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Tariff Uncertainty in South Carolina



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Payments Fraud**

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Uses Anecdotes**

**Interview with
Carmen Reinhart**

ECON FOCUS

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DIRECTOR OF RESEARCH
Anna Kovner

DIRECTOR OF PUBLICATIONS
Lisa Davis

EDITOR
Tim Sablik

STAFF WRITER
Matthew Wells

EDITORIAL ASSOCIATE
Katrina Mullen

CONTRIBUTORS
Charles Gerena
Suzanne Holland
Fatimah Khan
Joseph Mengedoth
Vinh Phan

DESIGN
Janin/Cliff Design, Inc.

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of Richmond
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FEATURES

4 SOUTH CAROLINA'S GLOBALIZED ECONOMY

Driven by the auto industry, the Palmetto State is a global economic player. How will tariff uncertainty impact its businesses?

18 FIGHTING PAYMENTS FRAUD

From stolen checks to "deepfake" scams, fraudsters are costing businesses, banks, and individuals billions every year.

DEPARTMENTS

1 PRESIDENT'S MESSAGE

How Do Small Towns Grow?

3 UPFRONT

New from the Richmond Fed's Regional Matters Blog

8 ECONOMIC HISTORY

The Birth of Modern Finance

12 POLICY UPDATE

Does Phasing Out the Penny Make Cents?

13 RESEARCH SPOTLIGHT

Tracking Inflation with Relative Price Changes

14 FEDERAL RESERVE

How Anecdotes Inform the Fed

22 INTERVIEW

Carmen Reinhart on Crises, Debt, and the Dollar

27 AT THE RICHMOND FED

Going Beyond the Data

28 DISTRICT DIGEST

What's Driving Rural Population Growth?

32 OPINION

Researching Rural Economies

Cover: Cargo ships at the Wando Welch Terminal outside of Charleston, S.C.
Photo courtesy Walter Lagarenne; South Carolina Ports Authority



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How Do Small Towns Grow?

Following the Great Recession, the dominant narrative around rural communities has been one of population loss: opportunities are few, so kids leave small hometowns behind. No one moves in to replace them. And a sad but real demographic reality is that an older population means larger natural population losses, as well.

Historically, this has been a hard trend to change. But in the last few years, we've come across a number of small towns that appear to be turning things around — that have gone from losing residents to growing. The data bear this out. Between 2010 and 2020, nearly three-fourths of rural Fifth District counties saw population losses, aligning with the “rural is shrinking” narrative. Between 2020 and 2023, 59 of those 217 counties, or 27 percent, saw their population start to grow. That compares to only 3 percent that turned from declining to growing in the prior decade.

Before I dive into the stories behind this growth, let me make two points. First, I believe that growth is good. Population growth is a key component of economic growth, and economic growth means more spending, more jobs, higher tax revenue to fund investments and improved standards of living. A healthier, more vibrant economy in turn improves morale, gives kids and entrepreneurs more reason to stay, external talent and businesses more reason to move in, and developers more reason to build and invest. Second, not every shrinking rural community is going to be able to grow. Just because growth is possible doesn't mean it's probable. But I do believe there's value in understanding what makes growth more likely.

So, looking at the 59 were-shrinking, now-growing counties, what can we learn? Perhaps unsurprisingly, much of the growth is in exurbs.



Nearly two-thirds of the were-shrinking, now-growing counties are within extended commuting distance of a large metro area, likely gaining momentum from their urban neighbors. (See “What’s Driving Rural Population Growth?” p. 28.) The pandemic benefited these communities. The rising cost of living in cities pushed urban dwellers to look for more affordable options at the same time that desire for outdoor space, and more space period, made smaller towns more attractive to younger workers and new retirees alike. As hybrid work policies expanded the reasonable commuting radius from employment centers, exurbs grew — at least some of them.

What drove that growth: availability of housing at affordable prices. I like to call myself a “windshield warrior” given how much I drive around the Fifth District. And when I am in the outskirts of Greenville, S.C., or Charlotte, or Raleigh, or Richmond, or even in the eastern panhandle of West Virginia outside of D.C., I see huge plots of land being developed at scale by the major home builders.

You see that on the I-95 corridor

east of Raleigh. Farmland is being converted to subdivisions priced in the \$250,000-\$350,000 range, which is well below the Raleigh average of about \$450,000. I found Rocky Mount Mills compelling. A once abandoned mill on the Tar River used to serve as a reminder of the area's hollowed-out textile industry. Now, it houses a number of full-time residents as well as restaurants, a brewery incubator, and outdoor recreation activities.

But we don't see developments like this in every exurb. Why not? Political buy-in for housing (and growth, generally) is crucial. After all, policy at the local level — permitting, zoning, incentives — can help draw in or keep away developers. But community push-back is common. Population growth brings growing pains, whether they be traffic, increased housing costs or, more simply, change. Those pains can often be more visible — or visceral — than the benefits. In other words, NIMBYism is real. Where it is strong, development efforts face added time, cost and uncertainty. We've heard it's held back a number of exurbs that were otherwise well positioned for growth.

Beyond exurbs, where else do we find growth? Places with natural or well-crafted amenities. For some communities, a more isolated location goes hand in hand with being in the heart of enviable natural amenities. Several of the now-growing towns are tucked into the Blue Ridge Mountains, on the Outer Banks, or a bit further up the coast in the Northern Neck of Virginia or on Maryland's Eastern Shore. These towns have attracted their fair share of retirees in recent years, but a surprising number of them have grown their prime working-age population as well. Broadband improvements have helped.

Natural beauty is not the only type of “sellable” amenity, however. If you

ask my kids about the appeal of small towns, where do their minds go? The quaint town square gazebo or autumn town festival in *Gilmore Girls'* Stars Hollow. The riverwalk or burning boat festival in *One Tree Hill's* Tree Hill. The pull of a small town, especially following the pandemic period of isolation and instability, may well lie in the relationships it offers. It's the friendly, manageable downtowns. It's the local traditions. And it's the sense of community.

How do these amenity-rich communities grow their working-age population? Again, housing matters. Along with their revitalized downtown, leaders in the town of Warsaw, in Virginia's Northern Neck, credit their recent growth in excess of neighboring towns to a strong residential development push focused on worker housing. They recognized that larger, expensive homes weren't viable options for younger workers, even if available. So, they've focused on more accessible housing, seen success, and are now building more. They've recently approved 321 units in the \$300k-\$400k range, a 45 percent increase in the number of units. There are also plans to build an additional 100 single-family homes.

Wilson, N.C., offers a number of good examples of how to build amenities. Investments in third places, like a revitalized downtown, art galleries, outdoor art installations, and a

soon-to-come baseball stadium, have helped market the town. And worker-focused investments help make the community more livable. For example, Wilson replaced its bus system with an on-demand microtransit service.

But what do you do if you're not near a big city and don't benefit from natural amenities? Well, the age-old strategy of attracting jobs is still viable. But I want to emphasize that the historic approach, focused on incentives and buildable sites, is no longer sufficient. The communities that seem to be winning in this game are also winning through investments in workforce. With talent so short, companies need to be convinced they can find and retain the workers they need.

I'm intrigued by Florence, S.C., and its surrounding towns. They have seen a number of new manufacturing and distribution centers move to the area in recent years. Local leaders highlight regional cooperation as key and credit the programs led by the area community college for boosting the supply of ready talent and helping businesses with space and equipment they may not be able to invest in themselves.

In the northern part of our district, I'd point to Salisbury, Md., and its surrounding counties. The area has seen strong job growth post-pandemic, especially compared to the rest of the state. Like Florence, they are investing in growing their own jobs and workforce. Salisbury University encourages

entrepreneurship through an entrepreneurship center, with incubator space and regular startup competitions. Nearby Wor-Wic Community College helps fill workforce gaps with fast turnaround programs. At the same time, they're investing in high-speed internet, the beautification of downtown, and housing. Their "Here is Home" program, which was stood up in 2021, reduced both permitting times and costs. They've faced plenty of that local pushback I mentioned, but they're making headway on new units.

To close, I'll emphasize that now-growing counties, both exurbs and those further out, didn't begin their growth journeys in 2020. Their momentum started earlier. Often, progress takes a less measurable form first. Community leaders start to shape a collective vision, build trust and learn to better navigate funding streams and systems. In time, with the right conditions, that momentum starts showing up in the data.



Tom Barkin
President and Chief Executive Officer
A longer version of this essay was delivered as an address at the Investing in Rural America Conference in Roanoke, Va., on May 20, 2025.

BY KATRINA MULLEN

New from the Richmond Fed's Regional Matters Blog

Taylor Pessin. "Recent Employment Changes in the Washington, D.C., Area."

Between January and May, Maryland lost 5.4 percent of its federal workforce, Virginia lost 4.8 percent, and Washington, D.C., lost 1.9 percent. Cumulatively, the region lost about 22,100 federal employees. These losses were heavily concentrated in the Washington-Arlington-Alexandria MSA, which lost 14,100 federal jobs. The Baltimore-Columbia-Towson MSA lost 3,000 federal jobs. It is common to see an increase in initial unemployment claims among federal workers immediately after the inauguration of a new president, followed by a steady decline. This year was different: Initial claims increased months after inauguration and have remained elevated, particularly in Washington, D.C.

Nathan Sumner and Jason Kosakow. "Fifth District Employment: Findings From the June Business Surveys."

The Richmond Fed's June business surveys asked Fifth District firms about hiring challenges since last year and their workforce expectations for the next six months. About half of the responding firms reported having the same level of difficulty hiring workers as last year, and services firms (29 percent) found it easier than manufacturing firms (22 percent). Among firms facing difficulty hiring, some of the biggest challenges have been finding workers with the right skills or finding workers at all. Others reported that hiring has been easier, and only 3 percent of those firms had eased their hiring requirements. Most firms expected to keep employment levels the same over the next six months, though the ones that anticipated having fewer employees planned to achieve that mostly through attrition.

Bethany Greene. "Federal Government Transfers in the Rural Fifth District."

Many households in the Fifth District rely on federal transfer payments, such as medical benefits, Social Security, or unemployment insurance. Transfers as a share of personal income range from 14 percent for the most urban counties in the district to 36 percent for the most rural. Most transfer payments are medical benefits (e.g.,

Medicare and Medicaid), and in counties with higher poverty rates and larger senior populations (ages 65 and older), transfer payments often account for a higher share of income. This is especially true in rural areas where there are smaller working-age populations, fewer employment opportunities, and less access to higher-wage jobs.

Quanic Fullard, Jason Kosakow, and Laura Dawson Ullrich. "Student Parents: The Power of Wraparound Supports."

Nearly a quarter of community college students are parents with dependent children. Wraparound services — such as transportation assistance, child care, mental health counseling, and housing — provide students with support to help meet their nonacademic needs. In the Fifth District, Howard Community College in Maryland developed "Kids on Campus" to house on-site child care and Head Start programs. Forsyth Technical Community College in North Carolina created the Student Parent Advocacy Research Center, or SPARC, which uses existing grant programs and foundation dollars for wraparound services. While child care has emerged as the greatest need for student parents, funding, staffing, and space continue to present barriers for community colleges to providing these wraparound services.

Jason W. Smith and Carrie Cook. "Jump-Starting Rural Community Development Projects: Lessons Learned."

The Rural Investment Collaborative, which helps rural leaders jump-start development projects for their communities, has thus far trained 42 leaders, and external partners have awarded \$389,000 to support project development. Since the Community Investment Training began in 2024, the Richmond Fed's Community Development team has worked with partners to reduce barriers to community readiness for investment and has learned several lessons about rural projects. Rural leaders have many responsibilities, which can limit their available time and understanding of how to finance projects. Leveraging existing skills and resources and achieving community buy-in can be keys to success. And the location of the project can also influence how quickly it can progress. **EF**



The Port of Charleston serves as an important global connection point for the manufacturing industry in South Carolina. The largest number of imports entering the United States through the port come from China and Germany.



South Carolina's Globalized Economy

Driven by the auto industry, the Palmetto State is a global economic player. How will tariff uncertainty impact its businesses?

BY MATTHEW WELLS

When John Lummus moved to Greenville, S.C., from his nearby hometown of Anderson in 1995, he says there were only three restaurants where he could go for lunch in the downtown area. Today, he has his pick of 238.

“The growth is just phenomenal, and that’s happened because manufacturing companies have come in, providing jobs and building wealth,” says Lummus, president and CEO of the Upstate SC Alliance, northwest South Carolina’s economic development organization. He points to companies from across the United States and around the world that have come to call this western corner of South Carolina home, including defense contractor Lockheed Martin, global textile and chemical producer Milliken, French tire giant Michelin, and German luxury carmaker BMW. There are over 1,100 international firms alone in South Carolina, according to the state’s Department of Commerce. They employ over 170,000 workers and account for 10 percent of private industry employment.

“These are companies that can be anywhere in the world,” he says, “but they’ve decided to locate here.”

A great deal of that wealth and growth — not just in Greenville, but across much of South Carolina — is the result of international trade, as these firms and others buy parts and supplies from abroad and sell many of their finished products on the international market. In 2024, for example, South Carolina exported \$38 billion in goods, accounting for 11.6 percent of the Palmetto State’s GDP. Manufactured products made up nearly all of that total (\$37.2 billion). Foreign companies aren’t the only active exporters: A total of 6,261 companies in the Palmetto State sent products abroad in 2023, and 84 percent of them were small- and medium-sized companies with fewer than 500 employees.

Transportation equipment, such as cars and tires, accounted for \$19.2 billion of South Carolina’s exports in 2024, making it the largest manufacturing export category.

IMAGE: MATTHEW PEACOCK; SOUTH CAROLINA PORTS AUTHORITY

In other words, more than half the value of all manufactured goods exported out of South Carolina came from automobiles and automobile-related products. Many of these products require inputs made overseas and imported into the state; automobile parts, including engines and transmissions, accounted for over \$3.5 billion in imports.

In April, the United States announced new tariffs on imported goods from every country. Any meaningful increase in tariffs can significantly alter how companies in South Carolina relying on trade do business, forcing some to adjust where they source products and others to rethink where to sell their finished goods. In recent months, the government has frequently adjusted tariffs, leaving firms in a state of heightened uncertainty.

How did South Carolina become such a sought-after destination for international firms and a hub of trade activity? And how are firms across the state navigating a fast-moving and unpredictable trade environment?

DRIVING THE GLOBALLY INTEGRATED ECONOMY

The transportation sector is a major element of South Carolina's modern, globally integrated economy, but cars were built in the state long before the likes of BMW and Volvo set up shop.

Just over the border from Charlotte, N.C., the city of Rock Hill was the home of Anderson Motor Co. from 1916-1926. Over the course of those 10 years, buggy maker John Gary Anderson produced and sold over 6,000 high-end cars, but, ultimately, his company was unable to compete with the carmakers that had established themselves in Detroit. The Michigan firms were able to thrive and grow, thanks in large part to the benefits of geographic clustering, or what economists call agglomeration effects. Economists Zhu Wang of the Richmond Fed, Luis Cabral of New York University, and Daniel Yi Xu of Duke University found in a 2013 working paper that inter-industry spillovers (that is, positive productivity and economic effects) from carriage and wagon manufacturers fostered the automobile industry's growth in Detroit and resulted in numerous "spinouts," where workers in one firm leave to create another firm in the same industry.

The modern auto industry in South Carolina began in 1973 when Michelin announced its first tire plants outside of France would be built in Anderson and Greenville, both in the western portion of the state. In the years since, Michelin moved its North American headquarters out of New York to Greenville, and it currently employs almost 10,000 people across 15 facilities. Since Michelin's arrival, Japanese tire-maker Bridgestone and German firm Continental Tire have also come to South Carolina. Today, the state produces 144,000 tires a day and exports more tires annually than any other state. The automotive cluster would take further shape the following year in 1974, when Bosch arrived in South Carolina and began producing fuel injection systems at its Charleston facility. Its presence has remained robust over the years, and the firm currently employs nearly 5,000 people in three locations across the state.

