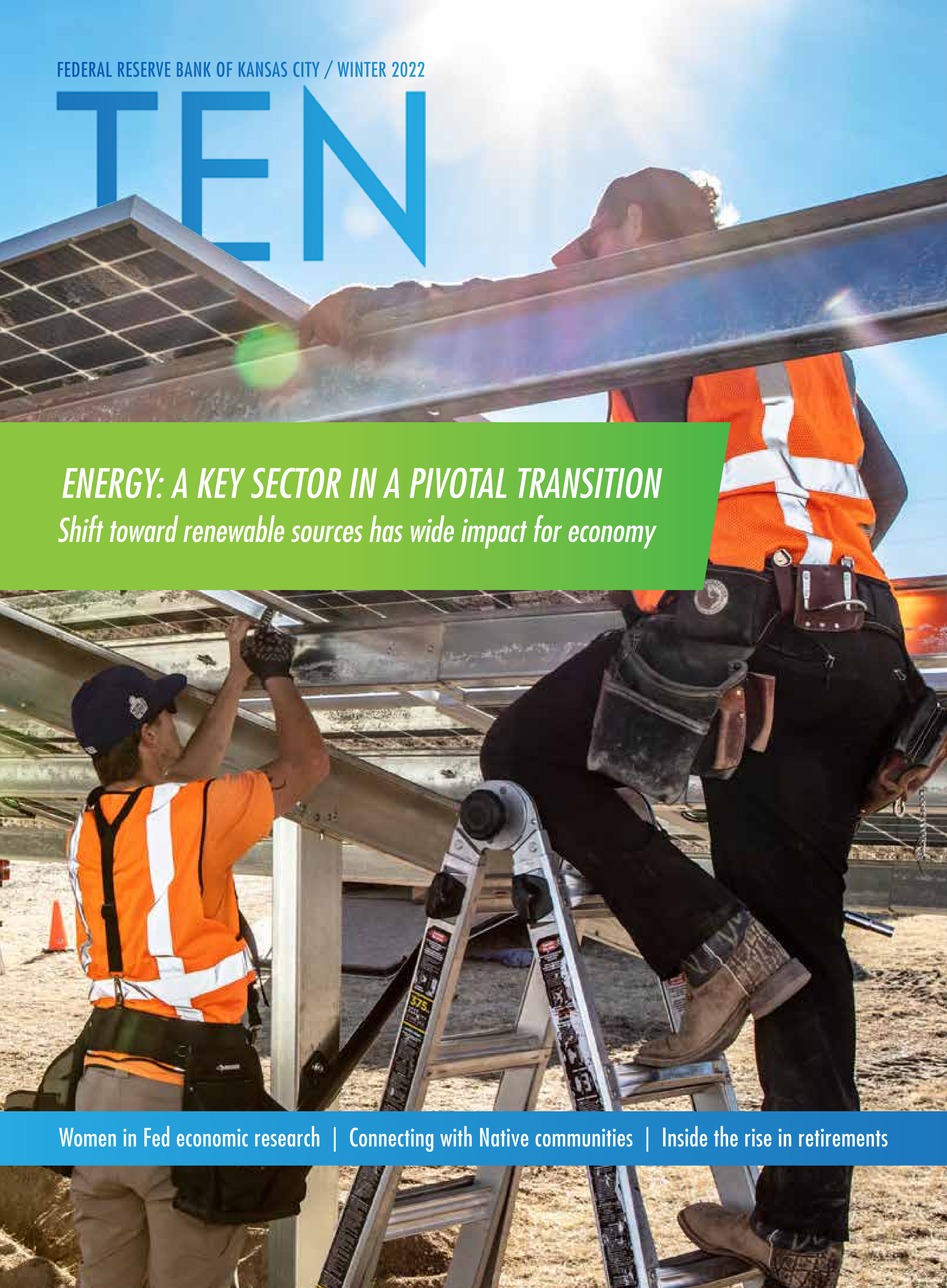
FEDERAL RESERVE BANK OF KANSAS CITY / WINTER 2022

TEN



ENERGY: A KEY SECTOR IN A PIVOTAL TRANSITION

Shift toward renewable sources has wide impact for economy

FEDERAL RESERVE BANK OF KANSAS CITY / WINTER 2022

TEN

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TEN magazine is a quarterly publication of the Federal Reserve Bank of Kansas City focused on the connection between the Bank's research and the Tenth Federal Reserve District. TEN features articles on the Federal Reserve's history, structure and operations. The views and opinions expressed in TEN are not necessarily those of the Federal Reserve Bank of Kansas City, the Federal Reserve System, its governors, officers or representatives.

Learn more about the Federal Reserve Bank of Kansas City and the history, leadership and governance of the Federal Reserve System at *KansasCityFed.org/aboutus*.

FEATURES

ON THE COVER »
Cover photo by Matthew Idler Photography
Design by Casey McKinley

Lessons from energy markets for the broader economy

Each year, we have been proud to host an annual Energy Conference in partnership with the Dallas Fed, and this past fall, we were glad to host this gathering again, albeit in a virtual format. There was plenty to digest as we consider developments in the economy and energy markets.

In the year since our 2020 conference, the price of oil more than doubled, and aggregate inflation also picked up significantly. While higher energy prices have contributed to this overall increase, when its impact is excluded, inflation still remains elevated.

With increasing prices dominating headlines, the central question confronting economic forecasters and policymakers at the Fed is just how long this elevated inflation will persist. The answer to this question depends fundamentally on how long the current tightness in the economy continues, and, in turn, the outlook for both supply and demand. While movements in energy prices are frequently attributed to supply developments, the importance of supply for broader price movements had been increasingly called into question prior to the pandemic. A long period of lackluster demand growth following the 2008 financial crisis accompanied by muted inflation had taken some emphasis off the role of supply constraints in determining the level of inflation. Just prior to the pandemic, the importance of the relationship between supply and inflation had reached a low point. After decades of viewing the relationship between the unemployment rate and inflation (summarized by the Phillips curve) as a central constraint on how hot the economy could run without sparking inflation, many questioned the continued relevance of this constraint.

Recent developments

Across a variety of energy commodities, developments in both supply and demand have led to rapid price increases. For oil, a reopening economy has pushed up demand, with global oil consumption rapidly returning to pre-pandemic levels, significantly lifting crude prices. Despite higher prices, U.S. oil producers appear wary to ramp up production on the heels of the collapse in prices early in the pandemic. OPEC has also shown restraint, sticking to previously agreed production quotas, even as prices have climbed.

Likewise, we see the interaction of demand and supply dynamics creating price pressures in the broader economy. Fiscal transfers in the United States have supported incomes and spending. This has been particularly true for goods, as the pandemic led consumers to rotate consumption from in-person services toward purchases for their homes. Strong demand has led to a remarkable increase in prices for durable goods, which rose over 7%

Cargo at a shipyard in Long Beach, California. *Photo by Getty Images*

in the previous 12 months following 25 years of consistent price declines.

Supply disruptions have also contributed to the rise in prices. Notably, shortages of semiconductors have constrained output in a number of industries, including automobiles. Snarled global supply chains have pushed up shipping costs and disrupted the production of a wide variety of goods. Supplier delivery times have slowed dramatically, not only for manufacturers but also for service providers, in part as shipping times from Asia to the West Coast have doubled, and transit costs have skyrocketed. The number of ships waiting to unload at Long Beach has become a commonly cited economic indicator. Inventories have been depleted, with the retail inventory-to-sales ratio running 30 percent below its historic average and at all-time lows.

There are also widespread reports that a lack of available labor is curtailing production in many industries, contributing to kinks in the supply chain and pushing up prices. A number of indicators point toward a tight labor market. Reported unfilled job openings are at record levels, while the rate at which workers are quitting their jobs, a typical sign of a tight labor market, is at an all-time high. Wage growth has also accelerated, particularly for lower-income hourly workers.

It is important to note that the tightness in the labor market could prove temporary as a sizable number of people remain out of work relative to before the pandemic. These workers are roughly split between those reporting being unemployed and those who report no longer being in the labor force. Non-college educated women with children represent a large portion of those that have dropped out of the labor force, suggesting that disruptions to childcare remain a barrier to work for many. In particular, daycare capacity appears to have fallen 10 percent relative to pre-pandemic levels. A full recovery of the labor market appears unlikely until childcare normalizes.

Learning from energy markets

With the broad economy running into supply constraints to an extent that we have not witnessed for some time, judging the outlook can be particularly challenging. Looking to the experience of energy markets, where

> “NEWS OF AN ACTUAL OR PERCEIVED SUPPLY SHORTFALL CAN LEAD TO A DESIRE TO INCREASE STOCKPILES, AMPLIFYING THE PRICE INCREASE FROM ANY GIVEN SUPPLY DISRUPTION.”
>
> — Esther George

supply developments have long been an important component of price fluctuations, we see several lessons that may inform today’s experience.

One lesson from the history of oil price movements is that it can be very difficult to disentangle the role of supply versus demand. Prices are determined by the intersection of supply and demand, and the price impact of any particular supply disruption will depend importantly on the underlying strength of demand. The sharp fall in oil prices in 2014 occurred against the backdrop of both a rapid increase in supply associated with the growth of U.S. shale oil production and relatively weak growth in oil demand as the global economy continued its slow recovery from the financial crisis. These two factors interacted to cut the price of WTI in half, from over $100 a barrel to around $50 a barrel, over the second half of 2014.

Another lesson from oil markets is that precautionary motives are an important determinant of current demand and prices. News of an actual or perceived supply shortfall can lead to a desire to increase stockpiles, amplifying the price increase from any given supply disruption. For example, the OPEC shocks of the 1970s led to an increase in demand for oil inventories (and full gas tanks), which then helped maintain higher prices. Similarly, in the broader economy, I am hearing anecdotes of firms responding to today’s supply challenges by over-ordering and accumulating precautionary inventories of the necessary inputs to production, including semiconductors and steel. As firms attempt to shore up their supply chains and move away from a just-in-time production model, the incentive to carry higher inventories could further support prices across a broad variety of goods.

Lessons for monetary policy

This history of energy price movements has informed the conduct of monetary policy. In particular, energy price shocks have played a key role in developing the thinking around how monetary policy should respond to elevated inflation, particularly inflation that appears to arise from supply developments. The oil price shocks in the 1970s, the run up in oil prices in the mid-2000s, and the collapse in prices in 2014 all provide context for how monetary policy should respond to inflation developments with an important supply component. In particular, experience with energy prices has largely formed the basis for arguments that monetary policy should not react to increases in overall inflation driven primarily by supply developments. I would characterize these arguments along two related lines. First, monetary policy should look through temporary increases in inflation. Second, monetary policy should not respond aggressively to increases in inflation resulting from a shift in relative prices.

Along the first dimension, given that it takes some time for changes in the stance of monetary policy to affect inflation, it is often argued that policymakers should look through temporary changes in inflation. It is this argument that led to the creation and widespread usage of measures of core inflation that exclude energy and food prices. Given the frequency of temporary shocks to energy and commodity price inflation that are often attributed to supply, core inflation is likely to offer a better measure of underlying or trend inflation and thus is thought to provide an important guide to monetary policy. This argument was prevalent in 2014 and 2015 when a sharp decline in oil prices pulled down overall inflation, and the Federal Reserve at the time argued that policy should look through this decline on the assumption that the dip was temporary.

