

ECON FOCUS

THE POST-9/11 GI BILL

Why are fewer vets using their college benefits?



The Future of
the Dollar

Central Bank
Digital Currency

Interview with
Tyler Cowen

ECON FOCUS

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

DIRECTOR OF RESEARCH

Kartik Athreya

DIRECTOR OF PUBLICATIONS

Jessie Romero

EDITOR

David A. Price

MANAGING EDITOR

Lisa Davis

STAFF WRITERS

John Mullin

Tim Sablik

Matthew Wells

EDITORIAL ASSOCIATE

Katrina Mullen

CONTRIBUTORS

Brandon Fuller

Sierra Latham

Stephanie Norris

Sam Louis Taylor

Sonya Ravindranath Waddell

DESIGN

Janin/Cliff Design, Inc.

PUBLISHED BY

the Federal Reserve Bank

of Richmond

P.O. Box 27622

Richmond, VA 23261

www.richmondfed.org

[www.twitter.com/RichFedResearch](https://twitter.com/RichFedResearch)

Subscriptions and additional copies:

Available free of charge through our website at www.richmondfed.org/publications or by calling Research Publications at (800) 322-0565.

Reprints: Text may be reprinted with the disclaimer in italics below. Permission from the editor is required before reprinting photos, charts, and tables. Credit *Econ Focus* and send the editor a copy of the publication in which the reprinted material appears.

The views expressed in Econ Focus are those of the contributors and not necessarily those of the Federal Reserve Bank of Richmond or the Federal Reserve System.

ISSN 2327-0241 (Print)

ISSN 2327-025x (Online)

FEATURES

4 THE POST-9/11 GI BILL

Fewer veterans are using their education benefits. Is this trend a problem — or a sign of a more welcoming job market?

20 IS DOLLAR DOMINANCE IN DOUBT?

The dollar has been the global currency of choice for nearly a century, but in light of recent U.S.-led financial sanctions, some wonder whether that status will endure

DEPARTMENTS

1 PRESIDENT'S MESSAGE

A Unique Moment for Small Towns

3 UPFRONT

New from the Richmond Fed's Regional Matters blog

9 AT THE RICHMOND FED

CORE Week

10 FEDERAL RESERVE

Fed Eyes Central Bank Digital Currency

15 POLICY UPDATE

Responding to Pandemic Learning Loss

18 ECONOMIC HISTORY

Connecting a Region Apart: The Appalachian Regional Commission

24 INTERVIEW

Tyler Cowen

29 RESEARCH SPOTLIGHT

Why Don't More Young People Buy Stocks?

30 DISTRICT DIGEST

Employment Barriers in the Rural Fifth District

36 OPINION

Unwinding Pandemic Monetary Policy

A Unique Moment for Small Towns

Every month, I visit small towns and hear from business and community leaders about what's working, what's not working, and what they need. In my previous column, I looked at the key elements I've seen in every small town that has made major progress toward revitalization: a story, regional cooperation, and dedicated funding, all tied together by "scrappiness." (See "Making It Work," *Econ Focus*, First Quarter 2022.) Now, I'd like to take a deeper dive into the issue of funding, because money is the one critical constraint every community faces, across every issue.

Today is a unique moment for small towns. Federal stimulus, combined with healthy state and local government balance sheets, means that billions of dollars are being made available, on top of those available through private grant-makers.

Taken together, the available funds have the potential to move the needle on some key rural challenges. Look at broadband. Our research has suggested it could cost roughly \$80 billion to get ubiquitous broadband coverage across the country. If we take the money dedicated to broadband before the pandemic, the additional funds available through pandemic relief bills, plus the allocations within the infrastructure bill, there is more than enough to close the gap.

How about health care? Almost \$20 billion has already been distributed to providers in rural or small metropolitan areas. And there's more to come from additional grants designed to strengthen rural community health by focusing on quality and access.

On transportation, the American Rescue Plan Act allocated funds for COVID-19-related transit within rural areas and to support bus travel within these areas. For example, the Rural Formula Program provides capital,



planning, and operating assistance to support public transportation. Plus, there's money to support the completion of the Appalachian Development Highway System.

This is a game-changing amount of money. But wherever I go, local leaders say the obstacles to accessing these funds are significant. And not without reason: We want governments to be careful with our tax dollars. Funders want to write checks only if they feel confident they will see results. Yet the constraints placed on funding don't always align with local capacity.

I hear about three key barriers.

First, grants are complicated. They require intensive research and documentation. Applications are often dozens — or even hundreds — of pages long, requiring sophisticated data interpretation, technical writing, and dozens of attachments. And the administrative requirements can feel burdensome. Many organizations don't have the necessary time or expertise, particularly for grants that require unique data. For example, the Appalachian Regional Commission's POWER Initiative makes grants that help communities affected

by job losses in coal. But we heard from one recipient that organizations should set aside a whole month for the application process. And the commission is regarded by grantees as one of the more flexible federal agencies. Grant processes can also be complicated for the agency making the grant, which all too often finds itself understaffed.

Second, many grants require matching funds that small communities can't raise. For example, the Rural Surface Transportation Grant Program requires a 20 percent match. Sometimes funders will allow applicants to waive match requirements, but that waiver can still lead to a lower application score. Additionally, a town usually can't match federal grants with other federal funds — even from another agency. This means it would need private funders or local governments to provide time-sensitive match commitments. Because of this challenge, some low-resource communities either self-select out of applying for grants or significantly downgrade the size of their projects.

Third, there's a bias toward experience. Grantors quite naturally prefer to invest with someone they have confidence has the capacity to deliver. So, they favor organizations with a proven track record or with a leader they already know, which can leave less experienced organizations and under-resourced regions out of the running. It is possible, or even likely, that the lion's share of federal funds will flow to the institutions and organizations that are already established and well-resourced.

Communities need help building their capacity, and they need it now. They need help finding and training leadership. They need help writing grant applications that meet funder specifications. They need help acquiring match funding. They need help

distributing and administering funds effectively. And they need help assessing impact.

So let's help them. Let's leverage states, localities, foundations, and local organizations to get the money where it is most needed.

I see three tangible, practical opportunities for organizations that want to improve the situation. First, help communities write grants. This could be done by hiring or funding experienced, proven grant writers directly. There is subject matter expertise out there, and foundations can play a meaningful role helping to connect experts to small towns with opportunities. Alternatively, this could be done by providing targeted advice. For example, Generation West Virginia and the Benedum Foundation work together to provide communities with grant writing support and other forms of technical assistance to coach them through the complicated process of planning for and accessing broadband funding.

Second, create pools of match funding. This could be a great role for states. If match funding is the barrier, create a pool that goes to communities and local organizations that earn the match. Localities with excess funds coming out of the pandemic could step up too. This would increase the number of grants applied for and productively leverage local money with federal money. And anything a state can do to adequately resource the distribution of funds would be of value too.

Third, help build local capacity. I am intrigued by the idea of "rural development hubs," regional organizations that foster creative development strategies

and build connections among states, funders, and localities. They are close to their communities' needs and wants. They serve as conveners, coordinators, and intermediaries for grassroots efforts, allowing collections of projects and organizations to come together and pursue funding and strategies that are only possible through collaboration.

But hubs take time to build, and they're hard to start from scratch. Regional collaboration is difficult, as communities struggle to balance collaboration and competition for scarce resources. And some of the challenges to building hubs are similar to the challenges in accessing grant funding: They're costly to launch and to scale.

To build local capacity for the long run, organizations need targeted support in the near term. For example, funding from Rural LISC — a national organization — allowed the Garrett County Community Action Committee to expand to serve adjoining counties.

Funders can also seed promising new approaches. The West Virginia Community Development Hub often heard complaints that there was "nothing going on" in West Virginia. They created the Cultivate WV program, which distributes small-scale investments over a short period to build momentum in communities. Teams of volunteers work alongside a coach to identify needed projects, often leading to a broader shared vision. With this foundation, the communities can then collaborate on a larger scale. They start with small projects, like creating a new welcome sign, and eventually, they are redeveloping their historic school that's

been out of use for 30 years.

Capacity building isn't limited to local communities. Regionally, the Central Appalachian Network provides space for like-minded organizations to coordinate projects across state lines and to participate in regional sector development strategies, accessing federal funding for large-scale initiatives related to local and regional food systems, clean energy development, waste reduction, and workforce development. They help grow organizational capacity through peer learning, mentorship, and shared resources. New platforms like Invest Appalachia offer a pathway for grant-funded projects and enterprises to transition toward financial self-sufficiency, partnering with other financial intermediaries like community development financial institutions to provide a blend of capital that includes credit enhancements and flexible financing.

Helping communities write grants, creating pools of match funding, and supporting hubs to help build local capacity are a few ways to help small towns access this historic opportunity for funding. Getting money to communities that need it isn't easy. But this is a unique moment.

A longer version of this essay was delivered as an address to the Richmond Fed's Investing in Rural America Conference on March 30, 2022.

BY KATRINA MULLEN

New from the Richmond Fed's Regional Matters blog

Jason Kosakow and Sonya Ravindranath Waddell. "Supply and Demand: When Will We See the Balance?"

In the Richmond Fed's February survey of business conditions, only 32 percent of responding firms said they were able to fully meet demand, compared to almost two-thirds that reported being able to fully meet demand prior to the pandemic. The co-authors suggest this drop may be the result of the increasing challenges of finding and paying for inputs and timely freight services. While firms remain divided on how long supply chain disruptions will persist, they generally agree that the main reason for their inability to meet demand is difficulty finding workers, particularly ones who are qualified. To counter the disruptions and to address the labor shortages, firms are raising wages, trying new recruitment methods, asking more of current employees, and increasing automation.

Adam Scavette. "The End of the Digital Divide? The Future of Broadband Post-Infrastructure Investment and Jobs Act (IIJA)."

In addition to addressing the nation's physical infrastructure, the Infrastructure Investment and Jobs Act (IIJA) that President Joe Biden signed into law in November aims to close the digital divide by allocating \$65 billion for broadband deployment, affordability, and digital literacy. (See "Closing the Digital Divide," *Econ Focus*, Second/Third Quarter 2020.) The IIJA's broadband component — which could extend broadband to an estimated 1.7 million unserved people in the Fifth District — addresses both access (the lack of available broadband infrastructure) and adoption (the inability of low-income residents to afford broadband subscriptions even with available infrastructure). For the adoption component, about 30 percent of West Virginia, North Carolina, and South Carolina residents are eligible to receive IIJA's subsidies followed by 23 percent of Virginia and District of Columbia residents, and 17 percent of Maryland residents.

Nicholas Haltom and Jacob Walker. "The Updated Employment Picture."

The Bureau of Labor Statistics released its yearly revisions to historical employment data, highlighting the effects of the pandemic on employment as well as the unique challenges that the pandemic created

for data collection and estimation. Before the data revisions, Fifth District states' employment levels had not fully recovered to pre-pandemic levels. The revised data show the same pattern, except in North Carolina, where payroll employment exceeded its pre-pandemic level in July 2021. Other labor market indicators — the unemployment rate and labor force participation (LFP) — both had sharp declines at the beginning of the pandemic, but the data revisions now generally show smaller declines for unemployment rates and little change or near pre-pandemic rates for LFP.



Surekha Carpenter and Molly O'Quinn. "Fifth District Small Businesses Struggle With Operational and Financial Challenges."

Along with the 11 other Federal Reserve Banks, the Richmond Fed conducted its yearly Small Business Credit Survey to ask Fifth District firms about their financial condition, business performance, and access to and use of credit. Over 1,100 small businesses responded to the Richmond Fed survey between September and November 2021. More than half of the firms in the district reported being in poor or fair financial condition — stemming from uneven cash flows, continued operating expenses, and weak sales. Nearly half of district firms

were able to meet only part of their needs through debt financing or were not able to borrow at all, compared with a large share of firms that relied on personal funds or cash reserves.

Adam Scavette. "The Role of Manufacturing in the Rural Fifth District."

Similar to the United States as a whole, the Fifth District's total manufacturing employment has declined in the past four decades. The Fifth District has experienced a faster decline in rural than in urban areas. Despite this, in 2019, North Carolina, South Carolina, and Virginia had a higher share of rural manufacturing employment than the United States. Additionally, in the last decade — in both the district and nationally — the wage premium for manufacturing jobs compared to nonmanufacturing jobs has been higher for workers without college degrees, especially in rural areas. While the manufacturing sector does not employ as many workers today as in past decades, rural counties in the district still rely on manufacturing firms to employ between a quarter and half of their workforce. **EF**

Mike Bermudez, an Air Force veteran, is a police captain at the Richmond Fed. He used the Post-9/11 GI Bill to earn multiple degrees.



The Post-9/11 GI Bill

Fewer veterans are using their education benefits. Is this trend a problem — or a sign of a more welcoming job market?

In 2008, Congress passed and President George W. Bush signed the largest expansion of federal education aid to veterans since the original GI Bill at the end of World War II. Under the Post-9/11 Veterans' Educational Assistance Act of 2008, commonly known as the Post-9/11 GI Bill, service members who served at least 90 days on active duty after Sept. 10, 2001, or their dependents, are entitled to up to 36 months of educational assistance to pursue higher education. Depending on the program, they can receive education or job training tuition, books, and fees, as well as a monthly housing stipend that is paid fully or in part by the federal government.

The program drew wide support from both veterans' advocates and the higher education community, and within two years of its implementation in 2009, over half a million veterans were using the benefit. Participants include veterans with their DD-214 honorable discharge certificates, active-duty service members, and their spouses. Research from both academics and the veterans' advocacy community has shown that since that time it has yielded positive effects, including an increase in postsecondary enrollment among veterans, as well as increased graduation rates.

One of those veterans is Hallie Oxley, a Marine who served from 2000 to 2005 in various roles, including in logistics and as a marksmanship instructor. He now works in National IT at the Richmond Fed after getting his bachelor's degree in cloud computing. He credits the Post-9/11 GI Bill with giving him the ability to get a degree that would enable him to advance his career. "An education does pay off," says Oxley. "There was a point in time in the Fed where you could come in out of high school, but those days are long gone."

Thanks in large part to the significant military presence in Maryland, Virginia, and the Carolinas, three of the 10 most popular institutions or systems in the country for veterans pursuing higher education under

the program are in the Fifth District. According to a 2019 Congressional Budget Office (CBO) report, in 2017 the University of Maryland Global Campus (previously known as University College) was the third most popular, with almost 17,000 veterans enrolled, while the Virginia Community College System was seventh with 8,800 student veterans and the North Carolina Community College System was ninth with 7,900.

Despite the initial popularity of the Post-9/11 GI Bill and its success in increasing the number of veterans with college degrees, two puzzling trends have recently emerged that are potential sources of concern. First, economists have found that increases in overall degree attainment among Army veterans have not translated into increased wages after graduation; average salaries among benefit recipients are lower than those of their counterparts who did not use the benefit. Second, the number of veterans using the Post-9/11 GI educational benefit has decreased dramatically in recent years. According to the Congressional Research Service, over 790,000 veterans participated in the program each year from 2014 to 2016 – but this number has declined almost every year since. (See chart.)

MARCH OF THE GI BILLS

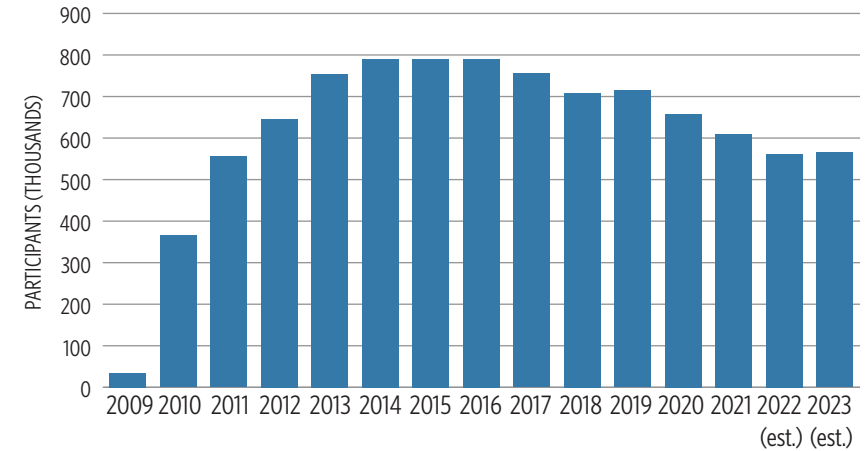
The original GI Bill, known as the Serviceman’s Readjustment Act of 1944, was created to avoid a repeat of the high levels of unemployment among veterans that occurred following World War I. Nearly 8 million veterans out of about 16 million who served during World War II would go on to pursue higher education through the program, which provided \$500 a year for tuition, books, and counseling services, as well as a housing allowance. The program cost the federal government \$14.5 billion, or about \$139.6 billion in 2020 dollars.

In important respects, the program was successful, as the number of college graduates in the United States doubled between 1940 and 1950. Yet these gains were largely inaccessible to Black veterans, many of whom were excluded from using the benefit for college by state higher education segregation laws or by local Veterans Administration authorities who disbursed the money. In addition, policymakers discovered that the practice of the government paying tuition and fees directly to the academic program was problematic, as a large number of programs and institutions were created with the purpose of taking that money and not holding classes, leaving enrolled veterans with no program to attend.

