

ECON FOCUS

The background image is a photograph of a rural landscape at sunset. In the foreground, there are dark, silhouetted tree branches hanging down from the top left. Below them, a green tractor with yellow wheels is parked in a field of low-lying green plants. The sun is a bright orange circle on the horizon, casting a warm glow over the scene. In the distance, there are some trees and a white building, possibly a barn or silo.

The Persistence of Virginia's Small Farmers

**Finding Jobs for
Federal Workers**

**Stablecoins and
Financial Stability**

**Anton Korinek
on our AI Future**

ECON FOCUS

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FEATURES

4 FINDING NEW OPPORTUNITIES FOR FEDERAL WORKERS

As the federal government shrinks its payroll, local stakeholders are working to bring displaced employees back into the workforce.

8 VIRGINIA'S SMALL FARMERS WEATHER UNPREDICTABILITY

Small farmers are important producers in Virginia's agriculture industry, but they face mounting costs and uncertain revenue. What keeps them going?

DEPARTMENTS

1 PRESIDENT'S MESSAGE

Operating With Limited Data

3 UPFRONT

New from the Richmond Fed's Regional Matters Blog

12 AT THE RICHMOND FED

Surveying Fifth District Businesses

14 FEDERAL RESERVE

Stablecoins and Financial Stability

18 POLICY UPDATE

Should Credit Card Fees Be Regulated?

20 ECONOMIC HISTORY

The First Rung of Housing Markets

24 INTERVIEW

Anton Korinek on How Rapid Advances in AI Might Reshape the Nature of Work

29 RESEARCH SPOTLIGHT

Why Banks Fail

30 DISTRICT DIGEST

Time for a Career Change? Inter-Industry Job Mobility in the Fifth District

36 OPINION

Data Measurement and Monetary Policy

Cover: Sunset on Oak Level Farm in Yale, Va. Photo: Courtesy of Oak Level Farm



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Econ Focus

Operating With Limited Data

The Fed has been operating with limited data as a result of the government shutdown. While the government reopened over a month ago, delayed data releases are still slowly rolling out.

The good news is that we haven't been navigating blind. We have other ways to keep a pulse on the economy. Private sector data help. For the most part, they aren't as definitive nor as calibrated, but they can highlight big shifts in economic conditions. In addition, the Fed benefits from collecting real-time information directly from the communities we serve.

Each year my outreach team connects with thousands of business and community leaders; this year, we are on track to meet with about 4,000. We get thousands more responses through our regional surveys of business activity, as well as The CFO Survey.

The Richmond Fed set up these extensive outreach efforts because we recognized that even government data has its drawbacks. It's backward-looking. It's revised multiple times. It's aggregated, so it often doesn't capture underlying nuance.

Outreach helps us understand the economy better, as well as anticipate turning points we might otherwise miss. In 2020, businesses in Bristol, Tenn.-Va., told us of packed shopping malls across the Tennessee border where shutdown rules had lifted; pent-up demand was coming. In 2022, furniture manufacturers told us sales were slowing; the goods boom was cooling. In 2023, firms told us they'd keep testing price increases; pricing psychology had shifted from "no chance" before COVID-19 to "no crime in trying."

Turning to today, here is what the available official data are telling us, what the private data are suggesting, and what my team is hearing.



Demand remains healthy. The last official data, from September, showed a year-over-year increase in real consumer spending of 2.8 percent. Retail sales grew 0.2 percent from August. Driven by artificial intelligence (AI), business investment was robust. Since then, private data haven't signaled much change. Credit and debit card spending remains solid, in the context of low unemployment and buoyant markets. Third quarter earnings and earnings outlooks came in well, suggesting continued support for investment. The elevated uncertainty that businesses perceived earlier in the year seems to be abating.

But in our outreach, the feel is very different by sector. If you build data centers, provide energy, sell to higher-income customers, trade on Wall Street, build pharmaceutical plants, or live in the Carolinas, your economy is hot. But if you're a farmer, a realtor, a manufacturer hurt by tariffs, or are dependent on lower-income consumers, you are struggling. In the D.C. metro part of our district, the government shutdown exacerbated an already challenging situation for

federal workers, local businesses, and institutions dependent on government funding.

Turning to the labor market, while the unemployment rate has ticked up this year, it was still historically low at 4.4 percent through September. Employment growth, on the other hand, is soft. We've been describing a low-hire, low-fire environment with three-month average job growth at 62,000 and layoffs (as signaled by initial jobless claims) stable and low. Private sector metrics haven't suggested much change. Job postings have largely drifted down. Jobs growth as reported by ADP grew in October but contracted in November.

Our outreach points to a somewhat weaker labor market than these numbers suggest. If you ask businesses how they see the labor market today, they say, "balanced." But as they describe that "balance" in more detail, it doesn't seem so. With the exception of skilled trades, labor feels quite available with plenty of quality applicants per opening. Recent layoff announcements by sizable firms like Amazon, Verizon, and Target give additional cause for caution.

I will note it is a challenge to calibrate how much impact slower job growth will have on the unemployment rate because we have been witnessing a rapid drop in the growth of labor supply. My generation is aging out of the workforce, and net immigration is declining. The Bureau of Labor Statistics projects that the labor force will grow 0.3 percent annually over the next decade, well below the annual rate of 0.8 percent over the decade ending in 2024. There may be fewer jobs to fill, but there are also fewer people vying for each job.

Inflation is still above target. The last PCE print shows 12-month headline and core inflation at 2.8 percent through September. We unfortunately

have fewer quality alternative data sources for inflation, as it is easier to monitor the price of coffee than to assess the mix of price changes across the entire consumer basket.

Our outreach leads me to believe inflation remains somewhat elevated but isn't likely to accelerate. Our survey respondents expect higher growth in prices than they did before the pandemic. Where meaningful, they tell us tariff and other input cost pressures need to get passed on. At the same time, we hear customers are exhausted by ever-increasing prices. This isn't 2022 when stimulus, COVID-era savings, and rapid wage growth fueled revenge spending. Today — in the context of weak sentiment — we hear consumers are trading down, pushing back on higher prices by moving to private label, repairing rather than

replacing, and shopping at value-priced retailers. We also hear they are trading off, maybe paying for a new phone by forgoing a vacation.

Increased productivity may also be giving businesses the ability to offset input cost increases. Businesses caught short workers after the pandemic invested in labor-saving technology, process redesign, and more sophisticated staffing models. They may be reaping the rewards now. The recent drop in turnover may be making newer employees more productive. Firms that choose not to hire are naturally increasing their productivity as output grows with lower headcount. Some sectors tell us they are benefiting from the elimination of unnecessary regulation. Notice I made it this far without mentioning the two omnipresent letters: A and I. But they

matter too, with more to come.

So, on net, with what we know, I see pressure on both sides of the Fed's mandate, with inflation above target and job growth down. But I also see mitigants on both sides, with consumer pushback and productivity improvements limiting inflation and labor supply slowing at roughly the same pace as labor demand, reducing the hit to unemployment.



Tom Barkin
President and Chief Executive Officer
A longer version of this essay was delivered as an address at Shenandoah University on Nov. 18, 2025.

Interested in learning more about the surveys that help the Richmond Fed understand the economy?

Scan here to access our full suite of regional surveys and analysis, including the monthly business surveys and the CFO Survey.



BY LISA DAVIS

New from the Richmond Fed's Regional Matters Blog

Bethany Greene. "RIC Spotlight: Strengthening the Rural Workforce Through STEM Education."

Research has long shown the benefits of access to education focused on science, technology, engineering, and mathematics (STEM). These benefits include improved workforce outcomes, higher wages, and adaptability across industries. For rural areas, it may also be a tool for developing and retaining a skilled workforce, which could in turn attract employers to areas that are often overlooked. In Williston, S.C., nonprofit founder Steven DK Brown is developing a multiuse STEM center to strengthen the local workforce and reduce rural flight. Like many rural areas, Barnwell County (where Williston is located) has experienced a shrinking labor force and low educational attainment over the years. Brown hopes the STEM center, with its tech labs, college readiness programs, and innovation zones, can provide a needed resource to reverse these trends. In 2024, Brown participated in the Richmond Fed's Community Investment Training program, which helps participants develop investment-ready proposals for their community development projects and connects them with potential funders.



Surekha Carpenter. "2025 CDFI Survey: Can Secondary Markets Help CDFI Loan Funds Grow?"

Loan funds are place-based organizations that use external funding to provide financing for underserved communities and individuals. They are the most common business model type among certified community development financial institutions (CDFIs) and account for about half of respondents to the Federal Reserve's 2025 CDFI Survey. In their survey responses, loan funds reported needing to seek new methods of capitalization due to rising demand, but the cost of debt has made finding new lending capital difficult. One potential funding strategy is selling loans on the secondary market, an approach used by 21 percent of 2025 survey respondents; this frees up capital on CDFIs' balance sheets, which they can then relend. However, respondents indicated that many CDFIs have had difficulty finding buyers for the type or volume of loans they have available to sell.

Jason Kosakow. "Assessing Manufacturing Business Conditions by Firm Size."

Over the last few years, large manufacturers have generally been more optimistic about their local economies than small and mid-sized

firms. Richmond Fed researchers looked at the diffusion indexes — summary statistics derived from survey responses — for several metrics of the monthly business surveys to better understand the divergence. One explanation could be that, in 2025, small and mid-sized manufacturers were more likely to report a decline in business performance and in shipments. Additionally, different sized firms reacted to changes in tariff and trade policy differently, with small and mid-sized firms focusing on pricing changes and larger firms adjusting supply chains.

R. Andrew Bauer, Renee Haltom, and Matthew Martin. "What Businesses Are Saying: Few Signs of Major Shifts."

On-the-ground anecdotal information can serve as an important complement to hard data, particularly in times of uncertainty or limited data access. From conversations between mid-September and mid-October, the Richmond Fed's business outreach team gleaned insights from businesses about economic conditions, the labor market, and tariffs. Businesses did not indicate any big shifts in economic conditions, sharing that demand varied by sector, geography, and household income; labor markets continued to operate in a low-hire, low-fire equilibrium; and firms continued to wrestle with pricing decisions

due to tariffs. Insurance was mentioned increasingly as a reemerging cost pressure, in addition to tariffs.

Anthony Tringali. "Recent Updates to Metropolitan Statistical Areas in the Fifth District."

Up-to-date metro area definitions are important because they impact how the Richmond Fed reports, analyzes, and understands its region. Every 10 years, the U.S. Census Bureau provides updated information on the geographic distribution of the U.S. population; about three years after that, the Office of Management and Budget uses that data to redraw metropolitan statistical areas (MSAs). The 2023 process, which was recently implemented, led to changes in almost 50 percent of the metro areas in the Fifth District. Changes included the addition and removal of principal cities, the creation and discontinuation of MSAs, and the renaming of some existing MSAs. For example, Pinehurst-Southern Pines, N.C., became an MSA due to population growth, while California-Lexington Park, Md., lost its designation due to the removal of California as a principal city. **EF**

Finding New Opportunities for Federal Workers

As the federal government shrinks its payroll, local stakeholders are working to bring displaced employees back into the workforce

BY MATTHEW WELLS

For 25 years, Michael Rodriguez has worked in international public health, most recently leading a multi-country, \$40 million U.S. Agency for International Development funded project to strengthen health care systems in regions plagued by persistent violent conflict, climate disasters, and displaced populations. When the federal government shuttered the agency's operations in February, he found himself furloughed at first and then ultimately let go on March 10.

Within days, Rodriguez came across an advertisement on LinkedIn for NOVAnext, a program offered by Northern Virginia Community College specifically for recently displaced federal workers and contractors. As one of those contractors, he applied immediately for the free program and completed a six-week intensive course on artificial intelligence (AI) in May. "When I stepped back and looked at what had been happening the last couple of years while I was managing projects, AI exploded," he explains. "If you aren't competitive with AI, you can't even get into a conversation about an interview."

Since completing the program, Rodriguez has served as an informal AI consultant for multiple startups in both the development and health care sectors, and he is optimistic that his AI training and certification will lead to paid employment.

The Partnership for Public Service, a nonprofit group working to promote best practices across government, estimates that approximately 148,000 workers left federal government service as of July, with about 68,000 being laid off and 80,000 accepting buyouts. The administration maintains the number accepting buyouts is higher: about 154,000 employees. The director of the Office of Personnel Management suggests that the total reduction in force by the end of the year will reach 300,000. The final numbers, however, are still in flux, as some employees have been placed on administrative leave pending litigation to reverse or halt their dismissal, while others, such as nuclear engineers at the National Nuclear Security Administration, have been rehired.

For those like Rodriguez who are no longer employed by the federal government either directly or through a contract, stakeholders are developing programs to bring them back into the workforce as quickly as possible. State and local governments are tailoring hiring initiatives specifically for former federal workers and contractors with potentially transferable skills. Universities and community colleges are

also making it easier and more affordable for these workers to transition into new careers in education, nonprofits, or the private sector by offering free or reduced tuition across advanced degree programs and courses for certification in new skills such as teaching, information technology, or program management.

While layoffs across the federal government of this pace are unprecedented (the other significant downsizing occurred during the Clinton administration, which eliminated about 400,000 positions over its first five years), other sectors of the economy have grappled with dramatic workforce reductions before. Steel and auto manufacturing across the industrial Midwest shed over 800,000 jobs during the 1970s and 1980s, and thousands of workers in North Carolina's furniture industry lost their jobs in recent decades. For regions of the United States with high concentrations of federal workers, do these previous episodes offer any guidance for local policymakers wanting to bring the recently unemployed back into the workforce as quickly as possible?

THE FEDERAL WORKFORCE LANDSCAPE

At the end of 2024, about 3 million federal workers (nearly 2 percent of the nation's civilian workforce) were spread across the country working in all areas of public life, from national park rangers to epidemiologists tracking the spread of infectious diseases at the Centers for Disease Control and Prevention (CDC). The Department of Defense employed about 762,000 civilians at the end of last year, making it the largest federal agency, while the smallest, the Department of Education, employed only 4,245 people. Tracking the number of federal contractors like Rodriguez is much more difficult, although estimates have ranged between 4.6 million and 5.3 million.

In the Fifth District, about 454,000 federal government jobs are in the Washington, D.C., metro area. As such, they constitute a larger percentage of the workforce in D.C. (24.6 percent), Maryland (5.4 percent), and Virginia (4.4 percent) than most other states.

Between January and August 2025, Maryland's federal workforce shrank by 9 percent, Virginia's by 5.9 percent, and D.C.'s by 4.5 percent, according to data from the Bureau of Labor



NOVAnext is a free program at Northern Virginia Community College that offers short-term credential courses for recently displaced federal workers and contractors. The program launched in March 2025, and 600 individuals enrolled in the program within five months.

Statistics (BLS). The Department of Labor also reported that initial unemployment compensation claims by federal workers in D.C. began to rise in mid-January — a common occurrence during a presidential transition — peaking the week of Feb. 15. That same week, Maryland experienced a dramatic spike in filings of 334.8 percent over the week before, and again in June and July when claims spiked 752 percent over a three-week period. D.C. also had its largest jump (439 percent) around that same period, and Virginia experienced its most prominent spike in early July (535 percent). Overall, as of the first week of September, initial unemployment claims by federal workers in D.C., Maryland, and Virginia were up 789 percent, 592 percent, and 69 percent, respectively, since January. In addition to the difficulty determining the total number of federal contractors, it is equally challenging to assess how many such workers have been displaced because of the government's downsizing. Still, their circumstances in this case largely mirror those who worked directly for the government.

Continuing unemployment compensation claims by federal workers grew throughout the year, particularly in D.C. and Maryland. In early January, federal workers filed about 150 continuing claims in each of the three jurisdictions. As of mid-August, about 1,600 continuing claims were filed in D.C., about 600 in Maryland, and about 200 in Virginia. (See figure.) Total claims — both initial and continuing — may continue to rise through the fall and beyond as those who accepted the administration's buyout offer leave their positions.