Second, there is a large literature suggesting that monetary policy should not respond aggressively to changes in relative prices. The logic is that relative prices serve as important signals that help to reallocate economic resources to sectors that are relatively tight from sectors that have excess slack. Of course, this reallocation could be achieved with offsetting changes in prices, an increase in prices in the tight sectors and a decrease in prices in slack sectors, which, in theory, could leave overall inflation about unchanged. However, in reality, firms in slack sectors have often found that cutting prices, and particularly wages, is difficult. Thus, with incomplete adjustment in slack sectors, relative price changes often end up pushing up overall inflation. Theory suggests it is better for policymakers to accept this increase in inflation, which should be temporary, than to tighten policy and restrict overall activity in an effort to force offsetting price declines in shrinking sectors. This argument was frequently made in the mid-2000s as oil prices rose steadily and lifted overall inflation, due to perceived shifts in supply and demand in the oil sector. Even as higher oil prices contributed to higher overall inflation, it was argued that policymakers should look through this temporary increase in inflation rather than force adjustments on other sectors of the economy.

Outlook for monetary policy

How might these lessons apply today? The timeframe for resolving bottlenecks and the scope of categories reflecting price pressures make the answer to this question less than straightforward.

Disruptions that initially appeared to be temporary bottlenecks driving up prices now look as if they may be more long-lasting, with widespread reports suggesting that supply chains will not recover until well into 2022. Additionally, while in spring 2021 the increase in prices was being driven by select categories of goods and services, more recently the increase in prices has become generalized, and is apparent across a broad swath of the economy.

As supply chains heal and demand eases, there is reason to expect inflation will eventually moderate, but it is also clear that the risk of a prolonged period of elevated inflation has increased. The argument for patience in the face of these inflation pressures has diminished.
In November, the Federal Reserve started the process of normalizing the stance of monetary policy by announcing its intention to end asset purchases. The Committee plans to decrease the pace at which it is purchasing Treasury securities.

It is important to note that while the pace of asset purchases is slowing, the cumulative effect of these purchases is arguably the more substantive force acting on the economy. These asset holdings are depressing longer-term interest rates most relevant for households and businesses and thereby are providing a significant amount of accommodation. And, importantly, this accommodation will persist even when tapering is complete.

As the adjustment of asset purchases gets underway, the focus of attention will naturally shift to the path of the policy rate. Since December 2020, the Committee has stated that it expects to keep the policy rate near zero until the labor market has reached levels consistent with maximum employment and inflation has risen to 2% and is on track to moderately exceed 2% for some time.

Taken together, monetary policy remains highly accommodative in an economy where inflation is elevated and labor markets have yet to fully recover. With both supply and demand factors clearly at play, the choices for policymakers will be complicated as uncertainty remains high for how temporary or persistent these frictions will prove to be.

In most circumstances, the Federal Reserve's dual mandate objectives for maximum employment and stable prices are in alignment, so that the Fed's policy actions support both objectives simultaneously. There are however times when the objectives can appear to be in conflict. And now might be one of those times with inflation running well ahead of its longer-run average and labor markets appearing to have further room to recover. While the current economic alignment certainly adds complexity for policymakers, ending asset purchases is an important first step along the path to policy normalization as we balance our long-run objectives and seek to promote sustainable growth and financial stability.

The preceding text has been adapted from a speech President George delivered Nov. 5, 2021, at "Energy and the Economy: Opportunities and Challenges of the Energy Transition," a conference hosted by the Kansas City and Dallas Feds. Read more about the conference in this issue. Read more about the conference beginning on page 28.

Making a CONNECTION

In founding the Federal Reserve more than a century ago, Congress recognized the importance of connecting the nation's central bank to the Main Streets of America. The Federal Reserve Bank of Kansas City carries out this role through its president and its programs and activities across Colorado, Kansas, western Missouri, Oklahoma, Nebraska, northern New Mexico and Wyoming. Here is a glimpse at the recent activities of President Esther L. George and the staff of the Kansas City Fed.

KANSAS, MISSOURI and BEYOND »

Recognizing sheet metal union apprentices

President Esther George was among the guests for an October banquet in Kansas City, Kansas, celebrating the training advancement of Sheet Metal Workers apprentices. The banquet was hosted by Sheet Metal Workers Local Union #2, an affiliate of the Sheet Metal Workers International Association. Apprentices were recognized for completing a portion of their studies through the union's Journeyman and Apprentice Training Center.

Sheet Metal Workers Local #2 Business Manager Greg Chastain (center) and Financial Secretary Jay Lind presented a lantern to President George. The lantern was made by one of the union's retired instructors.

Speaking to state government officials

In one of her first in-person speaking engagements of 2021, President George traveled to Colorado Springs in September to deliver remarks at the 74th West Annual Meeting of the Council of State Governments. The Council, founded in 1933, is the country's largest nonpartisan organization serving states' elected and appointed officials.

National wheat growers organization meets in Kansas City
President George spoke to members of the National Association of Wheat Growers in November when the organization held its Wheat Industry Fall Conference in Kansas City. The organization, established in 1950, acts as an advocate for policies that support wheat producers across the United States. Also in attendance from the Kansas City Fed were Nathan Kauffman (far left), Omaha branch executive and vice president, and Joseph Gruber (far right), executive vice president and director of research.

Community members attend Bank's fall receptions
Bank leaders engaged with members of the District's business, nonprofit and public sectors at receptions hosted in Kansas City and Omaha. In attendance at the Omaha Branch's reception in October (pictured from left to right): LaVonya Goodwin, executive director of the North 24th Street Business Improvement District; John Bourne, Omaha Branch alumni director and retired international representative for the International Brotherhood of Electrical Workers; Rodrigo López, Omaha Branch alumni director and chairman of AmeriSphere Companies; Mary López, president of AmeriSphere Companies; President George; Anne Hindery, Omaha Branch alumni director and chief executive officer of the Nonprofit Association of the Midlands; and Diane Raley, Kansas City Fed senior vice president.

Examining energy and the broader economy

During the Federal Reserve's sixth annual Energy and the Economy Conference in November, President George's opening keynote remarks addressed prices, supply chain bottlenecks and lessons that the general economy can learn from the energy markets. (Read an adapted version of George's remarks in the President's Message on page 1.) The conference, conducted virtually, was co-hosted by the Federal Reserve Banks of Kansas City and Dallas and featured a wide range of experts on matters related to the energy sector. Topics included the outlook for global oil and gas markets, the impact of technological advancements, and the regional implications of the global energy transition. (This issue's cover story, on page 28, examines the country's energy transition.) The conference included a session on "The Changing U.S. Energy Landscape." Panelists (clockwise from top left): John Berger, founder of Sunnova Energy International; Steve Lockard, chairman of TPI Composites; moderator Chad Wilkerson, Oklahoma City Branch executive and vice president; Vicki Hollub, president and chief executive officer of Occidental Petroleum Corp.; and Javier Fernandez, president and chief executive officer of the Omaha Public Power District and chair of the Omaha Branch Board of Directors.

Sly speaks at economic forum in Pueblo

Denver Branch Executive and Assistant Vice President Nicholas Sly spoke in October to business and community leaders as part of an economic forum hosted by Colorado State University-Pueblo. During the event, Sly shared data and insight on the latest economic trends concerning the region.

Grade-schoolers meet law enforcement team—including K9 officer

Third-grade students from St. Therese Catholic School had a great opportunity to meet members of the Denver Branch Law Enforcement team, including K9 Drago during a November visit to downtown. The team answered a wide variety of questions from the students, and the branch provided economic education resources that can be used in the classroom. Afterward, in a letter to Branch staff, teacher Sue McPeek wrote "We so appreciate the kindness, thoughtfulness and generosity that is always shown to us when we come to visit (even on an "outside only" field trip)."

Visit to farming machinery manufacturer in Grand Island, Nebraska

In November, Omaha Branch Executive Nathan Kauffman and Erin Redemske of the Omaha Branch Public Affairs team, visited the Case IH Plant in Grand Island, Nebraska. The plant produces combines and other equipment used in agriculture.

Economic roundtable in Bernalillo, New Mexico

A group of local government, community and business leaders met in September with Nicholas Sly in Bernalillo, New Mexico. The goal of the roundtable was to hear directly what people in the area are seeing in the economy and what they are expecting over the next several months.

Student Board of Directors program

President Esther George spoke to the Denver and Kansas City Student Boards of Directors in November as the Tenth District program kicked off for 2021-2022. She spoke to the students about her experience as a Reserve Bank president and discussed her career path. The Student Board of Directors program provides opportunities for students to learn about the nation's central bank as well as increase their understanding of economic, financial and occupational topics through collaboration with peers and business leaders.

Laptops donated to Oklahoma City nonprofits

In June Steve Shepelwich, lead community development advisor at the Oklahoma City Branch, facilitated the donation of 170 laptops through the Oklahoma City Laptop Challenge. The laptops will be used by nonprofits like Goodwill and ReMerge to help clients apply for jobs and receive workforce training. (See page 15 for an update on the Kansas City Fed's digital inclusion work.)

Branch directors meet in Tulsa

The Oklahoma City Branch Board of Directors in September held a meeting in Tulsa, where they learned more about the Tulsa Race Massacre and the Greenwood District. Bynum and Oklahoma State Senator Kevin Matthews, who authored legislation that developed the 1921 Tulsa Race Massacre Centennial Commission.

Oklahoma City Branch directors (from left) Susan Chapman Plumb, Brady Sidwell, Katrina Washington, Dana S. Weber, Board Chair Tina Patel, J. Walter Duncan IV and Christopher C. Turner.

Native American initiatives in Nebraska

Omaha Branch Executive Nathan Kauffman met in November with Judi gaiashkibos, executive director of the Nebraska Commission on Indian Affairs, to learn more about Native American initiatives in the state. They were photographed on the Centennial Mall in Lincoln, Nebraska, in front of a new statue honoring Dr. Susan La Flesche Picotte, a member of the Omaha Tribe and the first Native American in the United States to earn a degree to become a medical doctor.

Discussing rural economic development

Lead Community Development Advisor Dell Gines at the Omaha Branch joined a panel of experts in November for a discussion hosted by Rural Rise. The panel discussed supporting diversity and inclusion as a rural economic development strategy.

Kauffman interacts with University of Nebraska business students

As part of Economic Education Month in October, Omaha Branch Executive Nathan Kauffman spoke with College of Business students at the University of Nebraska-Lincoln about his career, the Federal Reserve and the economy. During the event, two students who completed internships with the Kansas City Fed shared insights about the program and their experiences.

American Enterprise Institute hosts economic discussion

The country's economic outlook and the path ahead for monetary policy were among the topics that President George discussed virtually during a September event hosted by the American Enterprise Institute (AEI). In addition to delivering a speech, George participated in a panel discussion with economists Jason Furman of Harvard University, Stephen Cecchetti of Brandeis University and Desmond Lachman of the AEI. Text of George's speech, "The Long Return to Normal," is available at *KansasCityFed.org/documents/8395/2021-George-AEI-09-23.pdf*. A summary of the panel discussion is available in the calendar at *aei.org/events*.

