

# Go Figure with **FRED**<sup>®</sup>

*The St. Louis Fed's signature economic database*



FEDERAL RESERVE BANK *of* ST. LOUIS

CENTRAL TO AMERICA'S ECONOMY<sup>®</sup>



**ECONOMIC DATA | ST. LOUIS FED**

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**ARCHIVAL ECONOMIC DATA | ST. LOUIS FED**



**GEOGRAPHICAL ECONOMIC DATA | ST. LOUIS FED**



**FORECASTING GAME | ST. LOUIS FED**



**DISCOVER ECONOMIC HISTORY | ST. LOUIS FED**

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FEDERAL RESERVE BANK *of* ST. LOUIS  
CENTRAL TO AMERICA'S ECONOMY\*

ANNUAL REPORT | 2018

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PUBLISHED APRIL 15, 2019

Our financial statements are available online. To read them, go to the website for the annual report, [stlouisfed.org/annual-report/2018](http://stlouisfed.org/annual-report/2018), and click on Financial Statements in the navigation bar.

# Gateway to the World's Economic Data

In my global travels as a monetary policymaker, people frequently tell me that the main way they know the St. Louis Fed is through FRED (Federal Reserve Economic Data)—the Bank's signature economic database. FRED's popularity has grown from a modest 620 pioneering users when it was introduced in 1991 to 5.9 million users worldwide in 2018.

At the St. Louis Fed, we are leaders in providing the public better access to economic and financial data—which complements our efforts to improve economic education for all.<sup>1</sup> Having access to data enables people and businesses to make wiser economic decisions, leading to better outcomes for the economy overall.

Fulfilling this public mission is at the core of why our Research division created and maintains FRED and other online data services that the public can access for free.

## A One-Stop Shop

While a myriad of free data sources exists, extracting the data from many different databases can be cumbersome. FRED—which is an aggregator rather than a producer of data—serves as a one-stop shop where users can get all housed data in a consistent format and compare series more easily.

As of the end of 2018, our FRED database contained more than 520,000 regional, national and international data series from 87 different primary sources, such as the U.S. Bureau of Labor Statistics, the U.S. Bureau of Economic Analysis, the Organization for Economic Cooperation and Development, and the International Monetary Fund. With ready access to this wide range of series and sources in one place, users can get a good picture of both U.S. and global economic data.

In addition, the data series we add to FRED are based on the most used, most requested and most credible data sources—all so that users can maintain confidence in the data found in FRED.

FRED is oriented toward everyday users as well as occasional users of economic data, including students, teachers, financial market professionals, journalists, researchers and other interested individuals. (See what some of these users had to say in the article “FRED's Got Friends” in this annual report.)

## The St. Louis Fed Tradition

FRED is a continuation of the St. Louis Fed's tradition of being a leader in the dissemination of macroeconomic data, which started several decades ago with Homer Jones (the Bank's director of research from 1958 to 1971). One of the main themes early on was that everyone should be able to access data the same way a professional person would. Consequently, the Bank began producing popular weekly and monthly data publications that were mailed to subscribers.<sup>2</sup>

A 1967 *Business Week* article about the St. Louis Fed said the following: “Jones and his people take the basic material pumped out of Washington, then rework and polish it, and put it into highly readable form. As one Fed aide in Washington observes ‘Homer has the most



**James Bullard** is the president and CEO of the Federal Reserve Bank of St. Louis.

merchtable stuff coming out of the system today.’”<sup>3</sup>

With the arrival of the internet age, the Research division took the concept of distributing data publications on paper and transitioned it to the web. Another former director of research, Bob Rasche, was instrumental in driving FRED forward during this period.<sup>4</sup> He dedicated the resources needed to grow FRED, to help it gain global recognition and to further the St. Louis Fed’s leadership in this area.

## Technology and Innovation

Rapidly changing technology has provided both opportunities and challenges. Over the years, keeping up with changing technology and the ways in which people want to interface with data has prompted not only enhancements to FRED but also the creation of additional data services and tools.

Related data services include GeoFRED (a geographic mapping tool for regional and international data series) and ALFRED (“Archival FRED,” which contains historical vintages of data series). Our Research division also offers FRASER (a digital library of the economic history of the U.S., with a focus on the Federal Reserve System) for users who are interested in historical documents.

Among other enhancements and tools, developers have created iOS and Android versions of the FRED

mobile app, allowing convenient access to the data. Another capability within FRED is that users who have a registered FRED account can save their favorite graphs, create data dashboards, and more.

