

SECOND/THIRD QUARTER 2020

# ECON FOCUS

FEDERAL RESERVE BANK OF RICHMOND

## REIMAGINING SUBURBAN UTOPIA IN THE 1960S

EQUALITY AND THE MAKING OF COLUMBIA, MD., AND RESTON, VA.



Faster  
Employment Data

Closing the Rural  
Broadband Gap

Interview with  
Joshua Gans

# ECON FOCUS

VOLUME 25  
NUMBER 2  
SECOND/THIRD  
QUARTER 2020

*Econ Focus* is the economics magazine of the Federal Reserve Bank of Richmond. It covers economic issues affecting the Fifth Federal Reserve District and the nation and is published by the Bank's Research Department. The Fifth District consists of the District of Columbia, Maryland, North Carolina, South Carolina, Virginia, and most of West Virginia.

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DIRECTOR OF RESEARCH  
Kartik Athreya

DIRECTOR OF PUBLICATIONS  
Jessie Romero

EDITOR  
David A. Price

MANAGING EDITOR  
Lisa Kenney

STAFF WRITERS  
John Mullin  
Hailey Phelps  
Tim Sablik

EDITORIAL ASSOCIATE  
Katrina Mullen

CONTRIBUTORS  
Emily Wavering Corcoran  
Emily Green  
Joseph Mengedoth

DESIGN  
Janin/Cliff Design, Inc.

Published by  
the Federal Reserve Bank  
of Richmond  
P.O. Box 27622  
Richmond, VA 23261  
[www.richmondfed.org](http://www.richmondfed.org)  
[www.twitter.com/RichFedResearch](http://www.twitter.com/RichFedResearch)

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ISSN 2327-0241 (Print)  
ISSN 2327-025X (Online)

COVER IMAGES: Map of Columbia from Howard County, Md.; Reston Town Center District Plan courtesy of the Reston Museum.

## Confronting a Tragic Reality

Our nation has recently increased its focus on a tragic reality: Life outcomes vary widely by race. In July, the unemployment rate for black Americans was 14.6 percent, more than 5 percentage points higher than the rate for white Americans. Even before the current crisis, when unemployment was at historic lows, there was a gap of around 3 percentage points. Median income for white households in 2018 was \$71,000, compared with \$41,000 for black households. The wealth gap is even larger: White households' median net worth is nearly 10 times higher than that of black households.

And if you're white, you're even likely to live longer. Here in Richmond, life expectancy can vary by as much as 20 years between some of the poorest, mostly black neighborhoods and the most affluent, mostly white neighborhoods. We also see disparities in the disproportionate toll the pandemic is taking on communities of color.

My office is in the former capital of the Confederacy. When I look out my window, I can see the island where Union prisoners of war were held and the ruins of a bridge burned by retreating Confederate troops. The legacy of this era still affects outcomes today, in ways both obvious and subtle.

Our small towns in the Fifth District have a larger black population than in the nation as a whole; nearly 20 percent of our small-town residents are black compared with about 9 percent nationwide. This is particularly true in the Carolinas, where many plantations were located. Nearly 37 percent of South Carolina's small-town population is black. And we know smaller towns in this country have struggled economically.

There are of course also significant black populations in our district's major cities, and these cities are thriving along many dimensions. But they generally also display some of the worst economic mobility in the country. According to research by economists Raj Chetty, Nathaniel Hendren, Patrick Kline, and Emmanuel Saez, Charlotte, N.C., has the worst economic mobility of the nation's 50 largest metro areas. Raleigh was number 48 on the list, and Baltimore was number 37.

Education is critical to growing incomes and wealth. But the black residents of our region were explicitly denied equal access to education for nearly a century after the Civil War. We know that kind of disadvantage can be hard to overcome even generations later.

Even after schools became integrated, "white flight" to private schools and the suburbs largely resegregated Southern school systems once again. And limitations on cities' ability to grow left their educational funding disadvantaged as well. For example, Baltimore's current

boundaries were effectively fixed by a 1948 change in the law that allows county residents to reject any future annexation attempts by the city.

The Jim Crow era limited black individuals' ability to access credit, build businesses, and thereby create wealth. Many instead chose to emigrate from the South to seemingly more attractive parts of the country. Those who remained have struggled with credit for generations, starting with the sharecropping model that left so many in peonage.

The regional Fed banks are charged with understanding the dynamics within our districts. In pursuit of that goal, we have been investing in research that addresses these issues and the racial inequities that result. We are analyzing how to support smaller towns, where residents suffer from educational disparities, isolation, and low workforce participation. We have work underway on economic mobility, a particular issue in our larger cities. Motivated by research finding that well over half of income and wealth inequality is determined by a person's circumstances at age 23, we have been studying the critical role of early childhood education and the preparation students need to succeed in college. In the area of financial markets, we're working to understand differences in white and black people's opportunities to borrow, and our community development team has launched a program to connect banks with community reinvestment projects.

The racial disparities in our district are the result of hundreds of years of unequal access and unequal treatment. In the context of a country with great challenges, we recognize ours are even greater. We're committed to playing a positive role in finding the solutions. EF



A handwritten signature in black ink, appearing to read "Tom Barkin".

**TOM BARKIN**  
PRESIDENT  
FEDERAL RESERVE BANK OF RICHMOND

*This column is adapted from a longer essay published on the Richmond Fed's website.*



**MARYLAND** — In early July, Norwegian aquaculture firm AquaCon announced it will invest \$1 billion over five years to build three Atlantic salmon indoor fish farming tank facilities on the Eastern Shore. AquaCon said it selected this strategic partnership with the University of Maryland, Baltimore County (UMBC) and the University System of Maryland's Institute of Marine and Environmental Technology for its geographical, technological, and educational significance, including extensive research from UMBC marine biotechnology professor Yonathan Zohar.



**NORTH CAROLINA** — The North Carolina Department of Commerce awarded Centene Corp. a Job Development Investment Grant that will reimburse Centene nearly \$400 million for its East Coast regional headquarters and technology hub in Charlotte, which is likely to begin construction this year. Centene is a provider of health insurance to state and private health care programs. The \$1 billion long-term investment will add an estimated 3,237 jobs in health care, technology, and administration.



**SOUTH CAROLINA** — Community Works, a nonprofit financial organization in Greenville, and Benedict College, a historically black college in Columbia, will soon host women's business centers to provide the state's women-owned small businesses with resources and opportunities to start, retain, or grow their businesses. Selected by the U.S. Small Business Administration, these two sites join more than 100 women's business centers throughout the country.



**VIRGINIA** — Gov. Ralph Northam announced that in January 2021, Virginia will join 10 Northeast and mid-Atlantic states as a full member of the Regional Greenhouse Gas Initiative (RGGI), a market-based cooperative with a mission to fight climate change, reduce greenhouse gas emissions, and advance the economy. With this announcement, Virginia becomes the first Southern state to participate in the RGGI, which requires the state to cap carbon dioxide emissions and limit pollution to achieve the cap or purchase allowances from an RGGI auction. The General Assembly passed legislation that allows the state to use these auction proceeds toward other environmentally conscious programs.



**WASHINGTON, D.C.** — Mayor Muriel Bowser and the Office of the Deputy Mayor for Planning and Economic Development will issue a request for proposal later this year for the redevelopment of the Malcolm X Opportunity Center, a community center, as well as start the surplus process for redevelopments of the Frank D. Reeves Municipal Center, a city office building, and Hill East District, a 67-acre tract. Mayor Bowser's administration has said these projects will seek to advance equity in their selections of both contractors and tenants. The NAACP has announced that it will relocate its national headquarters to the Reeves Center.



**WEST VIRGINIA** — In late June, Sens. Shelley Moore Capito, R-W.Va., and Joe Manchin, D-W.Va., announced a \$10 million grant from the U.S. Department of Agriculture's National Institute of Food and Agriculture (NIFA) to West Virginia University. As one of eight universities receiving the grant through NIFA's Sustainable Agricultural Systems program, the university will use the funding to research how to improve the nation's food supply. The research will focus on sustainability to support consumers, producers, and the economy, particularly those in rural areas who may have less access to inexpensive and healthy foods.

# AT THE RICHMOND FED

## The Fed Experience

BY HAILEY PHELPS

People often associate the Richmond Fed with promoting price stability and ensuring the security of the nation's financial system. Most people don't know that it also operates a museum about the economy, which includes a 27.5-pound gold bar and a reconstructed 1970s living room in which visitors learn about that decade's inflation.

Ten years ago, the Richmond Fed created the Fed Experience to help students and the general public learn about the roles that individuals and the Fed play in the economy. The museum takes up most of the first floor of the Richmond Fed's headquarters. Its exhibits, many of them interactive, explore the history of the Fed and its role in the economy regarding monetary policy, supervision of financial institutions, and cash processing. Visitors also learn about the Fed's dual mandate of maximum employment and price stability.

Prior to the Fed Experience, the first floor of the Richmond Fed contained a smaller museum, the Money Museum, where visitors examined different types of bank notes and coins. Following the 2007-2008 financial crisis, the Richmond Fed began planning a new, more ambitious public exhibit space, which opened in July 2010.

"In terms of development, it was truly a bankwide project," says Melanie Rose, the Richmond Fed's assistant vice president for research administration, who was the manager of the economic education team at the time. "Employees from economic education, research, facilities, corporate communications, procurement, and many other departments contributed."

Stories from Fed employees and their families were featured prominently in the Fed Experience when the exhibit opened. In addition, community members and students from the Fifth District are featured in the depictions on the walls and in the interactive displays. "It was important for us to convey the interaction of people and the economy and how the choices of real people affect the economy," Rose says.

Although the museum was originally designed with middle school students in mind, the economic education team has developed tour programs to accommodate visitors of all ages. The Fed Experience offers guided tours for schools, colleges, adult groups, and mixed groups such as families. Currently, high school students make up the largest proportion of visitors. On average, the Fed Experience welcomes 5,000 to 6,000 guests each year.

The response from educators over the years has been highly positive. "We've been able to build a loyal audience of teachers who bring their students year after

year," says Sarah Gunn, the current leader of the economic education team.

The guided tour focuses on the history and functions of the Fed and how it connects to the students. The tour is tailored to the grade level and aligned with the economics and personal finance standards for Virginia. The economic education team also developed a tour for high school students that focuses on resume writing, networking, the relationship between education and income, and jobs at the Fed and in the greater Richmond area.

Since 2010, the Fed Experience has undergone several changes. One addition to the tour is a visit to cash processing, where visitors see how millions of dollars are counted, sorted, and shredded. "The cash processing tour was added when the Richmond Fed commemorated its centennial in 2014. And we've kept it as part of our standard tour since then because it was so popular," Gunn says.

The Fed Experience has also expanded its program to include a summer tour. The Summer Camp Challenge is a field trip opportunity for summer camps in the Richmond area to introduce K-8th grade students to basic economic concepts such as productive resources and the characteristics of money. In years past, this program has brought in approximately 1,000 summer campers per year.

As a result of the COVID-19 pandemic, the Fed Experience has been closed to visitors since mid-March. Though the Richmond Fed plans to reopen the museum when conditions permit, no reopening date has been announced. In the meantime, the economic education team has developed an online program called the Fed Experience: Road Show to engage students virtually with Fed Experience content. They plan on launching the program in the fall to present content and facilitate interactive activities virtually with students.

The Fed Experience: Road Show is a response to the pandemic, but it's expected to become a permanent offering. "It will allow us to reach students who couldn't otherwise come to us, whether that's because parts of our district are too far away to visit or because schools don't have the resources to bring the students on-site," Gunn says. "We'll continue with both."

In a recent statement, Kartik Athreya, executive vice president and director of research, said the new version of the Fed Experience is part of a larger effort to open the department's programs to off-site participation. "With a focus on innovation and inclusivity, the coming months will be ones where we focus on how best to deploy and adapt all of our content in a way that meets our audiences where they are — not where we are." **EF**

# The Coronavirus Crisis and Debt Relief

**Loan forbearance  
and other debt relief  
have been part of the  
effort to help struggling  
households and  
businesses**

By John Mullin

**T**he pandemic's harmful financial effects have been distributed unevenly — so much so that the headline macroeconomic numbers generally have not captured the experiences of those who have been hardest hit financially. Between February and April, for example, the U.S. personal savings rate actually increased by 25 percentage points. This macro statistic reflected the reality that the majority of U.S. workers remained employed, received tax rebates, and reduced their consumption. But the savings data did not reflect the experiences of many newly unemployed service sector workers.

And there are additional puzzles in the data. The U.S. economy is now in the midst of the worst economic downturn since World War II, yet the headline stock market indexes — such as the Dow Jones Industrial Average and the S&P 500 — are near record highs, and housing prices have generally remained firm. How can this be? Many observers agree that the Fed's expansionary monetary policy is playing a substantial role in supporting asset prices, but another part of the explanation may be that the pandemic's economic damage has been concentrated among firms that are too small to be included in the headline stock indexes and among low-wage workers, who are not a major factor in the U.S. housing market.

Policymakers have taken aggressive steps to mitigate the pandemic's financial fallout. Among the most prominent have been IRS tax rebates, the expansion of unemployment insurance benefits, and forgivable Payroll Protection Plan (PPP) loans for businesses. But these fiscal steps have been complemented by an array of policies specifically designed to ease private sector debt burdens. The CARES Act, for instance, mandated debt forbearance on federally backed mortgages and student loans. And the Fed — in addition to launching several new lending facilities — has coordinated with other federal bank regulators to encourage banks to work constructively with their clients in need of loan restructurings. (See “The Fed’s Emergency Lending Evolves,” p. 14.) While less well-publicized than the fiscal steps, these debt relief measures are arguably no less consequential.

### **A Role for Debt Relief**

The economic policies that have been adopted in response to the crisis were designed to meet multiple goals. The most immediate concerns were to provide safety net aid to those in need and to stimulate aggregate demand. But there was also a longer-term objective: to improve the foundation for future growth by helping households and firms maintain their financial health. This goal is being addressed partly by fiscal transfers to households and firms to help them avoid depleting their assets and increasing their debts. But crucially, the goal is also being advanced by policies designed to keep the supply of bank credit flowing and to prevent unnecessary loan defaults and business failures.

The CARES Act contains several important debt relief provisions. In addition to allowing for the deferment of student loan debt repayments and providing debt service forbearance and foreclosure protection for borrowers with federally backed mortgages, the legislation also mandated the relaxation of certain accounting standards — making it more attractive for banks to offer debt forbearance to households and firms affected by the pandemic. In support of the legislation’s intent, federal bank regulators at the Fed and other agencies issued an interagency statement on March 22 confirming that financial institutions could make pandemic-related loan modifications without having to downgrade the loans to the category of Troubled Debt Restructurings (or TDRs). Since it is costly for banks to recategorize loans as TDRs, this interpretation helped to remove an impediment to loan restructurings.

Bank regulators followed this up by issuing a statement in June that outlined supervisory principles for assessing the safety and soundness of financial institutions during the pandemic. According to the statement, regulators “have encouraged institutions to use their capital buffers to promote lending activities.” Moreover, the regulators emphasized that they “view loan modification programs as positive actions that can mitigate adverse effects on

borrowers due to the pandemic.” They sought to assure bankers that bank examiners “will not criticize institutions for working with borrowers as part of a risk mitigation strategy intended to improve existing loans, even if the restructured loans have or develop weaknesses that ultimately result in adverse credit classification.”

This guidance has been implemented by the Fed’s regional bank supervisors, including those in the Fifth District. “We want the banks to be part of the solution and to continue to lend,” says Lisa White, executive vice president of the Supervision, Regulation, and Credit department at the Richmond Fed. “Overall, the banks were more resilient from a capital perspective heading into the current crisis compared to the last,” she says. “The philosophy behind the interagency guidance was to convey our planned supervisory approach and clearly communicate what we will be most focused on as we assess how banks are handling the challenges associated with the pandemic.”