By the 1990s, automation and the availability of cheaper labor abroad had decimated textile manufacturing in South

Carolina. Political leaders were keenly aware that if the state's economy was ever going to recover, they would have to bring in something new, and they began recruiting firms from elsewhere in the United States and abroad. In the late 1980s, then-Gov. Carroll Campbell reached out to German luxury carmaker BMW to ask if it might be interested in establishing a facility in the state. After the dollar declined relative to the deutsche mark, raising the price of cars made abroad, and U.S. sales dropped nearly in half from 1986 to 1991, BMW had to decide if it still wanted to sell cars here. The firm saw the significant market size, protections for U.S.-made cars, and a weak dollar all as reasons not just to remain committed to the U.S. market, but also to build those cars in the States. And South Carolina made an attractive bid, offering a 900-acre site worth \$25 million near Interstate 85, a nearby international airport, and a rail line with direct access to the Port of Charleston. The firm would also have no property taxes, and it was given other incentives totaling over \$130 million (nearly \$300 million in today's dollars). BMW also preferred to be in the Eastern time zone, which allowed for easier communication with Germany.

BMW would ultimately come to the town of Greer, just outside of Spartanburg, in 1992. A little over three decades later, the carmaker reported that it had invested over \$14.8 billion in the state and brought in \$26.7 billion in economic activity annually. Greer is its largest production facility globally, employing over 11,000 workers, and the company has grown into the largest car exporter in the United States by value, with over \$10 billion in shipments abroad of luxury SUVs and coupes in 2024.

Other European carmakers would follow. In 2006, Mercedes-Benz began producing vans in Ladson, near Charleston, and employs over 1,600 workers. With BMW in the Upstate, Volvo opened its North American operations in Ridgeville, not far from the Port of Charleston, in 2018. Over 2,000 workers at the facility currently build high-end electric SUVs, and Volvo expects to contribute about \$5 billion in annual economic activity. Overall, South Carolina's Chamber of Commerce reports 327 firms are currently active in the automotive industry; 143 of them operate under a company based overseas.

WHY SOUTH CAROLINA?

Michelin executives in the 1970s were drawn to South Carolina for the available land, convenient access to ports like Charleston, and an available workforce in a state with the weakest labor union presence in the country. According to Joseph Von Nessen, an economist at the University of South Carolina, "Michelin arrived in South Carolina at a pivotal time. As textile manufacturing entered a long decline, Michelin sparked an evolution to advanced manufacturing in our state."

Those resource endowments and policies remain attractive to firms looking for access to both U.S. and overseas markets, especially those in the automotive sector. The Port of Charleston has been the state's door to the world, and the state has worked over the years to develop and expand inland connections to it from places like the Upstate. In an era when communities compete to attract domestic and

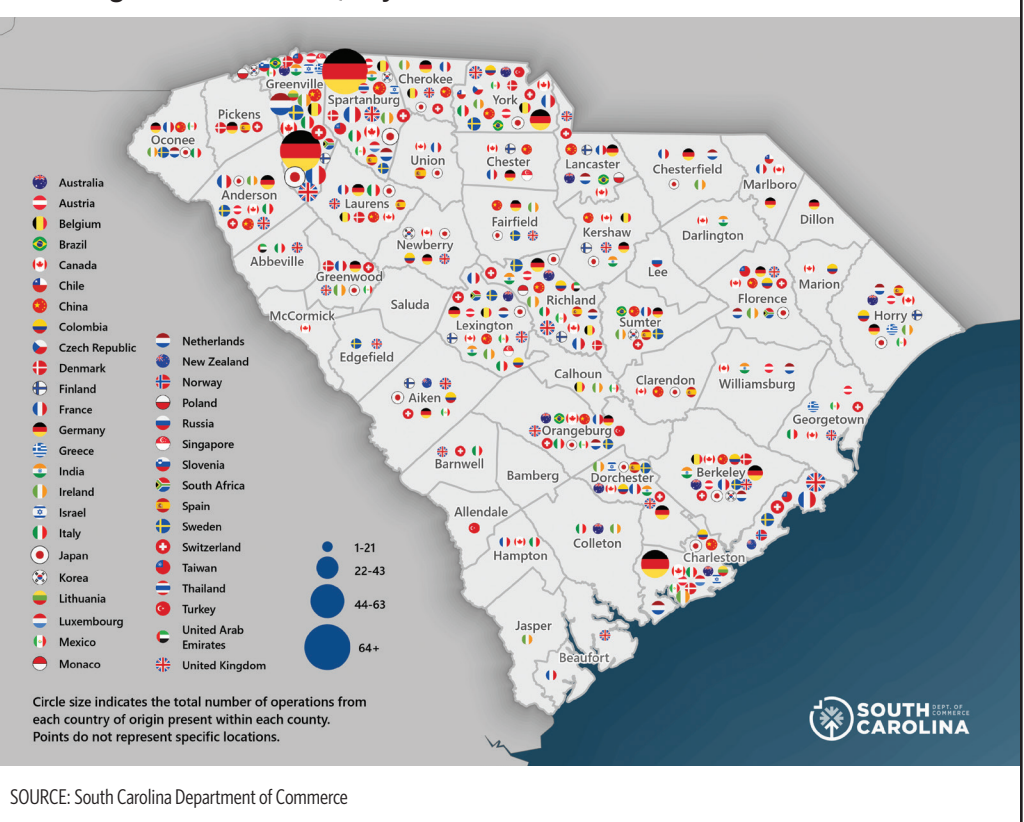
international businesses, location and logistics mean the difference between success and failure. Communities that are not efficiently connected to the port either by railway or highway may lose out on the benefits that come with foreign investment.

Places positioned to benefit from those connections are likely to continue growing, attracting or generating additional resources that can, in turn, attract more firms to an area. This dynamic likely explains why so much advanced and auto manufacturing and related industries — some 2,450 firms — are concentrated in the Upstate. For example, in 2007, Clemson University founded the International Center for Automotive Research in Greenville, just off I-85. In addition to housing the university's automotive engineering graduate program, the campus is a hub for developing and testing emerging automotive technologies. The center has well-developed business relationships across the automotive sector, and 96 percent of its students find jobs with those firms after graduation. BMW also maintains its information technology research and development center on the campus.

In the 1990s, BMW was also attracted to South Carolina's workforce training system. Jennifer Moorefield is the associate vice president for corporate and continuing education at Greenville Technical College, and, during that time, she worked as a trainer, facilitator, and contractor with the college, helping to support local businesses with employee onboarding and retention. This collaboration between firms and the local technical college gave BMW the freedom to develop its workforce in its own way and bring workers into the BMW culture as it existed back in Germany. Since 2011, that relationship has been formalized through the BMW Scholars program, an apprenticeship program where students can attend class full time at one of four local technical colleges and work part time at BMW, gaining hands-on experience with the potential to become full-time employees. (See "Learning in the Fast Lane," *Econ Focus*, Fourth Quarter 2017.) Beyond BMW, the college currently has 187 apprenticeships active across 46 different companies.

Moorefield sees firms' relationships with the state's technical college system — originally developed as textiles declined in the 1960s and 1970s to train workers for the manufacturing jobs of the future — as a key element of South Carolina's

S.C. Foreign Direct Investment, July 2024



manufacturing growth and success. For example, on its production line, Michelin employs a significant number of individuals for whom Spanish is their native language, and the company asked the college to develop a customized Spanish language curriculum so that plant supervisors could better communicate with their employees. "If you have a challenge, tell us what it is, and then we'll figure out the solution," says Moorefield.

Allen Smith is the president and CEO of OneSpartanburg, Spartanburg County's business, economic, and tourism development organization. He notes that the county is the 10th fastest-growing county in the United States, attracting about 10,600 new residents a year, a fact not lost on companies that are considering relocating to the area. Coupled with the fact that there are seven colleges in the county, he suggests that there's a workforce in place that can respond quite well to any industry needs. And firms, Smith argues, have been pleased with this arrangement. "Companies are coming here, and they're not one and done," Smith says. "Several years ago, Magna, the Canadian seat supplier, was announcing an expansion of their second facility before they had finished their first facility."

The state and local governments have also developed initiatives aimed at encouraging international firms of varying sizes to invest. (See map.) In 2016, for example, the South Carolina Department of Commerce established the Landing Pad program, which aims to help smaller international firms that plan to hire fewer than 10 employees and invest under \$1 million as they settle into the United States.

UNCERTAINTY GROWS

In 2018, the United States imposed tariffs on Chinese goods. Those fees are typically collected at the goods' point of entry, but many firms were able to avoid paying by obtaining exemptions from the policy. Even still, the tariff changes proved disruptive.

"Lots of people did get exemptions," recalls Lummus, the CEO of the Upstate SC Alliance. "But it took time away from what businesses were trying to do because they were worried about getting an exemption rather than making a better product."

While current changes to tariffs are still being negotiated, researchers at the Richmond Fed led by economist Marina Azzimonti found that the average effective tariff rate could move from a benchmark of 2.3 percent to about 22 percent, second globally only to Bermuda. This scenario includes a 20 percent tariff on all Chinese imports, a 25 percent tariff on all auto imports except those exempt under the United States-Mexico-Canada Agreement (USMCA), a 25 percent tariff on all aluminum and steel imports, a 10 percent tariff on all Canadian potash and energy imports, and a 25 percent tariff on all non-USMCA exempt imports from Mexico and Canada. Due to its advanced manufacturing industrial base, South Carolina is particularly exposed to tariffs on aluminum and steel, as well as those on goods coming from China and Germany, the two countries with the largest number of imports entering through the Port of Charleston. According to Azzimonti's team, 10 counties in the state could see average effective tariff rates of at least 10 percent, and three could face rates of at least 14 percent.

South Carolina's auto manufacturers, BMW and Volvo, which combined exported \$10.9 billion in automobiles in 2024 and together, along with Mercedes-Benz, support over 80,000 jobs, are very much aware of how a tariff policy raising prices on these supplies might impact their business, and they are trying to adjust. Both BMW and Volvo announced in early April they would increase production of cars for sale in the United States with the intention to localize production and potentially offset any declines in overseas sales due to retaliatory tariffs.

While these large firms might have the ability to bring online more production for domestic sales, where the tariff rates will end up remains a looming question. The government has imposed tariffs in recent months from as low as 10 percent to as high as 145 percent, and the numbers have

changed frequently, creating significant challenges for firms trying to plan ahead.

Recent research suggests that uncertainty about tariffs can have meaningful adverse effects at both the macro and micro levels. A 2020 *Journal of Monetary Economics* paper by economists at the Federal Reserve Board of Governors showed that increased uncertainty reduces investment at the firm level and in the aggregate. A 2024 paper by Lukas Boer of the International Monetary Fund and Malte Rieth of Martin-Luther-Universität Halle-Wittenberg found similar results: Uncertainty depresses imports and investment, although output is less affected because exports rise as the exchange rate depreciates.

The first quarter 2025 CFO Survey, conducted by Duke University's Fuqua School of Business in partnership with the Richmond and Atlanta Feds, also indicated uncertainty regarding tariffs has dampened firms' optimism for growth, especially among those that source their inputs and supplies from Canada, China, and Mexico — the countries targeted under the initial round of U.S. tariffs. These firms were less optimistic about overall GDP growth and their own growth than firms not exposed to tariffs.

This uncertainty appears to be taking hold in South Carolina, as many tariff-exposed firms are pausing planned activities and investments. While volumes were stable as of early June, planning has been difficult at the Port of Charleston. "We are on pause," noted Mary Beth Richardson, the port's director of financial planning, who says noncritical hiring and capital improvement projects have been placed on hold. "As an example, we were planning to buy two ship-to-shore cranes this year, and at this point pricing and sourcing are extremely difficult to predict," she says. "Thus, this project has been delayed for now until there is better clarity."

Volvo announced in early May it would be laying off about 125 workers at its Ridgeville facility due to tariffs. Small businesses are also trying to adapt. Many local businesses, from clothing retailers to outdoor suppliers, source much of their inventory from overseas because there are no domestic alternatives. Some small businesses have reported in local media that they have tried to get ahead of the tariffs, increasing their inventories before price increases kicked in. But after those are exhausted, they face an uncertain future.

Such a future contrasts with a vibrant, globally competitive present — in the auto industry and beyond — that has brought immense growth and pride to South Carolina. Allen Smith, the CEO of OneSpartanburg, maintains that free trade "has worked for us and continues to work for us." **EF**

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BY FATIMAH KHAN

The Birth of Modern Finance

New ideas developed in the second half of the 20th century built the financial world around us and remain impactful today

Since the 1950s, a series of theories and models have come to largely define financial and investment practices, transforming a trial-and-error practice into a quantitative academic field. Collectively, these innovations have become known as modern financial theory. If you have ever invested in an index fund or diversified your portfolio, as is the case for many Americans, you have benefited from modern financial theory.

These investment vehicles are often used as part of a passive investment strategy, wherein one buys and holds a diversified mix of assets, usually including both bonds and stocks, over a long period of time with the goal of approximating the average market return. This is a common way to invest savings for retirement and contrasts with active investment, which involves the more frequent purchase and sale of individual securities in pursuit of arbitrage opportunities. A 2021 Gallup survey of U.S. investors found that 71 percent preferred passive investment strategies over active ones to “maximize returns over the long term.” In many ways, modern financial theory laid the groundwork for such vehicles and passive strategies through frameworks for portfolio optimization, asset pricing, greater understanding of risk, and pricing options. How did these theories, which are so influential today, come about?

As the world rebuilt and recovered after World War II, private markets in the United States experienced a revitalization. Households, who had been saving diligently to support the war effort by purchasing Treasury war bonds, and institutional investors, such as pension funds, demanded new investment opportunities. At the

same time, businesses rebuilding in the booming postwar economy needed an influx of capital to expand, make investments, and meet consumer demand. This confluence of factors and the resulting market activity led to questions around how best to navigate both corporate and consumer finance. The consensus among investors at the time was that hiring investment advisors was a reasonably sure way to guarantee high returns. However, those advisors typically didn’t rely on scientific processes and models, but rather used rules of thumb to make decisions and manage the needs of their clients. As corporate treasurers and investment managers alike tried to improve their returns, a series of new and innovative economic and financial theories began to take shape.

Perry Mehrling, a historian of financial and economic theory at Boston University, explains that “usually, financial practice comes first, trying to solve a problem,” followed by theoretical innovation that aims to improve upon current techniques. When questions outside the scope of existing frameworks arise, new ideas are born of necessity. Mehrling says there were two main questions in this period: How to manage consumer investment, and how to manage corporate finance. Answering these questions would lead to the development of economic and financial theories with far-reaching ramifications.

RISK AND REWARD

In 1952, Harry Markowitz, then a Ph.D. economics student at the University of Chicago, published “Portfolio Selection” in the *Journal of Finance*. Recognizing a gap in current

financial theory, he proposed the inclusion of risk in the mathematical analysis of stock prices. His modern portfolio theory (MPT) codified the relationship between risk and return; specifically, that investing in high-risk assets can beget higher returns (or large losses), while investing in low-risk assets produces lower returns. Markowitz proposed an efficient frontier, which defined the most efficient trade-off between risk and reward for investors with any level of risk appetite. Under Markowitz’s theory, investors could choose the combination of expected return and risk they desired and allocate their investments to meet those specifications. Markowitz also theorized that the diversification of a portfolio often leads to the most efficient balancing of risk with reward. Markowitz’s MPT helped to answer questions surrounding consumer portfolio management and remains highly influential today. The theory allowed for the development of more precise investment strategies to balance portfolio risk across asset classes and reap long-term returns.