Photo by Getty Images

COVID-19 RESEARCH

Indicators and emerging trends

As the coronavirus pandemic in the United States approaches two full years, read the latest analysis and insight of Reserve Bank economists at ***KansasCityFed.org/research***.

How the pandemic has influenced domestic migration

Before the COVID-19 pandemic, net domestic migration in the United States was generally increasing in smaller urban areas while declining in the largest urban areas. As people sought to mitigate exposure to COVID-19 and avoid stricter lockdown measures, the pandemic might have accelerated this trend. The rate of net domestic migration increased further in small and medium urban areas and declined further in very large urban areas. Moreover, the relationship between net domestic migration and two of its historical driving factors—population density and natural amenities—have diminished only slightly during the pandemic. These findings suggest that although the pandemic has influenced net domestic migration, it has not yet drastically altered migration trends to less-crowded urban areas with higher natural amenities.

—Jason P. Brown and Colton Tousey, November 2021 Economic Review

Fewer workers on the sidelines

When the pandemic-induced recession began, employment quickly plummeted. April and May 2020 produced some of the worst jobs numbers in U.S. and Oklahoma history. But a rapid economic recovery had Oklahoma's headline labor market figures nearly at pre-COVID levels by summer 2021. Moreover, in July, more manufacturers and services firms in the Tenth District reported worker shortages than at any time. Oklahoma's labor force participation rate (LFPR) was 60.6%, only slightly lower than in January 2020, which was 60.8%. This contrasts sharply with the national LFPR, which remained 1.7 percentage points lower than pre-pandemic levels. This means that not only are there considerably fewer unemployed workers in Oklahoma seeking work than in most other states, but there also are fewer people "on the sidelines" who have stopped looking for work.

—Chad Wilkerson and Courtney Shupert, September 2021 Oklahoma Economist

Unemployment insurance accelerates income recovery

Federal supplements to unemployment insurance bolstered income in Nebraska in 2020, and by the end of 2021 personal incomes were poised to be near what might have been expected in the absence of the pandemic. The COVID-19 pandemic severely disrupted labor markets in Nebraska last year, though less than in the nation as a whole. Despite the severe job losses, incomes in the state expanded relative to what might have occurred in the absence of the pandemic, due, in large part, to the federal supplements. Personal incomes in the state appear to be on relatively solid footing alongside further improvement in economic activity and job opportunities.

—Nathan Kauffman and John McCoy, September 2021 Nebraska Economist

Labor market may be closer to full recovery than unemployment rate suggests

By summarizing a wide range of labor market measures, the Kansas City Fed's Labor Market Conditions Indicators (LMCI) provides a consistent gauge of labor market tightness that accounts for other labor market dynamics not directly captured by the official unemployment rate. Adjusting the unemployment rate to incorporate information from the LMCI yields a more robust and timelier indicator of labor market tightness. In addition, the LMCI-implied unemployment rate has shown greater improvement than the official rate since December 2020, implying that the labor market might be closer to pre-pandemic levels than would be judged by the official unemployment rate alone.

—Andrew Glover, José Mustre-del-Río and Emily Pollard, October 2021 Economic Bulletin

Agricultural credit conditions continue to improve

Strength in the U.S. agricultural economy continued to drive improvement in farm income and credit conditions in the second quarter of 2021. Similar to previous quarters, farm loan repayment rates increased at a rapid pace and loan demand remained subdued. Bankers in participating Federal Reserve districts also continued to report further increases in farm income. With support from stronger farm finances and historically low interest rates, farmland values increased at least 10% in nearly all states. The sharp rebound in the U.S. farm economy over the past year has bolstered farm income and credit conditions. Profit opportunities in the cattle industry remained more limited than other major commodities and ongoing drought also has created headwinds for some producers. However, strong support from government aid programs has provided ongoing support and the outlook for farm finances in 2021 has remained strong.

—Nathan Kauffman and Ty Kreitman, August 2021 Ag Finance Update

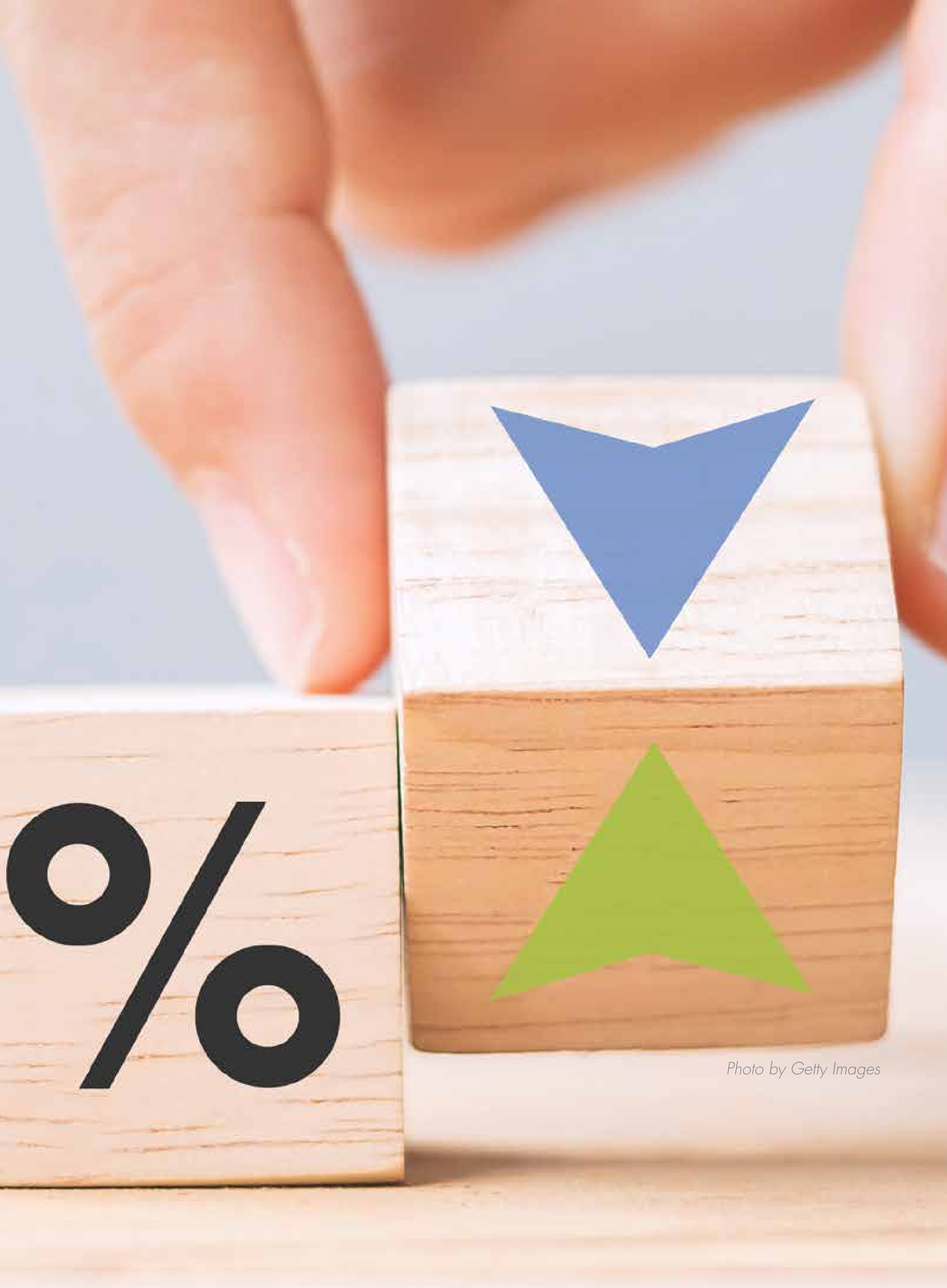


Photo by Getty Images

Notes from around the Tenth District

President Esther George joined Negro Leagues Baseball Museum Board Chairman Kevin Battle to unveil one of the coin designs.

Negro Leagues Baseball Museum reveals commemorative coin designs

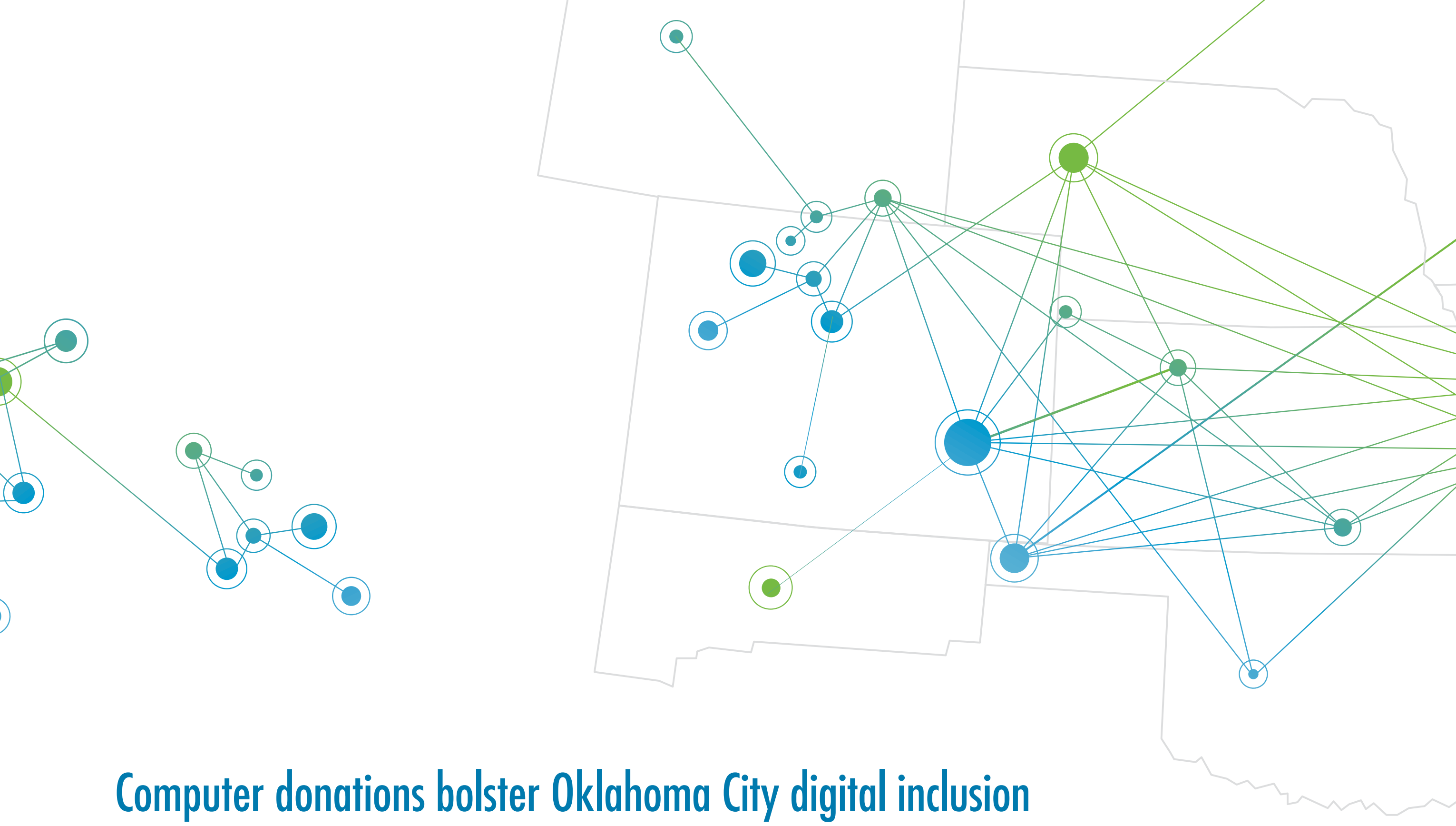
In November, Kansas City Fed President Esther George participated in the unveiling of U.S. Mint designs for the 2022 Negro Leagues Baseball Commemorative Coin Program.

