FOURTH QUARTER 2020

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Cover, Worker at Tomlinson Chair Manufacturing Co., High Point, N.C., circa 1936.
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DIRECTOR OF RESEARCH
Kartik Athreya

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Jessie Romero

EDITOR
David A. Price

MANAGING EDITOR
Lisa Kenney

STAFF WRITERS
John Mullin
Hailey Phelps
Tim Sablik

EDITORIAL ASSOCIATE
Katrina Mullen

CONTRIBUTORS
Abigail Crockett
Brandon Fuller
Emily Green
Roisin McCord

DESIGN
Janin/Cliff Design, Inc.

Published by
the Federal Reserve Bank of Richmond
P.O. Box 27622
Richmond, VA 23261
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www.twitter.com/RichFedResearch

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Furniture Faces a New Challenge

Our cover story looks at the roller-coaster history of the North Carolina furniture manufacturing industry: its emergence in the 1880s and 1890s, its growth and success over the next century, and its painful contraction and massive job losses in the 2000s.

This industry has since been adapting with new strategies — and, more recently, enjoying stronger demand during the stay-at-home period of the pandemic. It's adding jobs again. As part of my regular travels through our Fifth District, I was in Hickory, N.C., in October and took part in a video roundtable with industry leaders. Participants included senior executives of five area furniture manufacturing companies, a supplier of textiles to the industry, and Garrett Hinshaw, the president of Catawba Valley Community College — his institution trains many furniture company workers.

What I heard was surprising and yet, at the same time, familiar from looking at other labor markets. Even though the national unemployment rate at that time was 6.9 percent — down from its peak of 14.7 percent in April but still high compared to levels before the pandemic — the industry was struggling to hire workers. One executive after another told me his firm had job openings; some listed 40 or more. How could this be, at a time when so many people were hurting — when many thousands of workers in industries like food service and hospitality were out of work?

Perhaps part of the answer is reputation issues the industry might have after a generation of layoffs. But in today's economy, I would also point to what economists call "mismatch."

One mismatch is geographic: A sizable share of those workers who have been laid off are in larger cities with bigger leisure and hospitality sectors. They may have ties to where they live and understandably feel reluctant to move to a smaller manufacturing town.

A second mismatch is skill. I heard at our roundtable that experienced upholsterers can make up to $30 an hour. But just to get into that field, a worker needs to go through an initial training program at the community college that takes six months, followed by significant on-the-job training. So someone who has lost his or her job on the service staff of a restaurant cannot immediately take a skilled, well-paying job in furniture making. And with the prospect for an end to the pandemic just a few months away, they may not be motivated to make the investment needed to reskill themselves.

This underinvestment in reskilling seems broad-based. The business leaders at the roundtable highlighted the importance of community colleges in helping address skill mismatch. But I've been concerned over the past months by the drop in community college enrollment — down 10.1 percent at public two-year institutions this fall compared to last fall. First-time enrollment at community colleges fell even more, by 22.7 percent. Community college leaders tell me potential students struggle to afford tuition given the loss of their service-sector jobs, struggle with child care with their kids at home in virtual school, and struggle with access and engagement with online education.

The roundtable was one of the scores of community conversations I engage in throughout our district each year. They give me a chance to get into a bit more depth about what's happening in our communities and industries. The dialogue goes both ways: As I'm learning from the participants, they often have questions for me about the national economic outlook or about what I've learned from other communities. And their input is invaluable to me as a policymaker.

This issue of *Econ Focus* also takes a look at a critical issue in another important Fifth District sector: the meat supply chain. (See "Unpacking the Meat Industry," p. 4.) It highlights a challenge multiple sectors have had during this pandemic as well as a more general question: For any goods — from medicines to protective medical gear to meat — what are we willing to pay for a more resilient supply? It'll be an important question for businesses and consumers in the years ahead. **EF**

Thanks, and enjoy the issue.

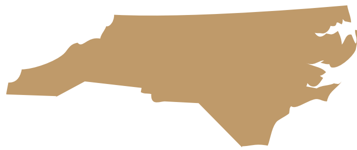
TOM BARKIN
PRESIDENT
FEDERAL RESERVE BANK OF RICHMOND

UPFRONT

Regional News at a Glance

BY LISA KENNEY

MARYLAND — In January 2021, Howard Community College in Howard County will welcome the first class to its new electrical apprenticeship program, run in partnership with Independent Electrical Contractors Chesapeake. The four-year program will include on-the-job and classroom training; upon completion, students will be eligible to become nationally credentialed journeyman electricians. The annual mean wage for electricians in Maryland in 2019 was $58,700.

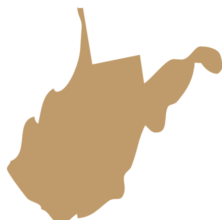


NORTH CAROLINA — The increase in remote work during the COVID-19 pandemic has meant good news for the real estate industry in the Outer Banks, which stretches from Corolla in the north to Ocracoke Island in the south. According to the Outer Banks Association of Realtors, there were $1.18 billion in home and lot sales through October. Sales were on pace to break the previous record of $1.5 billion set in 2005. The number of units sold in October, 456, was more than twice the number sold in October 2019.

SOUTH CAROLINA — In November, Richland County announced one of its largest economic investments ever — a $400 million brewery and production facility of Mark Anthony Brewing, the fourth-largest brewer in the United States. The more than one-million-square-foot Columbia facility is expected to open in summer 2021; it will include warehousing and distribution operations. The project is expected to create 300 new jobs. The Coordinating Council for Economic Development awarded job development credits and infrastructure grants for the project.

VIRGINIA — The University of Richmond and Richmond Public Schools announced a joint No Loan Program in November. The program will award grants to cover the full cost of attendance for Richmond Public Schools graduates who qualify to attend the University of Richmond. The university's total estimated costs for students in the 2020-2021 school year, including tuition, room, and board, are $72,450. According to the university, the program will be funded by reallocating existing university funds and there is no cap on the number of recipients.

WASHINGTON, D.C. — In mid-November, Mayor Muriel Bowser announced the launch of the Bridge Fund, a $100 million grant fund for D.C. businesses that were hardest hit by the COVID-19 pandemic. The Bridge Fund will be distributed through four programs — one each for restaurants, hotels, retail, and the entertainment sector — with an aim to sustain these industries during the pandemic. The fund is financed with $20 million that D.C. received from the federal CARES Act and the remaining $80 million from a local contingency reserve.



WEST VIRGINIA — A large broadband expansion is set to make Huntington the state's first "Gigabit City" — a city connected to fiber-optic cable internet that has speeds of over 1 gigabit per second. In October, the local nonprofit Thundercloud received two grants totaling $4.6 million for the project, one through the WV CARES Act Broadband Fund and one through the Appalachian Regional Commission. The project will include laying 25 miles of underground fiber and building a fiber ring that will connect over 500 Huntington businesses to the gigabit infrastructure.

Understanding the Racial Wealth Gap

BY BRANDON FULLER

The nationwide protests against racial injustices and the uneven effects of the COVID-19 pandemic have led to a recent increase in dialogue about racial economic inequality. But the disparities themselves are not new developments. According to the Fed's Survey of Consumer Finances, since 1989, the pre-tax income of the median white family has been 1.7 to 2.5 times greater than that of the median black family. While the black-white income gap is considerable, at $28,510 in 2019, it is dwarfed by the black-white wealth gap. In 1989, the median wealth gap between black and white families was $135,010 in 2019 dollars — the median white family had $143,560 in wealth while the median black family had only $8,550. Over the next 30 years, the median white family would continue to have seven to 10 times as much wealth as the median black family. Despite the occasional narrowing of the gap and both white and black families experiencing an increase in wealth throughout the period, the black-white median wealth gap by 2019 was even larger at $165,000.

Many economists are concerned with understanding the factors that drive such large, persistent disparities in wealth. Economic intuition suggests potential contributors to the gap, such as differences in income, education, inheritances, and family structure; testing these hypotheses empirically is another matter.

Studies that investigate the racial wealth gap often attempt to do this through what is known as a "regression decomposition" approach. Typically, this involves using regression techniques to estimate the relationship between wealth and its related factors for black and white households separately. These estimated equations can then be used to quantify the contribution that observable differences between racial or ethnic groups make to the racial wealth gap. Studies using these techniques often find, however, that results differ depending on which equation is used, thus making it difficult to establish a consensus on the importance of contributors to the wealth gap.

At the Richmond Fed, a team of economists — John Bailey Jones, Urvi Neelakantan, Grey Gordon, and Kartik Athreya — has been conducting research on the black-white wealth gap for several years. They are taking a novel approach that draws on their expertise in "heterogeneous agent" macroeconomic models to investigate the gap. That means they are developing a model of saving decisions and wealth accumulation that incorporates elements of the differences between black and white households observed in the real-world data (such as earnings, education, and family structure). Compared with previous studies using regression techniques to decompose the racial wealth gap, they believe this will enable them to better isolate and identify the effects of contributors to the wealth gap.

Gordon explains that their model allows them to "toggle on and off" differences between black and white households. Simulating the model will enable an investigation of how the racial wealth gap varies with the absence or presence of differences in, say, earnings or education between black and white households. This, in turn, could help the researchers evaluate policy proposals to reduce the gap.

While the model will incorporate many of the factors that previous studies have emphasized, the economists hope that their work will illuminate a few contributors to the wealth gap that are particularly important. "We were wondering if the racial wealth gap is a story of everything," Neelakantan says. "Does each of these factors add a bit to the total gap, or are we going to find a key contributor?"

"Does each of these factors add a bit to the total gap, or are we going to find a key contributor?"

One possible contributor the researchers are paying particular attention to is incarceration. "Incorporating incarceration into our model of earnings processes is one thing that's new about our paper," Neelakantan explains. "There are many technical papers in economics about how to model earnings over time. It becomes even more important when you are going to feed that earnings process into a bigger model. If you miss something, you could amplify problems when it is an input into another model."

As incarceration can have long-lasting effects on one's labor market outcomes, better incorporating the labor market disruptions caused by incarceration into a model of wealth accumulation may further economists' understanding of how earnings differences between racial groups contribute to the racial wealth gap.

Why is the study of the racial wealth gap important? Neelakantan says that appeals to justice and the historical context within which the black-white wealth gap has developed in the United States are compelling in and of themselves. Beyond that, she says, the underlying reasons for the gap matter from an economic perspective. "If people face barriers that prevent them from reaching their goals, then I think we want to know what those are so we can apply the right tools to dismantle them." **EF**

Share this article: https://bit.ly/race-wealth-gap

UNPACKING THE MEAT INDUSTRY

Changes in the meat supply chain have brought benefits, but are vulnerabilities a cause for concern?

By Emily Green

The COVID-19 pandemic hit meat processing facilities in the United States suddenly and dramatically. Between April 9 and April 27, more than 4,900 COVID-19 cases were reported among 115 different meat and poultry processing facilities. Rising cases and contamination fears led major processors, such as Smithfield, Va.-based Smithfield Foods, to shut down plants in April. During this period, large retailers like Kroger and Costco implemented meat rationing. These developments prompted President Donald Trump to invoke the Defense Production Act on April 28, compelling plants to remain open — and brought the resilience of the meat supply chain under scrutiny.

The food industry is important, and not just because people need to eat. In economic terms, agriculture, food, and related industries not only contributed $1.053 trillion to U.S. GDP in 2017 — nearly 5.4 percent of total output — but also represent an important source of employment. According to the U.S. Department of Agriculture (USDA), the U.S. meat industry in 2019 produced 104.5 billion pounds of turkey, broiler chickens, pork, and beef — of which 20.5 billion came from the Fifth District. (See chart.) In 2018, agriculture, food, and related industries provided 22 million jobs, 11 percent of total U.S. employment, with meat and poultry plants representing nearly 500,000 jobs and farms representing 2.6 million jobs.

IMAGE: COURTESY OF PERDUE FARMS

Share this article: https://bit.ly/meat-supply-chain

The path from farm to table of U.S. meat is more complex than ever. The meat industry's relentless transformation over the last half-century has increased supply chains' complexity while consolidating businesses at each link of the chains. The product of this evolution is the food system consumers have come to expect — one with immense variety, consistency, constant availability, and cheap prices. Yet the modern system is also rigid and vulnerable to disruptions, as the pandemic has highlighted.

Waves of Changes

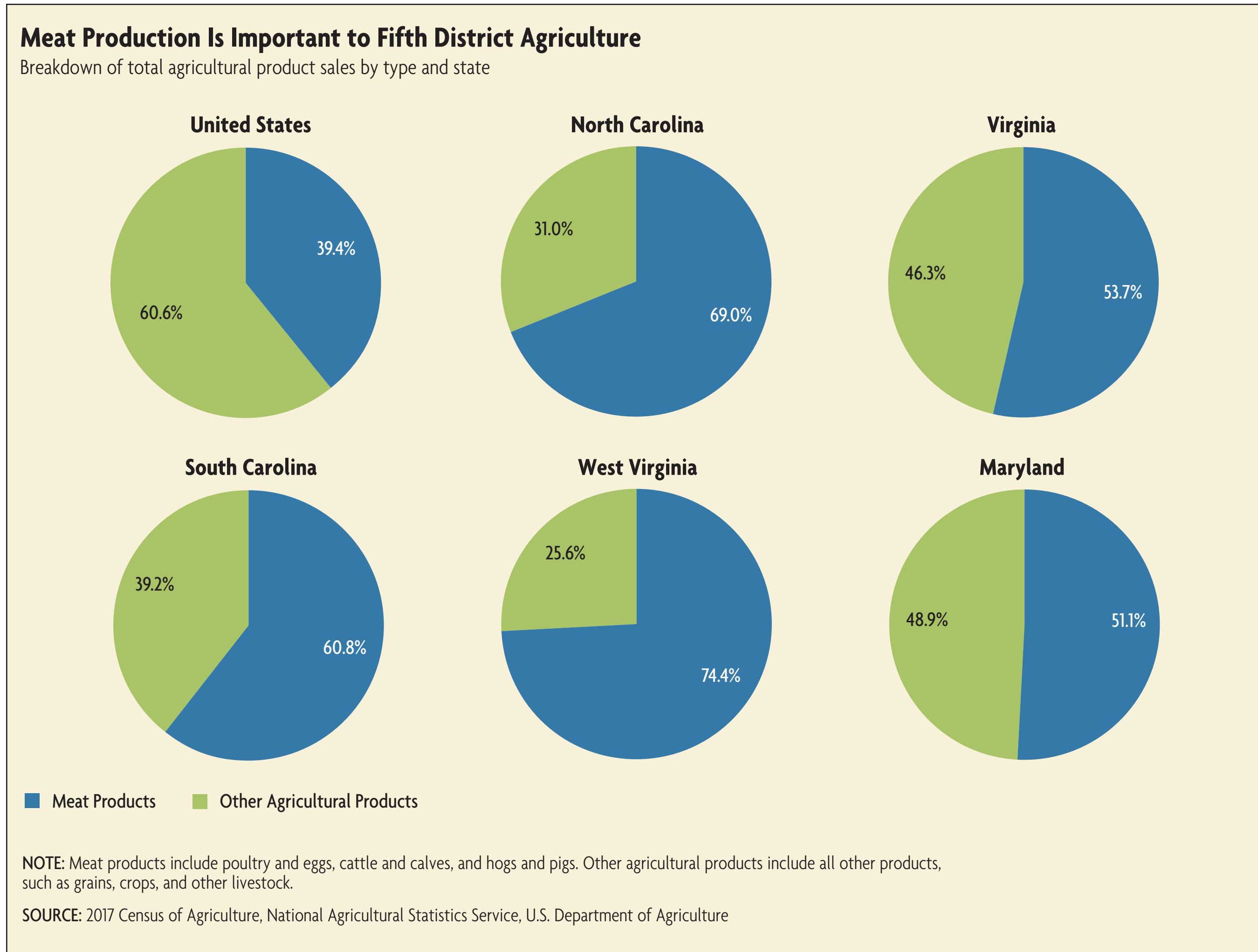
Beginning in the 1970s, consumer spending on food as a share of total disposable income declined, yet consumer demand shifted toward products that were consistent, ready-made, and healthier, driving the evolution of the meat supply chain. Whereas Americans in 1960 spent an average of 17 percent of their disposable personal income on food, USDA data reveal that by 2019, Americans spent an average of only 9.5 percent of their income on food. Their data suggest the decline has been driven most by decreased spending on food at home — that is, on groceries.

In addition, starting in the 1970s, higher labor participation among women further shifted consumer preferences toward ready-made products, one-stop shopping, and eating away from home. Higher patterns of meat consumption and dining out also increased the demand for meat products over this period. Moreover, consumer demand for selection variety and supply consistency at low cost prompted consolidation and new procurement practices among the meat processing, retail, and upstream segments of the supply chain.