As Markowitz’s theory provided a scientific foundation for individual investment and consumer portfolio management, Franco Modigliani and Merton Miller, then professors of economics at Carnegie Mellon University, proposed a theory to inform corporate financial decision-making. They recognized shortcomings in current models and developed a standardized method to evaluate the cost of capital under uncertainty. Simply put, how should business owners decide how and whether to finance a new project?

The initial Modigliani-Miller theorem published in 1958 asserted that the capital structure (debt and equity

issued) or financing strategy does not impact the market value of a firm, which is the present value of its future earnings and assets. It also stated that a firm's cost of equity is dependent on and proportional to its leverage ratio; in other words, if a firm is highly leveraged with debt, investors will require a higher return on equity to compensate for the higher risk.

However, as is often the case with economic models, the assumptions underlying this theorem — costless transactions, lack of taxes, and equivalent borrowing rates for firms and individuals — don't reflect the real world. So, in 1963, Modigliani and Miller revised their theorem to account for such limitations. They posited that leveraged firms benefit from debt financing because, unlike dividend payments, interest payments are tax deductible in the United States and lead to a higher firm value. Under this amended theory, the cost of equity remains proportional to leverage, but the weighted average cost of capital decreases as the level of debt financing used increases. Therefore, the optimal capital structure would consist of entirely debt financing. This evolution shows how reevaluating the underlying assumptions of a model can strengthen its conclusions and implications. Under the initial assumptions, a firm's capital structure was irrelevant, but it becomes relevant under the more realistic assumptions of the revised theorem.

In 1964, William Sharpe, then at the University of Washington, developed the capital asset pricing model (CAPM), furthering the new marriage of mathematical modeling and economic theory with the practice of investing by incorporating systematic risk into asset pricing models. The model proposed that, at market equilibrium, prices will adjust to generate a linear relationship between an asset's return and systematic risk, which cannot be avoided through diversification, unlike other types of risk. This systematic risk is shared throughout the market and

entire economic system, referred to by Sharpe as correlation to "swings in economic activity" and known today as business-cycle risk. Sharpe's idea was consistent with existing investment wisdom and built upon Markowitz's framework. In fact, Sharpe was influenced by Markowitz's theories after the two met while conducting research at the RAND Corporation in the late 1950s, and Markowitz served as a pseudo-doctoral advisor for Sharpe during his Ph.D.

[CAPM] is used by businesses to evaluate opportunities for investment, capital costs, and asset pricing and, alongside the MPT, continues to inform retail investors today.

The CAPM gave rise to "beta" — a widely used measure of an asset's volatility and correlation with the market portfolio. The model is used by businesses to evaluate opportunities for investment, capital costs, and asset pricing and, alongside the MPT, continues to inform retail investors today.

"CAPM tells households, 'You don't want to be picking stocks, you want to hold and harvest the market portfolio,'" explains Mehrling. Portfolio asset diversification — balancing the higher risk and the higher reward of investing in stocks with the safety of investing in bonds based on an individual's risk profile — has become the go-to method of minimizing one's risk and maximizing return.

THE RIGHT PRICE

As a student at Tufts University in the late 1950s, Eugene Fama assisted a professor with stock market predictions, formulating rules for projecting future performance and making investment decisions. At the time, technical analysis — predicting future market movement by analyzing historical data — and fundamental analysis

— estimating a firm's intrinsic value by evaluating its earnings, balance sheet, cash flow, dividends, growth opportunities, and returns — were prominent prediction methods. However, Fama found that the predictions based on past performance didn't hold up when tested on out-of-sample data, and stock market returns appeared to be unpredictable. This curiosity led to his development of one of the most influential theorems in modern finance.

The efficient markets hypothesis (EMH) posits that, if a market has a free flow of information, costless transactions, and many rational, intelligent actors aiming to predict future prices and firm values, the current price of a security will reflect all available information as well as the intrinsic value of a firm. In essence, in an efficient market, security prices will be "correct."

The three versions of the EMH — weak, semi-strong, and strong — reflect variations in exactly how much information is manifested in market prices. The weak version of the EMH states that all past pricing data is factored into current prices, so technical analysis of historical data will not result in arbitrage opportunities. Fundamental analysis does not inherently contradict the weak version of the EMH. In fact, analysts who identify and act on price discrepancies between market price and intrinsic value contribute to a more efficient market and more accurate prices. Thus, a talented analyst might theoretically be able to outperform the returns from a buy-and-hold strategy. However, given the sophistication needed to achieve this level of analysis in a rapidly changing market, fundamental analysis is not a realistic option for the average retail investor, who is best served by a buy-and-hold strategy. While EMH doesn't completely invalidate fundamental analysis, it challenges the strategy and asserts that it is only of use if an analyst has new information or better insights into a security than is reflected in the current market price. This may be supported by data that show the underperformance of

actively managed funds compared to passive investment benchmarks over three-, five-, and 10-year periods.

The semi-strong version posits that both fundamental and technical analysis are unable to assist investors because all public information is already factored in, although private information unavailable to the public would help investors. Finally, the strong version of the EMH asserts that current stock prices account for private and public information, and there is no information that would give an investor greater insight in making decisions.

In 1992, Fama and Kenneth French, both professors of finance at the University of Chicago's Booth School of Business at the time, developed a statistical model to explain and predict the returns of stock portfolios. At that time, French says, "the received wisdom was that expected returns are described by the CAPM, although there was evidence that it didn't work."

The two researchers endeavored to create a model that built on the CAPM and encapsulated predictive factors in addition to systematic risk. Known as the three-factor Fama-French model, this advancement in empirical finance included variables for systematic risk, firm size (or market capitalization), and book-to-market ratio. A firm's book-to-market ratio is a comparison of its asset values to its market value; stocks with high book-to-market ratios are known as value stocks, which are undervalued and expected to ultimately appreciate. Stocks with low book-to-market ratios are known as growth stocks, potentially overvalued but expected to increase earnings quickly. This model contributed to an institutional shift, standardizing the methods used by large institutional investors to construct portfolios. French explains that, while previously financial advisors used conflicting variables to classify mutual funds, "they started thinking in terms of differences in size and book-to-market."

In 2015, Fama and French extended their work by developing the five-factor

Fama-French model, which added two more variables to the previous model. It considered the impact of a firm's profitability and investment strategy — conservative or aggressive — on stock market performance. Therefore, a portfolio's performance can be constructed with reference to an investor's risk profile, and returns can be estimated by the portfolio's sensitivity to the five risk factors. Other researchers have similarly built upon the foundation of CAPM by developing models for stock market returns that incorporate other predictive factors, including sentiment anomalies, industry, currency, and style variables.

"What you'd like are really accurate signals. That's the ideal in an efficient market: That prices are right in the sense that they reflect the true value society places on the assets those securities represent," says French.

BEHAVIORAL ECONOMICS AND FINANCE

Conventional financial theories and models, such as the EMH, assume that investors and other market actors are rational agents making carefully considered decisions to weigh costs and benefits while pursuing their self-interest — *homo economicus*. While a very useful basis for economic models, most people don't usually make all decisions with perfect rationality. Behavioral finance uses a mix of psychology and economics to account for the shortcomings of modern financial theory to explain some investor behavior.

Psychologists Amos Tversky and Daniel Kahneman, often cited as the founders of behavioral economics, described decision-making models and common behavioral fallacies relevant to investment and financial management, such as overreliance on knee-jerk intuition, experience, and instinct. They classified these as "System 1 thinking," as opposed to the slower, deliberate, well-reasoned, and logical analysis they called "System 2 thinking." Tversky and Kahneman also developed a theory of

loss aversion — the idea that individuals apply greater weight to expected losses than potential gains — as an alternative to neoclassical expected utility theory. In other words, investors are more emotionally sensitive to failure than success. When rash System 1 thinking is combined with loss aversion, investors are much more vulnerable to intervening and prematurely selling assets that are experiencing a drop in value. As such, a noise trader is one who relies on emotion to make investment decisions, often overreacting to news or changes in public sentiment.

Behavioral economist Richard Thaler built upon this psychological work by highlighting the ramifications of such less-than-rational actors on the market. His work challenged the theoretical conclusion that incorrect prices will be quickly corrected by rational actors seeking arbitrage opportunities, arguing that mispricing due to systemic bias by irrational actors can be "risky and costly" to correct, which effectively disincentivizes rational actors from correcting mispricing and maintaining efficiency. Under this view, the actions of many noise traders can worsen mispricing and cause rational traders looking for arbitrage opportunities to cut their losses and leave the market. The transaction costs associated with identifying a mispriced asset and the resources needed to correct the discrepancy can also act as a deterrent and perpetuate mispricing. Behavioral finance posits that, due to psychological biases inherent to human nature, systematic irrationality among market actors has the potential to create distortions not captured in traditional financial models but nonetheless significant.

Active investment strategies are more likely to fall prey to behavioral biases — loss aversion, System 1 decision-making, panics, early intervention — than are passive investment strategies. Behavioral finance suggests ways to mitigate the behavioral biases that threaten sound decision-making in active investment, such as relying on data-based strategies and prediction

algorithms and considering one's appetite for risk when constructing portfolios.

TODAY'S IMPACT AND TOMORROW'S POTENTIAL

The theories at the heart of modern finance — CAPM, MPT, and EMH — not only laid the groundwork for the ever-evolving world of highly complex investment management, but also for seemingly simpler financial portfolios. Passive investment vehicles such as index funds, exchange-traded funds (ETFs), and mutual funds, which help investors diversify their risk and protect average expected returns, are based on the principles of modern financial theory.

“The idea that you can't beat the market, that diversification is maybe a better idea than paying attention to individual stocks, has had big consequences for how people invest,” Mehrling says.

Today, assets in passive funds outnumber those in active funds in the United States, and passive investment accounts for over 50 percent of funds in global equity mutual funds and ETFs. But Fama explains that, prior to “the asset pricing models we developed, the passive investment industry didn't exist.” Such advancements “turned the financial industry on its head,” he adds.

The increasing and widespread popularity of passive investment has given rise to questions about the impact of

passive investors in the marketplace, including the ramifications for the EMH. A March 2025 paper by Hao Jiang of Michigan State University, Dimitri Vayanos of the London School of Economics, and Lu Zheng of the University of California, Irvine found

“The idea that you can't beat the market, that diversification is maybe a better idea than paying attention to individual stocks, has had big consequences for how people invest,” Mehrling says.

that an influx of funds into passive investment, as opposed to active management, may put upward pressures on the prices, volatility, and illiquidity of large firms in popular indices like the S&P 500. Given that passive investors take long positions, short positions will be more likely to be squeezed out, which would increase the volatility and, in turn, the price of large firm stocks. Further, demand for large firm stocks would be greater and more inelastic, which means that mispricing may be more widespread and slower to be corrected by fewer active investors, leading to potential inefficiencies and higher market concentrations.

Of the roles played by active and passive investors in the market, French explains that “the active investors are gathering information, trading on it, and pushing prices closer in line,” while passive investors use

buy-and-hold strategies. Active investment is essentially a bet, with one actor predicting a particular outcome and another taking the opposite position — in other words, it takes two to tango. Markets might be less efficient if all investors decided to switch from active to passive strategies, leaving no one for active investors to trade against, but French does not predict a significant shortage of active investors willing to place bets anytime soon.

“There are still lots of people who think they can beat the market,” concurs Fama.

The impact of modern financial theory can perhaps be most clearly seen in its influence on saving and investing for retirement. Investors and financial managers tailor portfolios to personal risk profile and retirement date over time as opposed to one-size-fits-all techniques. Through this approach, workers saving for retirement transform their knowledge, career, and resources — sources of “undiversified, idiosyncratic risk” — into a reliable “diversified, liquid portfolio” from which to consume during retirement, Mehrling says. Investing resources for the future while hedging against the risk of loss is made possible by modern financial theory.

The existing framework continues to evolve, as researchers search for the next innovation using ever-expanding datasets.

“We'll see what comes along next,” muses Fama. “If I could predict it, I would have already done it.” **EF**

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BY KATRINA MULLEN

Does Phasing Out the Penny Make Cents?

The U.S. Mint began producing the penny more than 200 years ago. Since 1909, President Abraham Lincoln has been the face of the coin, though the penny has changed in appearance, size, and material over time. As the longest-tenured coin and lowest denomination in the United States, it's no surprise that the penny can be found in so many places: under couch cushions, in drawers, or, if lucky enough, on the ground facing heads up.

But the copper coin's days could be numbered. In May, the Treasury Department announced it would stop producing pennies early next year. Coinage costs have increased: It costs about 3.7 cents to produce one penny. Cash use has also declined in the United States; it is used in less than a quarter of daily transactions. This wouldn't be the first time the United States has removed a denomination of currency from circulation. It eliminated the half cent in 1857 and the \$2.50 gold coin in 1930. Those earlier changes were both the result of legislation from Congress, which holds the power to coin money, according to Article I of the Constitution. While current law allows the secretary of the Treasury to mint, issue, and stop coin production, only Congress has the authority to remove a coin from circulation.

There have been numerous legislative attempts to end the penny over the years. This year alone has seen a flurry of bills from Congress, including the Common Cents Act, which passed out of the House Financial Services Committee in July with bipartisan support. According to the bill's sponsor, Rep. Lisa McClain, R-Mich., continuing penny production over the next three years would cost taxpayers \$225 million. The legislation also makes cost-saving changes to the nickel, such as using zinc instead of copper.

Wake Forest University economics

professor Robert Whaples has long argued that it would be more efficient for the government, and taxpayer dollars, to remove a coin that people are not reaching for and that holds such little purchasing power. In addition to the costs, "Using pennies means an increase in zinc and copper mining, an increase in energy use and pollution at these mines," he wrote in a 2012 op-ed.

According to a June blog post by Oz Shy from the Atlanta Fed, it is more burdensome to complete cash transactions involving multiple denominations of coins. Removing the penny could alleviate this burden, but the ultimate effect might be small because it is possible merchants and consumers are already rounding cash payments to the nearest 5 cents to reduce the complexity of making change.

The United States would not be the first country to remove its 1 cent coin. Many European countries, Australia, New Zealand, and Canada have already done so. When Canada announced its plan in 2012, the Royal Canadian Mint decided it would still allow consumers to use pennies in circulation, but their shrinking availability would eventually require cash transactions to be rounded to the nearest 5 cents.

Richmond Fed economists Zhu Wang and Russell Wong explored the U.S. Treasury's plan to stop producing pennies in a July 2025 *Economic Brief*. They noted that the social benefits of greater pricing flexibility might outweigh the production costs, and to the extent prices are rounded up to



the nearest nickel, consumers would pay more over time. With data from the 2023 Diary of Consumer Payment Choice, a Federal Reserve-sponsored survey, the authors determined that about 35 percent of transactions ended in zero or 5 cents and would not be rounded if the penny were phased out; transactions are more likely to end in 3, 4, 8, or 9 cents than other digits and would be rounded up. When they scaled this up to account for the full adult U.S. population (258.3 million), they found this rounding would cost consumers \$6.06 million each year.

There are other concerns and questions about the policy as well. Some worry that the penny phaseout might affect fundraising and charity efforts that rely on, and encourage, the donation of spare change like the penny. And if the penny is expensive to produce, the nickel costs even more: nearly 14 cents per coin. Increasing the production of nickels to compensate for the loss of the penny could ultimately raise costs for the Treasury, while Wang and Wong found that phasing out the nickel could substantially increase the cost to consumers from rounding to the nearest 10 cents. **EF**

IMAGE: GETTY/ISTOCK, OLGA KAYA

BY VINH PHAN

Tracking Inflation with Relative Price Changes

Andreas Hornstein, Francisco Ruge-Murcia, and Alexander L. Wolman. “The Relationship Between Inflation and the Distribution of Relative Price Changes.” *Federal Reserve Bank of Richmond Working Paper No. 24-15*, December 2024.

