

FOURTH QUARTER 2019

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ANIMAL SPIRITS

Could we talk ourselves into a recession?



Shopping for
Bank Regulators

Is Historical
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Expectations and the Economy

During my career as a consultant, I witnessed firsthand how confidence about the economy can affect business decisions. Changes in confidence influenced my clients' as well as my firm's hiring, pricing, and spending. In my time at the Fed, I've seen how changes in business and consumer confidence impact the economy as a whole.

Recently, consumer and business confidence have been moving in opposite directions. Consumer confidence is near all-time highs, thanks in large part to a strong labor market. The unemployment rate stood at a 50-year low at the end of 2019, and since March 2018, there have been more job openings than job seekers — unprecedented in the 20-year history of this data series. Wages have been increasing faster than inflation, and these real wage increases have helped boost consumer spending (which accounts for nearly 70 percent of GDP).

At the same time, business leaders have been feeling skittish. Uncertainty surrounding Brexit, the Middle East, politics, and trade negotiations have made it harder for them to plan for the future. In the December 2019 Duke CFO survey, nearly a third of companies said they were scaling back or delaying investment and more than half were stockpiling cash in response to economic uncertainty.

Uncertainty raises the threshold for business investment, which fell in the second and third quarters of 2019. I don't discount the idea that we could talk ourselves into a recession — particularly if business uncertainty begins to affect consumer confidence and spending.

Over the years, economists have attempted to incorporate confidence or "sentiment" into their models of economic activity. As Tim Sablik discusses in "Talking Ourselves into a Recession" on page 10, there are different ways to define sentiment, and isolating its effects on the economy is tricky. But overall, research suggests that the way consumers and businesses gather information and form expectations about the world shapes their economic decisions, much as you might expect.

I believe sentiment has become even more important and more volatile in recent years. News travels faster and farther today, thanks to smartphones and social media. Households and businesses are also more exposed to shifts in sentiment. More families are invested in stocks today than three decades ago, leaving them more exposed to sentiment-driven swings in the market. Businesses are more leveraged. And as I've discussed before, CEO short-termism has increased, making businesses more sensitive to the sentiment of the moment. (See "Business

Short-Termism and Monetary Policy," *Econ Focus*, Second/Third Quarter 2019.)

The increased importance of sentiment could be affecting the ability of fiscal and monetary policy to influence the economy as well. In late 2017, Congress passed a significant tax cut. Normally, that kind of fiscal stimulus would be expected to boost the economy, and we did see strong growth and a surge in investment in early 2018. But that effect soon faded as worries about trade and, later, the monthlong government shutdown came to dominate headlines.

Similarly, the Fed shifted to a more accommodative monetary policy stance in 2019, which we would also expect to stimulate the economy. We see early signs of that in auto and residential spending. But in the presence of high uncertainty, we may not be getting the same "bang for the buck" as we used to. I think it's fair to say that financial markets are being moved more by trade than our policy stance these days.

Of course, a lot of the forces generating uncertainty today are outside of the Fed's control. The biggest boost to our economy would come from lessening uncertainty in government policy. Clarifying the rules would build business confidence and lead to increased investment, spending, and hiring. We saw that in the positive market reaction to the possibility of a Brexit deal and a trade agreement with China. American businesses are creative; they will adapt and optimize against almost any set of rules, as long as those rules are clear. **EF**



TOM BARKIN
PRESIDENT
FEDERAL RESERVE BANK OF RICHMOND



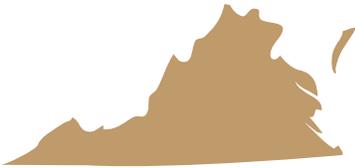
MARYLAND — In early December, the Maryland Department of Agriculture awarded almost \$500,000 in grants focused on Maryland's specialty crops. The eight recipients include, among others, a program that will market and promote apple and honey crops; a public television series covering specialty crops in the state; and University of Maryland programs involving bees, fungi, and food safety. The grants come from the USDA's Specialty Crop Block Grant Program.



NORTH CAROLINA — Q2 Solutions, a clinical trial laboratory services provider headquartered in Morrisville, announced in late November that it will build a new \$73 million facility in Durham. The aim of the new facility is to take genomics testing and data and turn it into actionable health information. The project will happen in two phases over seven years and is expected to create over 700 new jobs, some with salaries over \$80,000. Q2 received incentive deals from the state totaling more than \$10 million.



SOUTH CAROLINA — Only 65 percent of rural South Carolina households had broadband subscriptions in 2017, the smallest share in the Fifth District. But that will soon improve in some rural counties thanks to an \$8.1 million grant from the U.S. Department of Agriculture. Home Telecom will receive the funding to install 96 miles of fiber-optic cables in parts of Charleston and Berkeley counties. The improved broadband infrastructure will reach over 3,700 households and almost 40 businesses, farms, and educational facilities.



VIRGINIA — In early December, Fairfax County signed 25-year solar power purchase agreements with three teams of solar developers. The agreements will allow the developers to install, own, and manage solar installations that will serve more than 100 government buildings, schools, and parks. The potential savings are estimated at \$60 million in utility costs and 1.2 million metric tons of carbon dioxide equivalent. The county says it is the largest solar purchase agreement by a locality in Virginia.



WASHINGTON, D.C. — An affordable housing nonprofit is making further inroads in Adams Morgan, a neighborhood where a one-bedroom apartment often rents for more than \$2,000. Jubilee Housing Inc. recently acquired its third piece of property on a block of Kalorama Road N.W. The newest purchase is a church that will be converted into temporary housing for up to 20 formerly incarcerated individuals as they transition back into society. Jubilee's previous purchases, including four lots on Ontario Road N.W., will also be turned into affordable housing for lower-income residents.



WEST VIRGINIA — Three community development financial institutions (CDFIs) in West Virginia have been awarded almost \$1.5 million from the Treasury Department's CDFI Fund to increase lending and investments in economically distressed areas. The three recipients are Natural Capital Investment Fund, a business loan fund focused on small to mid-sized businesses in central Appalachia and the Southeast; CommunityWorks in West Virginia, a nonprofit that addresses housing needs, including through innovative mortgage lending; and Woodlands Community Lenders, which provides small business financing in Barbour, Randolph, and Tucker counties. CDFIs are specialized financial institutions with a mission to provide affordable lending to low- and moderate-income customers.

Understanding Geographic Inequality

BY JESSIE ROMERO

Researchers describe the unequal distribution of resources or outcomes across geographic areas as “spatial inequality.” Such inequality is important for the Fed to understand, particularly with respect to labor market outcomes, says Sonya Waddell, vice president of Regional and Community Analysis at the Richmond Fed. “Fulfilling our employment mandate requires understanding the dynamics that underpin unemployment and labor force participation,” she says. “If we don’t understand how outcomes vary for different groups of people, or in different areas, then we’re missing an important part of the picture.”

Waddell also notes the unique responsibilities of a regional Reserve Bank. “We need to know about areas of our District that are not performing as well, or where people don’t have the same opportunity to participate in the economy.”

Across the Fifth District — and nationally — there are differences in outcomes between urban and rural areas. People who live in rural areas and smaller towns are less likely to be employed than their counterparts in larger cities, for example. They also tend to have less education and worse health outcomes. At the end of 2018, researchers at the Richmond Fed began a concerted effort to understand the sources of this type of spatial inequality. They identified issues including a lack of connection between workers and available jobs; obstacles to participation such as addiction and disability; and the loss of banks, hospitals, and other “anchor institutions.”

To help inform this research effort, in October 2019 the Richmond Fed hosted a conference in Harrisonburg, Va., on the social and economic aspects of growth in rural areas. The conference brought together foundations, educators, policymakers, business leaders, and community representatives, among others, to discuss topics including workforce training, access to broadband, and access to capital. “We wanted to make sure that what we are learning aligns with the findings of people who have been living and breathing these issues for decades,” says Waddell.

Although large cities are faring better economically on average, there are significant disparities within urban areas. In the Baltimore metro area, for example, per capita annual income is higher than the national average — yet there are neighborhoods in the city where more than 40 percent of the population lives in poverty. Baltimore is also riddled with nearly 17,000 vacant homes, a consequence in part of the large decline in population that has followed the loss of manufacturing jobs since the 1950s.

Redeveloping distressed urban areas is the subject of research by Richmond Fed economists Raymond Owens

and Pierre-Daniel Sarte and Princeton University’s Esteban Rossi-Hansberg. In a forthcoming article in the *American Economic Journal: Economic Policy*, they analyze Detroit, whose central business district is surrounded by largely abandoned residential neighborhoods. This violates one of the most basic tenets of urban design: that people will live close to their employers to minimize commuting costs.

Why haven’t developers or new residents moved into these neighborhoods? Owens, Rossi-Hansberg, and Sarte found that these areas are trapped in a cycle in which residents and developers are unable to coordinate their actions. No resident wants to be the first person to move into a vacant neighborhood, and no developer wants to be the first to invest. In this situation, city governments or other outside institutions can help solve the coordination problem and shift the city to a different equilibrium by guaranteeing a minimum level of investment. “If the city is credible — if developers believe it will make good on the guarantee — that can generate a level of investment that can transform some deteriorating areas of Detroit into self-sustaining neighborhoods,” says Owens. “And ideally, the guarantee will never be called upon, so there aren’t any out-of-pocket costs for the city.” The authors identified 52 census tracts that can be mapped into the negative equilibrium. Of those, there are 22 where the gains from development could be large, potentially generating hundreds of millions of dollars in residential and business rents and attracting thousands of new residents to the city.

Owens, Rossi-Hansberg, and Sarte are now exploring if the Detroit approach can be applied to Baltimore. They’re starting with a detailed analysis of the city’s neighborhoods, including characteristics such as property values, distance from amenities, zoning laws, and vacancy rates. “This helps to determine whether a given neighborhood is deteriorating because it’s in a location that has become obsolete or if in fact there is some inherent value that isn’t being realized because of a coordination problem,” says Owens.

One major difference between Detroit and Baltimore is that in Detroit, entire neighborhoods are vacant; in Baltimore, vacant properties are interspersed among occupied homes and buildings. This creates the risk that current residents could be displaced by rising housing costs, which has to be factored into the overall calculation.

“There’s no magic bullet to make every crumbling neighborhood better off, unfortunately,” says Owens. “But we hope our work spurs conversations with policymakers and provides some guidelines for how a city can practically approach redevelopment projects.” **EF**

Shopping for Bank Regulators

Banks in the United States have long had choices between state and federal banking authorities

BY JOHN MULLIN

This past September, the Office of the Comptroller of the Currency (OCC) approved Fifth Third Bank's application to convert from a state charter to a national charter. The main purpose of the switch, according to the bank, was to streamline its regulatory process. As one of the largest U.S. banks, Fifth Third operates across many states and believes that "a national charter will be more efficient, given national banks are regulated and examined by the OCC, rather than on a state-by-state basis," bank spokesman Gary Rhodes said in an email statement.

But Fifth Third's switch was a bit of an anomaly, because most charter changes since the financial crisis have been in the other direction, with small community banks switching from national charters to state charters. These small banks have been attracted by "the closer proximity and more customized treatment offered by state regulators," says Arthur Wilmarth Jr., a George Washington University law professor who specializes in bank regulation. "If you are a small bank, you are more likely to get your phone call answered and sit down with a state regulator compared with the OCC."

Banks' freedom to choose between state and federal charters has long been a feature of the U.S. banking system. This dual regulatory approach, which puts state and federal regulators in competition with one another, stands apart from the consolidated systems of many other advanced economies, including Canada, Germany, Japan, and the United Kingdom. For this reason, among others, the merits and shortfalls of the U.S. dual regulatory system have been vigorously debated. And while many analysts have focused on the benefits of "healthy regulatory competition," others have also pointed to historical episodes in which regulatory competition has devolved into a "race to the bottom," with costly results.

The Major Players

In the years immediately preceding the Civil War, bank regulatory authority in the United States had resided at the state level. That changed when the OCC was established in 1863, primarily as a response to the imperatives of Civil War deficit financing. The new institution offered national bank charters under the condition that banks maintain certain capital adequacy standards and minimum government bond holdings. In return, nationally chartered banks would be able to issue national bank notes, which

would trade at close to par value, based on their full backing by holdings of Treasury securities. At the time, bank notes were essentially bank IOUs redeemable in gold, and the notes of state-chartered banks often traded at discounts to par value, reflecting both the uncertainty and transportation costs associated with their redemption.

But the establishment of the OCC did not initially achieve the government's fiscal goals. Many banks balked at the supervisory standards associated with national charters, which were perceived to be more stringent than those typically associated with state charters. In response, Congress imposed a 10 percent tax on the issuance of state bank notes in 1865. The tax proved to be severe enough to lead most state banks to take out national charters, allowing them to issue untaxed national bank notes.

The tax on state bank notes had tipped the scales in favor of national bank charters, but that advantage did not last long. In the decades following the Civil War, the use of checking accounts became increasingly widespread due to their convenience and untaxed status. This development reduced the relative attractiveness of national bank charters — a trend that was reinforced by declining yields on the bonds that national banks were required to hold to back their notes. As a result, state bank charters enjoyed a resurgence. As this process unfolded, the breadth and quality of state bank supervision improved substantially.

The Federal Reserve System was established in 1913 in reaction to a long series of post-Civil War banking crises that culminated with the Panic of 1907. The U.S. banking system had suffered from periodic bouts of illiquidity associated with seasonal agricultural cycles, international gold flows, and domestic business cycle fluctuations. New York City clearing banks had provided some degree of liquidity support to correspondent banks, but the system had proved insufficient to adequately facilitate financial flows between regions and to avert panics, particularly in 1907. The Fed was created to improve the banking system's cross-regional plumbing and — crucially — to serve as a lender of last resort.

The Fed's regulatory role was a natural offshoot of its role as lender of last resort. In order for the Fed to engage in discount window lending, it would need to understand the creditworthiness of its counterparties. As originally written, the Federal Reserve Act gave both the OCC and the Fed authority to regulate national banks,

this regulatory overlap was soon removed. The OCC was tasked with supervising nationally chartered banks (and providing examination reports to the Fed), while the Fed was tasked with supervising state-chartered member banks. The Fed's supervisory mandate was extended to bank holding companies by the Bank Holding Company Act of 1956.

The third major federal bank regulator — the Federal Deposit Insurance Corp. (FDIC) — was created by the Glass-Steagall Act of 1933 in reaction to the banking crises of the Great Depression. According to the FDIC, “Apparently the political compromise that led to the creation of the FDIC did not permit taking any supervisory authority away from existing federal or state agencies, so in 1933 the FDIC became the third federal bank regulatory agency, responsible for some 6,800 insured state [non-Fed-member] banks.” Although the FDIC's supervisory role was thus circumscribed, it was assigned a broad mandate as the liquidator of failed banks by the Banking Act of 1935.

The Dual Banking System and the Financial Crisis

These historical developments have resulted in what is often referred to as the U.S. “dual banking system,” which allows most banks to apply for charters either nationally or in the states where they operate. Banks with national charters are supervised and examined exclusively by the OCC, while state-chartered banks generally are examined on an alternating basis by their state regulators or one of the two primary federal regulators. The Fed serves this role for Fed-member banks, while the FDIC does so for non-Fed-member banks with state charters. Bank holding companies are an exception to this rule and are supervised exclusively by the Fed.

