments can put their name on a first-come-first-serve list with housing authorities. Once an applicant’s name is called, she can accept or reject the offered apartment. If she rejects it, her name might drop to the bottom of the list.

The amount of time an applicant waits for an apartment is random. Someone who puts his name in at an inopportune time may face a long wait. Moreover, if that wait time stretches into years, the applicant might accept an apartment other than the one he really needs, simply to cut the wait time. He may feel forced to accept an apartment that’s far from work, school, or family.

And a long commute can have consequences for a family, and others. Children who travel far to attend school suffer, and they may run into social difficulties if required to switch schools because their families have to move. Relocating can break community bonds. In short, this system can cause people to make decisions that hurt themselves and society.

Leshno used a dynamic model to determine how fluctuations in the length of time people expect to wait in line affect their welfare. Considering other systems, he lands on a “service in random order” queuing mechanism, in the parlance of queuing theory. This would let applicants choose an apartment complex they prefer, and then would place them in a pooled list for vacancies there. In this system, when an apartment at a given complex becomes available, the housing authority chooses one applicant at random from the pooled list for that complex, and the applicant then accepts or rejects the offer. If they reject it, they remain on the complex’s pooled list.

Applicants are not necessarily offered apartments in the order that they apply, which may seem unfair to some. But does fairness dictate that applicants should be offered apartments in the same order in which they signed the waiting list? Leshno cites day-care lists as an example to the contrary. “Local parents may be able to register for daycare centers years in advance, whereas advanced registration is not possible for recently moved parents who may have a greater need for daycare.”

Leshno says his suggested queue is more efficient because applicants are offered more similar opportunities. In the current system, people can be on a housing list for days, months, or even years, and two families vying for the same type of apartment might face very different wait times.

But Leshno says to focus on the expected wait time at the point in time a person is called. At that point, in his version, the expected wait time is likely to be more stable over time and give every applicant, regardless of when they’re called, similar apartment options.

WHICH TYPE OF GROCERY QUEUE IS BETTER?

Waiting to pay for groceries offers plenty of time to ponder this question: Which is the best type of checkout line? Most grocery stores have multiple checkout stations, each with their own queue, while a few have single, snaking queues staffed by workers who assign shoppers to one of a handful of cashier stations. (In some stores, an electronic board does this job.)

Research indicates this is something of a trick question, as the speediest option isn’t necessarily the one shoppers prefer. The TV show MythBusters devoted a 2016 episode to testing both propositions. The show’s hosts herded volunteers through a stage set of a grocery store. When shoppers self-organized into multiple checkout lines, they waited 5 minutes and 39 seconds, on average, and gave the experience a satisfaction rating of 3.48 out of 5.

Then the show’s hosts organized the volunteers into a single checkout line, gave them the same instructions, and assigned the person at the front of the line to one of several registers. These shoppers ended up waiting longer, almost 7 minutes. However, they rated the experience a 3.8, presumably because this method was fairer.

The notion that one line is better is taught to many MBA students in operations-management classes. This idea can be validated mathematically, but the underlying assumption in the math is that the checkout clerks work at the same rate, regardless of the number of lines.

However, the math doesn’t take into account worker behavior—and both shoppers and cashiers affect how queues move. University of Washington’s Masha Shunko, Syracuse’s Julie Niederhoff, and Purdue’s Yaroslav Rosokha find, as MythBusters did, that the fastest way to move shoppers through a store is to let them choose a line alongside a register. But the researchers also find that the speed is due to the way checkout clerks work. With their own lines, clerks in an experiment worked faster, in part to compete with their peers on other registers. When there was a single line, by contrast, no individual cashier owned the results, leading to a loss of competitiveness—and checkout speed.

“The single-line workers didn’t work at the same speed as their counterparts doing the same task in the multiple-line system,” Niederhoff says. Instead, the single-line cashiers slowed down by about 10 percent. When everyone was equally responsible for getting customers out the door faster, it seems, nobody felt they had to rush. This decrease in worker speed can negate the benefits that the single-line design is predicted to create.

From the customer’s perspective, a single-line setup is preferable because it negates customers’ anxiety about which line to pick, she says. Despite her research, Niederhoff prefers, when possible, to stand in a single line when shopping.

“There’s no risk the person in front of you will sabotage the line by doing something slowly,” she says.

But what about a store that also has one or more express lines serving people with fewer items? In this case, the math suggests that it’s still probably best to have one regular line, in addition to the express line—although it depends on how much shorter the average checkout time is in the express line.

nurses assign incoming patients a score of 1 to 5 on the basis of how likely they are to need an overnight stay in the hospital. The urgent-care patients are then treated quickly in a separate area and released. Most who stay in the ER are those who score a 3, while those scoring 1 or 2 may need surgery or a trip to the intensive-care unit.

Other research, including a recent paper Armony coauthored, deals with queuing for operating rooms, which involves optimizing the schedule so that patients can receive surgery quickly and find a recovery-room bed waiting when they are finished. When hospitals move patients into a nursing ward, they have to determine the order in which wards will take new patients, on the basis of the beds available and the patients’ medical problems. Hospitals can use queuing theory to make these assignments, but a real test is what happens within the hospital itself: Do nurses and doctors follow computerized rules implemented by the hospital or do they make their own decisions? And which group, the humans or the machines, makes better decisions for patients?

Hospital executives know their trained staff have deep expertise in treating patients, but they also know that these staff members might not recognize the patterns a computer can see.

“The question is how to design the algorithm to support the decision makers in a way that would be helpful to them rather than intrusive or something they would just ignore,” says Armony.

A related issue is how hospitals route patients depending on the criteria that insurance companies and regulators use to judge the quality of care. Hospitals are penalized when patients who have been treated come back to the hospital too quickly, so some have an area for ER patients to wait under observation before they’re discharged, to make sure they are well enough to go home. This cuts down on readmission rates, thus presumably shortening future queues.

Health-care queuing is “not a problem that I think will ever be solved completely, as the state of the art continues to improve,” says Armony. Queuing problems can be solved mathematically, but researchers have much more to do in working toward better modeling human behavior. That way, when an airline call-center rep finally picks up your call, you may not feel quite so angry about the amount of time you’ve been waiting.—OCR

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WHY CENTRAL BANKS NEED TO CHANGE THEIR MESSAGE
The US and European central banks thought they could manage their economies by bringing their secretive plans for interest-rate regulation into the light. But they didn’t account for an unreceptive public.

STORY BY DEE GILL
ILLUSTRATION BY MATT CHASE
A lot of people don’t have a clue what central banks do, much less how the institutions’ ever-changing interest-rate targets ought to affect their household financial decisions. Recent studies, including several by Chicago Booth researchers, find Americans and Europeans oblivious to or indifferent to the targets’ implications.

This is a serious problem for policy makers. For a decade, monetary policy in many developed economies has relied heavily on forward guidance, a policy of broadcasting interest-rate targets that works only if the public knows and cares what its central bankers say.

“The effects of monetary policy on the economy today depend importantly not only on current policy actions, but also on the public’s expectation of how policy will evolve,” said Ben Bernanke, then chairman of the US Federal Reserve, in a speech to the National Economists Club in 2013. At critical times since 2008, forward guidance has been the Fed’s and the European Central Bank’s go-to tool for revitalizing their ailing economies and holding off widespread depression.

Forward guidance usually involves central banks announcing their plans for interest rates, which traditionally were guarded as state secrets. The openness is intended to spur investors, businesses, and households to make spending and savings decisions that will bolster the economy; typically, to spend more money during economic slowdowns and to save more when the economy is expanding.

Chicago Booth’s Michael Weber and his research colleagues, in several studies, tested the basic assumption that households will respond to forward guidance, and find it flawed. Most people, the researchers conclude, generally do not make spending and savings choices on the basis of inflation expectations. In personal financial decisions—for example, to pay or borrow money for a boat, refrigerator, or renovations, or to sock away funds for rainy days—words from central bankers hardly register.

Why don’t more people respond to interest-rate news? In two of the studies, Weber and his coresearchers blame a lack of cognitive ability. Men who score at or below the median on IQ tests appear less likely to process and act on central-bank news in ways that would benefit their own household accounts and the overall economy, according to the studies, which Weber conducted with Boston College’s Francesco D’Acunto, Daniel Hoang of Karlsruhe Institute of Technology, and Maritta Paloviita of the Bank of Finland.

The researchers point out that low IQ is not the same as a low level of education, which they find, along with income, age, and other demographics, to be unrelated to interest-rate reactions. Policy makers have struggled to understand why many individuals make economic decisions against their own best interests, such as ignoring potential tax breaks or unnecessarily carrying credit-card balances. Weber’s work on inflation expectations follows other research that addresses the conundrum by analyzing how individuals form economic expectations and act on them.

But consumers may not be wholly at fault. The way that central banks disseminate their interest-rate announcements also may limit public responses to the news, according to Olivier Collion of the University of Texas at Austin, Yuriy Gorodnichenko of the University of California at Berkeley, and Weber. The researchers tested reactions to an article about Fed inflation news in USA Today, a widely circulated newspaper they consider less likely to be viewed as partisan by readers than other publications. Their findings suggest that USA Today articles that simplify Fed inflation news and explain its implications are doing little to change household spending.

These findings test policy makers, as well as economic forecasting generally. The most popular models for forecasting the economy’s response to monetary- and fiscal-policy moves assume that people will use the new information. If the announcements confound or bore the public, neither the forecasts nor the policies they support have much chance of success.
The Fed does little to directly address consumers’ understanding of monetary policy. It publishes consumer guides about mortgages, foreclosures, and a few other topics, but it does not prioritize speaking to the general public. The Fed’s increased openness and its push toward anchoring inflation expectations means that it publishes more-decisive words, more often, in statements, speeches, and interviews, but these are almost always aimed at financial markets. The Fed relies on the media to attract the public’s attention to these statements.

From proud incoherence to Fed-speak
For decades, the world’s central bankers cloaked deliberations in secrecy. On the rare occasions they publicly mentioned interest rates or economic conditions, they spoke in purposely ambiguous terms, largely for fear of politicizing the decision-making process. Professional investors, a group obsessed with both topics, studied those words like tea leaves. But a quote from then Fed chairman Alan Greenspan in 1987 captured his pride in that impenetrable verbiage: “Since I’ve become a central banker, I’ve learned to mumble with great incoherence. If I seem unduly clear to you, you must have misunderstood what I said.”

Soon after, Greenspan, the Fed, and other central banks began taking baby steps toward transparency. But it took the 2008–09 financial crisis to really get them talking. Cutting critical short-term interest rates—the banks’ standard response to economic weakness—hadn’t stopped an alarming rise in layoffs, bankruptcies, and market mayhem. The economy needed a lot of spending right away to get businesses thriving and people working again.

To generate this consumption, the Fed promised on December 16, 2008, near the beginning of the financial crisis, to keep interest rates exceptionally low, near zero, “for some time.” The Fed repeated the message throughout the recession, and the ECB put out similar statements. The Fed also named the economic developments, such as employment rates, that would prompt changes to those targets. The specificity of these announcements was historic.

But the forecasting becomes less accurate as the central bank tries to predict consumer responses to interest rates that they do not yet see. During and after the Great Recession, the models predicted US consumers would increase spending on the basis of Fed forward guidance, which essentially warned of inflation down the road. Meanwhile, real interest rates remained unchanged. Consumer spending didn’t rise significantly until long after the models suggested.

Economic models rely on rational consumer decisions, such as households making big purchases now if they know prices will be higher later. In reality, consumers weigh many factors in timing their purchases, such as changes in jobs and families. They do react as expected when future price increases are more obvious. For example, consumers moved up major purchases when told of a higher sales tax that would take effect in the future, according to a study by Francesco D’Acunto of Boston College, Daniel Hoang of Karlsruhe Institute of Technology, and Chicago Booth’s Michael Weber.

But other research by Weber suggests that many people ignore forward guidance about inflation, or simply are not aware of it, when they make financial decisions. None of the popular economic models can claim accurate forecasts with a population that does not use the information the central bank offers.

Go to Review.ChicagoBooth.edu to see a complete list of citations for research mentioned in this story.
From this forward guidance, the public was supposed to understand that they should buy goods soon, rather than wait. Businesses should hire people, upgrade equipment, and invest in expansion. Consumers should buy cars, refrigerators, furniture, houses, and other big-ticket items.

Theoretically, households that followed the Fed’s lead would benefit financially, as well as advance policy makers’ goals for the broader economy. By making purchases then, while the banks were holding prices down, buyers would pay less than when inflation increased costs later. Spare cash would earn almost nothing socked away in bank accounts, so it would be a good time to invest in just about anything else. The cost of borrowing money could only get higher in the future.

Generally, investors took the hint; households and businesses did not. While the interest-rate promises effectively stabilized financial markets, it was years before businesses hired and consumers spent heavily enough to really help economic growth.

Today’s Fed and ECB leaders strive to make their policy objectives and economic outlooks clear to both investment firms and average citizens. But the research suggests they have yet to put forward guidance into language that motivates the public to act.

Even simplified, interest rates still fail to motivate
Findings by D’Acunto, Hoang, Paloviita, and Weber suggest that only high-IQ individuals follow and react to interest-rate news in the ways that central bankers intend. Their two IQ studies take data from Finland, where homogeneous demographics are useful for disentangling IQ effects from education, income, and other factors. Finland offers citizens free education through university and has one of the highest college graduation rates in the world. Typically, Finnish men take IQ tests with military conscription around the age of 19 or 20, and low- and high-IQ individuals are found across socioeconomic groups. (Finnish women can volunteer for military service but are not conscripted.) The Finnish Defense Forces score the IQ test results on a 9-point standard scale, with a mean score of 5.

The researchers matched the young Finnish men’s IQ scores from 1982 to 2001 to their responses on monthly consumer-confidence surveys conducted on behalf of the European Commission between 2001 and 2015. The surveys solicited household opinions about economic conditions generally and about what prices would do in the future. For example, they asked if it was a good time to make big purchases, such as furniture and electronics.