The wars in Korea and Vietnam would have fewer veterans returning home looking for work, but Congress enacted legislation authorizing similar education benefits for those who served. After the Vietnam War ended, and with a

The Use of Post-9/11 GI Benefits is Declining

Post-9/11 GI Bill participation, FY2009-FY2023



SOURCES: Congressional Research Service Report R42755, *The Post-9/11 GI Bill: A Primer*; Budget of the U.S. Government, FY2023

sustained period of peacetime, however, policymakers recognized that the armed forces could use education benefits as a recruitment tool. In 1985, Congress passed the Montgomery GI Bill, which created separate benefits systems for reservists and active-duty personnel and is still active today. Under the legislation, active-duty personnel who choose to receive the benefit buy into it for \$1,200, and in exchange, they currently receive up to \$2,150 per month for up to 36 months (the standard number of enrolled months it takes to complete an undergraduate degree) for tuition, books, supplies, and housing, depending on how long they served. Reservists, on the other hand, do not have to buy into the program, but their benefit is limited to \$407 per month, again for up to 36 months depending on length of service. To alleviate the problem that plagued the original GI Bill of illegitimate programs being set up only to collect money from the government, both programs, like all previous GI education benefit programs following the 1944 program, provide the money directly to the student veteran each month.

“ONE OF THE LARGEST POLICY SHOCKS”

Like its predecessors, the Post-9/11 GI Bill was intended to benefit both the service member and the military. With respect to service members, the goals were to ensure the availability of comprehensive education benefits and to provide reservists, who had been serving on sustained periods of active duty in the wars in Iraq and Afghanistan, with the same benefits afforded to full-time service members. The military anticipated that such an attractive benefit would help it meet its recruiting goals and improve retention rates, specifically because the legislation allowed for the benefits to be transferred to service members’ dependents and did not have to be used by the service members themselves.

The legislation was written by then-Sen. Jim Webb (D-Va.) and passed the Senate as part of the 2008 Supplemental Appropriations Act by a vote of 92-6; it passed

Kamin argues that one of the primary difficulties veterans' advocates have had over the years when it comes to education has to do with veterans' self-perceptions. "What can be a holdup," he says, "is convincing them that they're good enough to use the benefit."

the House of Representatives by a 416-12 margin. As the votes suggest, the program had strong bipartisan support. The transferability of benefits to spouses and children, which was not included in the original proposed legislation, was imperative for some policymakers concerned about its effect on retention, including President Bush. He and others were concerned that restricting such a substantial benefit to service members would encourage them to leave the military. If the benefit could be passed to family members, however, they believed service members would be more inclined to stay. Once this provision was added, only a small number of legislators remained opposed.

Andrew Barr, an economist at Texas A&M University studying veterans' educational and labor market participation, recently co-authored a working paper that described the Post-9/11 GI Bill as "one of the largest policy shocks in college subsidies in U.S. history." Unlike previous GI benefit programs, which paid out a fixed dollar amount per month, the Post-9/11 Bill would pay up to the full cost of in-state tuition and fees for veterans enrolled in public universities, or up to a predetermined amount for those enrolling in private institutions. If these totals aren't enough to cover the costs of attendance, many schools participate in the Yellow Ribbon Program, in which they split with the Department of Veterans Affairs anywhere from a small portion to all the remaining cost difference for an agreed upon number of veterans. The percentage of the tuition and fees covered by the benefit is determined by the length of the veteran's service on active duty. As with the first GI Bill, funds are sent directly by the government on behalf of the student veterans to the institutions, which policymakers decided is more feasible from an administrative standpoint when dealing with the large sums of money that are being transferred.

The Post-9/11 GI Bill doesn't just pay for college or graduate school. Veterans can use the benefit for vocational or correspondence schools, business or other professional programs, technical schools, teacher certifications, licensure programs, and flight school. All these programs generally fall under three categories of institutions: public nonprofit, private nonprofit, and private for-profit. To meet veterans where they are and to maximize flexibility, many programs are available online. Student veterans enrolled in such

programs receive a housing allowance based on the national cost of living average, while those who attend classes in-person receive an allowance that is determined by the cost of living where the program or school is located.

IS THE PROGRAM SUCCEEDING?

In 2016, about 50 percent of student veterans using the benefit attended public colleges or universities, while about 20 percent went to private nonprofit institutions and 30 percent enrolled in for-profit ones. In terms of tuition and fees, however, eight of the top 10 recipient institutions in 2017, as well as from 2009-2017 overall, were for-profit. The Senate Health, Education, Labor, and Pensions Committee found that in the program's first year, for-profit colleges enrolled only 23.3 percent of beneficiaries but received 36.5 percent of all the funds distributed. By 2017, however, public schools received the most tuition and fee dollars, \$1.9 billion, followed by for-profit institutions with \$1.7 billion and private nonprofit institutions with \$1.5 billion.

In their working paper, Barr and his colleagues examined the effect of the Post-9/11 GI Bill on veterans' decisions whether to enroll in college, their degree completion rates, and their long-run earnings. On the positive side, they found that the benefit had positive, albeit modest, effects on enrollment, increasing the number of years enrolled by 0.17 and increasing the rate of completion of bachelor's degrees by 1.2 percentage points. By way of comparison, among World War II veterans, the GI Bill raised years of schooling by 0.28 years and college completion rates by 5 to 6 percentage points.

The researchers also found, however, that veterans who used the benefit received wages that were on average \$900 lower annually than they otherwise would have been nine years after separating from the military. Barr believes this is being driven primarily by the opportunity costs that come with continuing education. "Perhaps they're missing out on work experience that would have been useful," suggests Barr. "Perhaps they're letting their useful skills that they had in the military that would have translated into the labor market depreciate."

THE ROLE OF FOR-PROFIT COLLEGES

In addition to the lost labor market experience, Barr and his colleagues identified a second potential reason for the wage deficit: Some veterans are making "low-return marginal investments." The 2019 CBO report noted that "some programs may not prepare beneficiaries for jobs that pay enough for a service member to buy a home, raise children, or pursue other common aims" because the standards for Veterans Benefits Administration program approval are made at the state level and may be misunderstood by veterans who may enroll in unaccredited programs.

The working paper by Barr and his colleagues showed that less-advantaged veterans, or those with lower scores on the Armed Forces Qualification Test or those placed in

low-skill military occupations, are more likely to pursue higher education because of the benefit but are disproportionately enrolled in for-profit institutions. Similarly, a 2020 report by the Brookings Institution noted that “those least experienced with higher education and least likely to attend traditional colleges are more likely to enroll in a for-profit college.” Additionally, the report found that veterans who used the benefit to attend a for-profit college are 9.2 percent less likely to graduate compared to those who attended public colleges. The report goes on to state, “For policymakers, this result is concerning because these students could benefit the most from the ... benefits but are attending colleges that cost more and result in lower labor market outcomes.”

Concerns about the quality of some programs or institutions where veterans choose to attend are not new, having been a problem during the World War II GI Bill era. As noted earlier, in the absence of any meaningful oversight, many schools simply served as money-making schemes. In 1952, a select committee in the House of Representatives found that many for-profit schools “offered training of doubtful quality” and there was “no doubt that hundreds of millions of dollars [had] been frittered away on worthless training.” To end these abuses, in 1950, Congress authorized the Veterans Administration to deny funding to for-profit schools that had been set up in the previous year, cap the number of students in a program whose tuition was paid with government funding, and limit the growth of programs that were unlikely to lead to a job.

After the Post-9/11 GI Bill’s implementation, the Obama administration was concerned that some for-profit institutions were engaging in equally problematic behavior, aggressively targeting veterans who had a limited understanding of how attending these for-profit institutions might not actually be beneficial for their careers. In April of 2012, President Obama signed an executive order directing the Department of Education to mandate that schools end “unduly aggressive” recruitment methods and disclose their financial aid procedures and student outcomes, including graduation rates, to applicants using veteran education benefits. In the years after these moves, several large for-profit educational institutions shuttered their doors for good, including three of the five largest recipients of veteran education benefit dollars from 2009 to 2017: Education Management Corporation, ITT Technical Institute, and Career Education Corporation.

WHY ARE FEWER VETERANS USING THE BENEFIT?

The number of veterans using the program has dropped by more than 180,000 from 2016 to 2021, a decline of over 22 percent and a significantly larger drop than the 5 percent decline in overall undergraduate college enrollments from 2009 to 2019. Veterans advocates and those in the education community have begun to wonder what factors, beyond the declining presence in the marketplace of for-profit institutions, might account for the steep decline.



Marine veteran Hallie Oxley credits the Post-9/11 GI Bill with helping him earn his bachelor's degree in cloud computing. He now works in National IT at the Richmond Fed.

John Kamin, legislative associate at the American Legion, points to a backlog of veterans who had already left the military but were eligible for the benefit because they had served on active duty after Sept. 11, 2001. He suggests that in the program's first five or six years, “it wasn't just the people getting out of the military” who were using the benefit. “It was the people who'd gotten out of the military over the past 10 years,” he says.

The original Post-9/11 GI Bill mandated that veterans use their benefit within 15 years of separating from the military, which might also help explain why many of those veterans who left the military before the bill's enactment jumped at the opportunity to use the benefit before it expired for them.

But in 2017, the Forever GI Bill removed this provision, giving veterans who separated after 2012 unlimited time to use the benefit. Col. (Ret.) Keith Hauk, associate vice president for veterans' initiatives and military support at the University of Maryland Global Campus, suggests that this change may have resulted in fewer veterans using the Post-9/11 GI Bill. “I can take my education in more bite-sized chunks,” says Hauk. In other words, if a veteran needs to add a certain skill or certification to advance in his or her job, he or she can wait to use the benefit when the need arises rather than be forced to use it on something of potentially lesser value before the 15-year time limit lapses. This option may be particularly appealing to veterans during periods of strong labor market and wage growth, as has been the case since 2017, even after accounting for the effects of the COVID-19 pandemic.

When veterans do decide to return to school, online programs offer a high degree of flexibility that can be attractive, particularly if they are working and raising a family. But, says Kamin of the American Legion, this flexibility can come at a price, particularly for those veteran students who aren't all that familiar with higher education and might not have considered going to college until they learned about the Post-9/11 GI Bill. "The worst case we see is someone gets out [of the military] and they spend a semester at an online school," says Kamin. Many online programs, he suggests, lack the resources that exist at in-person institutions, such as student veteran clubs, that enable these veterans to successfully transition from service member to student. "It's too difficult, too frustrating," he says. "They don't have the support, they drop out, and they still have benefits left, but they're turned off education."

Mike Bermudez, an Air Force veteran, serves as a police captain at the Richmond Fed. After tours in Iraq and Afghanistan, he left the military and used his Post-9/11 GI benefit to pursue both bachelor's and master's degrees. After graduating with his bachelor's degree and before coming to the Fed, he worked as a recruiter at an online university with a large military-student population. His experiences in that position support Kamin's hunch. "I had hundreds of students who just threw up their hands and said, 'This is taking too long' or 'I don't understand it. Yeah, I called the VA, but they haven't called me back.' I've heard that so many times."

Hauk, of the University of Maryland Global Campus, suggests that these frustrations may have reached a boiling point with what he describes as the "flawed implementation" of the Forever GI Bill in mid-2018. He notes that student veterans did not receive payments and there were significant delays that ultimately led the Department of Veterans Affairs to reset its implementation. "Anecdotally, it pushed people off the table in terms of going back to school until the VA fixed the systems and processes that allowed them to access it."

WHAT SHOULD BE DONE?

If it is true that the drop in Post-9/11 GI benefits usage stems, at least in part, from the backlog of already-separated veterans who wanted to use the benefit, then perhaps the current lower number of enrollees reflects a more natural

rate of engagement rather than a problem that needs to be addressed through any changes in policy. Similarly, if veterans want to take advantage of employment opportunities that are available in a rapidly growing economy where they can use the benefit more strategically, it also makes sense that the numbers may be declining.

But if frustration with the process and a lack of understanding are responsible, Bermudez suggests that to ensure a smooth transition to becoming a student, service members should start the process early, at least a year before leaving the military. Too many service members start the process after separating, which is too late. When some administrative issues need to get ironed out and they have no support structure around them to keep them engaged, "they get discouraged and then they just drop the whole idea of going to college," he says.

Similarly, Kamin argues that one of the primary difficulties veterans' advocates have had over the years when it comes to education has to do with veterans' self-perceptions. "What can be a holdup," he says, "is convincing them that they're good enough to use the benefit."

For those veterans who decide to use their education benefits, the government has worked to limit overly aggressive or misleading recruitment practices that can leave them in situations where they are worse off than if they had chosen to enter the workforce instead. According to veterans' advocates, reliable and accessible support systems are crucial for continued engagement and, ultimately, success, regardless of whether the student is online or in person. For those who choose to enter the workforce, policymakers have given them the option to use the benefit should they decide they need it.

The Bureau of Labor Statistics reported in April that the unemployment rate among veterans fell to 2.4 percent in March, the lowest level in three years and well below the overall rate of 3.6 percent. While there is still work to be done in terms of assisting veterans as they readjust to different aspects of civilian life, these numbers might be a sign that employers recognize the value of veterans and what they can bring to the workforce. "I think there's been a large, broad-scale effort to articulate the value that veterans can bring to the workforce writ large," says Hauk. "I think if you're seeing veterans start to get meaningful employment in places like the Federal Reserve, I've got to tell you, as a veteran, that thrills me to no end." **EF**

READINGS

Barr, Andrew. "You Can't Handle the Truth: The Effects of the Post-9/11 GI Bill on Higher Education and Earnings." National Bureau of Economic Research Working Paper No. 29024, July 2021.

Kofoed, Michael S. "Where Have all the GI Bill Dollars Gone? Veteran Usage and Expenditure of the Post-9/11 GI Bill." Brookings Institution, October 2020.

"The Post-9/11 GI Bill: A Primer." Congressional Research Service, Updated September 23, 2021.

"The Post-9/11 GI Bill: Beneficiaries, Choices, and Cost." Congressional Budget Office, May 2019.

BY MATTHEW WELLS

CORE Week

In February 2021, Richmond Fed Research Director Kartik Athreya and his colleagues began to think about how to increase the visibility of the Fed’s economic research and how they might better attract and retain top, diverse talent. At the same time, the shift to remote work brought on by COVID-19 led Athreya and several senior colleagues also to consider how to make the most of this new work environment. They asked the research department’s economists to identify what elements of their work could be done remotely and what required everyone to be together in person.

The economists’ response was clear. They could do most of their research, writing, policy, and administrative work remotely from anywhere in the country, but they still needed opportunities to connect with and learn from each other in person as soon as it was safely feasible. They also believed that to produce high-profile research, they would need an environment in which they could collaborate and foster relationships with economists from outside it. What emerged from these discussions was an idea that came to be known as “CORE Week.”

Eight times a year, Richmond Fed economists from around the country, along with a group of diverse economists from universities and policy institutions throughout the world, gather in Richmond for CORE (Collaboration of Research Economists) Week. Each week follows a common structure, beginning with a series of seminars usually taking place Monday through Wednesday or Thursday. Seminars normally are centered around a particular theme. For example, during last December’s CORE Week, researchers from New York University, the University of Rochester, and the Richmond Fed presented work on labor economics. Seminar presenters are a mix of established researchers and up-and-coming assistant professors with a range of interests and areas of expertise; some present already polished working papers, while others bring new projects that could benefit from feedback by a room full of experts committed to sharing their knowledge, expertise, and creativity.

Each CORE Week aims to have around 15 visitors but only five to eight seminar presentations. Each visitor is invited to attend two CORE Weeks over the course of the year, one where they present their work and the other where they simply contribute to the discussions, helping their presenting colleagues create better-quality research.

The final day or two of the week are set aside for what amounts to a focused conference within the larger conference. For example, the March CORE Week featured presentations devoted to government programs and their effect on welfare and employment, where six scholars each presented their work on this specific topic in 45-minute windows over the course of a day.

During the last two days of the inaugural CORE Week in November, the research department hosted a long-standing joint workshop with the University of Virginia and Duke University with research on a variety of topics, such as how firms make decisions about where to build new plants and the economics of education, marriage, and child development.

The CORE Week team also wanted to create a balance between the formal agenda and time for unstructured engagement among the attendees. It is in these spaces, whether at an office whiteboard, in a walk along the James River, or at a lively group dinner, where Richmond Fed economists can reconnect with their colleagues and forge new relationships with the invited participants who share similar interests. These conversations can then lead to collaborative research projects, which ultimately elevate the profile and visibility of the research department and the Richmond Fed.

The feedback from those who have attended CORE Week has been positive. “It’s a reminder of the importance of human connections in terms of building a research community where people aren’t just working together, they’re doing life together,” said Peter Blair of Harvard University. “I hope that this continues, and I would be delighted to come back again to be part of it.”

In 2019, the last full year when all the Bank’s economists were working on-site, the research department hosted about 20 visitors for presentations and discussions. With CORE Weeks, the department is on track to host more than 65 visitors in 2022, over a threefold increase. Nicholas Trachter, an economist and a member of the team that developed the CORE Week model, notes that the elevated profile and visibility that comes with this increased traffic is the result of everyone’s input and ideas. “It is crucial that we do things together,” Trachter says. “We had to think about how to keep all of us motivated, involved, and feeling included.” **EF**

"It's a reminder of the importance of human connections in terms of building a research community where people aren't just working together, they're doing life together."