An advantage of the dual banking system, according to many observers, is that it allows for healthy competition among bank regulators. Because financially sound banks are allowed to change charters, regulators have an incentive to control fees, innovate, and remove unnecessary red tape from the supervisory process. Another arguable advantage of the dual regulatory system is that it fosters the development of smaller banks — viewed by many as responsive to local community needs — because it gives them the opportunity to seek improved access and customized services through a regulator that is closer to home.

But the dual banking system is not without potential problems. In principle, banks are supposed to face the same regulatory standards, regardless of whether they choose state or federal charters. Some analysts, however, have argued that the system's allowance for banks to shop for regulators has sometimes encouraged regulators to compete for banks by offering overly accommodative supervisory services. Proponents of this view have pointed to a number of pre-financial-crisis examples to make their case.

The dual banking system is not without potential problems.

For some observers, Colonial Bank (Colonial) of Montgomery, Ala., stands out as a cautionary tale of the pitfalls of regulator shopping. From 1997 to 2008, the bank switched regulators

three times — effectively doing a full loop of all the regulatory possibilities. As a state-chartered bank in 1997, it became a Fed member and thus opted for the Fed as its primary federal regulator in place of the FDIC. Then, in 2003, the bank switched to a national charter and thus came under OCC supervision. Finally, in 2008, Colonial switched back to an Alabama state charter, discontinued its Fed membership, and thus opted to have the FDIC as its primary federal regulator.

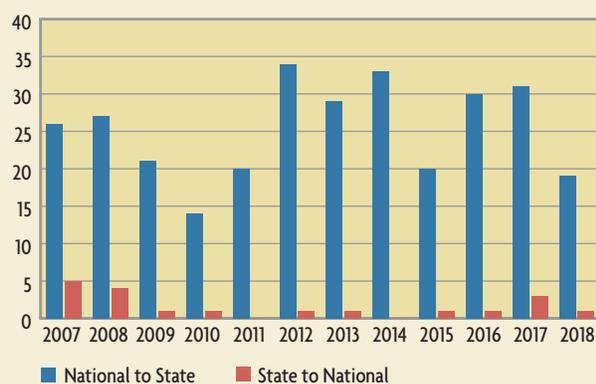
Colonial's final shift was the most problematic. Prior to 2007, the OCC had consistently rated the bank as a well-performing institution. But the OCC's August 2007 examination found serious risks in Colonial's loan portfolio and management practices — so much so that the OCC was in the process of downgrading Colonial's risk rating and drafting a cease and desist order. But due to Colonial's pursuit — and June 2008 attainment — of a charter change, the bank's problems had not been documented in a formal examination report and the cease and desist order had not been imposed. The OCC coordinated efforts with the FDIC and the Alabama State Banking Department during the regulatory hand-off. Not long thereafter, the enormity of Colonial's problems came to light, and the FDIC and Alabama State Banking Department shut the bank down in August 2009. The bank's failure turned out to be one of the biggest of the financial crisis.

The now-defunct Office of Thrift Supervision (OTS) is viewed as providing a noteworthy example of regulatory laxity and over-accommodation in the run-up to the financial crisis. The OTS was formed in 1989 in response to the U.S. savings and loan crisis with the mandate of chartering and supervising thrifts, savings banks, and savings and loan associations. At first, the OTS was perceived to be a strong regulator, but subsequently its standards appear to have deteriorated. Faced with declining fee income from the institutions it regulated — the OTS's primary source of revenue — the regulator attracted new “customers” by offering lax supervisory oversight, according to some accounts.

One such customer was Countrywide Financial, which switched from being a national bank under OCC supervision to being a thrift under OTS supervision in 2007. The OTS allowed Countrywide to modify terms on problem loans and thereby delay loan foreclosures. This, in turn, allowed Countrywide to present outside observers with an overly rosy picture of its financial health. In the end, some of the biggest failures of the financial crisis had been under OTS supervision, including Countrywide, American International Group, IndyMac, and Washington Mutual.

Bank Charter Changes: State Charters Are Popular

Number of changes from national to state vs. state to national



SOURCE: Federal Reserve Board

There is some evidence that, prior to the financial crisis, banks may have been able to achieve better regulatory ratings by switching charters. Better ratings are desirable for banks, because poor ratings can increase regulatory fee assessments, increase examination frequencies, and delay the approval of bank expansion plans. In a 2014 study, Marcelo Rezende of the Federal Reserve Board looked at groups of banks with the same initial ratings and compared the subsequent ratings of those that had changed charters to those that had not. He found that banks that had switched charters tended to receive better ratings than those that had not. “The results are consistent with the view that regulators compete for banks by rating incoming banks better than similar banks that regulators already supervise,” wrote Rezende. He also found that after controlling for initial bank ratings, banks that had switched charters subsequently failed more often.

Aftermath of the Financial Crisis

Federal regulators reacted to some of the system’s perceived problems as early as July 2009 in a *Statement on Regulatory Conversions* issued by the Federal Financial Institutions Examination Council (FFIEC) — a formal interagency body established to promote uniform standards across federal regulatory institutions, including the OCC, the Fed, and the FDIC, among others. The FFIEC statement was meant to convey that federal supervisors were unified and would not “entertain” conversion requests submitted while serious enforcement actions are pending, “because such requests could delay or undermine supervisory actions.” Similar restrictions on regulatory conversions were subsequently codified under the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, popularly known as the Dodd-Frank Act.

The Dodd-Frank Act changed the relationship between federal and state banking laws. By creating the Consumer Financial Protection Bureau, it expanded federal law to an area that had historically been dominated by state law. In

principle, rules set by the Consumer Financial Protection Bureau would create a regulatory ground floor spanning all state jurisdictions.

The new legislation also contained provisions that substantially reduced the application of a doctrine known as “federal preemption” to the dual banking system. Historically, the concept of federal preemption has been an important inducement for banks to choose national charters rather than state charters. The Supreme Court has held that nationally chartered banks are exempt from state banking laws that “significantly interfere” with powers granted under the National Banking Act of 1864. This interpretation has allowed the OCC to issue broad rules that preempt state banking laws. This has been attractive for many large banks, because it allows them to avoid many legal constraints and liabilities across multiple state jurisdictions. In two prominent examples, JPMorgan Chase and HSBC switched from New York state charters to national charters in the aftermath of a 2004 OCC ruling that expanded the scope of federal preemption (into, among other areas, antipredatory lending law).

The Dodd-Frank Act substantially limited the scope of federal preemption by “restricting some of the things the OCC can do by regulation,” says John McGinnis, a professor of law at Northwestern University. “So if the OCC decides to preempt a state consumer protection law, they have to show that the state law has an actual discriminatory effect against national banks or significantly interferes with their powers under federal law.” This restriction increased the power of states to enforce their own consumer protection laws against nationally chartered banks, and it thereby placed limits on the ability of banks to avoid state regulations by switching to national charters.

Other policy changes have also limited banks’ incentives to switch charters. Since the early 1980s, there has been a convergence of many of the obligations and prerogatives of state and nationally chartered banks. Under current federal rules, for instance, all depository institutions are required to maintain Fed-mandated reserve levels and are allowed to use the Fed’s discount window and check-clearing services. Moreover, many states have enacted “wild card” or “parity” statutes that grant state-chartered banks the same banking powers as national banks operating in the same state.

Moves to level the regulatory playing field have tended to enhance the relative attractiveness of state charters, and state regulators have made the most of the situation by actively marketing their services. Tennessee, for example, promotes its greater accessibility, lower fees, and close working relationships with primary federal regulators (the Fed and FDIC) and other state regulators through the Conference of State Bank Supervisors. And Texas emphasizes “lower costs,” “super parity,” and “new initiatives” to improve efficiency.

Since the financial crisis, switches from national charters to state charters have strongly outnumbered switches in the reverse direction. On average, 25 banks per year have switched to state charters, while only an average of two per year have switched to national charters. (See chart.) Of the banks that have switched to state charters, almost all have opted for Fed membership.

The OCC has launched its own outreach campaign, which has emphasized the reduced complexity and operating costs of OCC supervision for banks operating in multiple states. In addition, the OCC reduced its fees in 2019 and plans to do so again in 2020. While these moves are rather plain vanilla, some of the OCC's initiatives have been more controversial. For instance, the OCC has advanced the idea of offering national charters to "fin-tech" firms — a move that has been strongly resisted by state bank regulators, who see it as a mechanism to allow firms to avoid state consumer protection laws.

The Future of Dual Regulation

Of all the policy proposals that have been advanced to correct the defects of the existing U.S. system, perhaps the most prominent ideas are, first, to continue with a dual regulatory structure but restructure it so that state and federal regulators face more efficient incentives, or, second, to abandon the dual structure and adopt a more consolidated regulatory system.

For some observers, a major weakness in the current U.S. structure is that the OCC and most state regulators rely on supervisory fees to support their budgets (as did the now-defunct OTS), but they do not bear the cost of bank failures (which are borne by the FDIC). According to a theoretical analysis by Richmond Fed economist John Weinberg published in 2002 in the Bank's journal *Economic Quarterly*, "competition for turf among regulators whose budget constraints only cover examination costs (and not insurance costs) leads to a 'race to the bottom.'" His analysis suggests that the U.S. dual regulatory

system can lead to efficient outcomes, provided that state and federal regulators each internalize the full costs and benefits of supervision and depository insurance. Unfortunately, such an approach would face significant hurdles — one of the highest being that the public's faith in FDIC insurance, which has been built up over many years, would be difficult to replicate across many states with varying financial prospects.

A noteworthy proposal for regulatory consolidation was presented by the U.S. Treasury Department in its March 2008 *Blueprint for a Modernized Financial Regulatory Structure*. One plan Treasury advocated was to consolidate all financial regulation at the federal level and thus eliminate states from the process. Sabrina Pellerin of the Kansas City Fed, John Walter, formerly of the Richmond Fed, and Patricia Wescott of the Richmond Fed discussed the potential merits and drawbacks of consolidation in a 2009 article in *Economic Quarterly*. They argued that a more consolidated system would be better suited to dealing with financial conglomerates. It could also reduce overlap and duplication and potentially improve accountability and transparency. But they pointed out that consolidation may also carry significant disadvantages. A single regulator may have an incentive to be overly cautious and charge excessive fees. Moreover, a single regulator is likely to produce fewer innovative ideas and divergent opinions.

Countries with consolidated banking systems had mixed success during the financial crisis. Canada, for instance, fared relatively well. "But look at the Financial Supervisory Authority in England," says Wilmarth. "How well did they do during the financial crisis? They didn't do well at all." And for all its shortcomings in the run-up to the financial crisis, the U.S. dual banking system had its bright spots too. "You can go back and look at our fragmented system and say there were problems," says Wilmarth. "But at least you had people at the state level in the 2000s saying 'something is wrong, something needs to be done.'" **EF**

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Third Quarter 2019

Sentiment Analysis of the Fifth District Manufacturing and Service Surveys

Santiago Pinto

Wealth Effects with Endogenous Retirement

Borys Grochulski and Yuzhe Zhang

Do Loans Increase Educational Attainment?

BY MOLLY HARNISH

Students at participating colleges who meet a few basic requirements and fill out the Free Application for Federal Student Aid (FAFSA) are eligible for federal loans through the Department of Education's Direct Loan Program. Although students receiving a \$0 offer can still apply for loans through the Direct Loan Program, such an offer may discourage them from doing so. This practice is especially prominent at community colleges, where over 5 million students go to schools that either do not mention loans at all or present loan offers of \$0.

Colleges may offer \$0 in loans out of concern that students, who are often first-time borrowers, will default. If too many students default, the college faces federal sanctions. Yet college loans may also benefit students by allowing them to take more credits, work fewer hours, or acquire less credit card debt (which typically has a higher interest rate than student loans) than they could without a loan.

In an article in the *American Economic Journal: Economic Policy*, Benjamin Marx of the University of Illinois and Lesley Turner of the University of Maryland analyzed the effect of nonzero loan offers on borrowing and educational attainment. Their experimental design incorporated nudge theory, which suggests that policymakers and others can sway, or nudge, a decision toward a desired outcome by restructuring the "choice architecture." This restructuring does not add or remove choices; it simply changes their relative prominence — for example, placing fruit rather than candy bars at eye level in grocery stores. In this case, the "nudge" was the nonzero loan offer, which made the option of taking out federal loans more prominent.

To determine the effect of student loan offers on borrowing, Marx and Turner randomly assigned over 19,000 students at a large community college to receive either a \$0 or a nonzero loan offer. (The nonzero offer was \$3,500 for freshmen and \$4,500 for sophomores.) Students in both groups could still borrow up to the federally specified maximum, and their loan amount defaulted to \$0 if they took no action. Marx and Turner found that students receiving a nonzero offer (the treatment group) were 40 percent more likely to borrow than those receiving a zero offer (the control group). In addition, students in the treatment group borrowed \$280 more on average than students in the control group.

Marx and Turner suggested two possible explanations for this finding. First, a nonzero loan offer reduces the cost of seeking out information about loan availability. According to the authors, this reduced information cost explains at least 78 percent of why students receiving the nonzero loan offer were more likely to borrow than students in the control group. Second, a nonzero loan offer introduces a salience effect. The loan amount offered to a student becomes the most salient amount in that student's mind, regardless of how much he or she actually needs to borrow. Rather than incurring the extra cost of choosing another amount, the student borrows the exact amount specified in his or her aid award. This explains

the spike in borrowing that the authors observed around the amount offered.

For students in both the control and treatment groups, the authors also pointed to the influence of default bias, another aspect of nudge theory. The default loan amount was \$0, meaning that regardless of the amount offered, no student actually received

a loan unless he or she filled out the necessary paperwork. Thus, students in the study may have been biased against borrowing because of the effort involved in obtaining a loan.

Marx and Turner were interested not only in the effect of nonzero loan effects on borrowing, but also in the effect of borrowing on educational attainment. They found that receiving a nonzero offer tended to increase credits attempted, credits earned, and GPA, although it had no statistically significant impact on degree completion or enrollment. In particular, students who borrowed after receiving the nudge accumulated 3.7 more credits and had 0.6 point higher GPAs on average than students in the control group. In addition, their likelihood of transferring to a four-year public institution after one year increased by 11 percentage points — an increase of 178 percent over the control group.

While increased borrowing might sound like a negative, these findings suggest that nonzero offers in financial aid awards actually benefit students. According to Marx and Turner, receiving a nonzero offer increases students' likelihood of borrowing, which, on average, increases educational attainment. Thus, including nonzero loan offers in financial aid awards could improve students' educational outcomes at low cost. EF

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Talking Ourselves into a Recession

Could our expectations about the economy be self-fulfilling?

By Tim Sablik

President Franklin D. Roosevelt took office on March 4, 1933, during the worst economic crisis in American history. In the time since the stock market crash in October 1929, the Dow Jones Industrial Average had lost nearly 90 percent of its value. The crash was followed by a series of bank runs and closures that upended the normal channels of commerce. Roughly a quarter of the working population was unemployed at the time of Roosevelt's inauguration. Americans were uncertain and afraid about what would happen next.