The Federal Reserve has operated under an inflation-targeting framework since the mid-1990s (at first implicitly and then explicitly) with successful results in maintaining price stability. Yet even when inflation is generally stable around its target rate, it still fluctuates from month to month. One source of those fluctuations is large shocks to supply and demand for particular goods or services. For example, a disruption in the oil market can cause a spike in gasoline prices and lift the overall inflation rate, even if prices in most other categories remain stable. Conversely, a shock that causes a sharp decline in gas prices can pull inflation down, even if other prices are unchanged. In both scenarios, the overall inflation rate moves significantly because of a single category that experiences a large relative price change. Can studying the relationship between inflation and the distribution of relative price changes provide insights into the stability of overall inflation?

In a recent working paper, Andreas Hornstein and Alexander Wolman of the Richmond Fed and Francisco Ruge-Murcia of McGill University focus on a statistic of the distribution of relative price changes in the consumption categories that make up U.S. monthly personal consumption expenditure (PCE). Using PCE data, the authors defined the share of relative price increases (SRPI) as the expenditure-weighted share of consumption categories with price changes exceeding the overall inflation rate. The authors found that SRPI can explain much of the variation in monthly

inflation from 1995 through 2019.

Referring to the previous example, if gasoline prices surge and other prices are unchanged, then SRPI will be low and inflation will be high. If gasoline prices plummet and other prices are unchanged, then SRPI will be high and inflation will be low. This relationship is not specific to gasoline prices. When inflation is generally stable, there may

The share of relative price increases could be a useful tool for central banks to determine departures from [inflation] stability.

be an inverse relationship between monthly inflation and SRPI. Under the hypothesis that monetary policy has stabilized inflation, the authors postulated that any remaining fluctuations in inflation are driven by large relative price changes for particular consumption categories. SRPI captures those large relative price changes in a single statistic.

To empirically examine the relationship between SRPI and inflation, the authors used PCE data from January 1995 to February 2020. They chose this period because it represents a historically stable inflation regime: Inflation volatility was low compared to prior decades, and the Federal Reserve formally adopted a 2 percent inflation target in 2012. The authors noted that outside a stable regime, they would not expect inflation to be well explained by SRPI. The data indicate that SRPI and monthly inflation exhibited a strong negative correlation coefficient of -0.83. When SRPI was low, inflation was typically high, and vice versa. The authors show that this single statistic can explain a substantial share of

monthly inflation volatility during that period. More generally, the authors show that large relative price changes are important for understanding the behavior of inflation: Categories with the largest relative price changes — accounting for just 2 percent of expenditures — explained roughly two-thirds of the variance in inflation.

The researchers then used this framework to evaluate inflation during and after the COVID-19 pandemic. Throughout 2020, monthly inflation remained largely consistent with the pre-pandemic SRPI-inflation relationship. But beginning in March 2021, inflation began to consistently exceed what SRPI alone would have predicted. This divergence suggests that broader macroeconomic forces were at play — presumably a combination of monetary policy shocks and other shocks to aggregate demand or supply.

The authors then estimated the SRPI-inflation relationship over rolling 10-year windows to interpret inflation over a longer time period. This approach defines underlying inflation as the level of inflation that would prevail if SRPI were fixed at its 10-year average. This new measure effectively filters out the influence of unusually large relative price movements, revealing the underlying inflation trend in the economy.

Under stable inflation regimes, Hornstein, Ruge-Murcia, and Wolman demonstrated that monthly inflation can be well explained by SRPI. This statistic can then be used to infer departures from inflation stability — such as during the COVID-19 pandemic — and to measure underlying inflation in the economy. The authors aim to extend their work by exploring whether similar patterns exist in other countries with long periods of stable inflation. If so, the share of relative price increases could be a useful tool for central banks to determine departures from stability. **EF**

FEDERAL RESERVE

BY SUZANNE HOLLAND

How Anecdotes Inform the Fed

Conversations with business and community leaders can shed light on the economy when data lag

Sometimes, the economy moves faster than the speed of data. This year, for instance, a slew of federal policy changes, including large tariff increases, has had cascading effects on the economy and introduced an aura of uncertainty. The impact of those tariff increases is unlikely to show up in official data for months; it takes time for the ripple effects to make their way through the supply chain and into the pricing decisions of companies and consumption decisions of households. For Richmond Fed President Tom Barkin, this is where the Richmond Fed's on-the-ground outreach comes in.

"We talk to businesses nearly every day. It's incredibly valuable. For example, in recent months, we've been asking: 'How are you thinking about the new tariffs? Are you looking at changes to your supply chain? Will you pass on the costs?'" says Barkin. "We get to see how business thinking and planning evolves in real time, which helps us better anticipate how economic conditions will change in the months to come."

The Fed uses a variety of hard data to inform monetary policy decisions in order to effectively fulfill its dual mandate of price stability and maximum employment. But qualitative, real-time information has become increasingly important for providing insights into the economy. The way that the Federal Reserve Banks collect and prioritize that data has evolved as well.

FILLING IN THE GAPS

Quantitative data provide economists with a broad picture of the economy's health. But external shocks to the economy, such as a major policy shift or a global health crisis, can create a rapidly changing environment



Richmond Fed President Tom Barkin (center) talks with community and business leaders during a Community Conversation visit to Johnston County and Wilson, N.C., in May 2023.

that is not immediately reflected in backward-looking datasets. There is always a lag — often a month or more — between the period of reference and when data are published. Many economic indicators are also composed of preliminary estimates and incomplete information, so after periods of rapid change or unexpected shocks, data are often revised significantly. (See "Good Data Is Hard to Find," *Econ Focus*, First/Second Quarter 2025.)

Qualitative information can be especially helpful at filling in the gaps during periods where data are changing rapidly or sending conflicting signals on the economy's health. While monetary policy decisions aren't made solely based on qualitative information, it can supplement hard data by providing a timelier snapshot of the economy at a particular moment, helping policymakers to forecast ahead.

"Data doesn't show the future, but people do," says Urvi Neelakantan, a senior policy economist at the Richmond Fed. "You can always ask contacts about their plans, what's

happening in the next three to six months. Hard data are rarely current — the earliest data you have in June is from May, so if there is anything that's happened in the meantime, the only way you are going to hear about that is through sensing."

Sensing on the economy is any interaction, no matter how informal, that provides an insight into the ways people or businesses are making decisions or into the economic environment in which decisions are made. For instance, a conversation with a cashier at a convenience store could involve questions about foot traffic. Are they restocking as usual? Are customers buying store brand snacks or opting not to splurge on impulse treats at all? A conversation with a consumer packaging firm may provide a line of sight into future consumer demand, and a manufacturer might provide an explanation as to whether a surge in inventory is a result of negative demand or frontloading in anticipation of an increase in sales.

Each interaction contributes to an

IMAGE: FEDERAL RESERVE BANK OF RICHMOND

aggregate picture about changes in demand, pricing, consumer spending, and labor tightness — all standard economic indicators measured through larger scale surveys and macroeconomic datasets. This type of sensing differs from formal surveys because the sample size is smaller, so expertise and context is required to extract signal from the noise and to judge the extent to which anecdotes are representative. The flip side is that the information received can be richer, providing the “why” behind data movements and thus where things may go in the future. Further, where surveys often capture cursory responses to specific questions from anonymous participants without opportunity for follow-up, economic sensing involves reciprocal sharing that allows both Fed staff and their contact to validate theories and pursue greater context around salient observations. Both sides benefit from hearing the other’s perspective on economic conditions.

CAPTURING REGIONAL VARIATION

The 12 Reserve Banks were originally created to facilitate the supply of money throughout the country. Over the last 100 years, the roles, functions, and operations of the Reserve Banks have evolved, but the decentralized structure of the system has been preserved.

In the midst of the Great Depression, banking regulation and monetary policy setting authority was overhauled and consolidated into the Federal Open Market Committee (FOMC). This policymaking body, still structured the same way today, balances the perspective of a central authority — the Washington, D.C.-based Board of Governors that oversees the Federal Reserve System — with regional representation from independent Reserve Bank presidents who curate individual viewpoints on the overall economy and the best course for monetary policy.

While only five regional bank presidents have voting privileges at any

given FOMC meeting, all 12 are responsible for sharing insights about their district’s economy. From the earliest FOMC meetings in the 1930s, qualitative data from each district gathered through relationships with businesses and communities were presented to the full committee to inform monetary policy decisions. Through the years, improvements in the availability and analysis of economic data through modeling, forecasting, and surveys have advanced the Fed’s ability to respond to shifts in economic activity. But the presentation of regional perspectives, including anecdotal information from regional bank presidents, remains a key component of each FOMC meeting.

Since the early 1980s, regional, anecdotal intel collected by the 12 Reserve Banks has been made available to the public via the Beige Book. Before each FOMC meeting, regional Reserve Banks submit a summary of qualitative information gathered from surveys and interviews with contacts in their district to the Board of Governors. Most often, those contacts are in bellwether industries that have a large influence on the overall economy, such as real estate, retail, shipping logistics, and banking. Enabling public access to that information has made the Beige Book a key source of real-time information on regional economic conditions for a variety of business and community decision-makers.

Charles Gascon and Joseph Martorana of the St. Louis Fed are the latest researchers to analyze whether the Beige Book indicates turning points in the economy before they show up in the data. They looked at changes in economic sentiment, political shocks like wars or labor strikes, and physical shocks like natural disasters and found that over its 50-plus year history, the Beige Book has captured statistically useful information about the U.S. business cycle in real time.

“While we still have to see what comes out in the data, anecdotes help us understand what direction the data

are headed and why,” says Gascon. “Being able to tell a story about the data matters.”

SIGNALING TURNING POINTS

Transcripts of FOMC meetings (made public with a five-year lag) provide further evidence that soft data like that published in the Beige Book can supply an early indication of economic shocks, giving monetary policy decision-makers a longer runway to consider impending challenges.

For example, excerpts from the Oct. 30-31, 2007, FOMC meeting illustrate one crossroads when anecdotes painted a different picture than quantitative data. Throughout the prior year, many committee members had been elevating informal intel from contacts in their districts suggesting that vulnerabilities in the housing market could have wider implications for the overall economy. The Fed cut interest rates for the first time in September 2007 in response to the housing fallout that, at the time, was perceived as an isolated tremor. At the October meeting, then-St. Louis Fed President William Poole shared how sensing was reshaping his views on the appropriate monetary response.

“Two weeks ago I was pretty adamant in my own mind that the recommendation I would be offering was no change, but I have reluctantly tilted in the other direction and favor a 25 basis point cut,” shared Poole in his district statement. “I have changed my mind because... in my discussions with our directors, in my phone calls before the meeting, and around the table yesterday, I think there has been fairly pervasive anecdotal information indicating a soft economy—not disastrously weak but just soft, certainly softer than the hard data that have been coming in.”

And Poole was not alone in his pivot on the appropriate policy response.

David Stockton, the Board of Governors economist responsible for presenting cyclical estimates of

GDP, inflation, and unemployment, conceded that there were “still some touchy-feely kinds of things that we’re looking at,” referring to additional surveys of Beige Book contacts that led his team to adjust its forecast. “Those anecdotes gave us a little more confidence that something may be happening on the capital spending side going forward.”

Other Reserve Bank presidents shared anecdotal insights from their districts, like CEOs lamenting difficulty controlling inventories due to soft consumer demand, banks indicating credit card usage had declined, department stores noting sales were down, and general signs of spillover into the rest of the economy. These exchanges happened months before the empirical measures of a recession, defined by the National Bureau of Economic Research as “a significant decline in economic activity that is spread across the economy and lasts more than a few months,” actually showed up in hard data.

Since the Great Recession of 2007-2009, the Board of Governors has prioritized engagement with public stakeholders through an event series called Fed Listens as a way to hear how monetary policy affects their daily lives. At one such event at the St. Louis Fed in April, Gov. Christopher Waller remarked that “the Federal Reserve was, in important ways, actually designed to promote this kind of engagement and input from the public.”

Waller, who previously served as the director of research at the St. Louis Fed, spent a lot of time tracking data indicators about inflation and the job market in the Eighth District, but said he “learned just as much about how important it is to hear from people directly about their experiences as well as their perceptions, which are sometimes just as consequential for the economy. We call this part of the ‘soft’ data that supplements the hard numbers of the government statistics that policymakers eagerly await. The ‘hard’

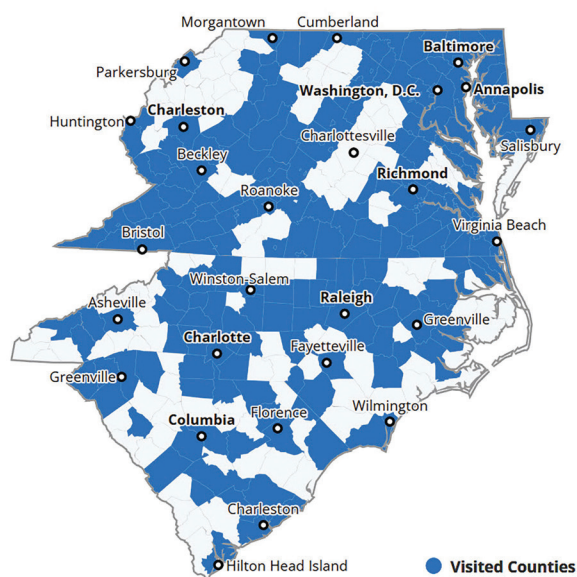
data is indispensable for setting monetary policy, but we can’t get a full and detailed picture of the economy without the soft data you can provide.”

SENSING EVOLVES

The Beige Book remains the central source for anecdotes collected across the Fed System, but many Reserve Banks have formalized additional input mechanisms and processes to collect and deploy economic insights. Public engagement allows the Fed to better communicate with local stakeholders about the economy and how monetary policy decisions are made, as well as better evaluate the real economy across different sectors and regions. That matters because the regional economies of each Reserve Bank’s district are impacted differently by the Fed’s actions. For example, there was a perceived difference in how the Great Recession affected national financial sector stakeholders and the local public.

“The distance between Wall Street and Main Street is about three weeks,” reflects Matt Martin, a regional executive at the Richmond Fed who helps lead business outreach in North and South Carolina. At the time, it was not well understood by the public how quickly the financial crash would spiral throughout the economy, nor how long the recovery would take. In the wake of that crisis, Martin says Reserve Banks expanded their public stakeholder relationships because “the more people understand who we are and what we’re about, the better we can support our mission, our goals,

President Tom Barkin's District Engagement



SOURCE: Federal Reserve Bank of Richmond

and our congressional mandate. But we want it to be a two-way street, to give information back.”

In recent years, the Richmond Fed has significantly expanded its outreach and engagement functions to enhance anecdotal information collection and support in-house research and analysis. Through a collaborative economic sensing process, outward-facing staff work alongside economists to turn both qualitative and quantitative data into useful insights about the economy. Direct engagement on the ground through business and community outreach, industry roundtables, external events, initiatives, and partnerships all yield anecdotes about real-time trends from multiple perspectives. (See “Going Beyond the Data,” pp. 27). That intel is shared back internally, synthesized, and evaluated for ways it can inform monetary policy decision-makers, researchers, and the public. Macroeconomic research has also evolved to better use qualitative information.

“Now, more data allows us to better inform economic modeling and, in particular, to build from the ground up in a way that couldn’t easily be done 20 years ago,” says Pierre-Daniel Sarte, senior macroeconomic advisor

at the Richmond Fed. “Through our colleagues’ interactions with contacts on the ground, we can better understand interconnections in the economy — how different sectors and industries interact with one another, how they make business decisions, and so on. Moreover, our understanding of decision-making on the ground continually improves through repeated interactions between our colleagues and businesses and other economic actors that make up the Fifth District.”