Meat processors and packagers were the first segment of the meat supply chain to undergo a significant wave of consolidation, from 1972-1992. Consolidation in the poultry industry in the 1960s reduced the price of chicken while increasing output and product selection. This caused poultry consumption to surge while beef and pork processors' profits fell. Alan Barkema, Mark Drabenstott, and Nancy Novack, then with the Kansas City Fed, explained in a 2001 article that the reduced profits prompted cost-cutting efforts and renewed competition. Meat processors realized cost savings from improved technology for storing and cutting animals and reorganizing the production line with more low-wage workers, allowing for efficiency improvements. For example, larger plants adopted technology to support more fabrication — that is, cutting — of carcasses into wholesale cuts, reinforcing their cost advantages of scale.

Meat Production Is Important to Fifth District Agriculture

Breakdown of total agricultural product sales by type and state

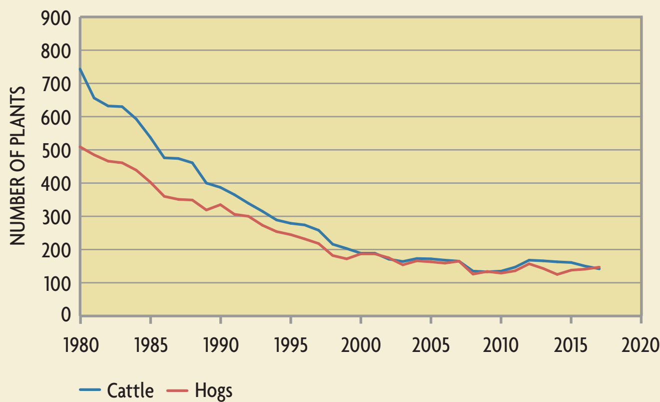


NOTE: Meat products include poultry and eggs, cattle and calves, and hogs and pigs. Other agricultural products include all other products, such as grains, crops, and other livestock.

SOURCE: 2017 Census of Agriculture, National Agricultural Statistics Service, U.S. Department of Agriculture

Cattle and Hog Processing Plants Are Becoming Fewer

Number of slaughter plants operated by type of livestock, 1980-2017

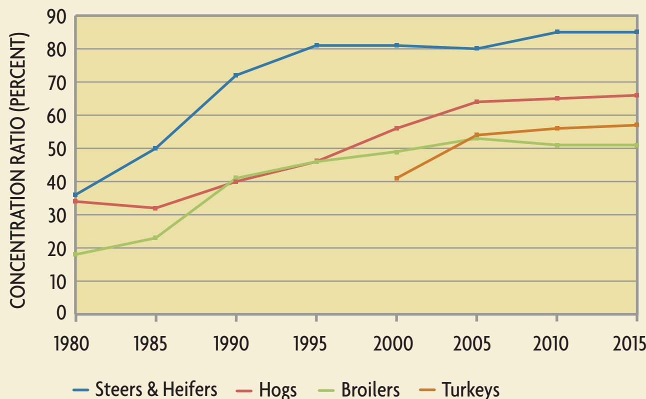


NOTE: Includes both federally and nonfederally inspected establishments. Firms purchasing less than $500,000 of livestock are not required to report.

SOURCE: Packers and Stockyards Statistical Report, 2000; Packers and Stockyards Program Annual Report, 2012; Packers and Stockyards Division Annual Report, 2018; U.S. Department of Agriculture

Concentration Among Meat Processors Is Rising

Four-firm concentration ratios in meatpacking and poultry processing



NOTE: Steers and heifers, or fed cattle, are animals raised specifically for slaughter and do not include animals raised for breeding and then slaughtered at a later point (i.e., cows and bulls).

SOURCE: 2003, 2005, 2007 Assessment of the Cattle, Hog, Poultry and Sheep Industries Report; 2011, 2017, 2018 Packers & Stockyards Program Annual Report; U.S. Department of Agriculture

Subsequently, these processors' transportation costs also declined since they were shipping boxes of products rather than carcasses, while they shifted toward specialization in a single species in order to increase the efficiency of their technological investments. For example, Smithfield Foods, founded in 1936, was on the verge of bankruptcy in the early 1970s before it transformed by streamlining its operations, acquiring underperforming pork companies, and slashing overhead by reducing middle-tier workers, leading to strong growth throughout the late 1970s and 1980s.

A 2005 USDA report found meatpacking and processing workers' average wages dropped about a third, while meatpacking plant size doubled and output per meatpacking worker increased 45 percent from 1972-1992. "Both the introduction of scale economies from technology and the reduction in union wages among workers in large plants in the 1980s meant that larger plants now had a significant cost advantage over smaller plants," says James MacDonald of the University of Maryland, formerly acting chief of the Structure, Technology, and Productivity branch at the USDA's Economic Research Service.

Meanwhile, renewed competition for market position propelled a surge in mergers and acquisitions as processors sought to establish economies of scale. Large plants were especially well positioned for this transition due to the increased cutting up of meat products that enabled technological scale economies. For example, Smithfield acquired some 40 firms from 1981 to 2006, allowing it to become the world's largest pork processor and hog producer today. A 2006 article in the *American Journal of Agricultural Economics* by Sang Nguyen of the U.S. Census Bureau's Center for Economic Studies and Michael Ollinger of the USDA's Economic Research Service concluded such mergers and acquisitions were motivated by desires to improve efficiency by acquiring other highly productive plants in synergistic mergers. These efforts culminated, however, in fewer competitors in the industry and larger market shares. (See chart.) The four-firm concentration ratio (CR-4), which measures an industry's concentration through the combined market share of its top four firms, grew between 1972 and 1992 from 26 percent to 50 percent in meatpacking, from 16 percent to 25 percent in meat processing, and from 17 percent to 34 percent in poultry slaughter and processing. By 2017, the CR-4 for the entire meatpacking and poultry processing industry was 67 percent. (See chart.)

The Retail Revolution

Among food retailers, the supermarket revolution embodied the industry's response to changing consumer demand. Beginning in the 1930s and accelerating in the 1970s, small local grocery stores and specialty stores, such as butchers and bakeries, declined while supermarkets grew to dominate the industry by offering huge variety, consistency, and low-cost products — all in one location. In a 2012 paper, Thomas Reardon of Michigan State University and C. Peter Timmer of Harvard University found the concentration ratio of the top six firms in the supermarket sector grew from 32 percent in 1992 to 50 percent in 2000 and is now even larger in some regional markets. Within the Fifth District, the dominant retail chain varies by state, but Food Lion and Harris Teeter are among the local retailers that have a strong presence in the region's markets.

Richard Sexton of the University of California, Davis and Tian Xia of Kansas State University noted in a 2018 article that retail consolidation was driven by competition for regional dominance through efficiency gains and new

The Giant food shopping center on Wisconsin Ave. in Washington, D.C., in summer 1942.

IMAGE: LIBRARY OF CONGRESS, PRINTS & PHOTOGRAPHS DIVISION, FSA/OWI COLLECTION, LC-USF34-100285-D.

procurement practices to attract customers. These novel methods involve more direct contracting with farmers, known as contract production, where farmers and processors enter into contracts directly with supermarkets, eliminating the role of wholesalers and locking themselves into specific buyers. This coordination improves synchronization throughout the supply chain as retailers and processors impose private standards on farmers to regulate product characteristics, share information on production practices, and even provide feed and animals to secure a stable flow of products.

"The shift of consumer purchases toward large-scale retailers also shifts you toward contract production because retailers purchase from large processors that have large, steady flows of uniform meat due to their own contract system with growers," says MacDonald. "Development of consumer demand toward a preference for more uniform, lean products and large-scale supermarkets probably favored large-scale processors."

Farming's Transformation

For farmers, cost-cutting measures at the retail and processing stages of the supply chain translated upstream, driving them to transform production practices to improve efficiency and reduce costs. A 2009 report by MacDonald and William McBride of the USDA found these transformations included "changes in production technologies, increased enterprise specialization, and tighter vertical coordination between the stages of production." For example, Perdue Farms, established in Salisbury, Md., evolved from a family poultry farm in the 1920s to the eighth-largest meat and poultry processor in the United States by net sales in 2018 by investing in technological advances and introducing new products.

"It was a steady process over several decades of figuring out better ways to confine animals within structures with improved ventilation and climate controls, delivery of feeds to the animals, and removal of manure," MacDonald explains. "That allows a single farmer or family farm to manage a lot more animals."

The median farm size, in annual production, nearly doubled for the cattle and broiler industries from 1987-2002. This shift in the median size reflects how larger farming operations capitalized on technological advances to reduce average production costs relative to smaller farms.

Additionally, food retailers' and processors' new procurement practices, such as vertical coordination and contract production, helped farmers ensure they could sell their products, thereby solidifying their profit and return on investment. For Perdue, this involved expanding from farming into the processing sector in the late 1960s and then into the food service, turkey, and ready-made product markets through the 1980s and 1990s.

"Buyers are transferring information through those contract arrangements — giving their contract growers guidance on how to raise their animals and design their facilities — and providing them with well-formulated feed and young animals with improved genetics," says MacDonald. In fact, by 2005, over 50 percent of livestock production was contractual and long term. "For farmers it's a very real trade-off," MacDonald adds. "You get reduced risks — you're not worrying about marketing or price fluctuations — but you're tied into one buyer, and you're going to have to do what they want."

Improving Resilience

The evolution of the meat supply chain benefited each of the actors involved. Consumers received the reliable, consistent products they demanded at low cost and in one stop. Dominant food retailers benefited from greater consumer demand for meat, brand loyalty, and stable supply products. Processors and packagers solidified market positions, cut costs, and improved productivity. Large-scale livestock farmers profited from stable contracts and lower operating costs.

The trade-off has been the meat supply chain becoming more vulnerable to disruptions. Specifically, vertical coordination and contract production make it difficult to switch production in response to sudden changes because the synchronization in private product standards and strict contracts make it harder to switch suppliers. Greater complexity and consolidation create more locations where a single disturbance can have a devastating effect on the rest of the chain.

Until recently, these drawbacks have been considered less significant than the benefits. But the COVID-19 pandemic highlighted the meat supply's vulnerability. The

A sign limiting meat purchases at Sprouts Farmers Market in Herndon, Va., in May 2020, during the COVID-19 pandemic.

dangers of disruption were clear in the reports of livestock being euthanized, shutdowns at processing and packaging plants, and product shortages in stores.

The same could happen again, perhaps on a worse scale. Disruptions in the future could come not only from pandemics, but also from natural disasters, infrastructure failures, or political turmoil.

In principle, the most obvious approach to boosting the resilience of the meat supply would be to reverse the consolidation and procurement practices that increased rigidity and segmentation, thereby preventing chokepoints and other risks. Yet modern meat supply chains also enable consistent delivery of highly uniform meat products at low prices, so restructuring would likely increase meat prices while reducing consistency.

A long-term approach favored by meat processors aims to use technological advances to automate greater parts of meat processing to reduce the risk of bottlenecks caused by a shortage of skilled meat workers.

"The model of large plants with lots of low-skill labor has been undermined in the last decade by a dwindling flow of low-skill labor," explains MacDonald. "Firms are looking at alternatives that involve more equipment and fewer people — the longer-term issue driving it is rising wages for labor." Processors such as Tyson Foods, Pilgrim's, and JBS believe using greater automation could allow workers to focus on higher skilled parts of the processing chain and improve resilience and output. Yet this approach would only improve resilience against disruptions caused by a supply-side shock affecting workers. Additionally, a risk of automation is the elimination of meat processing jobs that could devastate communities where plants are located.

Resilience-building efforts have also focused on increasing local meat production-consumption ties through

Food Hubs

Food hubs are an important example of intermediaries in regional supply chains that have values-based community missions. According to the USDA, food hubs are businesses and organizations that provide resources and services to local and regional producers to improve their capacity to match consumer demand. Within the Fifth District, there were 40 food hubs in 2019, representing 17 percent of the national total. Most Fifth District food hubs offer distribution, aggregation, and processing services and engage their communities through donations to food banks, Supplemental Nutrition Assistance Program benefits, also known as SNAP, and nutritional education or workforce development programs.

"Ways to improve production flexibility are capital-intensive," says Miguel Gomez, director of the Food Industry Management Program at Cornell University. "Food hubs can play a key role as points of aggregation and post-harvest processing to help farmers achieve larger volumes and be efficient in distribution." Surekha Carpenter of the Richmond Fed explained in an article last year that food hubs provide small farmers with access to these capital-intensive resources that they would not have individually. (See "Food Hubs: Mission-Driven Local Food Systems in the Fifth District," *Community Scope*, 2019.) As seen in the Fifth District, food hubs' social missions make them unique among participants in supply chains and allow them to benefit low- and moderate-income communities. — Emily Green

IMAGE: KRISTI BLOKHIN/SHUTTERSTOCK

regional food systems that shorten and simplify supply chains. These systems include direct or intermediated supply chains. Direct supply chains sell local products straight to consumers through roadside stands, farmers markets, or on-farm stores. Intermediated ones facilitate local sales to consumers through middlemen such as distributors, restaurants, and retailers. "The big challenge for local foods is competing on price with mainstream supply chains," says Miguel Gomez, director of the Food Industry Management Program at Cornell University. "When their products are differentiated because of quality, like seasonal produce, or local preferences, like for grass-fed beef or organic, they can receive price premiums."

Among consumers, the 2018 National Grocers Association's (NGA) National Survey of Grocery Shoppers found 59 percent of consumers select their store partly for its selection of local foods. The growth of direct sales for local foods plateaued from 2007-2012 even as total sales grew by about $1.3 billion. Specifically, retailers began to participate in intermediated supply chains to increase local food sales and satisfy consumer preferences.

A second key aspect of regional food systems is their community focus, which can be increased through local intermediaries such as food hubs. (See sidebar.) Consumers value these community ties — the NGA found 57 percent of shoppers support their local supermarket because it is linked to the community.

Additionally, other groups, such as meat trade organizations, may work to improve ties between farmers and producers in their area. "We have a lot of programs; we're engaged heavily in education and providing resources for farmers from soil health to animal well-being, maximizing feed efficiency to managing manure as a resource," said Andy Curliss, who was then CEO of the North Carolina Pork Council, in a July interview. "We're a forum where our farmers can learn about and discuss new and innovative things."

One proposal aimed at increasing local meat consumption ties is the Processing Revival and Intrastate Meat Exemption (PRIME) Act, a bill before the House Agriculture Committee with bipartisan co-sponsors. Current federal law requires meat products to be inspected at USDA- or state-monitored plants that meet federal guidelines before public sale. The PRIME Act would allow meat processed at custom plants complying with state laws to be sold directly to consumers and establishments in the same state and would exempt that meat from federal inspection requirements. Expanding possible processors could allow small farmers to use state-regulated custom plants to reduce costs. Proponents say this would decrease the price of local meat, help small processors, and allow businesses to source local meat more affordably while reducing chokepoints in the supply chain. Several meat trade associations, such as the National Pork Producers Council, oppose the bill, contending that the commercial sale of nonfederally inspected meat products could compromise food safety.

Consumers' Choice

One critical question is whether consumers will actively seek more resilient meat supplies — and pay for them. In the case of regional food systems, local foods are generally more expensive, and consumers may be unwilling or unable to pay premiums for local or higher quality meat. "In general, consumers who pay premiums for local or socially responsible products are more affluent," Gomez notes. "Income disparities may prevent some households from paying those price premiums." Furthermore, the NGA's 2018 survey report found a potential price increase of 10 percent caused 58 percent of consumers to switch supermarkets.

Overall, a transition toward greater resilience likely requires more research into consumer preferences and the trade-off between efficiency, consistency, safety, and prices. "It will be gradual, and we still need to do a lot of thinking about that," says Gomez. "There must be incentives for companies to decentralize. We need more research to identify the right food supply chain infrastructure required to support a decentralized food system, and we need a better understanding of consumer preferences for regionally and locally produced foods." As long as consumers and voters view the probability of additional significant disruptions like the COVID-19 pandemic as low, the perceived benefits of modern supply chains' cheap and consistent products may outweigh the value of more resilience. **EF**

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RESEARCH SPOTLIGHT

Measuring Culture with Facebook

BY ABIGAIL CROCKETT

Economists often seek to determine whether culture affects broad macroeconomic outcomes or how it affects the decision-making of individuals. Gianmarco Ottaviano and Giovanni Peri, for example, sought in a 2006 journal article to explore the role of cultural diversity on productivity in U.S. cities. The measurement of culture itself, however, is complex and often limited in scope.

In an IZA working paper released in September 2020, researchers at the Max Planck Institute for Human Development, Southern Methodist University, the Spanish firm Nommon Solutions and Technologies, Universidad Carlos III, and the University of Exeter Business School tried a new approach: using social media to create a new measure of culture. They explored how this measure compares with existing metrics and how it might be used to answer complex research questions.

Nick Obradovich, Ömer Özak, Ignacio Martín, et al. "Expanding the Measurement of Culture with a Sample of Two Billion Humans." IZA Discussion Paper No. 13735, September 2020.

The authors noted that, with the onset of the information age, there are now vast amounts of data on human behaviors and interests being collected worldwide. In comparison, traditional methods for measuring culture are much more limited in their scope. Surveys, in particular, are subject to resource limitations (a limited number of people can be surveyed), measurement error (via self-reporting or researcher observation), and researcher bias (for example, researchers picking questions on the basis of their own cultural assumptions and experiences).