BY JOHN MULLIN

Fed Eyes Central Bank Digital Currency

Policymakers are considering possible design features

Digital assets have been all the rage. Millions of Americans have invested in privately issued cryptocurrencies, whose market value surpassed \$3 trillion for a while late last year. Further pushing the envelope of innovation and speculation, the prices of so-called “algorithmic” cryptocurrencies such as TerraUSD have been supported by yet other cryptocurrencies in arrangements that some observers have likened to Ponzi schemes. Meanwhile, collectors have spent billions of dollars to purchase pieces of art and other items in the form of digital “non-fungible tokens” or NFTs.

Amid this flurry of activity, policymakers around the globe are gauging

possible responses to the fast-changing financial environment. In March, the Biden administration issued an executive order outlining what it called a “whole-of-government approach to addressing the risks and harnessing the potential benefits of digital assets and their underlying technology.” A prominent part of the order was a call to explore the creation of a central bank digital currency, or CBDC.

The United States is far from alone in its interest in a CBDC. Several countries have already launched official CBDCs, more than a dozen others have launched pilot programs, and many more are engaged in research and development projects linked to the

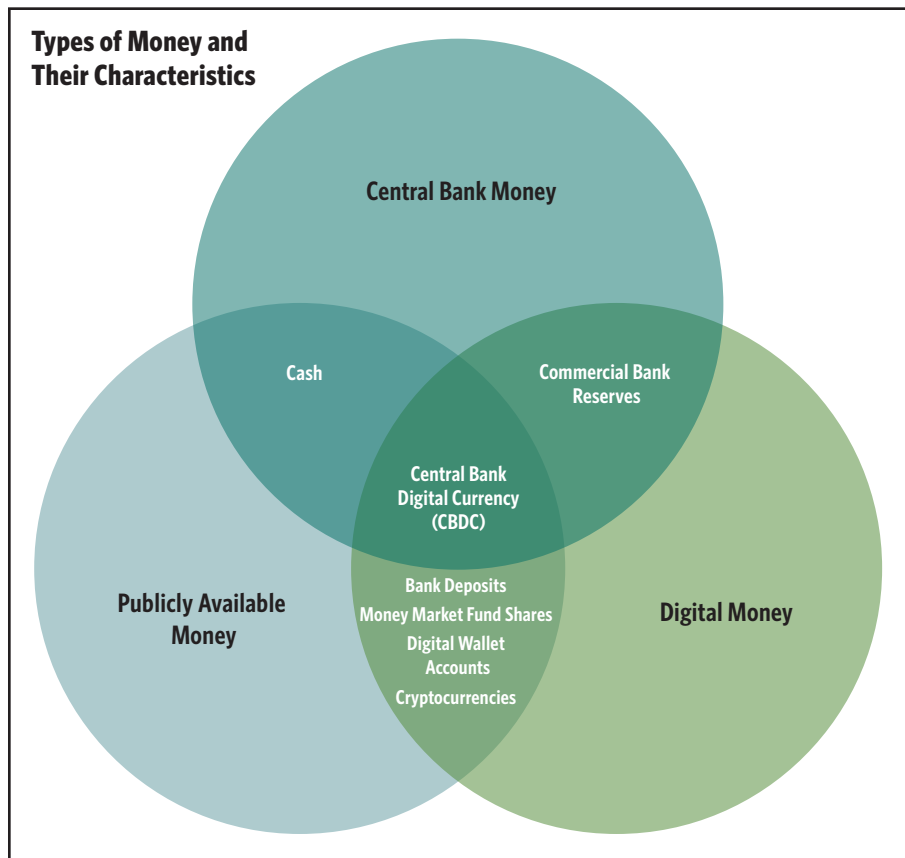
possible creation of CBDCs. In 2020, a group of major central banks, including the Fed, issued a joint report on foundational principles pertaining to CBDCs. And in January of this year, the Fed issued a white paper to stimulate a public discussion about the possible benefits and risks of a U.S. CBDC.

WHAT IS A CENTRAL BANK DIGITAL CURRENCY?

A U.S. CBDC would be a digital liability of the Fed that the public could use as a means of payment. It would constitute a third type of central bank money alongside Federal Reserve Notes — more commonly known as paper currency or cash — and commercial bank reserve balances at the Fed. A CBDC’s digital form would differentiate it from cash, while its availability to the public would differentiate it from commercial bank reserves. (See figure.)

But what is the connection between a CBDC and other digital assets? The answer seems to depend a lot on context. In certain situations, the term “digital assets” has been used quite specifically to refer to cryptocurrencies such as Bitcoin and Ethereum. Yet, viewed from another perspective, the term “digital assets” can be applied much more broadly. After all, money in the United States was booked and transferred digitally long before the advent of cryptocurrencies. Commercial bank reserve balances at the Fed have long been held and transferred in digital form. The same goes for consumer checking accounts at commercial banks. For years now, people have regularly paid their utility and other bills using online applications with funds from their bank accounts.

The volume of digital payments has also expanded greatly through



online payment services, such as digital wallets. Venmo, which is owned by PayPal, processed \$230 billion in payments in 2021, a 44 percent increase over the previous year. Zelle, owned by a consortium of commercial banks, processed \$490 billion in payments in 2021, a 59 percent increase over the previous year.

Cryptocurrencies are distinct from these other forms of digital money in several respects. For one thing, as privately issued media of exchange, their value is based primarily on the forces of supply and demand rather than on a financial institution's promise to pay back a specified quantity of dollars. Moreover, they are differentiated by their technological underpinnings and governance systems. The most prominent cryptocurrencies, Bitcoin and Ethereum, use blockchain technology, which allows for direct, peer-to-peer transactions across a network without the need for a central clearing authority, such as the Fed or a private clearing house.

Stablecoins are a recently introduced form of cryptocurrency whose value is "pegged" to another asset, typically a sovereign currency. As with any pegged asset, the stability of a stablecoin's value depends on the capacity and willingness of the issuer or other parties to maintain the peg by standing ready to buy the stablecoin back at its pegged value. Because of this, policymakers are concerned that stablecoins, like pegged sovereign currencies, may be susceptible to destabilizing runs — that is, consumers might rush to cash in their holdings of a stablecoin if they hear negative rumors about it, possibly overwhelming the ability of its backers to support its value. The run on TerraUSD in May is a case in point.

Arguably, the advent of cryptocurrencies has provided much of the impetus behind the possible creation of a U.S. CBDC. Scholars and policymakers alike are intrigued by the potential of the various technologies associated with cryptocurrencies. But this doesn't mean that an eventual U.S.

CBDC would necessarily look anything like a cryptocurrency. Indeed, a U.S. CBDC might employ little or none of those technologies. Instead, it may end up looking a lot like forms of digital money that long preceded the introduction of cryptocurrencies.

A U.S. CBDC could have a variety of different features, depending on the design choices of policymakers. One possible model is the Bahamian Sand Dollar, which is accessible to archipelago residents through authorized financial institutions. The Central Bank of the Bahamas issues the CBDC, keeps a centralized ledger of individual holdings, and provides authorized financial institutions with a secure application that allows them to offer digital wallets to their customers. Another example is the model being pursued by China, where cash has already been largely replaced among consumers by mobile payment applications like Alipay and WeChat Pay, and where a CBDC would likely compete with these mobile payment services. The digital yuan was launched in pilot form in 2019. Like the Sand Dollar, it is held by consumers in digital wallets and is more similar to payment apps like Venmo or Zelle than to cryptocurrencies like Bitcoin and Ethereum.

CENTRAL BANKS' HOPES . . .

Central banks have identified several possible benefits that might come from the establishment of a CBDC. The first is the prospect that it could lower costs for consumers and improve the efficiency of the payments system — both domestically and for cross-border transactions. This would place the introduction of a CBDC in the tradition of previous Fed initiatives to improve the U.S. payments system, such as the Automated Clearinghouse (ACH) System, a nationwide network used for the direct deposit of payrolls and Social Security checks and automated bill paying. Another example is Fedwire Funds Service, a system for real-time transfers of funds between participating institutions.

A CBDC may also provide opportunities for private sector innovators to create new payment services that consumers can use for CBDC payments. It may also spur competition in the financial industry — among both banks and credit card companies. "Incumbent financial firms have been really resistant to moving to real-time payments and lowering credit card interchange fees," says Howell Jackson of Harvard Law School, who recently taught a course on CBDC design issues. "We really spend more of our national income on payments than we should."

To be sure, some progress has been made. In 2017, for example, The Clearing House, owned by a consortium of commercial banks, introduced its real-time payments platform — known as the RTP — to speed up payment clearing and settlement. The Fed is also in the process of rolling out a new instant payment service, the FedNow Service, to be launched in 2023. But some observers believe more can be done. "A central bank digital currency could jumpstart payments competition," says Jackson, "and that could get us more quickly to high-speed real-time payments, which most people think is a good thing. It could also put a lot of competitive pressure on Visa and Mastercard."

Another potential benefit of a CBDC is that it could encourage financial inclusion for the relatively small fraction of U.S. households — roughly 5 percent — that do not have bank accounts. The hope is that the launch of a CBDC would reduce barriers to financial inclusion by encouraging the private sector to provide greater access to low-cost electronic transaction accounts. A closely related potential benefit is that the establishment of a CBDC could facilitate fiscal transfers, such as IRS stimulus payments, to people who are currently unbanked.

Some analysts have pointed to a possible defensive motive for establishing a CBDC: that it would reduce the risk that the U.S. payments system lags behind technical advances in the

world's other major economies and would thereby help maintain the U.S. dollar's status as an international reserve currency. "An important motivation for considering a CBDC is to future-proof the U.S. payments system against the rise of private and foreign digital currencies," says Richmond Fed economist Zhu Wang, who has conducted extensive research on payments systems. "Private or foreign digital currencies, if not effectively regulated, could raise major concerns on issues such as payment fragmentation, user privacy, market power, monetary policy, and financial stability. Policymakers need to prepare on different fronts by upgrading our country's infrastructure and keeping it on the cutting edge of technology." (See also "Is Dollar Dominance in Doubt?" p. 20.)

... AND FEARS

Central banks have also identified several risks from introducing a CBDC. One is how it could alter the structure of financial markets. Banks now rely heavily on deposits to fund loans. Since a CBDC would serve as a close substitute for bank deposits, its introduction could cause consumers to withdraw funds from their bank accounts. This, in turn, could increase bank funding costs and adversely affect the availability and cost of bank credit for households and businesses.

Policymakers are also concerned about the possible volatility of demand for a CBDC. In this context, one of the suggested benefits of a CBDC — its lack of both credit and liquidity risk — could turn out to be a double-edged sword. During periods of financial turmoil, the relative safety of a CBDC may prompt risk-averse individuals and businesses to substantially shift away from other forms of money, increasing the risk of runs on financial firms such as money market mutual funds and commercial banks. While deposit insurance would soften the motivation of bank depositors to pull their money in reaction to bad news, there is concern that it may prove insufficient

to prevent large shifts from traditional bank accounts into CBDC accounts during periods of extreme duress.

Such a flight to quality would make the Fed's job more difficult. Banks would be forced to scramble for alternative funding sources, and the Fed would feel pressure to provide liquidity to institutions in order to fulfill its financial stability mandate and prevent an upward spike in short-term interest rates.

"I think what's often overlooked in these discussions is that the demand for CBDC could potentially expand extraordinarily rapidly during periods of distress," says Bill Nelson of the Bank Policy Institute, which conducts research and advocates on behalf of the banking industry. "If the Fed were to offset the decline in bank reserves, the Fed's balance sheet could climb tremendously."

Aside from these concerns related to financial market structure and monetary policy, policymakers are also concerned about how the creation of a CBDC would affect the resilience and cybersecurity of the payments system in light of the possibility of hacking. In addition, some observers are wary that a CBDC, if not properly designed, could create new avenues for illegal activities, such as money laundering and terrorist finance.

CBDC DESIGN POSSIBILITIES

The design of a CBDC can vary greatly depending on the objectives of policymakers. One of the first design questions often raised is whether a CBDC should be account-based or token-based. A key distinction between the two systems is their identification requirements. For a traditional bank account, intermediaries establish ownership by verifying the owner's identity. For many token-like instruments, such as Federal Reserve Notes and cryptocurrencies, ownership is established by possession — the thing that needs to be verified is not the owner's identity but rather the instrument's authenticity.

The two systems can differ greatly in how they treat fraudulent and erroneous transactions. In account-based systems, providers of traditional bank and credit card accounts typically reimburse account holders after establishing that third parties have fraudulently made payments. In token-based systems, on the other hand, there is little recourse for people who have their money lost or stolen. Nor is there reliable recourse for the recipients of counterfeit crypto tokens. Much like the recipients of fake \$20 bills, they may simply be out of luck.

A second, closely interrelated question is ledger design. Payments with a CBDC are, by definition, transfers of a central bank liability — transfers that must be recorded on some sort of ledger system. The ledger could be managed in a centralized manner, with a single trusted party responsible for record keeping. Alternatively, the ledger could be managed in a decentralized manner on a network of separately owned computers, with collective or "distributed" record keeping, in the manner of Bitcoin. Hybrid approaches are also possible.

A third major design issue has to do with distribution and administration. The main question here is whether a CBDC should be offered directly to the public by the central bank or through financial intermediaries, who would likely administer CBDC accounts much like trust funds on behalf of their owners.

Researchers have been hard at work exploring the technical issues raised by a CBDC. One of these efforts is Project Hamilton, an MIT/Boston Fed collaboration. Their recent Phase 1 report suggests that simple dichotomies such as *token-based vs. account-based* and *centralized vs. decentralized* are only a starting point for understanding the design issues. In their view, these categorizations aren't enough to encompass "the complexity of choices in access, intermediation, institutional roles, and data retention in CBDC design." It cited the example of a digital wallet, which

“can support both an account-balance view and a coin-specific view for the user regardless of how funds are stored in the database.” In a similar vein, a central bank can maintain a centralized ledger while delegating much of the system’s customer-facing work to private sector intermediaries, such as banks.

THE FED’S WHITE PAPER

The Fed’s January white paper reveals much about the Fed’s views on design trade-offs. For one thing, the Fed does not view a U.S. CBDC as a replacement for cash, essentially agreeing with other major central banks that “a CBDC would need to coexist with and complement existing forms of money.”

The Fed expressed reluctance to get into retail banking (a move that might require congressional authorization). Instead, the white paper favored an intermediated approach that would work through private financial institutions to take advantage of their existing systems for complying with anti-money laundering laws and Know Your Client laws.

With regard to privacy, the Fed said it wants to “strike an appropriate balance ... between safeguarding the privacy rights of consumers and affording the transparency necessary to deter criminal activity.” The Fed’s concerns about money laundering and terrorist finance preclude a CBDC that has Bitcoin-like anonymity. Still, the Fed stated, “Protecting consumer privacy is critical.”

“The Fed is proposing a framework in which the government does not have too much direct access to personal account information but does have the capacity to get it through legal process,” says Howell. “So, the government will be able to get information

the same way they now get information from private institutions — either through AML [anti-money laundering] reporting or legal process. I think they’re trying to keep that as a sensible division — something that people in the United States are comfortable with.”

A SOLUTION IN SEARCH OF A PROBLEM?

Fed Gov. Christopher Waller concluded an August 2021 speech with the observation, “I am left with the conclusion that a CBDC remains a solution in search of a problem.” He is not alone in this sentiment, as many observers have registered skepticism that a CBDC is either necessary or sufficient to achieve the two major goals that its advocates have set for it: improving payments systems and increasing financial inclusivity.

Some say a CBDC intermediated through private financial institutions, as suggested by the Federal Reserve Board’s white paper, may not offer much in the way of innovation — that it may merely overlap with current retail offerings, including traditional banking accounts and newer real-time payment services, such as Zelle. They look to other ways of improving payments.

“I think for almost all — if not all — of the policy objectives that have been advanced for a CBDC, there are less risky, more efficient alternatives to achieve those objectives,” says Rob Hunter of The Clearing House. “For faster payments, those alternatives are the already functioning RTP network and the soon-to-be available FedNow network.”

It is uncertain whether a CBDC would lower the costs associated

with cross-border payments. “With cross-border payments, the biggest cost overlay is really in the compliance area,” says Hunter. “You’re talking about payments in jurisdictions that have different AML and terrorist financing frameworks. And that’s really where the cost drivers are coming in. And unless a CBDC is going to ignore all those frameworks, it’s not really going to solve for that.”

Finally, there would be obstacles to be overcome for a CBDC to increase access for the underbanked. Nelson argues that someone who does not already have a standard bank checking account would not be more likely to open a CBDC account without some further inducement. “When you ask people why they are underbanked, the reasons they list are not having enough money to open an account or being distrustful of financial institutions,” says Nelson. “These are things that don’t really seem to be fixed by a CBDC. You’d have to provide subsidies to attract people who don’t already have bank accounts, and that would be quite costly.”

BE PREPARED

Even if it is controversial whether some problems can be fixed by the introduction of a CBDC, many observers think there still are compelling reasons to conduct research into them — and about digital assets and platforms more generally. “We don’t exactly know how things are going to evolve in the digital money and payments space,” says Wang. “It will take great efforts to get the right regulations in place and it will take time to get the CBDC technology ready, and it will be good to prepare on both fronts.” **EF**

READINGS

“Central Bank Digital Currencies: Foundational Principles and Core Features.” Bank for International Settlements, October 2020.