Central bankers have tried various unconventional tools in their bid to accomplish their monetary-policy goals—and to get consumers and investors to pay attention. Forward guidance (statements intended to manage expectations about potential rate changes) and other strategies have had some success . . . but would they be more effective if the bankers’ words were lyrics backed by a beat?

If the Fed embraced this, it wouldn’t be the first bank to use music to transmit a message. Øystein Olsen, the governor of Norges Bank, Norway’s central bank, in 2017 appeared in a lively cod-themed parody video to promote new banknotes. A few months later, Elvira Nabiullina, governor of the Central Bank of Russia, sang in a video that the Russian bank issued to promote some of its new banknotes.

More recently, the Bank of Jamaica has moved into commissioning new music—it had pop stars record videos to educate the public about topics including the benefits of inflation targeting. Tony Morrison, the bank’s head of communications, told the Wall Street Journal that policies such as inflation targeting “are the type of things that everyone should know about, and the best way to reach the people of Jamaica is through reggae.”

This tactic is a good one, says Chicago Booth’s Michael Weber. “The central bank of Jamaica has been pretty successful in anchoring inflation expectations and reaching the broader population, and I think the Fed and European Central Bank can learn from them,” he says. However, he says that in the United States, monetary-policy plans should be set to rap. If basketball star-cum-rapper LeBron James were to record a song about price stability, he says, the message would reach a wide audience.—Emily Lambert

Even the most explicit warnings of higher future rates won’t induce spending if people don’t factor inflation into their financial decisions. But most people simply don’t.
Interest rates in Finland are ruled by the ECB, and the survey period covered at least two significant policy announcements that the researchers would have expected to guide survey respondents. But only participants scoring between 6 and 9 on the IQ tests—those the researchers classify as high IQ—accurately reported current interest-rate trends and made financial decisions accordingly.

High-IQ men were twice as likely to take advantage of low-interest loans when rates fell. Their likelihood of borrowing remained constant while interest rates were steady, and dropped when interest rates rose. Using annual tax data, the researchers determined that these participants adjusted total outstanding debt balances to match interest-rate changes significantly more often than respondents ranked 5 or lower on the IQ scale.

High-IQ men also said it was a good time to buy big-ticket items when inflation was rising, and a bad time for such purchases when rates were going down.

On the other hand, lower-IQ participants had little knowledge of current or forecasted interest rates. Their plans for spending, saving, and borrowing appeared unrelated to their inflation expectations, which were sometimes wildly inaccurate.

Unlike IQ, income and education did not appear to affect knowledge of interest-rate trends or the propensity to react accordingly.

The researchers considered that lower-IQ men may be less likely to qualify for loans, which might make them unable to borrow more when rates are advantageous. But they find individual leverage ratios—a key debt indicator that lenders consider—to be roughly the same between high- and lower-IQ respondents. They also suggest that lower-IQ men are unlikely to change their consumption plans as inflation expectations change even if they are not financially constrained. If financial constraint had been the meaningful variable, this difference could have explained why changes in inflation expectations did not affect their spending plans.

Avoiding policies for only smart people
Even the most explicit warnings of higher future rates won’t induce spending if people don’t factor inflation into their financial decisions. But most people simply don’t, according to several studies.

Two such studies—the first by University of Notre Dame’s Rüdiger Bachmann and others, the second by the Boston Fed’s Mary A. Burke and Ali K. Ozdaglı—find no statistically significant differences in most households’ readiness to buy durable goods, or their actual purchases, on the basis of their inflation expectations. Another study by researchers including Chicago Booth’s Devin G. Pope finds that 20 percent of mortgage holders fail to refinance when rate declines would allow them to save money. (Bachmann notes that studies from Japan and Europe do find a relationship between inflation expectations and economic behavior, making the evidence mixed.)

The work by D’Acunto, Hoang, Paloviita, and Weber sheds light on why the inflation factor tends to get left out of household financial decisions. After establishing that IQ plays a role, they examined what might have made the lower-IQ group less likely to respond as intended.

Although the lower-IQ respondents sometimes lacked or misinterpreted interest-rate information, this was not the key reason for their inaction, the researchers find. Instead, lower-IQ individuals appeared unaware of how to favorably apply the information to their own lives, the researchers argue. As a result, the individuals disappointed central banks with unresponsiveness even when they accurately interpreted news of the central-bank rate.

To get the public’s attention, central banks may need policies that more obviously affect personal finances. Two studies by D’Acunto, Hoang, and Weber illustrate how Polish and German households significantly increased spending ahead of large, preannounced sales-tax increases. When facing a tax that would make every purchase evidently more expensive, consumers quickly grasped the implications. The forecasted sales-tax increases sparked the sort of consumption rally central bankers hoped interest-rate changes would produce during the global recession.

Short, straightforward announcements about interest rates aimed directly at the public may also help central banks get the responses they want, according to Coibion, Gorodnichenko, and Weber. They find that when consumers read a single sentence stating the Fed’s inflation target, they were more likely to alter their inflation expectations than when they read a news article about the interest-rate change in USA Today.

The researchers note that a continuing disconnect between central banks and lower-IQ households threatens more than effective monetary policy. A consumer-friendly interest-rate policy becomes discriminatory if it enriches only a subset of the population. For judicious and effective monetary policy, central-bank messages cannot be for only the smartest people.——CBR
DON'T RELY ON THE MEDIA TO TRANSMIT FED SPEAK

Since 2009, the Federal Reserve has regularly announced its inflation targets, effectively telling the world whether prices for US goods will be higher or lower in the future. Such openness is necessary, the Fed has explained, to influence constituents’ spending decisions as a means to benefit the broader economy.

The public, however, has not gotten the message. Many Americans still exhibit a profound lack of awareness about inflation and the policies meant to guide it, according to research by University of Texas at Austin’s Olivier Coibion, University of California at Berkeley’s Yuriy Gorodnichenko, and Chicago Booth’s Michael Weber.

The study relies on a survey of about 83,000 households, the Chicago Booth Expectations and Communication Survey, created in cooperation with Nielsen. Its design and participants mirror the closely watched University of Michigan Surveys of Consumers and the New York Fed Survey of Consumer Expectations.

Almost 40 percent of the respondents in the Chicago Booth survey estimated the Fed’s inflation target at 10 percent or more, a level high enough to call a crisis in most developed countries. (The Fed’s inflation target is 2 percent, and inflation has averaged around 2 percent over the past two decades.) Barely half of respondents gave a number between 0 and 5 percent.

Why are so many people grossly misinterpreting the Fed’s intentions?

The researchers find that how the Fed distributes its messages plays a key role in how the public responds. They argue that the Fed could dramatically influence household inflation expectations with simpler messages, such as a single sentence stating its inflation forecast, delivered directly to consumers. But when Fed announcements are filtered through popular media—the way most Americans hear from the institution now—those messages do little to change minds, the study finds. Moreover, should the Fed move its messaging to Twitter? The researchers also find most Americans no longer read traditional newspaper articles and instead consider social media a credible source of news about the economy.

Fed speak beats USA Today

With each of the Federal Open Market Committee’s eight annual meetings, the Fed issues a wordy statement that includes its new, or unchanged, federal funds rate and its inflation target. The announcement explains the reasoning behind the numbers, often using standard industry phrases such as “risks to the economic outlook appear roughly balanced” and “the stance of monetary policy remains accommodative.”

While anyone can read FOMC announcements online, the US government traditionally relies on the popular press to turn this notorious Fed speak into digestible public-service messages. For example, USA Today’s translation of the Fed’s statement describing its “balanced” and “accommodative” monetary policy read: “Citing a brighter economic outlook, the Federal Reserve raised its key short-term interest rate Wednesday but maintained its forecast for a total of three hikes this year amid still-modest inflation.”

The article further explains that the federal funds rate rose to 1.75 percent from 1.5 percent, and that the change would increase interest rates for credit cards, mortgages, and other loans.

The Chicago Booth survey, given in May/June, September, and December 2018, asked participants to state the rate of inflation for the past 12 months and to predict the level

The evolving language of forward guidance

After decades of purposely ambiguous public announcements, the US Federal Reserve began incorporating specifics into its forward guidance in response to the 2008–09 financial crisis.

**LANGUAGE SUBTLETIES**

Having previously stated that people could expect an “exceptionally low” federal funds rate “for some time,” the Fed says it would likely stay exceptionally low “for an extended period.” (March 2009)

**DATA THRESHOLDS**

The Fed says the rate will stay below 0.25 percent “at least as long as the unemployment rate remains above 6½ percent” and inflation projections are no more than “a half percentage point above” the Fed’s longer-term goal of 2 percent. (December 2012)

**SPECIFIC DATES**

The Fed says the rate will stay exceptionally low “at least through mid-2013.” (August 2011)
The Fed says “it can be patient in beginning to normalize the stance of monetary policy.” (December 2014)

Raising the target range for the first time since before the 2008–09 financial crisis, the Fed says it expects “only gradual increases in the federal funds rate.” (December 2015)

Projecting its first rate cut in years, the Fed begins using language saying it will “monitor the implications of incoming information for the economic outlook and will act as appropriate to sustain the expansion.” (June 2019)

Although the Fed announces a further rate cut, its statement omits the part saying it would “act as appropriate to sustain the expansion.” (October 2019)
Me really should eat more veggies.

Oh, what me do, Letter B?

You me only friend!!

I think I can help you, Junk-Food Monster.

Just one question: How old are you?

Let me see... me a Leo, and it Wednesday, so me be 10... 11... 12...
You see, most education stresses the health benefits when teaching kids about junk food. In the school where we ran an experiment, we presented this health information to a control group.

If you're a teenager, my research might help you kick a junk-food habit.

...but we added our own tract for an experimental group. We told the middle schoolers in this group that junk-food companies use advertising to prey on young children who don't know any better.
We thought the experimental setup would be more effective because it plays off two teenage desires: first, the desire for autonomy, and second, the desire for social justice.

Even monster know the proletariat have nothing to lose but their chains.

To bolster the feelings of autonomy and social justice, we had students in the experimental group edit posters to make the slogans more honest.

DON'T BE A WEENIE.
BUY A BURGER!

DON'T BE A PUPPET.
BUY A REAL FOOD!

Did your experiment work?
We tracked what each student bought with their cafeteria cards and saw that our program increased healthy choices for the remaining three months of school. Most of the gains came from boys, who don’t usually respond to information about health and weight.

These large-scale improvements are important. A countrywide reduction of 20 kcal every day could reverse the obesity trend and prevent millions of new cases of diabetes.

Ah, ah! Millions! Ah, ah!

Thank you, Professor Bryan. Any more tricks for kicking a junk-food habit?

Ugh! Maybe try chewing your food!
Capitalism is the engine of prosperity. Capitalism sows the seeds of its own demise. Could both be right?

Join Chicago Booth’s Luigi Zingales and Georgetown’s Kate Waldock for Capitalism’s, a biweekly podcast exploring what’s working, and what isn’t, about capitalism today.

Subscribe through Apple Podcasts, or stream the latest episodes at Review.ChicagoBooth.edu/Capitalism or Capitalism.com.
This past summer, 181 CEOs who are part of the executives’ group the Business Roundtable drafted a new statement of purpose for corporations and, with a few words, made a radical shift. For more than two decades, the group of top executives had held that companies’ managers and directors had a primary duty to serve stockholders, but the updated statement included also customers, employees, suppliers, and supporting communities.

The executives are responding to a mounting sense that a company needs to do good while doing business, whether that means keeping carbon emissions low, waterways clear, or workers healthy and...
well paid. In 2016, nearly $23 trillion—or 26 percent—of assets managed in the United States, Europe, Asia, Australia, Canada, and New Zealand were branded as sustainable investments. This represented an increase of 25 percent in just two years.

In more evidence that the corporate world has taken note, data collected by Chicago Booth’s Rustandy Center for Social Sector Innovation finds that more than half of S&P 500 companies released corporate-social-responsibility reports with metrics specific to their 2017 performance, and that the majority of the remaining companies published websites with general commitments to sustainability. Further, according to data from the Sustainability Accounting Standards Board (SASB), 85 percent of companies registered with the US Securities and Exchange Commission now disclose some sort of sustainability information in regulatory filings, which include annual reports.

But CSR reporting is almost entirely voluntary in the US. If a company reports a decline in its carbon footprint, it generally does so because it behooves the company to make that disclosure. Meanwhile, there are no standards for reporting. When it comes to public companies, half are including in their regulatory filings fairly generic or boilerplate CSR information that isn’t particularly useful to investors or other users.

Several groups are trying to improve the state of CSR reporting. In the US, the SASB develops and distributes CSR (or sustainability) reporting standards for use in SEC filings. The European Union has moved to strengthen the transparency of sustainability reporting by making larger companies include annual statements on sustainability and diversity. The Global Reporting Initiative strives to help companies develop meaningful sustainability reports.

Ultimately, if informative CSR reporting is to become widespread, it might be necessary to mandate such reporting and to impose a set of standards. We have collected and synthesized arguments for and against this in an independent report commissioned by the SASB and a related research paper. We outline a few of the arguments here. As is so often true, the success or failure of a reporting effort could be in the details.

**The pros for business . . .**

While the consequences of any mandate can be difficult to predict, we have some sense of the possible pros and cons of more-extensive and better CSR reporting. Let’s start with some pros. Better CSR disclosures could improve companies’ reputations and customers’ satisfaction. As consumers become more aware of what socially responsible steps a company is taking, especially steps that align with their own values, they may develop more trust in the company’s brands and products and become more devoted customers.

For investors, CSR disclosures could provide useful and additional information. First, investments in CSR, like other investments, are associated with future cash flows and risks. Standardized CSR disclosures could help the market gain a clearer picture of a company’s risks and value, making it possible to compare one company’s CSR activities with another’s, and helping investors monitor such activities (or lack thereof). Such disclosures, if they are informative, could increase the liquidity of secondary securities markets, just as the usual financial information does. Less uncertainty about firm value can also lower the cost of capital.