It was this fearfulness that Roosevelt focused on in the opening lines of his inaugural address, uttering what has become one his most famous quotations: "The only thing we have to fear is fear itself." Under a gray, rainy sky, he urged Americans not to succumb to "nameless, unreasoning, unjustified terror which paralyzes needed efforts to convert retreat into advance." Eight days later, in the first of his many fireside chats, Roosevelt again called on the public to "unite in banishing fear."

Over the decades, economists have pointed to many different factors to explain both the duration and severity of the Great Depression. In their 1963 monetary history of the United States, Milton Friedman and Anna Schwartz blamed the contraction largely on policy missteps by the Fed, an explanation that economists and central bankers today have embraced. But Roosevelt clearly believed that the mood of the public mattered too.

While economists have sometimes been criticized for modeling people as coldly rational utility maximizers

— *homo economicus* — they have long recognized that feelings and beliefs influence decisions in ways that matter for the economy. In the 1930s, John Maynard Keynes popularized the term "animal spirits" to describe the emotions that sometimes drive the decisions of economic agents. More recently, Nobel Prize-winning economist Robert Shiller wrote in his 2019 book *Narrative Economics* that "if we do not understand the epidemics of popular narratives, we do not fully understand changes in the economy and in economic behavior."

Unfortunately, measuring the effects of changes in animal spirits or "sentiment," as it is often called by economists today, has proven difficult. Does an increase in consumer and business pessimism change spending and investment behavior in ways that contribute to a downturn? Or are changes in sentiment merely a reflection of changes in the fundamentals that drive the economy, such as unemployment and productivity? That is, do changes in sentiment move the economy or the other way around? Or both? The answer matters for how economists interpret changes in consumer and business confidence and how policymakers respond to those changes.

When Moods Strike

On paper, the economy in recent years has been doing very well. Unemployment is the lowest it has been in half a century, GDP has grown at a healthy pace over the last decade, and inflation remains low and stable. At the same time, business leaders are increasingly pessimistic about the future. As the current expansion passes its 10th year — the longest in American history — some feel another recession must be around the corner, and they are preparing accordingly. Could fear of a recession become a self-fulfilling prophecy?

The ability of changes in confidence to directly influence the economy seems intuitive. Consumers who are nervous about their future employment or worried that an imminent stock market correction would wipe out a substantial chunk of their savings might be reluctant to make big purchases and take on new debt. The resulting fall in consumption would then lead to an economic contraction

ILLUSTRATION: TIMOTHY COOK

that validates consumers' worst fears. Likewise, businesses worried about changes in regulations or the failure of a hoped-for trade agreement might be reluctant to invest in new projects, driving down productivity across the economy.

These correlations are readily apparent in the data. Changes in the University of Michigan's Consumer Sentiment Index, which surveys consumers about where they think the economy will be a year from now, generally track changes in consumer spending. (See top chart.) Likewise, the Conference Board's CEO survey, the Measure of CEO Confidence, largely moves in sync with business investment. (See bottom chart.) There is even evidence that seasonal changes in stock market returns are correlated with the change in daylight hours from summer to winter. It seems that stockbrokers get SAD (seasonal affective disorder) too.

But as economists are fond of saying, correlation does not necessarily mean causation. Identifying causal links between mood and the market is tricky. That's because there may be some other factor influencing changes in both.

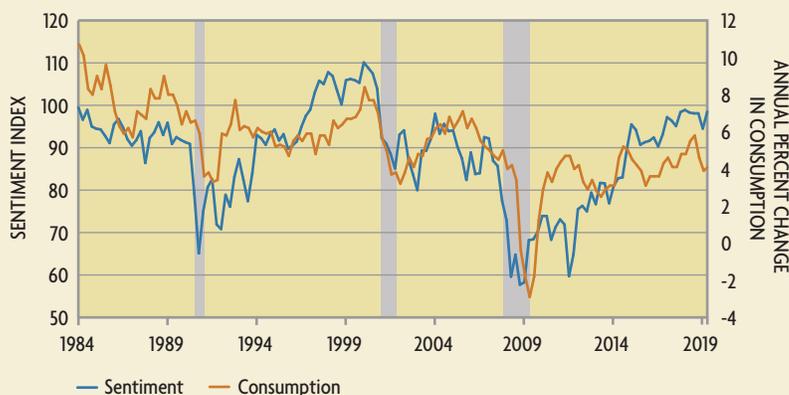
"You have to find things that are correlated with sentiment but not with economic fundamentals," says Jess Benhabib of New York University.

In a 2019 article, Benhabib and his co-author Mark Spiegel of the San Francisco Fed identified presidential election results as a clean way to measure the effects of changes in sentiment. They reasoned that voters who backed the winning candidate would be more optimistic about the future than voters who chose the loser. To proxy for voter party affiliation, they used the party affiliation of each state's congressional representatives. After controlling for other variations between states, Benhabib and Spiegel found that economic activity increased in states with more representatives from the same party as the winning presidential candidate.

Another study used data from an Australian consumer sentiment survey that also asked respondents about their voting intentions. Like Benhabib and Spiegel, the authors of that study found that election results had an effect on consumer sentiment that spilled over into consumption behavior. Voters who backed the winner were more likely to go out and make big purchases, like buying a car, than voters who backed the losing candidate.

Of course, it is possible that election results have a direct effect on the economy as well, which would make it unsuitable for isolating the causal effects of sentiment. Benhabib and Spiegel cite evidence that election results don't appear to be related to changes in local economic outcomes based on political support. But it is hard to fully

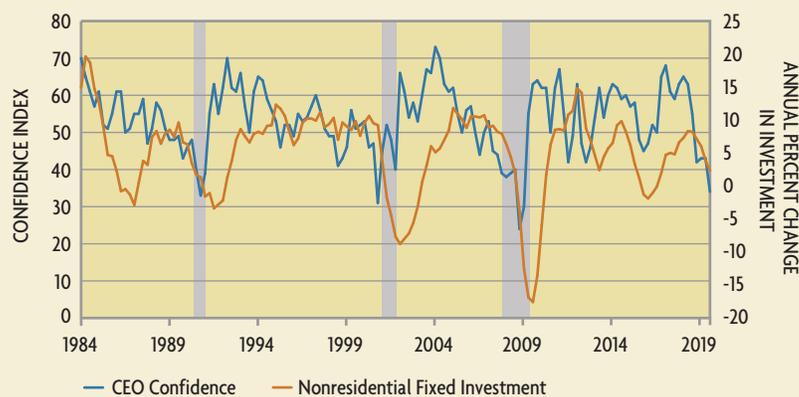
Consumer Sentiment Correlates with Consumption



NOTE: Shaded regions indicate recessions.

SOURCES: University of Michigan Surveys of Consumer Sentiment; Bureau of Economic Analysis Personal Consumption Expenditures

CEO Confidence Correlates with Business Investment



NOTE: Shaded regions indicate recessions.

SOURCES: The Conference Board Measure of CEO Confidence; Bureau of Economic Analysis Private Nonresidential Fixed Investment

disentangle the effects. Still, Benhabib argues that recent recessions provide additional evidence of the direct role that sentiment plays in driving economic activity.

"When you look back in history, there are downturns in the economy where it is hard to identify a fundamental shock as the cause," he says.

Beliefs and Business Cycles

One downturn that seems hard to explain without sentiment is the 1990-1991 recession. Real business cycle theory, which became the de facto way of understanding movements in the overall economy in the 1980s, argues that recessions are caused by shocks to fundamental factors in the economy, such as productivity. Writing in the *American Economic Review* in 1993, Robert Hall of Stanford University looked for such a shock to explain the 1990-1991 recession but couldn't find one.

"Rather, there seems to have been a cascading of negative responses during that time, perhaps set off by Iraq's invasion of Kuwait and the resulting oil-price spike in

August 1990,” Hall wrote. “Consumers responded to the negative forces as they would to a permanent decrease in their resources.”

Olivier Blanchard, now at the Peterson Institute for International Economics, came to similar conclusions at the time. “In contrast to its predecessors, this recession does not have an obvious proximate cause,” he wrote in a 1993 article.

Roger Farmer of the University of Warwick in England has spent much of his career developing explanations for how changes in sentiment can drive shifts in the business cycle. In his models, there are many different configurations in which the economy could settle, and changes in sentiment — particularly peoples’ feelings about the stock market — drive the economy toward one equilibrium rather than another. For example, when stock market values are high for extended periods, people feel wealthier and more optimistic about the future. This leads them to spend and invest more, fueling a boom in the economy. But when people begin to feel less confident about the future, their doubts can become a self-fulfilling market crash.

“That’s not to say fundamental events aren’t important,” Farmer says. “It’s possible that changes in sentiment are the result of people looking ahead and seeing a bad event down the road. They foresee a change in fundamentals, and then the market crashes as a result of what they foresee. But if you accept that explanation, then you have to explain how the collapse of Lehman Brothers in 2008 was a response to some new information that the economy was going to be very bad in the next decade.”

Benhabib agrees, arguing that if the Great Recession of 2007-2009 were simply the result of a fundamental shock, the economy should have adjusted quickly and settled into a new equilibrium. Something else must be contributing to the length and severity of downturns, and for researchers like Farmer and Benhabib, that something else is sentiment.

There are even examples of times when a burst of optimism seems to have shortened recessions that economists expected to be much worse. In his book, Shiller described how many economists and policymakers expected a severe economic downturn after the Sept. 11, 2001, terrorist attacks. The U.S. economy was already in the midst of a recession that had begun in March of that year following the dot-com stock market crash. Shiller wrote that there were “widespread fears that the recession in the U.S. economy would be prolonged because people would choose to stay at home owing to their fear of another such attack.”

Instead, the recession ended just two months later, making it one of the shortest in American history. Shiller attributed this sharp turnaround in part to a change in national sentiment. He argued that the public resolved to defy the attackers by carrying on with life as normal.

Episodes like the 1990-1991 recession, the post-9/11

recovery, and the Great Recession are suggestive of the power of sentiment to shift the economy.

“Pessimistic expectations can generate recessions,” says Benhabib. “Optimistic expectations can generate booms.”

A Biased View

Another way of defining sentiment is as irrational biases or beliefs that color peoples’ expectations for the future. Some people may be inherently optimistic or pessimistic, and this bias affects their economic decisions.

In a 2019 working paper, Anmol Bhandari of the University of Minnesota, Jaroslav Borovička of New York University and the Minneapolis Fed, and Paul Ho of the Richmond Fed found evidence of these types of biases in survey data on consumer sentiment. Households consistently overestimated future unemployment and inflation, and these pessimistic biases became even more pronounced during recessions. Bhandari, Borovička, and Ho found that this variation in pessimism accounts for a large fraction of business cycle fluctuations, particularly changes in employment.

They also found that an increase in pessimism causes people to behave as if they expect negative productivity shocks in the future. Pessimistic households consume less and save more. Pessimistic firms expect lower productivity and higher costs, leading them to demand fewer workers, which contributes to higher unemployment.

Like the models developed by Benhabib and Farmer, the work of Bhandari, Borovička, and Ho shows how changes in sentiment can ripple through the economy as a shock. Their research also shows that even if changes in sentiment don’t initiate movements in the economy, they can amplify them. In another 2019 paper, George-Marios Angeletos and Chen Lian of the Massachusetts Institute of Technology called this feedback mechanism a “confidence multiplier,” a reference to the Keynesian idea of spending multipliers.

“As output and real returns fall, consumers and firms become pessimistic about the future, which in turn feeds into a further drop in aggregate spending and output, a further drop in confidence, and so on,” Angeletos and Lian wrote.

Through a Glass Darkly

Just as people may not always make decisions that are fully rational, consumers and business leaders don’t have full information about what is happening across the economy at any given time. Thus, another way that sentiment can influence the economy is by shaping how people fill in the blanks of incomplete information.

“I would classify businesses as being overly optimistic when they think they will sell more of their product than they would think if they knew the entire state of the economy,” says Kristoffer Nimark of Cornell University. “Their belief isn’t driven by irrational behavior; it’s driven by the fact that they have only a partial idea of what’s going on.”

In his research, Nimark observed that in order for changes in sentiment to drive changes in the whole economy, many people would need to become either more optimistic or more pessimistic at the same time.

“It can’t be the case that a few individuals are randomly more optimistic or less optimistic than everyone else,” he says. Something needs to coordinate peoples’ beliefs about the economy, and according to Nimark, the news media plays that role.

In Nimark’s models, people make rational decisions based on the information they have, but their information about the economy is incomplete. Households and businesses might know about conditions in the fields they work in, but they know little about other sectors of the economy. Because people have limited time to gather information about the rest of the economy, they outsource this task to the news media. But even if the media reports the news accurately, Nimark argues that its coverage of the economy, too, is incomplete.

“The news media focuses on sectors where the most interesting or newsworthy things are happening,” he says. In a 2014 article, he refers to the saying in journalism that “dog bites man” is not news but “man bites dog” is. The news media has a natural incentive to cover sectors of the economy that are experiencing the most dramatic fluctuations, even if those sectors are not necessarily representative of the economy as a whole. This can give households and businesses that receive these news reports a skewed perception of economic conditions, contributing to what Nimark calls “man-bites-dog business cycles.”

In more recent work with Ryan Chahrour of Boston College and Stefan Pitschner of Uppsala University, Nimark applied this model to the Great Recession. They found that roughly three-quarters of news coverage about the economy in 2009 was devoted to stories about the car industry and the financial sector, which were undergoing the biggest upheavals at the time.

“If you actually look at what was going on in other sectors at the same time, things were not that bad,” says Nimark. “But since everyone received the information from the news that the car industry and financial sectors were doing very badly, everyone became more pessimistic.”

In effect, the news coordinated peoples’ beliefs about the overall economy. Even if businesses knew that conditions were not as bad in their sector, they couldn’t assume

that others in the economy knew that because that information wasn’t being reported. According to Chahrour, Pitschner, and Nimark’s calculations, the existence of news media generates fluctuations in economic output that are more than four times as large as predicted by a model with no news media.

“You need news media, or something like it, to present a partial picture of the economy in order to generate the strong recession we saw in 2009,” says Nimark.

Reaching Hearts and Minds

Trying to disentangle the ways in which sentiment interacts with the economy is a bit like trying to answer the age-old question about the chicken and the egg.

Economists may never really know the answer. But there is enough research to suggest that sentiment does play a role in shaping the business cycle, whether it is acting as a type of nonfundamental shock, through peoples’ irrational biases, or in reaction to incomplete information. The question facing policymakers is what to do about it.

Benhabib says that statements from policymakers to manage expectations could be helpful for avoiding a sentiment-driven slump.

“Of course, such statements have to be credible in order to work,” Benhabib says.

Nimark echoes this idea. Just spreading good news that isn’t true isn’t going to turn the economy around.

“What I think policymakers could do is monitor what gets reported in the news and compare that to what they think is the real state of the economy,” he says. “Central banks spend a lot of time monitoring different sectors of the economy. If they notice that what is getting attention in the media is unrepresentative of what’s really going on, then it might be worthwhile emphasizing that in publications and speeches.”

Since the Great Recession, the Fed has vastly increased the amount of information it provides on the economy in the form of press conferences, speeches, and forecasts in an effort to make both its policy decisions and its assessment of economic conditions more transparent.