For an economy as robust as the United States', the total anticipated reduction of about 300,000 jobs spread over time and across the country are unlikely to produce any significant negative macroeconomic effects. However, analysts note that this may not be the case at the regional level. Research has shown that increasing the number of high-skilled workers in an area creates positive economic spillovers through stronger demand for local goods

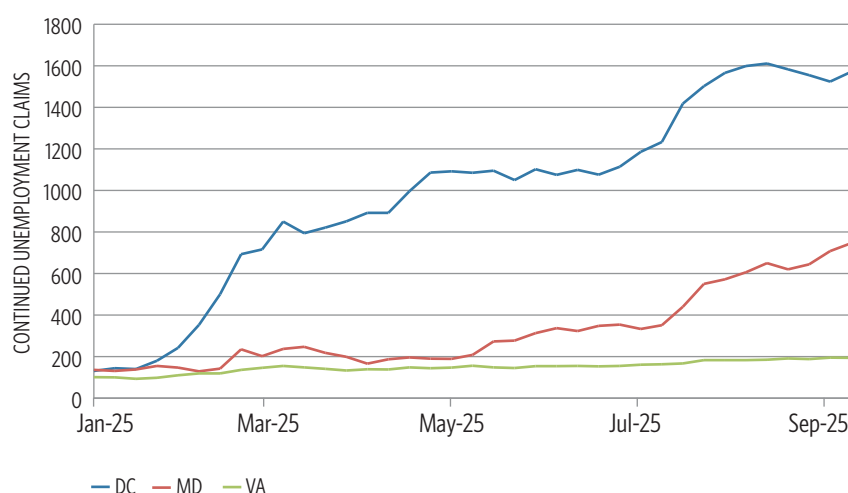
and services. The opposite could also be true, with layoffs of high-skilled workers creating negative spillovers. But in a recent *Economic Brief*, Richmond Fed economists Katarína Borovičková and Claudia Macaluso examined the effect of the current federal layoffs on local economies and found they have had only a modest negative effect, even in government-heavy regions like the Washington, D.C., area. However, they noted that it is still early in the layoff process, and a relatively strong labor market at the beginning of the year may have allowed a portion of those laid off to transition to new employment with relatively little disruption.

HIRING AND TRAINING INITIATIVES TAKE SHAPE

There are signs that former federal workers and contractors are in demand from other employers. For those who want to remain in public service, Work for America, a nonprofit founded in 2024, connects these workers to state and local government hiring managers through its Civic Match

Unemployment Claims Rise for Federal Workers

Weekly filings of continued unemployment claims for federal workers



NOTE: Data are through the week of Sept. 13, 2025.

SOURCE: Employment and Training Administration, U.S. Department of Labor

program. In addition to free access to a job board with state and local government job openings, the program also hosts virtual regional career fairs, as well as fairs centered on particular jobs and skill sets, including communications and public engagement, public health, and finance.

State governments have also responded with new initiatives aimed at encouraging displaced workers to consider applying to open positions in their offices. New York, for example, has over 7,000 open government positions and launched the “You’re Hired!” campaign in early March by posting advertisements in Washington D.C.’s Union Station. Pennsylvania, Maryland, and Virginia — all of which have significant numbers of federal workers — have also started similar targeted hiring initiatives.

The classroom is another potential landing spot for laid-off workers. Virginia has over 3,200 unfilled K-12 teaching positions, while Maryland has over 1,600 such vacancies. To help fill the gap in Maryland, Towson University began the IMAGINE: A Pathway to Teaching program this summer. The weeklong intensive training session funded through a \$1 million grant from the Maryland Higher Education Commission allows participants to gain a conditional license, which, if completed over the summer, puts them in a classroom this school year while they continue to pursue their full credential.

For those looking to transition into the private sector, state and local entities are also creating opportunities to assist in preparing individuals for the job search and gain new in-demand skills. Montgomery County, Md., for example, recently used \$700,000 to open the Mobilize Montgomery Federal Workforce Career Center, where transitioning federal workers can get help with professional development, job placement, executive coaching, and resumes.

Some D.C. area colleges and universities are also expanding opportunities for these workers to gain new skills or education. Georgetown University is offering tuition discounts as well as career counseling for students enrolling in many of its master’s and short-term professional certification courses.

Northern Virginia Community College’s NOVAnext, the program where Rodriguez earned his AI certification, started accepting applications in March. Along with that course, it also offers a number of other short-term credential courses in areas such as project management and human resources. Steven Partridge, the vice president for strategy, research, and innovation at the college, stated the initiative had an original goal of serving 1,000 individuals, and 600 were already in the program after just five months. “We knew we wanted to give back. We did not want to lose this talent,” he says. For those who lost their job, “we wanted to quickly get them reengaged, get them some relevant skills that we knew employers were still hiring on.”

BARRIERS TO (RE)ENTRY

For workers hoping to remain in public service, the process can be complicated by several factors, including compensation and qualification discrepancies, slow-moving bureaucracies, and budgeting. In terms of compensation, *Marketplace* reported in March that workers looking at state and local

government jobs are finding salaries well below what they made at the federal level — as much as \$60,000 less. This might be particularly true for those considering pivoting to teaching, where the average first-year salary in Virginia and Maryland is between \$49,500 and \$52,600. Even if the salary is similar, a job may not carry the same benefits, as paid parental leave is not always provided, and prior government service may not count for retirement purposes.

States may not weigh federal experience equally to state-level experience in job applications, though Pennsylvania recently ordered its agencies to do so. Also, those with advanced degrees, including Ph.D.s with previous college or university-level teaching experience, still need to take the time to enroll in credentialing programs before they can be qualified to teach at the K-12 levels. “If you’re an epidemiologist at the CDC, you likely have the skills needed to teach biology at a high school,” observes Laura Ullrich, the director of economic research at Indeed, one of the largest online job listing sites. However, “the process of getting certified to teach is not as easy as it might need to be for that substitution to make sense,” she says.

Bureaucratic delays can be another hurdle. The average time it takes to get hired in state government is 96 days; for local government, it is 130 days. Both are longer than the 80-day timeframe for hiring in the federal government. To compete for those workers who may want to make the transition to state government, several states — including Maryland and Virginia — are fast-tracking those efforts. For example, earlier this year Maryland Gov. Wes Moore announced an initiative to streamline the hiring process for critical and hard-to-fill positions in state government, such as accountants, human resource and procurement officers, and fiscal account technicians.

But just as the federal government has been shrinking its headcount, state and local governments have encountered budget realities that limit their ability to get the workers they need. Maryland’s efforts to fill some of its 5,000 open state positions were stymied shortly after the announced streamlining efforts by a budget shortfall that necessitated a hiring freeze, locking out many who were already in the hiring pipeline.

For those looking at private sector employment, the current landscape is equally uncertain. Ullrich notes that job postings in industries requiring similar skill sets as those for many government positions lag behind those in other industries like health care, which is adding jobs. “If your current role aligns best with business and professional services, which many jobs in the federal government do, and you were going to switch sectors, there’s very little action in that labor market,” she argues. “It’s extremely stagnant.”

Data from Indeed indicate that even as there are fewer jobs available for displaced federal employees, more of them are looking for work: Profiles by former federal workers have continued to increase sharply throughout most of the year, while the number of actual job applications started by those workers has been declining since April.

In the Washington, D.C., region in particular, private sector employment in these industries is struggling. Data from the

labor departments of Maryland, Virginia, and D.C. indicate that as of late August, private firms in those jurisdictions announced that almost 7,500 positions in public administration and professional, scientific, and technical services were slated for elimination.

PREVIOUS SECTORAL LOSSES

This is not the first time sectors of the economy have experienced significant job losses. Shifting trade patterns and policies, economic conditions, and technological innovations have all prompted policymakers at one time or another to step in to provide assistance to those displaced through no fault of their own.

The steel and auto industries of the upper Midwest have been dealing with layoffs for decades. According to a 2007 paper by economists James Feyrer and Bruce Sacerdote of Dartmouth College and Ariel Stern of the Hasso Plattner Institute, the auto and steel industries lost over 500,000 and 350,000 jobs, respectively, between 1977 and 1987. These losses were particularly devastating in concentrated areas, as most occurred in about 140 of the country's approximately 3,000 counties.

Cities like Cleveland were hit hard. According to a 2011 Brookings Institution report, the city lost over 110,000 manufacturing jobs, or over 42 percent of the sector's local workforce. For those who were laid off at General Motors, Ford, or Chrysler, the federal government provided unemployment benefits through the Trade Adjustment Assistance (TAA) Act, as the Department of Labor determined their jobs were lost due to foreign competition. Local business leaders and community colleges engaged in several initiatives to retain those workers and train them on new technologies, but those efforts focused almost exclusively on manufacturing, an industry that was also declining because of larger macroeconomic forces that moved those jobs abroad.

While unemployment rates spiked in these regions, they generally returned to the U.S. average within five years. However, this return to previous unemployment rates did not happen because new jobs arrived or labor force participation increased in places like Cleveland. Instead, they occurred because those who lost jobs moved to other regions of the country where they might be able to find work.

Furniture manufacturing was another sector of the American economy disrupted by international competition. Concentrated primarily in North Carolina, the industry employed about 90,000 workers as of 1990. (See "The Rise and Sudden Decline of North Carolina Furniture Making," *Econ Focus*, Fourth Quarter 2020.) That number had been cut in half by 2009, due in large part to China's entry into the sector. Amid those losses, between 2002-2003, the

federal government sent \$4 million to affected regions in the state for reemployment programs focused on job search assistance, skill retraining, and career counseling. To further facilitate rehiring, the state's community college system developed a new program — the first of its kind in the country — where it worked with employers in the region to develop training programs specifically tailored to their needs. In this case, government at various levels and local stakeholders sought solutions to get displaced workers back into the workforce.

Overall, these retraining programs, particularly those tied to U.S. TAA, have seen mixed results. Studies from the 1990s consistently showed they did not significantly benefit TAA recipients relative to nonbeneficiaries in terms of reemployment and income levels; instead, recipients were further behind on those outcomes. A later analysis from 2008 found improvement in reemployment outcomes but lower wages. However, a 2012 report by Mathematica, a policy analysis firm, and Social Policy Research Associates found TAA programs had no effect on wages, although beneficiaries did have higher employment rates than nonbeneficiaries four years or more after they were fired.

IS THIS TIME DIFFERENT?

Despite the different causes for layoffs across the public and private sectors, local policymakers and businesses must still grapple with the same effect — higher unemployment — and they are now doing their best to adjust to a new reality.

For these communities to keep these workers, there need to be jobs for them to fill. The D.C. region is already full of white-collar workers at private companies, many of whom may be dependent on government contracts. And as the data from Indeed indicate, job openings in these areas, at least in the short term, are also becoming scarcer. In the long run, however, there is reason for optimism. Many workers, like Rodriguez, have college and graduate degrees. This should be helpful, as he and thousands of others are pivoting into the job market from the other end of the spectrum as the workers who lost jobs in manufacturing.

"College seems to be really protective against long-term unemployment," says Urvi Neelakantan, a senior policy economist at the Richmond Fed. "You have a broader skill set that makes you more agile and more able to find other jobs."

If the downsizing of the federal workforce in the D.C. area is long-lasting, however, those new jobs may need to be found elsewhere, prompting displaced workers to move to other cities where their talents can be put to use. **EF**

Editor's Note: This article was published online on Nov. 6, 2025, and all data are current as of that date.

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BY KATRINA
MULLEN

Virginia's Small Farmers Weather Unpredictability

Small farmers are important producers in Virginia's agriculture industry, but they face mounting costs and uncertain revenue. What keeps them going?



A typical day on Oak Level Farm in Yale, Va., varies by season, but one thing remains constant: long hours. Jared Webb works 60 hours or more every week to manage and maintain the small farm that his grandfather inherited in the 1960s.

“I got to spend a lot of time riding around with my granddad on tractors. Farming here was always something that I wanted to do,” says Webb, who began to operate the farm in the early 2000s after his grandfather passed away and not long after he graduated from Virginia Tech’s Agricultural Technology program. Today, Webb oversees cattle, cotton, peanuts, and other crops on the 1,700-acre farm.

Oak Level is one of nearly 40,000 small farms in Virginia that together account for 83 percent of all farms in the commonwealth. Most of Virginia’s small farms grow diverse specialty crops of fruits and vegetables. They contribute to the state’s largest private industry, agriculture, which has an annual economic impact of more than \$82 billion and creates over 380,000 jobs, based on a report from the University of Virginia. Despite this, the number of small farms is falling.

According to the Census of Agriculture, which is administered every five years by the U.S. Department of Agriculture (USDA), Virginia lost over 480,000 acres of farmland between 2017 and 2022, more than it lost during the 15-year period between 2001 and 2016.

Virginia became an agrarian colony toward the beginning of the 17th century, with tobacco as its primary crop. Since then, the agriculture industry in Virginia has become more geographically and agriculturally diverse. But the economics have long been challenging for small farmers, who now face additional headwinds from tariffs and federal funding cuts.

SMALL FARMS, SMALL INCOMES

The USDA measures farm size by gross cash farm income, or annual income before expenses, rather than number of acres. Any farm with a gross cash farm income of less than \$350,000 is considered small, while large farms earn \$1 million or more. In fact, the income most small farms generate from annual sales is often well below \$350,000. The 2022 Census of Agriculture reported that, on average, Virginia’s small farms sold less than \$50,000 worth of agricultural products. This limited sales revenue means many small farmers rely on off-farm income to make ends meet. In 2023, 96 percent of farm households earned income from off-farm sources, which can include employment in another industry or passive income from government benefits or private pensions. In Webb’s case, his wife works in health care, and he receives additional income from farming his neighbors’ land, hauling grain, and servicing machinery. Small farms also rely on agritourism to generate supplemental income, offering recreational services to consumers such as apple picking, corn mazes, or weddings.

“Where I am from, Pulaski County, has a lot of people who raise beef cattle but have an off-farm job, such as at a factory or in local or state government,” says Joe Guthrie, the

Virginia Department of Agriculture and Consumer Services (VDACS) commissioner and a sixth-generation farmer from Dublin, Va. “A healthy rural economy is important to agriculture because farmers need other jobs.”

Not all small farmers have off-farm jobs, however. Janet Aardema and her husband Dan Gagnon, owners of Broadfork Farm, a small organic diversified farm in Chesterfield, Va., started farming part time but gradually made it their full-time focus. They initially thought they needed off-farm income but recognized “the farm needed to be a business that would pay for itself,” says Aardema. “We whittled down our family financial needs to live on the little bit that we made.”

They now manage a self-serve farm stand, run a farm share program, and sell their produce at a weekly farmers market. The term “farm share program” is another name for community supported agriculture, where the consumer prepays a fixed fee for their produce, which allows the farm to receive cash before the harvest to cover expenses like fertilizer and seeds. In return, the consumer receives the available produce at predetermined dates. Aardema is aware of the farm share’s purpose — to mitigate risk for the farmer — and purposefully limits the number of participating consumers to make it a fair partnership and ensure that there is enough produce each week for each farm share member.

“Managing the farm share has been something that I’ve always been extremely deliberate and conservative about to protect the relationship between the farmer and the consumer,” says Aardema. “I think it’s extremely important that a farmer get to know the soil, get to know the seasons, get to know the crops on the land, and get to know consumer demand or interest in those crops.”

In many rural areas, the production values of crops and agricultural products are relatively low. According to Guthrie, a small percentage of the outputs are production agriculture — the crops and livestock itself — whereas the majority are value-added agriculture, where the crops are converted into products like jams and sauces. He acknowledges that while most of Virginia’s farms are small and bring in a low percentage of total agricultural sales, they are important because they help to preserve farmland and provide essential goods and services.