Second, a manager can have goals other than maximizing shareholder value. Say a CEO uses corporate dollars to support a favorite charity even though there is no real benefit to the company for doing so. Managers are unlikely to be forthcoming about such pet projects and any negative impacts unless required, and standardized CSR reporting could bring the activity into the open. Investors who are more informed would have more power to hold managers and companies accountable, and managers would have more incentive to keep shareholder priorities top of mind.

At the same time, CSR reporting could help shareholders and other stakeholders drive a company to act in more responsible and sustainable ways. CSR disclosures could make a company more inclined to, say, stop polluting, or to put its investments and purchasing power toward backing companies that use renewable energy or purchase ethically sourced materials. Seeing positive payoffs, companies could even vie to impress stakeholders by proving they are more socially responsible and sustainable than their competitors.

**. . . and the cons**

We could go on, but let’s also touch on potential drawbacks, some of which have to do with how CSR reporting rules are implemented. There’s a good chance that CSR disclosures would be more room for managers to hide or bury bad news. . . . But specificity can backfire by providing companies with an excuse to only disclose what is required by the letter of the law.

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**Economists weigh in**

What do economic experts say about reorienting companies to create value for a range of stakeholders, not just investors? See “In whose interests should business operate?” on page 86. And go to igmchicago.org to read more.
There are limits to what a CSR-reporting mandate can achieve.

make it easier to compare companies’ do-gooding activities, but there’s no guarantee of that outcome.

Consider the challenge of heterogeneity. Even within a single industry, business activities vary. Company cultures aren’t standardized, and that will remain true even if accounting mandates and standards are put in place. Couple this with the fact that any reporting standard provides a certain amount of discretion to managers and leaves room for interpretations of what should be reported.

With this in mind, how broadly or specifically should rules be written? Broadly drafted rules leave leeway for heterogeneity but can also make accurate reporting impossible as managers struggle to fully provide what’s required. Consider Section 1502 of the 2010 Dodd-Frank Wall Street Reform and Consumer Protection Act, which requires more than 1,300 companies to declare whether any of their products contain “conflict minerals,” mined in the war-torn Democratic Republic of the Congo, where detractors claim that proceeds from mineral extraction fuel human-rights abuses. Around 80 percent of companies can’t say for sure if this is true of their products, and only 1 percent are certain their products do not contain such materials, according to research by Hong Kong University of Science and Technology’s Yong H. Kim and University of Michigan’s Gerald F. Davis.

Broad rules also leave more room for managers to hide or bury bad news. A key reason to require CSR disclosures would be to allow the public to see how companies and their activities compare with each other, even if this means some companies will have to release unfavorable information. But if managers think disclosing something is risky or not in a company’s best interest, they will have more freedom to avoid disclosing it, whether that means making selective disclosures or burying unfavorable information in a boilerplate statement.

One could respond to these obstacles by making disclosure rules very specific—but this has its own challenges. It is difficult for any standard setter to predict and articulate the specific CSR information that will be relevant in the future. Plus, specificity can backfire by providing companies with an excuse to only disclose what is required by the letter of the law, even if other, less favorable disclosures would be more relevant to their stakeholders.

Let’s assume standards are implemented effectively, with the ideal balance of specificity and flexibility. It will still be costly to compile relevant data, vet information, create reports, and hire auditors to verify these reports. This could be especially burdensome for smaller companies.

And at companies of all sizes, there are risks involved in sharing information. Consumer groups and activists could gain power to set standards for an industry, and their priorities might not align with those of investors. Information disclosed could conceivably be used in regulatory actions, as evidence in litigation, or in the media. An unforeseen and unavoidable issue such as a natural disaster could lead to bad publicity, even when it is outside the control of
As interest in sustainable investment grows, so too will demand for reliable, comparable information on CSR activities.

Financial auditors don’t necessarily know about carbon footprints, energy usage, or materials sourcing—and it could be far more complex and less straightforward to audit carbon footprints than revenues and expenses.

In terms of reporting specificity, metrics-based rules could help fend off meaningless disclosures. Meanwhile, it could make sense to give companies input into establishing the metrics and standards, so that the rules reflect and respect the diversity of industries. But then one would have to guard against regulatory capture and, of course, independent enforcement would be key.

There’s more to study and discuss before reporting requirements can become a reality. But there are good reasons to start this debate, or prepare for the possibility of a CSR-reporting mandate. There are costs associated with pollution, greenhouse-gas emissions, and the like, and those can be recorded. Moreover, as the Business Roundtable recognizes, companies have stakeholders beyond investors, and a large number of these stakeholders—including consumers, employees, and society more broadly—have a legitimate interest in companies’ CSR activities and could benefit from improved reporting. Because these stakeholders typically have a more arm’s length, passive relationship with companies, it is harder for them to ask for this information, and hence standards could be particularly useful for them.

As interest in sustainable investment grows, so too will demand for reliable, comparable information on CSR activities. And although it is challenging to create a framework for CSR disclosures, it could be important to do so. Investors are increasingly focused on sustainable investments, and CEOs are acknowledging the importance of various stakeholders. But without a reliable reporting framework, and without the accountability that one would create, it’s unlikely that the good intentions expressed by CEOs and investors, and the ensuing benefits to society, will actually materialize.—CBR

Hans B. Christensen is professor of accounting and the David G. Booth Faculty Fellow at Chicago Booth. Christian Leuz is the Joseph Sondheimer Professor of International Economics, Finance, and Accounting at Booth.

Go to Review.ChicagoBooth.edu to see citations for research relevant to this essay.
The Fed can’t fight a trade war

Central banks can stimulate demand, not supply

Should central banks offset trade wars? Given that the United States has started a trade war, and given that the Federal Reserve, the European Central Bank, and other central banks are easing monetary policy to offset trade headwinds, it’s a question that bears consideration.

Central banks, including the Fed and the ECB, seem to take for granted that any reduction in economic activity, including a trade-war-induced slowdown, demands offsetting monetary stimulus. But stimulus can only provide aggregate demand. What if the problem is aggregate supply? What if an economy is humming along at full demand, and then someone throws a wrench in the works, be it a trade war, a bad tax code, or a regulatory onslaught, and that supply shock causes a slowdown?

Conventional wisdom says that central banks should not offset supply shocks because that would cause inflation, rather than stimulate output. But right now we have inflation once again drifting slightly lower. So perhaps the trade war is a demand shock after all?

Perhaps, but it’s hard to see how. Certainly the immediate impacts are on supply. Global supply chains are disrupted: people have to find new suppliers, who inevitably have worse products at higher prices than before. That’s all supply—reductions in the economy’s productive capacity.

Perhaps the policy uncertainty about the trade war is causing a decline in demand. Why build a factory if any day now another tweet could render it unprofitable?

Still, even if we are facing that kind of demand shock, it’s not obvious the Fed should try to counteract it with stimulus. Yes, the specter of a trade war—or the kind of serious political and trade turmoil that may follow the recent unrest in Hong Kong—is a “confidence” shock. But the uncertainty is genuine. A rise in risk premia in an uncertain environment is genuine. People should hold off building factories that depend on a Chinese supply chain until we know the full extent of the trade war. Why should the Fed try to goose such unwise investments by artificially lowering the short-term rate? Should the Fed become (ever more) psychologist in chief, decreeing that such fears are irrational? Does the Fed really have any better idea how likely or damaging a trade war will be than people whose money is on the line?

Now, it is perfectly natural for interest rates to fall in response to trade concerns. Any adverse supply or productivity shock also lowers the expected real return on investment. As long as the Fed is in the business of guessing the right interest rate, it should follow the downward movement in the natural rate of interest that a trade war or other supply shock produces. But how much does a trade war, or fears of a war, lower the natural rate? This still does not justify the same interest rate response to all sources of output decline—supply or demand—or (in our case) fear of output decline that has not happened yet.

Another possibility is that the Fed is now watching the exchange rate, as most other central banks do. Not much in monetary policy seems to work as conventional wisdom expects, but raising interest rates does raise the relative value of the currency. The trade war has raised the value of the dollar, a trend the US clearly wants to keep in check—but even here, just why is an open question. Sure, exporters like a weak dollar, and importers and US travelers like a strong dollar. Why does a trade-war-induced slowdown change this relative calculus?

Parrying the effects of a trade war is not in the Fed’s mandate, nor—for the most part—is it within its power. The Fed can prop up asset prices and help encourage consumers to buy more stuff. But it can’t fill the void when there is suddenly less stuff to buy. Politicians create trade wars. If the US wants to minimize the economic damage from its current scuffle, it should look to its politicians, not its central bank, for solutions. And central banks might consider not so easily papering over the economic consequences of bad policies invented elsewhere.

Parrying the effects of a trade war is not in the Fed’s mandate or within its power.

John H. Cochrane is a senior fellow at the Hoover Institution at Stanford University and distinguished senior fellow at Chicago Booth. This essay is adapted from a post on his blog, The Grumpy Economist.
Startups, forget about the technology

New ventures should focus all their efforts on problem-solving

Soon after Brian Chesky graduated in 2007 with a degree in industrial design, he moved from Rhode Island to San Francisco. He was shocked by the cost of living, at one point owing $1,200 for his share of the rent for an apartment, but with only $1,000 in his bank account. Chesky saw an ad for an international design conference being held in the city, which mentioned that all the nearby hotels were completely booked up. He immediately saw an opportunity: designers needed a place to stay, and he needed rent money. So he set up a website and advertised that his roommates had space to accommodate three visitors, if they would sleep on inflatable air beds. What would later become Airbnb was born.

The following year, Chesky was reading an article about the Democratic National Convention, which was due to be held in Denver. How, the article wondered, would Denver, which had some 28,000 hotel rooms at the time, accommodate about 80,000 convention goers? The entrepreneur immediately recognized that this could be a big break for his fledgling startup. “Obama supporters [could] host other Obama supporters from all over the world,” Chesky recalled three years later. “All we did was become part of the story.”

Airbnb is far from alone in being among the Silicon Valley startups that we think of as technology companies but which began with very little technology, and, instead, had a strong focus on what I would call getting orders. The correct way to think about these startups is not as tech companies but, more accurately, as problem-solving companies. Where they have used technology, it has been done to aid the solution to those problems, not the other way around.

Uber is another such example. Like Airbnb, it grew out of a problem that one of its cofounders had experienced directly. Not long before Uber’s founding, Garrett Camp and a few friends decided to hire a private driver for New Year’s Eve. The bill had come to $800, which struck Camp as too high. His solution was that sharing the cost could bring the price down. But Uber realized that the more immediate problem than cost was how difficult it was to hail a taxi cab at certain times. So in the first few years after it launched, in 2010, the company went after sporting events in New York City and San Francisco, where it was really hard to get a cab. At that time, all the cars it
used were black luxury automobiles, and the price of a ride was more than a taxi. It had an app, but on the other end of the app, things were very low tech. Like a taxi company, it had real people coordinating with the drivers about how to pick up all its orders.

The danger of starting with technology, rather than a problem, is that startups can quickly overbuild, spending too much time and resources on perfecting the technology itself rather than focusing on problem-solving. By retaining a problem-solving lens, successful startups are able to adapt and troubleshoot as they go along, rather than continue to tinker with their technology or try to build further scale.

**Problem-solving startups find it easier to learn, and to adapt their offerings to the market.**

Early on, Airbnb noticed it had a smaller market than it had expected in New York City compared with other locations. The company realized that one problem was that the photos that went with the postings did not make the accommodations look welcoming. Again, the solution wasn’t based on technology. Airbnb simply hired photographers to take great pictures of these New York apartments. This in turn helped grow that and other markets, as people could see that better photos meant a better chance of getting bookings, and at better rates.

Another early challenge for Airbnb was its lack of inventory. It didn’t have a lot of listings in some of the markets where it was operating. The solution it came
up with was to limit how many options a search turned up. The website would offer just three places in order to get a visitor interested. Meanwhile, behind the scenes, employees were calling around trying to find more places to stay in that city to give visitors more options. Again, a tech company was employing a low-tech solution by keeping its attention on problem-solving.

Startups that aren’t focused on problem-solving often find they aren’t generating as much revenue as they would like. In many cases, they respond by trying to sell the same thing, but harder. They hire a seasoned head of sales from a big company, assuming, “If that person was successful with them, they’re bound to bring us success too.” In such situations, that person typically leaves within a year, because the product still hasn’t yet found customers prepared to pay to have a problem solved.

Problem-solving startups find it easier to learn, and to adapt their offerings to the market. In the early days of a venture, entrepreneurs are trying to figure out what their product is really all about. Every early sales call has two parts: first, you’re trying to get the order; and second, you’re trying to learn what you need to do in the future to get the order. This is an important distinction. In many cases, startups don’t actually know why their customers bought from them. Some assume they know why, but don’t ask. Others really are not interested in the reasons. This is a mistake. Asking good questions, listening, and learning are critical to long-term success.

A lot of entrepreneurs think about their startups on the revenue side, the same way they think about product development. If you think about developing software, it’s a linear process. You can figure out your requirements: you’ll develop a minimum viable product, tweak it, come out of beta testing, make your changes, and then go to general release. We can put a time frame on all of this. Unless we’re breaking brand-new ground, such as making a carbon-fiber aircraft for the first time, most software development has two main inputs, time and money, so it can typically be well defined in a linear fashion. This is why entrepreneurs try to make their revenue models linear too. If an entrepreneur knows her product will be released six months from now, she knows it’ll be in beta in four months. She calculates that two months in, she will need to have a head of marketing so the company can start to define the leads and get the process going. A month later, she needs a head of sales, to bring on sales reps and train them, so that within the first 30 days of the product’s general release, her marketing team is generating leads, and she’s got 40 salespeople selling, and we all hit our numbers, and we’re a big success.

But in reality, generating revenue for a startup follows a process that resembles the Customer Development cycle, a model developed by Stanford’s Steve Blank. Blank identified that customer development is an iterative rather than a linear process. Very few businesses finish where they started, which means at some point, they were wrong about something. In order to get a good fit, the best startups end up in an iterative process involving what they are offering and to whom they are offering it. That means their first customers may not be the customers they really want. They might have to tweak their targets to get the right target and alter their value proposition a little bit, all to get a good fit. This needn’t be what we typically think of as a pivot, a big moment for a startup.