The coin designs were showcased during a ceremony at the museum, in the 18th & Vine District of Kansas City. George joined Missouri U.S. Sen. Roy Blunt, Kansas City Mayor Quinton Lucas, Negro Leagues Baseball Museum President Bob Kendrick, and Museum Board Chairman Kevin Battle. George provided remarks and helped Battle reveal the coin designs.

The Commemorative Coin Program consists of three denominations—a $5 gold coin, a $1 silver coin and a half-dollar clad coin. The coins will be issued in 2022, and the on-sale date will be published on the Mint's product schedule at *catalog.usmint.gov*. Legislation to create the coins was signed into law last year to mark 100 years since the Negro National League was founded in Kansas City. Under the law, the Mint's surcharges on purchases of the coins will be transferred to the museum to help pay for educational and outreach programs and exhibits.

FURTHER RESOURCES

See images of each coin at *USMint.gov/news/image-library/commemoratives*, and learn more about the Negro Leagues Baseball Museum at *NLBM.com*.



Computer donations bolster Oklahoma City digital inclusion

When the Federal Reserve Bank of Kansas City launched the Employer Laptop Challenge in April 2020 as part of its initiative to narrow the digital divide, it became clear that this work would be vital following the onset of the COVID-19 pandemic.

The campaign has generated national attention and resulted in the donation of more than 7,600 devices from a variety of businesses and organizations throughout the seven states of the Tenth District and beyond.

The Kansas City Fed's Oklahoma City Branch wants to expand that capacity and recently coordinated the donation of 100 used laptops from the Bank. The computers were given to Oklahoma City nonprofits, including the Inasmuch Foundation and 501Tech, for refurbishment. Once refurbished, the computers will go to ReMerge, Sunbeam Family Services and Goodwill Industries of Central Oklahoma. Additional donated computers were provided to Crooked Oak High School in Oklahoma City.

"We are thrilled to see this program growing in the way that it is," said Steven Shepelwich, senior community development advisor based in the Oklahoma City Branch. "Just one laptop can make a huge difference in the life of someone struggling with digital inclusion."

The term digital divide refers to the challenges faced by those without access to broadband and web-connected devices. These challenges can range from children unable to connect to the internet to complete homework to adults who have reduced ability to apply for jobs online or take advantage of basic conveniences, such as online bill payment.

The Goodwill organization in the Oklahoma City area was one of the beneficiaries of laptop donations coordinated in June by Steven Shepelwich (left) of the Oklahoma City Branch.

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FURTHER RESOURCES
Learn more about the Employer Laptop Challenge and the Kansas City Fed's digital inclusion work at *KansasCityFed.org/community/digital-divide/*.

Banking forums help women, minorities expand careers, networks

The Federal Reserve Bank of Kansas City in October hosted its annual "Banking and the Economy" forums, reaching a diverse audience across the country. The forums support women and people of color in the financial services industry by providing professional development tools, networking options, and opportunities to increase their awareness of the Federal Reserve's mission and resources.

The series includes two annual forums—"Minorities in Banking" and "Women in Banking"—as well as ongoing webinars. Because of the successful virtual delivery of the forums in 2020, the events continued as virtual sessions in 2021.

"Technology made it easy for us to continue to reach a broader audience and connect with attendees from different regions throughout the country," said Erin Davis, program manager for "Banking and the Economy." "Through both programs, we reached around 1,100 people across 40 states."

The sixth annual "Minorities in Banking" forum was co-hosted by the Federal Reserve Banks of Kansas City and Minneapolis, with the support of the other 10 Reserve Banks and the Board of Governors. Attendance grew by about 100 participants to around 800 for the most recent forum.

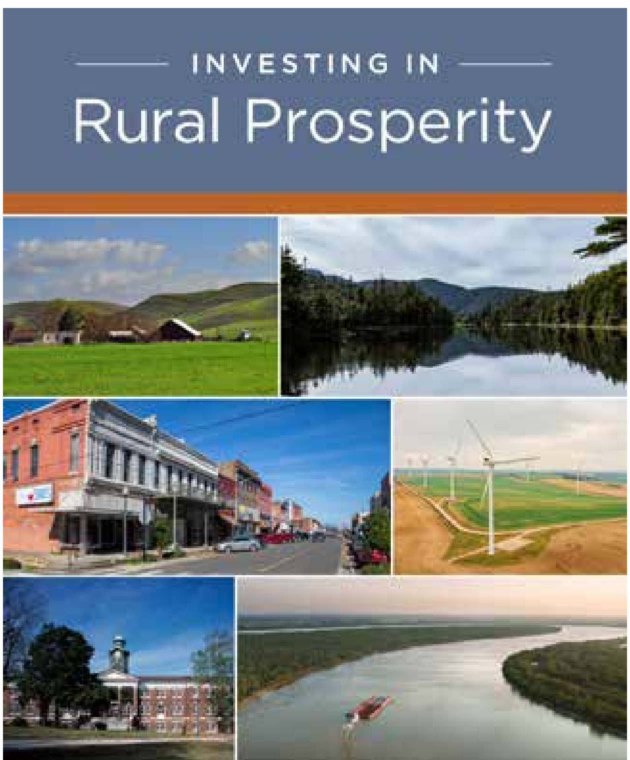
The seventh annual "Women in Banking" forum was hosted from the Kansas City Fed's Denver Branch, in partnership with the Wyoming Bankers Association, Colorado Bankers Association, Independent Bankers of Colorado and the Independent Community Bankers Association of New Mexico. More than 300 individuals from at least 20 states took part in the forum.

The Federal Reserve also continued the webinar series it launched in 2020 to complement the "Banking and the Economy" forums.

"It's critical for us to continue to engage this important audience and provide timely and relevant programming," said Assistant Vice President Chris Constant, who oversees Tenth District stakeholder engagement programs.

FURTHER RESOURCES

Learn more about these forums and get registration details for future programs at *KansasCityFed.org/events*.



New book focuses on steps toward rural prosperity

In November, the Federal Reserve Bank of St. Louis and the Federal Reserve Board published *Investing in Rural Prosperity*, a book that showcases stories of progress in communities and actions that can advance shared economic improvement.

Nearly 80 authors, including Kansas City Fed Community Development Advisor Jeremy Hegle, contributed to the book. Hegle wrote about philanthropy's role in bringing broadband to rural America. The book can be ordered or downloaded for free at *StLouisfed.org/community-development/publications/invest-in-rura*l.

Updated Community Reinvestment Act resources available

The Kansas City Fed recently introduced updates to its Community Development Investment Resource Guide, which helps bankers and others understand and meet community needs under the Community Reinvestment Act (CRA).

The guide, available on the Bank's website, highlights national, multistate, and state-specific resources to assist with CRA programming. It also lists the Community Development Financial Institutions (CDFIs) and Minority Depository Institutions (MDIs) that offer lending in the seven states of the Tenth Federal Reserve District.

The guide includes a search feature that allows users to geographically filter results for CDFIs and MDIs.

The guide is one of the services available within CRA OneSource, a collection of tools, templates, webinars, and other resources aggregated by the Kansas City Fed to assist bankers learning about CRA regulation, preparing for an exam, or growing a CRA program. For the broader community, including community leaders, CRA OneSource offers tools to assist in working with a regulated banking partner.

The CRA was enacted in 1977 and encourages banks to address the credit needs of the communities in which they do business, including low- and moderate-income areas. The Federal Reserve and other regulators evaluate banks' CRA performance and related conditions when evaluating applications for acquisitions, branch openings and mergers.

Another CRA-related program of the Federal Reserve is Investment Connection, launched in 2011 in the Tenth District. It is aimed at connecting community and economic development organizations with the funding community.

FURTHER RESOURCES

The public can learn more about CRA resources and related services at *KansasCityFed.org/community/community-connections*.

Photo by Getty Images

Bank Anniversaries

The following banks in the Tenth Federal Reserve District are celebrating one, five, 10, 20 or more years as Federal Reserve members in January, February or March.

Colorado B&TC of La Junta	La Junta	Co.	98
Lusk State Bank	Lusk	Wyo.	88
Community B&TC	Neosho	Mo.	80
Oklahoma Capital Bank	Tulsa	Okla.	30
Community State Bank	Poteau	Okla.	27
Adams B&TC	Ogallala	Neb.	27
Union State Bank	Arkansas City	Kan.	26
Exchange Bank of Missouri	Fayette	Mo.	26
Missouri Bank II	Sedalia	Mo.	26
Bank of Star Valley	Afton	Wyo.	26
Emerald Bank	Burden	Kan.	24
Exchange B&TC	Perry	Okla.	24
Bank of Wyandotte	Wyandotte	Okla.	24
First Option Bank	Osawatomie	Kan.	23
Town & Country Bank	Ravenna	Neb.	22
Lamar Bank & Trust Co.	Lamar	Mo.	22
First Bank	Antlers	Okla.	21
Bank 7	Oklahoma City	Okla.	20
Butte State Bank	Butte	Neb.	20

A Great Moral and Social Force:

A HISTORY OF BLACK BANKS

New book provides context and analysis of the rise, decline and lasting impact

Joseph Walker (center), the founder and first president of Memphis' Tri-State Bank, visits 386 Beale St. ahead of the bank's 1946 opening at that location. During the Civil Rights era, the bank hosted numerous planning meetings for protests, marches and demonstrations. The building is on the National Register of Historic Places. *Courtesy of University of Memphis Department of Art. Hooks Brothers collection (1946).*

In the Kansas City Fed's newest historical publication, Executive Writer Tim Todd explores the challenges that Black banks in the South and Midwest faced during the late 19th and 20th centuries.

The book—"A Great Moral and Social Force: America's First Black Banks"— serves as a guide to help all Americans think differently about our relationships with banks. The book, available to order for free at *KansasCityFed.org/about-us/a-great-moral-and-social-force*, focuses on the stories of Black banks in five cities: Richmond, Virginia; Boley, Oklahoma;

Chicago, Illinois; Memphis, Tennessee; and Detroit, Michigan. These cities were examples of Black wealth and achievement.