In response to these limitations, the authors turned to the Facebook Marketing Application Programming Interface and measured human culture using information on approximately two billion Facebook users across 225 countries and territories. Facebook analyzes user behavior to associate interests with each user; marketers can see how many users are associated with each interest given a geographic area and other demographic characteristics. For example, the researchers observed that, within the state of Virginia, a higher share of Facebook users was interested in "apple cider" than in any other state.

There are hundreds of thousands of possible interests on the Facebook platform. Of these, the authors chose to focus on the 60,000 interests with the largest number of users. For each geographic area, they measured the share of Facebook users who held a given interest. Using these data, the authors calculated the cultural distance between any two regions based on the attributes of the Facebook users in each region.

This allowed the authors to create a "bottom-up" measure of culture. Rather than imposing a narrow set of ideas of what makes culture, they observed naturally occurring similarities and differences across human groups.

To validate their measurement, they showed that the cultural distances they calculated between geographic areas using Facebook were positively correlated with distances calculated from existing measures of culture, such as the World Values Survey, a worldwide survey of cultural values. They also used a machine learning algorithm to test whether the data from Facebook could predict observed cultural values (for example, on gender roles) and found high correlations between the predictions and the observed values. They also showed that clustering — a type of machine learning — could generate country groupings that proved to be consistent with general knowledge of history and culture.

After validating their measure, the authors demonstrated its potential uses, paying special attention to the measurement of culture in subnational regions, which they argued is cost prohibitive using traditional means of measurement. They explored whether or not national borders matter for cultural dissimilarity, and they measured which countries have more dissimilarities among internal regions. Again using unsupervised clustering, the authors were able to create natural groupings of both national and subnational areas based on cultural similarity. They charted the grouping of all the countries in their sample and of U.S. states. They also explored cultural distance along other lines, looking at relationships among regional, gender, and age divisions.

Having explored various uses for their new measure of human culture, the authors acknowledged limitations to their approach. Not everyone uses Facebook. Moreover, groupings of interests that differ among regions might be difficult to interpret; unlike traditional cultural measures, which rely on everyday concepts like religion or art, clusters of Facebook interests may not have easily understood meanings. Thus, they saw their measure as complementary to existing traditional methods of understanding culture, rather than as a replacement. Even with these limitations, though, the authors argued that data culled from Facebook might be used to answer new research questions on topics as diverse as outcomes of immigration and issues of political stability. **EF**

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The Leaky Pipeline in Economics

BY HAILEY PHELPS

In 2019, Esther Duflo became only the second woman to win the Nobel Memorial Prize in Economic Sciences among the 84 laureates since the prize was instituted in 1969. Duflo shared the prize with her husband, Abhijit Banerjee of the Massachusetts Institute of Technology, and Michael Kremer of Harvard University for their work on global poverty. In her banquet speech in Stockholm, she said, "I cannot help but hope that this prize ... with one woman among the laureates, will encourage many others to come join us." Will her wish come true?

For decades, starting in the 1960s, the percentage of women studying economics and the number of professional female economists in the United States was increasing. But since 2000, that trend has stalled. The supply of women economists has been characterized as a "leaky pipeline," meaning the fraction of women in economics decreases at nearly every step along the way. According to the American Economic Association's (AEA) Committee on the Status of Women in the Economics Profession, in economics departments with doctoral programs, there are about two males for every female undergraduate economics major, two males for every female first-year graduate student, four males for every female associate professor, and six males for every female full professor. These ratios have remained stagnant over the past 10 years. (See "Where Are the Women?" *Econ Focus*, Second Quarter 2013.)

The leaky pipeline of women economists begins at the undergraduate level. Over the past 30 years, the fraction of women majoring in economics has not increased. There have been several theories to try to explain why women do not do so in greater numbers. One is that women, on average, simply don't like math as much as men or don't perceive math as their comparative advantage. Yet female enrollment in other math-intensive STEM fields has increased more than enrollment in economics, implying that math is not the answer.

Another explanation is that undergraduate women are dissuaded by low grades in introductory economics classes. During the Women in Economics: Progress and Challenges conference held at the University of Chicago in 2019, Claudia Goldin of Harvard University argued, "If they get below an A-, woman are less likely to pursue economics, and the fraction who eventually major in economics drops. The guys, you could hit them over the head with a baseball bat, and they would still stay in economics."

At both the graduate and undergraduate level, there are few female role models and mentors for female students — which many believe help to pique the interest of women students. One proposed strategy to increase the number of women in economics is to hire more female professors to encourage mentoring relationships.

Sarah Stafford, chair of the economics department and former director of the public policy program at the College of William & Mary, agrees that increasing the number of female professors at universities would encourage more women to study economics. "I would love to get more female faculty teaching. Right now, we have four women and 20-plus men [in the economics department]."

Women also seem to face systemic barriers in attitudes within the profession. In 2017, Alice Wu, then an undergraduate at the University of California, Berkeley, wrote a senior thesis quantifying the atmosphere of the economics profession. Using text mining, natural language processing, and machine learning, Wu analyzed over one million anonymous posts on Economics Job Market Rumors, a web forum that serves as a "virtual water cooler" for discussing economics jobs. While access to the forum is not limited to economists and economics students, those who post there are believed to come mostly from economics, given its function. She found that nine of the top 10 words most associated with posts about women contained explicit sexual references. Additionally, relative to men, posts about women had 43 percent fewer academic and professional terms and 192 percent more terms related to physical attributes or personal information.

Following the release of Wu's thesis, more than a thousand economics professors across the country signed a petition urging the AEA to produce its own job discussion forum. The AEA responded by announcing that a moderated discussion forum and a new draft code of conduct were in the works. Since then, the AEA has encouraged its members to use EconTrack, its job market information board, and EconSpark, its economics discussion forum.

Increasing gender diversity in economics could influence policy discussions. For example, on average, women historically have gravitated more than men toward labor economics, education, health, and industrial organization. A 2014 study of AEA members revealed stark differences between male and female economists' views on issues such as the minimum wage, labor standards, health insurance, and the gender wage gap.

"The economics profession can be a powerful platform to have your perspective on social issues heard," says Arantxa Jarque, a senior policy economist at the Richmond Fed. "We need to ensure that more women and underrepresented minorities are aware of this path and feel welcome to bring their voices and talents into our profession and into policymaking. We all stand to benefit." **EF**

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What Makes Companies Invest?

Decisions about investment at the firm level are important to the path of economic growth

By Hailey Phelps

In November 2018, Amazon announced the site of its second headquarters, which it calls HQ2, in Northern Virginia. Amazon stated that over the next 20 years HQ2 would create 25,000 jobs and occupy upward of 8 million square feet of office space in the greater Washington, D.C., region. "It will mean more employment opportunities for our families, not only with Amazon but also with the companies that will grow up around Amazon," Loudoun County Board of Supervisors Chair Phyllis Randall told the Associated Press. "It will boost our economy as Amazon employees and clients spend money in our stores, restaurants and hotels. A rising tide lifts all boats, and we look forward to the whole community benefitting from Amazon's second home in Northern Virginia and the D.C. Metro region."

Business investment — like HQ2 — is of prime interest not only to local officials, but also to economists and policymakers concerned with the economic growth of the country as a whole. Over the past few decades, researchers have studied how businesses decide to invest and how those decisions affect the overall economy. In the short term, an increase in investment directly increases gross domestic product (GDP), all else equal. In the long term, investment can influence the economy's growth because investment in capital increases the economy's production capacity, which allows more goods and services to be produced with the same amount of labor. The increases in productivity that come with investment, moreover, are a primary source of improvement in our standard of living.

What, then, shapes the decisions that companies make about investment?

One answer is close at hand: The Fed uses its influence over interest rates in part to influence business investment decisions. Lowering rates decreases the cost for a business to borrow funds to finance investment projects, making a new project easier for the company to justify pursuing; raising rates does the opposite. Interest rates aside, though, there are many factors that influence the investment decisions of firms, including changes in productivity, the business cycle, bank lending, and economic uncertainty. In recent decades, economists have made strides in understanding them.

Investment Isn't Smooth

Business investment refers to something different from financial investment, such as the purchases of stocks and bonds; business investment primarily refers to new capital good purchases. For example, when an airplane company acquires jet engines, it is investing in equipment; when a paper manufacturer builds a new warehouse, it is investing in structures. Strictly speaking, business investment also includes inventory investment, but investments in fixed capital are what mostly interest economists.

Before the 1990s, it was common in economics research to think of a firm's investment behavior as mostly smooth and reflective of an investment demand curve in which investment is driven by changes in interest rates. As it turns out, however, investment behavior at the firm level is often characterized by periods of low or zero investment followed by large discrete changes, commonly referred to as investment spikes. Such feast-or-famine investment behavior can be called "spiky" or "lumpy" investment. Many spikes in the investments of small firms can add up, in turn, to significant changes in aggregate investment. Recently, economists have started to pay more attention to the macroeconomic effects of firm investment spikes, and policymakers have discussed the importance of investment spikes in considering policies to stimulate investment when it would otherwise be declining during recessions.

Two of the first economists to study plant-level investment were Mark Doms, the chief economist at the Congressional Budget Office, and Timothy Dunne, a professor at the University of Notre Dame. In a 1998 article in the *Review of Economic Dynamics,* Doms and Dunne observed that relying solely on national-level statistics — as many economists had done up to that point — would not explain the complex dynamics of different industries or operations of a typical plant. To account for these differences, they used data from the U.S. Census Bureau's Longitudinal Research Database and the Annual Survey of Manufactures. Analysis of these data led them to discover three things. First, many plants do not alter their capital stocks smoothly. Most plants alter their net capital stock by less than 10 percent every year, on average, but at some plants that pattern is punctuated by major investment increases. Second, those major increases are concentrated most often in smaller plants, plants that undergo a change in organizational structure, and plants that switch industries. Third, large investment projects in a small number

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of plants and changes in the number of plants undergoing investment episodes greatly affect aggregate investment.

The concept of investment spikes was explored in 2007 by economists Francois Gourio of the Chicago Fed and Anil Kashyap of the University of Chicago. In an article in the *Journal of Monetary Economics*, they showed the effects of plant-level investment spikes on aggregate investment using data from manufacturing plants in the United States and Chile. They defined plant-level investment spikes as periods in which the ratio of investment to capital stock was greater than 20 percent. The investment ratio describes the relationship between the amount of money invested and the value of a plant's existing capital stock.

They argued that one reason many firms choose not to adjust their capital smoothly is because investment has high fixed costs. "If a firm wants to do a big investment project, they may need to shut down the assembly line for a while," Gourio explains. "So sometimes it is better [for firms] to do everything at once rather than spread it out over many years." Gourio and Kashyap showed that for both U.S. and Chilean plants, the majority of the variation in national investment was caused by plants undergoing investment spikes. Upon further analysis, they concluded that changes in the number of firms making large investments had a greater effect on the variation in the aggregate investment ratio than changes in the average size of the investment spike per plant. Additionally, the prevalence of investment spikes in one year predicted future aggregate investment. Years with relatively more investment spikes were followed by years with relatively less investment.

The high fixed costs of investment prevent a firm from immediately reaping the rewards of its investment project. In a *Business Review* article, Aubhik Khan of Ohio State University wrote, "Because it takes time to manufacture, deliver, and install new capital goods, investment expenditures today do not immediately raise the level of a plant's capital." Thus, he explained, firms will tend to increase their investments only "in response to forecasted changes in the market's demand."

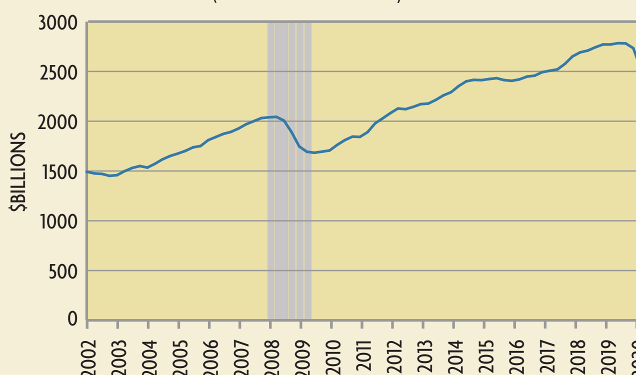
Productivity Shocks

Productivity also makes a difference for a firm's investment decisions. If productivity increases — that is, if the firm becomes able to create a larger quantity of outputs with the same level of inputs — then investment will likely increase. For example, a firm's productivity can increase if it finds ways to lower manufacturing costs. By lowering production costs, the firm can reap a higher profit per unit or sell more of its products at a lower price. Following this, the firm can expand and hire more workers, and investment will rise.

The relationship between productivity and investment flows in both directions, however. A study recently published in the *Journal of Business & Economic Statistics* by Michał Gradzewicz of the National Bank of Poland investigated the relationship between investment spikes and productivity at the firm level. He used the financial reports and balance sheets of Polish firms to model the economic effects of investment spikes and how they relate to firm-level total factor productivity (TFP), the ratio of output to inputs. TFP is often used as a measure of productivity or economic efficiency because it explains the portion of growth in output that cannot be explained by growth in inputs of labor and capital. His model predicted that a firm's TFP would increase before an investment spike, fall immediately afterward, and then slowly recover. One reason for the drop in TFP is that firms need time to adjust their operations and train their employees on how to use new capital following investment. During this time, firms become less productive because they are gaining experience with the new equipment — their employees are learning by doing. On average, it took four years for TFP to surpass its initial level following an investment spike. For smaller firms, the fall of TFP was more pronounced and it took even longer to recover.

Business Investment and the Business Cycle Mostly Rise and Fall Together

Business fixed invesment (in chained 2012 dollars)



SOURCE: U.S. Bureau of Economic Analysis

In another study, Thomas Winberry of the University of Chicago examined how aggregate investment responds to investment at the firm level and how aggregate and firm-level investment responds to productivity shocks and stimulus policy. Using IRS tax data, he constructed a model that matched both the volatility of firm-level investment and the real interest rate dynamics of national data. His model accounted for the procyclical volatility of investment, so it better matched the national response to changes in productivity. He concluded that when many firms are close to their adjustment threshold for investment, an additional productivity shock induces a large spike in aggregate investment; on the other hand, when only a few firms are considering investing, an additional shock makes less of a difference to aggregate investment.

Business Cycles

It is well known that aggregate investment fluctuates in response to the business cycle: Companies tend to shut off the investment spigot during a downturn and reopen

it during a recovery. (See chart.) Winberry found that in recent decades, some 38 percent of the decline in GDP during recessions can be attributed to the decline in aggregate investment. But how does firm investment volatility respond during contractionary periods? Unfortunately, there does not seem to be a clear answer. Some economists believe that "lumpy" investment is irrelevant for business cycle analysis; others believe that accounting for such lumpiness is critical. There is some evidence that firm investment has become less responsive to the business cycle. The United States has been shifting to a service-based economy — and services are less capital intensive, meaning that overall fixed-capital investment levels in the United States are decreasing and therefore potentially becoming less prone to cyclical swings. "Investment is moving abroad; we're not doing as much manufacturing as we used to. We're leaving the manufacturing to other countries," says Gourio.

On the other hand, researchers have argued that investment is sensitive to fluctuations in the business cycle. A recession sometimes arises from a collapse in asset prices, as in the global financial crisis of 2007-2008. In a recent article published in the *American Economic Journal: Macroeconomics*, Richmond Fed economist Toan Phan and his co-authors studied the effects of booms and busts on housing prices and how they affected the economies of the United States and Japan. "The collapse of a large bubble can cause involuntary unemployment, which can lead to a long recession like the one we saw in Japan in the 1990s," says Phan. "The collapse of a large bubble will also put downward pressure on the real interest rate, which will affect nominal interest rates and can push them down to the zero lower bound. Then, the central bank's hand will be tied since they cannot lower interest rates anymore." Their theoretical model showed that expansionary bubbles boost economic activity when they are occurring, but their collapse pushed the economy into persistent secular stagnation and recessions. During such times, investment decreases substantially along with output and consumption and there is increased involuntary unemployment.

The United Kingdom, like the United States, experienced a sharp drop in real GDP during the 2007-2008 global financial crisis. The financial crisis severely curtailed normal bank lending, resulting in a decline in investment and consumer spending. Research by Richard Disney and Helen Miller of the Institute of Fiscal Studies and Thomas Pope of the Institute for Government, published in *Economica*, examined firm-level investment spikes and aggregate investment over the Great Recession in the United Kingdom. Using a model similar to one used by Gourio and Kashyap, they showed that the probability of a firm undergoing an investment spike fell substantially after 2008 and that prolonged levels of low investment prevented a "v-shaped" economic recovery in the United Kingdom.