“We could all get paid more by doing pretty much anything else. We’re doing it because we’re prioritizing the experience of the people who eat this food that we grow,” says Aardema. “It’s challenging working at the farmers market every Saturday, but the benefit is that people tell me, ‘My life is better because you’ve made this food for me to access and purchase.’”

Research suggests intangible benefits such as these are a big draw for farmers. In a 2020 *American Economic Review* article, John Bailey Jones of the Richmond Fed and Sangeeta Pratap of Hunter College at the City University of New York examined data from New York dairy farmers and found that many small farms stay in business despite having very low incomes. This suggests that many farmers operate because of intangible benefits such as being one’s own boss. Contained within the USDA’s broad definition of a farm — an operation with more than \$1,000 in

"It's very expensive to buy land in Virginia. In most places, farmers can't afford to buy land and farm it to pay for it," says Guthrie. "Farmland that's owned is often inherited; it's intergenerational."

agricultural product sales during a given year — are many small farms that provide hobbies for their owners.

NAVIGATING RISING COSTS

In recent years, the median farm income has trended upward, but so have costs. "It's very expensive to buy land in Virginia. In most places, farmers can't afford to buy land and farm it to pay for it," says Guthrie. "Farmland that's owned is often inherited; it's intergenerational. Larger farms usually include a large percentage of rented land since it is usually much cheaper to rent farmland than to buy it."

The USDA reported that in 2022 about 33 percent of farmland in Virginia was rented. "Farmers suffer the same outcomes that a lot of residents do," says Parker Agelasto, executive director of the Capital Region Land Conservancy (CRLC), a nonprofit land trust that helps to permanently protect land through conservation easements in perpetuity. "As property values and rents rise, farmers lose tenure, or control over the land. They lose access to the land when an owner can no longer avoid developmental pressures impacting land values and real estate taxes, and the farmer can't afford the higher rents charged." For small farmers who own their land, a lot of their equity or net worth is tied to that land. They often find themselves having to sell off portions of the farm to cover medical bills, retirement, or other major expenses. Some landowners opt to donate conservation easements to preserve their farm, reducing its development potential and land value and receiving tax incentives and cash to compensate for extinguishing certain rights.

Regardless of ownership, the CRLC protects land in the Richmond region from industrial, commercial, or residential development. In addition to conservation easements, the nonprofit also protects land through acquisition. According to the 2022 Census of Agriculture, the Richmond region lost almost 10,000 acres, or more than 13 percent of its farms, between 2017 and 2022.

The demand for housing in recent years — exacerbated by the COVID-19 pandemic — has put more pressure on farmland. "The developers go after the low-hanging fruit, green-field development, mostly farms that are already cleared and pad ready in many cases," says Agelasto. "It's very frustrating because it takes so long to get agricultural lands to be productive. Our prime soils are really something we cherish."

In addition, the proliferation of data centers, especially in Central and Northern Virginia, has increased the incentives to convert farmland to other uses. While the agriculture industry employs more people, data centers are a growing economic force in the state. A 2024 report by Virginia's Joint Legislative Audit and Review Commission found that the data center industry added 74,000 jobs and \$9.1 billion in GDP in Virginia annually. (See "Virginia's Data Centers and Economic Development," *Econ Focus*, Second Quarter 2023.)

When farmland gets converted to nonagricultural uses, it lengthens the food supply chain and reduces access to local foods, which can have negative consequences for local health. In a 2021 *Agricultural Systems* article, Goedele Van den Broeck of the University of Louvain and Laura Enthoven of University of Antwerp found that community supported agriculture encouraged consumers to select healthier foods. Since VDACS has a mission to support the economic growth of agriculture in Virginia and provide consumer protection, the agency developed two brands to assist Virginia consumers in choosing Virginia food products. The Virginia Grown brand is mostly for fresh products from the field, like produce at a farmers' market. The Virginia's Finest label is for value-added products, such as jams and sauces, that are produced and processed in the commonwealth. VDACS assists companies using these brands gain new markets and customers by promoting their products at food trade shows and other events as well as through a searchable directory on the agency's website.

In addition to land loss, the commonwealth has lost much of its infrastructure over the years for many agricultural commodities, such as beef. Guthrie remembers when Virginia used to have all stages of the beef cattle industry, but it has now largely become a cow-calf state, where a calf is raised to half size and sold to a feedlot in Pennsylvania or in the Midwest where it's finished, processed, and returned to Virginia. In an effort to incentivize keeping more cattle in Virginia from production through processing, VDACS recently began working with the Virginia Cattlemen's Association to develop a Virginia Verified Beef brand for products from cattle that were bred, born, raised, and processed in Virginia. This brand assures Virginia consumers that they purchased a local product, which can be sold at a premium. Similar brands may be developed for pork, sheep, and goats.

Cattle and calves are the second largest commodity in Virginia, behind poultry. For beef production, which is expensive and facing rising costs, small farms have found it harder to stay profitable, which is why many operate through direct-to-consumer sales instead of wholesale or retail. In a recent *Journal of Agricultural and Resource Economics* article, former USDA Economic Research Service economist Nigel Key acknowledged that while the direct-to-consumer model is still risky since input and output prices can vary year to year, new farms benefit from the model because it offers "a more predictable source of income." Despite making less money and having slower growth, new farms using this model are more likely to survive.

NEW HEADWINDS ON THE HORIZON

Another challenge for farmers is institutional risk, when governmental decisions impact farm operations. This year's changes to tariffs, or taxes on imported goods, have been

wide-ranging. For example, the U.S. tariffs on Canada range from 10 percent to 50 percent and apply to common farm inputs like fertilizer. While tariffs are meant to encourage consumers to buy locally, farmers depend on many inputs from outside of the United States. Small farmers, many with low net incomes, may struggle to afford higher input prices if tariff costs are passed on to them.

Farmers like Aardema and Webb have already felt the effect of tariffs on inputs like fertilizer. “Agriculture is facing some of the hardest times right now that we’ve ever faced with the tariffs and rising input costs,” says Webb. “My granddad farmed in the ’60s and sold his commodities for more than I’m selling them now. Everything costs so much; it’s unreal.”

In a recent letter in the journal *Science*, Asim Biswas of the University of Guelph noted that the 50 percent tariff on imported steel greatly affects the cost of equipment used in precision agriculture. According to Guthrie, many farmers in Virginia rely on precision agriculture to determine the exact amounts of fertilizer, seeds, and pesticide that will reduce their inputs and increase their efficiency. Many farmers in the commonwealth, and the programs that support them, have also felt the effects of federal funding cuts, many of which reversed COVID-19 era policies. This year, the USDA canceled two programs — the Local Food Purchase Assistance (LFPA) Cooperative Agreement and LFPA Plus — that gave schools and food banks more than \$1 billion to buy food from local farmers. In the last few years, Virginia received more than \$13.6 million from LFPA and LFPA Plus. Another approximately \$660 million was cut from the Local Foods for School Cooperative Agreement Program, which addressed supply chain resilience and supported small farmers through the National School Lunch program, a federal program that subsidizes food in public schools, nonprofit private schools, and residential child care centers.

THE VALUE (AND FUTURE) OF AGRICULTURE

Another long-standing challenge facing Virginia farmers is finding successors to take over their work. The average age of a Virginia farmer is 59, and it has increased in the last two decades. Moreover, the average age of a new Virginia farmer is only about 10 years younger. In light of the many challenges facing the industry, how can Virginia recruit new farmers to maintain the commonwealth’s small farms?

William Crutchfield, the director of the Small Farm Outreach Program at Virginia State University (VSU) in Ettrick, Va., which is both a land-grant institution designated by Congress to teach and offer agricultural research

and a historically black college and university, touts that “it’s the small farmers who make big impacts; the large farmers cannot do it all.” VSU’s Small Farm Outreach Program offers technical and educational assistance for small and beginning farmers. It operates as part of the Virginia Cooperative Extension, an agricultural partnership with Virginia Tech, a fellow land-grant institution located in Blacksburg, Va.

VSU’s Small Farm Outreach Program is one way to help farmers whether they are seasoned or just starting out. The program begins with an orientation, then the farmer is paired with a program assistant from their area who guides them through workshops and an online agribusiness class that covers topics like production, financial planning, and risk management. The centerpiece of the program is Randolph Farm, a 416-acre learning center near VSU’s campus, which hosts demonstrations and workshops. The Small Farm Outreach Program, along with its nationally recognized NUag Initiative to support urban agriculture, has relied on federal funding provided by the USDA to achieve success. But without any notice, Crutchfield received an email in March saying that the university’s grants from five different USDA agencies, estimated at more than \$3 million annually, had been terminated. He and others quickly pivoted and shifted employees and resources, but he says it has been hard. He worries that the funding cuts will hurt efforts to recruit future generations of farmers because the resources to educate and support them are no longer available.

“First, you have to find young people who want to farm. It’s one thing to have the farmland, but if you don’t have anybody who wants to farm it, what are you going to do?” says Crutchfield. “When you take away all of the vocational agriculture from the rural schools, there’s nobody interested in farming.”

State and local communities understand the impact small farmers have on the local food supply and the economy, and small farmers value the contributions they make to produce local foods for their communities. “We feed 500 households every week. We’re a very small farm, but that number is big,” says Aardema.

While small farming has its challenges, Crutchfield wants the younger generations to understand that “this is not your grandfather’s farm anymore.” Instead of driving a tractor, raising livestock, or producing grain, there are other ways to support Virginia’s agriculture industry, perhaps as a drone pilot or as an agricultural engineer.

“I think there’s a great future for agriculture in Virginia,” says VDACS’s Guthrie. “I have never heard a farmer say, ‘I wish I’d never bought that farm.’” **EF**

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AT THE RICHMOND FED

BY CHARLES GERENA

Surveying Fifth District Businesses

Surveys can be a fun way to poll an audience about a range of current topics. But over a longer time horizon, they can become powerful tools of economic analysis.

The Federal Reserve Bank of Richmond has conducted its regional surveys of business activity every month since 1993, making them the second longest-running regional surveys in the Federal Reserve System. (The Philadelphia Fed's manufacturing business outlook survey dates back to 1968.)

"The surveys' consistency over the past few decades gives us the ability to track changes in business conditions and compare that against historical trends," says Jason Kosakow, the Richmond Fed's survey director since 2020. "It allows us to see business activities throughout 'steady' economic periods and the various shocks our economy has experienced."

The key to this longevity has been recruiting and retaining a diverse and representative sample of businesses in the Fifth District, which includes Maryland, North Carolina, South Carolina, Virginia, most of West Virginia, and Washington, D.C. This has required continuous improvement in both collecting survey data and demonstrating the value of that data to potential respondents.

The core of the regional surveys are questions about the monthly changes observed by respondents in a variety of economic variables, ranging from order backlogs for manufacturers to revenues for retailers and other non-manufacturing firms. Survey respondents also report how they expect these variables will change in the next six months. Richmond Fed researchers create diffusion indexes by subtracting the share of respondents who said that a variable decreased from the share who said that a variable increased. So, a positive index shows net growth in that variable, while a negative index indicates a net decline.

The methodology used by the Richmond Fed to create these diffusion indexes is consistent with how other Reserve Banks calculate them for their regional surveys. It also aligns with what the Institute for Supply Management does for its indexes and the University of Michigan does for its consumer sentiment index. As a result, the Richmond Fed's survey data is widely comparable to other regional and national datasets.

In addition to creating diffusion indexes, the Richmond Fed has calculated annualized data on price levels since 2011. Survey respondents have reported on realized and expected percentage changes each month for both prices charged to customers and prices paid for inputs.

But what is the value added by having yet another set of numbers in a world filled with public and private data sources? According to previous analyses by the Richmond

Fed, its regional survey data generally move in the same direction as other aggregate measures of the economy, such as employment and the personal consumption expenditures price index. Yet they are available in a timelier manner and at a greater frequency.

Special questions also provide a window into how business leaders feel about current events, from the COVID-19 pandemic to changes in trade policy to the growing use of machine learning and other forms of artificial intelligence. This topical information helps the Richmond Fed's economists understand regional and national economic trends

in real time, which in turn gives Richmond Fed President Tom Barkin the latest intelligence to take with him to Federal Open Market Committee meetings.

"The public also receives value from the surveys," says Kosakow. "The news media picks up our survey results and

that gets incorporated into how people think about business conditions. Also, business leaders can get a sense of how the broader regional economy is faring and make decisions based on that information."

While a few survey questions have been added, removed, or clarified over the years, the Richmond Fed is careful about making changes to maintain consistency and allow for meaningful comparisons across time periods. For example, the service sector questionnaire was revised in 2005 so that respondents at retailers and wholesalers received a separate set of questions that were more closely aligned with their businesses.

"We are always trying to improve the survey response experience," adds Kosakow. "We retired several questions that were not used and had lengthened the time to complete the survey. In 2023, we changed the formatting of the survey to make it easier to respond and shortened the length to complete the survey."

Most recently, the Richmond Fed redesigned the regional survey website to consolidate information and present results separately for Virginia for the first time. (Maryland has been broken out since 2007, and North Carolina and South Carolina since 2008.) Most importantly, two new data products are now available. Responses to special questions, which are now included in every survey, are published monthly rather than on an ad hoc basis. And a new report on business leaders' inflation expectations and the factors influencing their price setting has been added.

Kosakow says additional analysis of the survey data may follow in the future. "We have a lot of information, and we are trying to better analyze it." **EF**

[Surveys help] the Richmond Fed's economists understand regional and national economic trends in real time.



Economic *Brief*

Based on Richmond Fed economists' research, this non-technical series of articles covers current economic issues and trends every month.

Recent articles include

Noise Bargaining: A New Perspective on Single Proposers, Negotiation and Delays

A new approach addresses the dynamics of negotiations involving a single proposer and the inherent delays in reaching agreements.

Credit Supply Shocks During a Nonfinancial Recession

Banks' behavior can still amplify economic downturns even when they are not the source of a crisis and have robust liquidity and capital positions.

Inflation and the Timing of Actions With Discretionary Monetary Policy

The timing of actions between the central bank and firms can have large effects on the inflation rate when monetary policy is conducted under discretion.

Banks' Credit Lines to Nonbank Mortgage Companies and Downstream Mortgage Originations

Banks continued to compete with NMCs in the downstream mortgage origination market, despite financing competing NMCs.

What Drives Business Cycles?

Trying to identify single causes of individual business cycles is fraught with misattribution problems.

BY MATTHEW WELLS

Stablecoins and Financial Stability

The United States has introduced a new stablecoin regulatory framework, but concerns over the cryptocurrency's place in the global economy remain

Signed into law in July 2025, the Guiding and Establishing National Innovation for U.S. Stablecoins (GENIUS) Act was a huge step forward for the cryptocurrency industry. The bipartisan legislation marked the federal government's first effort at creating a regulatory framework for cryptocurrencies and signaled that crypto had finally achieved a status and size worthy of the government's attention.

Stablecoins are digital assets used primarily as currency to buy and sell other cryptocurrencies, such as bitcoin, on blockchains, which are decentralized electronic ledgers. Traditionally, they are viewed as "private money" that has been pegged one-to-one to a state-issued currency, typically the U.S. dollar, although others have been pegged to the euro, the Japanese yen, and the Swiss franc.

While few people use stablecoins to pay for conventional goods and services, the technology is expanding rapidly. The SWIFT payment system is transitioning to the blockchain, allowing banks to settle transactions with stablecoins, and large companies such as PayPal have developed their own stablecoins. Walmart, Amazon, and several large financial institutions are also exploring their potential.

The GENIUS Act gives banking regulators, including the Federal Reserve, oversight authority over the entities that issue stablecoins. However, the law leaves it to those regulators to decide what rules to create and how to implement them. Further, increases in stablecoin demand may impact other sectors of the economy, such as the Treasury market and the global demand for dollars. All these carry potential implications for the stability of stablecoins,

as well as the Fed's efforts to maintain a safe and secure financial system.