“We need to recognize communication as a monetary policy transmission channel,” Richmond Fed President Tom Barkin said in a May 2019 speech. When confidence is waning, he said, “it’s our job as policymakers to try to support it.”

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In Tourism, Old Stories and New Opportunities

Tourism matters to the Fifth District economy. Are recent trends in historical tourism cause for concern?

By Molly Harnish



From the late 1970s to 2016, the annual number of visitors to Colonial Williamsburg fell by more than half. Mitchell Reiss, then-president of the Colonial Williamsburg Foundation, acknowledged in a letter to Williamsburg's mayor that the foundation had "been operating at a substantial loss" for years. To cover operating costs, in some years the foundation withdrew as much as 12 percent from its endowment. In 2017, the historical attraction laid off 71 employees and outsourced some operations to rein in costs. Reiss attributed the decline in visits to fewer vacations, slow economic recovery after 2007, difficulty traveling to Williamsburg, and schools placing less importance on American history. Others concerned about declining civic knowledge among U.S. citizens have echoed this last idea.

Colonial Williamsburg is not the only historical site that has recently seen visitation decline. Attendance at Civil War battlefields, for example, has decreased dramatically since 1970. Nationwide, the National Endowment for the Arts and the American Academy of Arts and Sciences reported that the percentage of U.S. adults who visited a historic site in the last 12 months was lower in 2017 than in 1982, in spite of an upward bump since 2012. (See chart.)

According to the U.S. Travel Association, travel and tourism directly or indirectly support about one-tenth of employment in the United States. Furthermore, research suggests that tourism may aid economic growth in rural areas, especially as previously strong industries like mining shrink. From the monuments of Washington, D.C., to the mountains of West Virginia, to Charleston's Fort Sumter, the District is rich in cultural heritage attractions. What role does tourism play in the Fifth District, and is the recent decline in historical visitation cause for economic concern?

Tourism's Significance in the Fifth District

Economic historian Thomas Weiss of the University of Kansas has estimated that before the 19th century, less

In Colonial Williamsburg, the staff at the Joiner — one of two dozen shops portraying historic trades — work on crafting interior fixtures, window frames, and staircases.

than 1 percent of Americans traveled for vacation. The invention of railroads and especially cars in the late 19th and early 20th centuries, however, made travel more accessible, so that 5 percent of Americans were traveling to well-known destinations by 1930. After World War II, higher levels of disposable income made travel an attainable goal for the middle class. Today, tourism has grown so much that some popular destinations are pushing back against what they see as an excess of visitors, a phenomenon known as overtourism.

"We used to see tourism as a disposable income kind of good, a luxury good. And I think it's really beginning to transform itself into more of a normal good, one that we actually put more emphasis on than maybe some other goods that we would buy," says economist William Gartner of the University of Minnesota, who researches tourism.

According to the U.S. Travel Association, the United States welcomed 80 million international tourists in 2018, while Americans took 2.3 billion person-trips (defined as one person staying overnight in paid accommodation away from home or traveling more than 50 miles away from home). In the same year, tourism accounted for one out of every 10 jobs, \$2.5 trillion in economic output, and 2.9 percent of GDP. And the United States has a trade surplus in travel, meaning foreigners spend more money on tourism here than Americans spend on traveling abroad.

In the Fifth District, the leisure and hospitality supersector, which includes accommodation, food and beverage, and recreation and entertainment (three of the five

IMAGE: COLONIAL WILLIAMSBURG

main sectors to which tourism contributes), accounts for roughly one-tenth of nonfarm employment. Further, from 2018 to 2019, the supersector’s employment growth in leisure and hospitality was 3.7 percent in the Fifth District, compared with 2.3 percent nationally. (See chart.)

Each state in the District contributes to this growth in tourism. At the state level, Virginia, which has the longest-running state tourism slogan in the country — “Virginia is for Lovers” — ranks eighth in the nation in terms of domestic tourism spending. North Carolina had the sixth largest number of domestic visitors of all U.S. states in 2018. Maryland’s visitors spent more than \$18 billion in 2018, a 2.1 percent year-over-year increase, despite a slight drop in visitation. South Carolina has had six consecutive years of growth in tourism revenues, amounting to a 50 percent increase from 2010 to 2017, according to the state; the South Carolina tourism industry’s economic impact was an estimated \$22.6 billion in 2017. Washington, D.C., has broken its own visitation records every year for the last nine years, most recently topping the charts with 21.9 million domestic visitors in 2018. From 2017 to 2018, travel spending in West Virginia grew by 6.5 percent, compared with national growth of 4.1 percent.

The Economics of Tourism

Intuitively, tourism contributes to regional income: When visitors enter a region, they bring their wallets with them. The money they spend on meals, hotel stays, gas, and entertainment flows into the local economy. For this reason, proposals for new sports stadiums or highways typically point to the visitors and revenue that those projects attract to the region.

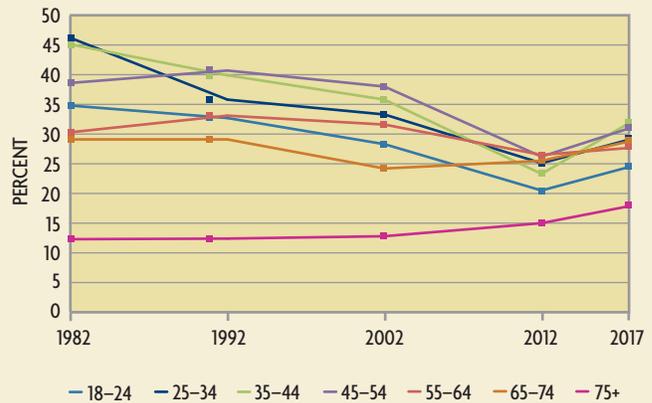
Tourism’s economic contribution, however, is difficult to measure. Unlike industries such as manufacturing and construction, tourism does not have its own industry code and is not separately tracked in the industry statistics of federal agencies. Instead, travel expenditures contribute to five already-existing industry groups: accommodation, food and beverage services, transportation, travel services, and recreation and entertainment.

Not only is tourism spread across multiple industries, but those industries also include spending by locals. When eating at a restaurant on vacation, you might be hundreds of miles from home, while the couple sitting next to you might have walked from their apartment two blocks away. To estimate the size of the tourism industry accurately, researchers must capture tourist spending and exclude local spending. To do this, they use a variety of methods, including Tourism Satellite Accounts (used by the U.S. Bureau of Economic Analysis), input-output models, and computable general equilibrium models.

“Because tourism doesn’t have an industry code, there are not enough universal methodologies. That’s definitely a challenge in the industry,” says Esra Calvert, director of research at the Virginia Tourism Corporation. “But it’s part of the growing pains.”

Is Interest in Historical Sites in Long-Term Decline?

Percentage of U.S. adults engaging in historical tourism, by age

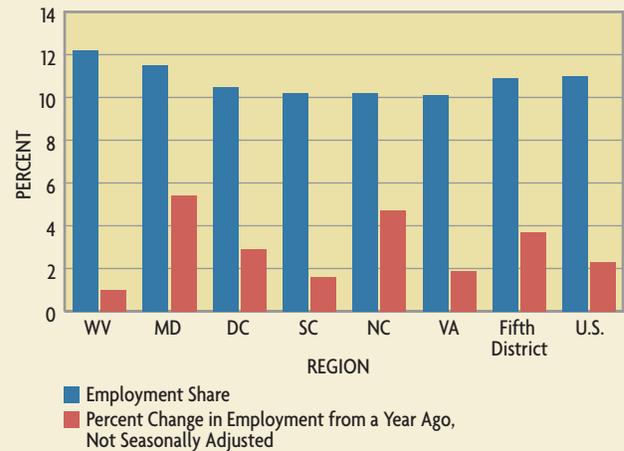


NOTE: Data represent adults who reported that they had toured a park, monument, building, or neighborhood for historic or design value in the last 12 months.

SOURCE: National Endowment for the Arts, Survey of Public Participation in the Arts via the American Academy of Arts and Sciences’ Humanities Indicators (www.humanitiesindicators.org)

Leisure & Hospitality in the Fifth District: A Tenth of Employment

The leisure & hospitality sector’s share of total nonfarm employment in the Fifth District, October 2019



NOTE: Tourism’s economic contribution can be approximated using the leisure and hospitality sector, which includes accommodation, food & beverage, and recreation & entertainment.

SOURCE: Bureau of Labor Statistics via Haver

Measuring and understanding tourism’s economic impact could become especially important as the industry makes up a larger part of rural economies. Gartner argues that tourism presents an opportunity for rural economic development. Historically, manufacturing, mining, and agriculture made up the largest share of rural economies. As these industries continue to shrink, tourism’s economic importance has grown. Tourism not only increases outsiders’ spending in rural regions, but also spurs the development of businesses that can capture local dollars. “If you get more visitation, if you get more businesses developing in these rural areas, then you have a greater

opportunity to capture what we would call economic leakages: money that would necessarily have to go out of the region to buy new supplies or inventory,” Gartner says.

Adjusting to this structural change, however, can be difficult for communities that have depended on manufacturing and mining for generations. “This shift to more of a tourism-based economy is a major shift, and it’s not something that necessarily all of the residents agree with or want,” says Douglas Arbogast, a West Virginia University Extension specialist in rural tourism development. His work focuses on involving local communities in tourism development, with an emphasis on improving quality of life, not just increasing economic impact.

“It’s not all about profit. You’re also looking at the state of the environment and the state of the society,” Arbogast says. “If it’s a place that visitors would want to come, then our hope is that it’s also a place where young people want to stay and people might want to relocate to.”

Cultural Heritage Tourism

Cultural heritage tourism, which includes historical tourism, is especially relevant to the Fifth District. Nine of the 55 areas designated as National Heritage Areas by Congress, chosen because they represent the United States’ mix of diverse historic, cultural, and natural resources, are located in the District.

The Crooked Road: Musical Heritage and Economic Development

The Crooked Road officially refers to a 330-mile stretch of road in southwest Virginia that winds through the Appalachians and features stops where visitors can experience and learn about the region’s traditional music. It more informally includes other places that celebrate the region’s rich cultural history. The tourism spurred by this celebration has helped rebuild a struggling economy.

The economy in southwest Virginia had long been built on coal, tobacco, and manufacturing. A decline in these industries in the late 20th century led to job losses and weakening economic conditions. In an effort to revitalize the region, state and local leaders sought to tap existing cultural assets, particularly music. In doing so, they ushered in a creative economy, that is, one built on assets such as culture that are unique to a region but are not traditional economic drivers (for example, as coal mining has been in southwest Virginia).

In 2003, the city of Bristol was featured in an annual folk music festival hosted by the Smithsonian, the Folklife Festival, which brought national interest to the music of the region. State and local groups capitalized on this momentum to create the Crooked Road Heritage Music Trail to boost economic activity in the region. The driving trail was later designated an official trail by the state. The state government, particularly the Virginia Department of Housing and Community Development, worked together with towns and communities, the Birthplace of Country Music Alliance, the National Park Service, and various local groups. State and local tourism boards collaborated on marketing the trail.

Before the creation of the Crooked Road brand, the region already featured venues with folk and bluegrass music. But creating one united trail increased awareness of the area, attracted new tourists, and encouraged people who may otherwise have visited one venue to stay in the region longer or come back to visit others.

Tourism as well as local and state funding allowed towns in the area to create or improve attractions. Today, the Crooked Road spans 19 counties in southwest Virginia and features over 60 music venues and many music festivals throughout the year.

Many cities, such as Galax, Bristol, Marion, and Clinton, have seen increased tourism, resulting in overall growth. For example, hotels have opened, restaurants have more business, and downtowns are livelier, bringing in money and making the region a more attractive place to live. A 2015 study by the Virginia Tech Office of Economic Development estimated that the Crooked Road directly brought \$6.4 million in tourism spending to the region each year, resulting in a total annual impact of \$9.2 million to the region’s economy. In recent years, the creative economy built upon culture in southwest Virginia has expanded beyond music to celebrate arts and crafts, natural beauty, and outdoor activities.

According to Steve Galyean, the former tourism director in Abingdon, Va., and the current planning and partnerships director of the Virginia Tourism Corporation, the goals of the Crooked Road were to preserve musical heritage, promote visitation, and aid in community revitalization in southwest Virginia. Says Galyean, “These three goals have been met and continue to be the backbone of the Crooked Road programs.” The Crooked Road offers a model of a successful creative economy, one built around cultural assets that revitalized a region both economically and culturally, while offering tourists a unique and authentic experience.



The New River JAM Band performs in the Youth Music Series at the Southwest Virginia Cultural Center & Marketplace.

— ROISIN MCCORD

West Virginia is a case in point. The Wheeling National Heritage Area in West Virginia generated \$86.6 million in economic impact in 2017 (the most recent data available). Of overnight travelers to West Virginia surveyed in 2018, 28 percent marked visiting historic places as an activity of special interest, 6 percentage points more than the national average.

Cultural heritage tourists visit monuments and historic buildings and participate in experiences like outdoor markets, live music, and craft fairs. A report by the United Nations World Tourism Organization emphasized cultural tourists' desire to be immersed in the authentic daily life of the places they visit. "Consumers' trips include many different activities, and culture is at the center of it," Calvert says. "They want to understand the local culture and be immersed in the local culture."

Yet the share of the U.S. population that reports visiting historic sites has declined since the 1980s. Gartner attributes this decline to younger generations' diminishing interest in history, at least as it is traditionally presented. While conducting research for the Minnesota State Historical Society, he and his team found that younger generations are less likely to visit historical cultural sites than older generations. He attributes this to younger generations' exposure to new types of media. "They have all these ways to interpret the world that the older generation never had." For this reason, Gartner says, "static museums" are in danger of no longer capturing their attention.

Younger generations are not solely responsible for the decline in historical tourism. The National Endowment for the Arts reported a decline in visitation across all age groups, except those 75 years and older, since 1982. It also found a significant gap in historical visitation between educational levels. Seventeen percent of people with a high school diploma reported visiting a historic site in 2017, compared with 43 percent of college graduates. Other indicators, though, are more mixed. The National Park Service reported an increase of almost 50 million in the number of recreational visits to historic sites over the same period. And, while historic visitation numbers in 2017 were 8.9 percentage points lower than in 1982, they were 4.4 percentage points higher than in 2012.

Simon Hudson, a professor at the University of South Carolina who chaired the South Carolina SmartState Center for Tourism and Economic Development until August 2019, attributes the decline in heritage tourism to ineffective marketing. "Tourists today are curious and are looking for learning and enrichment opportunities

on vacation. Heritage tourism is therefore growing. But our research showed us that potential visitors outside of South Carolina are just not familiar with the rich culture that the state has to offer," he says. One of the challenges for destination marketers is keeping up with technology, particularly social media, which is quickly becoming a dominant form of communication. "In a rapidly changing environment," he says, "it is critical that destination marketers stay on top of consumer trends."

The Way We Tell Our Stories

Cultural heritage tourists' tastes and methods of communication may be shifting, but destinations are changing to meet them. "Museums are changing the way they tell their stories," says Calvert. "They're bringing perspectives to their stories. They're humanizing the experience."