When supervisors evaluate how well banks have performed during the crisis, she explains, “we are going to assess how well they have managed their deferral and forbearance programs, and we will put more emphasis — even more than we’ve had in the past — on their underwriting and risk management practices versus just the results or how they translate into a particular loan’s performance.”

### **Loan Forbearance and Households**

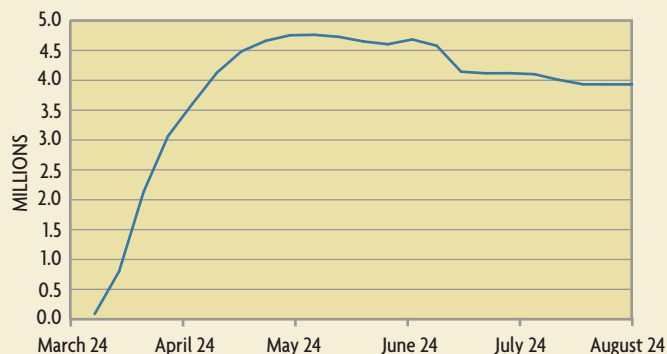
Prior to the pandemic, the household sector’s credit metrics appeared to be in good shape. In 2019, the overall delinquency rate for consumer credit stood at a post-financial-crisis low of roughly 5 percent, as declining mortgage delinquencies in recent years had roughly offset increased auto loan and credit card delinquencies. Moreover, the aggregate data showed no noticeable upward trend in personal foreclosures and bankruptcies. These signs of health may have partly reflected the conservative underwriting practices that creditors had adopted after the 2007-2008 financial crisis, when they shifted toward making loans to borrowers with higher credit scores.

But these numbers may not adequately reflect the financial vulnerability of many low-income households. According to the research and consulting firm Financial Health Network, as many as 33.9 percent of those surveyed in 2019 stated that they were “unable to pay all bills on time.” The same survey found that, among those who make less than \$30,000, only 34.7 percent stated that they have a “manageable amount of debt.” These numbers are consistent with the notion that there is a significant part of the U.S. population that lives paycheck to paycheck and is quite vulnerable to interruptions in income.

These vulnerable low-income households bore the brunt of the economy’s job losses at the onset of the pandemic. Based on an analysis of ADP data presented

## Forbearance Jumped in April and May

Residential mortgages in active COVID-19 forbearance plans



SOURCE: Black Knight

at a recent Brookings Papers on Economic Activity conference, employment losses were disproportionately high among the quintile of employees with the lowest pre-pandemic wages. That quintile had a greater than 35 percent decline in employment by April, which contrasts sharply with the less than 10 percent decline in employment for those in the highest-wage quintile.

The notion that many households stand on shaky financial ground finds support in the rapidity with which borrowers have sought out debt forbearance. According to Black Knight, a provider of mortgage data, the number of mortgages in forbearance increased from close to zero in March to over 4 million in May. That figure represented roughly 8 percent of active mortgages. (See chart.)

It appears that banks have generally been receptive to forbearance requests by their consumer credit clients. “We’ve been very public with statements on the consumer side, letting clients know that if you are in trouble, contact us,” says John Asbury, CEO of Atlantic Union Bank. “What’s happened is the borrowers have contacted us and said, ‘I’m having financial challenges.’ For borrowers with no previous payment problems, we have typically granted 90-day deferrals for the consumer, no questions asked.”

Forbearance programs are likely to help mitigate defaults and foreclosures, at least in the short run. In a recent Richmond Fed working paper, Grey Gordon and John Bailey Jones concluded that mortgage forbearance, student loan forbearance, and fiscal transfers will keep delinquency rates from increasing much in the near future. According to their analysis, the forbearance programs are likely to have the greatest effect, with fiscal transfers playing a smaller role.

But consumer loan forbearance is no panacea. It does not eliminate debt but merely provides borrowers with time to improve their repayment capacity. If U.S. unemployment remains substantially above pre-pandemic levels, the economy may see a substantial increase in defaults as forbearance arrangements expire.

## Loan Forbearance and Businesses

The negative effects of social distancing have been most strongly felt among relatively small businesses. In part, this is because small businesses are disproportionately represented in many of the hardest-hit industries, such as hotels, restaurants, and retail trade. But it also reflects the relative financial vulnerability of small firms. This point was highlighted in a September 2019 study by JPMorgan, which found that, in the typical community, 47 percent of small businesses had two weeks or less of cash liquidity.

In more normal times, insufficient revenue and inadequate access to capital are among the most frequent reasons for small business failures. During the current crisis, of course, these problems have become particularly widespread. According to a recent survey by MetLife and the U.S. Chamber of Commerce, 70 percent of small businesses “are concerned about financial hardship due to prolonged closures” and 58 percent “worry about having to permanently close.” Two-thirds of survey participants agreed that minority-owned businesses “have been disproportionately impacted by COVID-19.”

The risk of permanent closure was underscored in a recent report by the business review website Yelp. Yelp found that 132,500 of the firms that it tracks were closed for business on July 10 and that a little more than half of the closures were permanent.

As with consumer credit, many banks have been offering forbearance plans to their business clients who have been negatively affected by the pandemic. Atlantic Union Bank, for example, has already modified over 700 business loans in segments it has identified as “COVID-19 sensitive.” By the third week of April, Atlantic Union had already made roughly 4,000 pandemic-related loan modifications, accounting for 14.8 percent of the bank’s overall loan portfolio. These modifications have been particularly concentrated among its loans to hotels, restaurants, health care, and retail.

“We have offered payment deferrals in cases where we fundamentally believe there will be an operating company to work with on the other side,” says John Asbury of Atlantic Union. “Then we can work with them and monitor their operations. However, if we ultimately lose confidence in the company’s viability, then we have to treat it differently and downgrade the loan’s risk rating. We don’t want to push problems down the road.”

In some cases, forbearance programs for real estate developers have had favorable knock-on effects. Such was the case with Lion’s Paw Development, a Richmond firm that has built many restaurants for “mom and pop” operators. When Lion’s Paw was offered a real estate loan deferment by its bank, it gave the firm the flexibility to offer rent forbearance to its retail tenants. “I’ve worked out rent forbearance deals with many of my tenants,” says Charlie Diradour, president of Lion’s Paw. “I’m going to send the tenants addendums to their leases that acknowledge that rent payments have not been paid for April,



May, June, and maybe July. We're going to add those months on the back end of their current terms."

Yet many small businesses remain vulnerable to being shut down. This risk presents a major concern for policymakers, because small-business closures not only eliminate job opportunities, they also deplete the assets of business owners — thus damaging their ability to make future investments.

### The Forgiveness Frontier

Some observers have advocated debt forgiveness for the most vulnerable — not only for reasons of fairness, but also to remove excessive debt burdens that block the path to future growth.

For Michael Hudson of University of Missouri, Kansas City, author of the 2018 book *...and forgive them their debts: Lending, Foreclosure and Redemption from Bronze Age Finance to the Jubilee Year*, solutions for the current pandemic and its related debt burdens should draw on history. For example, in ancient Mesopotamia, under the Laws of Hammurabi, periods of debt forgiveness called "jubilees" were periodically invoked after a famine or other natural disaster created levels of debt that could not be addressed by regular means. "But Hammurabi was not a Utopian idealist when he forgave the debts," says Hudson. "He recognized that it's not worth slowing down the whole economy and putting it into recession just so creditors can get paid."

To be sure, such a policy would place the burden of the crisis on another group, namely creditors. The long-term effects on the availability and pricing of credit are hard to predict. But in Hudson's view, bankers, creditors, and landlords have done well enough over the past 10 years to warrant a similar policy today. "They can afford to take a hit — a write-down — the rest of the economy cannot."

Other observers have called for more modest debt relief measures. For example, Joseph Stiglitz offered some ideas on the topic of debt relief in a recent interview, including a proposal to lower what he called the "usurious interest rates" on credit card debt. Observing the unequal impact of the crisis, Stiglitz added, "And for those businesses that are getting so much help from the government, part of that should be used to help the debtors, who otherwise will sink under a mountain of debt."

A proposal to address the debt burdens of small businesses was recently published in the *Brookings Papers on Economic Activity* by Markus Brunnermeier of Princeton University and Arvind Krishnamurthy of Stanford



*Debt forgiveness was practiced in ancient Mesopotamia. The Laws of Hammurabi, seen here, laid out situations in which debt slates could be wiped clean, such as if "a storm prostrates the grain, or the harvest fail, or the grain does not grow for lack of water; in that year he need not give his creditor any grain."*

University. They posited that increased debt loads lead firms to focus on meeting debt obligations rather than keeping workers employed or pursuing new investment projects. In their view, rather than stimulating demand, the government policy's main aim should be to provide insurance to firms and workers by injecting "liquidity into small and medium sized firms that are liquidity constrained."

The initial responses to the crisis by fiscal and monetary policymakers and bank regulators have been massive in scope. Together, they have provided safety net assistance, supported aggregate demand, and helped many households and businesses preserve their financial health and avoid default. Despite these efforts, many lower-wage workers and small businesses continue to struggle financially, and economists and policymakers continue to consider the best policy responses. EF

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# CLOSING THE DIGITAL DIVIDE

Digital connections have become more important in a time of social distancing, but rural broadband access still lags behind cities'

By Tim Sablik



**F**or better or worse, the internet has become increasingly indispensable to the way we connect with each other. In 2000, only about half of American adults were online; today, nine in 10 are. Yet despite living in the country where the internet was born, not all Americans have equal access to it.

Much of this gap is along geographic lines. According to the Federal Communications Commission (FCC), 98.5 percent of urban households have access to fast wired home internet, while only 77.7 percent of rural residents do. In many states, one doesn't need to travel far outside of metro areas to see stark differences in connectivity.

Virginia provides a good example of this contrast. Northern Virginia is home to the largest collection of data centers in the world, handling more than 70 percent of all internet traffic by data volume. Residents there and in other major metropolitan areas across the state enjoy easy access to speedy broadband networks. But for residents in more sparsely populated communities, options are more limited.

"From where I work in downtown Richmond, I could reach multiple communities that don't have broadband access in a 45-minute drive in any direction," says Evan Feinman, chief broadband adviser to Virginia Gov. Ralph Northam. "A significant majority of Virginia counties have unserved residents."

For families sheltering at home during the coronavirus pandemic, a reliable internet connection has become even more of a necessity. Businesses have asked workers to telecommute, schools have moved to online classrooms, and doctors have turned to telemedicine for non-emergency care, all in an effort to reduce person-to-person contact and slow the spread of the virus. Indeed, access to broadband may be crucial to enabling households to follow social distancing guidelines. A recent National Bureau of Economic Research working paper by Lesley Chiou of Occidental College and Catherine Tucker of the Massachusetts Institute of Technology's Sloan School of Management found that income and access to reliable home broadband played a role in whether or not households stayed home during the pandemic.

Having access to broadband is just one step to crossing the digital divide, though. Even if broadband service is available, low-income households may not be able to afford it, and lack of digital training can dissuade households from subscribing. These adoption barriers extend beyond the rural-urban divide, affecting households in cities as well as in the country. To the extent that social distancing measures persist or return in the future, closing the digital divide may be a more pressing concern now than ever before.

## Mapping Need

For most of the 21st century, discussions of the digital divide have focused on expanding the availability of broadband, a catchall term for any high-speed internet connection. The FCC defines broadband as a connection with download speeds of at least 25 megabits per second (Mbps) and upload speeds of at least 3 Mbps. By all measures, the United States has made progress in expanding broadband access, but there is debate over just how much.

Since 2014, the FCC has required all broadband providers to report where they currently offer service or could provide it without an "extraordinary commitment of resources." According to the FCC's data, the gap between rural and urban areas in the availability of broadband has narrowed from 36.1 percentage points in 2014 to 20.8 percentage points in 2018, the latest year of data available. But everyone, including the FCC, acknowledges shortcomings with this data. The main problem is that broadband providers are only required to report whether they provide service at the census block level. In densely populated urban areas, census blocks may indeed be the size of a city block. But in rural areas, census "blocks" can cover thousands of square miles. As long as an internet service provider (ISP) has connected one customer in that census block, it can count the entire block as served, even if many households actually lack service.

"There are many areas that the FCC classifies as served, but when you meet with people in that community, they will say that they don't have broadband or that their connectivity is awful," says Robert Hinton,

chairman of the West Virginia Broadband Enhancement Council, which was created by the state legislature to oversee broadband issues.

The Pew Research Center has used surveys to track home broadband subscriptions since 2000, and their data also point to a persistent rural-urban divide. (See chart.) An accurate picture of which communities are unserved is important for determining which regions have the greatest need. It also plays a role in determining eligibility for federal subsidies to build broadband infrastructure.

The gap between rural and urban broadband infrastructure is largely an issue of profitability. Fiber-optic cables are the current gold standard for broadband because they enable the fastest speeds and largest data capacity, but building out a fiber network is expensive. Estimates vary, but the U.S. Department of Transportation placed the cost of building a new fiber network at around \$27,000 per mile.

In densely populated cities, service providers can recoup these fixed costs more easily through a large subscriber base. But in sparsely populated rural locations, the cost of laying fiber can easily exceed the returns. Difficult terrain can further raise the costs of reaching remote places. West Virginia, which ranks 48th among states in terms of broadband access according to the FCC, faces challenges of both density and topography.

“Our terrain is beautiful, but when it comes to building infrastructure like broadband, it certainly is an impediment,” says Hinton.

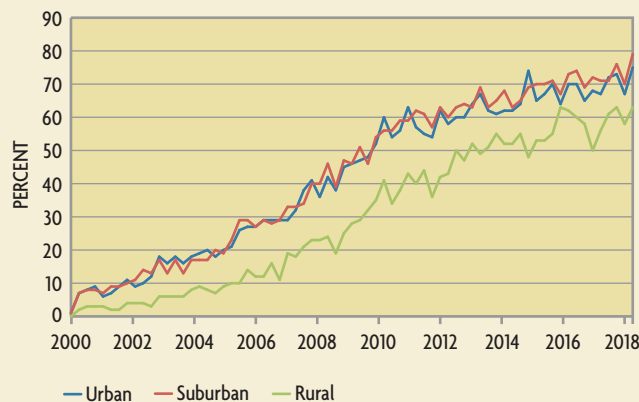
Policymakers at both the federal and state level have explored various ways to offset some of the cost of reaching unserved customers. At the federal level, this has mostly taken the form of infrastructure grants and subsidies. In January 2020, the FCC launched its Rural Digital Opportunity Fund, which sets aside \$20 billion over the next decade to finance the construction of broadband networks in unserved rural areas. And in December 2019, the U.S. Department of Agriculture announced \$600 million in funding for the ReConnect Program in the form of grants, loans, and grant/loan combinations to deploy rural broadband.

Nearly every state also has its own grants for broadband. For example, North Carolina’s Growing Rural Economies with Access to Technology (GREAT) Program provides grants for broadband development in distressed communities from a \$10 million pool. The Virginia Telecommunications Initiative has a budget of \$19 million to provide grants for broadband projects.

Funding for subsidies is finite, however, which means policymakers need to know how to direct the money to where it will do the most good. To qualify for subsidies, firms need to show that they plan to build infrastructure in unserved areas — a challenge if service maps are inaccurate. In March 2020, President Donald Trump signed into law the Broadband Deployment Accuracy and Technological Availability Act, also known as the Broadband DATA Act,

## The Rural-Urban Digital Divide

Percent of U.S. adults who are home broadband users



SOURCE: Pew Research Center

which requires the FCC to collect more granular data on broadband availability and create a process for consumers and ISPs to challenge coverage data that they believe is inaccurate. But it will take time for those data to be collected. Some states have decided not to wait.