At the St. Louis Fed, we place great emphasis on innovation in support of our public mission. The FRED and family databases are one of many examples of innovative products and services that we provide to the Federal Reserve System and the public. As mentioned earlier, they complement the efforts of our Economic Education department, which is prolific in developing programs that enhance financial literacy. These efforts involve integrating FRED and family into the classroom experience, with the idea that data literacy can help bring economic concepts to life.

## The Future of FRED

We are proud of the valuable service that we provide to data users with FRED and family, and we want to continue providing such high-quality service in the future. Given that people’s preferences for accessing and interacting with data will evolve, we must evolve our products and services to meet those changing needs. Doing so will require staying up to date with technology and continuing to look for ways to deliver data more efficiently. Ultimately, our goal is to help people and businesses make better economic decisions.

**James Bullard**  
President and CEO  
Federal Reserve Bank of St. Louis

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## ENDNOTES

- <sup>1</sup> See the St. Louis Fed’s 2016 annual report, “Economic Literacy for Life: Today’s Lessons=Tomorrow’s Financial Stability and Success.”
- <sup>2</sup> For additional information, see Poole, William. “Data, Data, and Yet More Data,” Federal Reserve Bank of St. Louis *Review*, March/April 2007, Vol. 89, No. 2, pp. 85-9.
- <sup>3</sup> “Maverick in the Fed system,” *Business Week*, Nov. 18, 1967, pp. 128-34.
- <sup>4</sup> Robert “Bob” Rasche served as director of research from 1999 to 2009 and as executive vice president and senior policy adviser until his retirement in 2011. See “FRED remembers Bob Rasche,” the FRED Blog, June 6, 2016.

# FRED Puts the Data in Your Hands

By Katrina Stierholz

U.S. agencies have been collecting economic data for well over a century.<sup>1</sup> In 1961, Homer Jones, then research director of the St. Louis Fed, decided that economic data would be much more valuable if they were more broadly shared.

Jones sent a memo (see next page) that included three data tables to a few of his colleagues, asking if they thought them useful. The memo suggested that data could help measure the effects of monetary policy. And with that, the St. Louis Fed began its commitment to data access, which is now embodied by FRED.

FRED first launched in 1991 as a free dial-up bulletin board with 30 data series. Despite such modest origins, FRED was clearly meant to be a long-term investment in public service. Today, FRED is a database known worldwide for providing free access to over half a million economic and socioeconomic data series. It can be accessed whenever and wherever needed, from your laptop or smartphone.

FRED goes far beyond simply providing data: It combines data with a powerful mix of tools that help users understand, interact with, display and disseminate data. For instance, users can:

- Search, access, graph, transform and download data
- Map data—particularly for local or regional views—using GeoFRED
- Retrieve initial, or “vintage,” versions of data using ALFRED
- Save and manage graphs in user accounts
- Share sourced data in research, in the classroom or on social media platforms like Twitter

Stierholz is a vice president in the Research division. She heads up the Bank’s Homer Jones Library and the FRASER digital library. She also oversees the division’s economic education and editorial groups, as well as the St. Louis Fed Data Desk.



**Katrina Stierholz**, Vice President and Director of Library and Research Information Services

It’s an incredibly rich resource that the FRED team provides to help improve the quality of economic and financial research, education, public policy, and business decision-making. In essence, FRED helps users tell their data stories.

## Access to Data

Government data are the backbone of FRED. Without the efforts of government agency employees, none of this work would be possible. And because government data have become vital for many constituencies—such as policymakers, businesses, nonprofits and the general public—access to those data is also vital.

*FRED first launched in 1991 as a free dial-up bulletin board with 30 data series. Despite such modest origins, FRED was clearly meant to be a long-term investment in public service.*

On Jan. 14, 2019, a bill with broad bipartisan support was signed into law that requires “open government data assets to be published as machine-readable data” (the OPEN Government Data Act).<sup>2</sup> The goal of this law is to ensure that the public has useful and broad access to government data.