The International African American Museum in Charleston is expected to open in 2021. Located at Gadsden's Wharf, where almost half of enslaved Africans first set foot in the United States, it will include several interactive exhibits, videos, and touch screen displays. Its mission explicitly pushes back against the idea that the main purpose of museums is to house old relics. Instead, it aims to "play an active role in shaping current dialogues."

Rural areas, too, are developing new attractions. Fifteen years after writing his paper on rural tourism, Gartner notes, "We're seeing new activities developing that are taking people out of the cities and into the rural areas." He gives wineries as an especially notable example, although he also points to the National Park Service's efforts to draw international audiences to national parks.

As a living history museum, Colonial Williamsburg is already far from being a static collection of relics. However, it, too, is taking steps to ensure that it remains relevant. In 2014, the foundation launched the \$600 million "Campaign for History and Citizenship," intended not only to preserve and expand existing exhibits, but also to reach a more diverse audience, using digital technology among other means. The campaign includes a \$41.7 million expansion of Colonial Williamsburg's two art museums. Over a quarter of the funding is to be used to update the town's "living history" programming, in part by delving into the stories of African Americans and Native Americans.

"Society is changing. So, within that change, I think we need to balance how we tell the history and connect past and future so that we keep it relatable to consumers," says Calvert. "I think there is opportunity everywhere." EF

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Goodbye, Operator

Automated telephone switching eventually displaced the women at the switchboards. But they kept their jobs for decades after the technology arrived

BY DAVID A. PRICE

Users of the telephone in the late 19th century and early 20th century couldn't dial their calls themselves. Instead, they picked up their handset and were greeted by an operator, almost always a woman, who asked for the desired phone number and placed the call. Technology to automate the process emerged quickly, however: The first automated telephone switching system — a replacement for human operators and their switchboards — came into use with much fanfare in La Porte, Ind., on Nov. 3, 1892, 16 years after Alexander Graham Bell's patent on the telephone.

Yet telephone companies continued relying on the women long afterward. In 1910, only around 300,000 telephone subscribers had automatic service — that is, service in which they dialed calls themselves rather than interacting with an operator — out of more than 11 million subscribers total. The companies of the Bell System did not install their first fully automated office until Dec. 10, 1921, and did not install an automated system in a large city until the following year, two decades after the technology had been demonstrated. Those telephone users

who did have access to automated calling were customers of independent phone companies, mostly in small towns and rural areas.

In some ways, it's an upside down story of technology adoption: Why did automation come to small firms in the countryside first and only much later to the Bell companies in the big cities? And how did the women at the switchboards keep their jobs — ones with rigorous hiring standards and unusually generous perks — for so long despite competition from machines that never slept, got sick, or asked for a raise?

The Role of Women Operators

At first, the telephone industry hired men and boys as operators. But the practice was short-lived. The first woman operator, Emma Nutt, was hired by a telephone service in Boston in 1878, and the hiring of women spread quickly. Women operators were viewed by the companies as more polite to customers, more patient, more reliable, and faster — not to mention cheaper. Later, a 1902 report on the industry from the Census Bureau held, "It has been demonstrated beyond all doubt that the work of operating is better handled by women than by men or boys and that trained and well-bred [middle class] women operators perform the most satisfactory service."

The job was a demanding one. Historian Kenneth Lipartito of Florida International University described the routine of a big-city operator in a 1994 article in the *American Historical Review*. "While... keeping an eye open for lights indicating new calls, and sweeping the board of old connections, operators had to complete several hundred calls an hour during peak times. Months of practice were required before they mastered the 'overlaps,' or the knack of performing multiple tasks simultaneously."

An operator did more than simply connect a customer to his or her desired number, however. In the early decades of the industry, telephone companies regarded their business less as a utility and more as a personal service. The telephone operator was central to this idea, acting as an early version of an intelligent assistant with voice recognition capabilities. She got to know her 50 to 100 assigned



Operators in 1917 at a large switchboard of the New York Telephone Company in the financial district of lower Manhattan.

IMAGE: COURTESY ATRT ARCHIVES AND HISTORY CENTER

customers by name and knew their needs. If a party didn't answer, she would try to find him or her around town. If that didn't succeed, she took a message and called the party again later to pass the message along. She made wake-up calls and gave the time, weather, and sports scores. During crimes in progress or medical emergencies, a subscriber needed only to pick up the handset and the operator would summon the police or doctors.

While operators were not highly paid, the need to attract and retain capable women from the middle classes led telephone companies to be benevolent employers by the standards of the day — and in some respects, of any day. Around the turn of the century, the companies catered to their operators with libraries, athletic clubs, free lunches, and disability plans. Operators took their breaks in tastefully appointed, parlor-like break rooms, some with armchairs, couches, magazines, and newspapers. At some exchanges, the companies provided the operators with a community garden in which they could grow flowers or vegetables. In large cities, company-owned dormitories were offered to night-shift operators.

Rise of a New Technology

The first automatic telephone switching system to be used commercially was invented in the late 1880s by Almon Strowger, an undertaker in Kansas City, Mo. Industry lore says that he invented it after discovering that the local phone operator was steering calls of his potential customers to a competing undertaker to whom she was married. Whatever the actual impetus for his invention, he proceeded to form the Strowger Automatic Telephone Exchange Co., the firm behind the pioneering La Porte, Ind., system and many other automatic exchanges afterward. As the age of digital electronics was far in the future, Strowger's system was a complicated arrangement of mechanical and electrical parts.

Strowger offered to sell his technology to the Bell System — which decided against using it and did not even reply. As the development of automatic switching continued, the Bell telephone companies stayed with manual switching; they used automatic systems only as a temporary stopgap for small markets until those markets were large enough to justify an operator. From the perspective of Bell managers, human operators provided natural flexibility and intelligence — and made possible a level of service and attention that could not be duplicated by automation.

Moreover, as the Bell companies saw it, automatic systems put more of the work onto the customer, who had to dial the numbers themselves. “Bell wanted to make using the phone as easy as possible for customers,” says Milton Mueller, a professor of public policy at Georgia Tech specializing in communications and information. “So-called automated switching meant the customer was actually doing work, as opposed to just picking up the phone and telling the operator what he or she wanted.”

The early adopters of automatic switching were instead the independent telephone companies, which had entered the market following the expiration of Alexander Graham Bell's patents in 1894. Some 6,000 independents started within three years of the opening of that window; by 1907, they had attained around 50 percent market share. While the Bell companies focused mainly on urban areas, the independents focused on rural areas and small towns — and so the automated systems flourished there first.

“If you look at the overall strategy of the Bell System during this period of competition, the big cities were their strategic focus,” Lipartito says.

This pattern is a reversal of a common path of technology diffusion among producers, according to Richmond Fed economist Zhu Wang. Typically, he says, new production technologies are adopted first by large enterprises. That's because the technologies normally come with high fixed costs, which large firms are better able to absorb by spreading them across a higher volume. As adoption costs decline, the technology eventually becomes economical for smaller firms.

“It's a pretty general pattern we've observed in manufacturing, in agriculture, and elsewhere,” he says.

For example, in a 2017 working paper with Richard Sullivan, then at the Kansas City Fed, Wang researched the diffusion of technology for internet banking. They found that large banks adopted internet banking faster; in 2003, 90.5 percent of banks with deposits over \$300 million had rolled out internet banking, compared to only 10.5 percent of banks with deposits under \$25 million. Overall, a 10 percent increase in average bank size in a state translated to around a 10 percent increase in the odds of adopting internet banking.

The difference with automatic telephone switching was that the cost structure, perhaps surprisingly, favored the smaller firms with their smaller customer bases. With the electromechanical systems of the day, each additional customer was more, not less, expensive. Economies of scale weren't in the picture. To oversimplify somewhat, a network with eight customers needed eight times eight, or 64, interconnections; a network with nine needed 81.

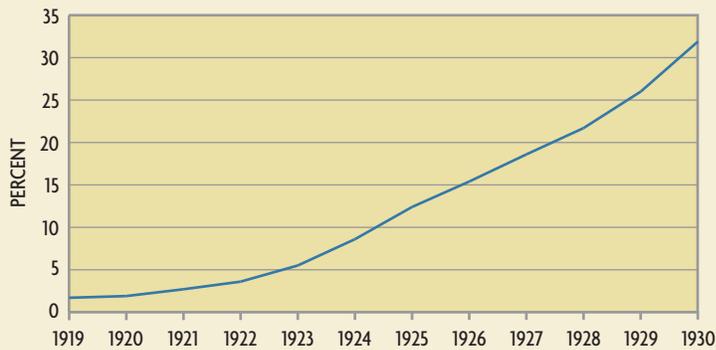
“You were actually getting increasing unit costs as the scope of the network increased,” says Mueller. “You didn't get entirely out of the telephone scaling problem until digital switching in the 1960s.”

While the Bell companies touted the superior service of their woman operators, independents promoted the benefits of automation, including confidentiality, reduced costs, and avoidance of operators' mistakes (customers sometimes blamed operators for missed calls and wrong numbers).

In the end, the Bell companies succeeded in stopping the ascent of the independents. One of the Bell System's principal tactics was to exploit its effective monopoly over long-distance service. The Bell companies

1920s Bell Telephone Customers Start Dialing

Percent of Bell System Exchanges with Automatic Switchboards



SOURCE: Harry Jerome, *Mechanization in Industry* (National Bureau of Economic Research, 1934)

had created American Telephone & Telegraph, or AT&T, as a long-distance provider in 1885; access to it required Bell local service. Usage of long-distance service remained minor for some years, but over time, Bell was able to use this monopoly and other tactics to defeat independent companies or force them to sell.

Automation Moves In

But the decline of the independents was not the end of automated switching. A number of factors pushed the Bell System away from its longtime reliance on the human touch and gave automation a second life. Together with refinements in the technology, probably the foremost factor was wage inflation during and after the Great War — what is known today as World War I.

Following the war, a steep rise in the wages of the labor pool from which telephone companies drew telephone operators was enough to jolt Bell management into rethinking its attitude toward automatic switching. Thus the Bell System began planning in 1919 to adopt automation. Even then, conversion didn't take place overnight. As late as 1930, only one-third of Bell System exchanges had automatic switchboards. (See chart.)

Wang of the Richmond Fed says that war-related wage escalation has propelled the diffusion of new technology in other industries as well. He notes that farms, for example,

were slow to adopt tractors until World War II. Research by Rodolfo Manuelli of Washington University in St. Louis and Ananth Seshadri of the University of Wisconsin-Madison found that the escalation of real wages in the agriculture sector — which doubled between 1940 and 1950 after decades of stagnation — was the most important reason why the tractor displaced the horse.

As the Bell System made its slow transition to an automated network, women operators kept making connections — not only for phone company customers but for themselves. Laura Smith, an employee of AT&T, reported in the system's magazine, the *Bell Telephone Quarterly*, in 1932 that operators had been moving up through the ranks, not only into higher-level positions as chief operators, but also into roles in other parts of the company, such as the “employment department,” the accounting and financial departments, and engineering.

Growing demand for telephone service led the number of operators to increase for a while, from around 178,000 in 1920 to about 342,000 in the middle of the century — then it declined to less than 250,000 in 1960. Surveying the landscape in 1964, Barnard economist Elizabeth Faulkner Baker felt optimistic that the profession might have finally stabilized. “It is possible that the decline in the relative importance of telephone operators may be nearing an end,” she wrote. She suggested that “in the foreseeable future no machines will be devised” that could handle the array of different types of calls handled by operators, from credit card calls to directory information calls to conference calls to telephone-booth long-distance calls.

Inevitably, the foreseeable future soon came to an end and the unforeseeable future took its place. In 1965, the year after Baker's forecast, the Bell System installed its first permanent fully electronic switching system in Succasunna, N.J. About two decades later, in 1984, the number of operators was down to 40,000. Today, according to the Bureau of Labor Statistics, the telecommunications industry employs a mere 1,460 in its operator ranks — a figure that would have seemed incomprehensible to the operators in their parlors, libraries, and athletic clubs in the early 20th century. **EF**

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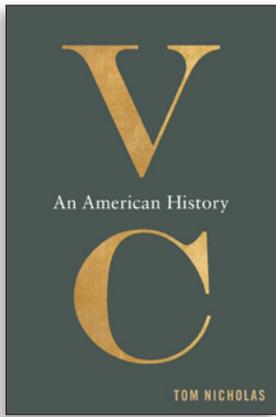
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VC: AN AMERICAN HISTORY

BY TOM NICHOLAS, CAMBRIDGE,
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REVIEWED BY DAVID A. PRICE

BOOKREVIEW

Venture Capital Grows Up

In 2018, more than 8,300 U.S. companies received venture capital, or VC, investments. Those investments totaled \$131 billion — an all-time record, perhaps driven in part by a low interest rate environment. Over the past half century, VC has had an outsized effect on the landscape of the American economy: Of the U.S. companies that went public between 1974 and 2015, according to a Stanford Business School study, two out of five had been VC-backed. Among technology companies, the VC share is of course much higher. Indeed, the four largest companies in the world by market capitalization — Microsoft, Apple, Amazon.com, and Google’s parent, Alphabet — are all VC-funded tech companies.

The development of this powerhouse is the subject of Harvard Business School professor Tom Nicholas’ careful and readable *VC: An American History*. While Nicholas retells the stories of famous VC deals, such as Intel in 1969, Apple Computer in 1978, and Netscape in 1994, he is mainly concerned with the evolution of VC institutions themselves. (To borrow from the television show “Silicon Valley,” he is interested less in Hooli or Pied Piper than in Raviga Capital Management and Bream-Hall.)

For Nicholas, VC is marked by a number of distinctive characteristics that shape the behavior of VC firms. First, venture capitalists, as intermediaries, play a central role. They raise funds from institutions and wealthy individuals, screen investments (often as many as 100 opportunities for every one in which the firm invests), and play an active role in the governance of the enterprises they back. Second, returns do not follow a normal bell-shaped distribution but rather are skewed; most of the return to a VC portfolio comes from a few exceptional winners. Finally, unlike in public equity markets, the performance of a VC firm tends to be a strong predictor of future performance: VC firms that outperform tend to keep doing so, whether by virtue of superior access to high-potential opportunities, superior acumen in screening, superior advising and governance of portfolio companies, or — probably — a combination of all three.

In conventional tellings, VC originated in 1946 with the Boston-based American Research and Development Corp., or ARD. While Nicholas views ARD as significant — its 1957 investment in pioneering minicomputer maker Digital

Equipment Corp. was a milestone moment in the history of computers — he finds the roots of VC much farther back, in 19th-century American whaling voyages. Whaling agents intermediated between wealthy investors on one hand and captains and crews on the other. “Like a general partner in a VC firm,” he notes, “the agent typically received a fee for his organizing services plus a share of the voyage’s profits.” And like modern VC funds, whaling investments had skewed returns, with 1.7 percent achieving returns of 100 percent or more while, at the other extreme, one-third came up dry with returns of zero or less.

Later predecessors of VC were wealthy individuals investing in early-stage technology ventures, such as Andrew Mellon in the late 19th century, and institutions created to make such investments for members of wealthy families, such as Rockefeller Brothers, founded by Laurance Rockefeller in 1946 to invest for the Rockefeller family. The decade after World War II, Nicholas writes, finally saw the emergence of a version of the VC industry as we know it, though it was still “embryonic” — around a dozen firms in all — each one investing in perhaps five to 10 companies.