Technology is a tool, not a vessel. It is only useful to the extent that it can get you to where you want to go.
where we started out selling meals and ended up selling bikes. Instead, what make our product offering stronger are lots of small tweaks that shape the offering and the way we sell it.

None of this should be understood to mean that if you have an idea, develop some great technology, and ultimately fail, the idea is necessarily a bad one. Take Webvan, the online grocery business founded in 1996 by Louis Borders, the cofounder of Borders Group. Webvan raised hundreds of millions of dollars from investors such as Sequoia Capital and SoftBank, and through an initial public offering. It spent $1 billion building unbelievably efficient robotic distribution centers all around the United States, plus a fleet of delivery trucks, so it could deliver within 24 hours at low cost. But the business needed a ton of volume to stay alive, and ultimately, the market wasn’t ready to buy groceries online, because not enough shoppers had broadband internet at home, and because they weren’t comfortable transacting online or buying groceries on the web. So Webvan went bankrupt in 2001, not because the idea was terrible (companies such as Instacart are proving that it wasn’t), but because the market just wasn’t ready. They had put their faith in technology, scale, and disruption, and had failed to focus enough on problem-solving.

Technology is a tool, not a vessel. It is only useful to the extent that it can get you to where you want to go. That destination must be meeting a need that customers will pay for. Better to start your venture with finding and serving that need.—CBR

Michael D. Alter is clinical professor of entrepreneurship at Chicago Booth.
In 2018, a consortium of 46 VC firms began participating in Chicago Blend, a joint initiative designed to foster diversity and inclusion in the Chicago entrepreneurial ecosystem. Its first project entailed collecting data to establish the demographics of both the VC firms and their portfolio companies. What they found about Chicago-based startups is somewhat unsurprising: while there is better than average gender diversity in their management teams, both the executives and investors skew whiter than in the US startup scene overall, which is whiter and more male than the US population. But with this baseline data, Chicago Blend and its 46 VC supporters hope to identify and support initiatives to change this mix—both in the portfolio companies and the VC firms. Diversity initiatives have sprung up all over the startup landscape to identify, encourage, support, and fund female, LGBTQ, and underrepresented minority founders—initiatives including BLCKVC, All Raise, Backstage Capital, SheSays, Backing Minds, and Yes VC, to name a few.

Diverse leaders and employees are a key to success.

Among founders, 81 percent said a diverse employee base enhances creativity and innovation.
72% Among founders, 72 percent said building a diverse employee base is either very important or extremely important.

72% Employees from companies with both inherent and acquired diversity reported that their colleagues are 90 percent more likely to take risks.

90% 

72% Employees from companies with inherent and acquired diversity reported that their colleagues are 72 percent more likely to challenge the status quo.

73% Companies with above-average management diversity generated 73 percent more of their revenue from new products and services.
Why try to increase diversity?
For decades, studies by consulting companies, nonprofit organizations, and academics have demonstrated a correlation between companies that have greater gender and racial diversity in management and on boards and improved business performance. However, correlation is not causality, and these studies have been criticized for failing to account for the myriad variables that affect company performance but are completely separate from diversity.

More recent research has begun to focus on the impact of diversity on innovation. In 2013, the Center for Talent Innovation, a nonprofit think tank, surveyed 800 employees at more than 40 companies to capture data about the kind of diversity found there and to analyze metrics including risk-taking, innovation, and market growth. The study defines two types of diversity: inherent and acquired. Inherent diversity includes traits such as gender, race, age, disability, sexual orientation, and religious and socioeconomic background, while acquired diversity means having some combination of a global mind-set, military experience, language skills, gender smarts, social media savvy, and cross-functional knowledge. The researchers find inherent diversity is instrumental in helping a company discover and meet the needs of a diverse customer base, while leadership teams with acquired diversity are significantly more likely than teams with nondiverse leaders to act on innovative ideas from diverse employees. In fact, the data suggest that homogeneity actually stifles innovation.

Employees from companies with both dimensions of diversity say that their colleagues are 90 percent more likely to take risks and 72 percent more likely to challenge the status quo. They are also 45 percent more likely to report that their company improved its market share in the

Where’s the diversity?
A demographic study finds that while there is better than average gender diversity among management teams at Chicago startups, the city’s entrepreneurial ecosystem skews whiter than the nationwide startup scene overall.

Gender, race, and Hispanic origin among US startup management teams and venture capitalists

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<th>US investment professionals</th>
<th>Chicago investment professionals</th>
<th>US startup management teams</th>
<th>Chicago startup management teams</th>
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Deutsch, 2019
The challenge facing the startup and VC world is to do more than simply say diversity is important. Fundamentally, it’s about implementing real changes.

No lack of talent or interest in entrepreneurship

When it comes to innovation entrepreneurship—defined as trying to bring new products and services to market, generate millions of dollars of revenue, and create dozens to thousands of jobs—founders need skilled people on management and technical teams, and most likely the candidates for these jobs have a higher-than-average level of education. In the United States, women receive half of all science and engineering bachelor’s degrees, 46 percent of science and engineering master’s degrees, and 42 percent of MBAs—while nonwhite people receive roughly 40 percent of all these degrees. And, while 15 percent of MBAs not classified as underrepresented minorities (mainly white and Asian) say they may start a business after graduation, 21 percent of Hispanic students and 30 percent of African American students say they are considering entrepreneurship.

It’s about commitment and investment

The challenge facing the startup and VC world is to do more than simply say diversity is important. Fundamentally, it’s about implementing real changes to marketing, hiring, training, compensation, and retention policies so that companies actively and intentionally reach out to and engage this educated, entrepreneurially minded, and diverse population.

The Techstars study identified some best practices that have been implemented more frequently in companies with greater diversity on their technical teams. These so-called diversity leader companies, compared to companies with less diversity on their tech teams, were more likely to have standardized the interview process, to advertise and recruit in media that target diverse audiences, and to offer both professional development and parental leave.

“I am asked all the time, ‘How can we get more diversity in our employee base?’” Chicago talent guru Grant Zallis, founder of IAR Consulting, an executive-search firm focused on helping growth-stage companies build great teams, told me in a conversation. He gave me his reply:

I tell them three things. First, you need to know why you are trying to [increase diversity]. It has to be rooted in the company mission. Hiring for diversity is hard—it takes longer—and when the going gets tough, you have to have a good reason to keep going or you will give up. Second, define diversity for yourself. Is a white gay male a diversity candidate? Someone over age 55? What about someone who grew up in a severely economically challenged environment? There are a lot of ways to be diverse. If you can’t articulate “why” and “what,” you have no hope of being successful in the goal of building a diverse team.

Last is to be very public about diversity being part of your mission and actually demonstrate your commitment in your messaging and recruiting activities. Venture capitalist, overhaul your website if it is all a bunch of white dudes in suits. Founder, have you made it really clear on your website and in your marketing materials that diversity is important?

Once your messaging is clear, it is about building a pipeline. Recruiting is just like a sales funnel. In sales, you start with a large set of opportunities to get to a couple of closed deals. It’s the same with recruiting for underrepresented classes. Your effort to hire for diversity starts when you build the top of the recruiting funnel—ideally you want a pool that is 70 percent diverse. That means spending time and energy actually identifying those candidates and reaching out to them instead of waiting for them to apply. Look into professional networks that are specifically focused on the candidates that you are targeting. Developing meaningful relationships with these groups takes time and effort. It can’t just be one-off requests that are transactional—you have to invest!
In my conversations with Chicago venture capitalists and founders, it seems some of them are putting their money where their mouths are. Their comments to me illustrate how they are thoughtfully defining what they mean by diversity:

**Diversity to us is diversity of perspective. There are some obvious types of diversity that are visible to anyone, race and gender being the most obvious. But there are lots of other forms of diversity too—religion, education, sexual orientation, economic, geographic, etc.**

—Troy Henikoff, Managing Partner at MATH Venture Partners

I believe having as much variance of ideas, looks, beliefs, orientation, and backgrounds as possible in the room fosters best outcomes. Best outcomes come from seeing all perspectives, having all the right information, to make correct decisions that truly represent the community. It’s like an asymptote, where we never see the best decision made unless we continue to increase diversity.

—Kyle Swinsky, CEO/Cofounder of AMOpportunities

Their comments also illustrate how they are taking concrete actions:

**Gender diversity is not something I have ever put energy into at our company, I think [because we have] a female CEO, more women gravitate to our applicant pool, and as a result, our company is roughly two-thirds women today... The only measure I have specifically taken to add more diversity in the more traditional buckets is to engage a recruiting firm that specializes in black candidates when we have open roles.**

—Jennifer Fried, CEO/Cofounder of ExplOrer

We have language in our term sheets that strongly encourages HR policies that are inclusive, something I think is not common.

—Jason Heltzer, Managing Partner at Origin Ventures

We recently had the privilege of showing our support of ChickTech, a women-in-tech nonprofit that empowers women to stay in tech and encourages girls to join, as a sponsor of the career fair at its conference in Chicago.

—Brian Clark, CEO/Cofounder of Ascent

For our portfolio companies, we are currently focused on gender diversity on our boards. This is not for a lack of other diversity problems to solve, but it is a focused start. We are focusing on the board level because it’s where we have the most direct influence and we also believe that it trickles down more accountability to diverse hiring. It’s much harder for a CEO to explain why the past six senior hires they made are all white men when the board they are explaining to is NOT all white men.

—Guy Turner, Managing Director at Hyde Park Ventures

And they are putting diversity at the core of their cultures:

**Hiring is just one piece. We align our culture and operations to attract the diversity we seek. We ensure our hiring includes variance of channels at all career levels. Different locations and different messaging increase the pool and the uniqueness of candidates. And getting more diversity in management is always a priority, so we develop all people within the company, giving equal opportunity to advance.**

—Kyle Swinsky, CEO/Cofounder of AMOpportunities

In one display of such core commitment, coupled with a large expected return on investment, several local VC firms actually invested in the Mom Project, a startup specifically focused on helping women remain in the workforce by matching them with employers committed to supporting working parents.

Chicago Blend’s ongoing data collection efforts will reveal if, over time, Chicago’s venture and startup communities will be able to diversify, and what impact that will have on innovation coming from the US midwest.

Waverly Deutsch is clinical professor at Chicago Booth and the Polsky Director of the UChicago Global Entrepreneurs Network.

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**Racial diversity in the higher-ed pipeline**

The share of nonwhite students pursuing science, engineering, or MBA degrees suggests there’s no lack of diverse talent or interest in the startup scene.

**Higher education among US population**

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**Bachelor's degrees in science and engineering**

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**MBA students**

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Numbers do not add up to 100% because of rounding. Deutsch, 2019

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**Waverly Deutsch is clinical professor at Chicago Booth and the Polsky Director of the UChicago Global Entrepreneurs Network.**
The questions that will shape the future of capitalism

Advocates of free markets must engage in the public debate about them

W hat is the promise of capitalism? That may seem like a strange question, and when I ask it of my MBAs, I suspect they regard it as an exercise in the pedagogical pastime Guess What Teacher Is Thinking. Still I ask it, for I hope it prompts my students to think about the kinds of problems capitalism is equipped to solve as well as those that are beyond its compass.

This is hardly a matter of idle speculation, especially for those who have good reason to believe that they will someday enjoy a disproportionate amount of the system’s spoils. Those fortunate individuals sometimes need to be reminded that free markets, however mighty, will not mend their marriage, relieve their cold, or stop their brother-in-law from bragging about his golf game. Indeed, there are plenty of things capitalism can’t do, and reflecting on them is a good way of distinguishing what it can do—and what it should.

Naturally, what capitalism can and should do are not one and the same. The first is a technical matter best left to economists; the second is more of an ideological affair, the province of moral and political philosophy. The distinction is an important one, but it tends to fade whenever one believes that free markets will solve most any problem: moral, social, and political as well as economic. If capitalism can do anything, so the thinking goes, then it should do everything.

Now, with the kind of intellectual prodding the question above intends, almost no one honestly believes that capitalism can, or should, do everything. Yet up until recently, it passed for conventional wisdom, in the United States and throughout most of the developed world, that capitalism could do most things, that the obvious solution to nearly any pressing problem of social organization was freer trade, fewer regulations, and far less government intervention.

With the benefit of hindsight, it is now plain that this was a central lesson many people took from the end of the Cold War and the fall of communism in the early 1990s. Rather than simply disqualify one extreme formulation, the failure of the Soviet system cast doubt on the very idea of a mixed economy, particularly in the US. The challenge was not to figure out the right balance of power between the invisible hand of the marketplace and the visible hand of government, but to enfeebles, if not eliminate altogether, the latter, not only to liberate capitalism but to deprive civil servants of what was assumed to be an ineluctable impulse and sinister raison d’être: central planning.

So commenced an unprecedented era of liberalization and global capitalist expansion. Sure, there were holdouts, but they were either deemed irrelevant and hopelessly backward (Cuba, North Korea) or, in the case of China, obstinate in the face of what they knew to be the inevitable.

That sense of “the inevitable” was never more than an ideological conviction that the power of free markets, supported by restrained exercises in liberal democracy, would prove so compelling that no problem might arise—either beyond capitalism or as a consequence of its development—that would seriously threaten the system’s preeminence. Such a possibility famously compelled the political scientist Francis Fukuyama to proclaim “the end of
Like any muscle that has not been flexed, the capacity to assess the necessities of civic life atrophies, and one becomes a citizen in name only.

Smith said in *The Wealth of Nations* of what he famously called “the obvious and simple system of natural liberty”:

> Every man, as long as he does not violate the laws of justice, is left perfectly free to pursue his own interest his own way, and to bring both his industry and capital into competition with those of any other man, or order of men. The sovereign is completely discharged from a duty, in the attempting to perform which he must always be exposed to innumerable delusions, and for the proper performance of which no human wisdom of knowledge could ever be sufficient; the duty of superintending the industry of private people, and of directing it towards the employments most suitable to the interest of society.