Feinman says that instead of relying on the FCC’s maps, Virginia allows firms to apply for broadband infrastructure grants to build a network in any area that they believe is unserved. Incumbents in those regions then have an opportunity to submit a challenge and show that they do provide service in those locations. The threat of state-subsidized competition gives incumbents an incentive to disclose where they actually provide broadband service.

“While an accurate map would be beneficial to our efforts, we’ll be able to achieve universal coverage without ever having generated a reliable Virginia coverage map,” says Feinman.

### Filling in the Middle

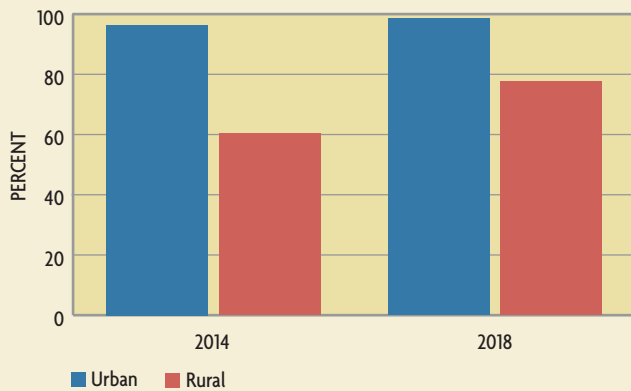
The gap in rural broadband coverage has often been framed as a “last mile” problem. Internet infrastructure can be broken up into three categories: backbone, middle mile, and last mile. While geography comes into play, these categories are more a description of the types of customers served. Backbone infrastructure is the high-capacity fiber that connects the large data centers that comprise the internet itself. Middle mile infrastructure runs between the backbone and last mile connections, which serve households and businesses.

In order to serve customers, ISPs need to build last mile connections to the nearest middle mile or backbone infrastructure. Those connections could be close or miles away, and that distance affects the total cost of closing the last mile.

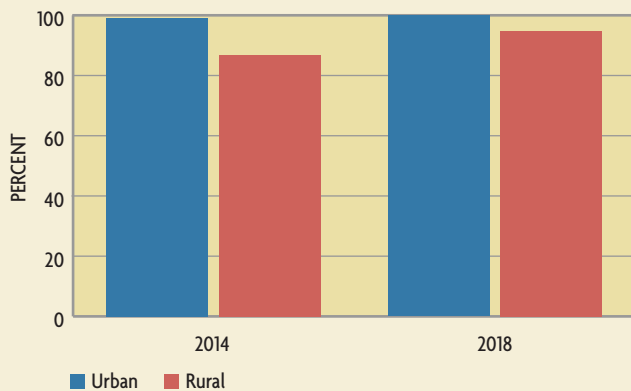
“If you’re a company looking to provide service to a rural area, the upfront capital costs are the real barrier to doing that,” says John Horrigan, a senior fellow at the Technology Policy Institute, a Washington, D.C., think tank that receives support from major tech and telecom firms. “If the government reduces that capital cost by building out

## Digital Divide Narrows with the Inclusion of Mobile Wireless

Share of Households with Access to Wired Broadband



Share of Households with Access to Wired Broadband or Mobile LTE



NOTE: “Wired Broadband” refers to wired internet with download speeds of at least 25 Mbps and upload speeds of at least 3 Mbps. “Mobile LTE” refers to mobile wireless internet with median download speeds of at least 10 Mbps and upload speeds of at least 3 Mbps.

SOURCE: Federal Communications Commission, “2020 Broadband Deployment Report.”

the middle mile infrastructure, that makes it much more attractive for private firms to come in and complete the last mile investment to serve customers.”

Some states have spearheaded their own initiatives to improve the middle mile. In 2013, Maryland completed the One Maryland Broadband Network, a fiber-optic network connecting government facilities and community anchor institutions across the state, facilitating easier last mile development.

Other states have partnered with private firms to build out their middle mile. In West Virginia, electric companies upgrading their networks to facilitate the development of smart grids have agreed to run additional fiber capacity and lease it to last mile carriers. Legislation passed in 2017 opened the door for ISPs to access roadbed right-of-way for laying fiber. Previously, that access was limited to regulated utilities. As a result of the change, both Zayo Group and Facebook announced plans to build middle mile networks in the state and lease capacity to last mile providers.

“Tech companies are running their own fiber to

connect their data centers and their offices. In doing so, they also make dark fiber available on the market for anyone to lease,” says Hinton. Dark fiber is any unused fiber-optic cable. Since the cost of building out a fiber network doesn’t vary significantly by the number or size of cables — most of the cost is in the easements and construction — tech firms like Facebook and Google or power companies creating a smart grid can fairly easily create excess capacity on their network to lease to ISPs.

### Fiber Alternatives

While fiber offers the best broadband speeds, it is also the most expensive solution.

“It would be great to connect fiber to everyone, but we have to think about the costs,” says Gregory Rosston, senior fellow at the Stanford Institute for Economic Policy Research. He served as deputy chief economist at the FCC during the implementation of the Telecommunications Act of 1996 and helped design and implement the first U.S. spectrum auctions. “It is worth asking whether everyone needs to have a fiber connection or whether other substitutes like satellite could be good enough.”

Traditionally, satellite internet service has been considered a poor substitute for fiber due to the time it takes the signal to travel to a customer’s dish on Earth from the satellite orbiting in space. While some internet applications like browsing the web and watching videos aren’t affected by this delay, it poses a challenge for things like real-time videoconferencing. Recently, low-Earth orbit satellite networks, like SpaceX’s Starlink project and Iridium Communications’ network, have promised to provide broadband with much lower latency compared to geostationary satellites.

“If this is successful, we could have pervasive broadband coverage not just of the United States but the entire world in the next three to five years,” says Rosston.

Another method of reaching unserved households without running cables all the way to the home is a hybrid known as “fixed wireless.” Fixed wireless ISPs connect transmission towers to the backbone or middle mile via fiber and use wireless signals to beam that broadband to customers.

“Depending on the design of your fixed wireless system, you can run a broadband connection to someone’s house at about a seventh the cost of fiber,” says Mike Wendy, director of communications for the Wireless Internet Service Providers Association, a trade organization representing fixed wireless ISPs.

Wireless providers don’t have to worry about securing right of way or digging trenches to run cables to homes, allowing them to reach customers more quickly. Wireless networks aren’t completely immune to physical barriers, however. They face a trade-off between speed and reach.

“On the lower part of the spectrum band, used in TV and radio, the signal can travel far distances and through solid objects,” says Wendy. “But you don’t get the massive

data capacity of broadband. As you move up into the mid-band and beyond, you get more capacity but can cover less distance and need to maintain more line-of-sight between the transmitter and receiver.”

Mobile wireless faces similar trade-offs. The new 5G data networks being built by Verizon, AT&T, and newly merged Sprint and T-Mobile promise speeds comparable to or even faster than home broadband, but the signal has a harder time crossing distances and penetrating buildings than existing 4G networks. Still, researchers and policymakers have long hoped that mobile technology might one day make building expensive fiber networks in hard-to-reach places unnecessary for closing the digital divide. A growing number of respondents to Pew Research Center’s surveys already say that the reason they don’t subscribe to home broadband is because smartphones and mobile wireless satisfy their needs; some 45 percent said so in 2019, up from 27 percent in 2015.

Counting mobile wireless as broadband makes the digital divide seem much narrower. (See chart.) Still, relying only on a smartphone to access the internet has shortcomings. Most wireless plans place caps on how much data customers can use each month, whereas wired home broadband services typically do not, or they have caps that are much higher. Mobile wireless is also often slower than a wired home connection, which may limit the ability of households that rely on it to use applications like streaming video and videoconferencing that have become even more important during the COVID-19 pandemic.

“Those who rely only on smartphones for internet access tend to be low-income households or households of color,” says Horrigan. “They can only afford one way to get online, and they choose the smartphone. Something that the pandemic has really shined a light on is that if you are reliant on just a smartphone for internet access, there are many things that are harder to do than if you had a wireline subscription and a computer.”

### Growing Adoption

While much of the focus in the policy debate over the digital divide has been on improving access, barriers to adoption also matter. Unsurprisingly, much of the research on the economic benefits of broadband finds that it isn’t enough for households simply to have access to it; they must also decide to subscribe. Higher adoption rates can also improve access by letting ISPs spread the capital costs of new infrastructure across more customers.

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Chiou, Lesley, and Catherine Tucker. “Social Distancing, Internet Access and Inequality.” National Bureau of Economic Research Working Paper No. 26982, April 2020.

Horrigan, John B. “Reaching the Unconnected: Benefits for Kids and Schoolwork Drive Broadband Subscriptions, but Digital Skills Training Opens Doors to Household Internet Use for Jobs and Learning.” Technology Policy Institute, August 2019.

A 2017 study by the Brookings Institution found that nearly a quarter of Americans lived in low-subscription neighborhoods, meaning that fewer than 40 percent of households subscribed to broadband service despite having access to it. As in the case of access, low subscribership was more concentrated in rural areas. But the study also found pockets of low adoption rates in cities, particularly in neighborhoods with low median incomes and lower rates of educational attainment.

As in the case of infrastructure costs, subsidies can help reduce subscriber costs for low-income households. As a condition for its merger with NBCUniversal in 2011, Comcast agreed to create a discounted broadband plan for low-income households. Comcast’s Internet Essentials program offers a broadband connection to eligible households for about \$10 a month. In a recent study of the program, Rosston and Scott Wallsten of the Technology Policy Institute estimated that about two-thirds of Internet Essentials subscribers represented true gains in low-income broadband adoption due to the discount. The remaining one-third either switched from a competitor service or would have subscribed anyway as part of a general upward trend in broadband adoption.

Cost isn’t the only barrier to adoption, though. A 2015 article in *Information Economics and Policy* that attempted to calculate households’ willingness to pay for broadband found that around two-thirds of non-adopters indicated that they would not consider subscribing to broadband at any price. More recently, 80 percent of respondents to Pew Research Center’s 2019 survey of non-broadband users said that they had no interest in having home broadband service in the future.

Households that have never had home broadband may not be fully aware of its benefits. Comcast’s Internet Essentials program includes access to discounted computers and free digital literacy training. In a 2019 paper, Horrigan found that Internet Essentials subscribers who had training were more likely to use the internet for schoolwork and job searching.

“We know that both discounts and digital skills training are effective,” says Horrigan. “The discount gets more people online than would otherwise be the case, and digital skills training makes people more likely to use the internet for homework and lifelong learning.”

Closing the digital divide, it seems, means crossing barriers not only of geography, but also of income and awareness. **EF**

Rosston, Gregory L., and Scott J. Wallsten. “Increasing Low-Income Broadband Adoption Through Private Incentives.” Stanford Institute for Economic Policy Research Working Paper No. 20-001, January 2020.

Tomer, Adie, Elizabeth Kneebone, and Ranjitha Shivaram. “Signs of Digital Distress.” Brookings Institution Report, September 2017.

## Don't Graduate into a Recession

BY EMILY GREEN

Much of the previous economic research on the aftermath of recessions has focused on their short-term effects on earnings and jobs. These effects were thought to disappear after around 10 years. New research suggests that the picture is worse, with longer-term consequences not only for workers' earnings, but also for their health and family outcomes.

In a National Bureau of Economic Research working paper earlier this year, Hannes Schwandt of Northwestern University and Till von Wachter of the University of California, Los Angeles analyzed the effects of graduating into the 1982 recession on mortality and socioeconomic status at midlife.

In their analysis, the authors estimated the size of the midlife effects through a new approach. First, they compiled health information from U.S. vital statistics of the Centers for Disease Control and Prevention, population and socioeconomic data from the U.S. Census Bureau and other related surveys, and state-level unemployment data in order to connect unemployment rates at graduation to lifetime outcomes. Then they created a novel measure of unemployment that accounted for variation in economic conditions and mitigated potentially confounding effects from interstate migration or individuals' choices about when to enter the labor market.

The authors arrived at five major findings. First, by comparing the mortality rates of those graduating into a recession to those graduating into standard or booming economic conditions, they found that the 1982 recession graduates exhibited higher mortality starting in their late 30s and increasing through age 50. Specifically, every 1 percent increase in the unemployment rate at graduation was associated with an increase in the mortality rate at age 49 of one death per 10,000. The authors also looked at how mortality effects compound with age, estimating average life expectancy loss from age 50 until death. The 1982 recession graduates, who faced a reweighted unemployment rate that was 3.9 percentage points higher than what average non-recession graduates faced, lost six to nine months in life expectancy.

Second, by regressing causes of death for the 1982 graduates against the most common causes of death in the United States, the authors found that the primary factor in higher midlife mortality was related to increases in heart disease, liver disease, and lung cancer, which are strongly

linked to unhealthy habits like smoking, drinking, and inactivity. A secondary factor was "deaths of despair," which include deaths due to suicide, drug overdoses, and liver disease. Overall, disease-related causes and deaths of despair accounted for nearly two-thirds of the increased mortality. The authors suggested that the stress of graduating into a recession likely encouraged unhealthy behaviors, which contributed to the negative long-term health outcomes.

Third, while examining the effects of graduating into a recession on socioeconomic measures such as earnings and family outcomes, the authors confirmed that initial incomes were reduced. They then demonstrated the

unexpected persistence of these negative effects into midlife — every 1 percent increase in the unemployment rate at graduation was associated with a 1 percent reduction in midlife earnings.

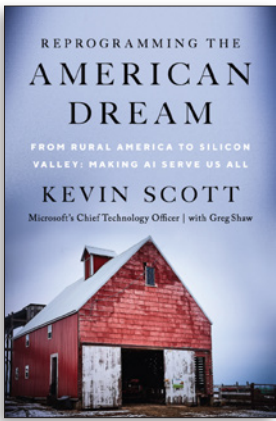
Fourth, the authors quantified the impact of graduating into a recession on marriage, divorce, and childlessness rates. Although

they recognized the difficulty in separating causality, they found that while recession graduates were initially more likely to marry, by middle age this trend reversed, with higher divorce and childlessness rates.

Finally, by comparing their findings across four demographic subgroups — male and female non-Hispanic whites and male and female nonwhites and Hispanics — the authors found that although the overall mortality effects were similar across races, deaths of despair were more prevalent among whites while disease-related deaths were more frequent among nonwhites. The authors noted that epidemics during the sample period (such as the HIV and crack epidemics) may account for some of this variation. In terms of socioeconomic effects, the negative effects on both earnings and family outcomes were worse for whites. Of the four groups, white men experienced the most significant losses in long-term earnings, with consistent losses in their 30s compounding during their 40s.

Schwandt and von Wachter's unique approach allowed them to present evidence that the long-term effects of graduating into a recession are costlier than previously believed. In fact, they suggested that their findings may underestimate the true impact on mortality and socioeconomic status. Their results highlighted that white males may have the most to lose by graduating into a recession and reinforced the link between economic conditions and morbidity and mortality, one that worsens with age. **EF**

Hannes Schwandt and Till M. von Wachter. "Socioeconomic Decline and Death: Midlife Impacts of Graduating in a Recession." National Bureau of Economic Research Working Paper No. 26638, January 2020.



**REPROGRAMMING THE AMERICAN DREAM: FROM RURAL AMERICA TO SILICON VALLEY — MAKING AI SERVE US ALL**

BY KEVIN SCOTT WITH GREG SHAW,  
NEW YORK: HARPERCOLLINS, 2020,  
285 PAGES

## BOOK REVIEW

# Local Boy Makes Code

REVIEWED BY JOHN MULLIN

Kevin Scott grew up in the rural town of Gladys, Va., amid an economy that was still dominated by tobacco farming, textile manufacturing, and furniture production. He recalls that “even as a kid I could see the bitter end of an economy that used to hum along, and I couldn’t wait to chase my own dreams of building computers and software.” His journey took him all around the globe, and after successful engineering stints at Google and LinkedIn, he now serves as chief technology officer at Microsoft, where he spends much of his time focusing on artificial intelligence (AI).