STABLECOIN FUNDAMENTALS

Customers wanting stablecoins pay money through their bank accounts, credit or debit cards, or other payment systems to an entity issuing them. With those stablecoins in hand, users can make purchases or investments wherever they are accepted. When users want to "cash in," they take whatever stablecoins they have, which could have increased or decreased in number, back to an issuer, where they collect dollars back at a one-to-one rate.

Two of the most popular stablecoins in the crypto space are tether and USD Coin. Unlike dollars, which are fiat currency (that is, their value is derived from the government's declaration of their value), they and other stablecoins are backed or collateralized by a range of assets (or reserves), especially cash or U.S. Treasuries. In theory, these reserves can be easily liquidated to pay any customer seeking to redeem stablecoins for dollars.

The GENIUS Act addresses these dollar-pegged and reserve-collateralized stablecoins specifically, but there are other types of stablecoins that fall outside of the act's definition. Crypto-collateralized stablecoins, for example, are still pegged to a currency but are backed by other digital assets such as ethereum, making them less stable because of the greater volatility of their reserves. Another example includes algorithmic stablecoins, which attempt to maintain a consistent dollar-pegged value through automated adjustments in value relative to other digital currencies.

Stablecoins are used primarily as an immediate and secure medium of exchange for blockchain-based transactions, particularly the buying and selling of other cryptocurrencies. Unlike traditional payment systems, which can take days to fully settle transactions, stablecoin transactions are settled at any time of day on the blockchain almost instantaneously through "smart contracts," where the terms of the transaction are written into the code.

Beyond their speed on the blockchain, another benefit of stablecoins is their global reach. They can be used anywhere in the world, including areas where dollars are difficult to acquire. Coupled with the ease with which a user can move stablecoins in and out of crypto markets, their use can reduce the costs and frictions associated with remittances or other international transactions. For individuals in developing countries with persistently high inflation, stablecoins may also be a way to save money that is insulated from swings in the domestic currency.

In a February 2025 speech, Fed Gov. Christopher Waller similarly noted that for some users, stablecoins might also serve as a store of value. Relative to the other, more volatile crypto assets, stablecoins are low risk, "which allows traders to move out of risky positions into safe ones where the safe asset price is known and stable," he argued. Most stablecoin transactions — more than 80 percent — occur outside of the United States.

To date, these benefits of speed and availability have mostly been enjoyed by individuals active in the cryptocurrency marketplace rather than the average consumer. According to the Fed's most recent Diary of Consumer

Payment Choice, only 3 percent of respondents said they used cryptocurrency as a form of payment in the last month. However, the annual transaction value of stablecoins exceeded \$27 trillion in 2024, surpassing that of Visa and Mastercard combined. Further, stablecoins' current market capitalization is about \$267 billion, and Citigroup projects it will grow to between \$1.9 trillion and \$4 trillion by 2030. Treasury Secretary Scott Bessent made a similar claim in November, suggesting it could reach \$3 trillion in coming years. Motivated by that growth, and its potential implications for the economy, Congress passed the GENIUS Act.

A NEW REGULATORY FRAMEWORK

The GENIUS Act grants banks, nonbanks, and even nonfinancial institutions with approval from state or federal regulators the ability to issue stablecoins to the public. Under the act, the Office of the Comptroller of the Currency regulates federally qualified issuers with over \$10 billion in stablecoins in circulation. If the issuer is a subsidiary of an insured depository institution, such as a bank, it is regulated by the appropriate federal banking agency. All issuers with less than \$10 billion in circulation would be regulated at the state level. Regulators would be responsible for conducting annual audits and ensuring compliance with existing anti-money laundering and sanctions requirements.

Crucially, issuers would be required to hold at least one dollar's worth of reserves for every stablecoin issued. Those reserves mostly come in the form of cash, insured and uninsured deposits, short-term Treasuries, repo agreements, and central bank reserve deposits. However, these issuers would be exempt from the regulatory capital requirements that currently apply to banks, and this holds true even if the issuers are banks engaged in regular banking activities.

Stablecoins are not defined as securities or commodities under the legislation, meaning they are not federally insured and do not have the same protections as traditional bank deposits. In other words, there is no government-backed guarantee a user would be able to get cash back when they want to trade back in their stablecoins. Issuers, as of now, also do not have access to the Fed's lending facilities.

Proponents of stablecoins argue that government insurance and access to the Fed are not necessary because the assets designated as collateral by the

In an October 2025 speech, Fed Gov. Michael Barr argued that "Because stablecoins are not backed by deposit insurance and stablecoin issuers do not have access to central bank liquidity, the quality and liquidity of their reserve assets is critical to their long-run viability."

GENIUS Act are highly liquid, and issuers are required to hold as many dollars in reserve as they have stablecoins in circulation. While this would seemingly guarantee stablecoin holders could redeem their coins for cash whenever they choose without any difficulty, not all policymakers or observers agree it would be that easy.

In an October 2025 speech, Fed Gov. Michael Barr argued that "Because stablecoins are not backed by deposit insurance and stablecoin issuers do not have access to central bank liquidity, the quality and liquidity of their reserve assets is critical to their long-run viability."

He identified several points of vulnerability in those assets. In addition to the potential for some consumers to mistakenly assume all stablecoins — not just those covered by the GENIUS Act — carry the same level

of stability, he pointed out that other dollar-pegged assets have not always been able to maintain that one-to-one value. Money market mutual funds, which are listed as one class of asset that can be used as collateral, "broke the buck" in 2008 following Lehman Brothers' bankruptcy and experienced strains again in March 2020 at the outbreak of the COVID-19 pandemic.

Uninsured deposits, another acceptable reserve asset, were also a risk factor that precipitated the March 2023 banking stress associated with the failure of Silicon Valley Bank and others. The legislation also allows for any medium of exchange authorized by a foreign government to be used as collateral via repo agreements, which until recently in the case of El Salvador included the highly volatile bitcoin.

The GENIUS Act prohibits issuers from paying out interest to individuals holding their stablecoins. If stablecoins paid interest, they would have to be treated — and regulated — like securities rather than simply forms of payment. The legislation does, however, allow stablecoin exchanges, known as Virtual Asset Service Providers, to offer "rewards" to users who choose to buy and sell cryptocurrencies or conduct other transactions on their platforms. This creates a potential loophole, as these exchanges, if authorized by regulators, can also be part of the same entity issuing a stablecoin. The platform/issuer can then use the dollars traded for the stablecoins to purchase other assets, likely Treasuries to back the stablecoins, and then pay out rewards to customers with the proceeds from those investments.

Barr noted this area of concern, suggesting issuers "have a high incentive to maximize the return on their reserve assets by extending the risk spectrum as far out as possible. Stretching the boundaries of permissible reserve assets can increase profits in good times but risks a crack in confidence during inevitable bouts of market stress." To hedge against

this possibility, stablecoin issuers are required to publish monthly reports on the composition of their reserve assets, a move intended to give stablecoin holders increased confidence in the issuer's liquidity.

PARALLELS TO THE FREE BANKING ERA

Barr's argument implies that stablecoins are only as stable as the assets backing them. The United States first established a banking system with a national currency backed by Treasury bonds during the Civil War. Prior to that, in the free banking era from 1836 to 1863, states conducted banking supervision and regulation, and banks issued their own currencies. (See "When Banking Was 'Free,'" *Econ Focus*, First Quarter 2018.) Those paper notes had to be collateralized through state and federal government bonds, and capital and reserve requirements were inconsistent across states.

This meant the country's economy operated with competing, private currencies. It was difficult for currencies in one part of the country to be redeemed in other parts, and it was often done at a discount; for example, the farther away from the bank issuing the note, the steeper the redemption discount. It wasn't unusual for citizens to question the collateral backing the various banks' notes, leading to regular bank runs and failures.

One can draw parallels between the free banking period and today's stablecoin landscape. First, as of early June, there were 233 stablecoins available on the crypto market. Numerous digital service platforms market themselves as spaces where private companies can create, manage, and distribute their own stablecoins. Bank of America, JPMorgan Chase, Citigroup, and Wells Fargo are considering the idea of a jointly issued stablecoin, as well as their own individual ones.

As was the problem with free banking, some economists question whether consumers will always

maintain confidence that they can redeem stablecoins for cash on demand at the promised one-to-one rate. The large banks may be able to issue coins that no one will doubt, but the stablecoin marketplace includes platforms and issuers that are not banks at all, as well as international operators outside the jurisdiction of U.S. financial regulators.

Should one stablecoin issuer experience a run where customers doubt its ability to pay back dollars on demand, it is possible others would too, especially if they are all backed by similar assets. This could lead to a crisis that extends beyond the stablecoin space and impacts the wider financial system.

"Smaller companies planning to issue stablecoins under the GENIUS Act to be regulated by one of the states may face market resistance," says Michael Bordo, an economist at Rutgers University. "Unless there is perfect information about the backing and complete confidence in it, holders may want to discount the stablecoins or avoid them completely, as was the case under free banking in the United States."

Yale University economist Gary Gorton expresses similar concerns, particularly due to the difficulty in regulating a transnational market. "Let's suppose that one of the exchanges out there collapses because of fraud. Now everybody's a little suspicious of these exchanges, and many aren't even based in the United States," he says. "That's the kind of thing that would cause everybody to run."

Should one stablecoin issuer experience a run where customers doubt its ability to pay back dollars on demand, it is possible others would too, especially if they are all backed by similar

assets. This could lead to a crisis that extends beyond the stablecoin space and impacts the wider financial system. In a recent paper co-authored with Jeffery Zhang of the University of Michigan Law School, Gorton argued this outcome is consistent with the nature of short-term debt. Stablecoins are a form of that debt, and because of the laws of supply and demand, their values should fluctuate as the values of the assets backing them fluctuate.

"If one issuer gets in trouble and its stablecoin holders all run on it and ask for cash, it can sell Treasuries and give them the cash," says Gorton. "But in a systemic event, 500 issuers are under siege and they all sell their Treasuries, and the price of Treasuries goes way down."

Gorton and Zhang argued such a failure is in keeping with the pattern of systemic crises over the past 200 years, and the solution is not to outlaw stablecoins but to provide a safer alternative where "no one should have an incentive to produce information about the backing for the money (i.e., the banks' assets); and everyone should know that no one has an incentive to produce that information." In other words, a stablecoin that is truly stable is one that is accepted at par, anywhere and at any time, no questions asked. Gorton says that a digital currency issued by a central bank would meet these criteria.

THE ROAD AHEAD

Skeptics and supporters alike agree that stablecoin adoption is likely to increase in the coming years. An important question, however, is whether it will attract new users looking for a new form of payment. Certainly, stablecoins offer the advantage of instant transactions, and merchants might have incentive to adopt them to replace credit cards, which currently assess transaction fees between 1.5 percent and 3.5 percent for each purchase. (See "Should Credit Card Fees Be Regulated?" p. 18.) However, it may be possible to achieve the benefits

of quicker settlements and lower fees with existing payment rails, such as FedNow, raising the possibility that internal U.S. demand may be limited.

In a recent speech, Fed Gov. Stephen Miran acknowledged that stablecoins' future growth may lie outside the United States. "Because GENIUS Act payment stablecoins do not offer yield and are not backed by federal deposit insurance, I see little prospect of funds broadly fleeing the domestic banking system," he said. "The real opportunity in stablecoins is to satiate untapped foreign appetite for dollar assets from savers in jurisdictions where dollar access is limited."

This increased global demand for stablecoins could precipitate increased demand for U.S. Treasuries. Stefan Jacewitz, an economist at the Kansas City Fed, suggested in a recent report that there is still a way to go for any increased adoption of stablecoins to make a meaningful difference in the economy. Circle, the largest U.S.-based stablecoin issuer, currently holds 43 percent of its assets in Treasuries. If all other issuers held that same percentage in Treasuries, it would amount to about \$125 billion, which is less than 2 percent of the \$6 trillion in

outstanding Treasuries.

However, if the projections of increased adoption materialize, Jacewitz acknowledged the possibility that "it could lead to a substantial redistribution of funds" and potentially increase demand for Treasuries such that the increase in stablecoin issuers' Treasury holdings could outpace the decrease in bank holdings. A 1 percent decrease in bank Treasury holdings — and an accompanying 1 percent decrease in bank lending — translates to a \$325 billion reduction in loans into the economy, Jacewitz estimated.

The American Bankers Association and other banking organizations point to this potential for deposits to leave the banking system in calling for regulators to limit the ability of stablecoin issuers and platforms to pay out rewards. The crypto industry disagrees, arguing that banks fear competition, and banks could incentivize their depositors to stay by raising their deposit rate, something they did when they first competed with money market mutual funds.

While there is widespread agreement on the potential for stablecoins to serve an important function for cross-border transactions,

concerns about their soundness and stability remain, and they are not just theoretical. Circle held \$3.3 billion of its approximately \$40 billion in reserves at Silicon Valley Bank when it collapsed in 2023, and its inability to access those reserves triggered a fall in the value of its USD Coin from the one-to-one ratio to below 87 cents on the dollar. In that case, the federal government stepped in and made whole all of Silicon Valley Bank's depositors, including Circle, which restored its dollar peg.

Bordo argues that in the wake of the free banking era, it still took years of costly bank failures to get to the point where policymakers acted upon the realization that stability in the banking system required much more government intervention, supervision, and regulation than had existed. He notes, "There are always new entities that are going to figure out a way to be outside the regulatory net," and stablecoins will not be any different.

As with any new financial innovation, the Fed will continue to study stablecoins to ensure that their benefits can be enjoyed by those who want to use them while maintaining overall financial and banking stability. **EF**

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BY KATRINA MULLEN

Should Credit Card Fees Be Regulated?

Shoppers are increasingly being greeted with a new sign at the register: “A surcharge will be added to all credit card transactions.” This surcharge is meant to cover the interchange fee (typically ranging between 1 percent and 3 percent of the transaction total) plus a processing fee that merchants must pay for all purchases made with a credit card.

When a customer makes a card purchase, the merchant’s payment terminal sends information about the transaction to the bank that issued the customer’s card. That issuing bank checks that the customer’s account has the funds to cover the transaction and then sends the money — minus an interchange fee — to an acquiring bank. The acquiring bank also takes a fee from the transaction and pays the remaining amount to the merchant. The interchange fee amount is determined by several factors, including the type of card used, whether the purchase was made in person or online, and the type of business. The total deducted fees that merchants pay to accept credit cards typically range from 1.5 percent to 3.5 percent of the value of each transaction. Merchants argue that the fees exceed the costs for processing such transactions.

Credit card interchange fees are currently unregulated. In 2023, Sen. Dick Durbin, D-Ill., along with cosponsors from both parties, introduced the Credit Card Competition Act (CCCA), which would require the Federal Reserve Board of Governors to regulate network competition in credit card transactions. Previously, Durbin introduced an amendment that was added to the Dodd-Frank Act of 2010, which mandated that the Fed’s Board of Governors regulate debit card fees for banks with \$10 billion or more in assets. The Durbin amendment requires that regulated interchange

fees are “reasonable and proportional to the cost incurred by the issuer with respect to the transaction.” Before the legislation, debit card fees for merchants averaged around 45 cents per transaction; now, they are capped at 21 cents plus 0.05 percent of the transaction value.

The cap on debit card fees, which applies to signature, PIN debit, and PINless transactions, allowed merchants to save around \$8.5 billion

“...the socially optimal interchange fee should reflect the costs and benefits to merchants and consumers of the card service...”

in the year following its implementation, according to research by Richmond Fed economist Zhu Wang. Some of the savings to merchants were expected to be passed on to consumers, but the regulation also produced unintended consequences.