The data gathered through economic sensing allow Richmond’s researchers to test hypotheses, refine narratives about the economy, and develop external resources. Integrating outreach and academic research helps the Richmond Fed gain a better understanding of the economy and maximizes the impact the Reserve Bank has in its community. That occurs through relationship-driven engagement or dynamic communication between business and community partners.

Richmond Fed President Barkin has leveraged his private-sector experience in helping businesses make informed decisions by modeling an on-the-ground intelligence gathering approach that helps him tell the story behind the data. He and his team spend a lot of time on the road talking to community leaders and businesses. In fact, Barkin has visited counties accounting for over 85 percent of the population of the Richmond Fed’s district, which encompasses Maryland, Washington, D.C., Virginia, most of West Virginia, North Carolina, and South Carolina. (See map.) In 2024, Barkin and his

team had over 3,600 interactions (almost half of which were in rural areas) with business and community stakeholders through individual meetings, events, and local roundtables.

“I believe one of the best moves you can make is to surround yourself with people who know more than you. When the goal is to really understand a community, no one has more expertise than the people who live and work there every day,” says Barkin.

STORIES NOT CAPTURED IN AGGREGATE DATA

Direct engagement in his district helps Barkin understand the economy in real time, and it also solves some challenging data limitations. Nearly one-quarter of the Fifth District’s population lives in small towns or rural areas where economic data is time-consuming to collect, difficult to construct or estimate reliably, and often does not exist at the granular levels necessary to do meaningful economic analysis. Just because rural areas can be harder to understand using aggregate data does not mean those regions are not important to the economic vitality of the Fifth District. The Richmond Fed has placed a strategic focus on rural communities to better understand their unique economic challenges and assets compared to urban and suburban counterparts.

Part of that focus has included initiatives like Community Conversations, where Barkin, regional executives, and community development staff visit dozens of small towns each year to learn directly from local leaders and

businesses about their strengths and exchange ideas about opportunities for growth.

These regional or sectoral differences are not always relevant to monetary policy, since its goals concern the overall economy, and interest rates are known as a “blunt tool” affecting the whole economy at once. But as the Richmond Fed learns deeply about its district, it shares that information broadly to help other decision-makers seeking to support the economy, sectors, regions, or communities. For example, in a recent speech, Barkin summarized insights from the ground about why certain rural communities grow when others don’t and what they can learn from one another. (See “How Do Small Towns Grow?” p. 1.)

Data alone do not always tell the full story of the economy. Economic researchers understand that there are trade-offs to using any one data source, and anecdotes can fill in the gaps between retrospective quantitative data collected at set intervals and the economic activity that happens in the margins. Today, on-the-ground sensing is helping economic decision-makers like Barkin understand how tariffs and other changes are impacting his district and their implications for monetary policy. At a roundtable with Durham, N.C., business leaders in May, Barkin took on the role of an “economic detective,” according to a report in the *Wall Street Journal*, investigating how decisions are being made about price increases and labor in real time, gaining insight into what might show up in data months down the line. **EF**

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Fighting Payments Fraud

From stolen checks to “deepfake” scams, fraudsters are costing businesses, banks, and individuals billions every year

For many people, TikTok has become their go-to source for information on everything from fashion to food to home maintenance. Gone are the days of having to figure it out yourself or “Google it”; influencers now post short videos detailing how to perform any number of supposed “life hacks” meant to make life a little easier or, at the very least, more entertaining. In the past year, one more hack joined the list: check fraud. The hack went viral in the fall of 2024, and it was surprisingly easy: Chase Bank customers wrote checks of significant amounts to themselves, deposited those checks into a Chase ATM, and immediately withdrew as much cash as possible even if they didn’t have those funds in their accounts.

Chase’s system allowed customers to make these unlimited withdrawals during the “float” period between when a check is deposited and when it is cleared. Whether or not everyone who exploited this supposed life hack knew it, they were engaging in what Chase described as “fraud, plain and simple.” Chase was the victim in this case, and in response, it froze many of these accounts and is suing some of the biggest offenders to recoup the money it lost.

This case highlights a recent trend: Fraudsters are getting bolder, and losses are increasing dramatically. For example, consumers reported fraud losses of \$12.5 billion to the Federal Trade Commission (FTC) in 2024, a 25 percent jump over the reported losses in 2023, which saw a 14 percent increase over losses in 2022.

Many victims do not file claims with the FTC, however. According to Devesh Raval, deputy director for consumer protection in the FTC’s Bureau of Economics, the FTC’s victimization studies have found only around 5 percent of fraud victims file a complaint, either with the FTC or the Better Business Bureau. “What we’re seeing is the tip of the iceberg of fraud,” he says. Additional reports by private fraud detection firms suggest that in 2023, check fraud amounted to \$21 billion in losses, while \$30 billion was lost to synthetic identity fraud. Overall, losses to different forms of fraud for that year alone were estimated to be \$138 billion.

In 2020, to better track different and evolving kinds of fraud and how they are being used, the Federal Reserve released the FraudClassifier model, which allows for a common language across organizations dealing with fraud and facilitates internal consistency within organizations when evaluating different cases. (See figure on next page.) The model categorizes fraud based on how a transaction was conducted and whether it was authorized by the

account holder. These categories give financial organizations the ability to identify trends in criminals’ methods and respond accordingly, including educating their customers on how to better protect themselves.

In 2024, the Federal Reserve debuted a companion ScamClassifier model specifically addressing scams, which constitute one of the largest categories of payments fraud, and which the Fed defines as “the use of illegal means to make or receive payments for personal gain.” Victims of scams are deceived or manipulated into making payments or giving personally identifiable information (PII) to fraudulent actors posing as businesses, the government, or personal confidants. In cases where personal information is handed over, those fraudsters can make unauthorized payments or withdrawals from the victim’s account.

Employing this broad spectrum of methods, fraudsters are engaged in a constant game of cat and mouse with bankers, regulators, policymakers, and law enforcement, who collectively are developing tools to block fraud, tracking down criminals, and educating the public to prevent people from falling prey to scams that can cause lasting financial harm.

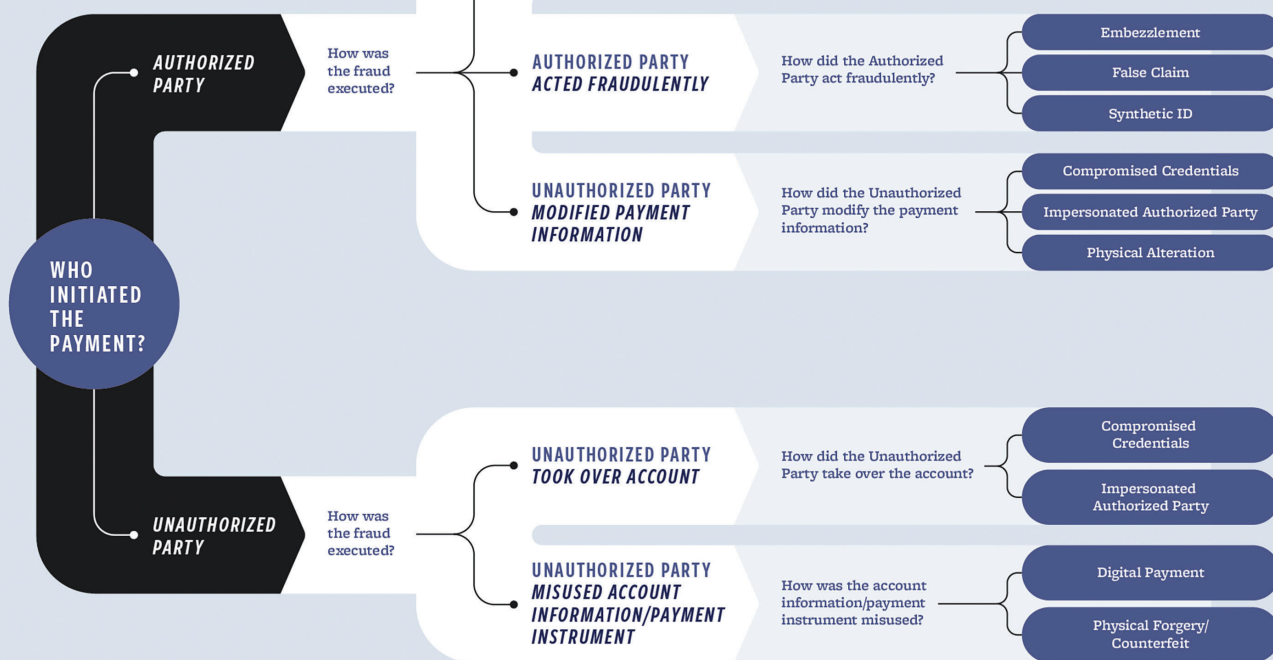
OLD SCHOOL TRICKS

While sharing methods for payments fraud on social media is a relatively recent phenomenon, checks have been a popular fraud target for over a century. In the 1920s, fraudsters would make a purchase by writing a check for a value greater than the balance in their account. Then, before that check cleared, they would write and deposit into that account another bad check from a second account at a different bank, with that check meant to cover the insufficient funds in the first account. Known as “check kiting,” this would give the appearance of sufficient funds in the period before the two banks settle the transactions, known as the “float.” Today, most transactions between banks are settled within one or two business days and banks limit how much can be withdrawn during the float, which makes check kiting more difficult to pull off successfully. But the similarities to the scheme shared on TikTok last fall show that this type of fraud has not been completely eliminated. (While it has not commented on how customers were able to withdraw seemingly unlimited funds, Chase has stated that “the issue has been addressed.”)

Check use has significantly diminished in recent decades:

FRAUD CLASSIFIER

Better Fraud Data. Better Defense.



NOTE: The FraudClassifier model was developed by a cross-industry work group to provide a consistent way to classify and understand how fraud occur across the payments industry. The model is not intended to result in mandates or regulations, and does not give any legal status, rights or responsibilities, nor is it intended to define or imply liabilities for fraud loss or create legal definitions, regulatory or reporting requirements. While sharing and use of the FraudClassifier model throughout the industry is encouraged, any adoption of the FraudClassifier model is voluntary at the discretion of each individual entity. Absent written consent, the FraudClassifier model may not be used in a manner that suggests the Federal Reserve endorses a third-party product or service.

The number of checks collected and processed annually by the Fed dropped by 82 percent over the past 30 years. But check fraud has more than doubled since 2020, according to the Treasury Department's investigative arm, the Financial Crimes Enforcement Network (FinCEN). While check kiting and the more recent TikTok schemes are authorized but fraudulent transactions conducted by the account holder, checks are also susceptible to unauthorized use by criminal actors. Paul Benda, the executive vice president for risk, fraud, and cybersecurity at the American Bankers Association, notes that checks are "an inherently insecure form of payment" for the simple reason that they contain an individual's name, address, bank account number, and bank routing number. That perhaps explains why they are in such demand by criminals, who will even steal them from the mail. Thieves have dropped glue-covered bottles tied to a string into the U.S. Postal Service's blue mailboxes to pull up whatever sticks — almost like fishing.

Staci Shatsoff, assistant vice president of secure payments at Federal Reserve Financial Services, says technology has enabled criminals in new ways. For example, the keys to those mailboxes have become "hot commodities" among criminals, who attack mail carriers and then copy the keys on 3D printers.

Once a check is in criminals' hands, they have gained access to the victim's account. They "wash" the check,

removing the ink with something like nail polish remover, and then either write in new amounts for themselves or sell the clean checks, which can be copied and used repeatedly. "Checks are simple pieces of paper that can be totally recreated by buying check stock at Amazon or Staples," says Benda. "It's hard to fight." FinCEN received over 15,000 reports of mail theft fraud totaling more than \$688 million in the six-month period between February and August 2023. That same year, the Association for Financial Professionals released a survey showing that check fraud was the top threat to business-to-business transactions, with 63 percent of respondents experiencing attempted or actual check fraud.

HIGH-TECH HIJINKS

Advances in technology have also unlocked new, more sophisticated methods of payments fraud. In April, cybersecurity software firm Imperva released a report noting that 37 percent of all web traffic in 2024 came from "bad bots." These small pieces of software are programmed to perform harmful tasks, such as gathering individuals' sensitive PII from banks and commercial websites or exploiting vulnerabilities in authentication processes to gain control of an individual's or business's account in what is known as account takeover fraud. The report found that banks are a top target for the bots, as about 40 percent were directed at

the financial sector, and 12 percent of those were payment fraud bots sent to conduct account takeovers. Estimated global losses this year alone due to account takeover fraud are around \$17 billion. Artificial intelligence (AI) has made tracking and combating these bots more difficult, enabling even criminals with no programming skills to create new, more harmful bots designed to avoid detection and successfully hack into secured systems.

In many cases, criminals use the bots to steal PII, not with the goal of account takeover, but to create entirely new synthetic identities. These combine the PII of several different people to come up with a new, fictional identity. For example, fraudsters may open a new account or line of credit using one individual's stolen Social Security number and birth date but someone else's name and address, making it harder to trace because it's very difficult to find a person who doesn't exist.

Shatsoff points out that the criminals creating these synthetic identities are patient. "They'll take these synthetic identities, open lines of credit, and act as if they're good customers," she notes. "They drive up their line of credit because they often make purchases in line with daily life and pay off those purchases every month, but once they get it to whatever amount they feel is comfortable, they max it out and then disappear."

That patience paid off for these fraudsters during the COVID-19 pandemic, as many of these synthetic identities established well before the pandemic created fake businesses and then applied for loans through the federal government's Paycheck Protection and COVID-19 Economic Injury Disaster Loan programs, which were meant to help keep businesses afloat during the unprecedented upheaval. The Small Business Administration's (SBA) inspector general estimated that over \$200 billion, or 17 percent of all disbursed funds, went to potentially fraudulent actors. Since the pandemic, however, the SBA, along with other federal agencies and financial institutions, has recovered nearly \$30 billion of those funds.

IMPOSTERS!

While synthetic identity fraudsters create new individuals on paper, AI has enabled some criminals to more effectively assume the identities of real people. In early 2024, it was reported that an employee of a Hong Kong-based financial firm was tricked into sending \$25 million to fraudsters who used "deepfake" technology to impersonate bank leadership on what the employee believed was an internal video call. The employee recognized the individuals appearing and speaking on the call, leaving no reason to doubt their authenticity. He only realized he had been scammed after following up with the firm's head office.

There have not been any reports of this happening to any financial institutions in the United States yet, but Benda of the American Bankers Association believes it is bound to happen. He notes that companies can purchase an avatar of their CEO, which can send congratulatory messages to employees without the CEO actually having to participate. "These avatars act and sound exactly like the person," he

points out, "and we have seen scammers using real-time deepfake technology in romance scams, so it's only a matter of time before you see that in a more complex endeavor."

Imposter scams like these can take on a variety of forms, with fraudsters posing as business or government officials or establishing seemingly romantic relationships with potential targets. In these scams, targeted individuals are deceived into giving money or account details to someone they believe they can trust, when in reality they have been tricked, sometimes with devastating consequences.

Government imposter scams in particular are on the rise, as losses from these increased from about \$618 million in 2023 to \$788 million in 2024 — a nearly 28 percent jump in just one year. Raval of the FTC lays out how someone might be convinced to turn over their life savings to a fraudster posing as the commissioner of the FTC, for example. "First, someone calls you and says, 'We're Amazon, and there are unauthorized purchases on your account,'" he says. "And then Amazon says, 'We'll transfer you to the FTC,' and then someone claiming to be the commissioner tells the victim they need to move money out of their accounts to 'protect' it."