Rather than presenting a comprehensive history of Black banking, the goal of "A Great Moral and Social Force" is to move across eras and examine some of the communities where banks played a dual role in establishing both economic opportunity and social equality.

"Readers will find that the motivation to create many Black banks, regardless of the time period, was rarely a purely financial endeavor or business opportunity," Kansas City Fed President Esther George wrote in the book's foreword. "Instead, many were created with a primary mission of public service. This focus on the community is similar to the motivation behind many of our nation's small and mid-sized banks today."

Community banks were catalysts in helping families and individuals establish businesses, buy homes, and pay for an education that could open the door to opportunity. In their role as pillars of the community, Black banks were involved in some of the most important race relations events in American history.

The publication of "A Great and Moral Social Force" brings a new perspective to the economic history of underrepresented communities, reaffirms the significance of Black economic enclaves, and serves as a blueprint for communities attempting to obtain financial success under challenging circumstances.

Maggie Lena Walker, the first female bank president of any race, is perhaps the most well-known of America's early Black bankers. Visitors to Richmond, Virginia can tour her Jackson Ward home, which has been preserved as a national historic site. *Courtesy of the National Park Service, Maggie L. Walker National Historic Site, MAWA 99-0261 (circa 1910).*

FURTHER RESOURCES
Scan the QR code to order the free book, *A Great Moral and Social Force.*

MORE HISTORICAL PUBLICATIONS
Go to *KansascityFed.org/about-us/historical-publications* for access to several other books produced by the Bank, including *Let Us Put Our Money Together: The Founding of America's First Black Banks and The Balance of Power: The Political Fight for an Independent Central Bank.*

OKLAHOMA CITY HOSTS JOINT BOARD MEETING, FED LISTENS

by VICTORIA ROSENGARTEN

Members of the Federal Reserve Bank of Kansas City's four boards of directors gathered in mid-October in Oklahoma City for a joint meeting that was two years in the making.

The event—bringing together the boards for the bank's Kansas City office, Denver Branch, Oklahoma City Branch and Omaha Branch—was planned for 2020 to mark the Oklahoma City office's centennial but was rescheduled because of the coronavirus pandemic.

Directors assemble, learn about OKC's growth

The joint board gathering included an Oklahoma City session of the "Fed Listens" series, which began in 2019 as a way for the Federal Reserve to directly hear how monetary policy affects peoples' daily lives and livelihoods. The session was at the new First Americans Museum. The facility documents the collective histories of the 39 distinct First American Nations in Oklahoma today, which represent more than 60% of all enrolled Native Americans in the United States.

Under the Federal Reserve Act, each Reserve Bank is guided by a local board of directors, which comprises business and community leaders from the Reserve Bank's region. At the Kansas City Fed's headquarters, directors oversee the Bank's operations and policies, and confer on economic and banking developments. Each of the Bank's three branches also has a board of directors that provides insight on local economic conditions and advises the branch executives.

Each year, directors from all four offices gather in person at a single location. During this event, directors participate in board meetings and learn more about the Tenth District as a whole.

At the October meeting, board members heard from Mick Cornett, former mayor of Oklahoma City.

(Top) President Esther George, Kansas City Fed senior leaders, and members of the Bank's four boards of directors—Kansas City, Denver Branch, Oklahoma City Branch and Omaha Branch—were pictured in October outside the Oklahoma City National Memorial and Museum.

(At right) President George joined Federal Reserve Governor Lael Brainard on stage at the First Americans Museum for a discussion with the Kansas City Fed's directors.

Directors and bank officials toured exhibits inside the Oklahoma City Branch office.

Cornett spoke about the city's decades-long Metropolitan Area Projects (MAPS), a sales tax-funded public improvement effort that helped rejuvenate downtown. Cornett said the effort helped create a "big league" environment, noting that Oklahoma City is home to the Thunder, a National Basketball Association team.

Since 1993, dozens of projects have been completed to increase the quality of life for residents, including renovations to more than 70 schools. Initiatives included a new library, entertainment arena, fairground updates, construction of a riverfront, 70-acre public park and Bricktown Canal. Another MAPS phase is being developed by city officials, with plans to add 16 projects.

EACH YEAR, THE BANK'S DIRECTORS GATHER AT A CENTRAL LOCATION, PARTICIPATE IN BOARD MEETINGS AND LEARN MORE ABOUT THE TENTH DISTRICT AS A WHOLE.

President George with (from left) Kansas City Director Doug Stussi, former Oklahoma City mayor Mick Cornett, Oklahoma City Branch Director Tina Patel and Oklahoma City Branch Executive Chad Wilkerson.

"We created a city where people wanted to live," Cornett said. "We wanted to be healthy, more vibrant … a destination."

Later, the directors toured the Oklahoma City National Memorial and Museum and heard from Cathy Keating, who was the first lady of Oklahoma at the time of the 1995 bombing of the Alfred P. Murrah Federal Building. Keating spoke about the bombing and the aftermath and provided a detailed account of the outpouring of support from Oklahoma citizens and across the country.

Recognizing Native American contributions

A unique opportunity for the joint board gathering was a tour and reception at the First Americans Museum. Construction of the museum started in 2006 and it opened in September. As part of its mission, the museum aims to "educate the broader public about the unique cultures, diversity, history, contributions, and resilience of the First American Nations in Oklahoma today."

During the museum visit, directors attended a "Fed Listens" session titled "Engaging Tribal Leaders on Financial Inclusion and the Economic Challenges of the Pandemic." Through the series, Federal Reserve officials meet with a broad range of individuals, households and communities to hear about their experiences during the recovery from the COVID-19 pandemic.

During the session, seven tribal leaders from across Oklahoma took the stage with Kansas City Fed President Esther George and Federal Reserve Governor Lael Brainard.

"I want to recognize the important economic contributions Native American communities are making, despite daunting impediments that were exacerbated by the COVID-19 pandemic," Brainard said. "Once vaccines began to roll out in early 2021, tribal nations distributed them under a prioritized and phased timeline developed in accordance with Centers for Disease Control and Prevention guidance. This assistance from tribal nations helped make Oklahoma one of the top 10 states for vaccine rollout."

Throughout the session, leaders discussed the economic struggles for native communities. Some challenges were worsened by the pandemic, but many were present before COVID-19. Career readiness, barriers to higher education, lack of financial education, and inadequate access to banking resources and broadband service were some of the obstacles highlighted by the panel.

(Upper photo) Edmond Johnson, Kansas City Board chair, with President George and members of the Native American troupe known as the "Oklahoma Fancy Dancers." (Lower photo) Directors toured the Oklahoma City Branch office, where "Cloud People," a painting by Oklahoma artist Mike Larsen, is displayed. Larsen, who is Chickasaw, has said the painting depicts an Arapaho shaman's protective cloak to memorialize the 1995 Oklahoma City bombing.

"Imagine a community without cell service," Cherokee Nation Principal Chief Chuck Hoskin Jr. said. "It doesn't seem possible today. But it happens in this country, and it happens in Indian Country."

During the event, Brainard said the Federal Reserve Board had joined the Central Bank Network for Indigenous Inclusion, which will foster ongoing dialogue, research and education to raise awareness of economic and financial issues and opportunities.

FURTHER RESOURCES

The full "Fed Listens" session is available on the Kansas City Fed's YouTube page, at *YouTube.com/KansasCityFed*. To learn more about the Kansas City Fed's directors, visit *KansasCityFed.org/about-us/board-of-directors/*.

DIVERSITY IN THE FIELD:

Kansas City Fed hosts first conference of women in Federal Reserve System economic research

by SARAH POPE

An informal lunch meeting a few years ago of women economists in the Tenth District has launched into a bigger initiative, with the potential to inspire economists throughout the Federal Reserve System.

The Kansas City Fed recently hosted its first "Women in System Economic Research Conference," a two-day event designed to bring together economists throughout the Federal Reserve System to build camaraderie and make connections; present papers written by women economists and allow for question-and-answer sessions; and discuss common career path challenges. These same basic tenets provided the original inspiration for those initial lunchtime networking sessions.

"I really appreciate when we can talk about the issues we are facing—not necessarily gender issues—but research issues, work life balance issues, how to advance our research, what are we working on and things along those lines," said Didem Tüzemen, a senior economist at the Federal Reserve Bank of Kansas City and one of the organizers of the event.

It seems that others in economics were clamoring for the same type of interaction. More than 200 participants from throughout the System registered for the conference.

In her opening remarks, Kansas City Fed President Esther George noted that the conference was an important effort related to further expanding diverse gender representation in economics.

"The Federal Reserve System has made progress toward increasing gender diversity among economists in recent years, and we hope that by highlighting the research of women economists and creating opportunities for collaboration and mentorship, the Women in System Economic Research conference is well positioned to further this progress as we attract and retain a more diverse workforce for years to come," she said.

Vaishali Garga, an economist at the Federal Reserve Bank of Boston who presented her paper, "Fiscal Expansions in the Era of Low Real Interest Rates," during the first day of the conference, appreciated being part of it.

Garga said the lack of diversity in economics, particularly gender diversity, is a bigger problem in academia than it is in the Federal Reserve System, where she regularly interacts with women economists and women in senior leadership positions. One of her favorite sessions of the conference was an interactive panel discussion among women in senior positions in economics in the System.

"The panelists were sharing very honest stories, honest struggles—which is not to say that men don't go through the same struggles," she said, noting that one story shared related to whether or not the panelist would take on a new role in her organization and weighing the pros and cons of her options.

<< Kansas City Fed President Esther George noted the importance of "highlighting the research of women economists and creating opportunities for collaboration and mentorship." *Photo by Gary Barber*

"Some of the things they said were good to absorb not just because they are women but because they are in leadership."

The panel discussion helped the organizers achieve one of their goals for the conference: provide women in economics with a supportive group to help them build and grow their careers.

"I think this conference provides another level of support for women economists," said Alison Felix, a senior policy advisor at the Kansas City Fed, and an organizer of the conference. "As a woman economist or as a younger economist it's always nice to learn from women in the organization in more senior positions and what paths they have taken."

One of the panelists, Anna Paulson, executive vice president and director of research at the Federal Reserve Bank of Chicago, shared her advice on how to frame decisions related to career paths.

"Think of your career not just in goals but in terms of experiences," Paulson said. "Do I want to lead a team? Do I want to do research? More experiential things are going to teach you about other paths you want to pursue—and that's important to think about as you evaluate new opportunities as they come your way."

Garga moderated a breakout session for research associates that offered advice on how to be successful in a Ph.D. program. During that session, one economist offered that she would be happy to share her story of having a baby during her fourth year of graduate school.

"No one asked her about it, but the fact she was open to talking about it seemed like something that wouldn't have happened at a regular conference," she said.

Felix noted that the driver behind the breakout and networking sessions was recognizing that the economics profession needs to create avenues for women to build networks to help them get their papers published and share research among a wider audience.

Garga said she was able to gain some exposure, which is important to her as an early-career economist.