This goal is similar to the original intent of FRED and why the FRED team continues to invest in this robust

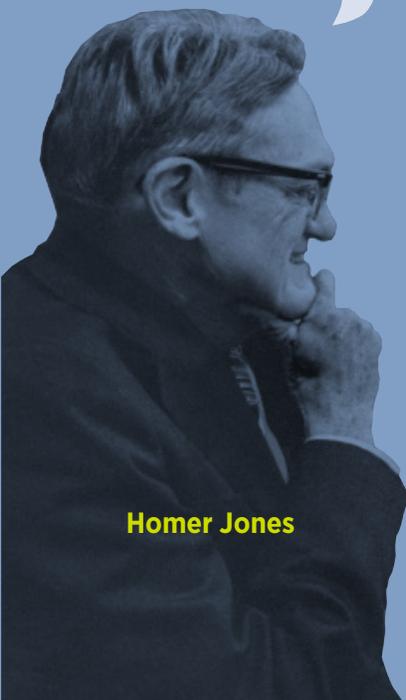
digital data service: to help citizens and businesses access data more easily and thereby make informed decisions. (The monetary value of data for businesses is particularly well-documented.<sup>3</sup>)

### Understanding Data

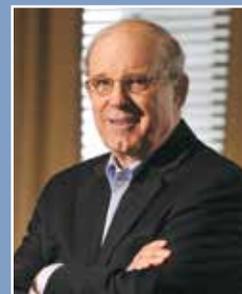
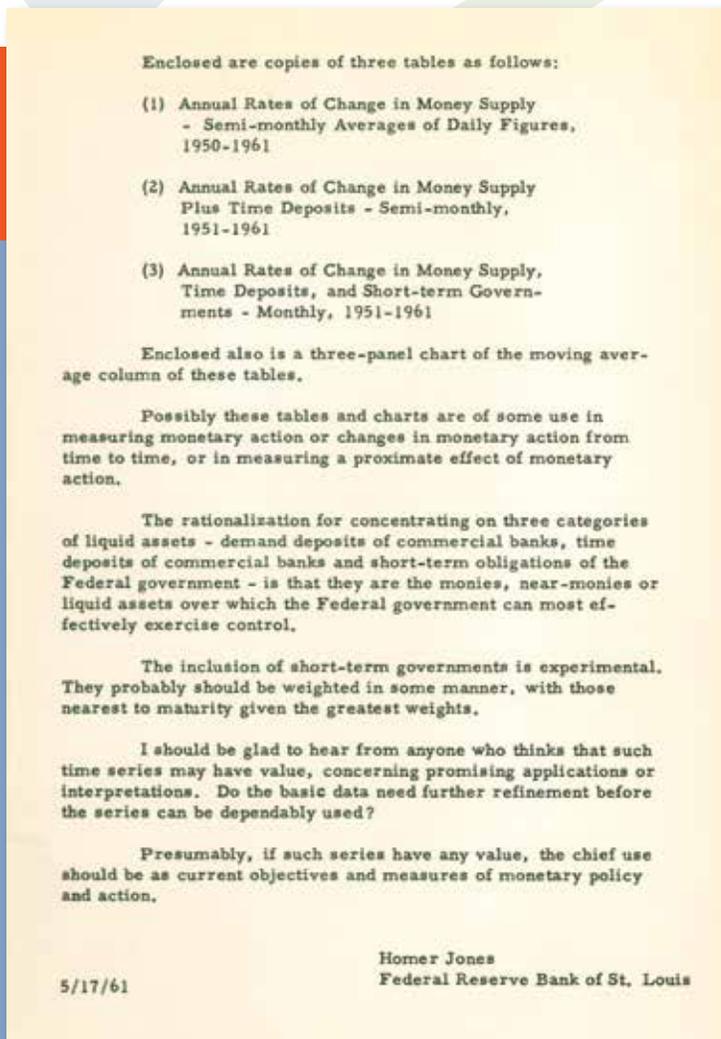
Having access to the many data series available in FRED is terrific—a single place to find and use data from

This 1961 memo from **Homer Jones**, the St. Louis Fed’s director of research from 1958 to 1971, is the first known data distribution from the Bank.

“I should be glad to hear from anyone who thinks that such time series may have value... ”



**Homer Jones**



**Robert “Bob” Rasche** served as director of research from 1999 to 2009. He was instrumental in providing the resources needed to grow FRED and help it gain global recognition.

so many sources is powerful and efficient. That said, finding data and making sense of the data are two different things. Today, to be truly informed, people need to effectively access, work with and interpret data to solve problems.<sup>4</sup>

If the public doesn't have the necessary skills to make sense of the data, the promise of open-data initiatives will go unfulfilled. So, FRED also provides educational support and tools for those who do not have the skills or are developing them.