To say that Scott is an optimist would be something of an understatement. In *Reprogramming the American Dream*, Scott lays out an extremely hopeful vision for AI. In his view, the technology can create abundance and opportunity for everyone, provided that our society takes a principled and egalitarian approach to its development. This is not to say that Scott fails to recognize AI’s potential problems. Rather, he recognizes the pitfalls but firmly believes they can be overcome.

Scott attempts to counter some of the prevailing stories about AI — both utopian and dystopian — with what he sees as a more nuanced portrait of the technology’s current uses and potential. He confines most of his analysis to “narrow” AI — those applications focused on solving specific, well-defined problems. Although he tips his hat toward the concerns of Stephen Hawking and others that AI may eventually pose an existential threat to mankind, he mostly focuses on the workaday world of AI in its current industrial manifestations.

Much of AI is used to automate processes, and so discussions of AI often revolve around the themes associated with automation — both the technology’s potential to improve productivity and its potential to replace jobs. Here, Scott recognizes that automation does replace jobs but emphasizes that this process frees up labor for other, potentially more fulfilling, tasks.

When it comes to the education and training necessary to prepare workers for the economy’s new jobs, Scott points to local solutions. In particular, he tells the story

of a partnership between a private firm and a local government in rural Iowa. The private firm established an office to train young software engineers, and the local citizenry passed a \$35 million bond to finance a new high school and adjacent community college that will jointly operate a career academy to train workers for the high-tech jobs of tomorrow.

Those new jobs are likely to be abundant, in Scott’s estimation, because AI can actually be highly labor intensive — at least in its implementation stage. This observation seems particularly germane to the AI subfield of machine learning, which has played a large role in Scott’s career. With machine learning, computer algorithms are trained using sample data to recognize patterns and draw inferences. It turns out that the design and training of these systems takes a lot of human input — as does the infrastructure supporting these projects.

Scott still feels a strong connection to his rural roots, and it is his fervent hope that AI can stimulate the rebirth of the rural economy. Here, one of his chosen models is Germany’s highly successful Mittelstand sector, in which small- and medium-sized firms leverage automation to make leading products in narrow vertical markets. In his view, AI creates efficiencies that make it easier than ever to design, manufacture, and market innovative products. As a U.S. example of such endeavors, he cites Warby Parker. He also emphasizes AI’s potential to spur rural growth in agriculture, where smart systems can optimize the delivery of water, fertilizer, and pesticides.

Scott’s policy views are perhaps not so uncommon for a U.S. technology entrepreneur. He conveys a belief in the efficiency of markets, and he cautions against the unintended effects of well-intentioned policies, such as minimum wage laws and taxes on AI robots. But he also favors a strong social safety net and substantial public investments in education and infrastructure — rural broadband connectivity, in particular.

Rather than emphasizing particular political solutions, Scott sets out a set of general principles for the AI industry. Chief among these is the egalitarian goal that “we must ensure that anyone — ideally, everyone — can participate” in AI’s development and governance. He also favors the adoption of a formal code of ethics for the AI industry, similar to ones found in the legal and medical professions. For AI experts, his advice is to “put your work in context” and to think about how it is “impacting your fellow human beings.” For technology developers, he offers the dictum, “It’s not great AI if it’s unethical AI.” Although some readers may tire of such generalities, it is hard not to be buoyed by his optimism about AI’s potential to help solve some of humanity’s most pressing problems. EF

## The Fed's Emergency Lending Evolves

The Fed is using emergency lending powers it invoked during the Great Recession to respond to COVID-19 — but it cast a wider net this time

BY TIM SABLİK

As COVID-19 swept through the United States, the Fed reached for its playbook from the last major crisis in 2008-2009. Now, just as then, the central bank's actions have been aimed at restoring markets to normal functions during a major economic shock. In an emergency meeting on Sunday, March 15, the Federal Open Market Committee lowered the Fed's interest rate target to effectively zero and pledged to use its "full range of tools to support the flow of credit to households and businesses."

"The cost of credit has risen for all but the strongest borrowers, and stock markets around the world are down sharply," Fed Chair Jerome Powell told reporters in a press conference following the meeting. "Moreover, the rapidly evolving situation has led to high volatility in financial markets as everyone tries to assess the path ahead."

Many firms, both financial and nonfinancial, rely on short-term debt to keep their operations running smoothly. In a crisis, the normal market for credit can grind to a halt — and with it, the ability of these firms to borrow. Lenders find it difficult to assess the credit risk of borrowers when the economy is changing rapidly, and they have an incentive to hold onto liquid assets as insurance against uncertainty. To prevent a credit crunch from rippling throughout the economy, central banks often step in to act as a "lender of last resort" during crises — an emergency source of credit for otherwise solvent firms until normal credit market functions are restored.

In keeping with this role, the Fed announced it would create several special lending facilities in the days following its March 15 meeting. Some of these were first used during the Great Recession of 2007-2009 and retired after the recovery. The Fed also announced new facilities to lend to corporations, small businesses, and municipalities. (See table.)

"It took years for the Fed to develop the tools during the 2007-2009 crisis necessary to ensure the adequate provision of liquidity and to manage threats to the financial system," says Kim Schoenholtz of New York University's Stern School of Business. "What's remarkable this time around is how, almost instantaneously, the Fed not only revived all of the critical liquidity tools that were developed in the previous crisis, but also added to them."

For each of these programs, the Fed invoked section 13(3) of the Federal Reserve Act, which authorizes the Fed to lend to a broader set of recipients during a crisis — or

as Congress put it, in "unusual and exigent circumstances." Few would argue that the pandemic does not qualify as unusual, but deciding when and to whom the Fed should lend has been a debate among policymakers and economists that stretches back to the Fed's founding.

### Lender of Last Resort ... for Whom?

The Fed was originally created to solve a problem of liquidity in the banking system. Seasonal demands for cash placed a strain on banks, leading to periodic banking panics. (See "Liquidity Requirements and the Lender of Last Resort," *Econ Focus*, Fourth Quarter 2015.)

The framers of the Federal Reserve Act sought to solve this problem by creating a system of regional Reserve Banks that could purchase short-term commercial loans from banks when demand for cash spiked. Member banks could get cash from their Reserve Bank by exchanging commercial paper for it at the discount window. (Originally, each Reserve Bank had a physical window where member banks came for these exchanges; today, discount window transactions are handled electronically.) While the Fed was empowered to make loans to banks, businesses and individuals couldn't walk into their local Reserve Bank and ask for a loan — the Fed was envisioned as a "banker's bank."

That began to change during the Great Depression. As banks failed throughout the country, the normal market for commercial credit collapsed. Legislators and President Herbert Hoover worried that it was not enough for the Fed to support banks if those banks were reluctant or unable to make loans for productive ventures. In 1932, Congress made the change to the Federal Reserve Act that authorized broader lending in "unusual and exigent circumstances." The new section 13(3) authorized Reserve Banks to lend directly to individuals and corporations in emergencies.

This new power put the Fed in the business of making commercial loans, but it used that authority sparingly. Reserve Banks made just 123 loans totaling \$1.5 million between 1932 and 1936 (around \$28 million in today's dollars). In a 2010 article in the University of Pennsylvania's *Journal of Business Law*, Alexander Mehra, a lawyer, argued that this was likely due to several restrictions contained in the original text of section 13(3). First, Reserve Banks were only authorized to lend to individuals and businesses against the same type of collateral that they accepted for



lending to banks — short-term loans originating from commercial activity. Businesses, individuals, and investment banks were unlikely to have this type of collateral, making them ineligible for loans from the Fed.

Second, each loan required the approval of five of the Fed’s governors, a difficult procedural hurdle to clear. Finally, Congress had also created the Reconstruction Finance Corporation (RFC) in 1932. The RFC was a government-sponsored enterprise also tasked with making loans to individuals and businesses. Those loans were generally available at more favorable terms than loans from the Fed, which may further explain why the Fed had few takers.

Another reason section 13(3) saw little use was that it was soon superseded by a further amendment to the Federal Reserve Act in 1934 — the addition of section 13(b). That amendment placed fewer restrictions on the Fed’s ability to lend to businesses and saw much wider use. In the first year and a half, the Fed made nearly 2,000 section 13(b) loans totaling \$124.5 million (\$2.3 billion today).

The Fed’s Board of Governors was initially supportive of these new lending powers, stating in a 1934 press release that they would “aid in the recovery of business, the increase of employment, and the general betterment of conditions throughout the country.” But as with section 13(3), the Fed’s section 13(b) lending would also be overshadowed by the RFC. The RFC continued to be the industrial lending agency of choice, and, aside from a brief resurgence during World War II, the volume of the Fed’s section 13(b) loans dropped significantly after 1935.

In the postwar period, Fed leaders began to question whether the central bank should be involved in making loans to businesses and individuals. In 1957, then-Fed Chair William McChesney Martin told Congress during testimony that while there might be a role for the government to address gaps in private sector lending, it was not one that the Fed should play. Rather, he said it was the preference of the Board of Governors for the Fed to “devote itself primarily to the objectives set for it by the Congress, namely, guiding monetary and credit policy so as to exert its influence toward maintaining the value of the dollar and fostering orderly economic progress.”

It took decades after the Fed’s founding, but eventually economists and political leaders came to see the benefits to the economy of the Fed having monetary policy independence.

“The question is whether it is appropriate to burden a central bank that has the mandate of achieving price stability and maximum sustainable employment with also managing the supply of credit directly to nonfinancial organizations, such as businesses, corporations, or municipalities,” says Schoenholtz. “Those credit allocation decisions are politically fraught. Back in the 1930s, I don’t think anybody really understood the long-run benefits of having an independent central bank.”

Congress ultimately agreed to remove those credit allocation powers from the Fed. The Small Business Investment Company Act of 1958 struck section 13(b) from the Federal Reserve Act and transferred those powers to the Small Business Administration (SBA). But

### The Fed’s COVID-19 Emergency Lending Programs

Facility	Announced	Launched	New?	Description
Primary Dealer Credit Facility	March 17	March 20	No	Extend credit to primary dealers
Commercial Paper Funding Facility	March 17	April 14	No	Provide a liquidity backstop to U.S. issuers of commercial paper
Money Market Mutual Fund Liquidity Facility	March 18	March 23	No	Makes loans available to eligible financial institutions secured by high-quality assets purchased from money market mutual funds
Primary Market Corporate Credit Facility	March 23	June 29	Yes	Purchase corporate bonds from eligible issuers
Secondary Market Corporate Credit Facility	March 23	May 12	Yes	Purchase corporate bonds from eligible issuers in the secondary market
Term Asset-Backed Securities Loan Facility	March 23	June 17	No	Lend to holders of certain asset-backed securities backed by consumer and small-business loans
Paycheck Protection Program Liquidity Facility	April 9	April 16	Yes	Supply liquidity to financial institutions making PPP loans
Municipal Liquidity Facility	April 9	May 26	Yes	Purchase short-term notes from eligible U.S. states, counties, and cities
Main Street Lending Program	April 9	June 15	Yes	Lend to small- and medium-sized businesses and nonprofit organizations that were in sound financial condition before the COVID-19 pandemic

SOURCE: Federal Reserve Board of Governors

section 13(3), the original emergency lending authority granted to the Fed, remained on the books.

### **Emergency Lending Makes a Comeback**

In the decades after the Great Depression, the Fed invoked section 13(3) on a few occasions but did not actually make any loans. The emergency lending power remained unchanged and dormant until the passage of the 1991 FDIC Improvement Act, or FDICIA. The act removed the restriction that emergency loans could only be made against the same collateral accepted from banks at the discount window. Any securities that the Fed approved could now suffice as collateral.

As discussed in a 1993 article by Walker Todd, then an assistant general counsel and research officer at the Cleveland Fed, there was growing recognition among policymakers in the aftermath of the savings and loan crisis of the 1980s and 1990s and the stock market crash of 1987 that liquidity crises could happen outside of the traditional banking sector. If the Fed lacked the tools to address those liquidity needs directly, such problems could spill out into financial markets, resulting in crises similar to the banking panics of the 19th century that the Fed was created to prevent.

This became apparent during the financial crisis of 2007-2008, when troubles at large nonbanks created liquidity problems for the whole financial system. For the first time since the 1930s, the Fed made emergency loans under section 13(3) to a variety of financial and nonfinancial firms when traditional credit markets seized up. These programs were open to all qualifying firms in broad segments of financial markets. The Fed also invoked section 13(3) to offer direct assistance to support the resolution of specific firms deemed “too big to fail.” This included assisting in JPMorgan Chase’s purchase of Bear Stearns and extending credit to American International Group to prevent its bankruptcy.

After the crisis subsided, legislators debated whether the Fed had gone too far in its emergency lending. Providing liquidity on a general basis seemed in keeping with the central bank’s role as a lender of last resort, but providing direct assistance to specific firms was more controversial. It placed the Fed in the role of potentially picking financial winners and losers.

In the Dodd-Frank Act of 2010, Congress placed new restrictions on the Fed’s emergency lending powers. The Fed was no longer authorized to lend directly to individual firms. Instead, emergency loan facilities had to be available through a “program or facility with broad-based eligibility.” Dodd-Frank also required that any emergency assistance needed to be “for the purpose of providing liquidity to the financial system, and not to aid a failing financial company.” Finally, any loans the Fed made needed to be adequately secured to “protect taxpayers from losses,” and the lending programs required “prior approval of the Secretary of the Treasury.”

Fed officials supported these changes. In 2009 testimony before the House Committee on Financial Services, then-Fed Chair Ben Bernanke acknowledged that the “activities to stabilize systemically important institutions seem to me to be quite different in character from the use of Section 13(3) authority to support the repair of credit markets.” While he argued that directly intervening to stabilize systemically important firms was “essential to protect the financial system as a whole... many of these actions might not have been necessary in the first place had there been in place a comprehensive resolution regime aimed at avoiding the disorderly failure of systemically critical financial institutions.”

At the same time, Bernanke and his successors supported giving the Fed some flexibility to respond to liquidity emergencies where and when they emerged.

“One of the lessons of the crisis is that the financial system evolves so quickly that it is difficult to predict where threats will emerge and what actions may be needed in the future to respond,” Powell said in a 2015 speech while he was a Fed governor. “Further restricting or eliminating the Fed’s emergency lending authority will not prevent future crises, but it will hinder the Fed’s ability to limit the harm from those crises for families and businesses.”

### **The Next Chapter**

The Fed would call upon its emergency lending powers a few years later during the COVID-19 pandemic. Initially, the Fed revived many of the same facilities it had used in 2007-2009 to make credit available to financial firms that can’t access the discount window. But it also created new facilities to extend credit to a wider range of parties.

Through the Primary and Secondary Market Corporate Credit Facilities, the Fed can purchase bonds directly from large, highly rated corporations and supply loans for companies to pay employees and suppliers. The Main Street Lending Program, announced in April and launched in June, offers five-year loans to businesses that are too small to qualify for the Fed’s other corporate credit facilities. The Municipal Liquidity Facility makes loans available to state and local governments. And the Fed’s largest new program to date is the Paycheck Protection Program Liquidity Facility, which provides liquidity to financial institutions participating in the SBA’s Paycheck Protection Program (PPP). Businesses can take out loans through the PPP that can be forgiven if they use the money to retain workers on payroll. The Fed has agreed to provide credit to financial institutions making PPP loans, accepting those loans as collateral. Since the PPP loans are guaranteed by the federal government through the SBA, the Fed faces no risk of losses on this program.