The industry’s dramatic takeoff came in the 1980s, with annual commitments to VC funds growing twenty-fold. It was a result, Nicholas relates, of two policy developments. First, the late 1970s and early 1980s brought cuts in capital gains tax rates. Second, a change in 1979 to the federal law governing pension investments, known as ERISA, allowed pension fund managers greater leeway to invest in VC funds, vastly increasing those investments. In addition, although Nicholas does not indicate whether he believes the success of Apple Computer played a major role in the 1980s VC explosion, the mammoth return to VC firm Venrock’s 1978 investment in Apple surely helped to validate the model of skewed or long-tailed returns in investors’ minds. (As Nicholas observes, the further escalation of VC activity during the late 1990s internet boom had a less happy ending.)

But how did the VC industry in California pull so far ahead? By 2018, VC firms in California had \$228.2 billion in assets under management, swamping runners-up Massachusetts and New York at \$59.5 billion and \$56 billion, respectively. The changes in tax and pension policies were national, after all. While multiple factors were involved, Nicholas astutely highlights California’s policy against enforcement of noncompete clauses, a policy that promotes free movement of labor and formation of spinoffs.

VC is an accessible business history of the industry, one that policymakers nationwide and, indeed, worldwide can learn from in thinking about how to encourage investment in startup innovation. **EF**

Janice Eberly

In 1980, President Jimmy Carter ordered an embargo restricting grain exports to the Soviet Union in response to the country's invasion of Afghanistan. At the time, the embargo was widely blamed for collapsing commodity and farmland values. It was a formative event for Janice Eberly, who grew up in rural California. "I started studying economics because I was interested in the global dynamics that I saw happening. People's lives and livelihoods were being impacted by these forces that were so much bigger than they were, and I wanted to understand what they were."

Today, Eberly is the James R. and Helen D. Russell Distinguished Professor of Finance at Northwestern University's Kellogg School of Management. Her research covers topics including firms' capital investment decisions, household consumption choices, and how these decisions influence, and are influenced by, macroeconomic trends. Most recently, Eberly has been studying the implications of rising "intangible" investment — the investments firms make in software, intellectual property, and the like — for aggregate investment, market concentration, and productivity growth.

In 2011, she was confirmed by the Senate as assistant secretary for economic policy and chief economist at the U.S. Treasury, a role she held for two years. Eberly's office was responsible for analyzing data and developments in the U.S. and global economies and advising the Treasury secretary on economic policies.

Eberly serves as vice president of the American Economic Association. She is the editor of the *Brookings Papers on Economic Activity*, a senior associate editor of the *Journal of Monetary Economics*, and a former associate editor of the *American Economic Review*.

Jessie Romero interviewed Eberly in her office at Northwestern University in November 2019.



EF: Much of your research has focused on firms' investment decisions. But why do we need detailed theoretical models of these decisions? The average manager probably isn't thinking, "Well, my adjustment costs are convex instead of quadratic, so I'm going to wait until next year to buy a new machine."

Eberly: In many cases, the macro models that are simple metaphors for how we get from capital budgeting investment decisions to an actual expansion of capacity in the economy work fine. They provide a simple way of explaining how capital gets put in place in the economy and how you grow the capital stock that increases production and output. But there are instances, especially in policy, where the mechanism really matters.

A great example of that is the monthly employment report. If the unemployment rate goes up, people think, "Oh, that's bad news for the economy." But did the unemployment rate go up because the labor force grew, in which case it's not such bad news, or because more people were losing their jobs? The mechanism can make a big difference for how you interpret the data.

Let's say we see a dramatic collapse in investment, like we saw during the financial crisis. Does that mean that the whole economy is collapsing? Should we be really worried, because firms apparently think the future is really bleak? Or is it that there was a relatively minor shock but firms can afford to wait on investment projects so they just put

them on the shelf? If many firms do that, investment can collapse dramatically even if the shock wasn't that severe.

Understanding how those dynamics work can affect your interpretation of what's happening in the economy.

EF: What's different about investment in the technology arena?

Eberly: We're familiar with investments in physical capital, by which I mean property, plant, and equipment — the things most people would recognize as capital. That's tangible capital. But today we also have intangible capital — the investments you can't touch, such as software and intellectual property. You can expand the definition to include things like worker skills that are specific to the firm; when a firm invests in its employees, it's also developing its capital in some broad sense. The metaphor we often use is that Amazon's software platform is as crucial for its business model as an oil platform is for an energy extraction firm.

These types of investments are increasingly important: Intangible capital is the fastest-growing part of investment. It also seems to be playing a greater role in the success of firms. Not only is intangible capital a larger and larger share of investment overall, but it's also especially important for the firms that end up being the leading firms in their industries.

Amazon's business is built on intangible capital; Walmart's logistics technology is all intangible capital. Retail is a sector where efficiency has risen dramatically and labor productivity has gone up. This is very highly associated with the increase in intangible capital, so in retail especially you see a very strong role for intangible capital among the most successful firms.

EF: Some recent research has found that business investment has been weak since the early 2000s relative to measures of corporate profitability. How does that jibe with increasing investment in intangible capital?

Eberly: Investment as we traditionally knew it is definitely weak — investment in physical capital has been rising but relatively slowly over time. And it looks especially slow when you see that the valuation of firms is booming. Investment is not going up nearly as quickly as valuations. What has continued to rise is intangible capital, but it's not well captured in the data, although there have been improvements over time both in Europe and the United States in trying to measure it.

Intangible capital seems to be where firms' innovative investments are reflected. Historically, we thought

“Not only is intangible capital a larger and larger share of investment overall, but it's also especially important for the firms that end up being the leading firms in their industries.”

technological change was embodied in tangible capital: When firms put new equipment in place, it came with new software and new capabilities. So a way of increasing productivity was to put new equipment in place. Today, you can buy the software separately. So the ques-

tion is whether physical capital is embodying technological change in the way that it used to. Is the technological change actually in the intangible capital? In that case, you want to think about it as an augmentation to physical capital.

We're still learning about what role intangible capital is playing in the economy, but there are some clues in that you do see more of it in the firms that are growing most quickly. So that's an indication that it's associated with competitive advantage.

EF: A lot of research indicates that market concentration is increasing. In general, there are two schools of thought about the explanation: The firms with increasing market share are exercising more market power; or the firms with increasing market share have earned it by being more productive. What does your research suggest about the extent to which market concentration reflects one trend versus the other?

Eberly: It can be both. They're not mutually exclusive. In the work that I did with Nicolas Crouzet, instead of just looking at the aggregate economy data, we looked at firm-level data and broke it out by industry to see if that variation was meaningful.

In manufacturing, for example, you don't see a substantial accumulation of intangible capital and you don't see a big change in price-cost markups. In retail, you see much more intangible capital and a big increase in productivity but not a big increase in markups, so that industry looks very competitive.

In health care, we were looking at publicly traded firms, so our data included primarily pharmaceutical firms and device firms. There, you see a lot of intangible capital, because they're making large investments in intellectual property. We found a rise in concentration, and we also found a rise in markups. Now, that doesn't necessarily mean those firms are exercising monopoly power, but you do see a measureable increase in markups.

In the technology sector, the big tech firms are a mix of the two. There's a lot of investment in intangible capital, both software and intellectual property, and we found a big increase in concentration but a more modest increase in markups. Of course, high-tech is a very diverse field, so there's probably variation even within the industry.

In short, these are very heterogeneous industries, so there isn't a one-size-fits-all answer. When it comes to

intangible capital such as intellectual property, patents and trademarks can make a company more efficient and more effective. But when you have a patent, for example on a pharmaceutical, that also gives you market power because no one else can use that technology. So it's not surprising to see rising concentration and rising markups in sectors that depend on intellectual property. But in a sector like retail, investments in intangible capital can lead to greater market concentration without higher markups.

EF: Does the increase in intangible capital have any policy implications, fiscal or monetary?

Eberly: Intangible capital does seem less sensitive to traditional monetary policy. It tends to depreciate quickly, and it's not an interest-rate-sensitive spending category. That tends to make it less responsive to monetary policy that moves interest rates.

Financial innovation could reverse that effect, though. If intellectual property was "financialized," for example, becoming more like liquid assets, you could definitely see credit markets arising behind intangible capital, as there are for machinery and equipment. Now, intangible capital tends to be embedded in a firm. But there are new markets developing all the time that could make intangible capital more marketable. There are already markets for some types of intangible capital — patents can be bought, sold, and licensed, for example.

EF: Your research has also documented the "hollowing out" of investment. How does this parallel the hollowing out that's been observed in the labor market?

Eberly: In labor market research, the hollowing-out idea was motivated by the observation that starting in the 1980s there was job growth in both the least-skilled and the most-skilled jobs in the economy. So we saw an increase in low-skill service jobs, such as home health care workers, and also in jobs that required a lot of education. But there were job losses in what we call "middle-skill" jobs, such as manufacturing or administrative assistants.

That was a real change, because previously researchers had thought that skill-biased technological change would bias job growth consistently toward more-skilled

Janice Eberly

► Present Positions

James R. and Helen D. Russell
Distinguished Professor of Finance,
Kellogg School of Management,
Northwestern University
Faculty Director, Kellogg Public-Private
Initiative (KPPI)

► Selected Additional Affiliations

Vice President, American Economic
Association
Fellow, American Academy of Arts and
Sciences

► Selected Past Positions

Assistant Secretary for Economic Policy
and Chief Economist, U.S. Treasury
(2011-2013); Associate Professor,
Kellogg School of Management,
Northwestern University (1998-2002);
Associate Professor, The Wharton
School, University of Pennsylvania
(1997-98); Assistant Professor, The
Wharton School, University of
Pennsylvania (1991-97)

► Education

Ph.D. (1991), Massachusetts Institute of
Technology; B.S. (1986), University of
California at Davis

jobs. Hollowing out challenged that narrative.

Why is the hollowing out happening? One idea is that the jobs in the middle are being offshored. Another possibility is that the jobs in the middle are being automated. The latter has been an especially prominent explanation recently. Lewis Alexander and I thought we might see a reflection of that industrial change in capital investment as well.

In a paper for the International Monetary Fund, we looked at the industries that correspond to the hollowing-out story in the labor market — but instead of jobs shifting, you can look at how investment is shifting. You would expect to see investment shifting out of industries that are declining or being offshored, in particular manufacturing and some durable goods industries, and shifting into high-tech industries where the jobs are high skill and hard to automate or offshore.

You'd also expect to see investment shifting toward industries where the physical capital is hard to offshore — industries that have to be physically located here, such as energy extraction. Even if you wanted to offshore the jobs, you can't offshore the capital because the energy is physically located here. It's the same thing with transmission — cell phone towers, for example, are physically grounded capital. Just like job growth has shifted toward the service jobs you can't send overseas, investment has shifted toward the industries where you can't offshore the capital and away from the durable goods and manufacturing industries.

The curious thing was that we saw job growth in the high-skilled, high-tech sectors, but we didn't see the counterpart in investment growth. We saw the hollowing out of investment away from manufacturing, but we didn't see it going toward high-tech. This was my first inkling that something was going on with investment that was different from what we'd seen historically. The physical capital was the dog that didn't bark.

But high-tech is where there's been a big increase in intangible capital. So when you add that in, you do see a rise in not only high-tech jobs, but also high-tech investment — it's just that the high-tech investment is not the tangible kind.

EF: How are these investment trends related to broader conversations people are having about

secular stagnation — the idea that we are in a prolonged period of weak demand, slow economic growth, and low interest rates?

Eberly: The idea with secular stagnation is that because of weak demand, interest rates have become very low over time. Normally, one would expect to see an investment boom as a result, since low interest rates reduce the cost of capital and make investment less expensive. But we haven't seen that boom — investment in physical capital has remained weak.

One could argue that what we've experienced instead is this move toward intangible capital. But the productivity implications of that move have remained fairly narrow — we've seen productivity improvements in retail and some consumer goods, but we haven't seen a broad boom in productivity. That's a puzzle that makes people think hard about the secular stagnation idea. If we are investing in all this technology and it's so important, then why hasn't productivity taken off? I think that gives some force to the secular stagnation argument.

The counterargument to that is, the weak productivity itself is the puzzle. The problem isn't that demand is weak, it's that productivity is weak and that's why firms are not investing.

Put another way, is it demand or supply? Is weak demand keeping interest rates low, but then those low interest rates don't induce firms to invest because demand is weak? Or is it that productivity is weak, so that there's not a great incentive to invest even though interest rates are low?

EF: What do you think?

Eberly: I think the data haven't spoken definitively on this. But as policymakers we may have to do something anyway. Policymakers have to make choices (and in effect, waiting to do something is a choice).

What I find interesting about this discussion is that regardless of your diagnosis, the prescription is very similar. Both diagnoses argue for increasing investment. For example, the secular stagnation group argues for more investment in, say, infrastructure to try to boost demand, and the group that worries about low productivity is also arguing for productivity-enhancing investments. They're coming to similar conclusions from very different places.

The worry is that we have a hammer — investment! — so everything looks like a nail.



EF: Speaking of policy, are there challenges beyond the scope of monetary policymakers?

Eberly: I've been thinking about this a lot. If you didn't know anything about the institutional history of the Fed or the country's economic history and you came to the United States and saw that unemployment was around 3.5 percent and the inflation rate was under 2 percent, you would probably think economic policymakers are pretty happy. And GDP growth has been running around 2 percent; in a mature economy, that seems pretty successful. So it's probably worth keeping that perspective in mind.

But the concern is that there hasn't been booming growth in the economic recovery. You also might have expected some inflationary pressures to arise. That makes people think more about other imbalances in the economy that aren't captured by the "stars" of the unemployment rate and the inflation rate.

People worry about inequality, the role of inequality in the labor market, and the fact that the unemployment rate doesn't capture all of the variation in people's experiences in the labor market. We worry about how strong economic growth will be going forward because the underlying productivity doesn't seem as strong. Fiscal policy is also constrained by rising budget deficits.

So there's a set of forward-looking metrics that make people concerned about longer-run growth, and the realization that we shouldn't be relying on the Fed to solve all policy problems for us. There are economic challenges. Some of them will restrain the effectiveness of the Fed, but we should also not rely exclusively on the effectiveness of the Fed.

EF: Turning from the investments firms make to the investments people make, you've linked the increase in student loan debt to a decrease in home equity lending. What's the connection?

Eberly: What everyone notices when you look at the student loan data is this increase in loans outstanding over the course of the 2000s. Then it accelerates during the financial crisis. Some of that is due to more students going to school and students borrowing larger amounts, but my co-authors Gene Amromin and John Mondragon and I thought it wasn't a coincidence that this acceleration happened at the same time the housing market was collapsing. One of the most common uses of home equity loans was to pay for school — that was one of the ways

banks advertised home equity loans. People had tried to look at this correlation before, but it was very muddy in more aggregated data. So we looked at household-level data that actually tracks families over time, where you can see the parents and the kids and their housing.

When the value of a family's house goes down, they're less able to tap that home equity to finance education. But the family doesn't change their educational aspirations; the students tend to stay in the same schools. They just finance it differently and tend to switch to student loans. We found that among families with a student in school, a dollar decline in home equity led to a 50 cent increase in student loans. That's a large effect.