Before the Durbin amendment to Dodd-Frank, merchants paid smaller fees for small-value transactions. In response to the regulation, card networks raised the fees on small-value purchases to the cap level, so merchants now pay the same fee regardless of transaction size.

“An issuer-cost based regulation ignores the two-sided nature of the market and may risk either under-shooting or overshooting,” says Wang. “In a two-sided payment card market, the socially optimal interchange fee should reflect the costs and benefits to merchants and consumers of the card service and therefore may not necessarily align with the issuer’s own cost.”

In a 2014 article that examined the impact of the Durbin amendment on merchants, Wang and his co-authors investigated how the regulation affected merchants’ costs of accepting debit cards as well as how merchants reacted to the regulation. They found “a limited and unequal impact on merchants’ debit acceptance costs,” with two-thirds of merchants in the sample reporting little to no change in debit costs. A quarter of merchants reported an increase in debit costs due to small-value transactions, and fewer than 10 percent of merchants reported a decrease in debit costs. Most merchants who faced increased debit costs chose to raise prices and pass the costs on to consumers, while few merchants reduced prices if their debit costs decreased.

This experience may provide some useful lessons for future efforts to regulate credit card interchange fees. The proposed CCCA bill would require large credit card issuers (i.e., banks with more than \$100 billion in assets) to enable at least two unaffiliated payment card networks to process their credit card transactions. This would increase routing competition and aim to reduce merchant swipe fees.

Credit cards have been consumers’ most used method of payment since 2022, according to the Fed’s Diary of Consumer Payment Choice. Between 2017 and 2023, the survey showed that consumers preferred credit cards because of security, acceptance, payment records, and convenience. It’s possible that reward programs, which are partly funded by interchange fees, have also played a role in the growth of credit cards. If policy-makers decide to regulate how credit card interchange fees are assessed, it remains to be seen what impact that may have on the popularity of this payment instrument. **EF**

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BY CHARLES GERENA

The First Rung of Housing Markets

Single-room occupancies met basic housing needs well into the 20th century until they were pushed into the margins. Can alternatives fill the gap?

Lavern Smith was a private duty nurse in Richmond, Va., for about five years until her struggles with mental health and drug addiction eventually put her out on the city's streets. When Smith started seeking help in 2018, she wanted a better place to live than a public shelter.

"I felt like I needed some extra support and a little more structure," recalls Smith. SupportWorks Housing offered her one of their rent-subsidized apartments at New Clay House in Carver, a residential neighborhood near Virginia Commonwealth University. It was a small space, just big enough for a bed and TV, "but it gave me everything I needed," says Smith. "It also gave me the support I needed when transitioning from being an active drug addict and homeless to becoming a good part of a community."

SupportWorks opened New Clay House in 1992 as its first attempt at providing supportive housing — a combination of affordable shelter and social services aimed at helping the homeless. Allison Bogdanović, SupportWorks' executive director since 2014, describes the two-story building in a historically working-class neighborhood as having 47 single-room-occupancy (SRO) units, each with a mini fridge and microwave and a little nook with a toilet. A larger shared kitchen and bathing facility was located at the end of each floor.

Since New Clay House's opening, SupportWorks has evolved its model. The building was renovated and expanded in 2019 to offer 80 studio apartments with full kitchens and bathrooms, just like the one that Smith moved into in March of that year.

"We saw improvements in outcomes when we provide a studio apartment where someone is more independent,"

says Bogdanović. "Every person has their own goals and what they want to accomplish, and being in an independent apartment helps them get there faster." For Smith, the stability afforded by her apartment enabled her to get a job at Kroger that lasted two years. Now, she works at a grocery store in Waldorf, Md., where she moved recently to be with her son.

Things started to change after World War II: The existing SRO housing stock began shrinking while the pipeline of replacements dried up.

This is just one example of how the "first rung" in housing markets has evolved in the United States. Well into the 20th century, this rung was occupied by SRO units, providing shared housing that met basic needs at a low cost. It was less like an apartment, which typically provides a certain level of privacy as well as legal protections for tenants, and more like a hotel room or a college dormitory, minus the college.

SRO units offered a range of amenities to meet different needs in housing markets. Defining characteristics included access to bathroom and cooking facilities (usually shared among tenants), the amount of private space available (usually one room per tenant), and length of stay (usually a month or less but could be extended). State and local regulators varied in how they used these characteristics to define SROs legally.

Then, things started to change after World War II: The existing SRO

housing stock began shrinking while the pipeline of replacements dried up. Shifting expectations raised the regulatory bar, altering the economics of first-rung housing. According to estimates by the Supportive Housing Network of New York, a nonprofit that represents the interests of local housing providers, the city went from having around 200,000 SROs in 1955 to less than 40,000 in 1995.

The elimination of more flexible, less expensive shared spaces, including SROs, has left a significant hole in housing markets. Today, grassroots groups and free-market think tanks are calling for changes in public policies to make markets freer to respond to demand for first-rung housing.

Communities from Seattle, Wash., to Raleigh, N.C., have removed regulatory hurdles at various times to make building this type of housing more feasible for private developers. Meanwhile, nonprofits like SupportWorks have managed to build first-rung housing under current policies and market conditions through a combination of private and public funding.

FOR SOME PEOPLE, SMALL AND SIMPLE MADE SENSE

The concept of first-rung housing isn't new. Homeowners have rented out single rooms going back to our nation's colonial era. Widowers and empty nesters who had more space than they needed would turn their single-family homes into boarding houses, offering a warm bed and a hot meal to guests traveling through town.

"Early single-room rentals provided a mutually beneficial relationship," wrote Andrew Justus, a housing policy expert



Cool Lane Commons, a project by SupportWorks Housing in Richmond, Va., is a garden apartment complex with 86 units and shared resources such as a computer lab and community kitchen space. It took six years and \$24 million to convert a vacant assisted living facility into an apartment complex.

at the Niskanen Center, in a 2022 analysis. “The arrangement allowed newcomers and those who needed no-frills housing to access housing that met their immediate needs. At the same time, this arrangement would allow homeowners to supplement their income and stay in their homes during retirement or other periods of diminished cash flow.”

SRO housing also served a broader economic role: The ability of people to relocate in search of work is predicated, in part, on the ability to find a place to live. For example, as millions of immigrants and American farm workers moved to major cities like Boston and New York during the Industrial Revolution, SRO housing supported the inflow of labor needed by mills and other factories. Formerly called the Young Women’s Christian Association, the YWCA provided SROs for female students, teachers, and factory workers who moved from farms to cities.

By the late 19th and early 20th centuries, boarding homes persisted in rural areas, while entire single-family houses, apartment buildings, and commercial properties were being converted into SRO units for city dwellers, typically offering no meals and fewer amenities. These could be found

in cities large and small throughout the United States.

“The ability to have a lot of tenants paying rent while having relatively low construction costs and operating expenses made SROs financially viable from a landlord’s perspective,” explains Alex Horowitz, project director of housing policy at the Pew Charitable Trusts, a nonprofit that has studied the impact of public policies on the housing shortage and other topics. “From the tenant’s perspective, mostly what they got was a low price for housing and the ability to live in a place that they otherwise might not be able to afford.”

Some SRO units could even be found within hotels. According to a July 2025 article by Horowitz, this became the most common model for first-rung housing. High-end hotels “offered meal service in luxurious dining rooms, as well as regular laundry and maid service,” he wrote. In contrast, the “less expensive hotels featured dark rooms without windows or even just a dry space on an open floor.”

SHIFTING ATTITUDES ...

SRO units continued to proliferate in cities during the Great Depression and World War II. Landlords in New York City were carving up living

spaces into smaller units to rent to the suddenly unemployed, then to workers in wartime factories, then to returning soldiers and migrants from the South.

But a backlash was building against SROs. They became regarded not as a desirable first rung for renters in need of a place to stay but as “housing of last resort” for the needy.

After World War II, public concerns grew about overcrowding and substandard conditions in SROs. “There was a lot more attention being paid to quality of life in urban areas,” says Justus. “People thought that because better living conditions are possible, we should outlaw what they saw as substandard living arrangements.”

That led to many municipalities revising their zoning regulations to limit or ban the construction of new SRO housing. New York City went a step further by offering tax incentives to convert existing units into full-sized, rent-stabilized apartments.

Some cities changed their building codes to raise housing standards, usually by adding fire safety measures. After an SRO hotel in Seattle burned down and killed 20 people in 1970, the city mandated that hotel owners install sprinklers and fire-resistant doors. Other code changes elsewhere required a minimum square footage per unit

and a maximum density of units per property to alleviate overcrowding, as well as in-unit kitchens and bathrooms rather than shared facilities to avoid the potential spread of disease.

These policy changes also reflected the negative perceptions the wider public had of those who lived in what were regarded as run down and unsanitary conditions. “People were seeing externalities that they wanted to get rid of or move somewhere else and saw that restricting this building type was the way that they could achieve that,” says Justus.

In his July 11, 1977, article, *New York Post* reporter Joseph Berger described the majority of hotels with SRO units as “heavily populated with alcoholics, drug addicts, ex-convicts and released mental patients. They are blamed for much of the crime, noise, litter and bizarre or vulgar behavior that troubles their neighborhoods.”

... UNDERMINED THE ECONOMICS

Regardless of the motivation behind these policy changes, the end result was the same: Even the lowest quality housing came at a higher cost to build and operate. For example, “Both liability insurance and fire insurance were going to be more difficult because you had liability now that you didn’t have before,” says Brendan O’Flaherty, an economics professor at Columbia University who examined the history of SROs as part of his 1996 book, *Making Room: The Economics of Homelessness*.

This threw a monkey wrench into the filtering process that usually occurs in housing markets. Normally, housing units are built at a certain level of quality for a certain price. Over time, the units filter down the quality hierarchy as they depreciate and the price of those units is expected to fall as well. Higher-income consumers of housing will demand better quality and move up, leaving their less desirable units behind for those with lower incomes.

But filtering happens only if there are both higher-quality units for

higher-income consumers to move into and lower-quality units left behind that lower-income consumers consider to be a better alternative than homelessness but still within their means. In the case of SRO housing, the cost of supplying units went up, and rents went up.

So, why didn’t property owners upgrade their SRO units? For one thing, “there were limitations on how they could fix it up,” explains O’Flaherty. At the Sunshine Hotel in New York City, which was exempted from the new regulations on SROs the city started imposing in the 1950s, the owner thought about getting new beds.

SRO housing also served a broader economic role: The ability of people to relocate in search of work is predicated, in part, on the ability to find a place to live.

However, only bigger beds were available, which meant the hotel’s rooms would have to be reconfigured. Such a change could have violated the hotel’s exempt status.

Also, it’s challenging to rehabilitate SRO hotels or apartment buildings at the scale that developers are used to because of the subtle variations in building code regulations between and within states. “To learn what you can do in New York is a big job, and it’s different from Chicago, so you can’t set up this kind of cheap housing in New York and Chicago at the same time,” says O’Flaherty.

Horowitz believes subsidies would have been required to upgrade SRO housing, given what tenants were able to pay and what landlords had to do to meet new requirements. But redevelopment programs under the U.S. Department of Housing and Urban Development (HUD) set the bar too high for those who may have wanted to rehabilitate SRO hotels. “Under HUD minimum property standards, these

programs may only be used for ... units with private baths and kitchen units, or which have congregate dining,” noted a 1978 congressional report on SROs. “Practically speaking, to rehabilitate an SRO hotel under the minimum property standards means not only the loss of 50 percent of the units, but a substantial increase in the rental costs.”

A HOLE IN HOUSING MARKETS

Instead of rehabbing their first-rung housing, owners of SRO hotels started converting their properties to serve primarily tourists. In many cases, buildings were either torn down and replaced with higher value uses, or they were closed and left abandoned.

For those in need of first-rung housing, the diminishing supply of SRO units became a lot more expensive. For example, rents for SROs in San Francisco were reported to be rising by 40 percent to 50 percent annually by the late 1970s.

The decline of SROs has been felt in other ways, according to housing policy experts. On the micro level, the remaining rental market has become more expensive. In turn, higher rents have had a strong correlation with higher rates of homelessness in communities. An analysis published in 2020 by the U.S. Government Accountability Office found that median rent increases of \$100 a month were associated with about a 9 percent increase in homelessness.

On a macro level, in Justus’ view, the lack of first-rung housing has contributed to a decline in geographic mobility. “Americans have done a lot less domestic migration over time,” he notes. “Housing is one element of it, where the price of admission to any high-opportunity place is you have to commit to a yearlong lease for a studio apartment at a minimum.”

Several studies have implicated constraints on housing supply and rising prices for impeding the flow of workers to communities where they could be more productive and earn

higher incomes. Indeed, for many workers in the past, SROs were the only way they could pay for housing close to a downtown job and still have money left in their budget to pay for other things.

TAKE TWO ... WITH A TWIST

Is it possible for the private sector to build first-rung housing that is profitable to run, affordable for tenants, and of halfway decent quality?

Pew Charitable Trusts advocates for converting some of the billion square feet of vacant office space into SRO units, which would harken back to the days when vacant warehouses and other commercial buildings were converted into first-rung housing. An office building already has centrally located plumbing where shared bathrooms could be built at a lower cost than reconfiguring the space into apartments.

In general, regulatory barriers are starting to fall. Oregon, Montana, and other states have removed barriers to the development of microunits or co-living arrangements. These housing options share some of the attributes of SRO units — lower cost, smaller living space, shared amenities — but meet a higher standard of quality.

In addition, beginning later this year, Washington state will require cities

to allow SROs wherever multifamily housing of six or more units is permitted. Hawaii already requires communities to allow for the conversion of commercial properties into SROs.

Horowitz also points to states that have prevented localities from imposing restrictions on unrelated people sharing a home, including Iowa, Oregon, Colorado, and New Hampshire. “We are increasingly seeing a recognition from policymakers that bringing back housing options, especially inexpensive ones, is going to be part of the solution to our current housing shortage and record homelessness,” he says.

But piecemeal changes in policy at the state or local level won’t be enough to encourage developers to build SROs on a large scale. In the meantime, the nonprofit sector has stepped forward to develop first-rung housing outside of the SRO model. SupportWorks has built 15 properties in the Richmond, Charlottesville, and Hampton Roads metro areas to address homelessness. The Maryland Center for Veterans Education and Training focuses on housing veterans in Baltimore.

It has taken a mix of public and private funds to develop and maintain such properties, as SupportWorks has done. “This is a complex financial transaction,” says Bogdanović. “It takes years to layer and weave each one of those

sources together.” Its latest project, Cool Lane Commons in Richmond, took six years and \$24 million to convert a vacant assisted living facility into a garden apartment complex with 86 units and shared resources such as a computer lab, fitness room, and community space with a kitchen.

The Virginia Housing Trust Fund has provided some of the capital for SupportWorks’ projects. It also provides rental assistance, which is another key component to making the economics work for SupportWorks.

Nonprofits also turn to federal sources like HUD and the U.S. Department of Veterans Affairs to help tenants cover their rents. “The federal rental assistance allows us to cover our operating costs but only charge the residents 30 percent of their income,” explains Bogdanović. “So, the average rental payment is \$250 a month.” For context, the average rent for a studio apartment in Virginia was about \$1,700 a month as of October 2025.

The final component to SupportWorks’ success has been changing attitudes toward first-rung housing. “By and large, we win people over, but it takes a long time,” says Bogdanović. “Most of the time, if someone will visit one of our communities and meet our staff and meet our residents, most of the concerns they have will be dispelled.” **EF**

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Anton Korinek

On how rapid advances in AI might reshape the nature of work and how economists can help society prepare

Anton Korinek was drawn to science from an early age. As a teenager growing up in Austria, he taught himself programming, studied neural networks, and participated in the International Chemistry Olympiad. He thought his future lay in the natural sciences, but when he reached college, he took a different path: He majored in economics.