When the economy is in a recession, policymakers want to pass countercyclical policies to stimulate investment. During previous recessions, policymakers have enacted stimulus policies that were not dependent on the size of a firm, which may have reduced cost efficiency. Winberry's study observed how policy affects investment during recessions. He found that firms are less likely to respond to policies geared toward investment when the economy is in a recession because the probability of financing a large investment project during a recession is low. Winberry proposed a simple micro-targeted policy based on employment and the size of a firm; he estimated that such a policy would generate five times more investment than existing stimulus policies at the same cost.

Bank Lending

The way in which firms finance investment projects also plays a role in determining how they make investment decisions. Firms most commonly fund their investments in one of several ways: internally, from retained earnings or the owners' personal funds; by borrowing; or by selling equity. From a company's perspective, especially a large company's, these choices are enormously complex — the subject of many a business school finance course. Ease of borrowing from banks, however, is commonly a major factor in whether companies go ahead with investment projects.

Large corporations have ready access to the corporate bond market and short-term lending markets and can raise capital in the stock market, but small and medium-sized firms may not have that luxury. Small and medium-sized firms primarily rely on access to credit through longstanding relationships with banks to finance their investments. Since most variation in total investment is caused by investment spikes, and investment spikes are caused by changes in the number of firms undergoing investment projects, it is important to understand the role of bank lending as the mechanism for financing investment. Research by two Richmond Fed economists, Russell Wong and Marios Karabarbounis, has examined the effects of bank lending on investment at different sized enterprises.

In a recent working paper, Wong — with co-authors Zachary Bethune, Guillaume Rocheteau, and Cathy Zhang — argued that the formation of lending relationships is critical for small businesses to finance their investment opportunities. Using data from the Fed's Survey of Small Business Finances, the researchers constructed a model to simulate how the economy would respond to a negative credit shock under different policy responses and levels of commitment by the central bank. Their results showed that if the central bank cut interest rates at the onset of the credit shock and committed to raising them following the shock — a policy known as forward guidance — then investment at the national level initially would decline but would recover quickly relative to other traditional monetary policies. The initial decline

in investment would be caused by the increased number of firms that lost their relationship with banks. But if the central bank was unable commit to future interest rates, then aggregate investment would sharply decline and recover more slowly.

In other research, Karabarbounis examined how variation in the supply of bank loans affects large firms' investment decisions. He constructed an index of bank lending, which he used to compare the number of loan deals issued by a bank from October 2008 to June 2009 with the number issued by the same bank from October 2005 to June 2007. He also constructed a firm-specific measure of bank lending supply that showed the relative exposure of each firm to banks that faced severe lending disruptions caused by toxic loans. If a firm had a large loan or multiple loans from a bank that experienced difficulties, then the firm would most likely experience more problems trying to borrow compared with a firm that was borrowing from a healthier bank. He found that exposure to risky banks did not affect investment decisions of large firms. "One reason for this may be that these larger firms have means of financing that the smaller firms don't have. So even when banks cannot help financing them, [large firms] can sell their assets or rely on their own cash," suggests Karabarbounis.

Uncertainty

Another factor that contributes to firms' investment decisions is uncertainty about policy. As Richmond Fed President Tom Barkin has observed, policy uncertainty may lower business confidence, which in turn has a dampening effect on investment. Policy uncertainty may also create a "waiting game" as business owners tend to put off investing until they know how changes in tax policy, government spending, or regulation will affect their investment plans. Most recently, there has been policy uncertainty regarding government aid for the unemployed and lending programs for businesses.

In a 2016 study in the *Quarterly Journal of Economics*, Scott Baker of Northwestern University, Nicholas Bloom of Stanford University, and Steven Davis of the University of Chicago developed a new index of economic policy uncertainty (EPU) by measuring the frequency of references to the economy, uncertainty, and policy in articles published in 10 major newspapers. Their results showed that their EPU spiked around tight presidential elections, the two U.S. wars in the Persian Gulf, the Sept. 11 attacks, the failure of Lehman Brothers in 2008, the 2011 debt ceiling dispute, and other major battles over fiscal policy. Their results also showed that policy uncertainty is associated with reduced investment and employment in policy-sensitive sectors. They concluded that at the national level, policy uncertainty predicted declines in investment, output, and employment in the United States and other major economies.

Following this, Bloom and a different set of co-authors published "Really Uncertain Business Cycles," an article in *Econometrica* about the role of uncertainty in the business cycle at the firm level. Using establishment-level data from the Census Bureau, they developed new empirical measures of uncertainty and found that increased uncertainty makes it optimal for firms to delay investment decisions and postpone entering new markets. They found that when there was heightened uncertainty, there was a significant fall in hiring, investment, and output, which led to a drop in GDP of approximately 3 percent. Additionally, they found that investment is more volatile than output and consumption at the firm and plant level than at the national level. In the long run, after the uncertainty shock went away, firm investment bounced back to normal levels. Their results echoed Winberry's: As uncertainty rises, firms become more cautious and move further and further away from their investment threshold. Therefore, they are less responsive to investment stimulus policies and less likely to undertake investment projects.

Conclusion

The past 30 years have seen an increased use of microeconomic data for macroeconomic research, specifically how firm-level investment affects aggregate investment. Studying investment at the firm level reveals much more about the behavior of firms than simple national statistics do. Investment spikes play an important role in determining aggregate investment, as firms are sensitive to the business cycle, bank lending, and economic uncertainty. Research on business investment highlights the importance of maintaining efficient credit markets, especially for small and medium-sized businesses, which rely on these institutions to finance investment projects. This research also highlights the importance of certainty about the path of future policy as an influence on companies' investment decisions. Further research into the factors that shape investment may help to inform policymaking that fosters economic growth in the future. **EF**

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The Rise and Sudden Decline of North Carolina Furniture Making

The industry was hit hard by offshore competition

BY JOHN MULLIN

It happened so quickly. In just 10 years, between 1999 and 2009, North Carolina's furniture manufacturing industry lost more than half of its jobs. The chief culprit was increased competition from lower-cost furniture imported from Asia — mostly China. The U.S.-China Bilateral WTO Agreement, signed in November 1999, had opened the door to Chinese imports by lowering U.S. tariff barriers and easing the way for China to join the World Trade Organization (WTO). At the time, proponents of the agreement predicted that it would have a relatively modest effect on U.S. manufacturing imports and jobs. Studies of the subsequent history, however, strongly suggest that these predictions were incorrect. Increased imports from China turned out to have a major effect on U.S. manufacturing jobs and a particularly devastating effect on furniture manufacturing in North Carolina.

One of the story's wrinkles is that the influx of Chinese imports had not been initiated by Chinese industrialists but rather by the North Carolina industry's own leaders, who had sought cost advantages that could put them ahead in what has historically been, and remains to this day, a highly competitive industry. Another wrinkle is that, by undercutting North Carolina's furniture manufacturing base with Chinese imports, they were replicating a pattern that had played out during the 20th century, when the North Carolina industry successfully competed with the furniture manufacturing industries of New England and Michigan.

The White Furniture Company in Mebane, N.C., was organized in 1881. It was one of the earliest furniture manufacturers in the Piedmont region and remained in Mebane until the 1990s.

IMAGE: LIBRARY OF CONGRESS, PRINTS & PHOTOGRAPHS DIVISION, FSA/OWI COLLECTION, LC-DIG-PPMSCA-05625.

North Carolina's furniture industry, which emerged in the aftermath of the Reconstruction era, had been built on several pillars. These included a fine tradition of woodworking craftsmanship, an abundant and varied supply of timber, and an advantageous geographical location leveraged by an effective transportation infrastructure. Yet although each of these pillars was important, there was an additional pillar that was arguably the most crucial of them all — the industry's access to inexpensive labor. Indeed, it would be difficult to understand the industry's history without considering the role of its labor costs relative to those of its rivals in other regions and countries. The industry's impressive growth during its heyday depended on low-cost labor, and competition from even cheaper labor caused its 21st century contraction.

The industry now stands at a historical crossroads. Its leaders are pursuing different strategies based on high value-added niches, customization, and rapid delivery. They face many challenges, but one of the most important, in their eyes, is an insufficient supply of skilled labor.

From Cottage Industry to Factories

The tradition of woodworking craftsmanship in North Carolina's Piedmont region has its roots in the 1800s, when cabinetmakers in the Moravian settlement of Salem (now Winston-Salem) and in the Quaker communities of Randolph and Rowan counties created furniture pieces that are still highly valued as collectors' items and museum pieces. Many of these works were largely based on the pattern books of the great European cabinetmakers but with local adaptations. Moravian cabinetmakers built household necessities, such as beds, chests of drawers, and desks — items that would have been difficult to transport to the somewhat isolated town of Salem. Their furniture was noted for its solidity, simplicity of design, and careful construction.

The region's furniture-making heritage owes much to its abundant timber resources. The Piedmont is full of pine and oak. Further to the west, the Blue Ridge Mountains and Appalachian Plateaus are forested with oak, chestnut, yellow poplar, maple, and many other hardwoods. The coastal plains have gum and cypress.

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The North Carolina furniture industry emerged from its "cottage industry" status after the Reconstruction era. At that time, there was a pervasive belief among civic and business leaders that the development of the region's manufacturing base was crucial for achieving prosperity. A logical place to start was to add value to the region's agricultural products and natural resources — chiefly tobacco, cotton, and timber. By the 1880s, the merger of agriculture with light industry had given rise to the burgeoning industries of tobacco processing, textile production, and furniture manufacturing.

The rebuilding of North Carolina's railroads had been a necessary precondition for the development of the region's industries, including the furniture business. The region's railroad infrastructure was in bad shape at the end of the Civil War, and it was widely recognized that it would have to be rebuilt to get business going again. This task was accomplished during the Reconstruction era by a combination of Northern entrepreneurs, Southern timber and lumber mill owners, and Southern laborers. Northern entrepreneurs supplied the financing, Southern timber and lumber mill owners supplied the railway crossties, and unpaid convict laborers supplied the bulk of the workforce that blasted away rock, graded the paths, and laid the tracks.

The city of High Point — so named because it was the highest point on the North Carolina Railroad between Charlotte and Goldsboro — was the site of North Carolina's first furniture factory, which began to operate in the 1880s. Prior to this time, Southerners generally bought their furniture — like other manufactured goods— from the North. The first producers focused on selling inexpensive oak furniture to the Southern market. They were not yet ready to compete with Northern manufacturers in the production of high-quality furniture.

The Industry Takes Off

North Carolina's furniture industry grew rapidly in the 1890s. At the start of the decade, six establishments produced an estimated $159,000 worth of furniture. By 1900, 44 furniture factories operated in High Point and the surrounding towns of Thomasville, Lexington, Salem, Marion, Mount Airy, Statesville, Hickory, and Greensboro. In that year, they produced an estimated $1.5 million worth of furniture. (See table.) Related industries had set up factories to supply the furniture makers with veneers, plate glass, mirrors, and paints.

Exponential Growth

North Carolina Furniture Production	
1890	$159,000
1900	$1,500,000
1919	$29,800,000
1929	$56,700,000

SOURCE: Lacy, Robert, "Washstands, Sideboards, and Parlor Suites: Making Furniture and Progress in North Carolina's Piedmont," *Region Focus*, Spring 2005; Lemert, Ben F., "Furniture Industry of the Southern Appalachian Piedmont," *Economic Geography*, April 1934, vol. 10, no. 2, pp. 183-199.

The almost tenfold growth in furniture production was facilitated by an ample supply of inexpensive labor. The agricultural depression of the 1890s had devasted farmers across the nation. In the face of weak crop prices, many of North Carolina's farmers left the countryside and migrated to the area's towns, where they sought work in the developing textile mills, tobacco processing plants, and furniture factories.

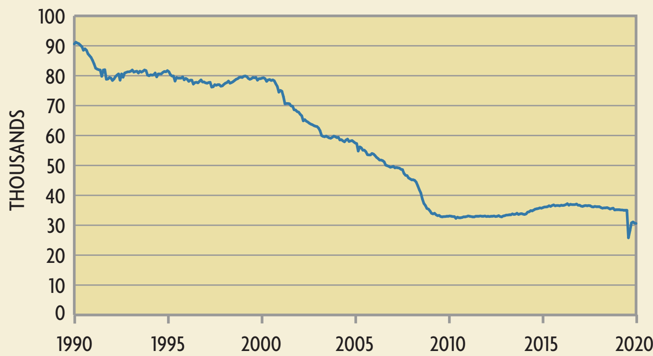
Farming was a hard life in North Carolina's Piedmont region, where cotton was the predominant crop. The farms were small, due to hilly topography, and the land was only moderately fertile and required substantial fertilization. In good years, farmers who owned their land typically made just enough to pay off their debts, and a string of bad years could result in foreclosure. Most tenant farmers — about a third of all farmers — lived in poverty with poor diets and health care. The extreme difficulty of the farming life made factory work alluring, and depressed crop prices heightened the attraction.

Many North Carolina furniture makers made large profits during the first decade of the 20th century, but by 1910, the profits became harder to come by. In response to the initial profits, new factories had been built, which resulted in intense competition — for both market share and skilled workers. It was at about this time that the first formal Southern Furniture Market was held in High Point. The market proved to be an effective and enduring means of marketing the industry's product, and expositions continue to be held twice a year in High Point to this day (with a notable exception in the spring of 2020, when it was canceled due to the COVID-19 pandemic).

The agricultural depression of the 1920s changed the industry's direction. The value of North Carolina's cotton crop — which had been $2 billion in 1919 — declined to $643 million in 1921. The purchasing power of Southern consumers plummeted, and the state's furniture manufacturers sought out alternative markets in the North. At first, their products were scoffed at by Northerners. But North Carolina manufacturers gained market share by copying high-end contemporary furniture designs and producing them at mid-market prices. Focusing on household furniture, the industry's production roughly doubled over the next 10 years — from $29.8 million in 1919 to $56.7 million in 1929.

The industry's success in penetrating the Northern market relied heavily on its price competitiveness, which, in turn, hinged on its access to low-wage labor. Wages for North Carolina furniture workers were roughly $821 per year in 1929. This was about half the $1,647 wage paid to workers in New York and substantially lower than the $1,332 wage paid to workers in Michigan.

Although the large supply of labor coming from the region's farms undoubtedly depressed furniture industry wage rates, there is little doubt that the inability of unions to gain a foothold also played a role. A major obstacle to unionization was the industry's geographical dispersion



among company towns that usually had textile mills in close proximity to furniture factories. Men would mostly work in the furniture factories, while women and children would work in the textile mills. "Agitators find it more difficult to foment strikes in such industrial communities," according to an analysis of the industry by Ben Lemert in the journal *Economic Geography* in 1934. "In the furniture region of the Piedmont they must agitate disturbances in not only the furniture, but also the knitting, cotton and silk industries simultaneously in order to have a chance of winning." In company towns, industrialists and civic leaders formed a united front against unionization, and workers were harassed, fired, or worse for organizing. Once fired, they typically would be left with no nearby employment alternatives and would have to uproot their families.

But Lemert's account made it plain that race was also an important factor. According to his analysis, the industry's lower wages partly reflected lower living costs. But he cited another reason: "They are lower because farm labor and common labor wages are much lower; and these wages are much lower than those for similar occupations in the North due to the fact that a great black laboring force has always done the hard labor of the South and is willing to do so and ofttimes do it better for less wages than those paid the white man." The racial divide between black and white workers was often used to enforce labor discipline and discourage unionization.

The Glory Days

During the 1930s and 1940s, furniture sales were depressed — at first because of the Depression and then due to World War II, when many companies shifted to war production. The industry's situation turned around after the war, thanks to pent-up demand and a booming U.S. housing market. "The Greatest Generation went to college on the G.I. Bill, married, had children, bought houses, and filled them with furniture," in the words of former industry executive and Lenoir-Rhyne University business professor Michael Dugan, author of *The Furniture Wars: How America Lost a Fifty Billion Dollar Industry*. Thus, North Carolina furniture companies that survived the Great Depression and World War II experienced unprecedented prosperity.

These were the industry's glory days. There was no significant offshore competition and plenty of demand. "If you could make it, you could find a buyer for it," according to Dugan. During the 1960s and into the 1970s, Dugan wrote, "The weakest competitors made money; the strongest made a lot of money." North Carolina became the nation's top producer of both upholstered and wooden household furniture, and within North Carolina, the industry expanded to become the state's second-largest manufacturing industry — the textiles and apparel sector was the only one larger.

Yet the industry remained highly fragmented and competitive, even during this period of prosperity. According to Dugan, two-thirds of the 5,350 companies employed fewer than 20 people, and only 75 had sales in excess of $10 million. Many people were surprised by a 1957 study by Dartmouth College marketing professor Kenneth Davis that found that the industry's profitability was only average or slightly above normal. The study concluded that this reflected structural features of the market — in particular, the desire of customers for differentiated products. The need to accommodate varied and changing consumer tastes made it difficult to achieve economies of scale, and this fact encouraged fragmentation and intense competition. Firms vied for market share through marketing and creative design (although firms regularly copied the designs of rivals). Yet despite the efforts of firms to differentiate themselves, consumer brand preferences generally remained weak, with some notable exceptions, such as Thomasville, Drexel, and a handful of others.