While the Fed has announced a wider range of emergency lending programs than in 2007-2009, the total dollar amount of loans has been smaller so far. As of mid-August, the Fed had about \$96 billion in outstanding section 13(3)

loans. (See chart.) In fact, the Fed began to wind down some of the first programs launched in March as financial markets stabilized from the initial disruptions of the pandemic.

The Fed's emergency lending during the pandemic has been shaped by the changes made to section 13(3) by Dodd-Frank. All the lending facilities have

broad-based eligibility rather than being open only to a specific firm or a small set of firms. The Fed obtained permission from the secretary of the Treasury before creating each facility, and the Treasury has provided a backstop against losses for any facilities that are not inherently risk free. Those Treasury funds were appropriated through the Coronavirus Aid, Relief, and Economic Security, or CARES, Act.

There is some precedent for the Fed providing liquidity support during a pandemic. During the Spanish Flu outbreak of 1918, banks faced liquidity strains. A recent paper by Haelim Anderson of the Federal Deposit Insurance Corporation, Jin-Wook Chang of the Federal Reserve Board, and Adam Copeland of the New York Fed found that banks that were members of the Federal Reserve System were able to continue or even expand lending during the pandemic because of their access to central bank liquidity, while nonmember banks curtailed lending. The researchers argued that this highlights the importance of the Fed having the flexibility to act as a lender of last resort to financial firms outside of the traditional banking sector.

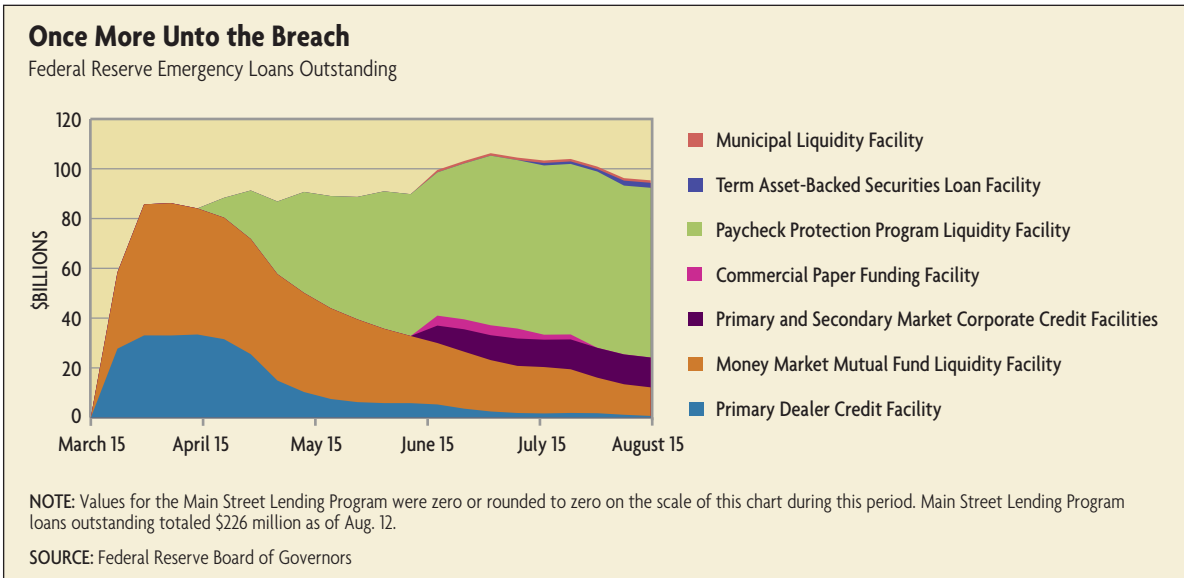
But such flexibility may come at a price. "If markets know the Fed can be relied upon as a liquidity backstop, the Fed can nip market disruption in the bud," says Alex Wolman, vice president for monetary and macroeconomic research at the Richmond Fed. "We saw that play out during the current crisis — initial market volatility in March subsided after the Fed took action. On the other

hand, an expectation that the Fed will act as a backstop may distort market prices and encourage excessive leverage in the long run. It can be challenging for a central bank to balance these considerations."

Indeed, some Fed scholars have argued that the newly created programs designed to lend to businesses and governments step beyond the boundaries Dodd-Frank established around emergency lending. In a May working paper, Lev Menand of Columbia Law School argued that the new facilities created to extend credit to businesses and municipalities sidestep the Dodd-Frank requirement that section 13(3) lending should be for the purpose of "providing liquidity to the financial system" since the recipients are not financial firms. Instead of amending the Federal Reserve Act to loosen restrictions on Fed emergency lending, when Congress appropriated the funds for these facilities in the CARES Act, it simply stated that they were for the purpose of providing liquidity to the financial system.

"If lending directly to business is a way to provide liquidity to the financial system, then any lending meets the requirement and the words added [to the Federal Reserve Act] in 2010 have no meaning," Menand wrote.

After largely walking away from lending to nonfinancial firms for decades, the Fed has found itself acting as a lender of last resort for more than just banks during two crises in the span of a dozen years. This has sparked renewed discussion among economists and policymakers over just what it means to be a lender of last resort. **EF**



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## Joshua Gans

On managing pandemics, allocating vaccines, and low-cost prediction with AI

Economist Joshua Gans spent the past quarter century researching issues that range from digital currencies to the economics of scientific publishing, from antitrust policy to entrepreneurship, from net neutrality to artificial intelligence. Last spring, he became one of many millions who found themselves stuck in lockdown and thinking about the coronavirus. He found an outlet for his energies in researching and writing about policy responses to the crisis. The resulting book, *The Pandemic Information Gap: The Brutal Economics of COVID-19*, will be published by MIT Press in November. In a departure from usual publishing practice, reflecting the urgency of the topic, an early version of the book was released online in April under the title *Economics in the Age of COVID-19*.

A native of Australia, Gans came to the United States in 1990 to pursue his Ph.D. at Stanford University. Today, he is a professor at the University of Toronto's Rotman School of Management, where he teaches entrepreneurial strategy and the economics of artificial intelligence. Gans is also chief economist of the Creative Destruction Lab, a program for advanced technology startup companies. The organization, founded at the Rotman School and with branches at other universities, provides mentoring and networking opportunities to selected companies in technology areas that include artificial intelligence, blockchain, energy, and space.

In addition to his book on the SARS-CoV-2 pandemic, Gans is the author or co-author of, among other books, *Innovation + Equality* (MIT Press, 2019), *Prediction Machines* (Harvard Business Review Press, 2018), and *The Disruption Dilemma* (MIT Press, 2016).

David A. Price interviewed Gans via videoconference in June 2020.



**EF:** How did you become interested in economics?

**Gans:** I was interested in science fiction in high school. I read a novel by Isaac Asimov called *Foundation*. I saw what was going on in that book and in economics as sort of similar and quite interesting.

*Foundation* has a premise that a hero character invents a science called psychohistory. In psychohistory, you can't predict individuals, but you can predict large movements in society and social forces on a galactic scale, because you know, why not? (*Laughs.*)

The book got me interested in the possibility of being able to predict with social science in the same way that physicists were able to predict movements of planetary bodies and so on. Economics turned out to be nothing like that, but that's another matter.

I didn't think of economics as a profession until much later, but that's when I started getting interested in studying it.

### MAKING SENSE OF THE CORONAVIRUS

**EF:** What led you to write your new book on the economics of the coronavirus? Had you done research in this area before?

**Gans:** What led me to write it is I didn't know what else to do. Back in March, I was stuck at home, so I decided to write a book.

On any scale of normal scholarly credentials, I didn't have any background for this book. I had done some health economics and studied some of the other topics in this book, like innovation. But beyond that, no. The main reason I decided to do it was that I figured at this time everybody who was a real expert was going to be busy. (*Laughs.*)

My idea was to explain what's going on from the eyes of an economist. The challenge was that of course things were moving very quickly. From conception to publication was a couple of days over a month, which is kind of ridiculous. MIT Press had a lot to do in that time, also. They had to have it peer reviewed because they won't just publish anything. They had to have it copy edited. They opted to do a whole lot of things in parallel that they normally do sequentially.

Another move that was unusual was that when the book went out for peer review, MIT Press also posted the draft online. Everybody could see it and comment on it. Those comments turned out to be quite valuable. With those comments and some further thinking and research, I've now written a version of the book that's twice the size, which will come out in November.

**EF: Did you change your mind about anything since writing that first draft?**

**Gans:** Yes. What's reflected in the book that's coming out is that I now see these pandemics as manageable things. Policymakers have to react right away and stay the course, but pandemics can be managed. If I had to guess how history is going to judge this period, the judgment is going to be that this shouldn't have been a two- to three-year calamity, it should have been a three-month calamity.

The need for testing aggressively at the beginning had to be appreciated. You aggressively isolate people you find who are infected, you trace who they had contact with, and you aim for quick, complete suppression. The countries that had had experience with pandemics — Hong Kong, South Korea, Taiwan, most of Africa — got it right away. They knew what the problems would be if they didn't do anything about it. So experience with viruses was definitely a factor. But Canada had that and didn't quite get its act together quickly enough. Some provinces were better than others. Quebec was way too slow and has had the worst problem. Australia and New Zealand lucked out because of their distance, which gave them time to understand what to do.

But once the virus breaks out, then you've got a problem. Then you've got to do the complete lockdown. And we're seeing places that did a complete lockdown — like they did in Italy, France, and Spain — squash it all the way

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“I think this pandemic has surely disrupted everything in terms of the development of AI for normal business practices. **Because we don't know what normal is anymore.** The problem with having everything rely on a statistical model is that if you have a major structural break, those models break too.”

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down. Locking down is terribly painful; that's why you don't want to go through it in the first place. But you may have to. So there's a separate factor, which is resolve — how far are you willing to go to push the spread down.

**EF: Looking at this set of choices that you've outlined, where has the United States been and where do you think it should be or should've been?**

**Gans:** Early in the crisis, people in the United States and Canada were not talking about the virus as something we needed to suppress completely. The discussion was mainly, “We're going to push down the curve, and then we'll wait for a vaccine.” But the evidence both historically and now with this virus is that, as I said, you can achieve suppression in months if you act quickly. You have to keep working at it because if you don't have a vaccine, the disease can crop up again, but it's manageable.

In the United States, different states are using different policies. Most states appear to be following the doctrine of pushing down the curve and waiting for a vaccine. But there are some states that have opted to do nothing. That doesn't mean you get everybody riding around and getting ill, because people exercise their own judgment, but it means you get these outbreaks and ups and downs as a result. And it's not just states in the United States; Sweden and Brazil also did that. For me, it's an odd thing to be doing.

## **RATIONING A VACCINE**

**EF: When a vaccine is ready, presumably there won't be enough right away for everyone who wants it. If that happens, what's the best way to allocate it?**

**Gans:** This is a huge issue that's coming. The CDC already has a list of how to allocate flu vaccines based on how essential you are and how at risk you are.

The essential part of course makes sense. Everybody we decided was essential in March should be considered essential and get the vaccine first. But on the at-risk side, we get into really interesting issues. Normally, it would be pregnant women and young children who would get the vaccine first. It doesn't look like that's necessarily the at-risk population this time around.

But does that mean you want to give it to the most at risk — the elderly — up front? That's not as clear either, because the elderly aren't running around in public and getting exposed.

Who else would you want to give it to? You'd want to give it to people who are in close quarters. Prisoners would be obvious choices on moral and practical grounds.

Then there's the debate about whether to use market forces — willingness and ability to pay — versus something else, like a lottery. My guess is, officially, it'll be a lottery. I'd rather have a lottery but allow people to sell their dose to somebody else who's further down, who got a worse ticket. At least that would be aboveboard and clear. And if you're someone who's poor who can stay at home when the vaccine is in short supply, you can benefit from staying at home instead of getting a vaccine.

Whatever the right policy, the issues should be discussed and understood. Another reason I would like to have the discussion about rationing is that I would like governments to see how bad rationing is going to be — because one of the best ways to get rid of a rationing problem is to have no scarcity.

There are also the international issues: Which country gets the vaccine, what are their intellectual property rights, what are their manufacturing capabilities? Not everyone is going to build all their own plants. What's going to happen?

Normally, what would happen is all the countries of the world would be getting together and deciding on that allocation right now. There are some things going on there, but it seems that the United States, Russia, China, and India aren't participating in that discussion. So that doesn't look like it's going to end well.

**EF: When you look at future treatments, do the same issues play out in the same way?**

**Gans:** The issue of treatments is a little bit easier because you don't need enough for everybody. You just need enough to treat the sick. And fortunately, at any given time, there aren't that many people sick. Unless, of course, the virus goes out of control and there are a lot of people sick, with intensive care units filling up — that's going to create scarcity on the treatment side. That was the whole discussion back in March: Let's not let that happen. Let's keep the infection rate low so we can treat everybody.

As it turned out, overrunning of hospitals was avoided by the skin of our teeth. If we had waited another week, it would've happened.

## AI AND THE COST OF PREDICTION

**EF: Let's turn to your work on artificial intelligence. You've argued that AI will reduce the cost of prediction in much the same way that the web reduced**

### Joshua Gans

#### ► Present Positions

Professor of Strategic Management and Jeffrey S. Skoll Chair of Technical Innovation and Entrepreneurship, Rotman School of Management, University of Toronto; Chief Economist, Creative Destruction Lab, University of Toronto

#### ► Selected Additional Affiliations

Research Associate, National Bureau of Economic Research; Research Affiliate, Center for Digital Business, Sloan School of Management, Massachusetts Institute of Technology

#### ► Selected Past Positions

Professor of Management, Melbourne Business School, University of Melbourne (2000–2011)

#### ► Education

Ph.D. (1995), Stanford University; B.Econ (1989), University of Queensland

**the cost of communication and search. How will it do that, and why is it important?**

**Gans:** Artificial intelligence is a term that gets bandied around to mean all sorts of things. We have a pop culture version; we have technical versions.

At the University of Toronto, we have a startup program I'm involved in called the Creative Destruction Lab. The program doesn't make financial investments; we connect the accepted companies with investors and advisers. We were seeing novel kinds of software applications coming up in 2013 and 2014. People were saying the technology was "artificial intelligence," but it wasn't clear to us for a while what they meant. It turned out that it actually was much more familiar than that. It was ultimately just an advance in statistics.

But it was a big advance, an advance that took advantage of the computational power and large datasets we now have. It was about being able to take a bunch of data and use it for the purposes of prediction.

Some tasks may be obviously based on prediction, like forecasting demand. But a lot of tasks that don't seem like prediction problems can be framed as prediction problems, such as a computer being able to look at a photo and tell you what's in it. You aren't actually requiring the computer to know if a photo has a frog in it. You're asking the computer: What's your best prediction of what a human would call what's in it?

That best guess is based on the computer having seen a million photos that people have labeled as containing a frog and another million photos that they haven't. That's enough for machine-learning algorithms to work out whether a new photo has a frog in it or not.

It turned out a lot of tasks that had been thought of as hard to implement on computers — image recognition, natural language processing, predictions about human behavior — were within the range of machine learning and became really cheap.

One of the companies we met with, called Atomwise, was using artificial intelligence to predict whether a particular protein was more likely to bind with other molecules for the purposes of developing drugs. That is the sort of innovation that could really speed up the drug discovery process. And when that company came through, no one had heard of these artificial intelligence tools. They ended up getting frustrated and went to Silicon Valley, where they raised a whole lot of money, and they are now hugely successful. But we learned from that that maybe we should find out more.

Anyplace where you want to use prediction, it's going to become a lot cheaper, which means you'll use more prediction and you'll find more applications for it.

I think this pandemic has surely disrupted everything in terms of the development of AI for normal business practices. Because we don't know what normal is anymore. The problem with having everything rely on a statistical model is that if you have a major structural break, those models break too. If you were using one to forecast demand, it's bloody useless now.