It is important to note that, for Smith, the superpower of this system is merely the ability to efficiently price and, thereby, allocate goods and labor. There were plenty of other concerns beyond its ken that the sovereign or some other political authority would need to address, such as the funding of public education, the amelioration of oppression, and the maintenance of public institutions—all responsibilities Smith details.

Still, even beyond its practical application, the reallocation of such an essential part of community life (economic affairs) from the deliberate orchestration of central authorities to the inadvertent ministry of every marketplace participant has had two lasting consequences, one technical, the other broadly psychological. As a technical matter, that markets proved so powerful in economic affairs suggested that their efficacy might extend to other realms that didn’t seem essentially commercial in nature, further relieving government officials of the trouble of attending to them. Psychologically speaking, the more that managing a community didn’t require self-conscious endeavors but, instead, the pursuit of blinkered self-interest, the more the ability to intelligently engage in debates about civic life deteriorated. Indeed, if, as the ironic logic of the invisible hand holds with respect to self-interested pursuits, the common good goes on

...
behind our backs, coming about not because of our express intentions but despite them, there was simply no need to spend much time thinking about the obligations of citizenship. On the contrary, they would be best discharged by diligently attending to the needs of bank account and belly.

By a means slightly different from Fukuyama’s vision, such assumptions about how exactly a nation functions put individuals beyond ideology. Indeed, the questions that have kept philosophers and politicians alike debating late into the night for ages have all been neatly resolved by an invisible hand. Liberté, égalité, fraternité may stand aside in favor of “economic calculation, the endless solving of technical problems, environmental concerns, and the satisfaction of sophisticated consumer demands.”

And yet, if the promise of capitalism proves more limited, the debilitating consequences of a postideological disposition for one’s critical faculties comes into full view. Like any muscle that has not been flexed, the capacity to assess the necessities of civic life atrophies, and one becomes a citizen in name only. She cannot debate the meaning of that role with any subtlety or historical perspective.

Such limitations are especially perilous for business professionals. Not only are such individuals far more susceptible to a blind faith in the invisible hand, but so much of the angst of the present moment revolves around doubts about capitalism and the questions they raise:

• Are all levels of inequality consistent with a healthy, well-functioning democracy?
• Do we need to limit the power of money to reshape public and private institutions?
• Should the government play an aggressive role in retraining workers displaced by liberalized trade policies and increased automation?
• Should it insulate them from the adverse consequences of such changes or, for that matter, affirmatively redistribute the benefits?
• Can we square a belief in meritocracy with the legacy effects of inherited wealth?
• Should our notion of public utilities be updated to encompass modern services we depend on, such as those provided by Google or Amazon?
• Should the government encourage new forms of collective bargaining and ownership and pursue policies that put property into the hands of the propertyless?
• Should capitalism be regarded as the servant of a community and therefore be tamed by it when it fails to live up to prevailing standards of liberty, equality, justice, tolerance, and decency?

These are just some of the questions business professionals will face in the years to come, to say nothing of those noncommercial questions of custom and culture that Fukuyama mistakenly concluded had been resolved for the developed world once and for all.

Great wealth will not be its own justification. It will need to be vindicated by the power it confers.

Taken together, such matters should be of special concern to members of the business elite for three reasons. First, and most straightforwardly, public-policy decisions that affect how exactly our economic system works will directly shape the scope, practice, and viability of all business endeavors. Secondly, simply by virtue of their chosen vocation, business professionals, and especially graduates of superior MBA programs, are the face of capitalism, and they will not only be looked to for well-developed opinions on these issues; their actions and behavior will serve to advise others on the faith warranted in capitalism.

Finally, and perhaps most importantly, unless the pendulum of practicable economics swings in the direction of a different system entirely, considerable disparities of wealth, an essential condition of capitalist advancement, will remain, and those who will continue to occupy the favorable end of this bell curve will be business professionals. They will be rich in a time when the instrumental role of riches will be suspect and the respectability of great wealth doubtful. They will not be able to justify to others, and perhaps even to juries of conscience, that material success is a moral justification unto itself, that simply by doing the best for themselves, they have already done the best they might do for others. Unlike for those who preceded them, this ideological assumption, so tempting and convenient, will no longer be available to them. Great wealth will not be its own justification. It will need to be vindicated by the power it confers.

Such an undertaking calls for a reengagement with debates over the responsibilities of citizenship, one that involves visiting anew questions of liberty, justice, equality, wealth, power, and tradition. It also requires a willingness to use power, in both the private and public spheres, less as a club to clear the way for commercial activity than as an implement of some higher aim, undertaken in a spirit of great responsibility and obligation.

Such an approach is hardly foreign to the business community. Indeed, such aspirations were a common language for the commercial elite in the decades after World War II, and they still fill the charters of public companies, professional associations, and major business schools alike. If, today, they seem the stuff of boilerplate, a few scattered phrases that are little more than an empty nod to etiquette, that’s more a reflection of our own civic disengagement than the dead letter of misbegotten ambition. —CBR

John Paul Rollert is adjunct assistant professor of behavioral science at Chicago Booth.
The challenges of cleaning a bathroom are varied, unexpected, and fascinating. Before you skip to the next essay, give me a chance to explain.

A few years ago, I was doing some research for a large manufacturer of household cleaning supplies, in order to create innovations in bathroom cleaning. First, we convened several focus groups and interviewed participants about bathroom cleaning. The more we listened, the more problems and frustrations we heard. Many people didn’t like the overpowering smell of the products used to clean washrooms. Many felt concerned about harsh chemicals, and that cleaning itself was difficult and time consuming. There were many other problems, not all of them appropriate for these pages. Suffice it to say that the focus groups generated a lot of issues.

After the focus groups wrapped up, we decided to do some field research and observed people cleaning their home bathrooms. We wanted to see and talk to people in that context. As expected, we saw some things that people had complained about in focus groups: the products were harsh, burned people’s hands, and were sometimes toxic in the air, plus the cleaning process could be long and challenging.

But we also started to notice some unusual things that hadn’t come out in the group interviews, one of which was what you might call a home remedy or workaround. We saw people, on their own initiative, applying automobile wax to their bathtubs and shower tile. The label on the auto-wax product did not mention its applicability to bathroom cleaning, but when we asked people why they were using the wax, they mentioned several benefits. The wax made the tiles shine, as well as easier to wipe clean or rinse off.

The exercise was a healthy reminder of the power of design thinking, a term that is used and understood in different ways but that starts with people. They are the humans in human-centered design, the users in user-centered design, and the consumers in consumer-oriented design. Design thinking requires an in-depth understanding of people’s needs, wants, problems, frustrations, and lives. And this necessitates some fieldwork to understand the challenges people face. In the case of the bathroom-cleaner research, if we hadn’t gone into homes, observed people cleaning their bathrooms, and talked to them about the process, we might never have discovered their use of auto wax, or uncovered the unmet needs behind this behavior.

The three pillars of design thinking
Although innovation begins with listening to customers, all too often, companies try to innovate backward: they first develop some new technology, and then try to turn it into a successful product. They start with a solution, and hope it might address a customer need. Ultimately, this process only succeeds if enough people will buy the product, and this “if you build it, they will come” approach is one reason so much technology goes uncommercialized.

Design thinking, as a way of innovating, rests on three pillars: desirability—focusing on the needs of people; feasibility—the possibilities of technology; and viability—the financial requirements for business success. It is a way of coming up with products and services that people actually want, are feasible from a technological standpoint, and are viable from a business perspective. The innovations at the intersection of these three pillars have the highest potential.
Because design thinking starts with people and focuses on creative problem-solving, it can be applied to a wide range of industries, products, and services. It has been successfully used by for-profit and not-for-profit institutions, by business-to-consumer and business-to-business companies, and for physical products as well as services.

The process is critical, and a core tenet is bringing together cross-functional expertise from start to finish. This approach was pioneered by IDEO, the firm that designed the first usable mouse, for Apple’s Lisa computer, in 1980. At that time, innovation was typically siloed. Someone in the research-and-development or the engineering department would come up with an idea and hand it off to someone in the design department, who would in turn hand it on to someone to build it, and then to somebody else to market and sell it. IDEO used an entirely different approach, however, bringing all these capabilities together at the same time. In doing this, it helped popularize the notion of cross-functional teams in which people across multiple disciplines, with distinct expertise, work together throughout the life cycle of a project. Design thinking depended on building teams that comprised researchers (including people with anthropology backgrounds), as well as people in strategy, R&D, marketing, manufacturing, industrial design, finance, and so on. While this approach is now more common, it is remarkable how many organizations still deploy the traditional siloed model.

A design-thinking approach proceeds along the following lines:

**Step #1: Empathy**

Once you’ve assembled a cross-functional team, the first step is really one of empathy. Just as it was in the bathroom-cleaning research, the goal is to learn about the people for whom you’re designing, to gain a deep understanding of their lives, needs, problems, and frustrations.

This stage begins by uncovering a lot of qualitative customer data, with the aim of defining meaningful problems to solve. Come up with core themes or insights, and then develop those insights into problem statements that can be used to spark ideas. Look for customer needs that are currently unmet or only partially met by existing products. Once you define customer problems, developing solutions can be much more targeted.

To identify those problems, it helps to have good questions, which typically start broad. When interviewing people about bathroom cleaners, we didn’t start by asking about cleaning products. Instead, we asked people about their lives and overall cleaning routines, and to show us what they actually did. The questions were less product specific and more journey or process specific. For example, we’d say, “Tell us about the last time you did this. What was the process you went through? What worked best? What was worst?” We eventually drilled down to “Why did you do that?” and “Show us the products you use, and how you clean your bathroom.”

People wanted a protective barrier on their shower tiles. Because the market for bathroom-cleaning supplies didn’t fill that need, they instead turned to a work-around.

This sort of in-context research process is standard practice for many innovative organizations today. For example, in his 2017 book *Hit Refresh*, Microsoft CEO Satya Nadella observes, “The business we’re in at Microsoft is to meet the unmet, unarticulated needs of customers. That’s what innovation is all about. There’s no way you’re going to do that without having empathy and curiosity.”

It’s important to consider which end users will give you the most useful responses: people who are at the extremes are often more articulate about their needs. Say you are trying to create a new pet-care product. The best subjects might be people who own multiple pets, or people who run pet-walking or pet-sitting businesses. Tapping into groups such as these, that experience the problems in the extreme, is more likely to uncover unique insights and inspire novel innovations that could be relevant for the broader market. It’s not that you design solely for people with extreme needs; rather, people in the mainstream may not have developed the same language to express their needs. In the cleaning-products example, extreme users included people with very large families, those with allergies to harsh chemicals, people who clean very frequently or very infrequently, and people with brand-new versus very old bathrooms.

**Step #2: Ideation**

If the first phase of design thinking is about building empathy to inspire innovation, the second is about creating new ideas. Because you’ve been immersed in the end consumers and their needs, you’re able to come up with more-effective solutions, and to do so efficiently.

Take my bathroom-cleaner example. There was a clear need that wasn’t being met: people wanted a protective barrier on their shower tiles to reduce the cleaning effort. Because the market for bathroom-cleaning supplies didn’t fill that need, they instead turned to a work-around by using a product designed for cars. Through interviews, we realized people were willing to take an extra step up front to avoid a future pain, to invest more time initially in applying a car wax to avoid a greater amount of time, energy, and effort later. They wanted to make future cleaning easier, therefore they wanted something that would prevent soap scum, mold, and mildew from sticking to the tile. When you clearly identify the problem, you know what you need to solve.
Ultimately, the evaluation process should essentially lead us back into the bathroom, to ask the customers which of the solutions we’ve come up with best meets their needs.

In terms of effective ideation, more than 50 years of research on the subject has demonstrated that traditional, in-person group brainstorming suffers from significant flaws. Research by Radford University’s Gary R. Schirr on ideation suggests that in-person group brainstorming tends to hinder both the quality and quantity of ideas. In a group setting, not everybody is fully engaged. Only one person can share his or her ideas at a time, which at least temporarily blocks everyone else from sharing their ideas. A third problem is conformity: when we hear others’ ideas, we’re influenced by them, tend to conform to them, and generate more ideas like them.

A different approach, modeled on research by Columbia’s Olivier Toubia, is to start generating ideas first as individuals, before using the power of the group. Individual and group brainstorming can then come together using a simple online discussion-board format, where individuals anonymously post their own ideas, and then other group members build upon those ideas. This can help keep separate the process of generating ideas from that of evaluating them, which is an important distinction. One advantage of using an online method is that people can contribute in their own time, rather than having to be together in the same room at the same time. Another is that their comments can be kept anonymous, eliminating any bias toward ideas that come from senior executives.

Toubia’s research suggests this approach is more effective than traditional in-person group brainstorming and generates a higher quantity and quality of ideas.

Step #3: Prototyping and testing

Ultimately, the evaluation process should essentially lead us back into the bathroom, to ask the customers which of the solutions we’ve come up with best meets their needs. The final step of design thinking is to continue to deepen our understanding of the need, and to test and refine initial solutions. It’s important to assume up front that you don’t have the ideal solution, so it will be necessary to test and iterate, retest and reiterate, and learn along the way.

The team creates prototypes of the most promising ideas, and then tests these with users to get their feedback and to refine the prototypes. A prototype is part of a feedback loop that helps us understand the problem more in-depth, to ensure our solutions are appropriate.

The simplest prototype is a new product description and visual, what some people call paper prototypes, that you can take to customers for feedback. What do they like and dislike about the product? How might they improve it? How likely would they be to buy it? After this stage, you can move to testing physical prototypes that may or may not be functional. You’re looking for quick feedback to refine the idea and test it again, without investing a lot of time and money. This stage is ultimately about failing and adapting. Expect to fail along the way—fail fast, fail cheaply, learn, and figure out the next best thing to do.

The most promising prototypes will move forward into development, and eventually one will launch as a product or service that meets the three tests of design thinking: it is desired by customers, technically feasible, and viable from a business standpoint.