“One of the things that made economics sound interesting to me is that it involves more interactions with the real world than scientists generally have,” says Korinek. “It uses scientific tools, like careful mathematical modeling, to address questions of broad societal relevance. Once I discovered that, I fell in love with it.”

There are few questions of greater societal relevance today than what the rapid advances in artificial intelligence (AI) might mean for the future of work, the economy, the government, and human flourishing. While Korinek’s early research focused on financial crises, over the last decade he has turned his attention exclusively to AI, marrying his early love of computer science with economics. Since joining the faculty of the University of Virginia’s Department of Economics and Darden School of Business in 2018, he has testified before the U.S. Senate on preparing the workforce for a future with AI, served as an editor for the *2024 Oxford Handbook of AI Governance*, and been appointed to AI developer Anthropic’s economic advisory council. In August 2025, he launched the Economics of Transformative AI Initiative at UVA and was named one of *TIME* magazine’s 100 most influential people in AI.

Tim Sablik interviewed Korinek in September.



EF: When and how did you first get interested in researching AI?

Korinek: I had been an avid programmer from an early age. When advances in deep learning started to accelerate in the early 2010s, that background led me to appreciate the significance of what was happening. It started becoming clear that advances in AI were proceeding faster than people in the '90s had expected. If you have the perspective that our brains are very complicated neural networks, then it is kind of natural to ask yourself the question: If the artificial neural networks that we have now can already do pretty powerful things, then will they also be able to do all the other things that our brains can do? And if so, then how soon?

I started trying to wrap my head around these questions and think about how AI would affect our world. This became even more personally relevant for me in 2015 after the birth of my first child. At the time, I thought that AI systems would become very powerful within the next couple of decades — potentially within my lifetime and almost certainly within my daughter’s lifetime. As it turns out, AI has gotten very powerful within one decade, much more quickly than almost anybody expected.

EF: You’ve been a big proponent of using AI in economic research, having authored a regularly updated guide for economists interested in incorporating large language model (LLM) AI agents into their workflows. As you mentioned before we started this conversation, you even used Anthropic’s LLM, Claude, to help you prepare for this interview! When did you start incorporating these tools into your workflow?

IMAGE: COURTESY SARAH CRAMER SHIELDS

Korinek: At first, I didn't, because in 2015 the AI systems that were available were still very narrow. They were good for very specific things. If you did empirical analysis that involved images, then AI would have been very helpful for you, but it wasn't useful for my research. It was not until the advent of general purpose LLMs, which became powerful enough to be somewhat useful in 2022, that I personally started to incorporate AI into my research workflows. Once these LLMs emerged, I quickly became aware of how important they would be. I had my first demonstration of a modern chatbot in September 2022, and I was quite blown away. I realized that we were going to have these powerful general-purpose systems much sooner than I had expected. It was truly shocking, and I decided I needed to think about how I wanted to spend the time that I have remaining before machines can do better research than I can.

I decided to focus on two main categories of work. The first category is all the interesting and important economic questions that advances in AI are bringing up. Especially, how can we make sure that these advances lead to a future with broadly shared prosperity? And the second category is, if these systems are already quite powerful, and we can anticipate that they will get more powerful until eventually they eclipse most of our cognitive abilities, then how can I make sure that I'm at the cutting edge of using them? There are synergies between these two categories, but my work following and documenting the capabilities of AI and writing about it for other economic researchers arose from the second category. My hope is, firstly, that these tools can help other economists do their work more effectively and more productively and, secondly, that it makes more people realize how rapidly AI is advancing.

EF: What are some ways that AI has made you more productive?

Korinek: I use it essentially at all stages of the research process. It starts with ideation, the brainstorming part. I use it to help me with background research. I use it a lot as a writing assistant, giving it bullet points to steer it in a direction and letting it write a few paragraphs based on the points that I provide. I use it to derive economic models because, by methodology, I'm an applied theorist. More

"How can we make sure that these advances [in AI] lead to a future with broadly shared prosperity?"

recently, since around fall 2024, the latest generation of reasoning models have become very powerful at doing formal math, and that has saved me a lot of time in performing derivations and proving results in economic models.

I use AI quite a bit for coding as well. I'm not currently working on any computational project, but I'm using it to code AI tools to perform text analysis, for example. In some sense, the line between making the AI do work and coding is blurring because I ask AI systems to perform all kinds of tasks, and in some cases, the AI writes code and then executes it. Since I've been a programmer for more than three decades now, it's nice to let the AI do the lower-level stuff and for me to direct where it is going at a higher level in natural language — what people call "vibe coding."

EF: What kind of response have you gotten from your colleagues when you talk to them about using AI tools?

Korinek: Almost all economists I talk to have come to appreciate that these tools can be very helpful. Economics is a very instrumentalist discipline. When economists realize that something is

economically useful, they won't put up a lot of barriers against it. That said, it's important to acknowledge that we need to be careful with these tools because they do sometimes produce mistakes. They need to be overseen. It's kind of like working with a research assistant. We would not take everything that research assistants produce for us without checking it, and it's the same with our AI systems.

EF: Some professionals have raised concerns that relying on AI tools may diminish our own skills over time. Do you worry that relying on these tools will degrade your ability to do research?

Korinek: If you and I had had this conversation 100 years ago, we would probably not have been economists. Most likely we would have been farmers working hard in a field every day, and we would have strong muscles from the daily effort that we put into that. Now, we are economists, and we don't need those muscles. Many of us now go to the gym to work out so we don't atrophy too much physically, and I think it's going to be the same with intellectual tasks under AI. There are many things that we won't need in the same way. We don't need to do math in our heads as much as we did before we had pocket calculators. As AI improves, that's going to become the case with more and more aspects of cognitive work. And just like we work out in the gym because natural physical effort isn't a part of our jobs anymore, maybe there are things that we want to practice so that our brains don't atrophy in those domains. But, by and large, I think it's natural that if we don't need something anymore, we don't need to train those muscles as much.

EF: A lot of your research has focused on exploring the potential effects of artificial general intelligence, or AGI. How might AGI reshape the economy, particularly the nature of work?

Korinek: Definitions for AGI vary, but OpenAI defines it as “a highly autonomous system that outperforms humans at most economically valuable work.” What’s interesting about that definition is that a lot of work that we humans do is physical. So, OpenAI’s definition encompasses physical work, which means it requires not only very smart AI systems, but also advanced robotics. As the cognitive capabilities of AI are improving, the value of AI being able to act in the physical world is also rising rapidly, and that means the value of robotics is going up very fast. While recent advances in the cognitive abilities of AI models have been on everyone’s mind lately, we have also seen quite impressive advances in robotics over the past year. It turns out that if you give robots advanced brains, then they are suddenly able to operate much better than they could before. So, I think that we collectively are perhaps underestimating the power of robotics a little bit right now. I expect that within the next few years, robotics will continue to advance very quickly. If we do end up with machines that can perform both cognitive and physical work, that is going to have really significant impacts on the labor market.

How are we going to react to that? That partly depends on how we view the value of work. If work is something that primarily provides disutility, then you could say, well, if machines can do everything, then let the machines do it, and we will be happier. On the other hand, maybe we think that the nonmonetary benefits of work are very important. Work provides us with structure, meaning, and social connections, and if we were to lose that, then people could become very unhappy. I think there is some truth to both of these perspectives, and my view is more nuanced than these two extremes. Economists would say there is certainly some disutility to labor, otherwise we wouldn’t have that in all of our economic models. There are certainly

Anton Korinek

■ PRESENT POSITION

Professor, Department of Economics and Darden School of Business, University of Virginia; Faculty Director, Economics of Transformative AI Initiative, University of Virginia

■ SELECTED ADDITIONAL AFFILIATIONS

Visiting Fellow, Brookings Institution; Anthropic Economic Advisory Council; Research Fellow and Leader of Research and Policy Network on AI, Center for Economic and Policy Research; Research Associate, National Bureau of Economic Research

■ EDUCATION

Ph.D. (2007), Columbia University; M.A. (2000), University of Vienna

also some benefits to labor, some “positive amenities.” The interesting and difficult economic questions are, which of these amenities from work are private amenities and would we rationally internalize them?

Let’s take a stark case: Suppose we suddenly have robots that can do everything humans can do for a penny a day. If the only benefit of labor was an amenity called “meaning” and we rationally internalize this amenity and care a lot about it, we would still be willing to work for a penny a day, or essentially to volunteer. In fact, if you look at time-use surveys today, a lot of people, especially retirees, spend a significant amount of time volunteering, and they are very happy about it. So, in a world where the primary amenities from work are private, you might not need any public intervention, because people can decide on their own if they want to voluntarily continue working. On the other hand, if there are externalities associated with the amenities from work, such as social connections that only happen if more than one person shows up at work, or if people are not quite rational about internalizing the private amenities of work, then that would justify public policy intervention to encourage people to work.

EF: What should policymakers be doing right now to prepare for these potential scenarios?

Korinek: I think it’s really important to acknowledge how much uncertainty we are facing about these technological advances. On the one hand, we should take seriously the predictions coming out of the leading AI labs. We should not discount it if the CEO of one of the leading labs is worried about 20 percent unemployment within the next one to five years. At the same time, of course, we don’t know if this is going to materialize. In the face of this significant uncertainty, what I propose is scenario planning. I think we should have a plan in case the more radical AI scenarios materialize, and scenario planning allows us to prepare such a plan. Once we go down the road a little bit further and we find out how advancements in AI have actually proceeded, then we can activate the right plan.

EF: How can economists help with that planning?

Korinek: If something along the lines of transformative AI materializes, then every sector of society is going to be changed. I should note that transformative AI doesn’t necessarily mean AGI. AGI would be an example of transformative AI, but it is also possible that we could have lots of powerful AI systems that are not AGI but are still collectively transformative. In either case, if we get AI systems that transform society at the same scale as the Industrial Revolution, the economy is going to be a big part of that transformation. Economists are well positioned to provide insights into how our economy might be reshaped.

One thing to consider is that we may have to redesign our systems of taxation. Right now, roughly two-thirds of all income derives from labor, and probably more than two-thirds of all tax revenue comes from taxing that labor income. If the value of labor

suddenly falls dramatically because of transformative AI, then we're going to have to tax differently. I prepared a paper for an NBER meeting on public finance in the age of AI in September where my co-author and I argue that if labor becomes a less important part of the economy, we may want to switch to more consumption taxation. And then if human consumption becomes a less important part of the economy, we may ultimately have to switch to taxing the capital behind the AI systems themselves.

EF: You mentioned earlier how becoming a parent was part of what sparked your interest in these questions. Given the possibility that AGI could arrive very soon — within the next five years, according to some experts in the field — what changes should society be making to education right now to ensure that younger generations are developing the right human capital for a potentially radically different future?

Korinek: My wife and I don't expect that our children are going to experience the same kind of labor market, or the same kind of world, that we grew up in. A world where you graduate from college around 22 and then enter the labor market. We are highly doubtful that avenue will be available to our children, and we want them to grow up as happy humans and good citizens first, rather than good workers. One of the main roles of our current education system is to train people to be good workers. How should this system adjust to the ongoing advances in AI? Again, there's a lot of uncertainty, so we probably want to be ready for multiple scenarios.

I would certainly say that we want everyone to be fluent in AI, no matter which level of education we're speaking about. I'm currently teaching this to Ph.D. students, but it's also true for undergraduates, high school students, and younger students. We want everybody to know how to use AI because it

is such a force multiplier. If you know how to employ AI systems well, you can get a lot more done. You can be a lot more productive. As economists, we generally think that more productivity is good, especially if we use these tools responsibly. I have two kids, they're 8 and 10. Together with another dad, I'm going to teach an AI course at our kids' primary school starting in mid-October

"If we manage the economic transition well with appropriate policies and institutions, we could create unprecedented levels of shared prosperity. If we don't, the disruption could be devastating for most of humanity."

because we want them to be exposed to this technology. We want them to understand how it works and how to use it responsibly.

If AI advances very rapidly, it may turn out that we are spending a lot of time right now educating the next generation of proverbial spinners and weavers at the beginning of the Industrial Revolution. If we do get something like AGI within a couple of years, a lot of the human capital that you and I have accumulated over a long time, and the human capital that we are teaching young people right now, may no longer be very valuable. It may become a legacy asset. It wouldn't be the first time in history that something like that happened. If you were working in the Rust Belt, you experienced that a few decades ago. I think the important thing we as a society may want to do is to ensure that we take care of the losers in this transition. The good thing about technological progress is that, at least in principle, it grows the size of the economic pie, so there should be more for everybody, and there should be enough to take care of anybody who loses out.

EF: Do you think that transformative AI is inevitable?

Korinek: Nothing is inevitable, but right now, it seems like all forces point toward it. As a nation, we are spending resources equivalent to the Apollo project or more on AI. Neural networks can do amazing things, and I think if we continue to pursue this, it's just a question of time. It may take a little longer than the frontier AI labs expect, but my personal best guess is they're not too wrong about the timelines they're publicly announcing.

EF: Are you concerned about catastrophic AI outcomes?

Korinek: It's something that I would not rule out, and as a society, I think we absolutely want to spend resources on forestalling that. Last week, when I was at the NBER conference on the economics of transformative AI, Chad Jones of Stanford University presented a paper in which he provided a back-of-the-envelope calculation of how much we should be spending on making sure that we mitigate AI existential risks. His numbers were in excess of 1 percent of GDP annually. When you see those kinds of calculations, it certainly makes you believe that it would be highly appropriate for us to spend more resources on this. We need technical safety research and robust governance frameworks. We need to ensure that AI systems are aligned with human values and societal goals, not just individual or corporate objectives. This requires both technical solutions and governance structures that can handle unprecedented power concentration.

EF: Do you consider yourself an AI optimist or pessimist?

Korinek: I'm by nature an optimist, and I feel like people tend to channel their natural predisposition into their analysis of the opportunities and risks of AI. As an economist, I want to focus on those scenarios where I can have a

positive impact. There are some really adverse existential risk scenarios that I will probably not have much impact on, but I hope somebody's thinking about them. Meanwhile, I'm thinking about the scenarios where my economic analysis will hopefully be useful. If we manage the economic transition well with appropriate policies and institutions, we could create unprecedented levels of shared prosperity. If we don't, the disruption could be devastating for most of humanity. The key is taking these possibilities seriously and preparing now. So, I guess I'm neither purely optimistic nor pessimistic — but I believe in preparation.

EF: Where do you see opportunities for economists to do more research in this space? What questions are still underexplored?

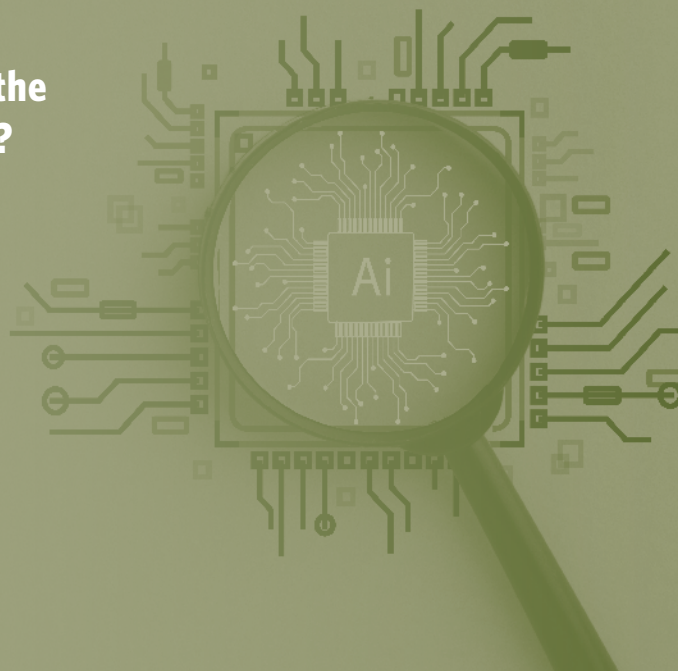
Korinek: I think the economics of transformative AI is still vastly underexplored because, up until very recently, almost nobody took this possibility seriously. Now, thanks in part to institutions like the NBER being willing to normalize the discourse around these questions, it is a topic that a growing number of economists are taking seriously. My advice to all economists, no matter their research focus, is to take their expertise and look at what transformative AI or AGI would do to the topic they're studying. So, if I were a labor economist, I would focus on what transformative AI will do to labor. If I were an industrial organization expert, I would study what it might do to market structure, and so on.