“On the Road to a U.S. Central Bank Digital Currency — Challenges and Opportunities.” The Clearing House, July 2021.

“Money and Payments: The U.S. Dollar in the Age of Digital Transformation.” Board of Governors of the Federal Reserve System, January 2022.



Macro Minute

Check out the Richmond Fed's newest blog, **Macro Minute**.

Each week we take a look at the numbers beyond the headlines on the macroeconomy.

May 17: Recent reports revealed strong growth in hiring and wages for April. But is that growth enough to keep up with inflation?
Really Yearning for Real Earnings

May 10: The recent fall in real GDP has sparked considerable concern, but an alternative measure provides hope that the economy didn't fare as poorly as the data suggest.
GDP Fall Doesn't Tell All

April 12: A recent analysis shows significantly higher inflation in rural areas versus urban areas. But does this difference in price levels hold true at the state level?
Small Towns, Big Cities, Shared Inflation

To read more, visit https://www.richmondfed.org/research/national_economy/macro_minute

BY SAM LOUIS TAYLOR

Responding to Pandemic Learning Loss

The end of this school year marks just over two years since the onset of the COVID-19 pandemic. In that time, students and educators across the country have had to adapt continually to new styles of learning and education delivery. Many students have found success in virtual and hybrid environments, while others have had a more difficult time. This has led to a loss in learning compared to where students would normally have been based on their age and development stage. This loss has the potential to set back these students for years to come, affecting not only their development, but also the economy.

Figuring out the scale of the loss is a challenge in itself.

“We don’t currently have a complete idea of the size of the learning loss and may never know the full picture since some students have graduated and others have moved or transitioned out of public schools,” says Laura Ullrich, regional economist for the Richmond Fed’s Charlotte branch, who has been studying education and learning loss during COVID-19.

In her research, Ullrich has found the data from across the region to be inconsistent as most states didn’t conduct traditional standardized testing in 2020 and many offered opt-out options in 2021. Most school systems are back in person and conducting regular testing this year, so educators and researchers should have a more complete idea of the challenge facing students by the fall.

But there are some initial findings from around the country that can give policymakers an idea of where to begin targeting resources to help students catch up.

Ullrich’s research has found that students have experienced learning loss across the board, with students from disadvantaged backgrounds and

poorer districts experiencing the greatest loss. Overall, she says, the data have shown that the loss was greatest among students learning in virtual settings.

“The loss in math skills appears to be more significant than in reading. But this doesn’t capture the whole picture,” says Ullrich. “There are reports that kindergarten students are behind on fine motor skills — like how to use a pencil — and on developing their social and behavioral skills. Students who rely on the school system to receive speech therapy and other interventions are also behind. High school dropout rates have risen, and college enrollment is down, meaning that many older students have left the educational system altogether.”

Governments and school systems have been responding with a variety of tactics. At the federal level, the largest pool of funding that targets this problem came through the American Rescue Plan, a \$1.9 trillion pandemic recovery bill signed into law in 2021. In the law, Congress sent approximately \$122 billion to states and local governments to help schools safely reopen for in-person instruction and to address the impacts of COVID-19 on students, including dealing with learning loss.

These funds are routed to states through existing formula grants, and states are obligated to send 90 percent of those funds to local educational agencies, which include charter schools in many states. State governments and local school districts are required to spend a portion of this funding, 20 percent for local entities, on mitigating learning loss for students.

School districts and states in the Fifth District have worked to adopt plans that best fit their students’ needs. In Louisa County, Va., the school system has ramped up efforts to get students into summer school and is using its federal funds to bring

in additional instructors for math and literacy. Some schools in North Carolina are constructing additional facilities to reduce class size and funding teacher bonuses to help retain teachers at a time when many are experiencing burnout and leaving the profession.

South Carolina has launched an effort in partnership with its technical colleges and universities to bring in postsecondary students as summer teaching interns, a plan that state leaders hope will also increase the size of their pipeline for new K-12 teaching talent in the long term. Maryland has launched a flexible grant initiative called “Maryland Leads” to help local schools implement a range of strategies to retain staff, accelerate learning recovery, and provide targeted support for historically underserved student populations.

Education leaders are cautiously optimistic that these resources and efforts will help students make up for lost time. The question remains, however, whether those efforts will be enough. The federal funds from the American Rescue Plan, for example, are only short-term resources. The effects of education loss on the economy are expected to linger for years to come.

“If we can’t make a sustained effort to close the learning gaps, it’s likely that you’ll be able to see the consequences reflected in the lifetime earnings of these students,” Ullrich observes. “Overall, if these problems aren’t addressed, this will lead to less economic growth. At a macro level it might not be that noticeable, but at the micro and individual levels the negative impacts could be significant.

“The educational consequences of COVID-19, and the effects of our response, are going to be something that we’ll be studying for years to come.” **EF**

BY TIM SABLİK

Connecting a Region Apart

The Appalachian Regional Commission, created in the 1960s, became a model for regional economic development programs



President John F. Kennedy meets with eight governors of Appalachian states on May 8, 1961.

When President Lyndon B. Johnson declared “unconditional war on poverty” in his first state of the union speech on Jan. 8, 1964, he pledged to “launch a special effort in the chronically distressed areas of Appalachia.” Over the previous decade, there had been growing recognition that Appalachia was “a region apart—geographically and statistically,” as the President’s Appalachian Regional Commission report released shortly after Johnson’s address described it.

Automation and competition from cheaper oil and natural gas in the 1950s had led to widespread layoffs in central Appalachia, where coal mining was the biggest employer. Elsewhere in the region, declining manufacturing and consolidation in farming put pressure on small towns. While most of the country had emerged from the Great Depression and World War II into an era of growing prosperity, many

living in the Appalachian region were being left behind. In 1960, per capita income in Appalachia was only about three-quarters of the national average, and the poverty rate was nearly 31 percent. Health outcomes and educational attainment were significantly worse than in the rest of the country, as well.

Johnson signed the Appalachian Regional Development Act in 1965, creating a new federal-state partnership — the Appalachian Regional Commission (ARC). The law directed the ARC to coordinate investments to improve conditions across a vast region stretching through 11 states, from Alabama in the south to Pennsylvania in the north (including all of the states in the Fifth District). Counties from New York and Mississippi were added later in 1967, expanding the ARC’s footprint to 13 states.

In the nearly 60 years since the ARC began, it has spent \$4.5 billion in the

region and attracted more than \$10 billion in matching funds for thousands of projects. Some of the gaps between the region and the rest of the nation that existed in 1965 have shrunk or disappeared, but others remain. While there is debate among economists about the effects that the ARC has had on the region, it has emerged as a model for federal-state partnership in regional economic development.

APPALACHIA AND THE 1960 ELECTION

While the ARC began life as part of Johnson’s Great Society initiative, its roots stretch back to his predecessor, John F. Kennedy.

Kennedy entered the primary in West Virginia in 1960 to solidify his bid to become the Democratic nominee for president. He had just won the primary in Wisconsin, but his path to the nomination was far from certain. Most party leaders considered him too young and inexperienced, and the fact that he was Catholic was viewed as a serious liability among the predominantly Protestant voters in the South. West Virginia, which was heavily Protestant, would become an important test for whether Kennedy could win nationally.

When he arrived in West Virginia in April 1960, Kennedy was immediately confronted by the disparities between Appalachia and the rest of the country — a contrast that was clearly visible within the state itself. The capital, Charleston, had one of the highest average family incomes on the East Coast at the time. But about 20 miles away in communities along Kellys Creek, most of the miners had been out of work for nearly a decade. An article written for *The Nation* a

IMAGE: JOHN F. KENNEDY PRESIDENTIAL LIBRARY AND MUSEUM

year earlier painted a bleak picture: “Narrow, bumpy paved roads dissolve into muddy trails, connecting the Appalachian South’s bleak hollows with the world beyond. Sprawled along Kelly’s Creek Road [sic] in West Virginia are dilapidated shacks, rusting oil and gas wells, crumbling coal tipples.”

While conditions in Appalachia had worsened in the 1950s, the region had started to diverge from the rest of the country as far back as the Civil War. In his book *The Appalachian Regional Commission: Twenty-Five Years of Government Policy*, Michael Bradshaw, former professor of geography and geology at the College of St. Mark and St. John, noted that poverty in central Appalachia was tied to extractive industries like coal mining and logging. After the Civil War, many residents sold property rights to out-of-state prospectors to survive, and those absentee landlords exploited those natural resources without reinvesting in local communities. Additionally, extractive industries tend to go through boom-and-bust cycles that may inhibit an area’s long-term economic growth and development, an idea known as the “resource curse.”

“The story of coal is one of peaks and valleys, but the trend line for employment is always down,” says Guy Land, congressional liaison specialist at the ARC who joined the organization in 1994. “Even when there is a resurgence in the coal industry, employment numbers never match the previous peak.”

As he campaigned throughout West Virginia in 1960, Kennedy witnessed the effects of this steady decline for himself. He followed coal miners underground and talked with people queuing at unemployment offices. As someone who had grown up in the lap of luxury, his travels throughout the Mountain State seem to have left a lasting impression on him. In one oft-cited anecdote, Kennedy returned to his Senate office for a vote during the campaign and remarked, “You can’t

imagine how those people live. I was better off in the war than they are in those coal mines. It’s not right.”

Theodore Sorensen, Kennedy’s speechwriter, recalled in a 1964 interview that the campaign in West Virginia had stimulated Kennedy’s interest in reforming and expanding federal anti-poverty programs. Congress had passed a bill to assist the region in the previous decade, but President Dwight D. Eisenhower vetoed it twice. After winning the West Virginia primary in a landslide, Kennedy went on to secure his party’s nomination and ultimately the presidency. His first executive order was to expand the food distribution program for needy families, likely motivated by the memory of struggling families he met in West Virginia.

While Kennedy was still campaigning, states in the Appalachian region were banding together to tackle their common challenges. Governors from nine states (Alabama, Georgia, Kentucky, Maryland, North Carolina, Pennsylvania, Tennessee, Virginia, and West Virginia) formed the Council of Appalachian Governors in 1960 and met with candidate Kennedy to make the case for federal assistance.

Once Kennedy was in office, his administration’s first effort, the Area Development Act of 1961, was not well-targeted; over a third of all counties in the country qualified for assistance, and the most distressed areas of Appalachia lacked the resources to compete effectively for grants. The region’s governors proposed the creation of a President’s Appalachian Regional Commission (PARC) to study the challenges of Appalachia and propose specific legislative solutions. Kennedy formed the PARC in April 1963 under the leadership of Franklin Roosevelt Jr., a son of the former president and a former congressman. (His campaigning in West Virginia had been instrumental in Kennedy’s primary victory there — drawing upon West Virginians’ affection for FDR.)

THE ARC’S EARLY YEARS

Kennedy’s shocking assassination had taken place by the time the PARC released its findings in 1964, but its work was taken up by the Johnson administration. PARC identified several gaps in the Appalachian region in terms of income, employment, education, population, and infrastructure. It proposed public spending on both physical and human capital with a new independent agency to oversee and coordinate state and federal efforts. Although it would take another year, Congress and President Johnson created such an agency in 1965 with the Appalachian Regional Development Act.

The ARC was not the federal government’s first attempt at creating a regional development agency. The Tennessee Valley Authority (TVA), created in 1933, was originally envisioned to oversee broad economic development initiatives across a region covering most of Tennessee and portions of Alabama, Mississippi, Kentucky, Georgia, North Carolina, and Virginia. The TVA took a top-down approach that didn’t always consider the wishes of the communities it was trying to help. Its use of eminent domain to acquire land for dams and power stations failed “to establish sympathy and collaboration with states and local jurisdictions in the river basin,” Bradshaw wrote in his book. Because of these missteps, the TVA’s larger aspirations for regional development never really got off the ground, and it was ultimately limited to being an electric utility company.

The ARC was envisioned as a bottom-up collaboration where state and federal representatives would be equal partners and in which localities would have an active role. Its leadership would consist of a presidentially appointed federal co-chair and representatives from each state in the region (a role that today is filled by the state governors). No decision on funding could be made without agreement between the states and the federal



President Lyndon B. Johnson shakes hands during his tour of Appalachia in May 1964.

co-chair. Additionally, the ARC created local development districts — groups of counties within the ARC’s territory with their own administrative staffs that could provide the knowledge and resources to help localities apply for economic development grants.

“The crafters of the ARC understood the importance of having a federal-state partnership that also had this local component,” says Land. “There was a fear that without it, you would have distant policymakers, whether in the state capitols or in D.C., who were not as attuned as they should be to local needs.”

This enabled the ARC to respond to local demands faster than other federal agencies. A few weeks into its life, it obtained funding from the Office of Economic Opportunity to help hospitals in Appalachia resolve a budget crisis that would have forced them to close their doors. And in 1967, when the Silver Bridge between Ohio and West Virginia collapsed, the ARC worked quickly to coordinate efforts between the two states, the Senate Public Works Committee, and the Army Corps of Engineers, allowing new construction to get started in weeks rather than years.

The bulk of the ARC’s initial \$1.1 billion budget was allocated toward building the Appalachian Development Highway System, a complement to the interstate highway system. So they could be built as cheaply as possible,

the interstates largely bypassed the mountainous Appalachian terrain. (See “When Interstates Paved the Way,” *Econ Focus*, Second/Third Quarter 2021.) Without a connection to the new highway system, lawmakers worried that the isolation and economic disparities of Appalachia would only worsen.

Congress was pleased enough with the ARC’s early work that it reauthorized and expanded its responsibilities in the 1970s. But despite these early successes, the ARC ended the decade with its future shrouded in uncertainty. In 1979, the Government Accountability Office (GAO) released a report examining a proposal to expand the ARC model to other regions across the country. The GAO concluded that such a move “would be premature” until the ARC addressed problems with program planning and evaluation, fund allocation, and grant administration.

INVESTING IN PEOPLE AND PLACE

The impact of the ARC’s infrastructure investments is more visible today than it was in the 1970s. Present-day ARC federal co-chair and West Virginia native Gayle Manchin remembers that when she attended West Virginia University in 1965, it could take her up to seven hours to drive from Morgantown to Beckley because of the poor road conditions. Today, that trip takes about three hours, depending on traffic.

“The highway system has been critical to the development that we have experienced in West Virginia over the years,” she says. (Manchin’s husband, Joe, is a former governor of the state and currently represents West Virginia in the Senate.)

In a 2019 article in the *Review of Economics and Statistics*, Taylor Jaworski of the University of Colorado Boulder and Carl Kitchens of Florida State University found that the gains from improved trade through the system benefited not just the region, but also the country as a whole. They estimated that in the absence of the new highways, total income in the United States would be \$53.7 billion lower, with \$22 billion of those losses occurring in Appalachian counties.

The ARC also helped improve access to running water and indoor plumbing throughout the region. In 1970, the share of Appalachian households that lacked access to plumbing facilities was about double the national average. The ARC funded hundreds of projects to expand sewage and wastewater treatment, and a 2017 article in the *Journal of Regional Science* by Daniel Grossman, Brad Humphreys, and Jane Ruseski of West Virginia University found that those projects were successful at improving households’ access to running water. That result was not a given, as large-scale investments to expand water and sewer access can succumb to a “last mile” problem, failing to connect the infrastructure to individual homes.

But while some infrastructure disparities in Appalachia have improved, new ones have emerged. The COVID-19 pandemic revealed the importance of having reliable internet access to stay connected with employment and education opportunities, and the Appalachian region lags the nation in broadband subscriptions. The same mountainous terrain that inhibited the development of physical highways has proven a barrier to connecting the region to digital ones. (See “Closing the

Digital Divide,” *Econ Focus*, Second/Third Quarter 2020.)

The ARC also continues to grapple with the boom-and-bust cycle of the coal industry. In the 1970s, coal enjoyed a brief resurgence thanks to rising energy prices, leading to improved employment opportunities in the region. A similar dynamic played out in the 2000s and early 2010s during the shale boom. The ARC has tried to help equip workers with the skills to take advantage of these booms when they happen while also supporting efforts to diversify the economy. It helped fund the Tri-State Energy and Advanced Manufacturing Consortium in 2017 to provide education and training to workers in the energy and manufacturing sectors. And since 2015, the ARC’s POWER (Partnerships for Opportunity and Workforce and Economic Revitalization) Initiative has invested \$316.6 million to fund training and education for workers in communities that have suffered job losses in the coal industry.

“When you talk about economic growth and development, it always comes back to education,” says Manchin.

As infrastructure has improved in Appalachia, the ARC has shifted its focus to human capital – that is, education and training. In its latest strategic plan for 2022-2026, fostering local entrepreneurship and strengthening the region’s workforce ecosystem are top priorities.

MEASURING SUCCESS

What impact has the ARC had on the region over its nearly six decades

of work? It is difficult to disentangle from the many other changes that have happened to the region and the country during that time. Some critics argue that the ARC’s funding has been too limited and spread too thin across its 423 counties to have much of an effect.