### Where We Are ...

The world is awash in data, and some of the data show that many adults unfortunately do not understand basic mathematical concepts or have the skills to use data. For example, a March 2016 report found that the U.S. scored below the international average for numeracy, which is the ability to understand and work with numbers.<sup>5</sup> These concepts matter for personal financial literacy and decision-making. At the larger, societal level, lower scores have also correlated with low voting and

volunteering rates, as shown in an April 2007 report.<sup>6</sup>

These measures all tie closely to the emerging field of data literacy, which is the ability to understand and use data.<sup>7</sup> The ability to read a chart or data table, recognize basic mathematical principles (such as mean, median or growth rates) and discern the quality of the source and scope of the data is important for evaluating the value of the data as evidence for an argument or decision.

Educational groups have identified the importance of these skills and embedded them in their standards:

- The National Council of Teachers of Mathematics includes a standard for data analysis and probability.<sup>8</sup>
- The Common Core standards include the ability to evaluate data within a technical text, to calculate expected values and to use those values to solve problems.<sup>9</sup>

In short, educators nationwide recognize this type of literacy as vital to preparing students for life choices informed by their ability to understand data.

With FRED and the strong contributions from the St. Louis Fed's Economic Education team, the Bank works to support the emerging field of data literacy.



A key contribution of FRED is combining the data with content that educates users about the data. For example:

- 1 Users can take a short course on how unemployment is measured to help them better understand a FRED graph of unemployment.
- 2 They can watch a video about the labor force and review labor force participation rates in FRED.
- 3 They can watch President Bullard talk about the risk of a yield curve inversion while viewing a common yield spread in FRED.

The goal is to help users understand data, not just in FRED but everywhere they encounter data.

## ... Where FRED Can Take Us

The power of data to inform policymakers, researchers and the public is incredible, and access to data has never been broader. The difficulty comes in the ability to make sense of them. Dozens of features and tools have been added to FRED over the years to improve access to data. There's always more to do, and the FRED team is always working on something new.

Providing data is only the first step. Our mission also includes efforts to help illuminate the data and improve people's understanding of them. The ability to evaluate the data and the meaning behind them is crucial. If users can't extract information from data, then they have no real value. The St. Louis Fed is working on a solution. 📈

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### ENDNOTES

- 1 Rockoff, Hugh. "On the Controversies behind the Origins of the Federal Economic Statistics." *Journal of Economic Perspectives*, Winter 2019, Vol. 33, No. 1, pp. 147-64.
- 2 The OPEN Government Data Act is Title II of a larger piece of legislation: the Foundations for Evidence-Based Policymaking Act of 2018. See <https://www.congress.gov/bill/115th-congress/house-bill/4174/text>.
- 3 Hughes-Cromwick, Ellen; and Coronado, Julia. "The Value of US Government Data to US Business Decisions." *Journal of Economic Perspectives*, Winter 2019, Vol. 33, No. 1, pp. 131-46.
- 4 Prado, Javier Calzada; and Marzal, Miguel Ángel. "Incorporating Data Literacy into Information Literacy Programs: Core Competencies and Contents." *Libri*, June 2013, Vol. 63, No. 2, pp. 123-34.
- 5 Rampey, Bobby D.; Finnegan, Robert; Goodman, Madeline; Mohadjer, Leyla; Krenzke, Tom; Hogan, Jacquie; and Provasnik, Stephen. "Skills of U.S. Unemployed, Young, and Older Adults in Sharper Focus: Results from the Program for the International Assessment of Adult Competencies (PIAAC), 2012/2014: First Look." U.S. Department of Education, National Center for Education Statistics, March 2016.
- 6 Kutner, Mark; Greenberg, Elizabeth; Jin, Ying; Boyle, Bridget; Hsu, Yung-chen; and Dunleavy, Eric. "Literacy in Everyday Life: Results from the 2003 National Assessment of Adult Literacy." U.S. Department of Education, National Center for Education Statistics, April 2007.
- 7 Frank, Mark; Walker, Johanna; Attard, Judie; and Tygel, Alan. "Data Literacy: What is it and how can we make it happen?" *The Journal of Community Informatics*, September 2016, Vol. 12, Issue 3, pp. 4-8.
- 8 National Council of Teachers of Mathematics. *Principles and Standards for School Mathematics*. 2000.
- 9 Common Core State Standards Initiative. "English Language Arts Standards-Science and Technical Subjects, Grade 11-12: Integration of Knowledge and Ideas," at [corestandards.org/ELA-Literacy/RST/11-12/](http://corestandards.org/ELA-Literacy/RST/11-12/); and "Measurement & Data, Grades K-12," at [corestandards.org/Math/Content/MD/](http://corestandards.org/Math/Content/MD/).