On the topic of labor, economists

have spent the last 200 years arguing against the lump of labor fallacy — the idea that there is a limited amount of work in the economy and technological advances can reduce the number of jobs available. We've spent so much time fighting a false narrative that it's difficult to pivot when the facts change and technological unemployment becomes a real concern — for reasons that are, obviously, distinct from the lump of labor fallacy. We need to use our tools to model AGI scenarios seriously, inform policy debates with rigorous analysis, and help design new economic institutions for an AI-dominated economy. If the aggressive AI timeline predictions are true, then we may only have a couple of years left to find answers to these difficult questions. **EF**

Interested in more research about the economics of artificial intelligence?

Scan here to explore the Richmond Fed's work on the topic.



BY MOXIE CLIFFORD

Why Banks Fail

Why do banks fail? One popular view emphasizes the role of bank runs, when a bank's customers collectively withdraw their money on the belief that the bank will soon fail. Bank runs, according to this view, can cause otherwise healthy banks to fail — the panic itself creates a self-fulfilling prophecy. This is often cited as an important cause of bank failures during the Great Depression, the 2008 financial crisis, and the 2023 U.S. banking crisis. A recent paper, however, casts serious doubt on this narrative.

Sergio Correia of the Richmond Fed, along with Stephan Luck of the New York Fed and Emil Verner of the MIT Sloan School of Management, built a dataset with balance sheet information for most commercial banks in the United States operating between 1863 and 2024. Of the roughly 37,000 banks in the dataset, over 5,000 failed at some point in the sample. This allowed the researchers to study bank failures throughout a long history of the U.S. banking system, including before the founding of the Federal Reserve System and the Federal Deposit Insurance Corporation (FDIC). Since the Fed and the FDIC were largely designed to prevent bank runs, this large dataset allowed the researchers to study bank failures in an environment where runs were more common.

Correia, Luck, and Verner found that failing banks were characterized by weak and deteriorating fundamentals, meaning they tended to be financially unhealthy prior to failure. These banks see a rise in nonperforming loans in the years leading up to failure, forcing them to allocate more money to cover the losses from uncollected loan payments. The banks were more likely to rely on noncore funding sources like time deposits and brokered deposits, which tend to be more expensive and riskier than other sources. These factors reduce bank profitability, making

it more difficult to meet financial obligations.

A result of these findings is that bank failures are highly predictable by weak bank fundamentals. For example, a bank in the 95th percentile of insolvency risk and noncore funding reliance has a 25 percent chance of failure within the next three years — 10 to 25 times higher than the probability of failure for the average bank. Bank failures were highly predictable both in the modern sample and in the pre-FDIC era. This shows that bank failures are almost always and everywhere a result of weak fundamentals, rather than a consequence of sudden panics.

When bank runs do occur, do they cause the failure of otherwise healthy banks? To find out, the authors restricted the sample to banks with large deposit outflows prior to failure, which is indicative of a bank run. They found that even where runs occur, failures are no less predictable by a bank's fundamentals. In other words, when bank runs occur, they are unlikely to be the root cause of the failure. Rather, bank runs tend to occur at banks that are already financially unhealthy.

When a bank fails, a receiver tries to recover as much value as possible from the bank's assets. The authors argued that, if the bank were solvent up to failure, the value of the recovered assets would not fall significantly short of the bank's debts. However, failed banks had notably low asset recovery rates before the introduction of deposit insurance. The authors estimated that fewer than 8 percent of failed banks in the pre-FDIC era could have plausibly been solvent and forced down by a run.

Finally, the authors examined various reports on bank failures between



Depositors gather in front of the closed American Union Bank in New York City in April 1932.

1863 and 1937 from the Office of the Comptroller of the Currency (OCC). Despite the prevalence of bank runs during this period, the OCC attributed less than 2 percent of bank failures to runs. Economic conditions, losses, and fraud were found to be the most common causes of bank failures. This is further evidence that deteriorating asset quality and poor fundamentals were much more significant than bank runs alone.

Using a comprehensive dataset of U.S. bank failures, Correia, Luck, and Verner determined that bank failures are predominantly a result of poor bank fundamentals, contrary to the narrative that bank runs lead to the failures of otherwise healthy banks. When bank runs occur, it is generally at banks that are already unhealthy. Bank runs can be an immediate trigger of a bank's failure, but they are seldom the root cause. Because failures are highly predictable by a bank's fundamentals, these findings support proactive policies to prevent or mitigate bank failures, such as limiting dividend payments and the use of noncore funding for banks with weak finances. While bank runs can be extremely disruptive, policies designed to prevent bank failures must address fundamental solvency issues. **EF**

BY BETHANY GREENE

Time for a Career Change? Inter-Industry Job Mobility in the Fifth District

According to the Bureau of Labor Statistics (BLS), the average worker will have 12 jobs over the course of their lifetime. Whether workers transition to another job for career advancement, better skills alignment, or geographic location, job mobility is typically viewed as a key driver of labor productivity. There are two ways that workers can switch jobs: by moving to a new job within their current industry or by switching industries. Making a job transition to a different industry can be disruptive to an individual's career trajectory due to large gaps in skills and knowledge across sectors. However, this is not always the case. Some occupations are very mobile across industries. For example, workers in administrative occupations, such as executive assistants, are more likely to be able to transfer their skills across industries without much disruption to their careers because their job duties are often not industry specific.

The frequency of inter-industry job moves can provide important insight into shifting labor market dynamics. A 2014 article by Carlos Carrillo-Tudela of the University of Essex, Bart Hobijn of the Chicago Fed, and Ludo Visschers of the University of Edinburgh showed that during economic downturns, the rate at which workers switch industries declines. The reduced reallocation of workers across industries during recessions can be partially attributed to increased selectivity on the part of employers and partially to reduced willingness to change careers on the part of workers. Reduced hiring and an increased supply of unemployed individuals means that employers can be more selective, making it less likely that they will hire workers from a different industry whose skills and experiences may not perfectly align with the open

position. Conversely, during economic expansions, job opportunities are more plentiful, and increased competition among employers can advantage job seekers looking for a new opportunity.

Recent changes in labor market dynamics have brought the topic of inter-industry job mobility to the forefront. Between 2021 and 2022, amid pandemic-related burnout and the emergence of more remote work opportunities, many workers reevaluated their career paths and made moves to other industries that in many cases paid off — the wage premium for individuals who switched to a different industry grew notably during this period. This period of reshuffling across industries raises several questions. Which industries experienced the most switching, and where did their workers go? Which demographic groups were more likely to switch industries? Has this change in inter-industry switching had a lasting impact on the labor market? Data from the U.S. Census Bureau's Job-to-Job Explorer provide insights around these questions.

A BRIEF OVERVIEW OF THE DATA

The job-to-job flows data from the Census Bureau provide information on the job mobility patterns of U.S. workers. Using administrative data on the job histories of workers from the Longitudinal Employer-Household

Dynamics program, the data track workers if they leave an employer and are hired by a new employer within a single quarter. Since it only tracks a worker's job move within that time-frame, one limitation of the data is that it does not include workers who go through an extended period of unemployment before being hired for a new job. The data also provide characteristics of these workers, including age, gender, and education, as well as characteristics of the firms, including age, size, and industry.

Using these data, it is possible to identify the number of workers who move between an origin and destination industry during a given quarter. The data can be thought of as a matrix where the rows of the matrix capture the number of workers who moved out of an industry and the columns represent the number of people who moved into an industry. Summing across rows gives the total number of workers who moved from a specific industry, while summing the columns gives the total workers who moved into an industry. (See table.) The data are lagged — the most recent quarter of data available is the third quarter of 2024.

WHICH INDUSTRIES EXHIBIT MORE INTER-INDUSTRY SWITCHING?

Certain industries are more likely to have workers who switch to a different

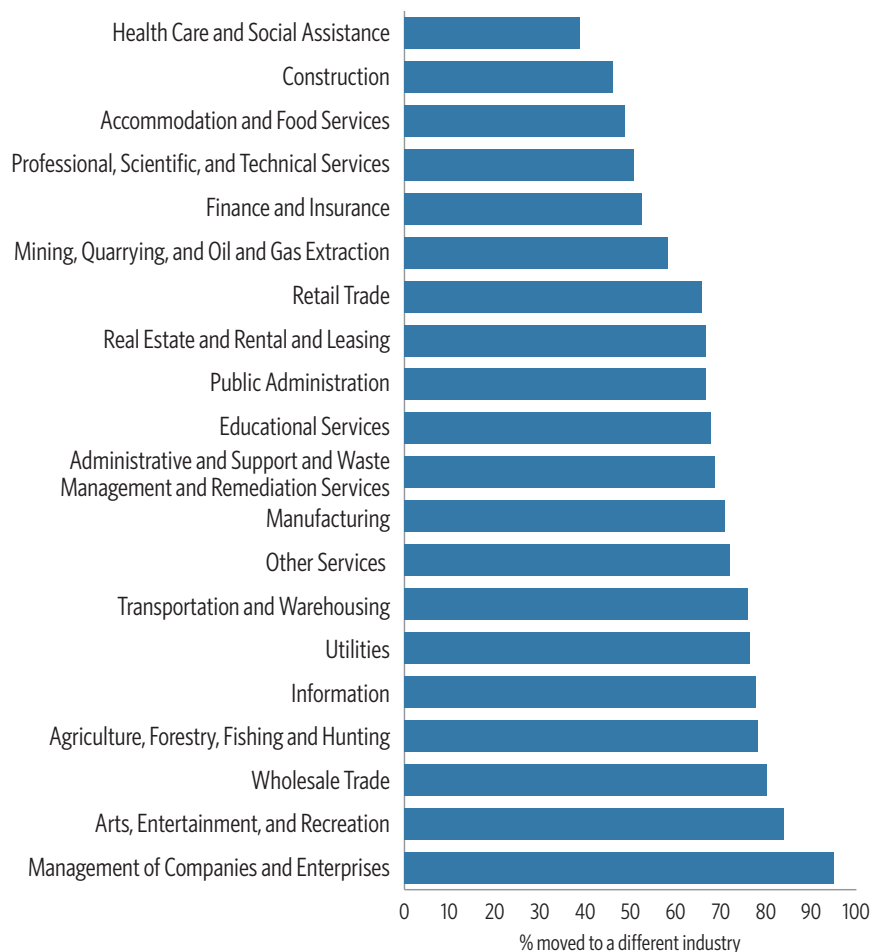
Sample Job-to-Job Flow Matrix

		DESTINATION		
		Industry 1	Industry 2	Industry 3
ORIGIN	Industry 1	100	75	45
	Industry 2	50	80	65
	Industry 3	25	20	32

industry. It is possible to compare switching across industries by dividing the total number of workers who moved to a job outside of their origin industry by the total number of job moves. In the first quarter of 2019, inter-industry moves were most common in management of companies and enterprises (95 percent); art, entertainment, and recreation (84 percent); and wholesale trade (80 percent). Individuals were least likely to move when they were in health care (39 percent); construction (46 percent); accommodation and food services (49 percent); and professional, scientific, and technical services (51 percent). (See chart.) There are several possible reasons for this variation. Some industries require more specialized knowledge, credentialing, and training, which can make a career change out of that industry particularly costly. Health care is a prime example. Doctors, nurses, surgical techs, and other health care professions require credentials and training that is typically not transferable to other industries. These highly specialized workers may be less willing to switch to an industry where their knowledge and training may be underutilized or irrelevant.

Conversely, some industries are closely linked and have occupations that overlap or skills that are easily transferable. For example, in the first quarter of 2019, most inter-industry moves from wholesale trade were made to administrative and support and waste management services. Both industries employ a significant share of freight, stock, and material movers. Another example is arts and entertainment and food and accommodation. Both fall under the hospitality umbrella and have overlapping job competencies. In fact, most arts and entertainment workers who left their job in the first quarter of 2019 transitioned to a job in the food and accommodation industry. Industries like arts and entertainment and retail can also be described as “transient,” meaning a higher share of their workforce views them as a

Share of Inter-Industry Job Movers by Industry, Q1 2019



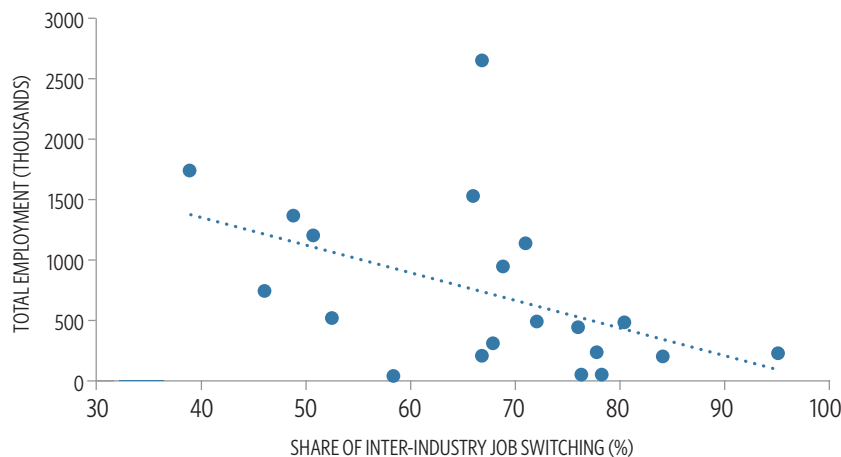
SOURCE: U.S. Census Bureau, J2J Explorer

temporary stop instead of a long-term career choice. These industries tend to attract younger workers and have lower wages, leading to higher turnover as workers seek career advancement in other, higher-paying fields. In industries like finance and insurance and professional business services, where average wages tend to be higher, the opposite may be true — workers are more likely to view jobs within these industries as permanent career choices. Also, jobs in industries like public administration are often viewed as providing a higher level of job security that may encourage workers to stay put in order to remain insulated from business cycle fluctuations.

Lastly, some of the variation in inter-industry job switching could be due to differences in the size and level

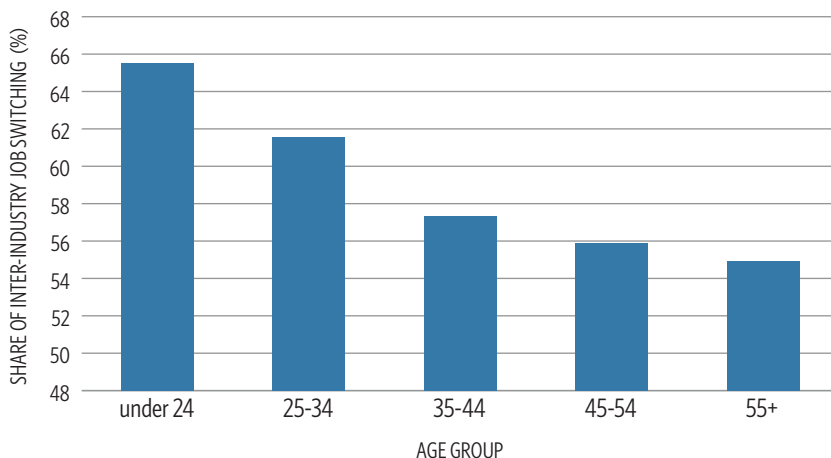
of job growth across industries. Some industries simply have fewer jobs that a worker can choose from when they are looking for a new job, and, as a result, the worker is more likely to find a job in a different industry. Indeed, smaller industries tend to have higher shares of inter-industry switching. (See chart on next page.) Management of companies and enterprises; art, entertainment, and recreation; and information are relatively small industries, each making up less than 2 percent of total Fifth District employment. Larger industries, such as health care and social assistance and professional, scientific, and technical services, make up 12 percent and 8 percent of total Fifth District employment, respectively. A higher share of inter-industry switching is likely to occur in industries that have

Industry Size and Shares of Inter-Industry Job Switching



SOURCE: U.S. Census Bureau, J2J Explorer; Bureau of Labor Statistics; Haver Analytics

Inter-Industry Job Switching Declines With Age



SOURCE: U.S. Census Bureau, J2J Explorer

fewer opportunities, as the probability of finding a job outside of the origin industry is higher.