A Reversal of Fortune

China's growth as an export power in the wake of its WTO entry was swift, and its magnitude was unexpected. The country's share of world manufacturing exports more than tripled between 2000 and 2012 — from roughly 5 percent in 2000 to more than 17 percent in 2012.

Exports from China had a profound effect on U.S. furniture manufacturing. In 1994, China exported $241 million worth of wood furniture to the United States. By 2004, that figure had grown more than seventeenfold, to $4.2 billion. By 2016, 73.5 percent of all furniture sold in America was imported. For the U.S. furniture industry, David Autor of the Massachusetts Institute of Technology and co-authors estimated that China's rise caused a $44,000 loss in production per worker. In the years following the 1999 U.S.-China trade agreement, employment in the industry tumbled. (See chart.)

But the initial growth of furniture imports from Asia had been encouraged by U.S. furniture companies.

"Westerners were the ones who brought the American furniture industry to Asia," wrote Dugan. Early movers in the industry — who built furniture factories in the Philippines and Taiwan — recognized the huge competitive advantage of using low-cost labor to manufacture furniture in Asia, which surpassed the advantage of relocating to other parts of the United States, such as Mississippi, as some had previously done. "The original plan," Dugan recounted, "was to make furniture components in Asian factories using American veneers, ship them to America for assembling, and sell them to the American market at highly competitive prices." The plan was so successful that it was soon copied by other U.S. firms.

American furniture companies increasingly began to form relationships with Asian companies that could supply them with manufacturing inputs and semifinished furniture. "As labor costs rose in Korea and Taiwan and import restrictions on China were eased," according to Dugan, "new factories were built in southern China, Vietnam, and Indonesia." The Chinese government barred foreigners from operating their own factories, so Americans ended up partnering with and imparting their knowledge to Chinese industrialists, who quickly became adept at building U.S.-style furniture and competing in the U.S. market. The business of many North Carolina furniture companies gradually shifted away from manufacturing and toward importation and distribution.

Reemergence?

A number of developments have been pushing back against the rise of furniture imports from China. One is that companies are increasingly recognizing the limitations of offshoring. In addition to shipping costs, offshoring often requires U.S. distributors to carry heavy inventories, incur long lead times, or both. These negatives, combined with rising labor costs in China, have caused some U.S. firms to think twice about where to locate their production.

U.S. manufacturers have also sought out and received federal redress against Chinese imports. One of the latest interventions came in 2019, when the Department of Commerce imposed substantial antidumping duties on various categories of furniture imported from China. These duties have provided some competitive relief for U.S. furniture manufacturers, but other duties have also increased the costs of certain imported inputs, including metal parts, upholstery foam, and various packaging materials.

Firms have responded to increased foreign competition in a variety of ways. Some have emphasized a combination of customer choice and timely delivery by designing frames that can be built out in a variety of different styles. Other firms have concentrated on niche markets and higher value-added products, such as customized upholstered furniture targeted at the designer market.

More recently, furniture makers have received an unpredicted boost in demand due to the coronavirus crisis. People who have kept their jobs and are working from home have more money to spend on durable goods — having cut, by necessity, their dining and entertainment expenditures. Many of these relatively affluent consumers are evidently paying more attention to their home spaces — and are buying new furniture. Consumer expenditures on furniture and durable household equipment increased 12.7 percent in dollar terms in the third quarter of 2020 versus one year earlier, according to the U.S. National Income and Products Accounts.

North Carolina furniture manufacturers, given their experience with the fickle cycles of the industry, are understandably cautious about expanding capacity. But even in cases where they want to increase production, they are having difficulty, according to industry accounts, finding a sufficient supply of quality technicians and craftspeople, such as upholsterers and sewers.

Indeed, the future of North Carolina furniture manufacturing may well hinge on a renewed supply of skilled workers to replace the estimated 2,000 workers who retire from the industry each year. Help in this area has come from programs like the Catawba Valley Furniture Academy, an innovative training program at Catawba Valley Community College in Hickory, N.C. The academy is a public-private collaboration whose faculty is largely composed of industry veterans, and its job placement rate has been nearly 100 percent for those who make it through the rigorous program. Such efforts may prove vital for an industry that believes its future depends on niche markets and customization. **EF**

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Valerie Ramey

On fiscal stimulus, technological lull, and the rug-rat race

One of the foremost economic researchers in the United States on fiscal policy, and fiscal stimulus in particular, is Valerie Ramey of the University of California, San Diego. For much of the 21st century, macroeconomic research has tended to be dominated by monetary policy rather than fiscal policy — because, Ramey has joked, the Fed sponsors more economics conferences than the Treasury Department. But fiscal stimulus came to the forefront of policy debates in 2020 as the SARS-CoV-2 coronavirus led to shutdown measures to slow its spread, as well as catastrophic drops in demand in sectors like travel. Ramey's research on the effects of fiscal stimulus thus gained new relevance and urgency.

Ramey has also been highly active in researching changes in the ways Americans use their time, including the ebbs and flows of their leisure time. Some of this work has been in collaboration with economist Garey Ramey, a colleague at UCSD and also her collaborator in raising two children and in 39 years of marriage. Other areas of her research include the business cycle, economic growth, and labor markets.

David A. Price interviewed Ramey via videoconference in October 2020.

EF: How did you become interested in economics?

Ramey: Mostly by accident. When I was in high school, my father suggested that I should be a lawyer because he saw how much lawyers charged. I said, "OK, that sounds good." That career plan naturally attracted me to debate, so I joined the debate team in high school and in college.

The year I started college, the national debate topic was "Resolved: that the federal government should implement a program which guarantees employment opportunities for all United States citizens in the labor force." At the beginning, I didn't know anything about economics or statistics, what the Federal Reserve was, or what an R-squared was. But while gathering evidence for debate cases, I became a mini expert in the area, which is typical of debaters. I also came out of it thinking that economics was interesting.

I met my now husband, Garey, on the debate circuit. He wanted to be a lawyer as well and had heard that economics was a good major for law. So we both became economics majors and thought the classes were interesting. We were still thinking of being lawyers, but then we heard from more senior debaters who went to law school that they didn't like the profession.

So we wondered what to do. We thought about earning MBAs, but our economics professors said, "Oh, you'll be bored with an MBA, you should get a Ph.D." We took their advice and, as my husband explains, "We quit debate and joined economics."

EF: In your research, you've looked at the effects of fiscal stimulus. You've found that the effects vary depending on the circumstances, such as what kind of stimulus is applied and what the economy is looking like. How would you characterize the transfer payments made in response to the coronavirus pandemic? And what do you think we'll find out about their effects?

Ramey: The transfer payments have been very important for supporting the economy. The COVID-19 recession is different from a standard recession because everything is happening much more quickly than usual. Because of this, it was more important to distribute the payments quickly than to take extra time to target them more precisely.

In my view, the government needed to throw out lifelines to help keep households afloat, so that they could

PHOTOGRAPHY: MICHELLE RAMEY

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pay their bills, and businesses afloat, so that employment relationships and supplier relationships could be preserved. We know that these relationships are really important. If they're broken, it can take a long time for workers to find a new job and for businesses to establish new networks. Preserving them means that we have a better chance for a faster recovery from the recession.

"We noticed a big step up in anxiety about children and the amount of time that parents were putting into them, particularly the extracurricular activities. We had grown up during the baby boom where we were all free-range kids who ran out on the street."

EF: You've found that looking at news records is a helpful way to measure the historical effects of stimulus. Why is that?

Ramey: I started looking at news records when I realized that changes in government spending are often announced at least several quarters before the government spending actually occurs. That's really important, because the empirical techniques that researchers were using previously to measure the effect of government spending implicitly assumed that any change in government spending was essentially unanticipated. But our models tell us that individuals and firms are forward-looking and therefore will react as soon as the news arrives about a future event. This means that the previously used techniques had the timing wrong and therefore couldn't accurately estimate the effects of government spending.

So I needed to create measures of expectations of what was going to happen to government spending. To do that, I read mostly *Businessweek*, but also the *Wall Street Journal*, the *New York Times*, and the *Washington Post*, to see what the business press was saying week after week about what they expected to happen to government spending. I then paired that information with a political or military event that started changing expectations.

One historical case was the start of World War II, when Germany invaded Poland in September 1939. Events happened over the subsequent months that kept changing expectations. Even though the United States was supposedly not going to enter the war, many businesses knew that they would be increasing their production of defense goods and people knew the military draft was coming because FDR was making many speeches on the importance of building up defenses. To assess the effects of spending, it was important to figure out the exact timing of when the news arrived about future increases in government spending rather than when the spending actually occurred.

You may wonder whether individuals and businesses really do change their behavior based on anticipations of future changes. A perfect example is the start of the Korean War in June 1950, when North Korea invaded South Korea. Consumers, who remembered the rationing of consumer durable goods during World War II, and firms, which remembered the price controls, reacted quickly: Consumers immediately went out and bought consumer durables like refrigerators and washing machines, and firms immediately started raising their prices. All of this happened before there were any changes in government spending or any policies on rationing or price controls.

EF: In your research into economic growth, you've said that although we've seen dramatic jumps in technology in some areas, we're in a period overall of what you call "technological lull." Tyler Cowen similarly has labeled our age the Great Stagnation. Why are we in a period of slow productivity growth?

Ramey: Alvin Hansen, who coined the term "secular stagnation," described the nature of productivity growth in a famous speech in 1938. He argued that technology tends to progress not just bit by bit, slowly, steadily, but rather with irregular transformative revolutions.

The pattern has been that a big, new technology arrives and then it takes several decades to exploit it. We had the Industrial Revolution in England, the diffusion of electricity in the U.S., and more recently, the information technology revolution.

After a revolution, productivity growth will go up and stay up for quite a while as we exploit and further develop these new technologies. But then we hit diminishing returns. There are further improvements, but the marginal product of those improvements is lower. We then fall into a lull until there's another big revolution.

Researchers have studied what leads to more innovation. We know a few things, such as the value of having an educated workforce and having an environment that promotes research and development, but it's not clear how much extra oomph you can get from government policies.

I wish we had better answers for how to get out of a technological lull. Part of the challenge is that creativity comes about randomly. Sometimes, by chance, a group of people who interact suddenly spark ideas in each other and that leads to another technology revolution.

EF: Another area of your research is the use of time in households. You've noted that John Maynard Keynes predicted in 1930 that as productivity went up, we'd have more leisure time, so much so that we wouldn't be able to figure out what to do with it. What happened?

Ramey: Keynes was a very good economist, and I have to say that that essay, "Economic Possibilities for our Grandchildren," is one of my favorite writings of his. But his prediction was based on an implicit assumption, which was about income versus substitution effects.

To explain, when productivity increases, wages increase. Suppose your wage increases. Should you respond by working more or less? On the one hand, you have an urge to work more because the returns to working have increased, so the opportunity cost of staying home and playing computer games has risen. That's the substitution effect.

On the other hand, if your wage has gone up, you're earning more for the hours you already work, so therefore you feel wealthier. If leisure is what we call a normal good, then you should demand more of it and therefore work less. That's the income effect. The substitution and income effects work in opposite directions.

Keynes was obviously thinking that the income effect was much bigger than the substitution effect. Neville Francis and I wrote a paper called "A Century of Work and Leisure" to try to figure out exactly what had happened to hours worked in the market and to leisure time over the course of the 20th century in the United States. To measure leisure, we used time diaries to measure hours spent working in the market, in home production, education, and commuting time and then we subtracted them from the total hours available in a week to back out leisure hours. We found that the leisure time for what we call prime-age individuals — ages 25 to 54 — didn't change much over the 20th century.

Where we did see leisure time change was among the young, particularly teenagers and early 20s, and among older people, over 54 and particularly over 65. In 1900, many people worked until they were just too sick to work and then passed away, whereas now people retire and then enjoy their golden years of leisure after retirement.

So there was an increase in leisure over the 20th century in the U.S., but the increase was relatively small compared to the huge increase in wages over that time period. That suggests that the income effect is only slightly bigger than the substitution effect.

EF: Do you think Keynes was wrong in 1930 about people's idea of the good life? Or did our idea of the good life change?

Ramey: I think he didn't foresee how cool all of the new consumer gadgets would be. (*Laughs.*) If all we did with our higher productivity was produce more Model T cars, people would get tired of those goods and say, "I'd rather have more leisure." But much of the rise of productivity has been directed toward inventing and producing brand-new, exciting goods. Now we can travel around the world on jet planes, at least when there is no pandemic; we have great smartphones and many other fun new products we can buy.

Valerie Ramey

➤ Present Position

Professor of Economics, University of California, San Diego

➤ Selected Additional Affiliations

Research Associate, National Bureau of Economic Research; Member, Panel of Economic Advisers, Congressional Budget Office

➤ Education

Ph.D. (1987), Stanford University; B.A. (1981), University of Arizona

Perhaps the most important new type of product has been created by medical research, generating innovations that have improved the quality of life, such as hip replacement surgery, and innovations that have increased the quantity of life, such as cancer treatments. Good health care can now give us many more years of feeling well enough to enjoy life and can extend our lifespan. However, good health care isn't free, at least at a societal level, and it now consumes 18 percent of U.S. GDP. We wouldn't be able to produce great health care for everyone if most of the population followed Keynes' prediction and enjoyed abundant leisure rather than working.

EF: Of course, people also spend time on parenthood. In your 2010 article "The Rug Rat Race," you and Garey looked at the time parents spend on child care. You found it increased starting in the mid-1990s. For mothers with a four-year degree, you found it increased by more than nine hours per week. What made you interested in this?

Ramey: There were two things that sparked my interest. One was the patterns I observed in my earlier time-use research and the other was what was happening in our own lives.

In my research for "A Century of Work and Leisure" with Neville, and also in my solo paper on time spent in home production in the 20th century in the United States in the *Journal of Economic History*, one of the puzzling things I saw was that the amount of time that people, particularly women, spent on domestic work was going down in almost every category — cleaning their houses, cooking, and chores — except for child care. Time spent on child care had been falling in the 1970s and 1980s but then started rising in the 1990s. Trends in time spent on child care were a puzzle because they looked so different from other home production categories.

The second motivation was that we had two children ourselves. We started out in a neighborhood where most people didn't have college degrees, because that's where we could afford a house. Then in 1998, we moved to an area where most people had college degrees and often graduate degrees. We noticed a big step up in anxiety about children and the amount of time that parents were putting into them, particularly the extracurricular activities. We had grown up during the baby boom where we were all free-range kids who ran out on the street. We didn't see that happening in our new neighborhood.

So we asked each other, "What the heck is going on?" I knew a number of the other mothers had quit wonderful careers as architects and engineers specifically so they

could drive their kids to soccer practice. They had found it too stressful to do all these activities when both parents worked. We kept hearing from the other parents that, "Oh, you've gotta have these activities to get into a good college," and "you've got to be top in your sport," and "you can't just do the sport during the regular season, you have to do the offseason to make first string." And that's what led us to write the paper.

EF: Is that what seems to be behind the shift? College preparation?

Ramey: We think so, yes. There were other hypotheses, such as parents worrying about the safety of their children. We methodically went through these other hypotheses and just could not find evidence consistent with them. For example, the trends didn't match up with the observed trends in child care time.

So we researched whether there was evidence consistent with our new hypothesis about the competition to get into college. Our story is as follows. Since the 1980s, the propensity to go to college has risen, in large part because of the rise in wages of a college graduate relative to a high school graduate. However, the numbers of students applying to college didn't increase much from 1980 to the early 1990s because there had been a baby bust 18 years earlier. In the second half of the 1990s, the number of students applying to college rose significantly because of a previous baby boomlet. Thus, the demand for college slots rose in the mid-1990s.

The result was what John Bound and others have called cohort crowding. They found that the better the college, the less elastic the supply of slots to the size of the cohort trying to be admitted. For instance, Harvard and Yale barely change how many students they admit to their entering class. The flagship public universities are a little bit more elastic, but they're not elastic enough to keep up with the demand to get into those top colleges. It's only if you go down the hierarchy of universities that you find a supply elasticity of any size.

Our hypothesis was that during earlier times when you didn't have this cohort crowding, most college-educated parents felt as though their kids could get into a good college. So they were pretty relaxed about it. But then as you started having the cohort crowding, the parents became more competitive and put more effort into polishing their children's resumes because they realized it was harder and harder to get into the top colleges.

EF: You've said that UC San Diego, where you teach, is an outlier among top economics departments in the share of undergraduate majors who are female, 42 percent. Why is that?

Ramey: We're not quite sure. We have two hypotheses. One is something that was started long ago: One of our previous department chairs thought it was a good idea to put big-name professors who could teach well in principles classes. So he gave extra teaching credit for teaching principles and a few of us signed up. Kate Antonovics and I were the ones who taught principles the longest; Kate taught micro and I taught macro.

We both ended up winning prestigious university-wide teaching awards. So I think we were effective in teaching, and the fact that we were female might have had an effect on how many female students decided to continue economics. That's one possibility.