In a 2008 article in the *Brookings Papers on Economic Activity*, Edward Glaeser of Harvard University and Joshua Gottlieb of the University of Chicago compared ARC counties with similar counties in the same region but outside of the Commission’s jurisdiction. They found that between 1970 and 1980, being part of the ARC’s territory was associated with faster growth, but that effect disappears when looking over a longer time horizon through 2000.

“Current spending on the ARC is no more than the cost of a few large Manhattan buildings. Could such a program really have changed the course of a region considerably larger than California?” Gottlieb and Glaeser wrote.

Other researchers have identified more positive effects. In a 2015 ARC-sponsored study, economists from West Virginia University matched counties within the Commission’s territory with similar counties outside of Appalachia that didn’t receive funding. The authors estimated that between 1970 and 2012, counties that received ARC funding experienced an average 4.2 percent higher employment growth and 5.5 percent higher per capita income growth than counties outside of the ARC’s coverage. Similarly, a 2012 study by James Ziliak of the University of Kentucky credited the ARC with reducing poverty by 7.6

percentage points relative to the rest of the United States and by 4 percentage points relative to border counties just outside the ARC’s territory between 1960 and 2000.

Another telling sign of the ARC’s influence is that despite the GAO’s hesitancy in 1979, it in fact has become a model for other federal regional development programs. The Delta Regional Authority, created in 2000 to address economic distress in the Mississippi River Delta region, is governed by the same type of federal-state partnership as the ARC. Three additional regional commissions created by the 2008 farm bill were also modeled on the ARC.

“Over time, the fact that this model is a partnership between the states and the federal government rather than the Feds dictating policy to the states was something that resonated with Republicans,” says Land. “And many of the economic development initiatives that the ARC has done have traditionally been attractive to Democrats.”

Critics can argue that the fact that disparities still exist in Appalachia is a sign of failure for the ARC. On the other hand, it may simply reflect the fact that the challenges facing the region are ever-changing and lack easy solutions. One enduring lesson from the ARC’s history that has been increasingly embraced by government and nonprofit economic development agencies alike is that tackling big regional challenges requires regional collaboration.

“If we work across county and state lines, thinking more about how we lift up the region as a whole, we will accomplish more than each state working individually,” says Manchin. **EF**

READINGS

“Appalachia Then and Now: Examining Changes to the Appalachian Region Since 1965.” Report prepared by the Center for Regional Economic Competitiveness and West Virginia University for the Appalachian Regional Commission, February 2015.

Bradshaw, Michael. *The Appalachian Regional Commission: Twenty-Five Years of Government Policy*. Lexington, Ky.: University Press of Kentucky, 1992.

Glaeser, Edward L., and Joshua D. Gottlieb. “The Economics of Place-Making Policies.” *Brookings Papers on Economic Activity*, Spring 2008.

Jaworski, Taylor, and Carl T. Kitchens. “National Policy for Regional Development: Historical Evidence from Appalachian Highways.” *Review of Economics and Statistics*, December 2019, vol. 101, no. 5, pp. 777-790.

Is Dollar Dominance in Doubt?

The U.S. dollar solidified its rise to global prominence after the Bretton Woods Conference in 1944, held at the Mount Washington Hotel in New Hampshire (seen here). The final agreement fixed the dollar to gold and tied other countries' currencies to the dollar.



The dollar has been the global currency of choice for nearly a century, but in light of recent U.S.-led financial sanctions, some wonder whether that status will endure

BY TIM SABLİK

The world runs on the U.S. dollar. Apart from Europe, where the euro dominates, the majority of global trade is invoiced in dollars. The Fed estimates that foreign investors held nearly \$1 trillion in cash at the end of the first quarter of 2021, roughly half of all U.S. notes in circulation. Central banks around the world hold about 59 percent of their foreign currency reserves in dollars. Much of these reserves are held as dollar-denominated debt — that is, U.S. Treasuries — rather than currency. About a third of all U.S. debt was held abroad as of 2021, and a little over 60 percent of debt issued by non-U.S. companies in a foreign currency was denominated in dollars.

The widespread adoption of the dollar as a global currency has long been thought of as a source of “exorbitant privilege” for the United States, a term coined in the 1960s by France’s then Finance Minister Valéry Giscard d’Estaing. Having a large share of trade invoiced in dollars protects U.S. exporters and importers from exchange rate risk. And insatiable global demand for U.S. Treasuries

enables America to service its more than \$30 trillion in federal debt at favorable interest rates.

The dollar's dominance abroad also grants the United States increased leverage against other countries through financial sanctions. In response to Russia's invasion of Ukraine in February, the United States and its allies froze about half of the \$630 billion of foreign reserves held by Russia's central bank and barred several major Russian banks from SWIFT (the Society for Worldwide Interbank Financial Telecommunication), an international messaging system used for interbank transfers. Because of the dollar's commanding role in international trade and finance, limiting who can access dollar banking and payment services represents a potent weapon in the U.S. arsenal.

But some worry that weaponizing the dollar in this way could diminish its role in the world economy by driving other countries to seek alternatives. Although the dollar is still the dominant global currency by a wide margin today, there is some evidence that its future could be in jeopardy.

BECOMING A HEGEMON

When trying to understand how the dollar became the international currency of choice, many people focus on the global financial system that was built in the aftermath of World War II. In July 1944, representatives from 44 nations met in Bretton Woods, N.H., to design a framework for rebuilding the world's economy after the war. The final agreement was that the United States would fix the value of the dollar to gold at \$35 an ounce and other countries would peg their currencies to the dollar. This system enshrined the dollar as the most important currency in the world, requiring other countries to hold dollars in reserve to maintain their exchange rate.

But the Bretton Woods system didn't last long. By the 1970s, the United States didn't have enough gold to back all the dollars held abroad at the agreed upon rate of \$35 an ounce, and President Richard Nixon ended gold convertibility for the dollar. (Belgian-born Yale University economist Robert Triffin had predicted this exact problem more than a decade earlier by pointing out that supplying the dollars needed to maintain the dollar's status as the global reserve currency would eventually conflict with domestic policy priorities, a tension that became known as the Triffin dilemma.)

After the collapse of Bretton Woods, other countries were no longer obligated to fix their currencies to the dollar, and many economists anticipated that the dollar's

Dollar Rising

The dollar's value tends to appreciate in times of crisis



SOURCE: "Nominal Broad U.S. Dollar Index," Board of Governors of the Federal Reserve System

NOTES: The Nominal Broad U.S. Dollar Index tracks the value of the dollar in relation to a basket of currencies widely used in international trade. Shaded areas represent recessions.

role abroad would diminish. Instead, in the decades following the end of Bretton Woods, the dollar became even more globally dominant.

The dollar wasn't the first currency to attain global reach, though. In the 16th century, the Spanish silver dollar rose to prominence through Spain's colonial expansion. In the 17th century, Dutch florins and bills issued by the Bank of Amsterdam became the currency of choice. And by the 18th century, the pound sterling of the British Empire had become dominant — a position it would maintain into the 20th century. Each of these global currencies emerged organically without coordination as in Bretton Woods. In fact, the dollar had already begun to compete with the British pound by the mid-1920s, years before Bretton Woods solidified its place.

Global currencies arise for much the same reasons as domestic ones — they fulfill the basic functions of money. That is, they act as a medium of exchange, unit of account, and store of value. In terms of exchange, a currency can become dominant if it is cheaper to use in trade than any other currency. For instance, historically it has been true that when exchanging one currency for another, it was often cheaper to use the dollar as an intermediary because the market for dollars was much bigger. A currency becomes a global unit of account when it is widely used for trade invoicing. And safe and liquid currencies can become global stores of value.

Economists have different theories about which of these functions is most important for explaining a currency's rise, but First Deputy Managing Director of the International Monetary Fund (IMF) Gita Gopinath and Harvard University professor and former Fed Governor Jeremy Stein argue that they are all interconnected and reinforcing. In a 2021 *Quarterly Journal of Economics* article, they outlined a theory of how a currency can become dominant through positive feedback loops. If a currency

becomes a global unit of account through its use in trade invoicing, that increases the demand to hold that currency to conduct trade, which bolsters its position as a global store of value. Similarly, if there is a lot of global demand to hold a currency as a store of value, that reduces the cost of borrowing in that currency and makes it attractive for traders in other countries to price exports in that currency to access that cheap funding market.

PRIVILEGE AND RESPONSIBILITY

Does the dollar's widespread use abroad confer an "exorbitant privilege" upon the United States as Giscard d'Estaing claimed? Most economists agree that it has its benefits, though not many would say they qualify as exorbitant.

The law of supply and demand implies that higher global demand for dollar-denominated Treasuries means the United States can attract buyers at lower interest rates, allowing it to borrow more cheaply. But in practice, this advantage appears slight. In a 2016 post on his Brookings Institution blog, former Fed Chair Ben Bernanke noted that the real interest rate the United States pays on its debt is the same or even slightly higher than the interest paid by other similarly creditworthy countries such as Germany and Japan.

And this benefit comes with a cost, which Pierre-Olivier Gourinchas of the University of California, Berkeley, and H el ene Rey of the London Business School call the "exorbitant duty" of the United States to provide insurance to the rest of the world. In a 2022 working paper, they argued that other countries effectively pay an insurance premium to the United States in good times, allowing it to earn an excess return on its net foreign asset position. In exchange, the United States acts as insurer during global crises. Gourinchas and Rey estimated that the United States transferred the equivalent of roughly 20 percent of U.S. GDP to the rest of the world during the 2007-2009 financial crisis.

"At the core, the international monetary system is set up for the production and distribution of safe assets," explains Matteo Maggiori, a professor of finance at Stanford University who has studied the dollar's role in the global economy. "The U.S. has been at the core of that system for the last century and enjoyed some benefits, but the rest of the world has also benefited by being able to buy the safe assets it desired."

Treasuries are viewed as safe assets because the dollar tends to appreciate during times of crisis. Indeed, even amid present-day concerns about the dollar's future, it has strengthened during the recent uptick in global uncertainty, as it did in similarly turbulent times in the past. (See chart on previous page.) This is an encouraging vote of confidence in America's future, but it can also harm the competitiveness of U.S. exporters at a time when they are already hurting. Currency depreciation can provide economic stimulus by making a country's exports more

attractive. Serving as the safe asset supplier to the world means essentially giving up that advantage.

Some researchers have argued that the fact that the dollar has been stronger over time than it would have been if it were not the global currency of choice has contributed to the long-run decline of U.S. manufacturing by hurting its competitiveness with the rest of the world. Joseph Gagnon of the Peterson Institute for International Economics says that the strong demand for the dollar and dollar-denominated assets is the biggest driver of the United States' persistent trade deficit.

Another benefit of the dollar's central role in international trade and finance is the leverage it grants the United States over other countries. Since so much of global trade and finance happens through dollars, the ability to block individuals, companies, and even governments from operating in that system represents a serious threat. According to the Global Sanctions Data Base, constructed by a team of economists, the United States has gradually increased its reliance on financial sanctions over the past 70 years. But could the use of this power ultimately undermine the dollar's reputation as safe and secure?

COMPETITION FOR THE CROWN?

One of the recent sanctions that garnered a lot of attention was the decision to bar several Russian banks from SWIFT. Many commentators referred to this as the financial "nuclear option," since it effectively cut those banks off from much of the global financial system. Because many of the transfers that use SWIFT are made in dollars, some feared this action could spark a negative backlash against the dollar. But as Richmond Fed economist Russell Wong discussed in a March *Economic Brief*, the dollar and SWIFT aren't directly related. SWIFT is just a messaging system open to any currency. So, while being banned from SWIFT might prompt some banks to seek alternative messaging systems, it wouldn't necessarily drive them to different currencies.

Wong compared SWIFT to Gmail as a system for sending emails, while analogizing currencies to the language those emails are written in. If Google banned some Gmail users from sending messages in English, Wong suggests that those users would be more likely to look for a different email system than to abandon English. This analogy illustrates the challenge of substituting away from the dollar: There simply isn't any comparable alternative.

"The dollar represents the entire ecosystem of payments and banking," says Wong. "It is difficult to find a close substitute that is equally deep, liquid, broad, and safe."

Most competitor currencies face limitations that the dollar does not. The euro is widely used for trade in Europe and is viewed as safe, but the fact that the eurozone does not have a unified fiscal policy limits its ability to produce enough euro-denominated safe assets to satisfy

global demand. Plus, as the recent actions against Russia illustrate, switching to the euro would not necessarily offer any additional protection over the dollar, as Europe and the United States often work in partnership.

China has taken steps to internationalize the renminbi in recent years by opening its financial markets up to more foreign investors, but Maggiori says it still has a long way to go to match the openness of the U.S. market. In a recent working paper with Christopher Clayton of Yale University and Amanda Dos Santos and Jesse Schreger of Columbia University, Maggiori argued that China was slowly opening itself up to build a “reputation as a country capable of providing the global store of value.”

“The road toward the renminbi becoming an international currency is a difficult one that will take some time and face its inevitable setbacks,” says Maggiori.

And while the use of financial sanctions by the United States may prompt some countries to try to diversify away from the dollar, others have argued that it could actually strengthen the dollar’s appeal overall. In a recent NBER working paper, Michael Dooley of the University of California, Santa Cruz and David Folkerts-Landau and Peter Garber of Deutsche Bank argued that part of the role of the provider of the world’s dominant reserve currency is to police the global financial system and sanction misbehavior.

“The U.S. administration is probably betting that the controls imposed on Russia will not be perceived as arbitrary, but as proportionate retaliation on a country waging aggressive war,” says Maggiori.

THE LONG VIEW

While there may not be a single obvious replacement for the dollar, that doesn’t mean that countries haven’t been diversifying into other currencies. The dollar’s share of global foreign exchange reserves fell to a 25-year low at the end of 2020, to 59 percent from 71 percent in 1999.

Serkan Arslanalp and Chima Simpson-Bell of the IMF and Barry Eichengreen of the University of California, Berkeley, referred to this development in a recent IMF working paper as “the stealth erosion of dollar dominance.” The dollar isn’t being replaced on bank balance sheets by another single currency like the euro or renminbi, they found. Rather, most of the shift away from dollars has been into dozens of smaller currencies. They

cited a greater desire for portfolio diversification on the part of central banks as well as the falling cost of transacting in smaller currencies as factors that have contributed to this change. This has led some economists to speculate that we could be heading toward a “multipolar” world of many different competing currencies, which could have some advantages.

“Just like biodiversity makes for a more robust global ecology, a multipolar system will be more robust,” says Eichengreen. “In addition, an expanding global economy needs additional international liquidity to grease the wheels of globalization, and the U.S. can’t provide the requisite safe and liquid assets all by itself.”

Indeed, many economists point to a new kind of Triffin dilemma as a greater risk to dollar supremacy than the use of sanctions. Just as the United States faced a crisis of confidence in its ability to back the dollars in circulation during the Bretton Woods era, economists have warned that it could face a similar challenge in the coming years to supply enough safe assets to meet global demand while simultaneously maintaining confidence in its ability to repay its debts. Having more options for safe assets to choose from in the form of different currencies could solve this problem, but not all economists agree that a multipolar system would necessarily be more stable. Competition among countries to grab the reserve currency crown could lead to coordination challenges and questions about which assets are truly safe.

Moreover, the transition from the dollar regime to its successor could be unstable. “One historical precedent is the coexistence of dollar and sterling during the interwar years,” the late Harvard University macroeconomist Emmanuel Farhi told *Econ Focus* in a 2019 interview. “It’s not a particularly happy precedent; it was a period of monetary instability. You saw frequent rebalancing of international portfolios into one reserve currency and out of another, which created a lot of volatility.”

History teaches that dominant currencies change infrequently and often over long transition periods. But crises can be the catalyst for those transitions, as was the case when the British pound’s centuries-long reign started to unravel after World War I. While almost no economist predicts that the dollar will be replaced soon, market confidence is fickle, and the types of crises that spark a changing of the reserve currency guard are inherently hard to predict. **EF**

READINGS

Arslanalp, Serkan, Barry Eichengreen, and Chima Simpson-Bell. “The Stealth Erosion of Dollar Dominance: Active Diversifiers and the Rise of Nontraditional Reserve Currencies.” IMF Working Paper No. 22/58, March 2022.

Clayton, Christopher, Amanda Dos Santos, Matteo Maggiori, and Jesse Schreger. “Internationalizing Like China.” Manuscript, March 2022.

Gopinath, Gita, and Jeremy C. Stein. “Banking, Trade, and the Making of a Dominant Currency.” *Quarterly Journal of Economics*, May 2021, vol. 136, no. 2, pp. 783-830.

Gourinchas, Pierre-Olivier, and Hélène Rey. “Exorbitant Privilege and Exorbitant Duty.” Centre for Economic Policy Research Discussion Paper No. DP16944, January 2022.

Tyler Cowen

On credentialism, the new math of causation, and the lasting economic influence of youthful experiences

Recent posts by Tyler Cowen on his widely read *Marginal Revolution* blog have offered recommendations of German literature to be read in the original German by non-native speakers; praise for coffee-table picture books as a literary genre; and highlights of papers and articles on polyester, cultural fragmentation in France, and voice actors who do bark-overs and scream-overs. The Harvard-trained George Mason University economics professor also blogs about economics.

Cowen — with George Mason University colleague Alex Tabarrok — has been co-proprietor of *Marginal Revolution* since starting it in 2003. Experienced readers watch for his catchphrases, like “MIE” (markets in everything, usually the offbeat), “solve for the equilibrium” (meaning, figure out where this situation is going to end up), and “there is no great stagnation” (progress is happening; it’s just where no one thought to look).