This may all sound very linear, as if the process simply moves from one stage to the next. But design thinking is messier than that. It’s a process of repeated divergence and convergence: the empathy phase uncovers diverse needs, and teams diverge on what’s important until they converge on a few key themes. They diverge again at the ideation stage, coming up with a variety of ways to solve the problem that’s been identified, until they converge on a small set of high-potential solutions. Also, design thinking is flexible and agile, so teams move back and forth rather than only in one direction. You might test a few prototypes and learn that some just don’t work, which would prompt you to go back and ideate more. You’d then develop more prototypes, test those, and perhaps repeat the cycle. The result is an iterative approach to innovation.

Design thinking eventually led to recommending a new bathroom-cleaning product: a daily shower cleaner. This now-well-known product comes in a spray bottle and quickly creates the barrier consumers sought for keeping mold, mildew, and soap scum from sticking to shower tile.

The success of the daily shower cleaner is one example of the power of design thinking. Meet customers in the environment in which they use the product, ask good questions, listen and observe closely, and iterate solutions to solve important, unmet customer needs. The organizations that do this will innovate more systematically, and have higher success rates. —CBR

Arthur Middlebrooks is clinical professor of marketing at Chicago Booth and executive director of Booth’s Kilts Center for Marketing. This essay is adapted from a presentation delivered at the Kilts Center’s Marketing Summit 2019.
Four skills you need to scale a business

How great startups become lasting companies

What makes *Shark Tank*, the business-pitch TV show, so compelling? The drama of watching people advocate for their fledgling companies to potential investors can, of course, be quite entertaining. But many founders can also learn something from watching these mini pitch meetings. The questions the sharks most frequently ask center on the entrepreneurs’ plans to scale their startups:

- How low can you get your unit costs?
- How will you expand your customer base and what will it cost you to acquire new customers?
- How much capital are you looking to raise and what do you intend to do with the capital?

The responses help the sharks assess the advantages (if any) that accrue with size; the likelihood that the entrepreneurs have the skills, connections, and mental toughness to survive the hazardous journey of scaling up; and the risks and potential rewards of an investment in the company.

For every startup that scales up, thousands fail to do so. Some 65 percent of VC deals returned less than the capital invested between 2004 and 2013, according to a 2014 study by Correlation Ventures. In fact, the best-performing VC funds had more strikeouts than poorly performing funds did. For funds that generated returns greater than 500 percent, fewer than 20 percent of deals generated roughly 90 percent of the funds’ returns. The headline news was captured by the four out of every 1,000 deals that generated a 10,000 percent return or more. As Bill Gurley, one of Silicon Valley’s most successful venture capitalists, has noted, “venture capital is not even a home-run business; it’s a grand-slam business.”

This is why investors carefully evaluate every deal on its own terms, examining in particular the company’s potential to go big. Of special interest are a company’s projected sales revenues and customer acquisition costs, its projected unit costs as it scales up, and the projected capital burn rate. The faster the company can acquire customers and the lower the costs to acquire them, the faster the company can get to profitable growth. The lower the company can get its unit costs, the greater the potential to reduce prices and increase volumes as well as profits. And the smaller the capital burn rate, the longer the company can survive to go on to test its hypothesis.

The economics of scaling

*Economies of scale*, a concept discussed in every microeconomics textbook, refers to the capacity of a company to produce ever more units of a product at lower average (or unit) cost. The textbook depiction of economies of scale is a declining average cost curve, as production efficiencies enable the company to spread its fixed costs.

Entrepreneurs and investors want to know two things, neither of which can be determined with precision at the outset. The first is whether the average cost curve for a specific product or service will decline steeply or be relatively flat. The second is the magnitude of the minimum efficient scale, the smallest production volume at which the company achieves scale.
is producing a product or service at the quality that consumers expect and are prepared to pay for, and efficient in the sense that the unit cost of production falls significantly at higher volumes.

This repeatable process is rarely obvious at the start. In the early years of the automobile industry, around 1895, more than 80 US companies vied to produce a car, each with its own distinct product designs and processes. At that time, annual industry production rarely exceeded a few thousand units, as these startups struggled to master product and process. Even as late as 1905, state-of-the-art manufacturing required car bodies to be delivered by horse-drawn carriages while workers rotated from one station to another doing their assembly tasks.

In 1913, Ford Motors introduced the first moving assembly line, supported by a winch and a rope stretched across the floor. The process of assembling more than 3,000 parts of the chassis was broken down into 84 sequential steps involving 140 workers. By 1916, the moving assembly line had improved significantly, which meant that the annual production volume of Ford’s Model T had grown substantially, and the price of the car dropped from $850 to $300.

Successful scaling requires companies to acquire expertise in four competencies. Without these, companies are unlikely to cross the chasm from promising startup to serious contender.

**Skill #1: Learning, and learning how to learn**

In 1906, Ford produced 8,729 cars. Ten years later, it produced 734,811 cars, an 84-fold increase. In 1996, Amazon received a few hundred orders for books each day. Today it receives more than 2 billion orders each day for same-day or next-day delivery. In 1987, Starbucks operated six stores in Seattle. It now operates more than 30,000 stores worldwide.

None of this would have been possible without a great deal of learning. Institutionalizing a learning culture is a challenge with five components:

**View learning as a journey:** What is underemphasized in most stories of scaling is the journey of learning. This includes learning the things that work as well as the things that do not, a process that prepares entrepreneurs to distinguish promising opportunities from less-promising ones. Analyzing the lessons of each experience and modifying management practices accordingly can help companies become better, faster learners.

**Let experience be your teacher:** Learning by doing, an educational philosophy championed by philosopher John Dewey, posits that learning is most substantive and enduring when the learner is forced to interact with the real world. Mark Cuban, an entrepreneur and *Shark Tank* shark, argues that in business, knowledge and skill can only be obtained by practice. This is why the Nike slogan, *Just Do It*, is a simple as well as profound call to action.

**Embrace experimentation:** As Tim Harford, the *Financial Times* columnist, observes, “when a problem reaches a certain level of complexity, formal theory won’t get nearly as far as an incredibly rapid process of trial and error.” Successful scaling requires companies to conduct many experiments, observe processes and outcomes, and iterate.

Chicago Booth’s Harry L. Davis has championed a portfolio approach to innovation: running lots of carefully chosen small-scale experiments. This requires asking (and answering) many questions: How many experiments should we run? When should we abandon an experiment? When should we continue with an experiment? And what criteria should we use to decide? Experimenting with different processes led the engineers at Ford Motors to conclude in 1916 that producing a car effectively and efficiently required 84 steps, and not 78 or 89.

**Be ready to fail:** Learning how to deal with failure is a vital organizational attribute that separates successful scalers from unsuccessful ones. The cost of avoiding small failures is often big failure. Only a handful of the more than 200 companies that entered the automobile industry in the late 19th and early 20th centuries survived beyond 1920. As Reid Hoffman, the entrepreneur, notes, “if you tune it so that you have zero chance of failure, you also have zero chance of success. The key is to look for ways for when you get to your failure checkpoint, you know to stop.”

**Learn faster than your rivals:** Arie de Geus, former head of Shell Oil’s strategic planning group, observes that “the ability to learn faster than your competitors may be the only sustainable advantage.” The bigger the potential prize, the more intense the competitive race is to scale up. The list of innovators that were able to create the first prototype but were upstaged by later entrants in the race to bring the product...
A company’s culture is like the plumbing system: if it isn’t maintained, it will deteriorate.

to the masses is long. Leica introduced the first still camera, but Canon was the first to create a mass market for it. EMI was the first to develop the CT scanner, but GE used its distribution and marketing muscle to commercialize the product first. BlackBerry dominated the smartphone market from its inception until 2011 but was unable to keep up with the software and hardware innovations introduced by the Apple iPhone and Android phones.

Skill #2: Molding the organization
Small companies have informal organizations for a very good reason: they need to pivot when circumstances dictate. Consequently, their organizational structures are flexible, management practices are not codified, employees don many hats, and decision-making authority is concentrated in the hands of a few people.

Scaling up, however, requires an organizational reboot.

Assess the competency gap: Begin with an audit of competencies—identify those the company possesses and those it does not. Scaling up requires explorers, who excel at discovering new things, as well as exploiters, who are good at repeated tasks. This requires specialization. The people hired to be explorers must be entrepreneurially inclined, while those hired to be exploiters must have operational competence. Explorers should focus on innovation and growth, while exploiters focus on cost optimization and profit maximization. While most startups likely have many explorers among their employees, they often lack exploiters.

Formalize organizational structure: Scaling up requires discipline, which, in turn, requires a company to formalize its organizational structure by explicitly assigning authority and responsibility, and delegating decision-making. The value of a formal organizational structure is greater in an ever-more complex world in which the manufacturing of smartphones, automobiles, software, and other products depends on global networks of competencies. Organizational structure enables cooperation, coordination, and accountability as companies grow. Some collaborations are easier to foster than others. What makes for difficult collaborations is that knowledge and skill are often diffused and tacit. In his 2015 book, Why Information Grows, MIT’s César Hidalgo persuasively argues that the ability to combine tacit knowledge is a source of sustainable competitive advantage.

Tighten operational planning: In his 2018 book, Measure What Matters, John Doerr, chairman of Kleiner Perkins, the Silicon Valley VC firm, recalls his early investment in Google and his initial assessment of the company: great product, high energy, big ambitions, and no business plan. Doerr recalls that what Google badly needed was a system to prioritize decisions and a way to track progress on initiatives. So Doerr proceeded to teach Google founders Sergey Brin and Larry Page (and others) the OKR (objectives and key results) model that he had learned at Intel. The OKR model helps companies articulate their objectives and spell out the set of actions that the company must take to achieve those objectives. Doerr argues that the OKR model works because everyone is aware of the company’s priorities as well as every team’s responsibilities, and each team is incentivized to coordinate its actions to solve the company’s most pressing problems.

Reinforce culture: The late Herb Kelleher, the founder and former CEO of Southwest Airlines, considered the company’s culture to be what separated it from other US airlines, telling two Fortune editors:

It’s the intangibles that’s the hardest thing for a competitor to imitate. You can get airplanes. You can get ticket counter space. You can get tugs. You can get baggage conveyors. But the spirit of Southwest is the most difficult thing to emulate. So my biggest concern is that somehow, through maladroitness, through inattention, through misunderstanding, we lose the esprit de corps, the culture, the spirit. If we do ever lose that, we will have lost our most valuable competitive asset.

Many employees fondly recall their early days (and nights) in a startup: the camaraderie, the free-flowing exchange of ideas, the flat structure. But culture is threatened when the startup takes on new employees, introduces hierarchies, and restructures. Reiterating a company’s mission and values is one step toward invigorating the culture. More important is sharing stories, celebrating personal and professional accomplishments, fostering opportunities for collaboration, and having honest and direct conversations on difficult issues. A company’s culture is like the plumbing system: if it isn’t maintained, it will deteriorate.
Skill #3: Creating a market

Most startups have had to pivot in small and big ways to find a winning business model. Among the questions that the startup must frequently answer: What business are we (should we be) in? Who are our target customers and what do they want? What is our product? What does the consumer pay for? And how does she pay: a one-time fee or a recurring fee? How are we creating economic value? And how are we capturing it?

The list of startups that have successfully pivoted is short in comparison to those that were unsuccessful. Twitter started as Odeo, a company devoted to podcasting, but pivoted to become a microblogging platform after observing that iTunes was bent on entering the podcasting space. Instagram started as Burbn, an app that combined gaming with photography, but simplified its business to focus on photography alone.

Creating a market requires a scaling company to acquire several related skills:

Iterate to the right product: Changing customer needs, competencies (or lack thereof), and competition force companies to iterate until they find a product offering that has a chance at success. The original owners of Starbucks, Jerry Baldwin, Gordon Bowker, and Zev Siegl, wanted to be in the coffee-roasting business, but Howard Schultz, who acquired Starbucks in 1987, wanted to be in the coffee-bar business. Schultz’s dream was to recreate the experience of an Italian coffee bar in the United States, at scale. After a great deal of iteration, Schultz and his team settled on the characteristics of the Starbucks product: high-quality coffee beans, strong aroma of coffee, fast service, a friendly barista, and a limited food menu. When the Honda Motor Company first entered the US market in 1958, it intended to sell large motorbikes. Visits to dealers and distributors led to the discovery that consumers were not interested in large motorbikes, though they were interested in the smaller motorbikes that members of the sales team were using to reduce the cost of commuting.

Discover customer-product fit: Successful scalers often attribute their successes to getting the “right” customer. The right customer views the problem the company is trying to solve as vital to his or her own performance; the right customer is likely to positively influence the decisions of other customers; and importantly, the right customer enables the company to make a profit. Conversely, a costly mistake is acquiring the “wrong” consumer: someone who is unlikely to be a repeat consumer, whose needs are incompatible with the product offering, or who is unlikely to influence the purchase decisions of other consumers. Reflecting on the pivotal moments during his years as CEO of Fieldglass, an enterprise software company that was acquired by SAP in 2014, Jai Shekhawat told me that an important lesson from early failures was to learn to distinguish the right customers from the wrong customers. “You don’t want to do a beta test with a customer that has no intention of being your customer,” says Jai. “And you don’t want to take on customers who force you far afield from your company’s mission and competencies.”

Discover product-channel fit: One of the more-contested periods in a Shark Tank episode centers on the entrepreneurs’ go-to-market strategy. The sharks often argue with the entrepreneur as well as with each other on the relative merits of alternative channels. Each shark plays up the strength of his/her expertise in channel selling while gently mocking the channel network competencies of the other sharks.

The right channel partners operate quickly; put the company’s products in the hands of the ideal customer; help the product achieve greater name recognition; and, importantly, help the company grow its reputation and bottom line. In contrast, the wrong channel partners damage a company’s prospects: they dilute the brand value by mispositioning the product or, in many cases, they waste valuable time by doing nothing.

Startups in a range of industries from software to manufacturing often rely on bigger competitors to bring the product to market. Small biotechnology companies often enter into partnerships with large pharmaceutical companies to commercialize their products; small retailers use the Amazon marketplace to sell their products; and small software companies often rely on large software and information-technology-services companies to market and distribute their products.