# Behind the Scenes with the **FRED** Team

Members of the FRED team recently took to the St. Louis Fed's Economy Museum to discuss all things FRED: the Bank's long-standing commitment to public service, FRED's intrinsic value as a data aggregator, a few of the more interesting finds in FRED, and where FRED and its information services siblings might head next.

Following are excerpts from this conversation conducted by Assistant Vice President Jennifer Beatty. The excerpts have been edited for length and clarity. Watch the full interview at [stlouisfed.org/annual-report/2018](https://stlouisfed.org/annual-report/2018).

## What Is FRED?

*A little team runs this big engine called FRED.*

*To start, what is FRED?*

**Katrina Stierholz:** FRED is an economic database that we provide as a public service. It's a tool that brings economic data together from over 80 sources, and we have half a million series. Users can come to the database and get data from the Bureau of Labor Statistics or the Bureau of Economic Analysis. They can put data together, they can do transformations of data, and they can ask questions of the data and learn about the economy using FRED.

*Why is it important to provide this public service?*

**Stierholz:** In the modern world, people use data to make decisions. What we're doing is helping people understand their world and make judgments. So, when we provide data about the economy or about one's region, people can understand that better.

**Keith Taylor:** FRED users are consumers who are making decisions, like how to get a mortgage, or busi-



## What Is FRED?

Also learn about FRED's cousin, FRASER, the digital library of historic U.S. publications, at [stlouisfed.org/annual-report/2018](https://stlouisfed.org/annual-report/2018).

nesses making a decision about where they might invest or release a new product, and academics using data to further their research. So, it's a wide audience.

*Why does the St. Louis Fed offer it?*

**Stierholz:** It's an interesting thing, because it grew organically out of work that was done in the early 1960s. We had a research director, Homer Jones, who decided to start sending data to people to help inform monetary policy. So, FRED was really intended initially to be a public service, to help people understand the economy.

That public service piece has been a thread that's come through to the present, but, of course, what has changed is how we deliver that public service. Back then, it was paper, initially three tables. Now it's a database, half a



million series. It's got amazing tools and things you can do with the data. You can share it, you can download it, but the public service piece is still there.

***Some might ask why it matters that the public has free access to data. What's the goal in providing this?***

**Stierholz:** One thing I'm particularly interested in is data literacy: helping people understand how to use data, how to examine data critically, and how to make use of it in their lives. We provide data, but we also provide ways for people to understand data.

What it does is help people become data informed—even data *comfortable* or data *competent*—where they can look at data to understand their world at large.

**Taylor:** FRED has a wide range of users, from high school students to Nobel Prize winners. Most of them, though, are novice data users and need a little help to make the most of FRED. And this is really an area where data literacy can help them ask good questions and be confident that the answers that they are getting from FRED are accurate.

Stierholz is a vice president in the Research division. She heads up the Bank's Homer Jones Library and the FRASER digital library. She also oversees the division's economic education and editorial groups, as well as the St. Louis Fed Data Desk.



**Katrina Stierholz**, Vice President and Director of Library and Research Information Services

Taylor manages the Research division's web developers and spearheads the strategic vision for FRED, ALFRED and GeoFRED. He also engages with outside groups, such as journalists and publishers, interested in integrating the FRED family into their work.



**Keith Taylor**, FRED Data Champion

**FRED has some siblings: GeoFRED and ALFRED.**

**Can you tell us about them?**

**Yvetta Fortova:** ALFRED is really archival FRED. It started back when Bob Rasche was a research director, and he really believed in the value of storing series that revise over time. Almost all the series we have in FRED do revise, and we set up ALFRED for that reason: so that you can access data on a given period and see what the data looked like.

To some people, this kind of data is very important because they can re-evaluate old economic models with the vintage data. And it's also very popular in policymaking.

**Taylor:** We also have GeoFRED, which allows you to map FRED data at the U.S. level. We also have county level, metropolitan statistical area and state level data, and then, at the international level, you can map all the countries. Both GeoFRED and ALFRED are accessible as their own domains: [geofred.stlouisfed.org](http://geofred.stlouisfed.org) and [alfred.stlouisfed.org](http://alfred.stlouisfed.org).