Developing the level of trust required to convince a stranger to turn over sensitive financial information can take a while. These longer-term scams are known as "pig butchering," as the victim ultimately meets a brutal fate when they realize their assets have been stolen. Many of these long-term schemes begin with a phone call made to a "wrong number," a connection on a dating app, or in the classic example, an email from a Nigerian prince. Over time, particularly in connections initiated on a dating app, the fraudster may bring up an investment opportunity and indicate they would be willing to manage the process if their target were to either transfer the money to them or provide their account details.

More recently, many of these investment scams have been focused on cryptocurrency, with Chainalysis, a blockchain data analytics firm, estimating that crypto fraud scams amounted to over \$12 billion in 2024. Nearly a third of those funds were lost through pig butchering scams, which grew over 40 percent from 2023.

TRYING TO FIGHT BACK

Different forms of fraud require different responses from the parties impacted by the crimes. In the case of checks, many major banks are urging their customers to avoid mailing them and instead pay bills using cards, digital payment methods, or automated bill pay services.

"If you think of the nature of a check versus digital, there are just a lot more touch points where something can go wrong," says Shatsoff. She also notes that according to the Federal Reserve Payments study, although check use has fallen over time, the reported losses due to check fraud continue to increase year over year based on data from Nasdaq. (See "Speeding Up Payments," *Econ Focus*, Fourth Quarter 2017.)

In instances where individuals and businesses do have to write checks, banks have shared a list of best practices at practicesafechecks.com. They suggest using permanent

gel pens, which have ink that is more difficult to remove. If the check is being sent in the mail, they suggest using mailboxes inside the post office rather than curbside or residential boxes. These steps are meant to protect both the account holder and the bank from criminals who sell stolen checks and instructions online for committing check fraud. Small businesses, for example, can be forced to shut down if one of these rings acquires its account information or is creating fraudulent checks from their account. In the cases of these unauthorized transactions, the banks will typically reimburse the victim, but the damage may have already been done.

More broadly, banks and organizations like the FTC and Federal Reserve engage in significant efforts to educate consumers about what fraud looks like in all its forms. For example, to combat bank fraud, where fraudsters pose as banks to collect consumers' PII or account details, the American Bankers Association developed the #BanksNeverAskThat campaign, reminding customers that banks will never ask for account PINs or passwords over the phone or personal details in text messages.

Individuals, however, still fall prey to these scams and the belief that they are giving money or account details to someone they trust. In these cases, where the transactions are authorized by the account holder, it is often much more challenging for the customer to be made whole.

Benda notes that in some cases where bank tellers suspect a customer who wants to transfer large amounts of cash to another individual is being scammed, they may require the customer to sign a statement that the bank believes they may be being defrauded. "It's a hard thing for a bank to be put in that position," he says. While banks cannot dictate how customers spend their money, the goal is to prevent the customer from engaging with criminals in the first place.

At the other end of these communications are people who

themselves are often victims of fraud. Tricked by promises of a better life or trafficked, many people in Southeast Asia are lured to Myanmar and Cambodia and end up trapped in what amount to prison-like scam compounds run by international crime syndicates. There, they must sit in front of computer screens and run these scams using highly advanced and hard-to-combat AI technology to defraud their victims of a certain daily dollar amount or suffer physical abuse. Human rights advocacy organization Amnesty International identified 53 such farms in Cambodia alone, which generate between \$12.5 billion to \$19 billion annually, or 60 percent of the country's GDP.

The syndicates running these operations are difficult to stop, as their methods leverage evolving technologies that help them evade detection. Benda stresses that banks must have additional technological controls to stop them: "Can they identify an artificial voice? Can they look for mass password resets? Can they track the location of where a call comes from or where an account is being accessed?" Banks, of course, vary in their size and resources, and while some larger banks can build these controls internally, smaller community banks must rely on external service providers and off-the-shelf solutions.

In the meantime, the Fed continues to educate the public, businesses, and financial institutions about the dangers and methods of scammers. It and other federal bank regulatory agencies (the Office of the Comptroller of the Currency, and the Federal Deposit Insurance Corporation) announced a formal request for information in June, on potential actions to help consumers, businesses, and financial institutions mitigate risk of payments fraud, with a particular focus on check fraud. The comment period will remain open until Sept. 18.

"How can we better look at fraud and have a more strategic approach? It's hard to make an impact if everybody's just working in their silos," says Shatsoff. **EF**

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Carmen Reinhart

On twin financial and currency crises, the future of the dollar, and sovereign debt

Carmen Reinhart is a leading authority on financial crises in both advanced and emerging economies thanks to timely and groundbreaking research like her acclaimed 2009 book, *This Time is Different: Eight Centuries of Financial Folly*, with frequent co-author and fellow Harvard University economist Kenneth Rogoff. Yet despite the influence she has had on the profession, she wasn't drawn to economics until later in life.

"In high school, I would have been shocked if someone had told me I'd become an economist," she says. "I wanted to study fashion design."

Fortunately for everyone who has benefited from her research over the years, she hated her college courses in fashion merchandising and was instead drawn to her principles of economics class. Once she made the switch, international topics became an early focus. After completing her master's degree at Columbia University, she went to work for Bear Stearns in March 1982. About five months later, Mexico defaulted on its debt, engulfing numerous Latin American countries and U.S. banks in a crisis and solidifying Reinhart's interest in international economics.

"My research has always been very influenced by real-time events," she says.

She became Bear Stearns' chief economist in 1985 before returning to Columbia University to complete her Ph.D. in economics under future Nobel laureate Robert Mundell. Afterward, she served as an economist at the International Monetary Fund (IMF) until 1996, when she joined the faculty of the University of Maryland. She has held top positions at the IMF, the World Bank Group, and the Congressional Budget Office Panel of Economic Advisors, among other institutions. Since 2012, she has been the Minos A. Zombanakis Professor of the International Financial System at Harvard's Kennedy School. In addition to her work on financial crises, she has studied international capital flows, the effects of government debt, the costs of default, and exchange rate systems, among other topics.

Tim Sablik interviewed Reinhart in April.



EF: You were born in Cuba and immigrated to the United States with your parents at the age of 10. Did your childhood experiences shape your economic research interests?

Reinhart: I think they did in two ways.

One is not specific to economics, but my experiences instilled in me the value of education. I remember my parents telling me that education is what you take with you. We were refugees. My parents had to leave all their worldly possessions behind — we came to the United States with just three suitcases. My parents' human capital was really all they had, so the importance of education was driven home for me from an early age.

In terms of the economic dislocations I saw in Cuba — the default, the collapse of the currency, the embargo — I did not realize it at that time because I was very young, but in hindsight I think those definitely played a role in my interest in international crises.

EF: Was that interest in international issues what led you to the IMF early in your career?

Reinhart: After I finished my field exam at Columbia, I convinced myself that I could work full time at a brokerage firm and do my dissertation. Needless to say, that did not happen.

I went to Wall Street in March 1982, and Mexico defaulted on its debt in August. I remember [Fed Chair] Paul Volcker talking about the exposure U.S. banks had to Mexico and Latin America, and we were all watching the dominos start to fall. It reinforced my already strong interest

IMAGE: COURTESY MARTHA STEWART

in international economics. Those were very volatile years, but also quite formative.

It was around this time, too, that the IMF's involvement in the developing and emerging market world really began in earnest. In its early years, a lot of the IMF's programs were focused on advanced economies like the U.K. or even the U.S. Of course, Argentina was one of the first clients of the fund. But this was the first time the IMF faced widespread issues, balance of payments crises, and debt crises. It wasn't just confined to Latin America; the Philippines were also having a debt crisis. I became very intrigued by the work the IMF was doing. So, after about four years at Bear Stearns, I went back to do my dissertation at Columbia. I did it in nine months because I really knew what I wanted to write about.

My advisors, Bob Mundell and Ron Findlay, wanted me to go into academia, but I was determined to go to a policy institution. I chose the IMF, and it was an excellent experience. Being in the research department offered me the combination of a policy and an academic position. I was exposed to what the institution was doing with its lending programs in various countries. At the same time, I was in a very academic setting and, as a young person, having time to do research is invaluable at that stage in your career. I was very fortunate that Guillermo Calvo, who had been at Columbia and had been my professor, was there as a senior advisor in the research department. Jacob Frenkel was the research director and chief economist, and it was a very good environment for a young person to land in.

EF: You wrote one of your seminal papers around this time with Graciela Kaminsky exploring the idea of “twin crises,” which refers to the propensity of banking and currency crises to occur together and amplify one another. The topic got a lot of interest after the Mexican peso crisis of the mid-1990s and the Asian

financial crisis a few years later. Are twin crises limited to emerging market economies, or could a similar style crisis happen in the United States?

Reinhart: The U.S. is not a particularly good example. Twin crises have occurred in advanced economies, and some were included in our study, but what has made the U.S. different historically is the dollar's reserve currency status. You can see this clearly during the global financial crisis of 2007-2009. The subprime

Twin crises have occurred in advanced economies ... but what has made the U.S. different historically is the dollar's reserve currency status.

mortgage problems started evolving in the U.S. first before spreading to other countries. Despite that, people were running to the dollar and to Treasuries. Vincent [Reinhart] and I wrote a piece at that time in which we observed that it's not often that you see people running into a burning building! But that was what was happening.

Thinking about other advanced economies, the U.K. had a twin crisis. The eurozone is much more difficult to categorize, but the euro did crash against the dollar around the time of the global financial crisis. It's not really appropriate to say Ireland had a twin crisis, because Ireland doesn't have its own currency anymore, but Iceland certainly did. And there were twin crises in Sweden, Norway, and Finland in the early 1990s, which were included in our study. Those were subsequently seen as role models for how to handle a twin crisis. But in the U.S., it has played out differently because of the dollar's reserve currency status. Historically, when there is a global crisis, we see a flight to the dollar. Now, I have to say, we've

experienced some global turbulence in recent weeks, and we haven't seen that flight to the dollar this time. So things might be changing, but that remains to be seen.

EF: On the topic of the dollar's special status, in a 2019 *Quarterly Journal of Economics* article with Ethan Ilzetzki and Kenneth Rogoff, you wrote that “the dollar remains dominant in the twenty-first century and by some measures is even more central to the international monetary system than in the heyday of the Bretton Woods system.” Do you still feel that way?

Reinhart: That's a question I've been getting more and more these days.

When we talk about the dollar's dominance, it's important to first remember that central banks and investors are not buying greenbacks, they're buying Treasuries. And it is the unmatched liquidity of the Treasury market that supports the role of the dollar. Ethan, Ken, and I wrote a companion piece to the paper you mentioned titled, “Why Is the Euro Punching Below its Weight?” When the euro came into being, for a while it looked like, while it might not replace the dollar, you could have a situation with dual reserve currencies. Before the global financial crisis, investors tended to view all European debt — whether it was French debt, German debt, Greek debt, or Irish debt — as close substitutes. Of course, the global financial crisis completely destroyed that perception. What it boils down to is that you have very fragmented debt markets in the eurozone that don't offer the liquidity of the U.S. Treasury market. The euro is a unified currency, but there is no unification of the underlying assets that support the currency.

Others have argued that the Chinese renminbi could be a contender to replace the dollar. I've never really entertained that possibility because, as Rudi Dornbusch used to say, people only go to a party if they think they

can leave whenever they want to. China has capital controls, which directly impacts the liquidity of their debt market. How could you have as a reserve currency an underlying asset that in a time of need you can't sell? So, our argument about the dollar's dominance as a reserve currency in the 2019 article rested on a lack of alternatives.

Now, let's fast forward to today. There's a lot of economic and policy uncertainty and, contrary to other moments of global stress, the dollar has depreciated rather than appreciated. Is this the end of the dollar era? Let's not jump the gun. The dollar has had numerous crashes in the postwar era without losing its reserve currency status. The breakdown of the Bretton Woods system saw the dollar depreciate more than 50 percent against the German deutsche mark, for example.

Another thing that some people worried about the dollar's status have pointed to is the fact that reserve accumulation of dollar assets around the world has slowed and even begun to decline. That is true, but I think it is overstated. If you look at the Federal Reserve's balance sheet, the rest of the world has bought fewer Treasuries but more repurchase agreements. So there has been a substitution but not away from the dollar. It is a substitution between two different dollar assets.

Having said all this, are there new developments that could allow another currency to compete with the dollar? I think so. I mentioned that the eurozone has fragmented, comparatively illiquid debt markets, and the German market, which is the most desirable from a reserve currency point of view, is small compared to the United States. The Germans have not been issuing a lot of debt, but more recently we've seen increased German willingness to provide fiscal stimulus and thus issue more debt. We've also seen efforts to start thinking about a common eurozone debt instrument. Both of those things are not going to happen overnight, but the development of deeper markets would be supportive of the

Carmen Reinhart

■ PRESENT POSITION

Minos A. Zombanakis Professor of the International Financial System, Harvard Kennedy School

■ SELECTED PAST POSITIONS

Senior Vice President and Chief Economist, World Bank Group (2020-2022); Professor, University of Maryland School of Public Policy and Department of Economics (2000-2010); Senior Policy Advisor and Deputy Director, International Monetary Fund (2001-2003)

■ EDUCATION

Ph.D. (1988), M. Phil (1981), M.A. (1980), Columbia University; B.A. (1978), Florida International University

euro gaining more ground. Still, it's too early to tell, and I don't think we should interpret the fluctuations of the dollar's value as necessarily telling us anything about its future as an anchor currency.

EF: The U.S. and many other countries took on a lot of debt in their response to the COVID-19 pandemic. You became the chief economist at the World Bank in June 2020, in the middle of that crisis. What are your thoughts on the fiscal and monetary policy responses to the pandemic? What lessons should policymakers take away from that episode?

Reinhart: When Ken and I wrote *This Time is Different*, we focused on the histories of a broad swath of economic crises — banking crises, sovereign debt crises, currency crashes, inflation, and so on. But a health crisis? You have to go back to the influenza epidemic of 1918. This wasn't the sort of crisis that fit the pattern we described in the book: a period of increased leverage leading to asset price bubbles and then a crash. So, I was one of the people during the COVID-19 pandemic saying that this time really was different! This was not the time to worry about debt accumulation.

We faced a massive global shock that led to the most synchronous decline in global per capita GDP in over a century. In the World Bank's 2022 *World Development Report*, we have a chart that shows the share of countries globally that experienced a decline in their annual per capita GDP going back to 1900. The share during COVID was close to 90 percent, which was higher than during both World Wars and the 1930s.

That said, one can be critical of specific aspects of the fiscal response. My colleagues Jason Furman and Larry Summers have both been very vocal about the U.S. having done too much stimulus. Certainly, we were at the top of the distribution. But I think the relatively swift moves toward monetary and fiscal stimulus helped mitigate the fact that economic activity came to a screeching halt. In countries like the U.S., greater fiscal and monetary capacity allowed the governments to respond swiftly and strongly to the crisis.

Another lesson that became a sort of mantra when I was at the World Bank was the importance of building resilience. We all learned the importance of paying attention to supply chains for crucial goods like food and medicine. In the case of fiscal stimulus, it suddenly became important to think about how you can disburse transfers rapidly. This was a particular concern for countries with poor levels of digitization, but it was also a question that came up in the U.S. So, we need to pay more attention to resilience building. These types of shocks, which we thought were long gone, are still with us.

EF: What are the costs of sovereign debt accumulation on economic growth?

Reinhart: For countries with over 90 percent debt-to-GDP, average growth is about 1 percent slower per year. While the idea of a "debt threshold" at which growth slows down has been a bit overdone, certainly there are past and modern examples of advanced

economies that have had a perceived debt overhang for some time and much slower growth.

In recent years, there has been more concern about debt in the U.S. and other advanced economies. I've been concerned about debt accumulation for a long time, but until recently, there was a lot of complacency around sovereign debt that stemmed in part from the fact that, since the global financial crisis, we have had a stretch of time where real interest rates were negative. In the case of Europe and Japan, even nominal rates were negative. In that environment, it is very easy for growth rates to exceed interest rates. I never shared that complacency, though, because interest rates move. Some people began to think that low for long meant low forever.