Another possibility relates to the huge fraction of students we have who are Asian Americans, and, more recently, foreign students from Asia. I have noticed that many American students will start out in economics and say, "Ugh, this is really hard," because it's technical. Then they'll decide to major in one of the other social sciences that is not so demanding mathematically. This seems to happen more often among female students than among male students.

But when I talk to many of my Asian American students, I hear that their parents often say, "No, you've got to stick with a major that is going to give you success and that will be lucrative." And if it's hard, that's one of the reasons it does turn out to be lucrative. They understand supply and demand. This might be why more Asian American students, both male and female, are more likely to stick it out.

Those are just hypotheses. We haven't been able to run a randomized control trial.

EF: Is part of the picture persuading people that economics is a good career?

Ramey: Certainly. In my introductory macro classes, sometimes students don't do well on the first midterm. That's the perfect time for me to make my case for persevering. I present the results of a study that shows the distribution of lifetime salaries by major. What's surprising is that even the median of the salary distribution for econ majors is above the salary for the top 20 percent for many other majors. I compare economics to some of the softer business majors, where most students end up earning less than the median econ student. I explain yes, it's hard, and then I tell them the wonderful story of John Bogle, who started Vanguard; he found economics to be very hard, but he stuck with it and then ended up doing great things with his economics degree. I tell them about all the opportunities in economics, and that even if you aren't at the top of the curve in economics, you can still have a great career in economics.

EF: You've been an economics researcher and teacher since you finished your Ph.D. in 1987. What do you think has changed for women economists in that time?

Ramey: Until recently, hardly anything had changed in macro. There were never many of us. When I was a grad student at Stanford, in the macro seminar, one day I

was a little bored with the talk and looked around and I suddenly realized I was the only woman there. (*Laughs*.) I think there were only three women out of the 25 grad students in my Ph.D. cohort. It didn't bother me so much because I was married to an economist, which made it a lot easier. But there were few women in macro back then, and there were few women in macro until just recently.

Now we have the Women in Macro Conference, which has been wonderful for helping women in macro network. Other changes certainly include the Me Too movement and the steps taken by the American Economic Association and other organizations, which have made the economics profession a kinder, gentler profession. Those changes may make it more appealing to women considering going into the field.

The opportunities for women have just exploded. It's nice, but I get invited to so many things now that I have to say no very often. For a while, I didn't say no enough and then I found myself overscheduled. Now I feel better saying no because that means another woman will get the invitation.

EF: You mentioned that being married to Garey made a big difference to your graduate school experience. Do you think that had an effect on your experience in the profession overall?

Ramey: Oh, yes, definitely. We enjoyed co-authoring and discussing economics with each other. Also, it made my life as a female economist much easier. I heard some real horror stories from the single women in the profession. It was just never a problem for me because everybody knew my husband.

EF: What are you working on now?

Ramey: I am working on a couple of things. One is with Garey again. It's called "The Value of Statistical Life Meets the Aggregate Resource Constraint." There's a concept called the value of statistical life that is used by regulatory agencies; researchers estimate how much wage people are willing to give up not to work in a more dangerous occupation. Ten million dollars for the equivalent of a lost life is a typical estimate. And regulatory agencies in government use those numbers to decide how much to spend to prevent death.

People then started using those numbers to think about COVID-19. One thing we wondered was whether you could actually take those numbers and use them for bigger risks of death.

Here's the kind of stark example we can use for illustration. Suppose that Martians took the 330 million people in the U.S. hostage and said, "If you want them back, you need to pay a ransom of $10 million because we know that's how much you value a statistical life." Well, that would add up to $3.3 quadrillion. But the GDP is only $21 trillion. The total value of the wealth in the United States — if you add up all the capital stock, the minerals, and land — is about $125 trillion. This extreme example illustrates the importance of considering the resources available.

Another project I'm working on is called "Anatomy of a Dynamic Labor Market: The U.S. from 1940 to 1950." I became interested in that era because I wanted to understand why the unemployment rate rose to only 4.5 percent at the end of World War II despite the largest decrease in government spending in U.S. history.

Somehow the U.S. economy was so dynamic that it was able to absorb all of the veterans coming back from the war and people switching occupations out of the defense industries. I was also interested in that period because inequality fell dramatically at the beginning of the 1940s and stayed low until the very late 1970s.

I had been wanting to answer these questions and had been looking for data. In the process, I found a discussion in one of Claudia Goldin's papers of an old dataset that was collected in 1951. I asked her about it, as well as Bill Collins who did follow-up work using the data, and I went to the archives to see it myself.

It turned out Claudia and Bill had only used the information on the front of the interview cards. But when I turned the cards over, I saw the entire history of individuals' employment, when they were in school, when they were unemployed or deciding to stay at home, when they were in the military. I knew the reason that they had left every job, I knew their industry, I knew their occupation, I knew their geographic area and even the company they worked for. And each card told a story.

For example, one of the people in the sample was working at the Alcoa factory in Los Angeles when he was interviewed in 1951. He was an African American man who was originally from Mississippi. His first job was working as a chauffeur for a wealthy family in Mississippi. Later, he worked in logging, then joined the military during World War II and received training there, and then ended up working in a factory in Los Angeles after the war. So we could see the path he took from chauffeur in Mississippi to factory worker in Los Angeles 10 years later. Chances are he had seen the West Coast when he shipped out in the military and thought, "Wow, this is a great place to be," and decided to settle here after the war.

There were all kinds of stories like that in these cards, and we have them for 13,000 people. I have a great team of undergraduate research assistants who input all that data, and then we spent months and months and months cleaning it. Now we have the full dataset put together, and we're analyzing the data.

We hope to learn many things from the data, such as what features of the economy and society during the 1940s led to so much upward mobility and such a vibrant labor market. We also want to compare the experiences of individuals at the end of World War II to those of individuals at the end of the Cold War. **EF**

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REGIONAL DIFFERENCES

Research and analysis on the drivers of economic outcomes in different communities

Insert Coins

The COVID-19 pandemic disrupted the supply of many items, including cold hard cash

BY TIM SABLIK

The early months of the COVID-19 pandemic were marked by shortages of toilet paper, hand sanitizer, face masks, and food staples like poultry and beef as households stocked up across the country. The sudden spike in demand combined with disruptions to supply as producers shut down to mitigate the spread of the virus led to some bare shelves in grocery store aisles. (See "Unpacking the Meat Industry," p. 4.) As spring turned into summer, many of these shortages were resolved, but a new one had emerged.

"I started getting a few phone calls from members asking, 'Is it just me, or are more quarters walking out the door than before?'" says Brian Wallace, president of the Coin Laundry Association.

Of the roughly 30,000 self-service laundromats in the United States, Wallace says that a little more than half take only quarters as payment to operate washers and dryers. Before the pandemic, some of these coin-operated businesses would take in more quarters each week than they gave out, meaning that most customers brought their own change to the laundromat rather than exchanging bills for quarters. But as the pandemic intensified, many of those business owners who had been used to ending the week with a surplus of quarters suddenly found they had a deficit. They turned to their local bank to purchase more, but the banks had no change to spare either.

"At first, many of our members assumed it was just their bank being difficult. But as I heard from more people, it became clear that something bigger was happening," says Wallace.

It wasn't just laundromats that were finding coins hard to come by. Businesses across the country were running into a similar problem, making it increasingly difficult for them to accept cash payments.

"For the grocery industry, this disruption affects a grocer's ability to complete cash transactions because they lack sufficient coin to make change at checkout," Hannah Walker, vice president of political affairs at industry group Food Marketplace Inc. (FMI), said in an email.

Banks were being stingy with coins for a reason. They themselves were facing supply constraints on coins coming from the Federal Reserve, which distributes cash to depository institutions. In June, the Fed announced that it had started rationing pennies, nickels, dimes, and quarters to "ensure a fair and equitable distribution of existing coin inventory." As change dried up at the banks, some business owners turned to their local laundromats.

The Get Coin Moving campaign was part of a toolkit created by the U.S. Coin Task Force for retailers and financial institutions.

IMAGE: GETCOINMOVING.ORG

"The laundromat became the local bank," says Wallace. Laundromat owners began observing an increased number of people without a hamper of dirty clothes coming in to use the change machines. To guard their own supply of quarters, some laundromat owners turned employees into bouncers to ensure that only customers doing laundry could exchange cash for quarters. Others installed a cutoff switch to easily cut the power and deny change machines to non-customers. But even with such creative measures, finding change was becoming a problem for everyone, leading some business owners searching far and wide — even across state lines — to get the coins they needed.

Brother, Can You Spare a Dime?

Officials for the Fed and the U.S. Mint, which produces new coins for circulation, were quick to assure the public that the United States did not have a coin shortage, per se. There was roughly $48 billion worth of coins in circulation, and the coronavirus did not cause that change to vanish. What it did do was dramatically slow the circulation of those coins through the economy.

Less than 20 percent of the coins that circulate through the economy each year are newly minted stock. The rest are older coins that are recirculated through the regular

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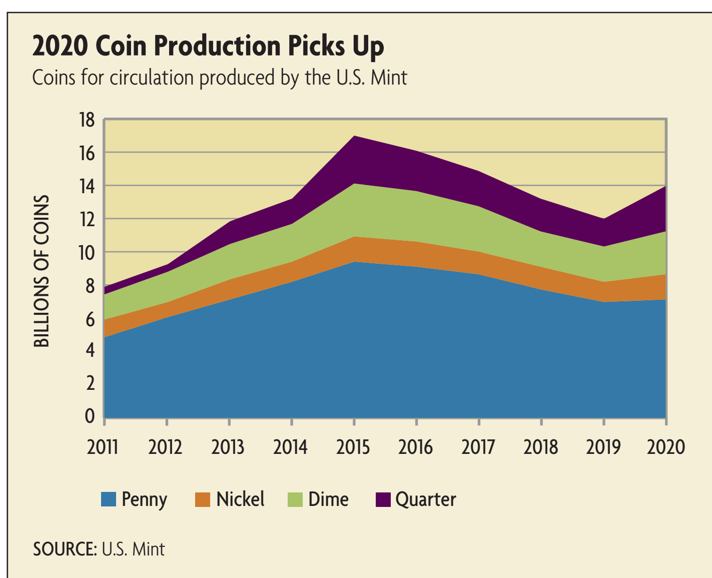
flow of commerce. The Fed distributes coins to depository institutions according to demand, and those institutions in turn supply coins to businesses and consumers. The supply of coins at banks and the Fed are replenished when businesses or households with excess coins deposit them at a bank or a coin aggregator kiosk like those operated by Coinstar, and the whole process starts over again. The average lifespan of a coin is 30 years, so change can be reused in this way many times before it is replaced.

The pandemic shook up economic activity in ways that disrupted the normal flow of coins. Some banks initially closed their lobbies and shifted business to drive-thru windows and online, making it difficult for businesses and individuals who might ordinarily bring change in for deposit to do so. And even where the option to deposit coins was still available, business owners and consumers sometimes chose to avoid the activity to limit potential contact with the virus.



Consumers also changed their payment habits in response to the pandemic. A Fed survey of consumer payment choice released in July reported that 22 percent of respondents had switched from making in-person payments to paying online or over the phone, and 28 percent of respondents were specifically avoiding paying in cash, using a debit or credit card instead. This may have stemmed from concerns that cash could be a transmission vehicle for the virus. The U.S. Centers for Disease Control and Prevention recommends that people avoid touching their face and wash their hands after handling cash to minimize the risk of infection. A survey by the Bank of Canada found similar behavioral changes among Canadians: 35 percent reported decreasing their use of cash, and 17 percent said they were taking extra precautions when handling cash, such as washing their hands after making a purchase.

All these factors slowed the velocity of coins recirculating in the economy. It is estimated that the volume of coins reentering the economy has fallen by about half since the pandemic started. And while newly minted coins make up a minority of change in circulation, COVID-19 temporarily hit the supply of those as well. Early in the pandemic, the Mint took measures to protect its employees from the virus, reducing the number of personnel at its facilities to allow for greater social distancing. This slowed the minting of new coins in the spring, but the Mint has since said that it is again operating at full capacity and is on track to produce more coins in 2020 than it has in the last two years. (See chart.)

Stress on Cash-Reliant Households

Consumers with access to non-cash payment methods may barely notice the coin disruption. Cash use had been trending down long before COVID-19 hit. It remains popular as a store of value in times of uncertainty — indeed, respondents to a Fed survey said they increased their holdings of cash as the pandemic swept the country -- but as a payment method, cash is no longer the undisputed king. (See "Is Cash Still King?" *Econ Focus*, Second Quarter 2018.)

This has led some economists to question the value of physical cash in general and low-denomination coins in particular. For years, the Mint has reported that pennies and nickels cost more to produce than their face values, and the Mint produces more pennies for circulation each year than any other coin. Some economists have long called for eliminating the penny and rounding transactions to the nearest five cents. (See sidebar.)

But for the millions of households that still rely on cash as their only payment method, the coin disruption has been more impactful. According to the Federal Deposit Insurance Corporation's 2019 Survey of Household Use of Banking and Financial Services, 5.4 percent of U.S. households (that is, about 7.1 million of them) are unbanked, meaning they do not have an account at a bank or credit union. Additionally, the Fed estimates that another 16 percent of American households are underbanked, which means they have a bank account but still regularly rely on financial services outside of the traditional banking sector, such as check cashing and payday loans.

Low-income households are much more likely to be unbanked and reliant on cash. Zhu Wang and Alexander Wolman of the Richmond Fed studied a dataset of 2 billion transactions between 2010 and 2013 at a nationwide discount retailer with thousands of stores across the United States. In a 2016 paper in the *Journal of Monetary Economics*, they reported that income and access to competitive banking options strongly influenced how often consumers chose cash. The stores in their sample were largely located in low-income ZIP codes, and most transactions consisted of small-dollar purchases. Consequently, even though cash use followed the national downward trend over the three years in their study, it remained

the dominant payment method, accounting for between 75 to 85 percent of all transactions. In a follow-up study, published in the Richmond Fed's *Economic Quarterly* in 2018, they showed that this retailer's average cash share of transactions across ZIP codes remained at 70 percent by 2015.

"We found that cash is more likely to be used by consumers in neighborhoods with lower income, less banking competition, or smaller population density because consumers in those locations may not have easy access to electronic payments, or they face higher costs for using them," says Wang. "The coin disruption would presumably have more of a negative impact on consumers in those neighborhoods."

Before the current crisis, some retailers experimented with going cashless. Online giant Amazon opened several physical stores with no registers or cashiers. Customers would instead scan an app connected to their Amazon account when they entered and exited the store to pay for any items they bought. Concerned that such a trend would

Will the Penny Get Pitched?

If the coin disruption of 2020 prompts the United States to reconsider the future of physical cash, the first thing on the chopping block could be the humble penny. For years, some economists and lawmakers have called for eliminating the penny because it has long been costlier to produce than it is worth at face value. Despite that, pennies make up more than half of the coins the Mint produces for circulation each year. William Luther of the American Institute for Economic Research, a free-market-oriented think tank, argues that the Mint could be better off shifting productive capacity to other coins to more quickly alleviate the current coin supply issues.

Phasing out the penny would mean rounding cash transactions to the nearest five-cent interval. Several countries have already taken this step. Canada eliminated its penny in 2013. And the United States also has some prior experience phasing out low-denomination coins, having done away with the half-cent in 1857.

But not everyone is a fan of killing off the copper coin. Low-income consumers stand to be most affected by the change because they are more likely to be unbanked and reliant on cash for transactions. In the short term, at least, merchants might round purchases for customers paying in cash but not for those paying with card, potentially disadvantaging consumers who have no choice but to pay in cash.

A widely cited 2001 article in the *Eastern Economic Journal* by Raymond Lombra of Pennsylvania State University argued that eliminating the penny could impose an estimated $600 million annual "rounding tax" on low-income consumers. Since the majority of prices end in 99 cents, Lombra argued that most cash purchases would be rounded up, harming consumers and benefiting merchants. Other economists, like Robert Whaples of Wake Forest University, have since contested those findings. In a 2007 article in the *Eastern Economic Journal*, Whaples found that once sales tax was factored in, the impact of penny rounding on consumers appeared to be neutral.

The overall cost of eliminating the penny could vary based on the size and number of purchases, however. For a single item or small-value purchase, rounding up or down could represent a significant price change. In a 2018 paper published in the *Atlantic Economic Journal*, University of British Columbia economics student Christina Cheung explored the effects of Canada's penny-rounding experience. Using a dataset of 18,000 prices from three different grocery stores, Cheung simulated the effects of rounding on different tax rates and for different types of purchases. While purchases of multiple items tended to be neutral in the aggregate, Cheung found that rounding for one- and two-item purchases came at the expense of consumers. She calculated that the rounding tax from these small number purchases cost consumers up to 3.27 million Canadian dollars annually from grocery store purchases alone.

On the other hand, there may be additional, hard-to-quantify costs to using pennies that would argue in favor of elimination. Counting pennies to make change takes time, and as the old business adage goes, time is money. Even if store clerks only spend a few extra seconds per cash transaction counting out pennies to make change, that could add up to substantial lost productivity aggregated across the entire economy. Indeed, there is evidence that some businesses already take this into account. Research by Edward Knotek of the Cleveland Fed notes that merchants that often deal in cash frequently choose convenient prices (such as charging $3.25 instead of $3.27) to reduce the amount of time it takes to complete purchases by requiring fewer coins.