More recently, in 2018, Cowen founded Emergent Ventures, a program that makes grants, mostly to individuals, “to jumpstart high-risk, high-reward ideas that advance prosperity, opportunity, and wellbeing.” The program has had 20 cohorts of winners with projects in a wide range of fields, from longevity research to nuclear fusion to children’s books based on classical liberal values. In April 2020, soon after the start of the COVID-19 pandemic, Cowen added a fast track under the name Fast Grants for grants related to combating the pandemic. Cowen says the two programs have awarded a total of about \$65 million.

Cowen has authored, co-authored, or edited 22 books. His most recent, written with technology entrepreneur and venture capitalist Daniel Gross and published in May, is *Talent: How to Identify Energizers, Creatives, and Winners Around the World*.

In addition, he is an opinion columnist for Bloomberg and host of the interview podcast “Conversations with Tyler.” He is faculty director of the Mercatus Center, a free-market-oriented research center at George Mason. He and Tabarrok founded and lead *Marginal Revolution* University, which offers free undergraduate-level online lectures on economics principles.

David A. Price interviewed Cowen by videoconference in April 2022.



EF: One of the areas you look at in your new book, *Talent*, is talent-spotting. In your own case, you started as an undergraduate at Rutgers-Newark, then transferred to George Mason University at a time when it didn’t have the stature it does today — and a few years later, you were a doctoral student in Harvard’s economics department. What happened? How were you spotted?

Cowen: I spent my three years at George Mason trying to publish articles in refereed journals, which I managed to do with a few pieces. I think that very strongly helped my application to top schools. I believe I applied to six schools and got into all of them, but Harvard was where I wanted to go. I think the writing was really what made the difference.

More generally, I would say if a person starts trying to do something at a young age, you should weight that highly as a sign of future success whether or not they’ve succeeded with it — simply that they’re trying. If someone is submitting articles to journals at age 18-19, whether or not they’re accepted, I think we should be very interested in that person as a talent.

EF: On the subject of spotting talent, researchers have questioned the value of interviews in hiring. Are job interviews a relic?

Cowen: Most of the best meta studies do show positive value for the interview process. Now, it’s perfectly fine to be skeptical about meta studies, and indeed, social sciences more generally. But look at what’s happening in the market: Companies still do interviews. They devote a lot of energy, money, and resources to it. Highly

successful entrepreneurs such as Elon Musk are often deeply involved in their companies' hiring. I just think people can do hiring better. If it's a zero-sum game to some extent, well, number one, we can make it better, and number two, you want to win that zero-sum game, right?

I've been teaching a number of people who work with me how to interview. One thing to keep in mind is that some of the interview process is just a bunch of people ruling themselves out very quickly, whether you're a good interviewer or not. So there's that value right off the bat. To get beyond that, you need to ask complex questions that get people out of their prep. A lot of even pretty smart interviewers don't do this. If there are 10 to 20 standard questions, they go through them all and the interviewees are usually fine. What would you hope to get out of this job? Everyone halfway intelligent is prepared for those questions. You need to get them out of book, as we would say in chess, and just talking about the world.

How important is the interview relative to the candidate's past history? It depends how senior the person is. Often, the interview's the main thing you have. Say the candidate's 17 or 18 years old. For those very junior people, it's really going to depend a great deal on how well they can articulate some vision of something, even a vision of themselves, compared to not articulating much of anything. And then just ask them, "How ambitious are you?" It's an absurdly straightforward question. It's amazing to me how few people ask that.

It's also amazing to me that people, when asked, tend to give honest answers. The people who aren't ambitious, whether directly or indirectly, will admit that. For many jobs, that's fine. You don't want ambition, necessarily, in a Starbucks cashier. But for many jobs, you do.

EF: Is credentialism a problem in this country?

Cowen: I think it's a massive problem. I see it getting much worse. It wasn't that long ago in America that people without college degrees would be considered for fairly high-level jobs. That's hardly ever the case now. I'm very pleased the Maryland state government just liberated a lot of its jobs from the college-degree requirement. Also, if you want a more

"I see so many bartenders and Uber drivers who have graduate degrees. Something is wrong with that picture. It's a mix of too much education, education of the wrong kinds, and a job market not producing enough sustainable jobs for highly intelligent people. I would love to see a major downgrade to credentialism."

diverse workplace, that's one good way to get there; a lot of the talent in groups that are currently underrepresented is talent without a college degree.

I see so many bartenders and Uber drivers who have graduate degrees. Something is wrong with that picture. It's a mix of too much education, education of the wrong kinds, and a job market not producing enough sustainable jobs for highly intelligent people. I would love to see a major downgrade to credentialism.

EF: Historically, one heard a lot about people starting in the mail-room, starting on the shop floor. What do you think has happened to that?

Cowen: It is vanishing for more than one reason. One reason is simply that because of NIMBY, living in major cities has become so expensive. The idea that you might move to Manhattan, start in a flophouse, wash dishes — just crazy today, right?

You see it in old movies; it was actually done. I'm not saying everyone succeeded with that strategy, but you could try it with a straight face. And a lot of people did work their way up. Try that now in San Francisco.

The other problem, on the demand side, is just excess credentialism. It's a self-fulfilling prophecy. If you tell all the smart people that they have to get credentials, most of them will do it. And then in that equilibrium, the people without credentials, on average,

are the less talented. But we put ourselves in that position.

A lot of alternatives are evolving now: Thiel Fellowships and GitHub pages, to name a couple. You could call it a different kind of credentialism, but it's a much more diverse credentialism. And it gives people a lot more freedom and mobilizes talent at a younger age than what we've been doing.

EF: You mentioned the Thiel Fellowships. You started a philanthropy, Emergent Ventures, in 2018 with money from the Thiel Foundation and others to make grants to people whom you judge to have a promising project for improving society. What have you learned from this experience?

Cowen: I've learned a great deal doing Emergent Ventures. One thing I've learned is that for all the talk about youth, we're still underrating 14- to 19-year-olds. So many of them are so smart and so on the ball. The world should be working more with them, encouraging them, not producing dumbed-down material for them. We should be giving them more autonomy, empowering them, and in some cases, trusting them with companies. They're just doing fantastic things in all sectors, in large part because of the internet.

Another thing I've learned, and this is to my dismay, is how geographically

concentrated talent is. I don't mean where talent is born; I mean where people end up. I see applications from something like a half-dozen parts of the world, none of which would surprise you, like the New York City area or near London. Talented people already have moved to those areas. Nothing against those areas. But it worries me when I think about like the broader fate of Northern England, or Columbus, Ohio, or a number of other places. Talent is more clustered than I had thought.

I've also learned more about how slow many philanthropic foundations can be, and how much room there is to operate more efficiently. My super-simple application form, which can be done in an hour, does not ask for letters of recommendation and never asks anyone where they went to college. It's part of my war against credentialism. The application is basically, "Who are you? What's your idea? What's your email address?" And a few other questions. That's it. The idea is, here's a blank sheet of paper — impress me. I think it works.

We're more willing to take a chance. Part of the reason is that we have been able to change our own economic incentives. We figured out a way to run Emergent Ventures on 2 percent overhead, which is very low. Commonly in a nonprofit, overhead could be 30 percent or more.

With 2 percent overhead, you aren't carrying a staff. You don't have to keep things going. You don't have to please some particular set of outside parties. You can do what you're doing. And if somehow it goes away, if it can't raise any more money or whatever happens, you just stop it. You're not captured by your own internal interest groups.

It's very commonly the case that at large and even midsize foundations, everything becomes captured by the staff. To maintain their own jobs, they don't want to take too much risk. They set up a lot of labor-intensive processes. We have no incentive to do any of that.

Tyler Cowen

■ PRESENT POSITIONS

Holbert C. Harris Chair of Economics and Professor of Economics, George Mason University
Faculty Director, Mercatus Center, George Mason University

■ EDUCATION

Ph.D. (1987), Harvard University; B.S. (1983), George Mason University

Quite the contrary — the labor burden falls on me. A woman who works with me, Shruti Rajagopalan, does Emergent Ventures India as a solo venture. She is autonomous. She does her thing for India. I do my thing for the rest of the world. That's it. Emergent Ventures could go *poof* tomorrow and we would be fine.

The nonprofit sector, I think, is one of the worst sectors of the American economy. And you can't really blame it on government, I might add. My libertarian instincts are somewhat violated when I look at the nonprofit sector.

EF: Over the past two decades or so, the rate at which Americans move has gone down substantially. What do you think is going on?

Cowen: I think there are at least two major developments behind that change. The first is that we're just much more of a service economy and continue to become more and more services based. Say you're a dentist. You don't really think, "Well, I'll move from Dallas to Denver, because Denver is where the teeth are." Right? That wouldn't make sense. In services, for the most part, you just pick where you want to live and you can stay there just fine.

Areas like manufacturing or resource extraction are still there, of course. But a lot of those industries are not that labor intensive. So with the service economy, there are fewer economic reasons to move great distances.

And there was the old idea of, "Oh, let's move to California, it's sunny, it's wonderful." Today, it's not well-run anymore. And it's super expensive. If anything, as you know, people are leaving California.

I think the other factor is that people are just better informed, partly because of the internet. They can figure out where they want to live earlier in life and then just stay there.

Staying put comes with definite upsides. But it's also the case when a downturn comes, maybe your labor markets don't adjust the way they used to because everywhere is stuck in the same predicament. If everywhere looks a bit like Columbus, Ohio, or for that matter, Richmond, Virginia, there's less moving.

EF: Your blog with Alex Tabarrok, *Marginal Revolution*, seems to have an exceptionally high readership within the economics profession. Are you trying to influence the profession in one direction or another?

Cowen: My attitude is that with *Marginal Revolution*, we're trying to showcase work that we think is better, rather than worse. I'm personally pretty reluctant to criticize people or do takedowns or rumor mongering or exposes. We do zero or close to zero of that. Most of all, my vision is a constructive one.

If you've blogged for almost 20 years, what keeps you going is enjoying the process itself and what you learn. I'm not paid in any way to do this. So at most margins, I'm not sitting there thinking about how I can influence the economics profession. I'm very wrapped up in my daily life. Like, do I want to eat a piece of cheese now, do I need some more water? I'm just doing something that will keep myself entertained. Indirectly, that does translate into some algorithm of attempted influence. But I would say don't overrate the intentionality, don't underrate the extent that it's me just trying to have fun.

EF: As you know, Leo Strauss argued that writers and philosophers have often found it helpful or necessary to convey their actual messages under layers of obscurity. In that sense, do you think economics has become more Straussian or less Straussian?

Cowen: I think economics and writing in general has always been Straussian. And in today's age of obvious cancellations, it has become quite clear that no matter how strong the free speech guarantees in the Constitution for writing and people's rhetoric, you can't just always say what you want. And I think in the economics profession, in particular on Twitter, this is especially strong.

But I don't feel that people are using the Straussian technique of being obscure very much. Yes, there are cases where you can find that. But mostly, economists today use the technique of strategic silence. If you're on Twitter as an academic, you're probably left leaning. I don't see those people telling obscure lies. They're just quite silent about a bunch of things that they don't want to talk about. So it's reading through the silence — that's the tactical trick you need to master. That's what I see happening, not deeply encoded messages. Maybe that's in Spinoza, but it's not in the people on Twitter today, as far as I can tell.

EF: You've noted that major economic experiences in a person's youth — such as the 1970s oil crisis or the Great Depression — often affect the person's behavior for years to come. What do you think will be the lasting effects, if any, of the pandemic and other events of today's times?

Cowen: Ulrike Malmendier and Stefan Nagel were co-authors on a paper, and other researchers have also shown, that these effects are quite strong, stronger than I would have thought. And

I did believe in them to begin with. That, to me, is one of the most interesting economics learnings of the last 20 years. I hope that in some manner it wins a Nobel Prize.

My formative years were the 1970s. In the 1970s, this is overstating a bit, but government generally did everything wrong. Milton Friedman was

"In the 1970s, this is overstating a bit, but government generally did everything wrong. Milton Friedman was right about everything. It made me pretty libertarian. I don't think you could really say the same about the last 20 to 30 years. A whole bunch of things have happened that have run counter to Milton Friedman."

right about everything. It made me pretty libertarian. I don't think you could really say the same about the last 20 to 30 years. A whole bunch of things have happened that have run counter to Milton Friedman. You could give some more complex account of how he actually was right, or how he would have said something different now. But I don't think the libertarian view is consistently right in the same way that it was right about so many things back then. In the 1970s, Thatcher really did have to break the back of unions, we really did need the Volcker disinflation, and so on and so on. Libertarianism looked really very good.

I'm still much more libertarian than most people. But I've been more mixed and dicier for a lot of libertarian ideas. I don't think you can be a true libertarian in a pandemic or in a financial crisis. I'm very glad the Fed stepped up and did many of the particular things it did in 2008-2009. One can disagree on details. Maybe they could have or should have done more.

For today's young people, I'm worried about the Ukraine war, the pandemic, even the financial crisis. What is this doing to people? I don't think we know exactly what they are processing it into.

EF: You've said that Americans have become more pessimistic not just about their futures, but also about the broader future of the country. If this is the case, should we be concerned that it may be a self-fulfilling prophecy?

Cowen: We should definitely be concerned. I think since I wrote that my views might have changed a slight bit. What I see is a higher variance along the pessimism-optimism spectrum. But I think a lot of people are more optimistic. If you talk to people building Web 3.0, whatever you think of that project, they're a highly optimistic group of people.

Or when I talk to people in the biomedical sciences, they might be pessimistic about some parts of our country, but they're super optimistic about what they are doing and its potential impact. So I think even in the four or five years since I wrote those words, we've seen a sizable, influential minority become a lot more optimistic. Those people are the doers, and I think it's great.

So I would say higher variance has become the more important trend. But certainly at the median, I still do think Americans are more pessimistic. That's a response to events they've witnessed, and it does concern me.

EF: What research are you most excited about?

Cowen: In economics, it seems to me that we understand labor markets much better than we did 10 or 15 years ago — the nominal, and sometimes real, stickiness of wages, for example. We understand credit channels better. There are just a lot of areas where, before, we had some sense, "Yes, of course, these variables matter," and then we were quite hand-wavy. It seems to me a lot of those pieces have filled in. There have been papers that

have really pretty good causal identification strategies in almost every area of economics. That's a positive.

I think macro has become underrated. One good thing about macro is that it's not obsessed with co-authored papers. Co-authored papers are fine; they're often necessary. Yet there's something inertial or status-quo-prejudiced with a co-authored paper. Everyone does have to agree, right? In macro, single-authored papers may also be in decline, but they're still relatively more common than in micro. And there's something more revolution-friendly about that. Einstein didn't co-author the general theory of relativity.

One of my concerns about economics is we're too consensus-oriented at the refereeing stage, at the editing stage, and even at the co-authoring stage. Again, I don't know how to say co-authoring doesn't make sense. Papers are harder to do than before, and you need all these different skills. But I think it's a problem we should talk about more.

EF: You highlighted that causal identification strategies are better and more widespread now than they used to be. For the benefit of people who may not know what that's

referring to, could you explain a little bit?

Cowen: Several decades ago, a lot of econometrics papers were based on running correlations in various ways and of varying degrees of complexity. Then there'd be some part of the paper later on where you'd wave your hands and tell a story about causation or make some remarks about what you might do someday to address causation. But a lot of what was there was actually fairly lame. You didn't really know what was causing what and things were taken on faith, or you would refer to your theoretical framework. You'd think things like, well, I'm a monetarist or I believe in rational expectations, so I'm going to superimpose this story on the data. A lot of the macro of the 1980s and even the 1990s was like that.

If you try to do that today in papers, maybe you can still publish them in a lesser journal, but they don't become influential papers. You need to set things up in a way that you're actually attempting to see which variable is causing which variable. You do difference-in-differences, for instance, and you see that minimum wage laws were imposed first on these counties

before other counties, and you look at the differential effect that that had. It's not quite proof of causality, but it's way better than what we used to do. We're at the point where you can often believe the result of the paper. That's pretty good; not too long ago, we weren't at that point. That, in a way, is a little scary.

EF: What are you working on now?

Cowen: For the last four years, and in my life as a whole, I've been working on the issue of talent — how do we find it? How do we observe it? That's what I covered with Daniel Gross in *Talent*. I would like to write a sequel to it on what we know about how to cultivate talent.

Longer run, I am working on a book with my personal takes on the people who are plausibly the greatest economists of all time — Smith, Malthus, Keynes, Hayek, Friedman, some other people. It's an attempt at my version of Robert Heilbroner's *The Worldly Philosophers*. It's a slow project. I work on it in bits and pieces when I'm not doing other things. But there's no rush with it. At some point it will come out. **EF**



Enjoying *Econ Focus*?

Subscribe now to get every issue delivered right to your door.

Visit https://www.richmondfed.org/publications/print_subscription

BY BRANDON FULLER

Why Don't More Young People Buy Stocks?

Kartik Athreya, Felicia Ionescu, and Urvi Neelakantan. “**Stock Market Participation: The Role of Human Capital.**” *Review of Economic Dynamics* (forthcoming).