**EF: Regarding the public's awareness of AI, is AI still ahead of where people think it is?**

**Gans:** No, I think we're on the other side of the hype cycle now. There are AI uses coming out all the time. It's getting nice and boring.

But there are exceptions. For instance, we have facial recognition engines that can identify people, most of the population now, which is the scarier end of this kind of technology. We're getting a bit of that.

**EF: You've written that although data normally have decreasing returns to scale, with AI they may have increasing returns to scale. Why is that?**

**Gans:** Normally, it's decreasing returns to scale. Get a bit more data, it doesn't help you predict much.

The situation in which data can have increasing returns to scale — economies of scale — is when you can get data on a wider variety of things, including some things that are very rare. For instance, Google, because of its reach, gets a lot of queries that no one's ever asked there before — queries that Microsoft doesn't get. So if Google is using AI, it can train off those more remote results. And so to that extent, there's an increasing return to scale.

**EF: What do you think AI will mean for concentration of markets?**

**Gans:** When a development in productivity like AI comes along, invariably people say, "It's going to reinforce existing power." But if it's really a big change, it doesn't tend to do that. Why? Because it's reducing the cost of something. And no one has a monopoly over the hardware, the software, or even really the data to generate AI products at the moment.

So I think it's not going to reinforce existing power. But if it follows the normal patterns, there will be a big company, probably not one of the current ones, that will eventually come out of this as the market leader and we

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"A lot of tasks that don't seem like prediction problems can be framed as prediction problems, such as a computer being able to look at a photo and tell you what's in it. **You aren't actually requiring the computer to know if a photo has a frog in it.** You're asking the computer: What's your best prediction of what a human would call what's in it?"

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will say, "Ah, that's where the monopolist was." If I could predict which company it will be, I would invest in them, but I can't. What I can predict is that that will happen, because it's always what happens.

## **AI AND WHITE-COLLAR JOBS**

**EF: Information technology in general is sometimes said**

**to be skill-biased, which is a shorthand way of saying it favors educated workers. Is that equally true of AI? What will AI mean for white-collar jobs?**

**Gans:** No one knows yet. You can come up with stories either way.

The way I look at it is that AI is prediction and prediction is a component of decision-making — but it's not the only component of decision-making. In many applications, you still need people with the judgment to evaluate what the trade-offs are of what they're looking to do. Does that come from people who have the highest education? Possibly, but it's not a given.

Part of the AI trend is taking very narrowly specified tasks and automating them. For example, some call centers are suited to that. Then there are other activities that we normally think of as requiring extensive education, such as reading legal documents. Where it may have taken you hundreds of hours to analyze a set of documents without AI, now it will take you, say, two hours. That makes whoever is doing that two hours of work immensely productive, so that's good for them. But the open question will be, are there really enough legal documents to be reviewed to keep everybody occupied who was previously occupied with them?

Historically, we end up with more legal document reviews to do. Or those people have found something else to do. So I'm on the optimistic side that we'll have enough time such that we won't see mass unemployment or anything like that as a result of AI. But I find it hard to predict who is safe.

**EF: One reads about efforts in China to establish a leadership position in AI. Do you have any view about who's going to dominate in this field?**

**Gans:** It's always hard to think about issues of national dominance. I find them uncomfortable and not that useful. The only issue that's interesting here is that if China has an advantage, it has an advantage because it can collect data so easily. Here, we haven't been comfortable giving up that level of data to some organization or a government.

I think what will happen is there will be some areas — facial recognition, general surveillance, and things like

that — that China will be better at because they will do more of it.

What the United States is doing and what the defense departments are doing, we don't know. Where that spills over, we don't know. I don't think the Chinese are going to get as good as the United States at targeting ads. (*Laughs.*)

## NEGOTIATING WITH CHILDREN

**EF: Another area that's been of interest to you is economics in parenthood. In your book *Parentonomics*, you said that parents are in a weak negotiating position vis-a-vis their children when it comes to messy rooms. Why?**

**Gans:** That's because you care about the mess in the room and the children do not. It is much easier to negotiate an outcome where you can find things that people care about equally: You care about X as much as I care about Y. So to negotiate with a child to clean up a messy room, you have to be able to find in that negotiation bundle something that the child cares as much about.

Now, in the time since I wrote the book, I've found the most useful thing that I have that the child cares a lot about is the access to the Wi-Fi. I have a button that I can press to cut my children off from the internet. Suffice it to say, that's all I need. I may encounter resistance; I might encounter a child saying, "Fine! Shut off the internet, I don't need it!" But a few hours later, I'm getting a clean room.

So there's new technology that has changed the balance. The iPad and other such devices are a parent's dream. They are reducing the cost of punishment.

**EF: You have experienced higher education in three countries — Australia, Canada, and the United States — as a student, a professor, or both.**

**Gans:** Right.

**EF: What do you think are their main relative strengths and weaknesses?**

**Gans:** Well, Canada and Australia are the same in the sense it's mostly public universities. So it's not as expensive. But then again, there's the perennial issue of somebody proposing to cut the budget and everybody panics.

The places I've experienced in the United States are not representative. My experience has been in the elite institutions. And it's a bit of a mystery as to how the whole thing works. Why is it that so many resources are devoted to a relatively small number of people? These institutions tend to be smaller, they get the smaller classrooms, the professors have less teaching, higher salaries, etc., etc.

So you sit there and ask yourself, why is that persisting? I can see what everybody's learning, and it's not that much different between the elite places and the other places. Yet you have people willing to pay many times more. You get the sense that there is a sorting going on and that people were paying to be members of a better club. Whereas in Toronto and Melbourne, the universities are huge. Sixty, 70,000 people. That's not so exclusive a club to be a member of.

I don't know the value of the club membership, but you asked about what the differences are. Those are the differences, I think.

**EF: What are you working on now?**

**Gans:** I'm finishing up a textbook — a longstanding textbook on entrepreneurship. I'm just about to pack off that updated version of the pandemic book to MIT Press. Then I'm not quite sure what I'm doing next. Probably whatever it was I was doing before the virus. I can barely remember. **EF**



## The Making of Reston and Columbia

Reston, Va., and Columbia, Md., were founded in the 1960s with similar visions for inclusive, connected communities

BY EMILY WAVERING CORCORAN

In the mid-1960s, Doris Briggs and her four children drove the 700 miles from Chicago to Virginia in her Chevrolet in pursuit of a new life. Briggs would later recall, “Everybody said, ‘Don’t do it, don’t do it, you have no friends.’ I said I have friends *everywhere*. And I had my faith, had my four children, and I knew it was going to be a better life for me.” Their destination, Reston, Va., promised a community-centered alternative to modern suburbia that was inclusive of black families like the Briggses — well before the Fair Housing Act of 1968 made housing discrimination illegal.

Beverly Cosham, another early black resident of Reston, remembers facing similar skepticism and feeling the same sense of conviction. “Everybody I knew said, ‘Why are you moving to Virginia? Aren’t you far enough south in D.C.?’ Reston felt different. It was that bucolic, safe, wonderful place.”

Reston was a “New Town,” one in a series of communities founded in the 1960s and ’70s across the United States to reimagine suburban living. The communities of the New Town Movement — including Reston’s northern neighbor, Columbia, Md. — were founded on similar values but varied in their long-term viability.

Some, like Soul City, N.C., faced an assortment of economic and political challenges that forced them to shutter. Others, including Reston and Columbia, achieved relative success in fulfilling their founders’ vision. Still, these communities have periodically made compromises to preserve their economic feasibility and continue to navigate challenging questions about affordability, inclusivity, and future development.

### “Live, Work, Play”

The vision for Reston was enshrined in the town’s 1962 Master Plan by founder Robert E. Simon Jr. Development would give priority to walkability and accessible amenities and would enable residents to live and work in the same area. Reston would also be open to individuals of all ages, incomes, races, and ethnicities — in fact, it was the first integrated community in Virginia. Simon created the community’s motto to capture this vision: “Live, Work, Play.”

Simon was a New York real estate developer whose vision for Reston grew from personal experience. As a child, Simon grew up in New York City across from a park. Later in life, he would recall how formative it was to

grow up with easy access to nature, school, shopping, and public transportation.

The son of a real estate developer father and a cultural enthusiast mother, Simon was taught from a young age to value aesthetics and cultural experiences. He traveled to Europe frequently with his family, but it was during a solo post-college European bike tour that Simon was first exposed to dense neighborhoods centered on a plaza, which would later inform his vision of Reston’s physical layout.

At 23, Simon inherited Carnegie Hall after his father’s death and subsequently became president of the concert venue. During this time, he was also a young father who spent much of his time commuting. His dislike of that lifestyle further motivated his desire to create a self-contained community. In 1960, Simon sold his share of Carnegie Hall and an opportunity soon presented itself in the form of 6,750 acres for sale outside of Washington, D.C.

From the outset, Simon’s vision for the land was different; in the words of Francis Steinbauer, a design engineer who worked on the master plan, Reston was “not just a building project but a whole new way of living.” Practically, this meant dense, mixed-use development that was not permissible under the existing zoning code in Fairfax County, Va. Although the county was resistant at first, it ultimately created a new zoning code that rejected the single-use standard of the day and allowed for a mix of single-family homes, apartments, condominiums, commercial development, recreational facilities, and open spaces in proximity to one another.



*Reston was developed in 1964 as an “open community,” one that welcomed all races and religions into integrated housing communities.*

Reston was founded on April 10, 1964 — Simon’s 50th birthday — with a name derived from his initials, R. E. S. Seven principles drafted by Simon himself underpinned the development and community. Among these were that residents would be able to live, work and remain in Reston “throughout their lives,” that all planning would focus on “the importance and dignity of the individual,” that beauty “should be fostered,” and lastly, that “Reston should be a financial success.”

These principles directly informed the town’s design. The master plan established seven villages, each with a distinct architectural style and built for 10,000 residents. Each village was centered on a plaza that provided walkable access to stores and restaurants, created jobs, generated revenue through commercial leasing, and had designated space for educational, recreational, and cultural programming.

Surrounding each plaza was an assortment of housing types meant to cater to different life stages and income levels — from more affordable apartments and condominiums to single-family homes. Schools, churches, job centers, and parks were interspersed throughout the villages.

Reston opened to residents in 1964 with Lake Anne Village Center as its first village. On the whole, Reston enjoyed an enthusiastic reception by early residents and the media. Reston’s “early pioneers” were quick to contribute to the town’s founding principles by, for example, establishing a neighborhood day care system and contributing to weekly meetings on artistic and cultural programming. But investors were somewhat less eager.

When seeking capital for the continued development of Reston, Simon and his team were turned down by 50 different banks that were hesitant to participate in a project that broke from the norm. Large-scale development projects like Reston are capital-intensive in their early years — they require huge amounts of construction and are slow to turn a profit. Few entities had the capital on hand to make a project like Reston happen.

Oil companies were a rare exception. Gulf Oil Corp. became an early investor in Reston, although development was hampered by sluggish housing sales after the initial surge of enthusiasm. Commuting also proved to be a significant challenge. While Reston promised access to retail and some jobs, it remained disconnected from larger job centers in the Washington, D.C., area. Residents often needed to take on long commutes that were counter to the town’s promise of living and working in the same place.

Despite early financial struggles, Simon refused to compromise on building materials or design, which drove up construction costs. Three years after Reston’s founding, struggles over home sales and development costs came to a head when the Gulf Oil board of directors forced Simon out.

In 1967, Gulf created a subsidiary, Gulf Reston Inc., to manage the project. Gulf prioritized profitability but also

largely followed the master plan. Central plazas remained a fixture of the villages, but Gulf emphasized they needed to be profitable.

Still, the social fabric of Reston was woven early on. Even with the management shift, Reston’s community values stuck and became an integral part of the town’s culture.

### “The Next America”

Fifty miles northeast, Columbia, Md., was unveiled on June 21, 1967. This new town was the brainchild of James Rouse, a real estate developer, urban planner, civic activist, and philanthropist. Like Reston, Columbia was built on a vision of livability and integration. Its motto, “The Next America,” was meant to capture Rouse’s hope that the community could serve as an example of pragmatic utopianism for other communities across the nation — that is, an example of social interaction and harmony that, in Rouse’s words, could provide “an alternative to the mindlessness, the irrationality, the unnecessary of sprawl and clutter as a way of accommodating the growth of the American city.”

In contrast with Simon’s youth in New York City, Rouse grew up in Easton, Md., a small town on the upper Eastern Shore near the Chesapeake Bay. Descriptions of Rouse’s childhood are idyllic — an upbringing “right out of small-town Norman Rockwell Americana.” Rouse experienced close-knit community and natural beauty from an early age, which would ultimately be coupled with his tenacity, leadership qualities, business acumen, religious convictions, and urban development experience to create the vision for Columbia.

In 1933, Rouse moved to Baltimore and soon entered law school at the University of Maryland. While still in school, and in the midst of the Great Depression, he began working for the Federal Housing Administration. This experience imbued a deep understanding of the housing market, which served Rouse well when in 1951 — after serving in the Navy during World War II and co-founding a mortgage banking company — he chaired the Baltimore Mayor’s Advisory Council on Housing Law Enforcement as part of the nationally acclaimed Baltimore Plan to redevelop slums in the city.

While the Baltimore Plan faced various political challenges and was only a partial success, it launched Rouse to the national stage, shaped his commitment to urban renewal, and helped form a conviction that he would espouse for the rest of his life: “We must hold fast to the realization that our cities are for people, and unless they work well for people they are not working well at all.”

In the late 1950s and early 1960s, Rouse worked on two pivotal large-scale commercial projects: Harundale Mall in Glen Burnie, Md., and Cherry Hill Mall in Cherry Hill, N.J. Harundale was the first enclosed shopping center on the East Coast and helped spark the proliferation of shopping malls nationwide, as well as Rouse’s vision of an integrated, amenity-rich community anchored by a

shopping mall. Cherry Hill cemented this vision as a town developed organically around the mall (and ultimately, named itself after the shopping center). Rouse reasoned that if he could plan for residential development at the outset in conjunction with shopping, the result could be a model urban center.

Rouse purchased large swaths of land in Howard County, Md., to bring his model city to life. As was the case for Simon in Fairfax County, the local building code needed to be completely rewritten to enable Rouse's urban vision. Howard County's local leaders and existing residents were cautiously optimistic about the project and became more assured with Rouse's release of a master plan simply titled "Columbia." The plan established that the new city would be an environmentally friendly "complete and balanced community" that "set the highest possible standards of beauty, safety and convenience," without tax burdening existing residents or increasing utility costs for the county.

Before construction began, Rouse led a 13-month planning process that brought together experts from a diverse array of fields, such as education, recreation, sociology, housing, religion, government, and medicine. This team helped ensure that Columbia's built design contributed to the high standards of beauty, safety, and convenience promised in the master plan.

The team also helped make sure that Columbia would be economically feasible. Robert Gladstone, a Washington, D.C., economist who sat on the planning team, developed the Columbia Economic Model (CEM), which guided the city's development. The CEM required employees to constantly seek efficiency in all activities and projects and "ensured that all decisions made were economically viable."

The master plan called for the construction of 10 core villages with 5,000 to 10,000 residents each. These villages would surround an enclosed shopping mall. As in Reston and other new towns, the villages were designed to be self-contained communities with diverse housing stock, ample amenities, jobs, and green spaces that enabled a high quality of life. Columbia was also a purposefully integrated community.

Unlike Simon, Rouse was first and foremost a businessman. He did not share Simon's passion for design, and this was apparent in Columbia's housing stock. A typical single-family home in Columbia was designed to be an incremental improvement over existing suburban homes of the day — for example, slightly larger floorplans and more creativity in housing facades and landscaping. These homes felt familiar to consumers, and Columbia did not face the same home sale challenges that Reston did.