Then we looked at the effect that switch has on both the students and their families. Consistent with other work in the literature, we found that students are less likely to borrow later in life, such as taking out a mortgage or getting an auto loan, and they're less likely to form their own households.

We also found that their parents were actually financially better off in the long run. There's a generational switch: The financial responsibility for education is being transferred from the parents to the students. When the parents lost access to home equity, they reduced spending on many things, but they reduced their spending on education more than on other parts of their budget. The student loans help the family to insure the student's education, but there's a reallocation of consumption within the family as well.

So far, the switch hasn't reversed. So there does seem to be a longer-run shift toward students self-financing their educations. Some of that is a change in the composition of the student body, so you're seeing more students who are self-funding.

EF: On average, workers with at least a college degree earn more than workers with a high school degree or less. Basic supply and demand would suggest that this gap should shrink over time as more students are enticed to go to college. But that hasn't happened — what's going on?

Eberly: The college premium — the income gap between college-educated workers and those with only a high school education — is large and continues to grow. Nonetheless, college attainment, the percentage of the population with a college degree, hasn't increased as quickly.

One common response is to encourage more people to go to college. But the college attendance rate is actually quite high: About 70 percent of students who graduate from high school do go on to some form of higher education.

The real challenge is the degree completion rate. It's only about 50 percent [for public four-year colleges]. In work that I have done with Kartik Athreya, which is going to be published soon, the bottleneck we see is really completion risk. Even if more students go to college — for

example, because you make it less expensive or subsidize it further — those students face a greater risk of not completing. Our work really emphasizes preparing students to be successful in college. We're pretty successful (although not universally) at getting students in the door, but the probabilities of finishing are relatively low.

EF: What if the college premium continues to increase but we aren't able to improve preparedness and completion rates?

Eberly: The students who complete are the ones who receive that college premium. So you'd have a small group of people getting a larger and larger premium, versus the group of people who aren't completing college and aren't getting that premium. The gap, and hence inequality, would just get larger and larger.

The stakes are high with trying to improve preparedness and college completion. It's worth noting that there's a lot of heterogeneity across schools in college completion. Some schools are very successful at completion, but a lot of the new entrants into college are going to schools that are less successful. It's that interaction between who goes to school, where they go, and how likely they are to finish that really poses challenges for rising wages and rising inequality.

EF: You were recently elected vice president of the American Economic Association. What are your goals for your term?

Eberly: The AEA is grappling with a range of equality and inclusion issues. Those issues are challenging and difficult, but I think we do better when we run toward the problem. We're professional social scientists. We should be able to use the tools of our profession to better understand the issues and also to think about how to implement improvements.

EF: What changes would you like to see?

Eberly: We need to hear and speak the experiences that women and underrepresented minorities have in the field, because we're well past silence now. And we need to increase the visibility of the work of talented economists of every type.

EF: Your research spans such a broad set of issues. Do you see a common thread?

Eberly: I think of all my research as being about intertemporal decision-making, making choices about the future. What do you do today that affects the future? Physical capital, intangible capital, human capital, fiscal policy, monetary policy — they're all about trade-offs between today and tomorrow.

EF

Community Colleges in the Fifth District: Who Attends, Who Pays?

BY LAURA DAWSON ULLRICH

While community colleges existed in the United States as early as 1901, the boom began in the 1940s with the introduction of the GI Bill and the return of veterans from World War II. Today, these institutions are a major force in higher education: In fall 2017, more than 605,000 Fifth District residents were enrolled in a community college, with 64.9 percent of them attending on a part-time basis. Several states, including Maryland and West Virginia, have passed legislation within the past two years that will make community college tuition free for most state residents.

Given the need for more skilled workers and the increased financial support for community college students, one might expect enrollment to be growing. Instead, after growing for many years, community college enrollment in the Fifth District has been declining recently, including a 1.8 percent decrease between fall 2016 and fall 2017. Some of this decline undoubtedly stems from the strong economic conditions and low unemployment rates. Indeed, the size and composition of community college enrollment has long varied with the economic cycle: During times of higher unemployment, community colleges have seen surges in enrollment, especially in fields related to skilled trades; during times of economic growth, enrollment in technical programs has decreased and schools have relied more on their programs oriented toward college transfer.

But there are other factors at play, including the fact that the number of high school graduates in the United States has been stagnant since around 2011. This trend and others are shaping the role of community colleges in education and workforce development.

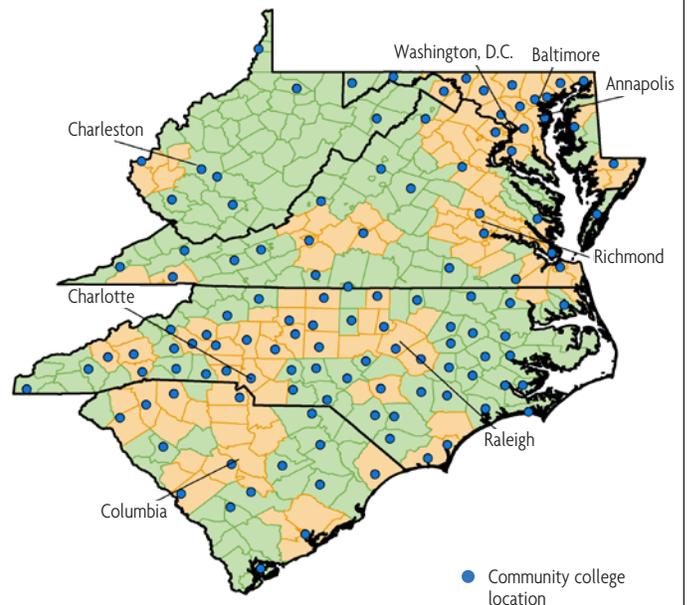
Whom Community Colleges Serve

Community colleges, which are two-year, publicly funded institutions, typically offer both associate degrees and certificate programs. There are currently 122 community colleges operating in the Fifth District. (This measure includes only stand-alone institutions; that is, it does not count two-year programs within universities.) The Fifth District's community colleges range from smaller, more vocationally focused schools, to larger, more comprehensive community colleges with a broader range of technical and associate degree programs. Community colleges are relatively evenly dispersed among rural and urban counties in the Fifth District. (See map.)

Enrollment in community colleges has been marked by two notable patterns. The first is that it is increasingly dominated by female students. In 1980, the first year

detailed data became available from the National Center for Education Statistics, 52.98 percent of Fifth District community college students were female. Many of these women were enrolled in educational programs to prepare them for careers in health care, business, and child and family development. By 1990, 59.44 percent of Fifth District community college attendees were female, over a 6 percentage point increase in a decade. In addition, their range of academic programs expanded, with more women preparing for transfer to a bachelor's degree-granting institution or for less traditionally female careers. This trend toward greater female representation in Fifth District community colleges was consistent with the nationwide trend at both community colleges and four-year institutions; it was also consistent with national female employment trends, as female labor force participation increased from 51.6 percent in January 1980 to 57.7 percent in January 1990. Since 1990, the percentage of women in community colleges in the Fifth District has remained relatively stable, with women making up 58.81 percent of all students in fall 2017.

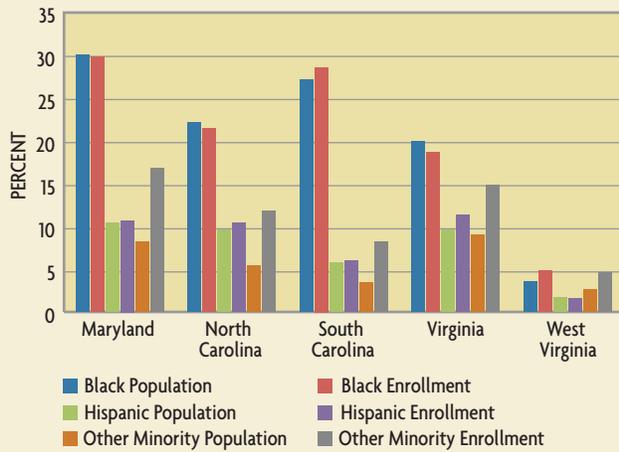
Community Colleges, Rural and Urban



NOTE: A community college is two-year degree-granting and/or certificate-granting public institution. There are 122 in the Fifth District. Only community college main campuses are mapped. County-level urban/big city and rural/small town designations are based on the U.S. Department of Agriculture's 2013 Rural-Urban continuum Codes (RUCC). Counties with an RUCC of one or two are urban/big city and counties with an RUCC of three through nine are rural/small town based on Federal Reserve Bank of Richmond categorization.

SOURCE: U.S. Department of Agriculture 2013 Rural-Urban Continuum Codes, Integrated Postsecondary Education Data System (IPEDS)

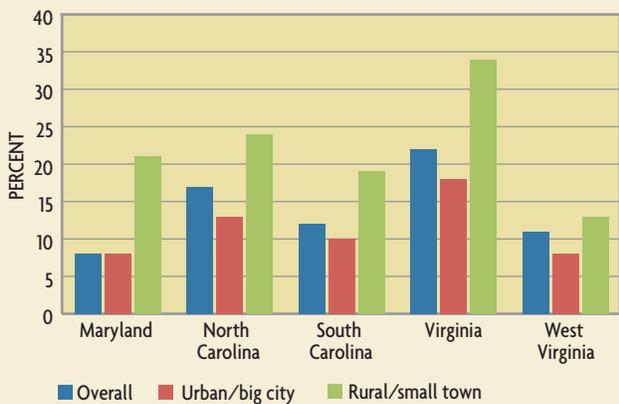
State Diversity and Community College Diversity



NOTE: Population figures are shares of the total state population. Enrollment figures are shares of total community college enrollment in the state.

SOURCE: National Center for Education Statistics (IPEDS, 2017-2018)

Community College Students Under 18, By Rural Status



SOURCE: National Center for Education Statistics (IPEDS, 2017-2018)

The second notable pattern is that for many years, community colleges have served a larger percentage of minority students than public or private four-year institutions. While the U.S. black population share is estimated to be 13.4 percent, only 10.8 percent of students in four-year public institution and 11.2 percent of students in four-year private institutions in fall 2017 were black. Community college enrollment in fall 2017 was more in line with the national population, with black students accounting for 13.2 percent of total enrollment. The diversity of Fifth District community colleges varies considerably across the states. Overall, 22.8 percent of Fifth District community college students were black in fall 2017 while 9.8 percent were Hispanic and 13.2 percent belonged to other racial minority groups. (See chart.)

The Dual Enrollment Boom

A more recent trend has significantly altered the demographics of the students being served by community

colleges: the surge of high school and community college dual enrollees. As tuition and fees for four-year colleges and universities have increased, dual enrollment offerings, in which high school students earn college or high school credit by enrolling in a community college, have become increasingly common in American high schools. These programs are promoted to students and parents as a way to graduate from college earlier and save money, in some cases providing students with tuition-free college credit.

North Carolina has a widely praised early college program (known as the Cooperative Innovative High School Program) in which students attend special high schools, often at local community colleges, in order to earn high school and college credits simultaneously. There are currently 132 of these high schools, and 57 of North Carolina's 58 community colleges have an early college high school on their campus. Some of these students even graduate with an associate degree before they graduate from high school.

There is ample evidence that students benefit from dual enrollment programs in tangible ways. A recent report from the Maryland Longitudinal Data System Center examines the effect of dual enrollment on college outcomes as well as income six years after high school graduation. The study finds that students who completed dual enrollment courses were more likely to enroll and persist in college. Those who participated in dual enrollment were also 15 percentage points more likely to graduate from college within the six-year time frame. In addition, they earned significantly higher wages than those who did not participate; students who took dual enrollment classes earned \$2,100 more annually six years after high school graduation. Interestingly, the education, workforce, and income effects were stronger for minority and low-income populations. Similarly, work by James Cowan of the American Institutes of Research and Dan Goldhaber of the American Institutes of Research and the University of Washington published in the *Review of Higher Education* in 2015 investigates the outcomes related to a dual enrollment program in Washington state. After controlling for demographics, they found that dual enrollment students are more likely to attend college immediately after high school but are less likely to attend a four-year institution, as many of them choose to complete their education at a two-year institution.

The Fifth District has a significant number of students under age 18 who are attending community colleges. This tends to be especially true in states where students can attend tuition free or nearly tuition free (North Carolina, South Carolina, and Virginia). In all Fifth District states other than Maryland, the percentage of community college students under 18 is greater than 10 percent. There are Fifth District community colleges where this number is considerably higher, some reaching greater than 50 percent. One such school is Martin Community College in rural Williamston, N.C., where more than 57 percent of the total enrollment of 837 students were under 18 in the 2017-2018 school year.

Additionally, there are more high school aged students attending community college in more rural counties, as these locales are less likely to have traditional four-year institutions where students can take classes. High school students in these rural counties are also less likely to have access to advanced placement or International Baccalaureate courses through which they can earn college credit. In these more rural school districts, where high school course offerings may be more limited, community colleges can play a very important role. As the data indicate, 33.73 percent of all community college students in small towns and more rural Virginia during the 2017-2018 academic year were under 18, while only 17.9 percent of community college students in more urban areas were under 18. (See chart on previous page.)

Paying for Community Colleges

Money for community colleges within the Fifth District comes from a combination of state and local appropriations. The states that have a greater share of local contributions, namely North Carolina and Maryland, also have the highest levels of overall funding per full-time equivalent (FTE) student. The range within the Fifth District is large, with a low of \$4,400.35 per FTE in Virginia to a high of \$10,721.65 per FTE in Maryland during the 2017-2018 academic year. (See chart.)

Some of the differences across states are directly related to the way states fund community colleges. Within the Fifth District, South Carolina and West Virginia fund via an appropriations process that is not directly formula driven. The other states use a full-time enrollment formula for appropriations, but only North Carolina includes noncredit programs directly as part of its funding formula. This means most noncredit programs offered at Fifth District community colleges do not receive funding via state or local appropriations. These noncredit programs can range from continuing education to phlebotomy certificates to welding to certificates in robotic technology. If a student is not enrolled in a for-credit program or course, he or she is not counted as a student in the FTE calculation and therefore doesn't receive state funding.

The students themselves may be in need. Community college students, on average, come from lower-income families than students at four-year institutions. According to a recent Pew Research study, the percentage of dependent community college students in 2016 who were living in poverty was 27 percent and rising. In 1996, this number was only 13 percent. Four-year institutions that are moderately or minimally selective have lower percentages of dependent students in poverty, at 15 percent and 25 percent, respectively.