Standard life-cycle models of portfolio choice suggest that individuals should participate in the stock market throughout their lives. Yet the data show that this is not typically the case early in life. Rather, there is a pattern of high human capital investment (that is, acquiring skills that the labor market values) and low stock market participation in youth, a pattern that reverses as individuals age.

New research by two Richmond Fed economists, Kartik Athreya and Urvi Neelakantan, and Fed Board of Governors economist Felicia Ionescu has sought to illuminate this connection between human capital investments and stock market participation. In doing so, they developed a life-cycle portfolio choice model in which individuals jointly decide how much human capital to accumulate and how much to invest, if at all, in the stock market. That is, they modeled an individual's choice of how much to work, invest in human capital, borrow, and save in risk-free or risky assets (stocks) to maximize the present value of expected lifetime utility (or satisfaction) from consumption.

In their model, earnings are determined by labor and human capital investment decisions, which in turn depend on the individual's type. The individual's type is characterized by his or her learning ability (the effectiveness with which he or she can convert time into human capital), initial levels of human capital, and wealth. To illustrate the connection between individual type, human capital investment, and stock market participation, the researchers offered

the example of young investors with no accumulated savings and high expected returns to human capital investment (such as someone with low initial human capital but high ability). Because these young investors expect that their human capital investments will translate into substantially higher future earn-

The authors found that their model can successfully account for the stock market participation over the life cycle seen in the Fed's Survey of Consumer Finances: relatively low participation rates early in life that increase throughout the lifespan.

ings, they will spend a lot of their time early in life learning rather than working. They will borrow against their expected future earnings to smooth their consumption and — because they do not save — will not invest in the stock market.

As the young investors age and accumulate savings (and experience diminishing returns to their human capital investments), they will begin to spend less time learning, more time working (earning) — and will begin to participate in the stock market. While this is the pattern of stock market participation suggested by the model for investors who start with high expected returns to human capital investment, this pattern could vary considerably across household types. (For example, different results would be expected if the young investors had low expected returns to human capital investment.)

Key to the model is that it captures

these differences across individuals by giving them varying levels of initial human capital, wealth, and learning ability. Quantitatively, the authors estimate the distribution of these individual characteristics so that earnings over the life cycle produced by the model closely match the pattern of life-cycle earnings observed in data from the Census Bureau's Current Population Survey.

The authors found that their model, once disciplined to match earnings dynamics over the life cycle, can successfully account for the stock market participation over the life cycle seen in the Fed's Survey of Consumer Finances: relatively low participation rates early in life that increase throughout the lifespan.

The authors also found that the model produces stock market participation rates largely consistent with real-world data when looking at households broken into wealth and earnings subgroups. Specifically, the model captures the high observed stock market participation rates throughout the life cycle for those in the top wealth quartile and the relatively low participation rates observed for those in the bottom wealth quartile. The model also captures the positive relationship between earnings and stock market participation.

The authors concluded by noting that, despite the model's success in producing plausible stock market participation rates over the life cycle, the model still is not able to fully account for the data. A puzzle still exists, they pointed out: Why do so many households with positive net worth have zero stock holdings when economic theory suggests that they should be participating in the stock market? They left this “durable” puzzle, they said, for future work. **EF**

DISTRICT DIGEST

BY SIERRA LATHAM, STEPHANIE NORRIS, JESSIE ROMERO, AND SONYA RAVINDRANATH WADDELL

Employment Barriers in the Rural Fifth District

In Virginia, 75 percent of working-age adults are employed, in line with the national average of 74 percent. But there are significant disparities across geographies. In Loudoun County, Va., in the Washington, D.C., metro area, the share is 84.1 percent. On the other side of the state, in Lee County, just 48.2 percent of working-age adults are employed. This is true of many socioeconomic indicators: Aggregation is necessary to understand broad outcomes, but with aggregation, we lose important geographic distinctions and, thus, the opportunity to identify both challenges and solutions. This is part of why the Richmond Fed is working to understand how and why outcomes vary between more urban and more rural areas of the Fifth District. (See also “Understanding Geographic Inequality,” *Econ Focus*, Fourth Quarter 2019.) In addition, as a regional Reserve Bank, we need to understand the full dynamics of the labor market in order to fulfill

our mandate to promote maximum employment.

What have we learned? On average, the differences we see in Virginia hold true across Fifth District states: Employment outcomes tend to be worse in more rural areas. In this article, we will explore these differences in more detail. Numerous factors — including population growth, education, housing, transportation, child care, health, and broadband availability — are shaping the differences in rural and urban employment.

RURAL EMPLOYMENT OUTCOMES

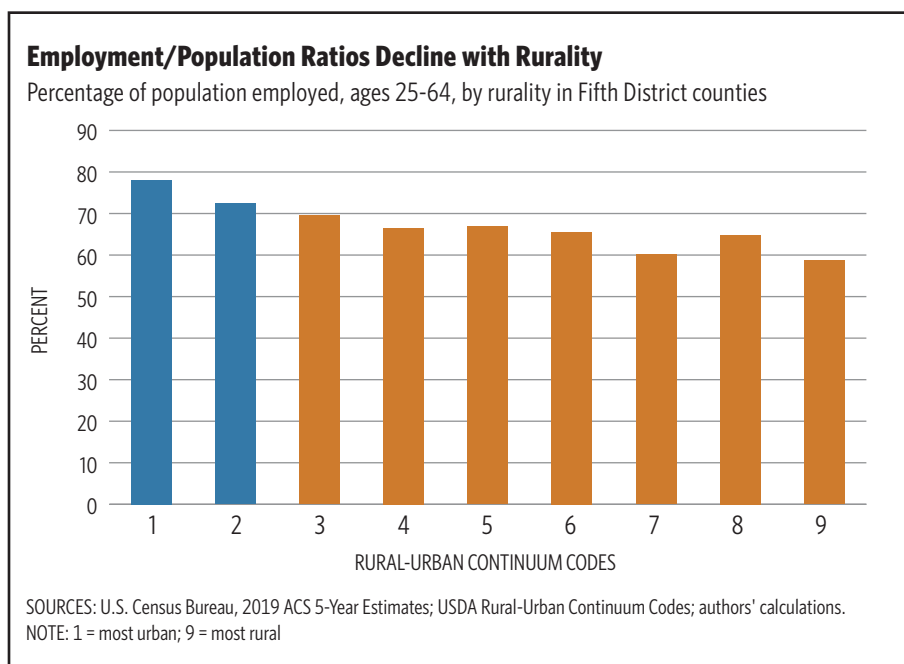
The first step in comparing urban and rural outcomes is to define which areas are urban and which are rural. This is neither easy nor consistent across rural analysis or organizations. (See “Definitions Matter: The Rural-Urban Dichotomy,” *Econ Focus*, Third Quarter 2018.) The Richmond Fed generally uses the Rural-Urban Continuum

Codes (RUCC) developed by the U.S. Department of Agriculture. These codes rank counties on a scale from 1 (the most urban) to 9 (the most rural). We define urban areas as codes 1 and 2 and nonurban (or rural/small-town) areas as codes 3-9. These nonurban areas include some smaller towns that one might not typically think of as “rural” in a strict sense, but for simplicity’s sake, we refer to them all as rural.

Using this definition, in the Fifth District, there are 144 counties in urban areas (RUCC 1 and 2) and 215 counties in rural areas (RUCC 3-9). About 24 percent of our District’s population lives in these more rural counties.

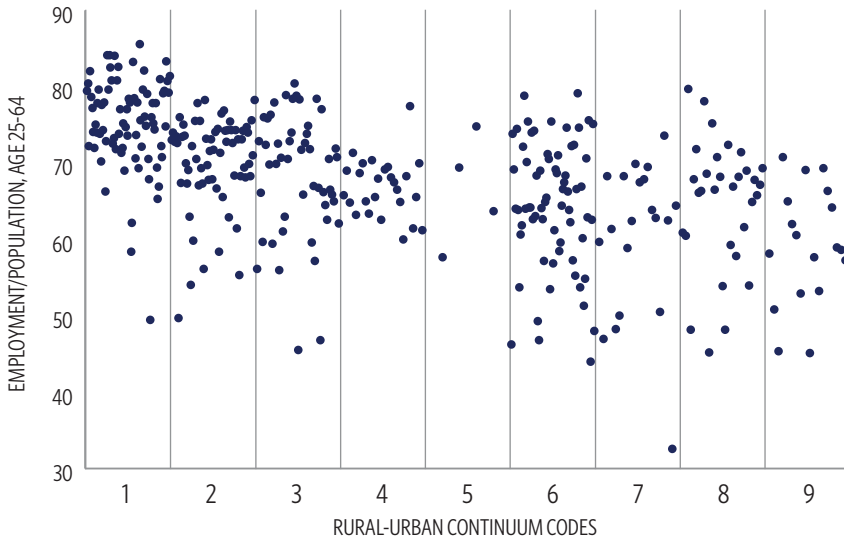
How do these individuals fare compared to urban residents? One way to measure labor market outcomes is the employment/population (EPOP) ratio, or the share of the population that is employed. In particular, we can look at this ratio for working-age adults. In 2019, 74 percent of the Fifth District population age 25 to 64 was employed. Aggregated across counties, EPOP ratios tend to decline with rurality: The aggregated EPOP ratio for the most urban counties in our District (RUCC 1) was 78 percent while the ratio for the most rural counties (RUCC 9) was 59 percent. (See chart.)

But there is wide dispersion in outcomes that reflects differences in geographic, social, and economic factors. (See chart on next page.) In Virginia, for example, Cumberland County and Lee County are in the same rurality category, RUCC 8, but the EPOP ratio in the former is 79.7 percent compared to just 48.2 percent in the latter. Nor is it always true that rural areas have lower ratios than urban areas. For example, Cumberland County’s EPOP ratio is also well above the ratio of 62.2 percent in the city of Petersburg, Va., which is urban. Still, rural counties on average tend to have worse employment outcomes.



Employment/Population Ratios Are Highly Dispersed

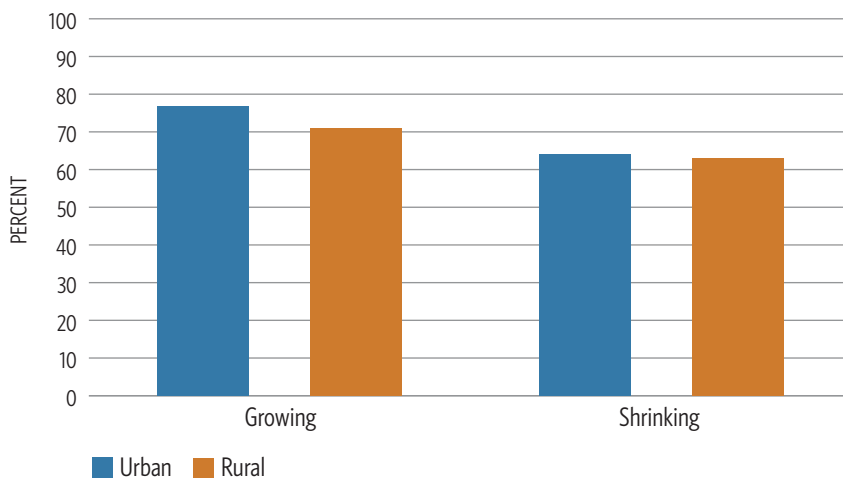
Percentage of population employed, ages 25-64, for individual Fifth District counties, by rurality (RUCC)



SOURCES: U.S. Census Bureau, 2019 ACS 5-Year Estimates; USDA Rural-Urban Continuum Codes.
NOTE: 1 = most urban; 9 = most rural

Growth Doesn't Close the Gap

Percentage of population employed, ages 25-64, by rural vs. urban and shrinking vs. growing counties



SOURCES: 2019 American Community Survey (ACS) 5-Year Estimates; 2010 and 2020 Decennial Census and Quarterly Census of Employment and Wages (QCEW); USDA RUCC Codes; authors' calculations.

NOTE: Growing counties are counties in which total population and total employment increased between 2010 and 2020. In shrinking counties, both total population and total employment decreased between 2010 and 2020. Urban counties are those with RUCC codes of 1 or 2 and rural counties are all others.

What explains these urban-rural differences? One key to employment is simply being able to connect to jobs. Not surprisingly, we find that EPOP ratios tend to be higher in counties where population and employment within the county (regardless of employee residence) are growing. If we categorize counties into growing counties — those where both population and employment grew from 2010 to 2020 — and shrinking counties — where both population and employment fell from 2010 to 2020 — we find that the disparity between urban and rural counties persists even when comparing counties that are growing. In other words, EPOP ratios are relatively low in both urban and rural counties that are shrinking, but the EPOP ratio in urban counties experiencing both job and population growth outpaces rural counties showing similar trends. (See chart.)

Rural counties are more likely to be shrinking, as defined above. Only 9 percent of urban counties are shrinking compared to 52 percent of rural counties, and only 15 percent of rural counties are growing compared to 54 percent of urban counties. In terms of population, only 43 percent of rural Fifth District residents live in counties that are growing, while 96 percent of urban residents live in growing counties. Thirty-three percent of rural counties and 37 percent of urban counties have mixed growth patterns — that is, employment is growing while population is stable or shrinking, or vice versa.

Why are rural areas more likely to be losing both employment and population? In short: It's complicated. A rural area with a skilled and resilient workforce can attract employers, which in turn attracts new residents seeking economic and cultural opportunities. The opposite is also true — the lack of a workforce can keep employers away. Understanding the skill-based and non-skill-based obstacles to employment — along with rural-specific solutions to address them — is key to supporting rural economic development.

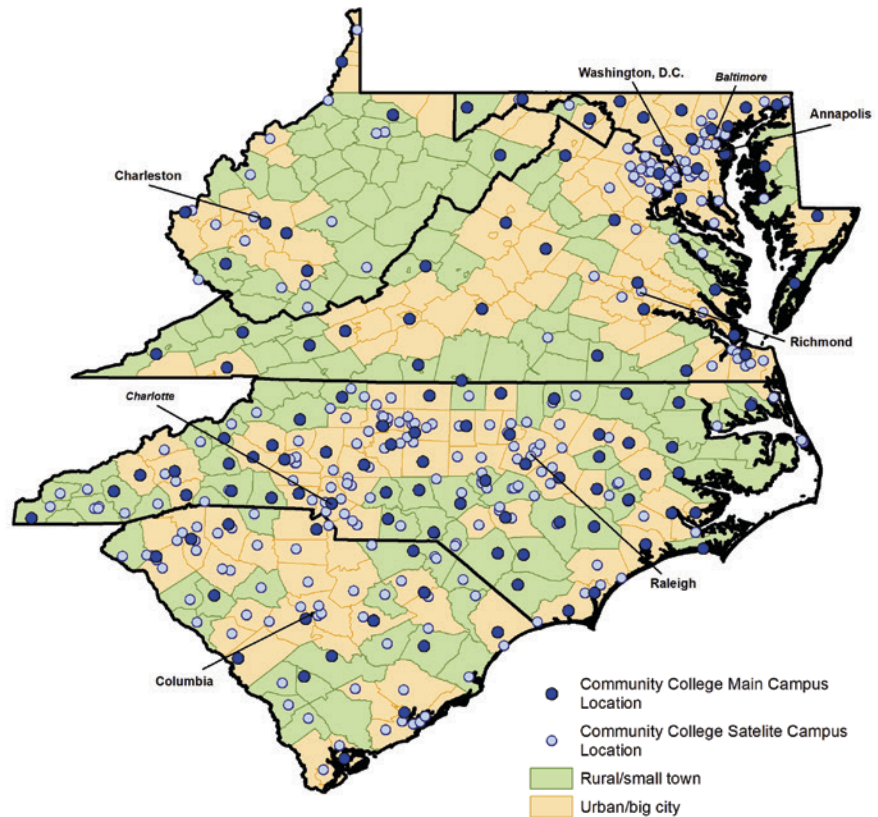
EDUCATIONAL ATTAINMENT AND OPPORTUNITIES

One barrier to employment is education. On average, people with a bachelor's degree fare better in the labor market. The unemployment rate for workers with only a high school degree is persistently around 2 percentage points higher than the rate for workers with a bachelor's degree or higher, and this gap widens during recessions. And as of 2020, workers with only a high school diploma earned about 55 percent of what workers with a college degree or higher earn — a gap that has persisted for decades. But educational attainment is lower in rural areas. In the most urban areas of the Fifth District (RUCC 1), more than 40 percent of adults over age 25 have at least a bachelor's degree. The share falls to less than 20 percent in counties with RUCC 6 through 9.

Multiple factors contribute to geographic differences in college enrollment and completion, including K-12 preparation, guidance navigating the application process, and knowledge about college options and costs. Students also make decisions about human capital investments based on their expectations for the future: If job prospects look dim, there is less incentive to invest. And in rural areas, there might be a self-perpetuating cycle, as children who grow up in lower-income households and whose parents did not attend college are less likely to attend college themselves.

It's important to note that the rewards of college accrue only to those who graduate — there is little benefit in terms of earnings or employment to attending college for a year or two but not finishing. But roughly 40 percent of students who enroll in college do not complete a degree within six years, for reasons ranging from academic to financial to social. While some of these students could likely graduate with more support, for others, a four-year degree simply wasn't the right fit in the first place. In addition, not all jobs

Location of Community Colleges



SOURCES: U.S. Census Bureau American Community Survey 5-Year Estimates 2013-2017, Table S2801; U.S. Department of Agriculture 2013 Rural-Urban Continuum Codes; U.S. Department of Education, IPEDS.