However, reliance on a single channel partner is risky. A former Booth student of mine, Jill James, who now runs growth-advisory company Sif Industries, describes the channel challenge for startups as follows: “I think of early-stage channel strategy as finding your enemies: you’ll work together for now, but if things go well, you’ll directly compete

No matter how interesting or stimulating your business, if the ultimate size of the opportunity isn’t big enough, it may not be a candidate for venture financing.
The skills required to scale up a company are distinct from those needed to launch one successfully, which is why founders often depart when their companies start to grow seriously.

or even put them out of business. You do what you need to do on the way up to build scale until you can have the means to control the channel.”

Skill #4: Raising capital
Going from prototype to scale (or niche segment to mass market) requires capital. Often, the capital required is far greater than can be bootstrapped by the entrepreneur. Many entrepreneurs raise seed (equity) capital from family members, friends, and angel investors and debt capital (loans) from individuals, credit cards, banks, and alternative-lending platforms such as LendingClub.

For the entrepreneur contemplating a venture investment to support the scaling-up journey, it is important to answer a couple questions:

Is my company a fit for venture capital? In his recent book, Secrets of Sand Hill Road, Scott Kupor, the venture capitalist, says that one of the first questions entrepreneurs must answer is whether venture capital is right for them. Just as with product-market fit—where we care about how well your product satisfies a specific need—you need to determine whether your company is appropriate for venture capital. No matter how interesting or stimulating your business, if the ultimate size of the opportunity isn’t big enough to create a stand-alone, self-sustaining business of sufficient scale, it may not be a candidate for venture financing.

Venture capital is a better source of capital than loans for most startups that are scaling up because they are unlikely to generate positive cash flow, have a high probability of failure, and will likely experience prolonged periods of illiquidity. But venture capital comes with strings. Not only will the entrepreneur have to give up a portion of his equity stake, the entrepreneur will have to share decision-making rights with the venture capitalists.

How much capital should we raise? As Scott Kupor says, “the answer is to raise as much money as you can that enables you to safely achieve the key milestones you will need for the next fund-raising.” What the key milestones have in common is that risk is reduced: the startup has developed its products, acquired key customers, and met some financial and operational targets. Hitting these milestones means that the next round of investors will reward you with a higher valuation.

One school of thought says that companies would do well to avoid raising too much capital. Reflecting on the $38 million that he raised for Fieldglass over six years, Shekhawat told me, “In hindsight, we probably raised about $8 million more than we needed, which makes for expensive equity at the relatively modest valuations back then.” David Packard, the founder of Hewlett-Packard, famously observed that “more companies die of indigestion than starvation.” What he was trying to say was that companies without a great deal of capital are forced to make the hard economic choices that serve as the catalyst for innovation.

Another school of thought is that companies should raise as much capital as they can, when they can. Reid Hoffman and author and investor Chris Yeh articulate the logic for this view in their most recent book, Blitzscaling. Raising enormous amounts of capital, in their view, acts as a signal to the financial markets that the company has increased the probability of locking up its market and building a dominant position. The emphasis, they argue, should be on acquiring a strong user base—if necessary, at the expense of profits. The archetype company that has employed this model is Uber, which raised $24.3 billion over the 12 years prior to its 2019 initial public offering. Sidecar, the company that introduced the peer-to-peer taxi-service model in 2012, raised a comparatively puny $35.5 million, was unable to match the scale of Uber’s investments, and was forced to exit.

Rethinking the scalers
The skills required to scale up a company are distinct from those needed to launch one successfully, which is why founders often depart when their companies start to grow seriously. Our culture tends to downgrade the former and revere the latter. Startup founders are the stars of Silicon Valley, while successful scalers are sometimes spoken of as if all they have done is merely manage someone else’s idea. In this startup age, it’s time to correct this imbalance. True business success only comes when an idea can be demonstrated to work on a large and growing scale. –RS

Ram Shivakumar is adjunct professor of economics and strategy at Chicago Booth.
HAS UNCONVENTIONAL MONETARY POLICY RUN ITS COURSE?

Tharman Shanmugaratnam, Senior Minister and Coordinating Minister for Social Policies of Singapore, sat down with Chicago Booth’s Steven J. Davis at the Sixth Asian Monetary Policy Forum, an event organized by Chicago Booth, the National University of Singapore, and the Monetary Authority of Singapore. In a discussion of monetary-, fiscal-, and other public-policy topics, Tharman shared his thoughts on the effects of a prolonged period of very low interest rates and unconventional monetary policies such as quantitative easing, and the international spillovers that may arise.

If you look at growth since the global financial crisis, two-thirds has come from the developing world. That will likely remain so. A central challenge for the international monetary system must be to help facilitate that growth, and avoid the recurrent disruptions to financial stability that set back that growth.”

“...The overreliance on monetary policy has also led to larger spillovers to the rest of the world. That, too, is why the mix of domestic policies matters. What mix of policies in the major economies will enable them to achieve their domestic objectives of inflation, employment, or growth, without the negative spillovers that reduce policy space for other countries?”

More on monetary policy Review.ChicagoBooth.edu has discussion excerpts from past Asian Monetary Policy Forums.

“...What has passed as unconventional monetary policy is really quasi-fiscal policy. It has in the main involved maturity transformation within the consolidated government balance sheet, including the central bank’s balance sheet. Treasuries or finance ministries can do that just as well as central banks—in fact, they can do much more of it than central banks, transparently and straightforwardly. So the question is, who takes responsibility for these fiscal actions? And if the central bank takes on such roles over a long period, what happens to its independence? It is ultimately a matter of political judgment as to which fiscal instruments we should use to deliver a stimulus, bearing in mind especially that they each have distributional consequences. So my instinct is that it’s better for central banks not to stay there for too long.”
There is a broad consensus that the marginal impact of monetary easing on real economic activity is now small and diminishing. But a continuation of extremely easy monetary policy—conventional and unconventional—plus the signals that we give, can lead to continued elevated asset prices and a search for yield, which sets us up for future financial instability.

We see enough examples of how extremely low or negative real interest rates, and ample liquidity in the system, make financial markets less discriminating between weak and strong firms, and allow zombie firms to live on. It hampers the reallocation of capital and other resources to the more efficient, which has historically been the motive force in productivity growth.

We’re at the tail end of the global business cycle, but on unprecedented terrain. There’s very little monetary-policy ammunition left for the next downturn, a consequence of the overreliance on monetary policy to date. It’s far from optimal, has undermined the effectiveness of monetary policy itself, and has led to a buildup of financial vulnerabilities. We can’t blame central banks for trying to fulfill their mandate. But we do have to reflect on the governance arrangements and coordination required to achieve a more effective mix of monetary, fiscal and structural policies across the cycle.

We also have to think hard about how we sustain an active fiscal-policy role going forward, but with a discipline that has not been common in fiscal policy globally—being able to roll out projects quickly, without long lags, when the economic cycle demands, and knowing when to pull back spending in good times, so that government debt does not move up endlessly. It requires a new political economy.
IN WHOSE INTERESTS SHOULD BUSINESS OPERATE?

In August, the Business Roundtable, which represents the CEOs of some of America’s largest companies, issued a statement addressing the purpose of a corporation. The statement indicated that, for the 181 chief executives who signed it, their businesses were bound by a “fundamental commitment” to all stakeholders, including shareholders but also customers, employees, suppliers, and the communities in which they operate. The statement appears to be a step away from the “shareholder primacy” model of corporate governance. But does operating a business for the explicit purpose of enriching shareholders create harm for other stakeholders? Would a “stakeholder primacy” model mean worse outcomes for shareholders? Chicago Booth’s Initiative on Global Markets consulted its economic experts panels in the United States and Europe to investigate what the ideas around stakeholder capitalism might mean for business.

See more online
All responses to these polls—and a third question, which isn’t included here—can be seen at igmchicago.org.

About the IGM Panels
To assess the extent to which economists agree or disagree on major public-policy issues, Booth’s Initiative on Global Markets has assembled and regularly polls a diverse panel of distinguished economists, all senior faculty at the most elite research universities in the United States and Europe. The panel includes Nobel laureates and John Bates Clark medalists, among others. Polls are emailed individually to the panel members, and panelists may consult whatever resources they like before answering. Members of the public are free to suggest questions.
**Statement A:** Having companies run to maximize shareholder value creates significant negative externalities for workers and communities.

*Daron Acemoglu,* MIT

“Cutting wages or polluting increase shareholder value with considerable social cost. Competition will not necessarily drive them out.”

Response: Agree

*Peter Neary,* Oxford

“I agree with this statement, though maximizing shareholder value also encourages efficient profit making, which has social value.”

Response: Agree

*Lubos Pastor,* Chicago Booth

“True, but it creates not only negative but also positive externalities. The net effect varies across firms.”

Response: Uncertain

**Statement B:** Appropriately managed corporations could create significantly greater value than they currently do for a range of stakeholders—including workers, suppliers, customers, and community members—with negligible impacts on shareholder value.

*Darrell Duffie,* Stanford

“Hard to know. But if true, this would imply almost no misalignment of incentives between shareholders and the others. That seems unlikely.”

Response: Uncertain

*Oliver Hart,* Harvard

“Companies are not usually managed inefficiently. They may be maximizing the wrong thing, but I don’t think there’s money ‘left on the table.’”

Response: Disagree

*Hélène Rey,* London Business School

“Some cost-cutting decisions are often very short term and destroy value in the long run. Example: fraud (diesel-emissions scandal).”

Response: Agree
How does leading an international team differ from managing a team that’s based in the same place?

Hastie: There are four big differences between local teamwork and global teamwork. One is country culture differences—Germans and Japanese and Americans trying to solve a management problem together. Second, there are company cultural differences. Employees in the [international] branch of the company or the consultant we’re working with in India may not have the same experience as those inside the American branch of the company. The day-to-day conventions and habits, even though we’re all in the same company, might be different. Third, you have to solve the problem of electronic-media communication. If that fails, everything falls apart: for example,
the team collaboration session goes wrong because the phones or the video didn’t work. Finally, there’s the time difference. Sometimes we’re lucky. We may be in Chicago, collaborating with a team in São Paulo, where there isn’t a big asynchrony. But if a team in Chicago is trying to collaborate with colleagues in India and France, that requires time management. It can put a differential strain on the parties, and then they might even make inferences about being disrespected, so you can see how what sounds like just a timing issue creates deeper layers for the climate and performance of the whole team.

Castillo: I’ve been on numerous conference calls at two or three in the morning. One of the biggest things that you learn is to be very flexible. But it’s a give-and-take with cultural and language differences—we get something from our international colleagues and they get something from us. There are times where I have spent every other week on the road going and meeting with my colleagues. Technology is wonderful, but especially when you’re new to a global team, you have to have that opportunity to build relationships and have that face-to-face.

Faria: A few years ago I was running a Brazilian multinational—based in Brazil but with most of our business in the Middle East, Africa, and Asia. It required finding a lot of compromises. At first there was some resistance—we were the home office, so we dictated the timings. But we moved until ultimately we found ourselves in the middle. People are people anywhere, and when you go back to the essential elements of a culture, everybody wants to belong to a group, everybody wants to be on a mission or to accomplish something, and everybody has the overwhelming need to feel safe.

Baker: Understanding other cultures is really important. For example, on a conference call, it’s really against certain cultural norms to speak up, or to speak against an idea, so if you really want people’s opinions, you have to ask them in a different manner. We had a project in China that involved global conference calls. We were trying to elicit feedback on solving problems and improving processes. We had about 100 people on the line, and we weren’t getting any meaningful feedback. So we did smaller groups, with two or three people at a time. We got better feedback, because it was part of the culture to be able to get that in a smaller group.

“*You want to have the right people in the room, not everybody.*”

— KRISTEN CASTILLO

What’s the optimal number of people for an effective team? And how do you get buy-in among diverse and far-flung teams?

Hastie: Obviously, the optimal size depends on the task and whether the group should be broken down into subgroups that then work in a coordinated or hierarchical manner. As a general principle, groups are too large. There are arguments for oversize teams: often younger, less-experienced staff are brought on to teams to get them acculturated, so that they can learn the conventions and the culture of the company, and how to do the team’s task. Teams aren’t just optimizing execution. They’re also bringing in and training people. But in general, if you’re looking at team composition, you should tell yourself, “This one is probably too large if I am just aiming for maximum efficiency.”

Castillo: You want to have the right people in the room, not everybody in the room. It’s important to have subject matter experts, and people who are empowered to speak on behalf of the team.

Faria: I’ve often chosen to have too many people in the room because I wanted to make sure—in the context of a globally expanding firm—that everybody was heard, and that everybody was listening to the same “source of truth.” Whereas, when you want to really get effective, probably smaller teams would be better, so long as they have diverse perspectives. I’ve always enjoyed putting together teams that don’t seem to make sense at the start, with the idea that over time, they’ll cohere and become stronger.

Hastie: Another good argument for larger teams is to make sure the solutions they come up with are acceptable to the team and the larger organization. I consider making the team’s solution acceptable to be one of the subtasks of a team and a team leader. How do you get your solution accepted? That can be hard, especially when it’s not going to be a
unanimous solution, both within the team and among the stakeholders who will be affected by your decisions.

**When does the head office need to set a single strategy, and when should it take a looser approach?**

**Castillo:** You can’t just sit in the home office, come up with a strategy, and expect people to adopt it. With some of our countries and affiliates, it may be as more of a partnership, more of a give-and-take. They tell us what they need, and we try to figure out how we can help them. With smaller countries that have fewer resources, we’re able to provide a lot of assistance, help, and guidance. Even if the overarching strategy is set in headquarters, nobody knows the business like the people who have feet on the street. You have to empower people to make their own decisions and customize. Because you’re not there, because of the time difference, you have to be able to empower people to make really good decisions.

**Baker:** Sometimes the US corporate strategy needs to be modified to meet a regional landscape. For example, when I held a leadership role for Pfizer in South Africa, where TVs were less prevalent, instead of running TV advertisements for Lipitor, as we did in the US, we focused on developing key opinion leaders’ advocacy for Lipitor and in turn drove one of the highest market shares of the product in the world.