Media coverage of Columbia's early years was positive and helped attract new residents who shared Rouse's commitment to inclusivity, civic duty, and the environment. Among these early residents were William and Regina Stebenne, who moved their family from the suburbs of Rhode Island to the Village of Wilde Lake in August 1969.



*Columbia founder James Rouse (center) discusses plans with project director William Finley (left) and urban planner Morton Hoppenfeld.*

Their son, David Stebenne, is now a historian and author of multiple works on Columbia and is clear about the weaknesses and strengths that were built into the city from the start. "James Rouse was that very unusual American man who was not interested in cars," he says. "One of the greatest failures in terms of overall design was to not do a kind of grid that would facilitate the easier movement of cars." But integration was a success. "Unlike many other sizeable towns that tried to be racially diverse and stable, Columbia succeeded. It was racially diverse from the beginning, and it still is."

### **Keeping the Vision Alive**

In the decades after they were founded, Reston and Columbia each faced challenges, many of which were economic. For Reston, these included investor turnover and tensions between financial viability and commitment to the founding principles. For Columbia, these included reckoning with some design weaknesses — including transportation — and increasing density to develop an economy of scale.

The 1970s, '80s, and '90s saw Reston change hands from Gulf Oil Corp. to Mobil Oil Corp. Like Gulf, Mobil pursued market-based development and followed the master plan to a degree that allowed Simon's vision to remain relatively intact. In 1990, Mobil dedicated Reston Town Center, a mixed-use shopping plaza that was the crown jewel of the town and a central piece of the master plan. The lofty goals established by Simon inspired Mobil's planning team to break from conventional commercial design — ultimately, Reston Town Center was created as a place for people to spend their time, in addition to their money.

Similarly, Columbia was not immune to business cycles and faced its share of financial challenges over the years. But, as David Stebenne points out, Columbia was the only one of the suburban "new towns" of the later 1960s and '70s in which the original developer was able to retain long-term control over the project.

Three primary factors enabled Rouse to maintain control. First was the conventional nature of the housing stock. Second was Columbia's concentration of business parks. Both supported the economic viability of the development through home sales, commercial leasing income, and job creation. Third was the close professional relationship that Rouse developed with Frazar Wilde, president of Connecticut General Life Insurance Co., the investment firm that financed the majority of Columbia's early development. Wilde focused on long-term profitability and also viewed Columbia as a project worthy of investment for reasons beyond profitability, which mitigated the pressure that large-scale development projects face to turn a profit as soon as possible. As David Stebenne notes, "To the extent there are compromises, they don't stem from a lack of knowledge on the part of the developer... they stem more from larger macroeconomic forces beyond Rouse's control."

After his retirement from the Rouse Company in 1979, Rouse dove back into urban redevelopment through malls that he called "festival marketplaces." These projects included Boston's Faneuil Hall Marketplace and Quincy Market and Baltimore's Harborplace, which were meant to help revive downtown areas by creating an amenity-rich destination for residents and tourists alike. Simon, meanwhile, moved back to New York to manage smaller-scale development projects but retired to Reston's Lake Anne neighborhood in 1993. He lived in his beloved community until his death in 2015 at the age of 101.

### Towns in Progress

Reston and Columbia continue to be thriving communities that must navigate new challenges that come with age. As each passed its 50th anniversary, conversations began about redevelopment.

Part of Reston's continued vibrancy stems from its location in a region experiencing rapid economic growth, and more recent planning has had to account for that growth. A central innovation of Reston's current Comprehensive Plan, adopted in 2015, was a minimum 1-to-1 ratio of residential to nonresidential development for the areas around Reston transit stations, including Reston Town Center. According to Robert Goudie, executive director of the Reston Town Center Association, the ratio — which had not been widely attempted in other mixed-use developments — was designed to set a minimum

requirement on residential in the downtown and thereby "create a healthier jobs-to-households ratio in what previously were areas zoned largely or exclusively commercial and mitigate congestion."

The Washington, D.C., Metro extended a line to Reston in 2014, and Fairfax County continues to review key elements of the Comprehensive Plan in anticipation of additional transit development and population growth. Increased demand and redevelopment costs raise the cost of living and challenge Reston's original commitment to affordability.

The "Downtown Columbia Plan" details Columbia's planned development from 2010 through 2040. This plan balances growth with Rouse's original principles and details a process for community involvement. Transportation continues to be a struggle for the area as more and more Columbia residents face long commutes to Baltimore or Washington, D.C.

Reston and Columbia illustrate the economic complexities that exist within a large-scale planned community, and they share some commonalities that may have contributed to their relative success. These include the early establishment of core values, innovative zoning, and prioritization of profitability. Simon and Rouse's clear and public core values defined standards by which all design and business decisions could be assessed and simultaneously attracted like-minded residents who helped make those values a deep-rooted part of the community culture.

Reston and Columbia were pioneers in mixed-use zoning; today, mixed-use zoning and transit-oriented development are priorities for many localities across the United States, particularly those seeking to increase density and provide accessible amenities. The examples set by Reston and Columbia — including their more recent and ongoing conversations about transit design and the appropriate mix of residential and commercial development — have helped inform the development of mixed-use zoning nationally.

Finally, Reston and Columbia indicate the importance of the "mix" in mixed-use development — Goudie in Reston and David Stebenne in Columbia both note that commercial development provided critical income to help maintain economic viability. Even with the changes that Reston and Columbia have seen over the decades, it seems clear that their conversations about community, diversity, quality of life, and economic viability may never be over — they will simply evolve. **EF**

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# Learning About the Labor Market from High-Frequency Data

BY JOSEPH MENGEDOTH

Employment in the United States experienced the sharpest decline on record in April as the negative economic effects of the COVID-19 pandemic and social distancing measures caused employers to cut almost 21 million jobs, on net. (The next largest single-month decline was almost three-quarters of a century earlier, in September 1945, when almost 2 million jobs were lost.) Yet the full severity of the job loss was not known for quite a while: More than seven weeks passed from when the first state, California, issued a stay-at-home order on March 19 to when the Bureau of Labor Statistics (BLS) released the first national employment report fully reflecting the onset of the crisis, the report for April released on May 8.

Traditional sources of employment data are lagged, sometimes by a lot. At the national level, the employment report for a given month is typically released on the first Friday of the following month. And those data are based on a survey of firms that takes place around the middle of the month. This is why the jobs report for March had yet to show the full effect of the widespread social distancing measures, since many of those were put into place in late March and early April.

The BLS releases employment data for state and lower levels of geography at even greater lags. For example, the state-level data are typically lagged by another two weeks, coming out in the middle to the end of the month. County and metro employment and unemployment data are released a few weeks after that. And the most comprehensive source of data on local employment comes from the Quarterly Census of Employment and Wages, which is released between five and six months after the quarterly period ends. (For more on state and local labor market data, see “State Labor Markets: What Can Data Tell (or Not Tell) Us?” *Econ Focus*, First Quarter 2015.)

These lags are not new, or unknown, but in times of rapidly changing circumstances, the data are not sufficiently able to keep up with economic conditions. Knowing that the official employment counts would not be available for some time, economists, policymakers, and analysts looked during the COVID-19 crisis to other sources that could shed light on how the virus and the shutdown of economic activity were affecting the labor market. This includes the Federal Open Market Committee (FOMC), which, according to the minutes from meetings held in March, April, and June, found that traditional economic data could not capture the rapidly evolving situation; instead, the committee referenced high-frequency data.

## Unemployment Insurance Claims

One source that directly shows changes in labor markets on an early basis, which the FOMC relied on in March, April, and June, is weekly unemployment insurance claims. Unemployment insurance programs are administered by individual states. Every state is required to report the number of initial and continued claims to the Department of Labor, which in turn releases that data to the public on the Thursday of the following week. As their names imply, initial claims are the number of new claims filed in the reference week, and continued claims are the number of workers who were already collecting unemployment benefits and remained unemployed in the reference week.

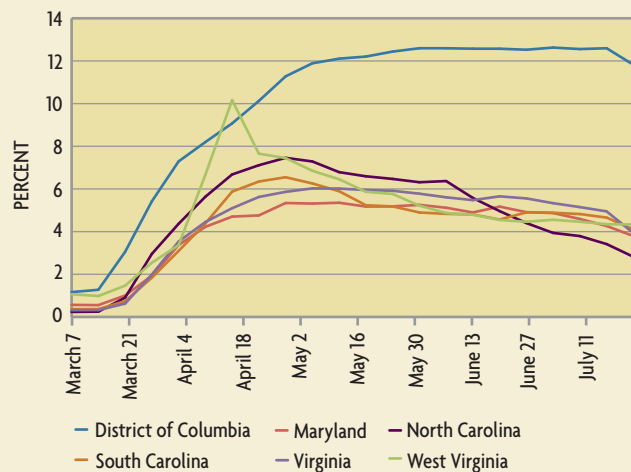
Because these data are timelier than payroll employment data from the BLS, they can serve as an early indicator of an economic downturn. In normal times, there is some variation in these data week to week as people move from employment to unemployment and back to employment or as some people decide to leave the labor force rather than continue to look for a new job. There are also seasonal patterns in the data, but those can be removed by applying a statistical procedure known as seasonal adjustment. Hindsight shows that in the weeks leading up to the starts of the last several recessions, the claims data tended to rise steadily and sometimes rapidly.

Take the Great Recession, for example. Data from the payroll survey began showing the decline in employment in February 2008, which was the first of 21 consecutive months of job losses. If we look at the six months prior to that, from August 2007 through January 2008, the payroll data were not alarming, with a slight increase in total employment in the United States (0.3 percent or 388,000 jobs). At the same time, though, initial claims (after being adjusted for seasonal trends) began to steadily increase, and seasonally adjusted continued claims rose 12.4 percent or by 314,000 jobs.

Likewise, evidence of an effect on employment from the COVID-19 pandemic appeared in the initial and continued claims data several weeks before the payroll data were available — but this time at rates never seen before. The first increase in initial claims in the United States came in the week ending March 14, when the number of claims rose 33.3 percent or by around 70,000. In the next week, initial claims rose more than tenfold from around 280,000 claims to almost 3.3 million and then more than doubled the week after to almost 6.9 million. The same data for Fifth District jurisdictions show similar trends except for West Virginia, where the initial claims data didn't peak for another couple of weeks.

## Continued Unemployment Insurance Claims

Share of state noninstitutionalized population aged 16 and older



SOURCE: Author's calculations using data from U.S. Department of Labor via Haver Analytics

A similar story evolved with continued claims, which began to rise one week after the first spike in initial claims and continued to increase sharply week over week for the next several weeks. Claims rose nearly simultaneously across jurisdictions at the start of the pandemic, but there were variations in trends after that. Most notably, the number of people filing continued claims began leveling off and, in some cases, decreasing by the end of April or the start of May — except for the District of Columbia, where claims continued to rise and remained relatively flat in May and June. (See chart.)

In addition to providing the data to the Department of Labor, some state agencies release more detailed reports of the initial claims data on their own websites. Virginia is one of those states; its weekly reports include breakouts by gender, age, race, ethnicity, education level, and occupation. These breakouts offer a view into disparate impacts on different groups of people. The occupational data, for example, showed that in the week of April 4, the top two most affected occupations were food preparation and serving related occupations and personal care and service operations. In contrast, just prior to the start of the pandemic, the occupations with the largest numbers of claimants were administrative support and construction. This gave an early indication of which workers and industries might see the largest effects, which was confirmed in the payroll employment data several weeks later.

But what about tracking the recovery in real time? One of the limitations of these data is that we do not know the characteristics of those who stop filing a continued claim or the reason why they stopped. A drop-off in continued claims could indicate that people are going back to work, but it could also mean that people gave up looking for a job or exhausted their benefits. So a drop-off doesn't tell us much about the types of people who stopped filing versus those who remain on unemployment or the current

demand for workers. Fortunately, there are some other high-frequency data sources that can give a glimpse into the staffing needs of employers.

## Online Job Postings

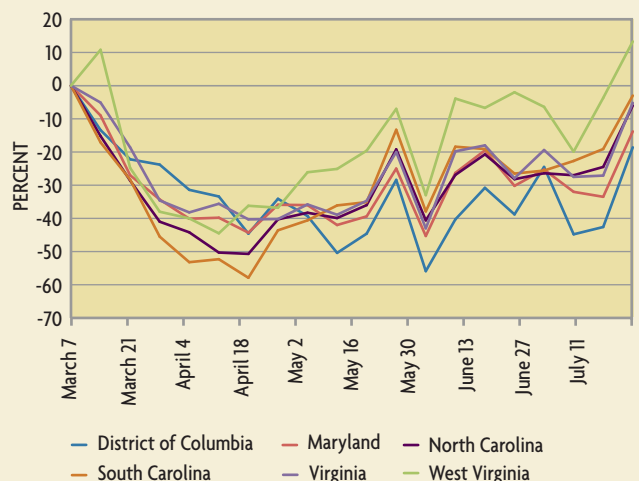
One way to measure the current demand for workers is to look at the job advertisements that employers are posting online. To do that, one could simply peruse sites like LinkedIn or Indeed, but there are companies that offer aggregated data from across multiple websites. One such company is Chmura Economics & Analytics, a Richmond-based consulting service and data provider. Among the company's offerings is a database of online job postings called Real-Time Intelligence (RTI).

To create the RTI database, Chmura's computers scrape information from over 30,000 websites every day, including job sites like Indeed and individual company websites. When the data are processed each night, any duplicate postings that are identified are removed. One of the many pieces of information that Chmura gets from these websites is the date when the job opening was first posted, if available. If no such date is available, Chmura assigns one based on the first day on which their scraping process found the post. This date can be used as a filter and therefore allows a user to see how many job advertisements were posted online over a particular time frame.

Looking at the data by week for the Fifth District shows the dramatic decline in new job postings starting in mid-March — around the time when mandatory business closings and social distancing measures were being put in place. It's no surprise that with many businesses essentially shut down, there was little need to hire new employees, but these data show the severity with which those job postings declined. At the lowest point, in the week ending April 18, new job postings across Fifth District jurisdictions were

## New Online Job Postings

Indexed to the week ending March 7, 2020



SOURCE: Author's calculations using data from Chmura Economics & Analytics

down between 36.2 percent (in West Virginia) and 57.9 percent (in South Carolina) when compared to the number of new postings in the first week of March. (See chart on previous page.)

But what can these data tell us about the job recovery? For one, they show that West Virginia experienced the strongest and quickest bounce back in online job postings. In fact, the number of new postings in the week ending July 18 exceeded the number of postings in the first week of

March. One potential reason for West Virginia's quicker recovery in job postings is that the state was the first in the Fifth District to ease restrictions on businesses and social gatherings. In fact, the Mountain State entered the second phase of its reopening on May 4, which was the same day that South Carolina entered its first phase and before any other Fifth District jurisdiction began easing restrictions.