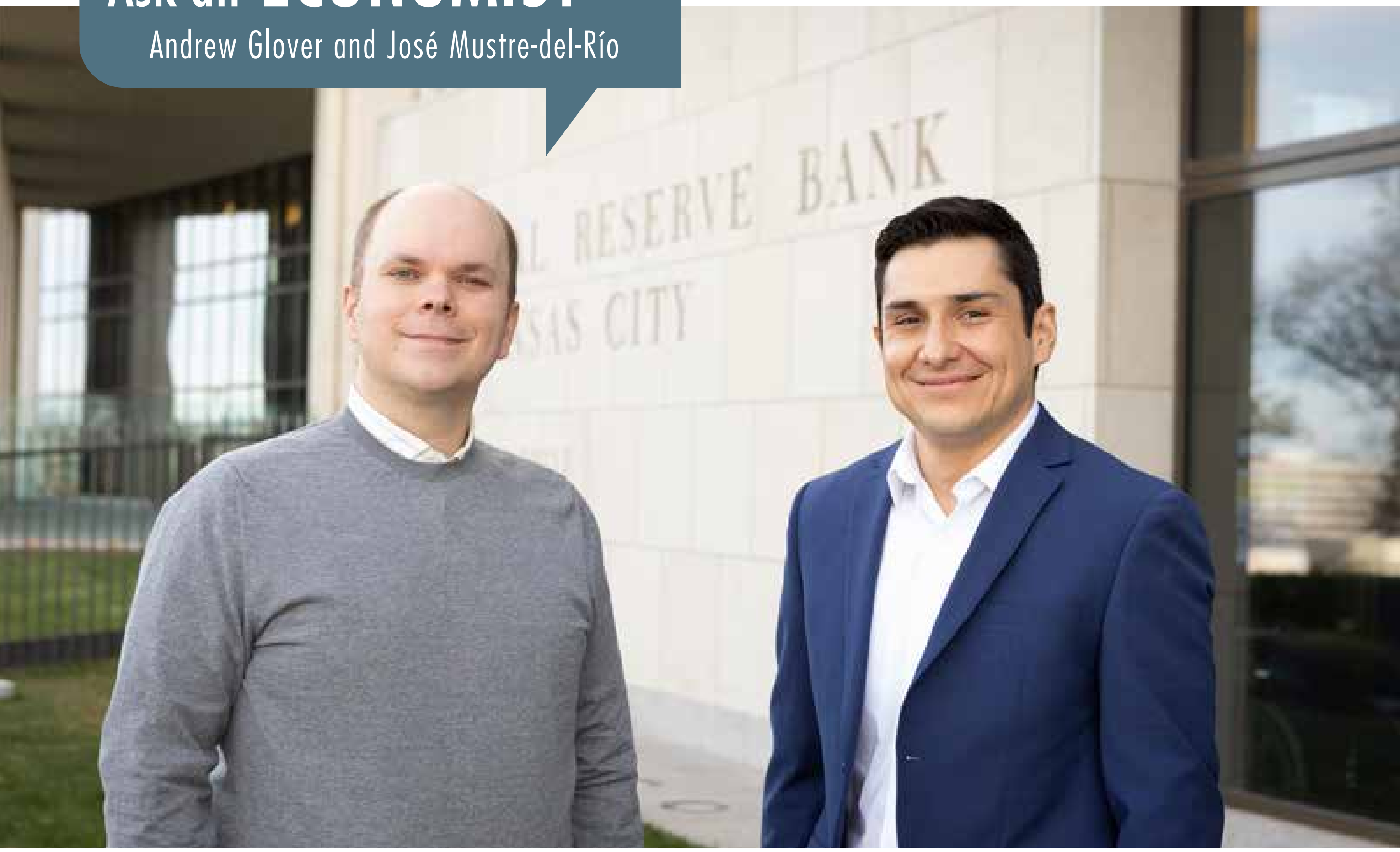
"I thought it was very fruitful time," she said. "I think it was definitely well organized and it was refreshing in that sense in that I genuinely enjoyed and benefitted from all of the sessions."

FURTHER RESOURCES
Learn more about opportunities in economic research at *KansasCityFed.org/careers*.

Senior Policy Advisor Alison Felix (left) and Senior Economist Didem Tüzemen are part of the Kansas City Fed's Economic Research team. They were the lead organizers of the conference. *Photos by Gary Barber*

Ask an ECONOMIST

Andrew Glover and José Mustre-del-Río



Andrew Glover (left) and José Mustre-del-Río. *Photo by Gary Barber*

What happens when the minimum wage rises? It depends on monetary policy

In January 2021, congressional legislation was proposed to increase the national minimum wage from \$7.25 per hour—where it had stood for more than 10 years—to \$15 per hour. At the time, the federal funds rate—the target interest rate at which banks borrow and lend to each other overnight—had been near zero since March 2020, when the Federal Open Market Committee (FOMC) sharply cut the rate in response to the COVID-19 shock.

Senior Economist Andrew Glover and Research and Policy Officer José Mustre-del-Río examined how monetary policy might amplify or dampen the response of employment and inflation to an increase in the minimum wage. Their September 2021 *Economic Review* article is available at *KansasCityFed.org/research.*

Why is it important to understand the relationship between monetary policy decisions and minimum wage changes?

Real interest rates are a key determinant of household spending, and these depend on nominal interest rates and inflation. If a minimum wage increase leads to a rise in aggregate prices, and the Federal Reserve raises nominal interest rates more than one-for-one with increases in inflation, then the real interest rate effectively rises in response to an increase in the minimum wage. Because higher real interest rates make saving more attractive than spending, aggregate demand might fall. Thus, the minimum wage increase might ultimately have a negative effect on employment and spending. However, if the central bank instead keeps nominal rates constant, or raises them less than one-for-one with increases in inflation, then the real interest rate will decline and spending will become more attractive than saving, which can boost aggregate demand. In this case, the minimum wage could have a positive effect on employment and spending.

How might low-wage and high-wage workers be affected?

According to our quantitative analysis, low-wage workers benefit regardless of the central bank's actions, but for different reasons. If the central bank keeps rates fixed, they benefit both from a higher hourly rate, but also because of greater demand for their labor due to higher demand for the goods and services they produce. If the central bank raises rates to bring down inflation, then low-wage workers only benefit from a higher hourly wage rate as demand for their labor falls. In contrast, high-wage workers only benefit from a higher minimum wage when the central bank keeps rates fixed. They only benefit from higher demand (brought by the fixed nominal rate) as their hourly wage rate does not change.

What are some of your conclusions from the study?

In our analysis, an increase in the minimum wage is more expansionary when the central bank has a higher tolerance for inflation.

Indeed, even though only a modest fraction of workers actually earns the minimum wage, our quantitative analysis reveals a mechanism by which a minimum wage increase actually could lead to increased output, provided that inflation is allowed to rise.

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FURTHER RESOURCES
The full *Economic Review* article and other Kansas City Fed publications are available at *KansasCityFed.org/research.*

ENERGY:

A KEY SECTOR IN A PIVOTAL TRANSITION

by SU BACON

Changes in the coal mining industry have led Ray Woods from the depths of shoveling coal to the heights of installing solar panels.

In 2009, when Woods saw mines closing and miners losing jobs, he left Kentucky for Indiana where he enrolled in college to "find out what I wanted to do." For a speech class assignment, Woods, 50, chose "solar" from a list of topics. At the time, he said the topic "was unheard of to me."

After giving the speech, "I couldn't stop reading about solar," Woods said.

Woods' vision proved prophetic. The coal mine he left filed for bankruptcy two years later and now he is part owner of The Solar Guys in Cheyenne, Wyoming. The company sells and installs solar panels.

For Woods and others, including utilities, investors, businesses and government, now is a time of transition to renewable resources from traditional fuels.

Understanding that transition was one of the reasons for the "Energy and the Economy" conference, a six-year partnership between the Federal Reserve Banks of Kansas City and Dallas, according to Chad Wilkerson, vice president, economist and Oklahoma City Branch executive of the Kansas City Fed. The 2021 conference occurred virtually Nov. 5.

"The Kansas City and Dallas Feds teamed up to host this conference following the drop in oil prices of 2014-15 that led to a massive restructuring of the oil and gas industry that has really continued to this day," he said. "At the same time, interest in moving the electricity grid toward greater reliance on wind and solar energy and away from coal was well underway."

Mine Yücel, senior research advisor, Federal Reserve Bank of Dallas

Mine Yücel, senior research advisor for the Dallas Fed, said one goal was to bring together leading experts in energy to help the Banks and the broader public understand the evolution of the industry.

"Since we began hosting the conference, renewable energy has also grown tremendously, and understanding this transition has been an increasing focus of our conference."

(Left) Bannon Powell, left, and Ethan Hillyer, right, with The Solar Guys, install solar panels at a job site near Cheyenne, Wyoming. *Photo by Matthew Idler Photography*

(Right) Ray Woods, Operations Manager at The Solar Guys, stands next to a solar panel project the company installed near Cheyenne, Wyoming. *Photos by Matthew Idler Photography*

Fostering the transition

Private investors, government programs and incentives, nonprofits, and foundations all have a part in fostering the transition. Much will depend upon collaborations and shared resources.

A public-private partnership in the western Denver area, for example, is turning undeveloped land in the city into a renewable energy industrial park. The state of Colorado, Jefferson County and the federal government are building a Global Energy Park for renewable energy companies.

Federal Reserve Senior Economics Specialist David Rodziewicz in the Kansas City Fed's Denver Branch and the Dallas Fed's Keith Phillips, an assistant vice president and senior economist in the Dallas Fed's San Antonio Branch, have studied the effect of the energy transition on their regional economies.

The Rocky Mountain region and the Tenth District have attracted large shares of investment in renewable technologies in recent years. As renewable energy investments have grown over the last five years, the Rocky Mountain States—Colorado, Wyoming and New Mexico—and other states in the Tenth District now surpass the U.S. average for renewable energy capacity, Rodziewicz said.

In Texas, total electricity generation from wind and other renewable sources has risen during the past 10 years from 8% to 25%, Phillips noted.

Renewable power, however, "is not a substitute for oil, natural gas or natural gas liquids in industries such as petrochemical and plastics production," he said.

Jonathan Arnold is the developer of the Second and Delaware apartment building near Kansas City's River Market district. The building has been certified as the world's largest passive solar house.
Photo by Gary Barber

The oil and gas sectors have historically played an important role in both the Southwest and the Rocky Mountain region but are now sharing the stage with renewables, both Rodziewicz and Phillips observed.

"The overall energy sector has begun to diversify—incorporating wind, solar and other technologies into electricity production," Rodziewicz said.

Because demand for power continues even when the sun isn't shining and the wind isn't blowing, "a significant share of capacity must remain in other sources such as natural gas," Phillips said.

Rodziewicz and Phillips conclude that the transition will be gradual and will change regional economies, but the regions are prepared to adapt to the changes and will emerge stronger.

TRANSITIONING FROM COAL

by SU BACON

For decades, coal has been the primary fuel used to generate electricity in the United States. But, a number of factors, ranging from regulatory changes to lower costs for alternative sources, is changing the energy landscape.

Amid increasing interest in clean energy, coal-fired power plants are closing and jobs in coal mining have been declining, according to the Energy Information Administration. In contrast, jobs for installers of solar photovoltaic systems rank in the top 10 of the fastest-growing occupations tracked by the U.S. Bureau of Labor Statistics.