Whatever the future holds for the penny, the COVID-19 coin disruption has at least prompted lawmakers to consider the costs and benefits of coins. Both the House and Senate introduced bipartisan bills in 2020 to authorize the U.S. Mint to alter the composition of circulating coins to reduce the cost of manufacturing them, though neither bill has passed yet.

— Tim Sablik

harm unbanked households, several states responded by passing laws requiring all stores to accept cash.

In a 2019 working paper, Atlanta Fed economist Oz Shy attempted to estimate the cost to consumers if all stores were to go completely cashless. Unsurprisingly, he found that the cost would be quite small for consumers who have debit and credit cards but use cash from time to time by choice. But for households who don't have access to debit or credit cards, Shy estimated a drop in their consumer surplus of nearly 31 percent per transaction.

"Without cash and coins in circulation, it's harder for underbanked families to buy basic necessities and to fully participate in the economy," says Walker of FMI.

Getting Coins Moving

Officials at the Fed and the Mint are determined to get coins circulating again for the businesses and households that rely on cash every day. In July, the Fed convened a U.S. Coin Task Force in partnership with the Mint and other participants in the coin supply chain, such as retailers, armored carriers, and coin aggregators.

The Task Force declared October to be "Get Coin Moving Month," encouraging households to check their couches, cupholders, and coin jars for loose change and safely deposit it at banks or coin kiosks. Banks and retailers were also encouraged to run promotions for customers bringing in coins or paying in exact change. Since the Task Force was formed, many businesses and households have taken the opportunity to turn their change into cash while helping to recirculate coins into the economy. One aquarium in North Carolina shuttered by the pandemic put its employees to work hauling 100 gallons of coins from one of its water fixtures that had served as a wishing well for visitors since 2006. Overall, efforts like these have started to yield results.

"We are in a different place than we were in March and April," Melissa Murdock, vice president of communications and media relations for the Retail Industry Leaders Association, said in an email. "I haven't heard from my members about this in months."

But others have seen more modest improvements so far. Wallace said that in a recent survey he conducted of laundromat owners, less than 20 percent reported that coin flow and availability of coins at banks had improved. Walker heard similar things from grocery store owners.

"While coin circulation is improving, our members are still experiencing lingering challenges in getting a full coin supply into their stores," she said.

The Coin Task Force expects circulation will gradually return to normal as more parts of the economy reopen. But will demand for cash and coins return to its previous level? The pandemic seems to be accelerating some changes in the behavior of businesses and consumers, such as the widespread adoption of teleworking and e-commerce. Will payment habits be similarly affected?

"A long-term trend we have seen in the data is the continuous migration from paper payments to electronic payments," says Wang. "This has been driven by a couple of factors, including the income growth of consumers, technological progress in electronic payment means, and the increasing popularity of online shopping. The COVID-19 pandemic is likely to add a further push to this migration."

In his survey of laundromat owners, Wallace was somewhat surprised to learn that 40 percent of respondents were looking into alternative payment systems such as card readers as a result of current disruption.

"Now, I'm not sure how many of them will actually go out and buy a new payment system," he said. "These are small mom and pop businesses for the most part, so the decision to add a new payment option is a capital investment they need to weigh against the benefits. But I think it's natural that business owners are thinking of ways to reduce their vulnerability to something like this should it happen again." **EF**

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DISTRICT DIGEST

Economic Trends Across the Region

The Housing Market and the Pandemic

BY ROISIN MCCORD

Housing construction and sales activity matter a great deal to the U.S. economy as a whole, as they account for 4 percent of gross domestic product (GDP). On an individual level, too, the housing market is economically important; the largest asset holding of many Americans is their house. Thus, economists and policymakers at the Richmond Fed and other institutions closely track housing market activity through a variety of indicators.

While the housing market is integral to the economy, it does not perform the same way in every economic downturn. For example, weakness in the housing market was a major contributor to the Great Recession of 2007-2009, but that was not the case for the current pandemic-induced downturn. In addition, while the housing market continued to weaken throughout the Great Recession, it has remained relatively strong this year despite the significant decline in overall economic activity and the spike in unemployment in the spring. Both in the United States as a whole and in the Fifth District, the housing sector has done better than other industries, such as leisure and hospitality, that were more directly affected by the virus (such as through shutdowns). There were some negative effects on the housing market early in the downturn in terms of new construction and home sales, but both quickly bounced back in the summer. Demand for homes has been strong through most of 2020, and house price growth has remained solid throughout the year.

As it does in other times, the Richmond Fed has been monitoring how the housing market has fared in the pandemic. Measures of housing prices are among some of the best gauges of the strength of the residential real estate market; they reflect demand and supply in the market and underlying influences such as interest rates and access to mortgages. Housing construction can be examined in terms of its contribution to economic growth and employment. Data on new permits and housing starts provide insight into housing supply. With respect to selling a house, there are also data available on the current

Like many Fifth District locations, North Carolina's Outer Banks has seen a jump in home sales and a decline in inventory since 2019. (See "Upfront," p. 2.)

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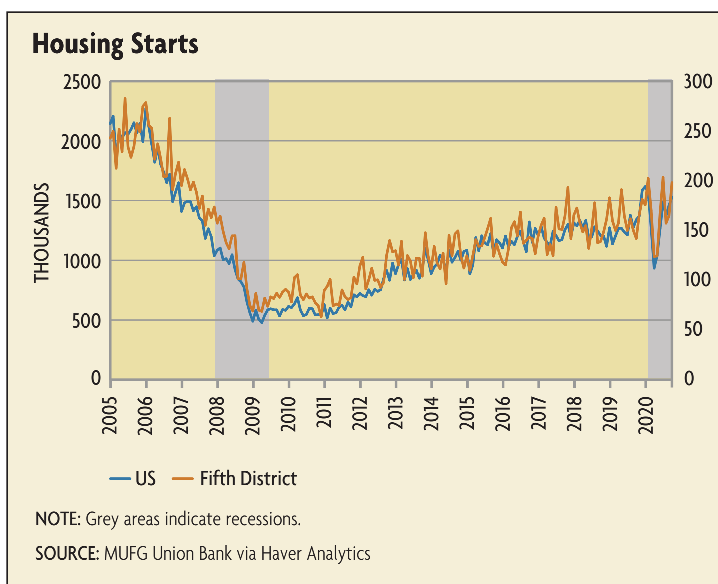
number of listings and the average time it takes to sell. The Richmond Fed also relies on observations from real estate agents within the Fifth District for a better understanding of what buyers and sellers are experiencing in the market and expect to see in the future.



NOTE: Grey areas indicate recessions.

SOURCE: MUFG Union Bank via Haver Analytics

Residential Investment

The economic situation in the United States in the second quarter of 2020 was marked by shutdowns and uncertainty, and the housing market naturally was affected. According to the Bureau of Economic Analysis, residential fixed investment at the national level (spending on new construction, improvements, and activities related to sales transactions) fell by 35.6 percent at an annualized rate in the second quarter of 2020. During that time, spending and investment weakened in many industries, as overall GDP in the second quarter fell 31.4 percent at an annualized rate. The decrease in construction spending led to a decrease in employment in the construction market as well. Employment in the construction industry fell by 13.4 percent in the United States and 5.8 percent in the Fifth District in April. A large share of this came from the residential side, as employment nationally in residential contracting fell 14.9 percent (11.5 percent for single-family homes) and employment in residential specialty trade fell by 14.7 percent in April.

The third quarter saw economic recovery, as GDP rebounded by 33.1 percent, although it remained below its first-quarter level. Contributing to this overall GDP recovery was recovery in the housing market, which was evident as residential fixed investment increased by 62.3 percent at an annualized rate, surpassing its first-quarter value. Much of the rebound observed in the data can be attributed to broker's commissions and ownership transfer costs, reflecting the significant increase in home sales activity over the summer.

> "Perhaps one of the most notable trends in housing prices in 2020 was the stability of growth even as the economy changed. Over the past several decades, house prices have generally softened during a recession, but house price growth stayed fairly stable in 2020 or even increased."

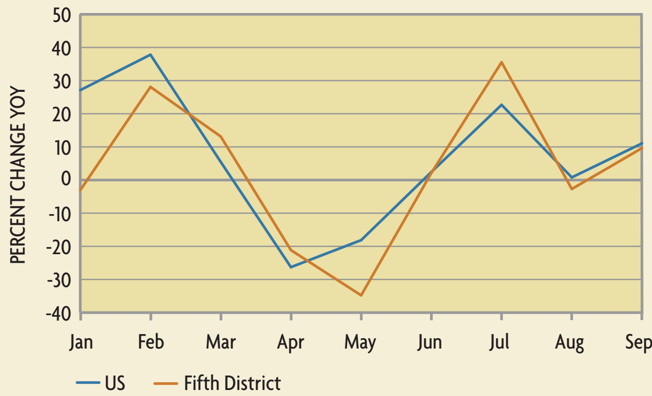
On the employment side, the construction industry rebounded quickly and has seen an overall gain of jobs, both nationally and in the Fifth District, every month since April. In November, employment in residential building and specialty trades was nearly back to pre-pandemic levels. November employment in the residential construction industry was up 17.2 percent since April in the United States. The story of weakening and rebounding employment in construction has also been echoed by the Richmond Fed's business contacts in the Fifth District.

Starts and Permits

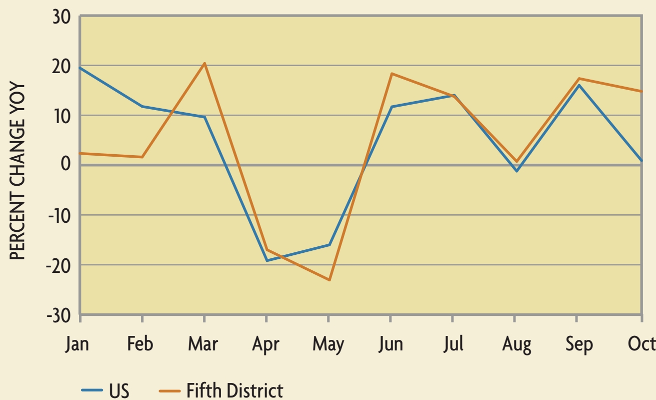
Spending on residential construction depends on houses being built, which is why market observers look at residential permitting data. The U.S. Census Bureau releases monthly data on the number of housing permits issued at the national and state level and the number of housing starts nationally. State-level data on the number of housing starts — actual construction — are published by MUFG Union Bank.

Data on both starts and permits show early or anticipated demand for housing and are indicative of what home supply will look like in the coming months. Permits can be viewed as leading indicators for starts and starts as leading indicators for completions. For an idea of a typical lag from this time until a house is on the market, according to the U.S. Census Bureau, in 2019 the average time between issuing a housing permit and the start of construction was just over a month and the average time between a start and completion of the home was seven months.

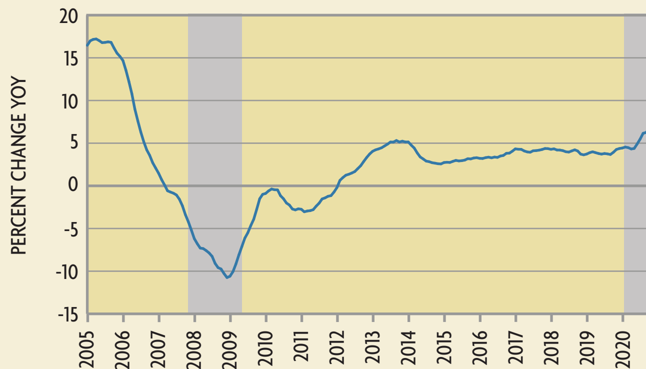
At the beginning of 2020, before the pandemic reached the United States, the housing market was strong. In January 2020, the United States saw the most housing starts since December 2006 at a seasonally adjusted rate. (See chart.) In February, the Fifth District also saw the most housing starts since before the Great Recession, reaching its highest reading since March 2007. When the pandemic initially hit, housing activity, like other economic activity, contracted as both housing starts and housing permits fell sharply in both the nation and the Fifth District in the second quarter. Construction was named an essential industry in most localities during shutdowns, allowing work on houses to continue — in theory. But many of the Richmond Fed's business contacts reported delays from state and local permitting offices, as well as supply chain disruptions, such as shortages of lumber, appliances, and specialized labor.



SOURCE: MUFG Union Bank via Haver Analytics



SOURCE: U.S. Census Bureau via Haver Analytics



NOTE: Grey areas indicate recessions.

SOURCE: CoreLogic Information Solutions via Haver Analytics

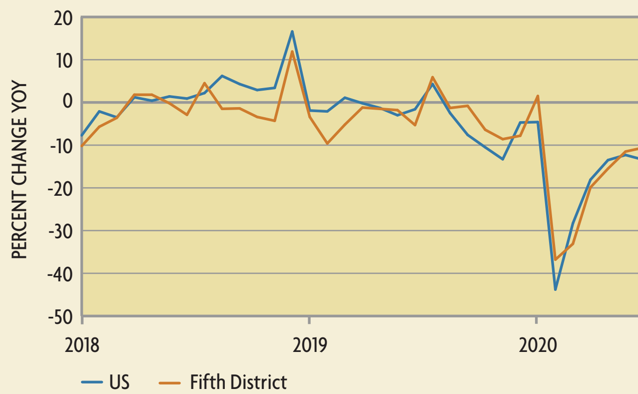
Fortunately, the contraction in residential construction activity was short-lived. After softness in April and May, housing starts and permits increased substantially in the third quarter, with the number of permits issued rising year-over-year by 18 percent in the Fifth District in June; one month after this permit growth, the number of starts went up 36 percent on a year-over-year basis in the Fifth District in July. (See charts at left.)

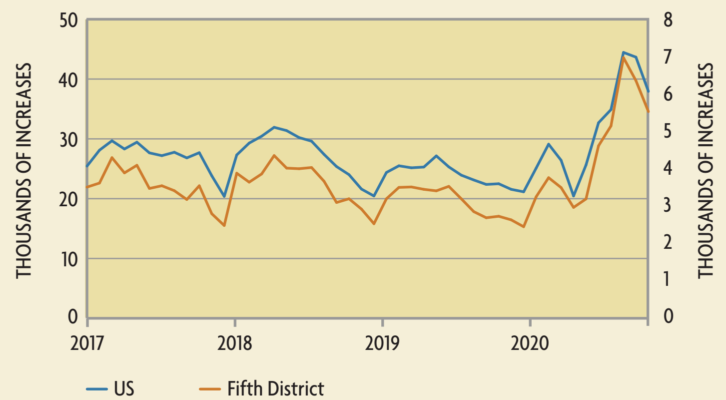
Prices

A widely used way to measure housing price growth is a house price index (HPI), such as the one provided by CoreLogic Information Solutions. An HPI is a repeat sales index, which tracks changes in housing price levels by looking at the selling prices of homes that have been sold in the past and comparing sale prices over time. The HPI provided by CoreLogic Information Solutions is released monthly and deals solely with single-family homes. According to these data, residential real estate prices in the Fifth District have generally followed national trends over the years. House price growth has been positive since 2012 in both the nation and the Fifth District and is currently around the 5 percent to 6 percent range, on a year-over-year basis, for both. The CoreLogic HPI indicates that there has not been a deceleration in housing price growth during the pandemic at either the national or the Fifth District level. In fact, from October of 2019 to October of 2020, home prices were up 7.4 percent in the United States and 6.7 percent in the Fifth District.

Perhaps one of the most notable trends in housing prices in 2020 was the stability of growth even as the economy changed. Looking back over the past several decades, house prices have generally softened during a recession, but house price growth has stayed fairly stable in 2020 or even increased. (See chart at bottom left.) In addition to fairly strong demand, strong prices in 2020 can be partially attributed to low supply. Data from Realtor.com show that the number of active listings has fallen throughout the year, in part because new listings have been relatively low. In April, the first month fully affected by the pandemic-related restrictions in the United States, new listings were down year-over-year by 44 percent in the nation and 37 percent in the Fifth District. (See chart at top left of next page.) Real estate agents reported that people were reluctant to go to viewings or show their homes for fear of exposure to the virus in the second quarter and were also hesitant to make significant purchases or moves in a time of great economic uncertainty.

An alternative measure of house prices is median list price. These data are provided monthly by the National Association of Realtors and are available through Realtor.com. They show an upward trend in list prices throughout 2020. After a slight slowdown in the spring, price growth accelerated, reaching a rate of 14 percent nationally on a year-over-year basis in July. Even more notable than original list prices have been price adjustments. The percentage of sellers reducing prices on their homes has remained relatively low throughout 2020 compared with the last few years. In addition, instances of price increases have risen





dramatically since the spring, indicating that high demand and tight supply are pushing up selling prices of homes to higher levels than their original listing prices. (See chart at above right.) The story of high demand and low supply is also supported by data that the median days on the market for a home in 2020 has actually been falling. While there is some seasonal pattern to days on the market, in 2020, the time to sale has remained relatively short throughout the year.