EF: Are you concerned that U.S. debt is approaching a level where it might start to weigh on growth?

Reinhart: The recent surge in U.S. debt has outpaced many other advanced economies. Since the end of the pandemic, we've had ample opportunity — with a very tight labor market — to deliver more balanced budgets that would not continue to add to our debt, but we haven't done so. Am I worried? Yes. Debt servicing has become more costly. Additionally, in the recent past when inflation and interest rates were low for long, volatility was suppressed. Now we have a combination that is much more difficult to manage: very high levels of debt, higher interest rates, and higher volatility. This is a scenario that many people had discounted prior to the inflationary shock that came at the tail end of COVID.

The issue that I've always highlighted in my work is that there's no silver bullet for dealing with high levels of public debt. Many countries might wish they could grow out of their debt, but that's aspirational. Japan has been aspiring to grow out of its debt for decades. This is complicated by the fact

that, as we discussed, growth is slower in periods of high debt burdens. That finding is based on long historic averages. If you look at Greece's recovery from the global financial crisis, their per capita income in recent years was still below what it was before the crisis. So, there are no easy ways of delivering debt reduction. Growing out of the debt is unlikely if growth is slowing. Fiscal tightening is difficult. Inflation as a

The issue that I've always highlighted in my work is that there's no silver bullet for dealing with high levels of public debt.

means of debt reduction is very unappealing. Debt restructuring, which is another term for defaulting, is also very unappealing.

EF: In aftermath of World War II, the U.S. and other countries reduced their debt burden through a variety of policies that you and others have called "financial repression." This includes things like capping interest rates or requiring domestic financial institutions to hold government debt. Do you think financial repression could be used to address current debt levels?

Reinhart: I think we've already been doing some of that, perhaps without being so aware of it. Going back to 1900, there have only been four periods of sustained, negative real short-term interest rates: World War I, World War II, the 1970s, and the last and longest was following the global financial crisis. Each of those periods drove inflation higher. And, especially around World War I and in the aftermath of World War II, financial repression played a big role.

The modern financial repression after the global financial crisis was a milder version of what we saw at the end of World War II. Financial

repression is essentially trying to get better financing terms for the government, enabling a country to borrow at a lower cost than it otherwise would have. There are mild and more extreme versions, but what you typically see in financial repression episodes are negative ex-post real interest rates. If you have a negative real return, that's a tax on the bondholder. The question is, how do you ensure bondholders pay that tax? At the end of World War II, the U.S. and everyone else had capital controls. That makes it easier to get banks, firms, households to hold your debt even if returns are negative because they can't hold any other assets from abroad. It immediately restricts the menu of possibilities.

We didn't see anything that draconian after the global financial crisis, but we did see milder versions. Banks were asked to hold higher shares of their portfolio in government securities. Now, one could say that policy was strictly for macro prudential reasons. But the fact is, it generated captive audiences. Besides the macro prudential reasons, how much moral suasion was applied to financial firms? I think it varied from country to country. I remember delivering the Angelo Costa lecture in Rome as the Greek debt crisis was unfolding in 2011, and the dinner conversation revolved around the Italian Treasury twisting the arms of banks to buy government bonds to improve the outcomes of government debt auctions. In Spain, the public pension fund, which was diversified before the global financial crisis, ended up holding practically 100 percent in government paper. That said, we did not see extreme examples of financial repression after the global financial crisis. There wasn't a return to capital controls. At the end of World War II, capital mobility was not the norm as it has been in the modern era.

Looking ahead, I think financial repression of the milder form that I just described was easier to justify and

deliver in the decade and a half after the global financial crisis. There was the perception that interest rates would be low forever. There were all kinds of explanations for why real interest rates were negative and would remain low. I think perhaps one explanation that was underweighted in much of that discussion was the fact that central bank balance sheets grew a lot during the global financial crisis. That allowed for ample monetary accommodation without inflationary consequences, and it facilitated low-to-negative real interest rates. With the post-COVID inflationary spike, we seem to be heading into an era with more uncertainty and higher levels of volatility, so I think that sort of mild financial repression will be much more of a challenge to implement.

EF: As you and many other economists have documented, dealing with debt is generally preferable to default, as the economic costs of defaulting can be substantial. You've recently been studying the social costs of sovereign default. What have you found?

Reinhart: The social costs of default have been overlooked in the economics literature. Typically, when one thinks of all the costs of default, there are the political costs, the fear of retaliation

in terms of getting shut out of capital markets, and the economic costs. But related to those economic costs, you could think about the costs for households in terms of nutrition or health outcomes, for instance. And the research on those costs was a blank sheet. So, I wrote a paper with Juan Farah-Yacoub and Clemens Graf von Luckner, former students of mine, trying to quantify those costs.

The results are pretty striking in terms of direction and duration. Life expectancy compares poorly versus the non-defaulters, and there is some increase in infant mortality. But the biggest effect that we see, apart from per capita GDP, is on poverty measures and things like caloric intake. So, the human toll of sovereign default is significant and long-lasting.

EF: What else are you working on now?

Reinhart: I'm in the process of revisiting the massive database on crises that Ken and I created for *This Time is Different* — expanding the coverage and bringing it up to date. Related to what we've been talking about, globally we've weathered a lot of storms in the last decade. Some classic storms, like the crashing commodity prices for many emerging markets in 2015, and then subsequently the COVID-19

pandemic and the inflation spike that followed. So far, a lot of the dislocations that we saw in the 1980s, the debt crises erupting in many different countries, have been avoided, except for in low-income countries.

A lot of those low-income countries borrow from China. One big area that I have been working on in recent years is China's overseas lending. I recently completed a paper on this topic for the *Journal of Economic Perspectives* with my co-authors Sebastian Horn and Christoph Trebesch. China's overseas lending has outpaced the World Bank and is greater than the IMF and the Paris Club combined. The World Bank's lending only caught up to China's in the last couple of years following the COVID-19 pandemic.

But China now has its own financial problems with a housing market crash and a lot of provincial debt. Adding to those problems is the fact that many of the countries China has been lending to can't repay. This is a topic that is being discussed at institutions like the IMF and the World Bank, and it is something I'm going to continue to work on and see how it plays out. This year, I think tariffs and the prospects of a global recession will take center stage, but this issue of how to resolve the debt problems that have accumulated in lower-income countries is not going away. **EF**

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BY CHARLES GERENA

Going Beyond the Data

Data yield valuable insights into the economy. But what if economic changes are happening faster than the speed of data collection and reporting? The Richmond Fed has various outreach programs that continually monitor business activity throughout the Fifth District.

One of the Bank's oldest programs is the industry roundtables. Groups of business leaders meet two to three times a year to provide firsthand, real-time feedback on the current state of the economy from the perspective of their companies and their industries. This human intel can provide advance notice of economic trends before they are reflected in the data.

The industry roundtables began in 2010 as a way to get more direct and deeper input from businesses. At the time, the Richmond Fed relied on the insights of the nine people on its board of directors in Richmond and the seven-member boards at its Baltimore, Md., and Charlotte, N.C., branch offices, as well as comments from respondents to its regional business surveys and telephone interviews with Beige Book contacts. While all of those sources were informative, they provided little opportunity for in-depth discussion.

Then, the Richmond Fed saw how other Reserve Banks were using industry-focused roundtables and decided to develop a similar outreach effort at its Baltimore, Charlotte, and Richmond offices. "We decided to not go with industry-specific roundtables but instead with roundtables that had a cross-section of industries," recalls R. Andrew Bauer, vice president and regional executive at the Richmond Fed's Baltimore branch. He worked with Robert Schnorbus, a former regional economics manager at the Bank, to set up the Baltimore roundtable.

"The roundtables greatly expanded our ability to gather qualitative information," says Bauer. This success led to the development of additional roundtables in subsequent years in Charleston, S.C., Charleston, W.Va., Raleigh, N.C., the Asheville, N.C.-Upstate South Carolina region, and the North-Central region of West Virginia.

Each industry roundtable has 12 to 16 participants representing various sectors of a region's economy, with at least one member who has a community development or workforce development perspective. "We try to get a diverse representation of industries at the table," says Joseph Mengedoth, a regional economist in Richmond who manages the local roundtable. "So, typically if we have someone representing manufacturing rolling off, then we look to bring someone else from manufacturing on."

Human intel can provide
advance notice of economic
trends before they are
reflected in the data.

Members typically serve three-year terms so that each roundtable's makeup is refreshed on a regular basis.

Following each roundtable meeting, anecdotes are summarized for Richmond Fed President Tom Barkin and the team of economists that advises him on monetary policy. Meetings are staggered so that at least two fall between the Federal Open Market Committee's deliberations on monetary policy.

This anecdotal information also feeds into the Bank's contribution to the Beige Book as well as other published work. For example, a Macro Minute post in February 2023 was inspired by information shared at a Richmond roundtable meeting by Ken Simonson, chief economist of the Associated General Contractors of America, while anecdotes from the Asheville/Upstate roundtable fleshed out a Regional Matters post in October 2024 on Hurricane Helene.

Bauer says that a Baltimore roundtable member from the Maryland Port Authority provided timely information on the impacts of the Francis Scott Key Bridge collapse in March 2024. More recently, at a February 2025 meeting of the Baltimore roundtable, a homebuilder based in Howard County, Md. — home to more than 20,000 federal workers — reported a downturn in foot traffic and general activity, possibly due to uncertainty as a result of federal spending cuts.

The industry roundtable participants also find the discussions valuable. Kenzie Biggins, founder and CEO of Worxbee in Greenville, S.C., is a self-professed economics nerd, so she welcomed the opportunity to join the Asheville/Upstate roundtable in 2023. "Being part of the roundtable helps me connect that micro perspective to broader economic patterns," Biggins says. "It has also been a great way to build relationships with leaders in other sectors."

Biggins has been a good resource for Bethany Greene, who joined the Richmond Fed last August as the regional economist in Charlotte. "The roundtables have been useful in helping me understand how regional conditions differ from the national narrative, as well as how they differ by industry," Greene notes.

For example, two members at a recent Charleston, S.C., roundtable noted that labor markets remained tight, contrary to national data that showed labor demand and supply coming into better balance, Greene recalls. But another member mentioned that applicant pools were improving. "It was a helpful reminder that a single data point does not tell the full story." **EF**

BY JOSEPH MENGEDOTH

What's Driving Rural Population Growth?

Population decline is a familiar story for many rural areas and small towns: Children grow up and leave for college or move to a larger city with more job opportunities. With fewer working-age adults left, some rural employers might leave as well, and new businesses may be reluctant to move in. This self-reinforcing cycle of population decline can continue for decades.

In the Fifth District, counties that are today considered small towns or rural are more likely than urban counties to have been shedding population for three or more of the decades between 1970 and 2020. In contrast, about 63 percent of counties that grew in each of those five decades are urban. (See chart.) The term “rural” refers to counties with a U.S. Department of Agriculture Rural-Urban Continuum Code (RUCC) of 3 or greater, and “urban” refers to counties with a RUCC of 1 or 2. (For more on rural definitions, see “Definitions Matter: The Rural-Urban Dichotomy,” *Econ Focus*, Third Quarter 2018.)

While rural areas are more likely than urban places to have a shrinking population, some have bucked this trend. About a quarter of the rural counties in the Fifth District saw five straight decades of growth between 1970 and 2020. Of those that declined, about 40 percent only lost population in one or two of the last five decades. For nearly all of those counties, one period of decline was between 2010 to 2020, the decade following the Great Recession.

Population growth has continued in almost 90 percent of the rural areas that were growing between 1970 and 2020. Additionally, about 40 percent of counties that lost population between 2010 and 2020 have started growing again. Some rural counties that experienced more long-term decline have also

started growing in recent years. What do these growing rural counties have in common? And is there a formula for success?

DEMOGRAPHICS OF POPULATION GROWTH

The population of the United States is aging, and while rural areas tend to have higher concentrations of older adults, both rural and urban places have seen their share of residents over the age of 65 increase in recent years. Rural counties in the Fifth District saw an average increase of about 6 percent in this group between 2020 and 2023, while urban counties saw an average increase of about 10 percent. Growth in the senior population doesn't necessarily mean that more retirees are moving to these places; it could simply be the result of residents aging in place, or a combination of both.

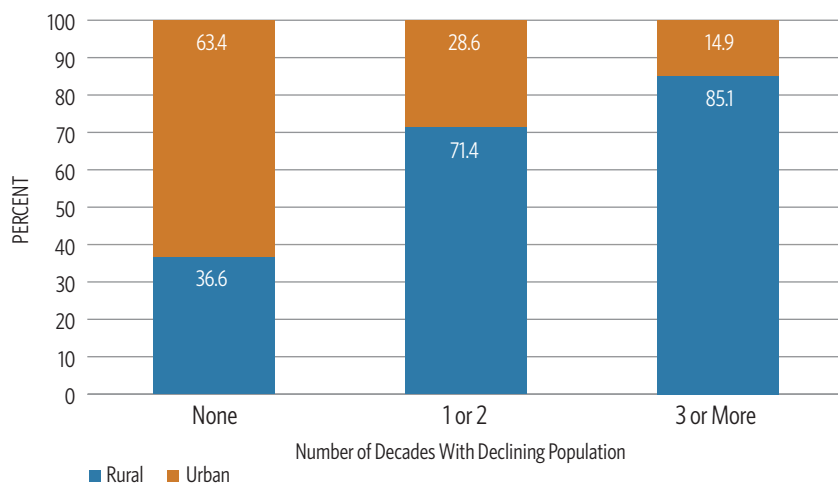
Despite the aging of the population, Richmond Fed research shows that the median age of several rural areas has been falling. This is likely the result of both aging in place and in-migration of younger adults. Unfortunately, the data do not show the ages of in-migrants, requiring researchers to look at growth in population groups. Nearly all counties that gained population saw growth in prime working-age adults.

Having more working-age adults increases the available labor supply, which is something that new businesses consider when choosing a location. Just as an outflow of working-age adults can contribute to a vicious cycle in which employers also leave and drive further population loss, growth in the share of this age group can fuel a virtuous cycle that attracts more employers and more residents.

There is also significant overlap in the age ranges considered prime working age and prime fertility age. Growth

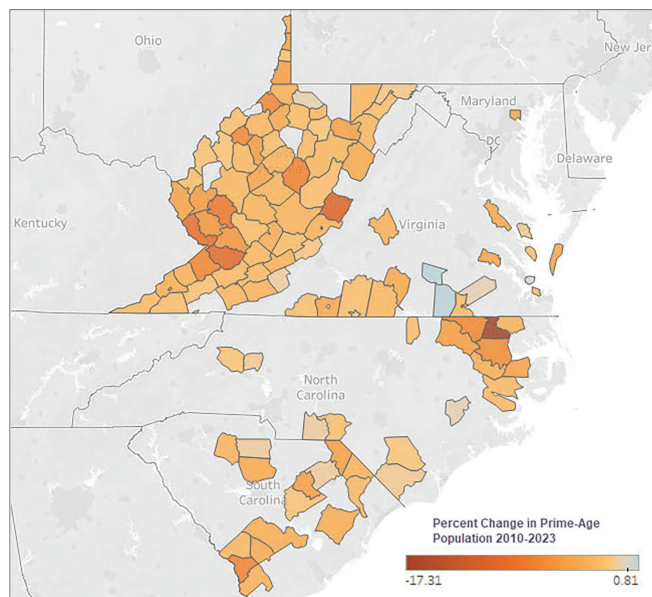
Decades of Decline

Fifth District counties that lost population in multiple decades between 1970 and 2020 are more likely to be rural



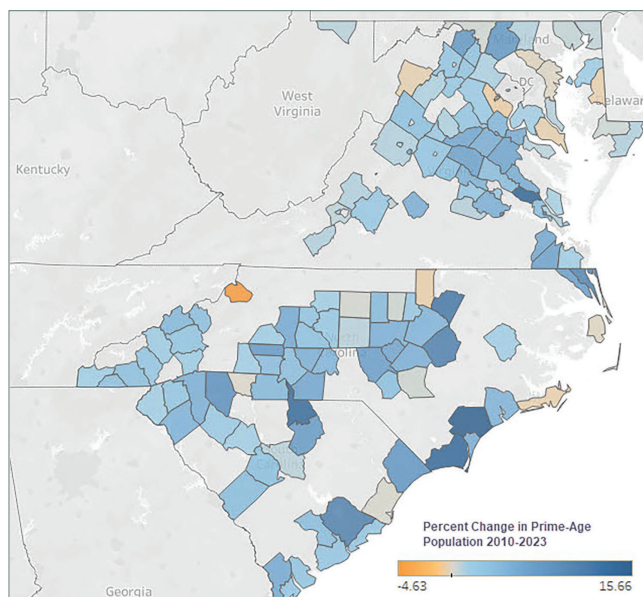
SOURCE: U.S. Census Bureau

Trimmed Prime-Age Declines in Shrinking Counties



SOURCE: U.S. Census Bureau

Trimmed Prime-Age Growth in Growing Counties



in prime fertility-age adults increases “population momentum,” as these adults are the most likely to have children and grow the population naturally.