Demand is so great, that Justin Rippeto, 36, of North Kansas City, Missouri, was hired on the spot in 2020 because he mentioned being enrolled in a solar photovoltaic class. Rippeto is now working full time and taking classes at night and the company he works for has installations scheduled six months out.

"Solar sells itself," he said.

Roger Claypool, who teaches solar photovoltaic courses at Metropolitan Community College in Kansas City, Missouri, said the solar industry 15 years ago was fueled by commercial customers. Today, solar heating systems have become increasingly economical for consumers.

"Fifteen years ago, I bought a 100-watt panel the size of a big picnic table for $800," Claypool said. "Today, you can find the same panel on sale for $100."

As renewable energy becomes more affordable and available, companies also are making the transition.

Among them is Enel Green Power, part of Enel North America. The company, founded as an energy utility in 1962 in Italy, has locations worldwide. In 2008, Enel Green Power was formed to produce and manage energy from renewable sources.

In the Tenth District alone, Marcus Krembs, head of sustainability for Enel North America, said Enel Green Power has invested more than $7 billion in developing and managing energy generation from renewable sources: wind, solar, hydroelectric, geothermal and biomass sources.

One of those investments is the Smoky Hill Wind Farm on 20,000 acres in central Kansas, west of Salina. The wind farm's 155 turbines have an installed capacity of 250 megawatts.

"That's enough electricity to meet the needs of 85,000 households annually," said Kyle Pearcy, site supervisor.

The land is leased from more than 100 landowners whose cattle graze and crops grow beneath the shadow of the 300-foot-high wind turbines.

"Less than two percent of the land is removed from agricultural service," Krembs said.

Not all of Enel's investment is in equipment. Academic partnerships help prepare students for careers in renewables. For example, Enel sponsors a drone pilot training program at Kansas State University in Manhattan. Participants learn how to fly drones over a wind farm to inspect the turbines and detect any needed repairs or maintenance.

At Texas State Technical College in Waco, Enel is supporting a retraining program for oil and gas field workers who want to shift into a new sector such as wind, solar or battery, Krembs said.

Enel is preparing the workforce it wants to hire. By the end of 2022, Enel North America plans to add nearly 600 positions—mostly wind and solar technicians and power plant operators.

CITIES MAKING CHANGES

by SU BACON

Municipalities such as San Antonio, Texas, and Kansas City, Missouri, also have begun transitioning to cleaner forms of energy.

In its Climate Protection and Resiliency Plan of 2020, the City of Kansas City has set a goal to be carbon-neutral by 2040. Toward those goals, all city buildings in the Northland region are now powered by wind-generated electricity.

Using wind power for Northland fire and police stations, the water treatment plant and the airport saved the city $800,000 from January through June 2021, said Andy Savastino, the city's chief environmental officer.

The city plans for its buildings in south Kansas City to be wind-powered by 2022.

Other efforts to reduce carbon emissions include phasing in electric vehicles. Currently, nine of the city buses at Kansas City International Airport are electric vehicles. Also at KCI, the city is considering a large solar farm on 2,000 acres that would generate up to 300 megawatts of electricity.

"Going forward, new fleet purchases will be electric vehicles," Savastino said.

Solar is so important in San Antonio that the city has been ranked by Environment America, a federation of environmental advocacy organizations, as first in Texas and fifth in the nation in 2020 with the most locally installed solar photovoltaic systems.

Sunny skies and a variety of financial incentives encourage residents and businesses to install and use solar energy.

"The goal of our climate plan is to make San Antonio carbon neutral and increase carbon-free energy, such as solar by 2040," said Doug Melnick, the city's chief sustainability officer.

One issue the sun can't solve, however, is the carbon-intensive nature of the city's transportation sector.

"San Antonio has more than 500 square miles built around the automobile," Melnick said.

To rein in the sprawl, the city has identified 12 regional centers and is directing as much growth as possible into those areas. Increasing the areas' density will bring schools, restaurants, businesses and offices closer to residents and decrease dependence on cars. Sidewalks and bike lanes will help encourage foot traffic.

For the Rocky Mountain region, Rodziewicz observes that "the region and surrounding states are maintaining prominence as energy-intensive locations even as the sector diversifies."

For the long-term outlook in Texas, Phillips' research suggests that "the relative strength of the Texas economy could persist in coming decades" even if the oil and gas sector declines due to the transition.

Transition options

Whether the transition is smooth or bumpy depends on many factors, including policies, legislation and regulations that determine whether a county, city or homeowners' association is receptive or resistant to change.

Public opinion also is influential, and subject to change. For example, will communities support new wind farms, or will protestors show up at a proposed site? Until 2017, wind farms in Kansas were exempt from property taxes. The exemption now is capped for new wind farms at 10 years.

Still, for many, questions remain. For example, are solar collectors unsightly?

Ask Janice Mason of Cheyenne, Wyoming. Solar panels on her house have lowered her monthly electric bill from $125 to $14.

"I'm a green person and I love the savings," she said.

What about a nuclear reactor?

"There would need to be a big change in policy with nuclear energy before it would be a feasible alternative," said Jerry Hudgins, interim director of the Nebraska Center for Energy Sciences Research in Lincoln.

Hudgins conducts research on renewable energy and other projects at the center, a collaboration between the University of Nebraska-Lincoln and the Nebraska Public Power District.

Nuclear could generate energy on a large scale but the permitting process, environmental studies and the lack of federal support currently stall research on—and the use of—nuclear energy, Hudgins said.

Moore's study used electric vehicles at a 10% market share of new vehicles sold in 2025. She analyzed the number of jobs created at both the national and state level when factories are built or retrofitted to build electric vehicles or charging stations.

"All EV programs would add 513,000 jobs over the next five years," Moore said.

To make this scenario a reality, she recommends reforming regulations, revising or creating tax incentives, using government investment and other federal financial support. And, state funding support is necessary as well.

More energy-efficient buildings like the Second and Delaware apartments in Kansas City, Mo., are being built using new construction techniques and technology to change their energy blueprint. *Photo by Gary Barber*

Looking for changes

Economists and others have looked at current policies, programs, ordinances and other regulations and analyzed how they could be adapted or created to encourage clean energy.

Alice Moore, an economist at Keybridge LLC, an economic and public policy consulting firm in Washington, D.C., and a panelist in the "Energy and the Economy" conference, has analyzed how current national programs and policies could be used to encourage production of electric vehicles and placement of charging stations.

Moore cited Ford Motor Co.'s announcement in late September that it plans to build a large electric truck factory in Tennessee as the result of financial incentives offered by the state. Ford said it will spend $5.6 billion to build an auto manufacturing campus in Stanton, Tennessee, and create about 6,000 new jobs.

But before funding is secured and plants are built, however, motorists must want to buy electric vehicles.

To influence the purchasing decisions of motorists, Moore recommends changing the incentive used to help offset the price of a light-duty electric vehicle from a tax credit to a direct rebate.

> "ALL EV PROGRAMS WOULD ADD 513,000 JOBS OVER THE NEXT FIVE YEARS."
>
> — Alice Moore, Economist, Keybridge LLC

Making a list

When it comes to ideas about how to encourage energy efficiency, Jonathan Arnold has a three-page list. Arnold developed Second and Delaware, a 276-unit apartment building in Kansas City, Missouri, that has been certified as the world's largest passive solar house by the Passive House Institute U.S. Inc.

Second and Delaware, which opened in December 2020 and has a waiting list, was built with 16-inch-thick concrete walls with foam insulation, triple-glazed windows and rooftop solar panels.

"Annual energy usage is 75 to 92 percent more efficient than other multifamily buildings," Arnold said.

He said more buildings with such energy efficiency would be built if federal policies were changed to support long-lasting, low-carbon, affordable housing. He added that incentives should be offered to build structures with concrete or heavy timber, with passive solar certification and mixed-income occupancy.

Federal programs that could be modified to encourage passive solar, energy-efficient buildings are handled by the Department of Housing and Urban Development, the Internal Revenue Service and the Historic Tax Credit Program.

"Some changes require legislation, but some could be handled administratively," Arnold said.

Some of this already is being done by the state of Nebraska.

The Dollar and Energy Saving Loan program helps Nebraska residents, businesses, school districts and municipalities make their houses and buildings more energy efficient. The program provides low-cost financing for energy-efficient equipment and projects.

"These energy loans can be used for a multitude of energy-related projects such as replacing inefficient lighting, installing energy-efficient heating and cooling systems," said Emily Case, public information officer for the Nebraska Department of Environment and Energy.

In 2021, the program helped finance $9.43 million in 327 projects to improve energy efficiency.

During that year, "the program is estimated to have saved 57,458 kilowatt-hours of electricity and reduced carbon emissions by almost 6,710 tons," Case said.

Wilkerson said in the big picture, it makes sense to partner with the Dallas Fed to host the "Energy and the Economy" conference, and the collaboration between Banks has been beneficial.

"Our economists have worked together in the past, and both Banks have strong interest in how the energy sector is evolving," Wilkerson said. "Over half of the oil and gas activity in the country occurs in our two Districts, an even higher share of energy companies are headquartered here, and our two Districts also have among the highest potential for renewable energy—in terms of solar and wind—of any Federal Reserve District."

FURTHER RESOURCES
Scan the QR code for presentations and other material from the 2021 Energy and the Economy conference.

kcFED SOCIAL SEEN

Social media highlights across the region

1 **NEELIMA PARASKER** *Kansas City Fed Community Development Advisory Council* – It's quite impressive to see how the FRB's community development team does phenomenal work supporting local communities in #Kansas, #Missouri, #Omaha, #Colorado and #Oklahoma.

2 **KSU STUDENT FINANCE ASSOCIATION** SFA and MBSA joined forces to host Drake K. Hall from the KC Fed via zoom. Drake spoke about the importance of Diversity and Inclusion in the workplace, especially at the KC Fed. Thank you to Drake for giving time and sharing knowledge with both SFA and MBSA members!

3 **WHITNEY RANDALL** @Mrs_WRandall Working Outside☑ @MyStellaNova coffee☑ Registered for the @KansasCityFed Women In Banking☑ AMAZING #FridayVibes

4 **KANSASCITYFED** Smiles like these always brighten our day at the #MoneyMuseum. @Minnesota.Fun.Mom #KCFed

5 **DAVID RODZIEWICZ** *Kansas City Fed Senior Economics Specialist* – I had a great time talking electric vehicles, grid modernization, and carbon capture on the energy technology panel for the 6th annual Federal Reserve Energy Conference.

6 **KCUR @KCUR** The pandemic left its mark on the country and the state of Missouri, but new moves from the Federal Reserve look to help the economy bounce back. Hear the latest from the @KansasCityFed president on @KCURUpToDate

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What has driven the recent INCREASE IN RETIREMENTS?

by STAN AUSTIN

The coronavirus pandemic has led to uncertainty on many levels for American workers. As COVID-19 took hold, there were heavy job losses across the United States, particularly in sectors involving in-person work. Meanwhile, employers have seen senior employees—partly driven by safety concerns—enter retirement or begin to look at that option more seriously.