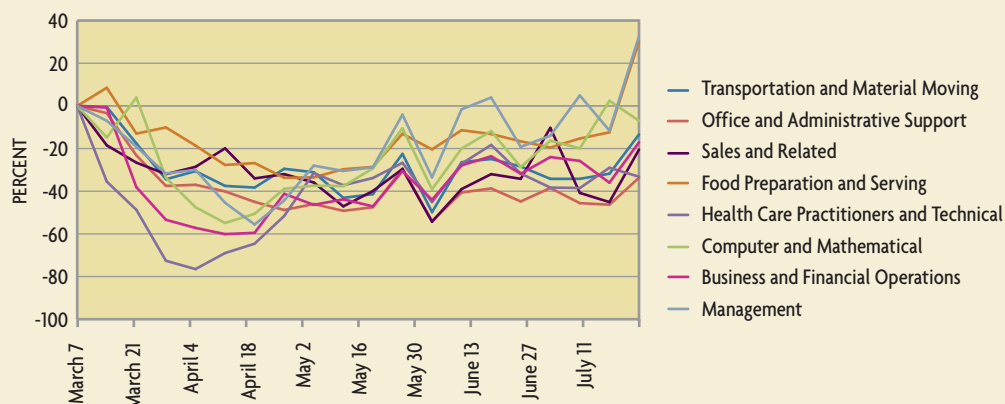
The RTI database includes many other variables that allow users to dig deeper into the data to see what types of jobs were hit hardest and have recovered the most. For example, Chmura's web scraping tool examines job titles and job descriptions to assign each job posting an occupation code based on the BLS's Standard Occupational Classification System. This allows users to examine trends in job postings for specific professions or to see what types of occupations were in the highest demand in a particular time period, which gives insight into the hiring trends in some of the hardest-hit industries.

Among the eight occupation groups that accounted for the largest shares of new job postings in the first week of March, postings for food preparation and serving related occupations declined the furthest in late March and early April, followed by office and administrative support, sales and related jobs, and transportation and material moving occupations. (See chart.) This was an early indication that the effects on the labor market would be felt quite differently across different types of jobs, which was confirmed by the official payroll employment data — several weeks after the online job posting data was available.

The same data shed light on the recovery in employment. Online postings for health care practitioners and technical workers and transportation and material moving occupations surged in the Fifth District in the week ending July 18. Postings for sales and related jobs also picked up in the first few weeks of July. This could be a sign that business conditions were improving at establishments that employ these workers, such as doctor's offices, shipping companies, and retail shops.

### New Online Job Postings for Selected Occupations

Indexed to the week ending March 7, 2020



SOURCE: Author's calculations using data from Chmura Economics & Analytics

As with unemployment claims data, online job posting data do not tell the whole story. For one, given the number of jobs that were lost in March and April, if the number of new job postings matches the pre-pandemic level, that doesn't mean the labor market has returned to the same level of demand. And one might expect to see the number of new job postings exceed the pre-pandemic level for some time in order to fully recover the jobs that have been lost.

Additionally, while the data do show some trends in the types of jobs that are being advertised for, they do not show how many of those jobs were filled. And with part-time jobs, in particular, they do not show how many hours a week employers needed workers. There is another high-frequency data source, however, that sheds some light on the demand for hourly workers.

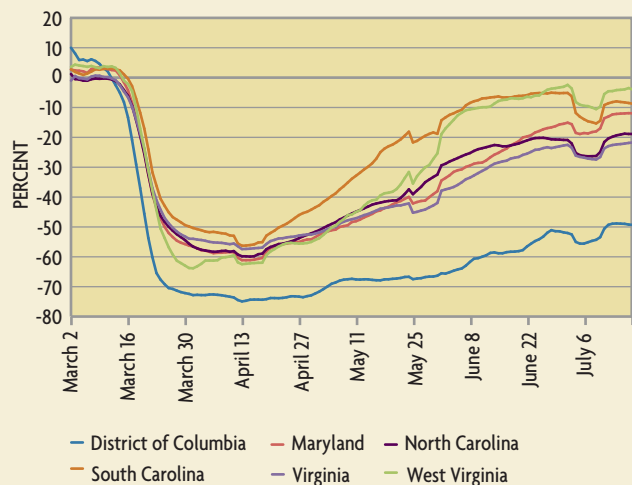
### Homebase

Homebase is a company that provides free scheduling, time keeping, and communication products to local businesses with hourly employees. These are primarily restaurant, food and beverage, and retail businesses that are individually owned, which were some of the hardest-hit industries. In response to the pandemic, the company made some of its data free to the public so researchers and community members could track the number of hours worked by hourly and shift employees, the number of businesses that were currently closed, and the employees who were not working. All told, these daily data are based on more than 60,000 businesses employing 1 million hourly employees. Data start in January 2020 and are available to the public in more real time upon request.

Because the data are daily, and many businesses are not open seven days a week, the data exhibit some consistent patterns due to normal closures on certain days every week, like weekends. To correct for this, the data can be indexed to a prior period. Data used for this article have been indexed to the median value for the same day

## Hours Worked by Hourly Employees

Percent change relative to the median same day of the week in January 2020, trailing seven-day moving average



NOTE: The three pronounced dips in the data coincide with Easter Sunday, Memorial Day, and Independence Day.

SOURCE: Author's calculations using data from Homebase

of the week for the period Jan. 4 to Jan. 31. This means, for example, that the hours worked on Wednesday, July 1 would be indexed to the median hours worked over the five Wednesdays in January. Looking at the data this way allows comparison over time relative to a particular period and across geographies.

Across Fifth District jurisdictions, the trends in these data broadly coincide with where and when places began to reopen. For example, hours worked by hourly employees in West Virginia and South Carolina have bounced back quicker and are closer to their January levels than in other states — perhaps reflecting that West Virginia and South Carolina began their phased reopenings much sooner than other jurisdictions. The District of Columbia, which was the last in the Fifth District to reopen, remains the furthest from its pre-pandemic level. (See chart.)

Homebase data are also available broken out by industry. This means we can observe trends in the hours worked at just food and drink establishments or the number of businesses open in the personal care industry. In the Fifth District as a whole, these data show trends that one might expect, namely, a steep decline in employees working, hours worked, and locations open (all the way to zero, in some cases) starting in mid-March. The series then bottomed out and began to rise around mid-April when businesses began to resume operations on a limited basis, reflecting the phased approach to reopening that was occurring across much of the nation.

Hours worked leveled off or showed a slight declining trend toward the end of July. This may be a signal that the demand for hourly workers is slowing and may remain

below prior levels for some time. Of course, hourly workers are only one segment of the labor force, but this pattern anticipated a similar one in July payroll data, which was released several weeks later and showed a slowdown in the pace of hiring.

## Richmond Fed Surveys

In addition to the high-frequency data sources that have been discussed so far, the Richmond Fed has been using its own surveys of business conditions to gain further insights related to the pandemic. For example, in the March surveys of manufacturing and service sectors, which were fielded between Feb. 26 and March 18, respondents were asked additional questions about the impacts to their company so far due to COVID-19 and their expectations for the near term. Although the Richmond Fed publicly releases the results only after surveys have closed, staff often view responses as they come in on a daily or weekly basis.

In general, over the survey period, firms were reporting only minor negative effects on their operations, and most of the comments indicated those were due to supply chain disruptions from China and travel restrictions. By the third week of the survey, however, responses indicated that those negative impacts were escalating and outlooks for the U.S. economy were deteriorating.

The April survey, which ran from March 26 to April 22, was broadened further to include labor market specific questions. Specifically, that survey asked participants to indicate if they were reducing staff or the hours worked by staff. Results from those questions generally showed that the majority of responding firms were not reducing staff or the hours worked by employees; however, similar to the March survey, the results deteriorated as the survey continued. For example, in the first week of the survey, only about 15 percent of responding firms said they reduced staff, while in the final week of the survey, approximately 40 percent said they were cutting staff.

Then, in the May survey, the Richmond Fed collaborated with several chambers of commerce across the Fifth District to reach even more participants with a set of COVID-19 related questions. Overall, results from that survey showed how the labor market responses of firms varied by size and industry, with the most adverse effects being felt in the accommodation and food services, retail industries, and by small businesses. In contrast to earlier surveys, the results were generally consistent over the three weeks of the survey period.

The results of these surveys gave the Richmond Fed timely information about firms' experiences and the actions they took while the COVID-19 situation was unfolding. What's more, they gave evidence that the changing nature of the data over time means that one monthly indicator alone may hide some underlying dynamics or, at the very least, doesn't tell the whole story.



## Emerging Sources

A few newer sources have become available. The first is the Real-Time Population Survey (RPS), which is a joint effort between academic economists and the Dallas Fed. The goal of the RPS is to provide a survey similar to the BLS' household survey of employment and unemployment (the Current Population Survey), but it differs in that the RPS is conducted online twice a month, and the results are made available with a shorter lag. The results of the RPS are plotted with the official BLS survey measures of employment and unemployment in reports available on the Dallas Fed's website.

The U.S. Census Bureau also began conducting two new high-frequency surveys to better understand the effects of COVID-19 on the economy. The first was the Household Pulse Survey, which was a weekly survey that began on April 23 and concluded on July 21. The results of the survey were posted one week after the survey period closed and gave insights into issues such as childhood education (including availability of computers and internet), employment, household spending and food sufficiency and insufficiency, health, and housing. The data, which are available at a national, state, and metropolitan level (for the 15 largest metro areas), are still available on the U.S. Census Bureau's website at the time of writing this article.

The second new survey from the U.S. Census Bureau is the Small Business Pulse Survey, which began on May 14 and is still ongoing. It is designed to provide information on small-business operations and finances, including any government support they have received and their outlook for the near future. These data are available at

the national and state levels and for the 50 most populous metro areas. An interactive dashboard shows which industries and areas of the country have a relatively higher share of small businesses being negatively or positively affected by the pandemic and where firms are the most optimistic or pessimistic about the near future.

## Conclusion

Although none are without limitations, each of these high-frequency data sources offers a glimpse into the labor market in nearer to real-time. The initial unemployment insurance claims data were particularly useful in understanding how many and, in some cases, the characteristics of workers who were being hurt during the crisis when many businesses were scaling back or shutting down operations.

The continued claims data were (and will continue to be) a useful indicator to track the number of people who are collecting unemployment each week. In terms of labor demand, online job posting data offer a glimpse into the types of jobs that employers are recruiting for, and the Homebase data show trends in the hours worked by hourly employees in some of the hardest-hit industries. Lastly, the Richmond Fed has used and will continue to use the ability to add special, topical questions to its surveys of business conditions to understand the effects of the pandemic. **EF**

*The Richmond Fed has created Pandemic Pulse, an area on its website that features interactive charts of various high-frequency indicators.*



# A Teachable Moment?

BY KARTIK ATHREYA

In an open letter to economists, AFL-CIO chief economist William Spriggs recently asked, “Is now a teachable moment for economists?” From his perspective, the economics profession has done a poor job of studying racial discrimination, and he expressed hope that the death of George Floyd and the protests it spawned will lead to improvement in how it approaches race. In my role at the Richmond Fed, it is important for me to think hard about how the profession has addressed race through research and what it might do in the future.

Economists have been slow to view racial discrimination, especially in the modern era, as a central driver of observed disparities. Interestingly, perhaps, this may be because economists usually assume employers have no concern for societal well-being and are only focused on maximizing profits. In early models of discrimination, notably those of Gary Becker, discriminating firms put themselves at a labor-cost disadvantage and therefore could only survive competition if a high percentage of their competitors also practiced discrimination. This led economists to suspect that other forces, including legal limits on hiring black workers, were critical for perpetuating racist outcomes, since without them, it would be easy for non-discriminatory firms to profit by hiring talented workers without regard to race. Yet even as overt barriers have disappeared, outcomes remain disparate.

Another prominent theory of racial discrimination holds more promise. This approach, first formalized by Edmund Phelps and Kenneth Arrow and advanced since then by many others, emphasizes a potentially long-lived kind of bias called “statistical discrimination.” It is based on the idea that, faced with incomplete information about individuals, employers may be able to make *statistically* valid, but not necessarily socially rational, inferences about individuals by taking into account the average attributes of their group. Glenn Loury, for example, has developed dynamic models of statistical discrimination in which “reputation traps” create self-reinforcing cycles of poor opportunity and insufficient investment in education and training. These dynamic models suggest even more that disparities between groups can be long-standing and pernicious in the absence of government intervention. Sadly, individuals may suffer in the interim for no reason other than entrenched pessimism about them as a *group*. Notice that an obvious candidate is the overt institutionalized racism of the past — it “initially” limited opportunities and made such purely statistical beliefs possible to hold in the first place.

In economics, the data always matter. So whatever our theories may say, economists have produced many studies that have identified evidence of racial discrimination.

Much of this research has focused on labor markets and has used statistical analysis to estimate whether race remains a statistically significant determinant of wages after taking into account various indicators of worker productivity, including education and experience.

Still, empirics can’t always settle things. Because most of the data economists analyze don’t come from controlled laboratory experiments, the possibility usually exists that estimated results have been distorted by mechanisms that have not been included in the analysis. This is called the “missing variables” problem.

But it might be that the economics profession has displayed a level of skepticism toward evidence of discrimination that goes well beyond what can be accounted for by methodological rigor alone. In reference to the profession’s frequent use of the missing variables critique, Spriggs observed that “it looks like economists are desperate for a ‘Great White Hope,’ some variable that can be used to once and for all justify racial disparities.”

Referring to the profession’s skepticism toward evidence of racial discrimination, Arrow once said, “While one can always invent hypotheses to explain away these results, there is really no reason not to draw the obvious conclusions.” Although Arrow was a giant in the field of theoretical economics, his prior beliefs about discrimination were heavily influenced by real-life history prior to the passage of the Civil Rights Act of 1964. “I can speak as a witness here,” said Arrow, “it was simply well-known that most good jobs were not available to blacks.” According to Arrow, “any theory of racial discrimination ... has to be consistent with these patent facts.”

Arrow recognized a contradiction. In his view, the market-based solutions produced by standard economic models “tend to predict that racial discrimination will be eliminated.” But since, in his view, this had not been borne out by history, he counseled that “we must seek elsewhere for non-market factors influencing economic behavior.” This suggests that the profession may benefit by engaging more seriously with the premise embraced by Spriggs and so many social scientists outside the economics profession — that discrimination works through slowly evolving institutions as well as through individuals.

Looking ahead, I hope recent events will energize deeper engagement on racial bias by economists — very much including the many working within the Fed — and lead to better understanding of its effects and of policies aimed at its elimination. **EF**

**Kartik Athreya is executive vice president and director of research at the Federal Reserve Bank of Richmond.**

# NEXT ISSUE

## **Jumpy Companies**

Research has shown that companies go through periods of low investment punctuated by investment “spikes.” But economists are divided about the cause and significance of this volatile behavior. What role does economic uncertainty play in firm investment? And what is the relationship between investment spikes and economic growth?

## **A More Resilient Meat Industry**

The COVID-19 pandemic hit meat processing facilities and led some grocery chains to limit meat purchases. Changes in consumers’ preferences and in industry economics have made the meat supply more vulnerable — but it’s not clear that consumers would want to pay the cost of a more resilient supply chain.

## **Economic History**

Furniture manufacturing was once a major part of North Carolina’s economy, accounting for 60,000 jobs and billions of dollars in revenue. But starting in the 1990s, the industry began to shrink in the face of increased competition from imports, a trend that accelerated after 2000. Today, the industry is recovering, though on a smaller scale.

## **Federal Reserve**

One of the unforeseen consequences of the COVID-19 pandemic is that banks and businesses have reported a disruption in the supply of coins. While there are still plenty of coins to go around, many of them aren’t circulating due to changes in business operations and consumer payments in response to the virus. In response, the Fed has convened a U.S. Coin Task Force to identify solutions.

## **The Profession**

Since the 1990s, the number of women studying economics at both the graduate and undergraduate level has been decreasing. As a result, fewer women are becoming economists and their voices are underrepresented in the profession. What is deterring women from entering economics? And why does gender diversity in economics matter?

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# The CFO Survey

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Our inaugural CFO Survey saw firms grappling to get their bearings in the midst of the largest shock to economic activity since the Great Depression and continued uncertainty around the progression of the COVID-19 pandemic.

CFOs and other financial decision-makers anticipated a decline in important indicators such as employment and revenues throughout the year, but also reported being more optimistic about the financial prospects of their firms and the direction of the U.S. economy in the second quarter of 2020 compared to the first quarter.



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