Mortgages

Many factors, of course, influence housing demand. Demographics and lifestyle changes certainly play a role, but affordability is also critical. Most prospective buyers need to finance their homes in order to purchase, and low mortgage rates can make buying a home more affordable. Affordability of mortgages, can, in turn, put upward pressure on selling prices and increase the number of sales. For this reason, it is important to consider mortgage rates in the story of demand in the housing market. In an effort to boost the economy during the pandemic, the Federal Open Market Committee (FOMC) has kept interest rates low, cutting the target for federal funds rate to zero to 25 basis points on March 15, where it has remained since. At the same time, the FOMC restarted purchases of mortgage-backed securities, or MBS, providing more stability in the mortgage market, and thus making mortgages more affordable. (The Fed purchased large amounts of MBS to support the housing market during and after the Great Recession.) This has led to exceptionally low mortgage rates in 2020. Data from Freddie Mac indicate that average mortgage rates in the United States have generally been trending downward throughout the pandemic and are now below 3 percent, the lowest they have been in nearly 50 years.

But with regard to the housing market, low interest rates are moot if homebuyers cannot qualify for a mortgage. For this reason, mortgage access plays a significant role in the housing market, as not being able to obtain a mortgage will remove buyers from the market, weakening demand. In the spring and summer of 2020, some buyers experienced difficulty obtaining mortgages. The Mortgage Credit Availability Index, published monthly by the Mortgage Bankers Association, tracks accessibility of mortgages. This index is calculated using measures of borrower eligibility such as credit score, loan type, and loan-to-value ratio. The index fell drastically during the pandemic and in November was 32.5 percent lower than it was in February, meaning that the terms and borrowing qualifications on the average loan had become more rigorous. This suggests that buyers have experienced increasing difficulty obtaining mortgages in 2020, in line with anecdotal accounts. In addition to any weak conditions on the buyer side, there have been reports that lenders have set higher standards for mortgages in 2020. Evidence of this trend was seen by the Urban Institute's Housing Finance Policy Center, which reported a decline in mortgage credit availability in the second quarter of 2020. The increased stringency in requirements to qualify for a mortgage this year has kept some potential homebuyers out of the market, weakening demand, but the market has remained resilient despite this.

The ability or inability to make payments on existing mortgages is also part of the story, as mortgage defaults and foreclosures affect the supply of houses for sale. While mortgage qualification standards may have risen for buyers, many people who already owned homes and had mortgages were also hurt financially by the pandemic. These trends are not unrelated, as more default risk in the mortgage market encourages stricter lending standards. According to the New York Fed, about 70 percent of household debt in the United States is housing-related debt, making mortgage debt a significant factor in the personal finances of many Americans. As often happens with a downturn in the economy and an increase in unemployment, mortgage delinquency rates rose sharply in the

second quarter of 2020. The percentage of mortgages past due in the United States jumped from 4.4 in the first quarter to 8.2 in the second quarter. Mortgage delinquencies can be informative about personal finances and the general ability of owners to afford to stay in homes. If homeowners cannot pay their mortgages and lenders foreclose on them, their houses go on the market, adding to supply, and they must look for a new place to live. Mortgage defaults create personal financial hardship and can also be disruptive to the broader financial system if lenders are unable to collect on debts.

When the pandemic hit the U.S. economy, Congress addressed the problem of mortgage delinquencies through a federal forbearance program in the Coronavirus Aid, Relief, and Economic Security (CARES) Act, which was signed into law on March 27. Under the CARES Act, anyone who faced financial difficulties because of the pandemic could defer mortgage payments for 180 days without penalties or extra fees. This deferment could be extended for an additional 180 days. (See "The Coronavirus Crisis and Debt Relief," *Econ Focus*, Second/Third Quarter 2020.) The program helped those who could not make payments during the downturn to stay in their homes, eased homeowners' financial distress, and promoted stability in the lending market by reducing defaults. Reducing defaults also supported housing prices by preventing an influx of homes for sale into the market. At the same time, forbearance programs have led lenders to be more cautious and create more stringent requirements for borrowers, making it more difficult for many current prospective buyers to obtain mortgages.

Changing Landscapes

The pandemic has affected preferences for locations and living arrangements, including homeownership. In particular, the spread of the virus in crowded urban areas seems to have made living in less densely populated areas more attractive, at least for now. Similarly, as many businesses have transitioned to remote work, whether temporarily or for the long term, the need to be close to one's place of employment, often in cities, has decreased, which can make relocation from urban to suburban or rural areas a more plausible option.

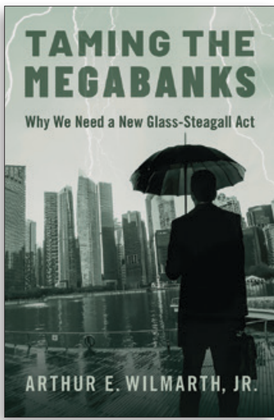
Companies are now aware of the ability of many employees to work remotely and may want them to continue to do so in some capacity, even after the threat of COVID-19 is gone. In the third quarter release of The CFO Survey, conducted by researchers at Duke University, the Richmond Fed, and the Atlanta Fed, 68 percent of surveyed firms said they had a greater share of their workforce working remotely than before the pandemic, and 39 percent of those firms did not intend to return to their pre-pandemic share of workers in the office.

Remote work can affect not only where workers choose to locate, but also what they look for in a home. Richmond Fed business contacts have reported that demand for home offices, pools, personal gyms, and big yards has been increasing among homebuyers since the summer. This trend could lead to a change in the types of homes in demand, and thus being built, and can contribute to renovations of existing homes. Demand for renovations already seems to have increased, according to the strong growth in spending in home improvements seen in the third quarter GDP report. However, it is not clear how much of this can be attributed to new housing needs as opposed to reallocation of spending from other services during the pandemic.

Conclusion

While 2020 has been a year with significant economic weakness and unprecedented drops in certain areas, the housing market has fared relatively well. Prices have grown amid strong demand and low supply. Residential construction spending and employment have both bounced back after declines in the spring. Demand continues to be spurred by low mortgage rates. While the pandemic has brought financial hardship to many homeowners, mortgage forbearance programs have helped financially distressed homeowners remain in their homes. The strength in the housing market has been a bright spot for a struggling economy, contributing to overall economic recovery and jobs, as well as personal financial stability.

At the same time, 2020 has been a year of much uncertainty in many areas: health, job security, how long the economy will take to recover, and whether businesses will continue to use remote work models. All of these factors can profoundly influence decisions about home purchases. The unique conditions that have supported the housing market during this recession and the permanent economic shifts that result from the pandemic are sure to affect home construction and sales in the coming years. **EF**



A New Glass-Steagall — and Then Some

TAMING THE MEGABANKS: WHY WE NEED A NEW GLASS-STEAGALL ACT
BY ARTHUR E. WILMARTH JR., NEW YORK: OXFORD UNIVERSITY PRESS, 2020, 589 PAGES

REVIEWED BY JOHN MULLIN

The Glass-Steagall Act was enacted in 1933 in response to the banking crises of the Great Depression. Drafted with an eye toward financial stability, one of the act's main provisions was to separate commercial banking from investment banking — to have commercial banks focus on accepting deposits and making loans and to have investment banks focus on securities underwriting and trading. But the law later gave way to industry resistance: Many of its restrictions were removed during the 1980s and 1990s, and its core provisions were repealed with the enactment of the Gramm-Leach-Bliley Act in 1999.

In *Taming the Megabanks*, Arthur Wilmarth Jr. of George Washington University Law School explores the implications of the gradual erosion and ultimate repeal of the Glass-Steagall Act's banking restrictions. Taking the reader on a deep dive into the history of U.S. banking and bank regulation since the late 1800s, Wilmarth concludes with a proposal for a new version of Glass-Steagall that would profoundly reshape the U.S. financial system.

Wilmarth argues that bank regulators made big mistakes in both the 1920s and the 2000s by allowing institutions to blur the lines between commercial banking activities and investment banking activities — thus becoming what are known as universal banks. In both cases, according to Wilmarth, universal banks made risky loans that they were able to package as securities and sell to poorly informed investors, contributing to unsustainable credit booms that ended with disastrous results.

The financial excesses of the Roaring '20s were closely tied to the expansion of banks' securities market activities, according to Wilmarth. Crucially, commercial banks aggressively competed with investment banks to increase their market share in the securities underwriting business. Incentivized by aggressive bonus plans, bankers all too frequently facilitated the distribution of securities by misleading clients about their riskiness. According to Sen. Frederic Walcott, R.-Conn., who sat on the committee that drafted the Glass-Steagall Act, the "dangerous use of the resources of bank depositors for the purpose of making speculative profits" fueled the boom-and-bust cycle that led to the Great Depression.

Glass-Steagall's "system of segmented financial sectors" helped to mitigate "perverse incentives for excessive risk-taking" and ushered in a prolonged period of U.S. financial stability, according to Wilmarth. The largest banks, however, fought a determined and ultimately successful campaign against restrictions on their securities market activities.

As important as this rollback may have been, however, Wilmarth's analysis suggests that its role in the 2007-2008 financial crisis may not have been as consequential as a more obscure development — the effective loosening of Glass-Steagall's Section 21, which prohibited securities firms from accepting deposits. Starting at least as far back as the 1970s, securities firms had increasingly been able to fund themselves using deposit substitutes — such as commercial paper and repo loans — that had most of the same economic characteristics as demand deposits but were legally allowable under Section 21. By exploiting this loophole, securities firms such as Bear Stearns and Lehman Brothers were able to act as "de facto universal banks as they relied on short-term deposit substitutes to fund a growing share of their activities."

The new Glass-Steagall Act proposed by Wilmarth would go further than the original law by barring nonbanks from funding themselves with deposit substitutes. Instead, they would be required to fund most of their operations by issuing some combination of equity securities and debt obligations with maturities greater than 90 days.

The potential implications of this proposal, if adopted, would be enormous. His new Glass-Steagall would not just, as a practical matter, require Citigroup to spin off its capital markets affiliates and require Goldman Sachs and Morgan Stanley to sell their modest deposit banking operations. His proposed changes would most likely upend the entire shadow banking sector — greatly shrinking the balance sheets of securities brokerage firms and money market mutual funds.

Deposits would shift back into the traditional banking sector, according to Wilmarth, with many benefits. He argues that such a shift would improve the ability of federal regulators to monitor the risks of short-term claims in the financial system and to prevent the runs on shadow banks that have become a "leading and recurrent cause of systemic financial crises." Moreover, he contends, such a reform would "expand the availability of bank credit to small and medium-sized businesses."

These are large claims, indeed. But large potential benefits would be needed to support such a far-reaching reform that would almost certainly present difficult transitional issues and prove highly disruptive to the businesses of many nonbank financial firms. **EF**

IMAGE: COURTESY OF OXFORD UNIVERSITY PRESS

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Opinion

Unfinished Business

BY KARTIK ATHREYA

The Dodd-Frank Wall Street Reform and Consumer Protection Act, better known as the Dodd-Frank Act, became law a little more than 10 years ago, in July 2010. Immense in scope, the act created new regulatory institutions and conferred substantial new powers on those already in place. Heavily contested since its inception, it has been modified by subsequent legislation, executive action, and court rulings. More recently, the Dodd-Frank Act has arguably played an important role during the coronavirus crisis. It's a good time to take another look.

Enacted in response to the 2007-2008 global financial crisis, the law reflected widespread views about the root causes of the crisis and the reforms most likely to avert its repetition. One area of agreement was that the nontraditional or "shadow" banking sector had been a major flashpoint. By 2007, investment banks such as Bear Stearns and Lehman Brothers had become highly leveraged by historical standards, and their balance sheets carried substantial maturity and liquidity mismatches. A second area of agreement was that, despite the Basel framework for bank capital adequacy that had been in place at the time, the traditional banking system had been inadequately capitalized to handle the crisis without extraordinary official assistance.

The Dodd-Frank Act's capital adequacy and stress testing requirements were designed to improve the resiliency of the traditional banking sector, and by many accounts they have been a success. As a general matter, traditional banks were strongly capitalized coming into the coronavirus pandemic and thus have been well positioned to assist their customers' loan forbearance and liquidity needs. Indeed, some observers have credited the act for the resiliency the banking system has shown so far during the pandemic.

Yet some scholars and policymakers, including Fed Gov. Lael Brainard, have contended that the Dodd-Frank Act's bank regulatory provisions have not been implemented with sufficient rigor. In March 2019, she dissented from the Fed's decision not to activate the countercyclical capital buffers for large banks that are authorized by the law. Brainard voiced additional differences with Fed policy in June 2020, after the Fed released the results of stress tests based on COVID-19-inspired scenarios. Although the Fed barred more than 30 banks from buying back their own stock and limited the size of their dividends, as authorized by the Dodd-Frank Act, she objected to allowing banks to issue any dividends at all in the context of the crisis.

Moreover, the Dodd-Frank Act's measures to address risks posed by the shadow banking sector have proven to be inadequate in the eyes of many observers. The most noteworthy measure was the establishment of the Financial Stability Oversight Council (FSOC), which was given the power to identify systemically important *nonbank* financial institutions and put them under Fed supervision. The FSOC has been cautious in exercising this power, designating only four firms. In late 2019, the FSOC issued guidance that signaled a strong reluctance to make any future designations.

Former Fed Chair Janet Yellen recently argued that the FSOC has not sufficiently expanded supervision to account for the risks posed by nontraditional banks operating in the "perimeter." According to her, "the pandemic showed that the risks were very real and serious." When market volatility increased in March, highly leveraged hedge funds faced margin calls and sold off massive quantities of Treasuries. Had the Fed not intervened on a massive scale, "we probably would have had another Long-Term Capital Management type episode," she said, referring to a major financial market disruption in 1998 that led to Fed intervention.

Modifications to the Dodd-Frank Act have also been aimed at banks in particular. In 2018, Congress passed the Economic Growth, Regulatory Relief, and Consumer Protection Act, which exempted banks with assets below $250 billion from the Dodd-Frank Act's most rigorous regulatory standards.

While deregulation of financial intermediation may well carry benefits, specific proposals should be considered in the broad context of the overall financial safety net in place, either explicitly, as with deposit insurance, or implicitly, as with expectations of emergency lending by central banks. The Dodd-Frank Act certainly moved the bar on explicit insurance: It more than doubled the cap on deposit insurance to $250,000. This level of insurance may be warranted for a variety of reasons, some of them possibly consistent with improving overall economic performance. But as the financial crisis recedes from memory and leaves us increasingly focused on the burdens of regulation, we would do well to heed the warning of banking scholar John Kareken many years ago: Lighter regulation in the face of constant or increased protection of creditors may be putting the cart before the horse. For the variety of changes ushered in by the act, we can ask, at the 10-year mark, has their net effect been to throw an ever-wider safety net on the creditors of financial intermediaries? If so, lowering regulatory burdens — attractive at the present moment for many reasons — *without* simultaneously paring back the safety net in a decisive way risks a more fragile financial system. **EF**

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

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NextIssue

The Future of Cities

Cities have long been engines of economic growth, thanks in large part to people living and working close together, allowing for the easy exchange of productivity-enhancing ideas. But the widespread adoption of telework during the COVID-19 pandemic has led many to question how important physical proximity really is. Some researchers expect that telework will remain prevalent. Will this and other adaptations to the virus threaten the vitality of major cities?

Green Stormwater

As urban areas have become more populated, pollution from stormwater runoff has become a big problem. One way local officials have mitigated this problem is by adopting green infrastructure, which reduces runoff, improves the health of nearby waterways and ecosystems, and benefits elements of community health that have monetary or social value.

Financial Repression

Financial repression, as economists call it, occurs when governments resort to unconventional policies to finance themselves. Examples include controls on interest rates and foreign exchange transactions as well as the imposition of reserve requirements to encourage the purchase of government bonds. Though often viewed as a policy response of developing countries, many advanced countries used financial repression in the decades after World War II to pare down their debts.

The Fed's New Framework

In August 2020, the FOMC revealed changes to its monetary policy framework. These new guiding principles allow for some overshooting of the Fed's inflation goal in the short run in order to achieve average inflation of 2 percent over the long run. They also place a greater emphasis on fostering a strong labor market to benefit low- and moderate-income households. These adjustments reflect lessons the Fed learned during the long recovery from the Great Recession.

Men, In and Out of the Labor Force

Over the past 50 years, male labor force participation in the United States has fallen over 10 percentage points, from 79.9 percent in January 1970 to 69.4 percent in January 2020. During the pandemic, it has fallen further. Over the same half-century, the male share of undergraduate college enrollment has fallen considerably as well, from 57.7 percent to 43.5 percent. What are the factors behind these declines? What do these numbers look like across the Fifth District, and what might the future hold?

Interview

Matthew Jackson of Stanford University on human networks, economic analysis of protest movements, and assessing the policy responses to the pandemic.

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