We see this correlation between prime working-age adults and longer-term population growth in the regional data. Nearly all Fifth District counties that lost population from 2010 to 2023 saw a decline in prime working-age adults (ages 25 to 54). Conversely, nearly all counties that grew in that period saw growth in prime working-age adults. (See maps). On average, this age group accounted for 36 percent of each county’s total population in 2023.

Studies have shown that this growth in prime working-age adults is, at least to some extent, the result of in-migration. A 2024 article by Hamilton Lombard of the University of Virginia’s Weldon Cooper Center for Public Service showed that since 2020, younger adults have been moving out of urban areas to smaller towns and rural areas and bringing higher incomes with them. “Small towns and rural areas have been attracting younger adults at the highest rate in nearly a century,” Lombard wrote. And

this is happening at a time when fewer people are moving overall.

Additionally, a 2024 article by Alan Berube of the Brookings Institution found that remote or hybrid working arrangements were likely behind the move of younger adults to rural areas where housing is available and affordable. He also noted that growth seemed to be concentrated in areas that were near a metro area.

GEOGRAPHIC FEATURES OF GROWING RURAL COUNTIES

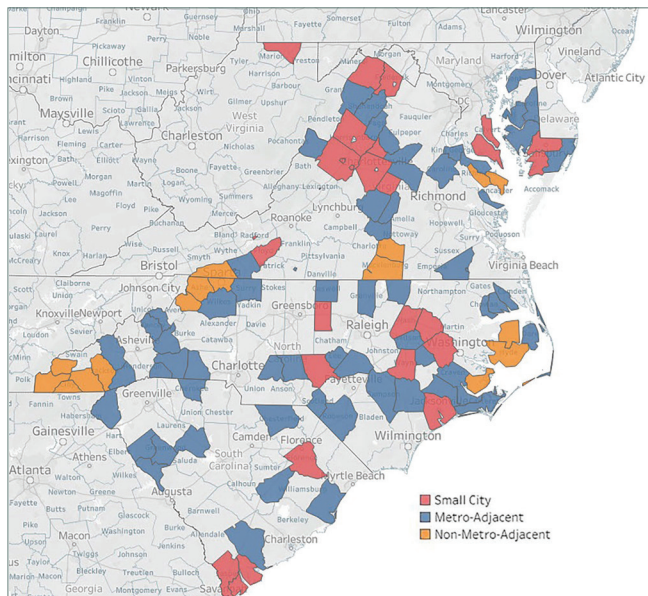
Berube’s finding that population growth has been concentrated in metro areas and in smaller cities holds true for the Fifth District. Among the 107 rural counties that had population growth between 2020 and 2023, the vast majority (85 percent) are connected to a metropolitan area in some way. Twenty-six of them have an RUCC of 3, which is defined as a small city. And 65 counties are considered metro-adjacent, meaning that at least one border touches a county that is part of a Metropolitan Statistical Area, or MSA. These are counties with an RUCC of 4, 6, or 8. (See map.)

Proximity to a metro area does not guarantee growth, however. For example, while most of the exurbs around Raleigh, N.C., are growing, Vance County, to the northeast of the city, saw its population decline between 2010 and 2023. Similar examples can also be found around other metro areas.

The availability of more affordable housing compared to the nearby cities may explain some of the growth in these adjacent counties. The median home prices in counties adjacent to a metro area are typically lower than the median price in the metro area that they border. For example, in Raleigh, the median home price within the MSA (according to the Census’ 2023 American Community Survey) was around \$440,000, while the median prices in neighboring Nash and Wilson counties were around \$211,000 and \$212,000, respectively.

The ability of rural counties to grow might depend on their ability to build housing. Here, topography plays a role. Generally, flatter land is more conducive to building houses. A 2020 report by the Center for Real Estate at Portland State University estimated

Metro Adjacency of Growing Rural Counties



SOURCE: U.S. Department of Agriculture, 2023 Rural-Urban Continuum Codes

that building a home on moderate to steeply sloped land increased the overall cost of a house by a range of 6 percent to 37 percent.

In the Fifth District, counties with land considered to be plains are more likely to be growing. Using the natural amenity data provided by the U.S. Department of Agriculture, which categorizes land type at the county level and identifies counties as having plains, tablelands, hills, and mountains, about two-thirds of the rural counties that are considered plains have experienced population growth in recent years. Meanwhile, counties with a lot of hills are most likely to be losing population. There are no counties in the Fifth District considered tablelands. (See table.)

While plains tend to be growing and hilly areas tend to be shrinking, counties that are mountainous are more evenly split. In the Fifth District, these counties are all in Appalachia. Mountainous land might be more difficult to build housing on, but it is also a natural amenity that can offer desirable features, such as good views and

privacy. This could be part of the reason why some mountainous counties are experiencing population growth.

Other natural amenities that provide opportunities for outdoor recreation, such as bodies of water like lakes, rivers, and oceans, could also be attracting new residents. (See “Investing in the Great Outdoors,” *Econ Focus*, First/

Second Quarter 2024.) The data from the U.S. Department of Agriculture also include a measure for how much of a county’s land area is water. Most of the rural counties in the Fifth District are less than 10 percent water, but among the 27 counties with more than 10 percent, most of them (22 out of 27) are growing in population.

Nearly all of these 27 counties are coastal, stretching from the Eastern Shore of Maryland to South Carolina. Almost every rural county that touches the Atlantic Ocean has seen population growth in recent years, indicating that proximity to the ocean or bay is a desirable amenity.

Yet for all these geographic commonalities among growing rural areas, there are exceptions. Not every county that is connected to a metro area is growing. Likewise, flat land, scenic mountains, and other natural amenities do not guarantee growth. Some places have managed to grow without any of these features.

WHERE ELSE IS GROWTH HAPPENING?

As the previous map showed, there are some clusters of growing counties in the Fifth District that are not metro-adjacent or along the coast. Several of those are in the mountainous regions of southwest Virginia and southwest North Carolina, where natural beauty can be a draw for retirees and workers alike. In fact, most of these counties are seeing growth in prime working-age adults. Several of them have been growing for decades, and that growth is now spreading to neighboring counties.

For example, in southwest North Carolina, there are five growing counties that are not metro-adjacent. Four of them (Cherokee, Clay, Macon, and Jackson) have been growing for decades and have recently seen growth in their prime working-age populations. Some of that growth is likely due to increased remote working opportunities. According to a 2025 report from North Carolina Association of County Commissioners, the share of workers reporting working remotely has risen in each of the four counties between 2020 and 2023. In Clay County, that

Number of Counties With Population Growth or Decline Between 2010-2023 by Land Formation

Type of Land Formation	Growth	Decline
Hills	2	25
Mountains	37	49
Plains	68	35

SOURCE: U.S. Census Bureau and U.S. Department of Agriculture

share nearly doubled from 4.3 percent to 7.5 percent.

Another cluster of growing non-metro-adjacent counties is in southern Virginia, where Mecklenburg and Lunenburg counties have seen population growth in recent years after declining in several previous decades. Mecklenburg County benefits from having a large body of water, but it was also the site of a large data center built in 2010, which provided revenue that the county used to renovate its public schools. Additionally, in 2017, VCU Health opened a new hospital in the county, leading to employment growth in the education and health services sector.

WHERE IS GROWTH NOT HAPPENING?

While many places have seen population growth in recent years, there are 87 counties in the Fifth District that have experienced population decline for three or more decades. The vast majority of these (74 out of 87) are rural counties. Many of these counties have continued to shed population in the last few years, too.

While there are shrinking counties in each state in the Fifth District, almost half of them are in West Virginia. The state's population has declined in most decades since it reached a peak of just over 2 million residents in 1950. The decline in population since 1950 has coincided with a turning point in coal employment, which was around 120,000 in 1950, fell by more than half by 1960, and continued to decline for the next several decades.

In a 1999 paper, Brian Lego of West Virginia University looked at population growth throughout the 20th century and discussed how coal, and the broader energy sector, has impacted population growth at various periods of time. For example, the need for energy production in the 1970s led to a period of population growth, and changes in the energy market led to a subsequent decline. Population losses have been most prominent in the coal

mining regions of the state.

Lego also showed how the state's demographic makeup changed dramatically over the century, going from having one of the youngest median ages in the country to having one of the oldest, as many of the working-age residents migrated out of the state after the coal industry's decline. The trend of out-migration from the state has persisted since 2000, and with an

There is no magic formula for guaranteeing population growth. In some cases, the secret to success may be an unmeasurable characteristic that isn't captured in the data.

older population, the state's population has also been declining from natural change (more deaths than births).

Negative natural change is also common among counties outside of West Virginia that have been shrinking in recent years: Nearly every county in the Fifth District that lost population between 2020 and 2023 experienced negative natural changes. About half of them also have domestic out-migration, and those that have seen domestic in-migration have largely been growing in their age 55 and older population.

NO MAGIC FORMULA

What lessons can be drawn from rural counties that have grown continuously over the last half century or have reversed population loss experienced in the 2010s? As discussed, many of the rural areas that are growing are near metro areas. The rise in remote and hybrid work since the pandemic may have allowed prime-age adults to move farther from urban offices. Many of these growing exurbs have land that is suitable for building houses, and average home prices tend to be lower than in neighboring urban counties, positioning

them to absorb this in-migration of workers.

Many also have natural amenities, such as mountains, lakes, rivers, and beaches, which can be a draw for both retirees and working-age adults. Sometimes it's a new employer coming to town or one leaving that can drive population growth one way or the other.

But for all of these factors, there are exceptions. There is no magic formula for guaranteeing population growth. In some cases, the secret to success may be an unmeasurable characteristic that isn't captured in the data. Some growing rural areas might have a strong sense of place that draws people in, or a strong desire by local leaders and the political will to invest in projects that can foster growth, such as housing development, transportation systems, or broadband infrastructure.

In addition, some of the growing metro-adjacent rural counties of today may become the urban counties of tomorrow. Every 10 years, the RUCCs for each county are updated. As people move to the suburbs and surrounding counties and commute into the city for work, those areas that were once rural can become part of the metropolitan area. Of course, the reverse is also possible. If an outlying county of an urban area shrinks in population and fewer people commute to the city for work, it can be reclassified as rural.

Sometimes those changes can be quite drastic. In the 2023 RUCC update, Camden County, N.C., went from a designation of 8 (a very small metro-adjacent county) to 1 (a very urban county) because it became part of the Virginia Beach MSA. In contrast, Lincoln County, W.Va., went from 2 to 8, as it was no longer deemed part of the Huntington MSA. In addition to these classification changes, as the boundaries of metro areas change, the composition of metro-adjacent counties also shifts. If more growing rural areas get redefined as urban, it could perpetuate the story of urban growth and rural depopulation. **EF**

BY ANNA KOVNER

Researching Rural Economies

Nearly one in five Americans live in rural areas. In the Richmond Fed's Fifth District, that share is even higher — about one in four. These places are defined by the Census Bureau as being sparsely populated, having low housing density, and being long distances from urban centers. Understanding these economic differences that arise from location and population density is important to achieving the Fed's mandate to promote maximum employment, which may be affected by place-based characteristics. At the Richmond Fed, we've made it a core focus of our research team to study the economies of small towns and rural places.

Key barriers to employment in rural places include a lack of training and access to transportation. Educational attainment tends to be lower in rural places. Rural residents may have fewer opportunities to learn about and prepare for higher education. Fewer local opportunities for work can also diminish the incentives to invest in human capital. Getting to a job can also be costlier for rural residents. A 2023 New York Fed study found that transportation expenses account for a greater share of rural household expenses compared to urban households. This means that high gas prices hit rural residents particularly hard.

Not all economic problems of rural communities are unique to rural places. While one might expect housing to be more affordable outside of cities, affordable housing presents a barrier to economic growth in rural settings as well. We have found that around a quarter of rural households in the Fifth District spend more than 30 percent of their gross income on housing. Rural housing is also older on average. Vacancy rates tend to be higher than in cities, but rather than offering more places to live, this greater presence of abandoned and dilapidated properties can complicate efforts to refresh and expand the housing supply. Connecting new homes to existing infrastructure can also be more difficult in rural places than in cities.

Finding affordable early care and education is another example of a widespread challenge that is often more acutely felt in rural communities. The gap between the supply and demand for child care is larger in rural areas than in urban ones. The cost of providing child care is higher for younger children, and the low population density of rural places increases the challenge of getting the right mix of children to make a child care facility financially viable. Families living in rural communities without a child care center may need to rely more heavily on home-based

care, or one parent may need to withdraw from the workforce to take on the role of a full-time caregiver.

The Richmond Fed has been learning about these and other challenges and helping to identify potential solutions through our original research and ongoing dialogue with rural leaders in the communities we serve. As my colleague Santiago Pinto has written, there are compelling reasons to invest in specific places. Regionally targeted investments may spur self-sustaining growth through agglomeration economies, generate positive spillovers for the surrounding region, and enhance local human capital through social networks. In my own research, I've examined the impact of programs to encourage investment, looking closely at community development venture capital (CDVC). Venture capital is highly concentrated in a few large cities, with more than half of U.S. venture capital offices located in San Francisco, Boston, and New York. We found that a benefit of CDVC may be to

Place-based economics centers economic development opportunities on the unique collection of needs and opportunities found in different locations.

bring traditional venture capital to underserved regions.

In May, I saw the search for solutions at work at the Richmond Fed's sixth annual Investing Rural America Conference in Roanoke, Va. Community leaders from across our district shared strategies for building new affordable housing, expanding access to child care, and creating microtransit solutions to enable rural residents without a car to access jobs and appointments. One theme that emerged from the conference was the importance of community engagement: Solutions that work engage stakeholders across the community.

Place-based economics centers economic development opportunities on the unique collection of needs and opportunities found in different locations. This can be a challenge for economists to study with linear models and macroeconomic data because it's the interaction of stakeholders, natural amenities, local government, access to finance, and anchor institutions that can drive economic opportunity. The path to economic growth looks different for each community. Some have found success in their proximity to growing metropolitan areas, while others have attracted residents and businesses with natural amenities. Continuing to gather information about these regional differences is crucial to ensuring that we are fulfilling our mandate for the whole economy. **EF**

Anna Kovner is executive vice president and director of research at the Federal Reserve Bank of Richmond.

Federal Reserve Bank
of Richmond
P.O. Box 27622
Richmond, VA 23261
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