NOTE: A community college is a two-year degree-granting and/or certificate-granting public institution. There are 122 in the Fifth District. County-level urban and rural designations are based on the U.S. Department of Agriculture's 2013 Rural-Urban Continuum Codes (RUCC). Counties with an RUCC of 1 or 2 are urban and counties with an RUCC of 3-9 are rural, based on Richmond Fed categorization. The map shows 390 locations of main campus and satellite locations for community colleges. Two satellite locations are not shown for Allegany College of Maryland because they are located in Pennsylvania.

require a four-year degree. This implies that promoting college enrollment is not sufficient to boost educational attainment and employment.

In many states, community colleges are critical institutions to fill the education and training gap between high school and employment. Community colleges not only provide educational opportunities, they also often work with firms and industries to train students suited to the labor force that an employer needs. Measuring the success and opportunities of community colleges is important to understanding the role that they can play in rural and urban areas. But in many parts of the District, community colleges, like other

institutions and resources, are located in areas with higher population density. (See map.) This leaves a gap in education and connection to employment for many rural students.

HOUSING AND TRANSPORTATION

It's a common saying among housing policy experts that "houses are where jobs sleep at night."

This means that housing is critical not only for individuals, but also for employers. The Richmond Fed hears consistently from employers and local policymakers that insufficient housing poses a major challenge to recruiting and retaining the workers that are

necessary to attract and keep employers in the area.

Housing availability and affordability are widely recognized as constraints in urban areas, but they are a concern in more rural areas as well, even though housing tends to be less expensive there. About a quarter of rural Fifth District households are “cost burdened” (defined as spending more than 30 percent of household income on housing), which is not much lower than the share of urban households that are housing cost burdened — about 28 percent. (See “Housing the Workforce in the Rural Fifth District,” *Econ Focus*, First Quarter 2022.) This, too, varies by region, with counties closer to the coast tending to have higher rates of cost burden than counties further inland.

Access to housing is only part of the story — lower density means that a household’s need to spend on transportation increases with rurality. In fact, rural households travel about 33 percent more than urban households. The typical rural household in the Fifth District spends nearly 32 percent of its income on transportation costs, compared to about 22 percent for urban households.

Housing and transportation represent the two largest expenses for the average household. According to the Center for Neighborhood Technology, a nonprofit research and advocacy group, housing and transportation expenses are considered affordable when they together account for no more than 45 percent of household income. The typical urban and rural household both exceed that threshold in the Fifth District, but the typical Fifth District rural household exceeds it to a much greater degree, spending around 60 percent of its income on housing and transportation expenses, compared to just under 50 percent for urban households.

CHILD CARE ACCESS AND AFFORDABILITY

The COVID-19 pandemic underscored the labor market benefits of a well-functioning child care system. But

providing access to formal child care (such as care centers or home-based child care) is challenging in rural areas with low population density. Providers might not want to expand their staffs or facilities if they are not confident that they will be able to enroll enough children to justify the additional cost. Thus, rural child care providers are more likely to underprovide child care service to their local community. Moreover, providers may be limited in their ability to locate their businesses to be convenient to families due to real estate constraints and costs associated with establishing a new child care facility. As a result, families in rural areas are more likely to have difficulty accessing affordable child care. Based on our analysis of the Center for American Progress’ Child Care Desert data, 58 percent of rural children in the Fifth District live in a child care desert, compared to 55 percent of urban children and only 40 percent of suburban children. (Of course, there may be a demand-side issue as well. In a recent survey commissioned by the Bipartisan Policy Center, 35 percent of rural families said that their ideal care arrangement would be to provide care themselves, compared to 20 percent of urban families.)

For a child care system to be effective, it needs to be accessible, affordable, and high-quality. A report by the Fed’s Early Care and Education Work Group, which includes the Richmond Fed’s Erika Bell, the community development regional managing serving North Carolina and South Carolina, found that budget and career constraints lead many parents to prioritize accessibility and affordability over quality. In other cases, they may decide to drop out of the labor force to avoid the expense of child care altogether. Due in part to the cost of child care relative to earnings, mothers of preschool-aged children in rural parts of the Fifth District are more likely to be out of the workforce than urban mothers of preschool-aged children; according to Richmond Fed analysis, 65 percent of rural mothers with

preschool-aged children participate in the labor force, compared to 70 percent of urban mothers of preschool-aged children.

At the same time, rural communities throughout the Fifth District have developed strategies for addressing these challenges using public resources, community-driven interventions, and public-private partnerships. For example, the Town of Kershaw in Lancaster County, S.C., coordinated public, nonprofit, and private funding to convert an unused former bank building into a child care and early education center, reducing the upfront fixed costs associated with opening a new child care business. Hardy County, W.Va., took another approach, establishing and maintaining a coalition of partners in the public and private sector, which reduce the overhead cost to local child care businesses by providing free technical assistance and in-kind support.

HEALTH AND HEALTH CARE

Poor health may also be keeping some rural workers out of the labor market. The evidence of poor health in rural areas takes many forms. In a 2018 paper, John Coglianesse of the Fed Board of Governors found that about 75 percent of male prime-age dropouts reported disability as the reason they are not in the labor force. This research suggests that disability is a major factor in the increasing trend of prime-age White males exiting the labor force. And self-reported rates of disability skew higher in rural areas relative to urban areas, even after controlling for demographics and socioeconomic status.

The opioid epidemic also hit rural areas particularly hard, including in the Fifth District, and has been highly disruptive to employment. (See “The Opioid Epidemic, the Fifth District, and the Labor Force,” *Econ Focus*, Second Quarter 2018.) David Peters of Iowa State University and co-authors found in a 2020 article that most U.S. counties facing a prescription opioid

epidemic were in rural or nonmetropolitan counties. In a 2017 article, the late Alan Krueger of Princeton University found that prime-age males not in the labor force were more likely to reside in counties with high rates of opioid prescriptions.

Numerous other health outcomes tend to be worse in rural areas: Hypertension, smoking, and obesity rates are all higher in rural areas. Infant and maternal mortality increases with rurality, and there are more hospitalizations for dental-related emergencies. Rural communities also have higher prevalence rates for doctor-diagnosed arthritis for nearly all populations. Accidental deaths from injuries, motor vehicle accidents, and drug overdoses tend to be higher in rural areas as well. What is more, rural counties have lower rates of college graduates, higher poverty rates, and lower rates of health insurance than urban counties — all of which are important factors in health.

The correlation between health and employment is evident in the Fifth District. In the University of Wisconsin Population Health Institute's County Health Rankings and Roadmaps, which ranks counties within each state on a range of health outcomes and health-related factors, Fifth District urban counties tend to rank higher (healthier) than rural counties. In Virginia, for example, the 15 counties with the highest health-related quality-of-life outcomes have a combined employment-to-population ratio of 81 percent. All but one of these counties are urban. Conversely, the 15 counties with the lowest rankings for quality of life, 12 of which are rural, have a combined EPOP of just 58 percent.

Rural communities often face challenges to developing a local health care workforce as well as recruiting providers to locate in smaller towns. Roughly two-thirds of the Fifth District's health professional shortage areas (HPSAs) as defined by the Health Resources and Services Administration are in rural or partially rural areas. These

designations are based on criteria such as their population-to-provider ratio and the average travel time to the nearest site for care, and reflect the unmet need for dentists, mental health professionals, and primary care providers. In the Fifth District, nearly all nonmetro (rural) counties are either partial or full HPSAs for primary care. And the nationwide nursing shortage is especially acute in rural areas; many rural hospitals have reported turning away patients due to a lack of nurses. (See "The Rural Nursing Shortage," *Econ Focus*, First Quarter 2022.)

Programs aimed at supporting health care careers for local residents, like the Goodwill Industries of the Valleys GoodCare Program, can build up a community's health care workforce and improve access to care. Improving recruitment and retention of health care workers through incentive programs, like student loan repayment programs in return for serving in high-need areas, can incentivize physicians and other health practitioners to serve rural populations. Policies and funding that supports broadband deployment can connect rural residents to health resources and access to health providers via telemedicine that are inaccessible in remote areas.

THE DIGITAL DIVIDE

Health care is just one of the many critical needs filled by broadband. As discussed in the Richmond Fed's *Community Scope* article "Bringing Broadband to Rural America," high-speed internet service has transitioned from a luxury good to an increasingly necessary utility. Studies have shown the positive effects of broadband access and adoption on business location decisions and employment growth in rural areas. Moreover, some proposals for expanding access to community colleges in rural areas rely on broadband. But broadband service continues to lag in rural areas. (See "Closing the Digital Divide," *Econ Focus*, Second/Third Quarter 2020.)

There are a number of approaches to expanding broadband infrastructure. For example, the Choptank Electric Cooperative on Maryland's Eastern Shore is an example of how many electric cooperatives are providing broadband service in rural communities. The 2021 Infrastructure Investment and Jobs Act (IIJA) includes significant funding for broadband infrastructure and deployment. According to an analysis by the Biden administration, a minimum of one-third to one-half of unserved Fifth District residents will receive access to broadband services from the IIJA deployment funding. And around 30 percent of West Virginia, North Carolina, and South Carolina residents will be eligible for the IIJA's broadband affordability subsidies, along with 23 percent of Virginia and District of Columbia residents, and 17 percent of Maryland residents.

BUILDING ON ASSETS TO ADDRESS THE CHALLENGES

Although the barriers that rural residents face in education, training, health care, housing, transportation, child care, and broadband access are not unique to rural areas, understanding how those challenges manifest themselves in rural areas in a different way than in urban areas is critical to identifying solutions. For example, in transportation, a better public transportation system of buses and trains might be the most cost-effective solution in an urban area; in a rural area, we might need to think creatively about novel ways to physically connect residents to employment.

There are many examples across the District that highlight the ingenuity and creativity of local policymakers to address the challenges. (For more information, view our Rural Spotlights series at <https://bit.ly/rural-spotlight>.) Identifying and taking advantage of the unique assets that rural communities have will continue to be a critical piece of the puzzle. **EF**



Speaking of the

ECONOMY

A Podcast Series from the Richmond Fed

In each episode, the Richmond Fed's economists and other experts at the Bank bring you up to date on the economic issues they are exploring.

RECENT EPISODES INCLUDE:

Rural Entrepreneurship: Host Tim Sablik discusses the value of entrepreneurs in the economic growth of rural places and small towns, as well as the obstacles that they face, with Erika Bell and Laura Ullrich of the Richmond Fed.

Understanding the Black-White Wealth Gap: Urvi Neelakantan and Kristen Broady review their research on differences in wealth between races and potential causes behind these differences.

Women in Economics: Advancing Together: Arantxa Jarque and Daniela Scidá share the challenges faced by women in the economics profession and the progress that the Richmond Fed has made in addressing them.

The Pricing and Supply of Rural Housing: Sierra Latham and Peter Dolkart discuss their work on the availability of affordable housing in small towns and rural communities.

Visit <https://speakingoftheeconomy.libsyn.com/> to see more episodes and listen now!

BY KARTIK ATHREYA

Unwinding Pandemic Monetary Policy

When COVID-19 hit, it put consumers and businesses in unprecedented difficulty. People could not work easily, and service-oriented businesses (think hotels and restaurants) lost demand for their services. At the same time, people spending increased time at home — including working from it if they could — demanded more goods (think furniture and remodeling). In a nutshell, the economy was reacting both sensibly and sharply to the new reality.

Given the magnitude of the unique shock hitting the economy, the Fed acted to ensure that broader financial conditions did not further hurt consumers and businesses. It cut short-term interest rates to near zero and facilitated emergency short-term loans to portions of the financial sector and to foreign central banks.

The overnight rates most directly controlled by the Fed, though, are less important for consumers and businesses — and hence the economy — than the longer-term rates applicable to the loans we take out (think mortgages and car loans). Normally, by lowering the expected path of short-term rates, the Fed can move those longer-term rates as well. At the onset of COVID-19, however, the Fed faced a barrier: Short-term rates were already around zero and could not directly be pushed lower. So, the Fed worked in other ways to lower longer-term rates. It did so by signaling that its support would remain until conditions improved, and then by purchasing about \$5 trillion in Treasury bonds and mortgage-backed securities.

The effects of the pandemic have receded to some extent now, especially in terms of macroeconomic activity. GDP is back to, and perhaps even exceeding, pre-pandemic levels. Unemployment sits at 3.6 percent as of April 2022, down from 6.1 percent in April 2021. Labor force participation is largely back to normal.

Inflation, though, has reached the highest level in a generation. A part of this can be directly connected to current spending patterns — for durable goods especially — and the real disruptions we have seen in supply chains. Another piece is the war in Europe that has increased commodity prices sharply.

Of course, such shorter-run inflationary pressures are beyond the Fed's control. Indeed, monetary policy can at best only partially address some short-term price fluctuations stemming from supply disruptions, and even here, doing so requires anticipating when the causes of those shocks will cease. This is difficult to do in the best of times, and especially so as the economy uncoils after a pandemic.

It's therefore important to avoid overreacting to real changes in prices that reflect real circumstances such as pandemic-induced plant closures or supply chain disruptions, allowing price signals to guide supplies to where they are scarce.

Yet, another part of inflation now appears clearly broader and more durable, suggesting a need to lower monetary policy accommodation. So, to execute on its commitment to its 2 percent target, the Fed is acting now

to bring inflation down. It started by first shrinking the pace of its asset purchases, then by lifting interest rates away from near zero, and then by indicating that it will begin to sell off assets outright.

Of these steps, rates are the key. Taking into account both inflation and the strong labor market, the Federal Open Market Committee voted in early May to raise them by 50 basis points to a range of 0.75 percent to 1 percent, and, importantly, has indicated openness to further hikes as needed to tackle inflation. Long-term inflation expectations remain near target, suggesting that these policy moves will keep current inflation from persisting.

Will these moves to lower inflation create a recession? While there is always a risk, a variety of indicators suggest that by themselves, they will not. Instead, the moves so far are best seen as simply taking us toward a more “neutral” stance. Of course, such a neutral interest rate is a moving target in a turbulent world. So, as President Barkin has said, we want to move at a pace that allows us to assess and respond to conditions as they evolve. **EF**

It's important to avoid overreacting to real changes in prices that reflect real circumstances such as pandemic-induced plant closures or supply chain disruptions.

OUR RELATED RESEARCH

"Projecting the Evolution of the Fed's Balance Sheet," *Economic Brief* No. 22-15, April 2022

"The Pandemic's Impact on Unemployment and Labor Force Participation Trends," *Economic Brief* No. 22-12, April 2022

"Relative Price Changes Are Unlikely to Account for Recent High Inflation," *Economic Brief* No. 22-10, March 2022

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

NEXT ISSUE

VISIT US ONLINE AT:
www.richmondfed.org/publications
to read more and subscribe

PAID TO RELOCATE

The pandemic showed that many jobs can be done from any place that has a stable internet connection. Communities across the country have sought to capitalize on this reality by using cash and other incentives to entice remote workers, as well as others looking for a change from dense urban areas, to relocate within their borders. Can this new model of economic development help to revitalize these communities?

SUPPLY SHOCKS AND MONETARY POLICY

Supply chains have gotten more global. Snarls in the chains have contributed to rising prices. How much of today's inflation has come from supply chains, and how much is due to other factors, such as stimulative monetary and fiscal policies, workers leaving the workforce, or global commodity price increases? What role can monetary policy play in addressing supply shocks?

QUANTITATIVE TIGHTENING

The Fed has announced plans to begin reducing the size of its balance sheet as it shifts from stimulating the economy to tackling inflation. But balance sheet policy is a relatively new tool in the Fed's kit, giving rise to questions about how this tightening will affect the economy.

THE RISE OF THE MALL

Shopping centers got their start in Baltimore in 1907 with the opening of the Roland Park Business Block, an English Tudor-style complex of six shops. But their construction did not gather steam until a few decades later, as larger centers were built in a handful of cities, including Richmond (Cary Street Park and Shop Center, also known as Cary Court, in 1938). Starting in the 1950s, the modern shopping mall emerged, pioneered by the prolific Vienna-born mall architect Victor Gruen. More recently, however, the emergence of online retail and now the pandemic have thrown their future into question.

ARE THERE ENOUGH TEACHERS?

Is there a teacher shortage? If there is, has the pandemic made it worse? And is it different in rural areas compared to urban ones? Richmond Fed researchers explore the current and future needs and expected availability of teachers across rural and urban school districts.



Scan here to
explore *Econ Focus*
online



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

To subscribe or make subscription changes, please email us at research.publications@rich.frb.org or call 800-322-0565.



Honoring Marvin Goodfriend, Economist and Central Banker

This memorial project features 18 brand-new essays by Marvin's colleagues and contemporaries and collects two dozen of his best-known papers. Visit <http://richmondfed.org/goodfriend>.

Essays include:

Ben Bernanke on the Zero Lower Bound

Thomas Sargent on the Volcker Disinflation

John B. Taylor on Interest Rate Policy

Marvin Goodfriend (1950-2019) joined the Richmond Fed in 1978 and served as research director from 1993 to 1999 and senior vice president and policy advisor from 1999 to 2005.