**Faria:** One of the most challenging projects I ever worked with was launching a manufacturing facility in Abu Dhabi, [United Arab Emirates], with a team comprising 22 nationalities. We had a lot of language challenges, but it led us to an essential part of our message: the importance of safety. Early on, a lot of the programs were steered toward safety at work. And that facility has been operating, since its launch in 2014, with zero accidents. That message of safety percolated across nationalities. So when you essentialize aspects such as safety, or a sense of purpose and mission, you accomplish far more than you would through strict command and control, which can be very ineffective.

In general, my experience has made me lean toward a lot less command and control and toward a lot more freedom. We acquired a company in Thailand, and I was very interested to learn about Thai culture and the differences between Brazil and Thailand. We figured out that we were never going to learn exactly the cultural aspects of working and operating in Thailand, so we gave a lot of power and autonomy to the Thai team. We made them part of our global teams. Our head of quality assurance came from Thailand. Those kinds of things have proven to be more effective than dictating the entire playbook.

**How do you make sure people in international offices feel they are not isolated but really part of the organization? Has technology helped?**

**Faria:** It’s not enough just to send people from the head office to a local office. Typically, when you do that, the person from the head office acts like an instant knowledge provider who has been parachuted in for two or three days to tell the locals what to do. In my experience, the other way around has been a lot more effective, bringing people from other offices to Brazil.

**Baker:** Respect is a big part of it. So is spending time getting to know people better. It sounds basic, but that really helps foster trust and communication. Technology such as teleconferencing makes things easier. However, to build successful work relationships, spending time face-to-face is vital. Traveling to visit colleagues shows respect, fosters relationships, and builds trust.

**Castillo:** Being able to share slide decks, or using telepresence helps to develop an ongoing cadence. But you have to busy that up with face-to-face meetings. That really helps round it out.

**What advice do you have for someone managing a global team for the first time?**

**Hastie:** My one piece of advice is to put an incredible amount of extra energy into the beginning. [Having] face-to-face meetings, social as well as business, getting people aligned with project goals, being flexible about adopting the central culture versus the peripheral culture—all those things are important. And doing them right at the beginning, getting off on the right foot, that’s essential.

**Castillo:** Taking on a global role requires you to make certain sacrifices. It has to be something that you’re ready and willing to take on. It’s certainly not for everybody. But it’s incredibly rewarding as well.

**Faria:** It’s all about disintermediating—removing some nodes of the network that can create a lot of resistance. Part of that involves shying away from the head-office leader who says, “OK, I know everything” and looking instead to people who say things like, “I want to learn from you.” On the other hand, I’ve seen instances in which there is a regional office of a multinational where the local managers tell their staff, “We are a great team, despite what the people in the head office are saying.” You need to be up front and attack that. A lot of that happens in the beginning. And over time, trust gets built. People feel safe. They have a shared sense of purpose, or a mission, and then they can perform at their best, despite cultural differences, time zones, and things of that nature.

**Baker:** It’s key to know how to communicate through the lens of other people’s culture. There is a story about a general manager who went to Italy and tried to build consensus. He ended up getting fired, because the perception was that he wasn’t able to make a decision. That same general manager would have done really great in another country that needed to build consensus. It shows that you really need to understand the culture of the country. That’s important for retaining the local talent there. The job of the leaders in the head office is to learn how to bring out the best in their global workforces by trying to see the world through their cultural lens.
Why the government shouldn’t intervene in strikes
Conflict produces generally desirable results for society
BY GEORGE P. SHULTZ

Selected Papers
The long-running series features notable work by University of Chicago faculty and other business leaders. This essay is an edited excerpt; the original was presented in 1963.

It has been widely observed that congressional approval of compulsory arbitration in the railroad industry marks a breakdown of private bargaining, and may well lead to compulsory arbitration for a wide range of vital industries.

This is a tragic half-truth. The misunderstanding of what has taken place on the railroads and in other cases of intense government intervention may well lead to a drastic and, I believe, undesirable shift toward compulsion in our system of industrial relations. But this will not reflect a breakdown of private bargaining.

There has been no real private bargaining on the railroads for decades. What has failed is government-dominated bargaining. Ironically, when this much-government system finally failed completely, the answer was more government—in the form of compulsory arbitration—rather than less. And the irony is the more striking since free and more-nearly-private bargaining is, by and large, working well.

My purpose here is to convince you that a free and private system of industrial relations is far superior to a government-dominated one; and that this alternative is really available, despite the many and serious steps taken in the other direction during the past few years. To do so, I know, I must face up directly to the questions raised for the community by strikes, especially strikes involving large numbers of people or strategically placed workers. I must present a way of dealing with major labor disputes that you judge to be a workable, practical way. No doubt government has important responsibilities that will tax its capacities in this area, but its role must not be the dominant one toward which it now seems headed.

How to make conflict constructive
It has been said that job security now outweighs wages in importance as an
issue for collective bargaining. Certainly, all the well-publicized recent disputes—railroad, newspaper, longshore—revolve around the issue of jobs—or perhaps more accurately, around the jobs that used to be there but may now be on the way out. So like it or not, we will have to struggle in labor relations with all the stresses and strains that inevitably accompany important changes in the structure of jobs. No one should be surprised if these stresses occasionally break into the open.

So much emphasis has been placed in recent years on the public interest in labor peace that other important goals in labor relations—goals in which there is also a private stake and a public interest—have been almost totally obscured. Let us take a look at the role of conflict in attaining these goals. In doing so, we need not get in the position of advocating strikes, of condoning the purely destructive conflict that you see occasionally, or of denigrating in any way the importance of knowing how to resolve differences without strikes. Much has been learned in this area over the past three decades, and many interesting and novel experiments are now under way. All these are to be applauded and encouraged, but not to the point where we become Pollyannaish about labor relationships.

First of all, we must acknowledge that conflict, of which the strike is but one example, is a widely used method for producing generally desirable results for our society. We have organized our economy on the basis of freedom to enter new businesses, to innovate, to engage in competition for markets. Let there be many companies in the field and let them fight with each other so that the consumer gets better products and lower prices. Some people get hurt by these processes; I need not tell you that they can be Victorians; we should not expect them to be brought to justice. But by and large, they are productive.

By the same token, in the field of industrial relations, the possibility of challenge and response, from a base of some power on both sides, can be constructive. It provides an opportunity for people who have different backgrounds and orientations to bring out and represent their interests forcefully. Such representation can be productive, but it cannot take place if we do not allow for the possibility of a clash in views and the likelihood of an occasional explosion.

Second, we must all realize, whether as members of “the public” or in our private capacities, that we have a tremendous stake and a great interest in the vitality of private parties and private processes. If you have a management that is moribund and is not doing anything, or if you have a union that is lazy and is not representing its workers adequately, you really do not have a healthy situation at all. We want, instead, companies and unions who are alert, energetic, driving—who are analyzing their interests and representing them vigorously.

A good case in point is the railroads, where the government-dominated system of collective bargaining, at least until very recently, has fairly well sapped the vitality of the processes involved and has left the situation much worse than it otherwise might be. When it takes six years to settle a simple grievance, you surely have a bad situation.

Third, in this effort to suggest that the public has a stake in strikes other than only to get them settled, I offer you the great importance of having private parties be responsible, feel responsible, and take responsibility for the results of their efforts. Whatever settlement is reached—good, bad, or indifferent—somehow it must be their own settlement. It is the settlement of the people who have worked it out, not somebody else’s doing.

Finally, we must recognize that some strikes are simply part of the price we pay for free collective bargaining. If you tell people they are not allowed to strike or, in the case of management, take a strike, they are simply not free to pursue their interests as they see those interests. It is just one of the costs that goes with the gain of having a free system.

Now, of course, the greater the costs of labor-management conflict, the less happy we are to pay them. This point, then, is of great importance: the price we are paying for free bargaining in this country is an exceedingly small one, and we should not be reluctant to pay it.

The overstated consequences of strikes
Now, perhaps you will say that the recent longshore strike, in which a Taft-Hartley Act injunction was used, is a case against me. That may be, but I think it is worth noting that the president sought and got an injunction against such a strike on the grounds that, if the strike were permitted to occur, it would create a national emergency. But after the injunction expired, a strike did run for over one month, and what did people talk about? All I read about in the Wall Street Journal was the bananas: you are not going to get bananas; they are doubling in price. Just for fun, one morning in New York after the strike had been on some weeks, I ordered bananas with my shredded wheat to see if they would come. The waiter didn’t even give me an argument; he brought the bananas. This is not to deny the genuine economic hardship and public inconvenience that can be caused by a prolonged strike on the docks or in some other industries. But the allegations of hardship need the closest scrutiny, and the true costs must be balanced against the price of intervention.

My point is that the public has vital interests in allowing people freedom to strike—or take a strike—if they want to, and if these interests are disregarded, the system of industrial relations is going to change very drastically.

Furthermore, in taking this position, at least in this day and age, we are really not taking such a terrible risk, because the volume and the impact of strikes are not nearly so great as alleged. Most goods and services turn out to have fairly close substitutes, which, indeed, is one reason for prompt settlement of most disputes. Or, alternatively, inventories may provide a considerable hedge against the impact of a strike. There are problems, of course, but they are far overrated, and the health and safety aspects are usually not present.
The danger of government intervention
The present course of national policy has seemed, at least until very recently, to be: intervene early; intervene with preconceptions of what the right answer is; and intervene frequently, over a wide scale, with high officials. And now the picture is further complicated by the fact that Congress, albeit reluctantly, is in the act.

I do not think that is a considered policy but is just what has happened. That is in a sense the effective policy we have, and it has been born out of all sorts of frustrations, out of all sorts of problems arising from the structure and issues of collective bargaining.

This process also demands solutions. If you are going to take the intervention route, you have to provide the answer. If parties feel they are not getting what they want through bargaining, they are certainly going to find out what the government’s answer is and try to use that leverage as possible. This can ruin private bargaining because it forces each party to hold back any concessions that might normally be made. Anything you concede will be held against you in the next, higher round of discussions.

This course has in it a very, very great potential for failure. We are going to run into situations, right along the line, where all these procedures are going to be indulged in, and where one party or the other—management in some cases, union in others—will say: “With all due respect to you, Mr. President, or to your Board, I just don’t agree with you, and I’m standing on my position.”

When that happens—and it already has on at least one occasion—the gauntlet is down. That is a terrible situation for the president to be in. As President Kennedy said, in effect, in a television interview last spring, commenting on the steel-price conflict, “Well, what could I do? After all this had happened, there I was and I had been defied. I had to pull out all the stops.”

The question one needs to ask is: Was it wise to get in that position in the first place? I ask this with respect not only to steel but to a whole range of cases. The potential for failure not only is great; it is absolutely certain that the high authority is going to be defied by the strong-minded groups we have in this country. And the results of failure of this kind of an approach drive you inevitably further into all sorts of relatively drastic types of solutions that are not process oriented but result oriented. The big one that is always mentioned—everybody falls for it, I think—is compulsory arbitration.

And now, as a friend of mine put it in discussing the railroads, “Here we is, damned if we ain’t.”

Four ways to avoid intervention
The implications of the present course are serious. We have gone quite a long way, and we ought to ask ourselves: Isn’t it time for a fresh look? There are, of course, all sorts of places where blame can be put. But our problem, at least as I see it, is to say: “Where do we go from here? How do we rearrange things so that we can have a reasonable process of bargaining, and so that we don’t get our high public officials involved in these impossible situations?”

Let me throw out a few ideas in the full realization that it is much easier to be critical than to be constructive.

First of all, as an administrative proposition, it seems very important somehow for the government to change its stance, to make a more considered assessment of the possible impact of strikes, and to help the public make such an assessment. Educate the public about what is really going on.

Second, it is very important for the high-level people to virtually refuse to get involved, and to say, “I’ve had it and I’m just not going to spend so much time on labor disputes anymore.” Let the top officials disengage themselves and try to get the problem pushed into an area where there are professional people who are supposed to spend all of their time doing this kind of thing.

My third point rests on a common analysis of the impact of major strikes. Perhaps we can use an approach that has not been tried much but that would seem to offer real potential for protecting the public interest. We could have limited, continued operation, but still let most of the strike go on, an approach built on the possibility of partial operation of struck facilities. To be sure, there are all sorts of political difficulties, but the difficulties are worth facing up to.

Finally, just to show you that I haven’t lost my mind completely, let me assure you that I believe it is very important to encourage a wide variety of mediation approaches, private approaches. Private approaches have been producing and will produce good results.

Together, some of these things can help any administration give the public assurance that the government is doing something. It is trying to help get things settled; it is protecting the public interest in at least partial operation. Perhaps, if accompanied by sane and careful statements about the impact of a strike, these measures will diminish the pressure from the public somewhat and allow some of these less spectacular procedures to operate.

The cornerstones of my position are an assessment that the strike situation in this country does not present us with a crisis and that private processes can work well, but that private processes are doomed unless we develop more tolerance for at least a minimum level of conflict. To be sure, there are costs as well as gains. But, for my part, freedom and the vitality of private parties and private processes are worth the cost.

It is very important for the high-level people to virtually refuse to get involved.

George P. Shultz was dean of Chicago Booth from 1962 to 1969, as well as former US secretary of state under President Ronald Reagan.
How to use waiting lists to make better matches

Products or services in high demand—such as a spot in day care or public housing in a good location—can result in an overloaded waiting list. People’s preferences vary, but if they face a long wait—perhaps months or even years—they may choose to settle for what’s available instead of what they initially wanted, according to research by Chicago Booth’s Jacob D. Leshno. In his model, people prefer one of two options, and can join a queue to wait for it, which should result in a good match. But if that queue is too long and the expected wait unacceptable, they may give up and take the other option, resulting in a mismatch. To minimize such mismatches, Leshno proposes using a randomized selection within each queue, giving people better incentives to wait for their preferred option. To learn more about how research is helping businesses manage the many ways we wait, turn to page 36.
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HOW (IN)ACCURATE IS MACHINE LEARNING?
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