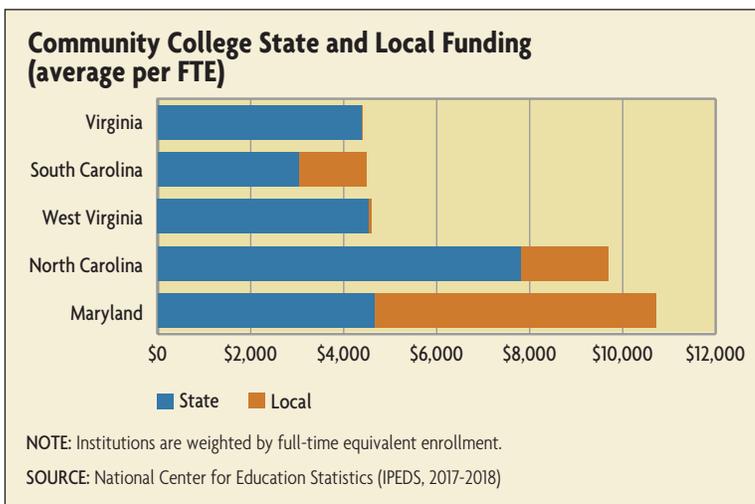
Because community college students tend to come from lower-income families, they are also more likely to depend on federal Title IV funding (including Pell Grants and subsidized or unsubsidized loans) as well as state aid to be able to afford

college. While Title IV aid is consistent across states, state aid varies considerably within the Fifth District. This aid ranges from direct grants for low-income students (similar to the Pell Grant but at the state level) to lottery-funded scholarship programs.

Both Maryland and West Virginia have passed legislation making community college tuition free for most state residents. These are known as “last dollar” programs, meaning the state aid kicks in once all other aid (including the Pell Grant) has been used. But because many community college tuition levels are below the Pell Grant maximum, many low-income students will not benefit directly from these state grant programs. Last dollar grant programs have another important limitation for low-income students in that they cannot be used to offset nontuition expenses like transportation or child care. If the grants were instead “first dollar,” then students could use the state grant first, and additional funding (such as the Pell Grant) could be used to offset other expenses. While these new state initiatives will undoubtedly help many students offset the cost of attending college, they are not, strictly speaking, “free community college” programs as they are sometimes described.

Each of the five states in the Fifth District have additional scholarship and grant programs that can be used by community college students. Examples include the Virginia Commonwealth Award Program, which provides students with demonstrated need a grant that can cover up to the cost of tuition if they are enrolled in at least six credit hours per semester. Another example is the lottery-funded South Carolina Lottery Tuition Assistance Program. This grant provides South Carolina residents who don't qualify for the state's LIFE Scholarship, which has more stringent qualification standards, \$1,140 a semester to attend community college as long as they are registered for at least six credit hours.

While the amount of state and federal aid available to community college students appears to be plentiful, there is one important caveat. Nearly all of the programs previously discussed, including Pell Grants and federal loans, can be used only by students in for-credit programs. This



Community College Graduation and Transfer Rates

| | Maryland | North Carolina | South Carolina | Virginia | West Virginia |
|---------------------------------------|----------|----------------|----------------|----------|---------------|
| Overall Graduation Rate | 20.6% | 22.6% | 15.2% | 26.8% | 26.4% |
| Graduation Rate—White | 25.8% | 26.4% | 17.8% | 30.2% | 28.0% |
| Graduation Rate—African-American | 10.8% | 13.1% | 8.8% | 16.1% | 9.8% |
| Graduation Rate—Hispanic | 16.4% | 24.2% | 14.4% | 25.7% | 19.1% |
| Graduation Rate—Pell Grant Recipients | 15.9% | 18.4% | 12.2% | 22.0% | 24.1% |
| Overall Transfer-Out Rate | 21.4% | 21.5% | 22.4% | 13.1% | 10.4% |

NOTE: Institutions are weighted by full-time equivalent enrollment. Graduation rates are rates of graduation within 150 percent of the standard time to completion.

SOURCE: National Center for Education Statistics (IPEDS, 2017-2018)

means students who wish to attend community college to obtain a noncredit certificate are ineligible for most grants and scholarships. This is true for both federal grants and aid as well as for most of the primary state-level scholarship or grant programs in the Fifth District. While some states are trying to work toward addressing the issue — the South Carolina legislature appropriated \$11 million in 2018 for workforce scholarships — the overall limitations that low-income students face in attending these programs persist.

Commercial driver’s license (CDL) programs are an example of the potential value of noncredit programs. Like most noncredit programs, CDL programs tend to be very short term; a typical CDL program lasts only around seven weeks. Yet the certification can lead to solidly middle-class wages. According to the Bureau of Labor Statistics, median pay for truck drivers with a CDL in the United States was \$21 per hour, or \$43,680 per year, in 2018. There is also a reported shortage of 60,000 drivers, according to the American Trucking Association. The math seems simple. The pay is relatively high, there is a shortage in the market, and programs exist at many community colleges. Yet given the funding challenges, it’s not as straightforward as it may seem. One Fifth District community college reported that their CDL program hasn’t been offered in two years because of lack of enrollment. They report that it is entirely because of the nearly \$2,000 price tag and the lack of financial aid for these programs.

Measuring Success

A common measure of an institution’s success is its graduation rate. For community colleges, however, this measure can be an uneasy fit.

The federal government defines the graduation rate as the percentage of a school’s “first time, first-year undergraduate students who complete their program within 150 percent of published time for the program.” So for associate degree students, the graduation rate measures the percentage of students who finish the degree within three years, as nearly all associate degree programs have

a published completion time of two years. In the case of community colleges, graduation rates have historically been quite low. In 2017-2018, the graduation rates at community colleges averaged lower than 27 percent in each of the five Fifth District states, with the lowest being 15.2 percent in South Carolina. The results are even more concerning when broken down by race and income. Black students have far lower graduation rates than white students in all five states, ranging from 8.8 percent in South Carolina to 16.1 percent in Virginia. Pell Grant recipients also fare worse, with lower graduation rates than average in each of the Fifth District states. (See table.)

So why aren’t students graduating? An obvious answer may be that they are unprepared for the rigors of community college classes. One might also look to the open enrollment policies of community colleges and say that the low graduation rates are a result of schools admitting all who want to attend. But there are additional reasons why these rates may be low. Perhaps the most important is that many students who attend community college never intend to graduate. Some come with the intention to transfer. Others come to try out a course or two to see if they have interest in a particular field. Still others come to take a few specific classes, especially in technical fields, which will either help them obtain a new job or help them get a promotion. Each of these cases would result in a student being a “noncompleter” and therefore push the institution’s graduation rate downward. While graduation rates may make sense as a metric for traditional four-year schools, their use for community colleges is problematic.

There are other metrics used to measure community college success. One often-cited statistic is the percentage of students who transfer. However, the lack of data on how many enrolled for that purpose makes the interpretation of transfer rates difficult.

Connecting to Four-Year Schools

Each Fifth District state has specific articulation agreements that indicate which courses from state community colleges will transfer directly to state four-year institutions. These agreements make it easier to plan the transfer

path and to ensure students don't take courses that won't count toward a four-year degree. In addition, state institutions generally have guaranteed admission for community college students who achieve a certain GPA and have the required number of credit hours.

In the Fifth District, there are examples of joint programs between community colleges and four-year schools, known as "bridge programs," that integrate community college students more deeply with a desired transfer university. One is the Bridge to Clemson Program operated by Clemson University and Tri-County Technical College in South Carolina. Clemson identifies students who are just short of being directly admitted, and these students are offered a spot in the bridge program. In fall 2019, there were 951 students who enrolled in the program. Bridge students attend classes at Tri-County, but they live in housing directly adjacent to Clemson and are able to participate in nearly all on-campus activities. Bridge students who earn 30 credit hours at Tri-County and maintain at least a 2.5 GPA after the first year can automatically transfer to Clemson without reapplying. Students pay an annual fee of \$2,370 to the program in addition to paying for tuition and fees at Tri-County.

The result: Tri-County's enrollment has been growing in an environment where overall enrollment is falling. It is also getting higher-quality students, as many of these students would otherwise have attended a four-year college. Bridge program students are attending Tri-County because of the opportunity to transfer directly to Clemson and to be in an environment that is nearly identical to that of the other Clemson students. On Clemson's side, Clemson has gained a transfer-ready population that it may not have had access to if students started school at another state institution. It is also receiving fee payments from 950 students who are not attending classes on their campus. And lastly, but most importantly, the students are benefitting. The transfer rate to Clemson was 82 percent in 2018, with an additional 5 percent to 7 percent of students continuing on at Tri-County or transferring to another university.

Galen DeHay, president of Tri-County Technical College, says that students benefit from the resources and

support of two institutions. He attributes the success of Bridge students to the fact that "the program supports students in a successful transition to college-level expectations, fosters a sense of belonging and institutional affinity with both institutions, and allows students to make progress toward their intended Clemson degree in smaller classes, at lower costs, and with detailed advising supports."

The Future of Community Colleges

Community colleges in the Fifth District face a set of opportunities and challenges as they begin this next decade. The need for additional tradespeople, exacerbated as the baby boomers begin to retire, should raise wages and encourage more students to enter technical education programs. At the same time, with the cost of traditional four-year college continuing to increase and more states offering attractive state community college grants, it is likely that the number of students attending community college with the intention of transferring to a four-year school should increase, all other things equal. In a similar vein, dual enrollment programs at the high school level appear to still be gaining in popularity and don't seem to have reached their peak.

But all things aren't equal. The number of high school graduates is declining each year, and with it, community college enrollment has been falling as well. The decrease in high school graduates puts more pressure on four-year institutions to recruit students and will likely force some institutions to reduce academic standards, meaning they will admit some students who would have been community college bound otherwise. Community colleges will have to work harder than ever to tell their story to potential students and to prove to the local business community the critical role they play in workforce development. The most difficult challenge may be educating an increasingly low-income, minority, first-generation pool of college students in ways that can provide them a path to the type of postcollege career they are seeking. As the jobs in the economy change and the demographics of students change, community colleges must be nimble in the programs they offer and the ways in which they offer them. **EF**



Repo Rate Spikes: A Puzzle for Policymakers

BY KARTIK ATHREYA

On Sept. 17, the overnight interest rate on collateralized loans for institutional borrowers — known as the “repo rate” — spiked as high as 9 percent at one point during the trading day and ended up averaging 5.25 percent over the entire day. The size of the spike was extremely unusual, because in recent years the repo rate has usually stayed close to the rate the Fed pays banks on the reserves they hold in excess of the required minimum, and that rate was only 2.1 percent.

During the previous year, the spread between repo rates (as summarized by the secured overnight funding rate, or SOFR) and the interest rate on excess reserves (IOER) had become more volatile as the Fed continued to reverse its quantitative easing program and reduce the supply of banking system reserves. Yet, the spread between the two rates had exceeded 0.25 percentage points only five times during the period and had never exceeded 0.75 percentage points. At 3.15 percentage points on Sept. 17, the spread was more than four times its maximum during the previous year.

Initial explanations for the repo rate spike focused on the simultaneous effects of a Treasury securities auction and the due date for a quarterly corporate tax payment. Both of these events involved large payments from the private sector to the U.S. Treasury’s general account at the Fed. Such transactions, if not offset by Fed open market operations or discount window lending, reduce banking system reserves at the Fed and in turn tend to reduce the banking system’s supply of funds to the repo market. The Treasury auction had the further effect of increasing the demand for funds in the repo market by securities dealers looking to finance Treasury securities purchases. This source of increased demand, combined with the two supply influences, amounted to a “trifecta,” according to one portfolio manager.

But the occurrence of the trifecta is not a fully satisfying explanation for the rate spike. After all, Treasury auctions and tax days are hardly rare events, and the Fed regularly anticipates them and attempts to offset their effects by supplying the market with additional liquidity. Moreover, the Fed currently operates under an “abundant reserves” regime. This means the Fed attempts to consistently supply the banking system with more reserves than the minimum that banks would demand based on the prevailing short-term interest rates.

Under this regime, one might expect banks to readily lend funds in the repo market whenever the repo rate exceeds the rate they receive on excess reserves. It appears to be a simple arbitrage opportunity, with a gain equal to the SOFR-IOER spread. But this did not happen on Sept. 17, or at least it did not happen enough to keep the

repo rate from spiking. For some reason, the supply of bank funding to the repo market had become somewhat inelastic.

Several hypotheses have been advanced to explain this puzzle. One idea is that intramarket frictions may have been increased by the Fed’s policy of paying interest on excess reserves. Prior to the financial crisis, no interest had been paid on reserves, and so the opportunity cost of not lending in the repo market was the full repo rate. In that environment, banks had an incentive to trade frequently. Under the current system, however, the opportunity cost is merely the SOFR-IOER spread. Since this has generally been quite low, banks appear to have economized on their overnight lending capacity.

Complementary explanations have highlighted changes in bank risk management practices. The financial crisis underscored many potential risks of the repo market — a topic analyzed by Richmond Fed economist Huberto Ennis in his 2011 *Economic Quarterly* article “Strategic Behavior in the Tri-Party Repo Market.” Heightened perceptions of repo market risk, combined with postcrisis bank liquidity regulations, may have created a disincentive for banks to lend in the repo market.

The concept of abundant reserves is another part of the puzzle. On one hand, the concept is extremely difficult to quantify, even at one point in time. And on the other hand, it appears to be a moving target. Market commentators have hypothesized that banks’ comfort with high reserve levels has increased in a ratchet-like manner during the postcrisis period.

Market commentators have proposed a number of corrective measures. Some have advocated moving the Treasury’s general accounts at the Fed to private banks, which would lessen the effect of Treasury auctions and tax payment days on bank reserves. Others have argued that the Fed could make the repo market more robust by creating a standing repo facility and allowing for regular, but modest, repo rate volatility. Much of the discussion has focused on bank liquidity practices. Fed Vice Chair Randal Quarles, for example, has called for further study of whether banks’ internal liquidity stress tests have created too great a preference for central bank reserves over other high-quality liquid assets.

Given the abundance of policy proposals that have been advanced, one thing seems clear — the events of last September have already stimulated a great deal of productive thinking among analysts and policymakers. **EF**

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NEXT ISSUE

Income-Sharing Agreements

American students collectively owe an estimated \$1.5 trillion in outstanding debt for their educations. Some schools have been experimenting with a different way for students to fund their education: an income-sharing agreement. Students agree to forgo a share of their future earnings for a period of time to pay for their education rather than taking on debt or paying tuition up front.

Electrifying America

In the early 20th century, electricity revolutionized life in American cities. By the start of the 1930s, nine in 10 city dwellers had access to electricity, but only one in 10 American farms had electricity. President Franklin Roosevelt created the Rural Electrification Administration to bring electricity to rural parts of the country by partnering with local cooperatives to build out the electrical grid. By the 1950s, the program had succeeded in bringing the gains from electricity to most Americans.

The Fed and Repo Markets

The repo market is used by institutional investors — such as banks, securities broker-dealers, and mutual funds — to make and receive short-term loans. It has long been recognized as an important channel for the transmission of monetary policy. Recent volatility in the repo market has raised many questions about how the market has evolved since the financial crisis and what, if anything, the Fed should do.

Economics Conferences

In the age of Skype, email, and webinars, economic conferences still abound. Economists continue to find value in physically congregating to exchange ideas, despite the hassles of travel. There are good reasons.

Rural Migration

Retaining and attracting new residents is vital to the economic success of rural communities. Population loss translates into fewer customers and workers for local businesses and a diminishing tax base for public services. What do we know about the factors behind past rural population trends? What are current rural population trends in the Fifth District? And what strategies could rural communities pursue to attract new residents?

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- How funding and public policies can help extend broadband service to rural areas
- Opportunities and barriers to absorbing capital
- What it will take to drive the level of investment into rural America that is up to the size of the challenges

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Valley Pike Farm in Rockingham County, Va.
Photo by Cindy Parks