For example, the Pew Research Center reported that as of the third quarter of 2021, 50.3% of surveyed U.S. adults 55 or older said they were out of the labor force because of retirement. In the third quarter of 2019—before the pandemic—48.1% of those adults were retired.

Indeed, an analysis of U.S. Census Bureau data by the Federal Reserve Bank of Kansas City shows that since the pandemic began, there has been an overall increase in the number of retired workers as a share of the population. However, the main driver for that increase surprised even the researchers.

Senior Economist Jun Nie and Data Engineer Shu-Kuei X. Yang found that the rise in the retirement share has resulted not from a higher number of employed persons transitioning into retirement but from a decline in the number of retirees rejoining the labor force. With fewer retirees deciding to resume working, the retirement share remains higher than before the pandemic.

Further, based on comparisons with retirement flows in previous years, the researchers concluded that pandemic-related health concerns play a key role in retirees' decisions to delay returning to work. The findings were published in an August 2021 *Economic Bulletin* available at *KansasCityFed.org/research*.

"The employment-to-retirement rate—which is what people might normally think about—didn't change much during the pandemic," Nie said. "It's more about fewer people coming back into the workforce from retirement. That's what the data shows. I was not expecting this. Of course, we see that the pandemic can influence decisions to retire but also the decision to come back."

Inside the trend

For many reasons, retirement trends and data on older workers bear watching for policymakers and

researchers. For example, a Bureau of Labor Statistics projection covering 2014 to 2024 estimates that, compared with a 5% increase in the growth rate for the labor force as a whole, the growth rate for the group ages 65 to 74 is expected to be about 55%, and the labor force growth rate of the group 75 and older is expected to be about 86%.

For its analysis of retirement flows, the Kansas City Fed examined data from the Census Bureau's Current Population Survey (CPS). The study showed that the overall retirement share rose 1.3 percentage points from February 2020 to June 2021, with the majority of that increase occurring in the first few months of the pandemic.

This increase substantially outpaced the share's 0.3-percentage-point average annual increase from 2010 to 2020. The analysis shows that if the retirement share had risen at its 2010-20 pace, the number of retirees would have increased by 1.5 million during the pandemic. Instead, the number of retirees increased by 3.6 million, according to the CPS.

Meanwhile, the rate of movement from employment to retirement has not accelerated during the pandemic, staying around 0.6%, meaning that about 0.6% of employed people retire every month.

Why it might not last

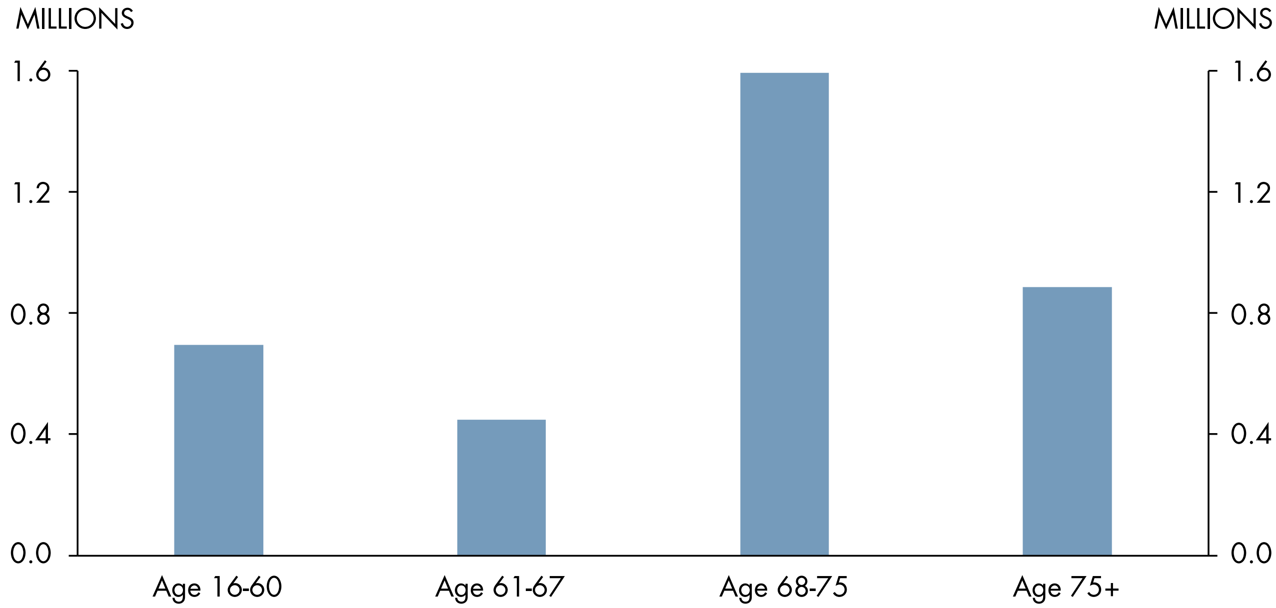
Nie said the decline in the percentage of retirees rejoining the labor force could be temporary for two main reasons.

First, a look back to the Great Recession—2007 through 2009 especially—shows that the retirement-to-employment transition rate did not plummet during that period of economic instability. This suggests that the current decline is unique to the coronavirus pandemic and indicates that some retirees who might otherwise have rejoined the workforce likely have postponed these plans rather than encounter the risk of being infected at work.

Some private-sector surveys have indicated similar concerns. According to a 2021 survey by financial services firm Allianz Life, more than two-thirds of respondents said they retired earlier than expected, a

photo by Getty Images

Many retirees are young enough to return to work



Sources: U.S. Census Bureau and authors' calculations

notable increase from about 50% in the previous year. Of those who retired for reasons beyond their control, 33% noted health-related reasons, up from 25% in the 2020 version of the survey.

Nie noted that coronavirus vaccinations were not widely available in 2020, so as vaccinations continue to increase and health risks decline, more retirees are likely to eventually return to employment.

"So the implication is that when the pandemic is over, we can expect to see more these people come back into the labor force," Nie said.

Secondly, the recent increases in the retirement share include people across a wide range of ages—from those younger than 60 to individuals up to 75. That suggests that many of the retired persons who postponed plans to rejoin the workforce will be young enough to do so—should they choose—whenever the pandemic abates.

Reversing retirement

If those scenarios eventually played out—with more retirees rejoining the labor force—they would resemble trends documented before 2020.

According to Rand Corporation research before the pandemic, 40% of workers 65 or older had retired at least once. And a 2016 Federal Reserve Board study found that one-third of retired men eventually "reversed retirement" and returned to work.

More recently, the job-search firm Resume Builder reported that 34% of surveyed retirees said they have considered going back to work because of job opportunities available in sectors facing labor shortages. In the survey, published in October 2021, 20% of retirees said previous employers facing the labor crunch had asked them to return to work.

Even so, changes in retirement-to-employment trends are not expected to happen abruptly. As Nie wrote in the *Economic Bulletin*, "the retirement share might not return to its previous trend for some time."

"Even if monthly transitions from retirement to employment return to their average pace in 2018-19, it will take more than two years to fully unwind the recent increase in the retirement share," Nie said.

FURTHER RESOURCES
Read the full *Economic Bulletin* and other recent studies at *KansasCityFed.org/research*.

SNAPSHOTS

Summaries of reports and analysis from Kansas City Fed economists and staff

'Buy now, pay later'

by JULIAN ALCAZAR and TERRI BRADFORD

The number of "BNPL" providers is increasing, and it appears that their offerings are being readily accepted. However, potential risks might not yet be well-understood.

Payments System Research Briefing, November 2021

Digital payments exclusion and prepaid cards

by YING LEI TOH

Although prepaid cards have the potential to help address digital payments exclusion, their use among unbanked households remains low.

Economic Review, October 2021

Monetary policy: The order of operations matters

by KARLYE DILTS STEDMAN AND CHAITRI GULATI

Lessons from 2015-19 indicate that normalizing the Federal Reserve's balance sheet before raising the federal funds rate might forestall yield curve inversion and, in turn, support economic stability.

Economic Bulletin, October 2021

How did U.S. tariff hikes influence household spending?

by JUN NIE, ALICE VON ENDE-BECKER and SHU-KUEI X. YANG

Young, Black and Hispanic households used higher shares of their total spending on goods affected by increased tariffs in 2018-19.

Economic Review, September 2021

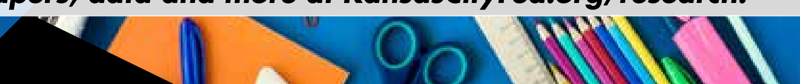
Free Pre-K access and the maternal labor supply

by ELIAS ILIN, SAMANTHA SHAMPINE and ELLIE TERRY

Access to free pre-kindergarten programs increases the labor force participation of prime-working-age mothers by 2.3 percentage points.

Research Working Paper, November 2021

See full reports, papers, data and more at KansasCityFed.org/research.



Tenth District *by the numbers*

ECONOMIC INDICATORS, FACTS AND TRENDS FROM THE SEVEN STATES

36.7

The median age in metropolitan Denver, where 22.5% of the population is in the 30-44 age group.

Source: Colorado Division of Local Government

672

Average credit score for Oklahomans in 2020, fourth-lowest in the country.

Source: Experian

114%

Kansas City's projected growth in freight handling over the next 20 years, from 932,000 Twenty-foot Equivalent Units (TEUs) to 1.99 million.

Source: Port Authority of Kansas City

3rd

The ranking Overland Park, Kansas, received in a 2021 survey of "Best Places to live in America."

Source: Livability.com

MORE ECONOMIC DATA
The Bank regularly publishes data about regional and national economic conditions at *KansasCityFed.org/research/indicatorsdata.*

55,000

Attendees that Gillette, Wyoming—population 31,000—is preparing to host for an international camping festival in 2024.

Source: International Pathfinders Camporee

$5.5 million

Grant money pledged in September 2021 to Native American Recovery Fund projects in New Mexico.

Source: New Mexico Foundation

80,000

Total miles of rivers and streams within the state of Nebraska.

Source: Nebraska Department of Agriculture

FROM THE VAULT

Kansas City Fed History

From March 2003: The winning Fed Challenge team from Northwest High School in Omaha.

Teens portrayed central bankers

In 1994, the New York Fed launched "Fed Challenge" to help high school students learn about finance and the nation's economy by playing the roles of monetary policymakers.

Nine years later, the KC Fed's Omaha Branch signed up, starting with area high school teams and expanding statewide. Over time, the bank's head office and the Denver and Oklahoma City branches conducted Fed Challenge competitions, workshops and related activities.

The Federal Reserve established Fed Challenge with the Academy of Finance, a national network of education, business and community leaders promoting college readiness and careers in finance, technology and other fields. Students competed for scholarships and grants and could earn college credit.

In 2006 before the Senate Banking Committee, then-Fed Chair Ben Bernanke called the program "a great success." The program evolved into the "College Fed Challenge."

Today leadership development opportunities for high school students are provided through the Tenth District's Student Board of Directors program. Get detailed information and related initiatives at *KansasCityFed.org/education/student-board-of-directors/.*

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CHANGE SERVICE REQUESTED