DOES JOB SWITCHING DIFFER BY DEMOGRAPHIC GROUP?

Making a major career change can be costly, and this cost varies by age. The repercussions of job switching, such as the potential loss of professional relationships and institutional knowledge, can be penalizing, particularly for workers with longer tenures. According to the BLS, job transitions are more common for younger workers,

particularly those under the age of 22, who use these frequent job moves to gain skills and experience early in their careers. Frequent job transitions also provide a way for less established workers to discover which careers align best with their interests, lifestyle, and qualifications. Transitions tend to decline with age as workers become more established in their careers and seek stability.

The job-to-job flows data reflect this pattern of higher rates of job mobility for younger workers. Not only do young workers move to different jobs more often, but a larger share of their job moves are also to a different industry,

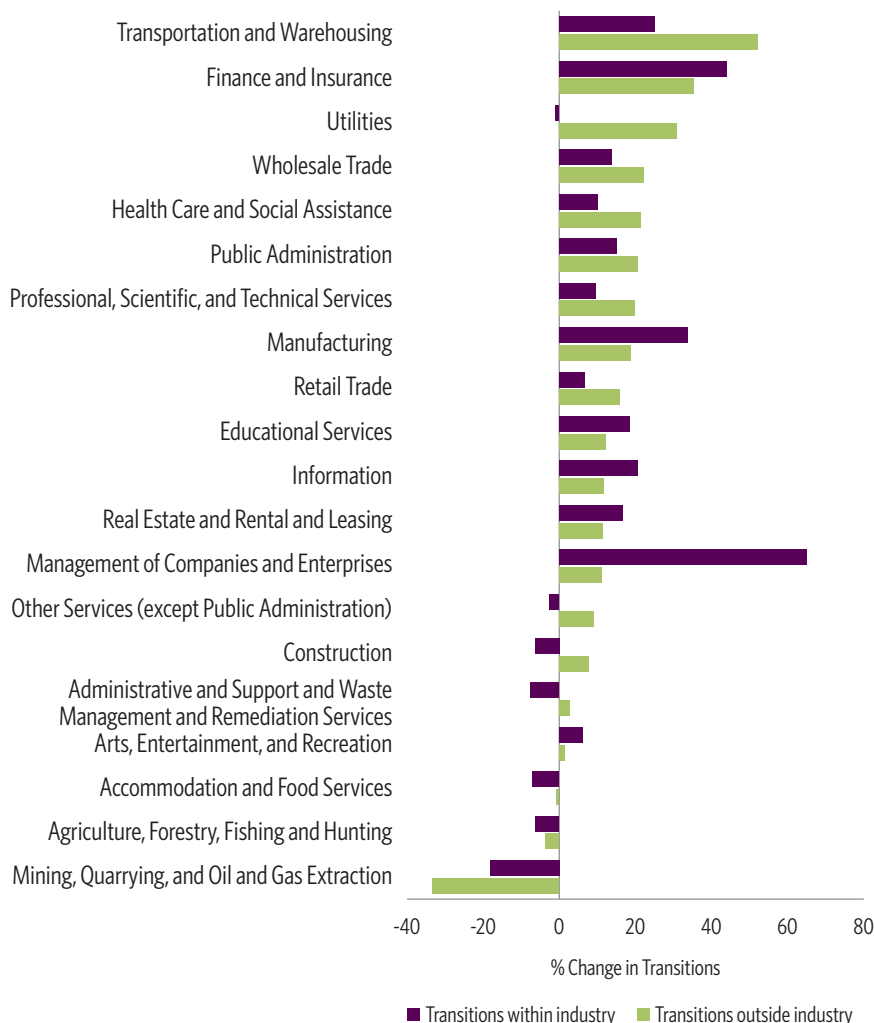
which may indicate a higher likelihood of major career changes. Workers under the age of 24 have the highest share of inter-industry job moves (65 percent), and this share declines with age, steeply at first and then more gradually. (See chart.)

While age clearly plays a role in a worker's willingness and ability to transition to a different industry, there is only a slight difference in the share of inter-industry job moves by gender. For female workers, the share is approximately 59 percent, and it is 2 percentage points higher for male workers. However, there are larger differences when looking at this share within industries. These differences typically emerge in industries that traditionally skew toward one gender. For example, a much higher share of female workers transition to a different industry if they were previously employed in industries with a low share of female workers, such as agriculture (29 percent female), mining (14 percent female), construction (11 percent female), transportation (24 percent female), and information (40 percent female). In construction, 64 percent of female workers' job transitions were to a different industry compared to 43 percent for men. For male workers, there is a much higher share of moves to a different industry from health care and social assistance — 55 percent for men versus 36 percent for women. (Women make up 78 percent of the health care and social assistance workforce.) In industries dominated by one gender, the smaller pool of job opportunities for the opposite gender may lead to more inter-industry switching.

HOW HAVE INTER-INDUSTRY JOB TRANSITIONS CHANGED RECENTLY?

In April 2020, the U.S. economy lost a net 20 million jobs. When the labor market rebounded post-COVID, a net 2.6 million workers were added back into employment within a month. As the economy reopened, job growth accelerated. In 2022, the ratio of job

Changes in Job Transitions During Peak Labor Market Tightness (2019 – 2022)



openings to unemployed reached peak levels, and labor shortages placed upward pressure on wages, particularly for lower-wage jobs where vacancies were most acute. Within a matter of months, the job market went from a COVID low to an employee's market.

The job flows data tell the same story. Even though the labor market in 2019 was very tight, between 2019 and 2022, the total number of job-to-job transitions increased by 9.5 percent in the Fifth District. Job transitions reached their peak in the third quarter of 2022, increasing by 14 percent relative to the third quarter of 2019. The industries that experienced the highest percentage of growth in transitions in 2022 were transportation and warehousing,

finance and insurance, utilities, manufacturing, and wholesale trade. Accommodation and food services saw a decline in total job-to-job transitions over that timeframe. Since leisure employment declined dramatically and its recovery lagged behind other industries, it generally had fewer job transitioners during that time.

Which industries did workers move to the most? Transportation and warehousing, finance and insurance, wholesale trade, and information also experienced the highest growth from job transitioners. This provides some context for recent employment trends. Over the last few years, significant employment gains occurred in the transportation and warehousing

industry. These job gains were mostly from couriers and warehouse workers, which was driven by the growth in online sales during this period. According to the job flows data, the increase in transitions to transportation and warehousing was driven by workers who left manufacturing, retail, and food and accommodation. Two of these sectors — retail and food and accommodation — were most impacted by layoffs during the pandemic. Payroll employment data show that food and accommodation employment was particularly delayed in returning to pre-COVID levels of employment. Though retail employment has now returned to pre-COVID levels, it has experienced sluggish employment growth since, a contrast from the strong employment growth seen in other industries in the Fifth District, such as health care and construction. Given the job flows data, this slow recovery and growth may be partially attributed to a significant flow of these workers into transportation and warehousing, an industry that was rapidly expanding at the time.

The data also show that workers were more willing to make a significant career change by switching to a different industry during this period. Between 2019 and 2022, the number of people who transitioned to a different industry grew by 12.5 percent, while the number of people who transitioned to a different job within their industry grew by only 4.8 percent. Therefore, most of the growth in job-to-job transitions during that period was driven by people who made an industry change. As a result, the share of inter-industry job transitions grew from 61 to 63 percent during that period. This was the case for most industries, with industries such as health care, public administration, and transportation showing a particularly large increase in industry switchers relative to those who remained in their original industry. This aligns with numerous stories of health care workers who, after experiencing difficult work environments during the pandemic, decided to make a major career change.

Additionally, public administration is an industry in which workers expressed dissatisfaction with their work environments and pay. According to a 2022 survey conducted by the MissionSquare Research Institute, an organization that produces research on labor market issues pertaining to state and local governments, 62 percent of respondents in the public sector reported an increase in the number of workers who left their jobs voluntarily. Many may have left in search of higher wages. According to a 2024 report from the Economic Policy Institute, a think tank that focuses on labor issues, state and local government employees earned 17.6 percent less than their private sector counterparts between 2020 and 2024.

For other industries (manufacturing, educational services, finance and insurance, real estate, and information) there was a decline in the share of

inter-industry transitions between 2019 and 2022. (See chart on previous page.) This means there was more growth in the number of job-to-job transitions within the same industry. These trends may highlight workers' greater satisfaction with these specific industries more generally. By the first quarter of 2024, most industries saw a decline in job transitions to other industries compared to the first quarter of 2022. This slowdown in inter-industry job mobility in 2024 reflects the labor market coming into better balance after historically tight conditions.

CONCLUSION

Recently, labor markets have cooled, with slower job gains, fewer employers hiring, and fewer employees quitting. When 2025 job flows data become available, it will likely show slowing

job mobility across industries, as fewer opportunities are available and fewer workers are comfortable leaving their job. Perhaps a softer labor market will further "job hugging," or workers holding tightly to their current job in the midst of uncertainty. As of July 2025, the gap in wage growth between job stayers and job switchers has narrowed, lessening the incentive to change jobs even further. Even in a slower aggregate labor market, conditions can vary by industry: health care, for example, continues to add jobs at a solid pace. Some of this is the catch up from the outflow of workers in 2020 and 2021, a phenomenon also occurring in industries like government and leisure and hospitality. Data on job-to-job transitions can shed light on the underlying labor market dynamics even beyond what other, more aggregated, data can provide. **EF**

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BY ANNA KOVNER

Data Measurement and Monetary Policy

The impact of monetary policy on the economy unfolds over time, with what Milton Friedman described as a “lag that is both long and variable.” To make ideal policy, central bankers would have to know the nature of shocks to supply and demand, the fundamental structure of the U.S. economy (for example, the level of maximum employment or how monetary policy changes are transmitted to firms and households), the evolution of non-monetary structural changes and economic policy, and the rate at which monetary policy would be neither expansionary nor contractionary (the neutral rate).

Instead, economic data contain imperfect or noisy information about these central elements relevant to policymakers. For example, the Fed’s monetary policy framework has long acknowledged the challenges of estimating the level of maximum employment. While inflation has an exact definition and a measured target, the concept of price stability is also prone to measurement challenges, as the quality of products and services changes over time. Economists attempt “hedonic” adjustments to control for these changes as the basket of goods consumed by households evolves, but this process is far from straightforward. (The 2025 film *Superman* may not be a hedonic improvement over the 1978 version, although our ability to watch both movies wherever and whenever surely is.)

Policymakers are also being confronted by lower response rates to economic surveys, which makes it harder to collect timely and accurate data. Response rates have declined for almost all surveys collected by the federal government to inform economic statistics. This includes nonfarm payrolls, unemployment, the consumer price index (CPI), the employment cost index, and job openings. Goldman Sachs researchers recently estimated that declines in response rates by between 10 percentage points and 30 percentage points have resulted in 26 percent higher standard errors relative to 2015-2019 collections alone. Since 2019, the number of price changes the Bureau of Labor Statistics imputes rather than manually collects when calculating its estimate of CPI has also risen, which may increase measurement error depending on the magnitude of consumption in the missing geographies and product categories.

For monetary policymakers, the impact of a decrease in measurement precision depends on the type of error. Is it the case that the variability has increased but on average

the change is neutral? Sometimes called classical measurement error, in this case, the optimal response to any new data generally remains the same, as policymakers can see through the measurement error over time and the data still represent the best approximation of the economic variable of interest. However, in models with gradualism, where frequent changes to the policy interest rate have additional costs, this may lead to slower adjustment in rates, particularly in the face of extreme data realizations when policymakers don’t know whether the change in data arose from

measurement error and whether that error was positive or negative.

On the other hand, if we know that an economic variable is biased, or systematically mismeasured, then the optimal response is to respond more (or less) than suggested by data realizations. For example, if policymakers know that unemployment is measured too high by 20 basis points, they can simply subtract 20 basis points from the observed data. However, when the nature and extent of the bias is

unknown — or worse, if the bias is related to cyclical factors — it can be harder to adjust for. In this case, where the bias is unknown, the optimal policy response may look similar to the case with no bias, but outcomes may be worse.

One clear implication of increased noise is the increased importance of collecting additional informative signals. At the extreme, if we had a perfect measure of any economic variable, there would be no point in gathering other signals. Without such perfect measures, it has become increasingly valuable to take advantage of additional information about economic outcomes such as we can find from new surveys and qualitative outreach.

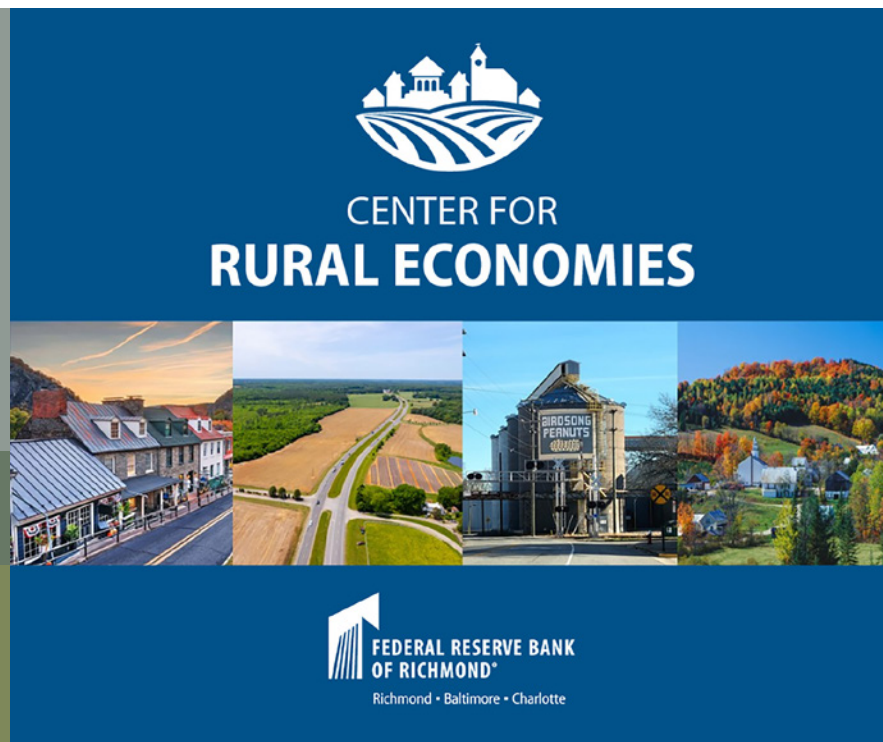
To be sure, the challenges of making optimal policy under uncertainty extend beyond the questions related to measurement error in data collection. Regime shifts and possible structural breaks as technology evolves make it exceedingly difficult to find and establish the existence of stable econometric parameters. This is an old problem, and old solutions continue to be relevant today: gather more data. Indeed, the Bureau of Labor Statistics began collecting data on retail wages and prices in the early 1890s to better understand the effects of new tariffs. Collecting more data will help us in the present as well. **EF**

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The Center for Rural Economies aims to:

Generate research on critical rural economic issues

Share knowledge and resources

Build partnerships to help rural communities thrive

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