## The Magic of FRED

**Tell us a bit more about how FRED works.**

**Fortova:** FRED's magic is very simple. As the originating sources publish their data, we download the data, we do some quality controls, and then we upload the data into our FRED database. Really, all time series in FRED live in harmony, and they are displayed on a graph page where they are plotted over a continuous time. For example, you can go on FRED and access



### The Magic of FRED

Hear about FRED's version of "Braggin' Rights"—between the University of Illinois and University of Missouri—at [stlouisfed.org/annual-report/2018](http://stlouisfed.org/annual-report/2018).

gross domestic product, which is available from 1947 to the most recent period.

We have five people on our team who work hard to make sure that data is uploaded as soon as the origi-

Fortova is responsible for the collection, organization and publication of data in FRED, ALFRED and GeoFRED. She also leads the St. Louis Fed Data Desk's customer service and operations efforts, as well as the promotion of FRED-related products.



**Yvetta Fortova,** FRED Product Owner

nating source has published the data sets. In addition, we have three more people who work on our front-end application to make sure that our website and tools are properly working.

**You're taking these credible data sources from all over the world, and FRED becomes this one-stop shop for this data. How might that be helpful for a user?**

**Fortova:** We recognize that statistical agencies have a mission to disseminate data to users. And we, as FRED, are sympathizing with that mission. We are able to build bridges with the respective sources—for example, the U.S. Census Bureau—to help make sure that users are getting the best data experience to tell their story and understand the data.

**What makes FRED unique as a public service?**

**Fortova:** The U.S. is unique in that there is not a single statistical agency. All statistical agencies specialize in their own data indicators, and they are very good at it. They are the subject matter experts.

What FRED does is put all the data under one roof, so FRED is a data aggregator. And it's very beneficial for users, because they can then go to FRED and find gross domestic product, which is published by the Bureau of Economic Analysis, and the unemployment rate, which is published by the Bureau of Labor Statistics, all on one website. But not only that, they can actually put all this data on one graph.

**Who's the audience for FRED?**

**Taylor:** So, instructors and students. We also have quite a few people using FRED to make business decisions: financial professionals, analysts at corporations. We have academic-style researchers, and they're using it to further



**Maintaining FRED as a data aggregating powerhouse** takes a strong team (clockwise from top left): Maria Arias, senior associate data specialist; Christopher Russell, associate data specialist; Peter Curti, web developer; Travis May, associate data specialist; Amy Melsner, project manager; Yvetta Fortova, manager and FRED product owner; Duane Tuffentsamer, senior web developer; George Essig, senior web developer; and Jonathan Sullivan, associate data specialist.

their research. We also have a lot of journalists and bloggers who are using it to talk about economics.

One of the things that makes it easy for them is they can grab an image off of our website, tweet to it or put it in a blog.

Another project we have is the FRED Blog, with articles written twice weekly. They dive into an economic topic, then how you can demonstrate that topic in FRED. The articles are often about things happening in the news, so they're very topical. Frequently, they also get picked up by journalists as a basis for an article.

## Let's FRED That!

### *What are some of the most popular or most often used series in FRED?*

**Fortova:** The consumer price index—which is a measure of inflation and published by the Bureau of Labor

Statistics—is one of the most popular series in FRED. But we have many others, such as gross domestic product from the Bureau of Economic Analysis.

It's interesting to see how popularity changes over time based on what users are looking for. Recently, a lot of yield curve series have been gaining in popularity, especially the spread between short-term and long-term Treasuries.



### Let's FRED That!

Discover more of the FRED team's favorite data series to track at [stlouisfed.org/annual-report/2018](http://stlouisfed.org/annual-report/2018).

**Stierholz:** During the financial crisis, the weekly unemployment claims data was the most popular. As unemployment went up and as people were very concerned about the economy, that series became incredibly popular and was the most popular series for quite a while. And that reflects peoples' concerns about what's going on. FRED actually answers peoples' immediate questions about the economy.

#### **Making charts (for curious readers)**

"Everyone interested in economics should know about Fred, which has made my life a lot easier."

By Paul Krugman, *The New York Times*, June 17, 2009

#### **FRED Goes Global**

"Regular readers know that I'm a huge fan and heavy user of FRED, the Federal Reserve Bank of St. Louis's wonderful data site."

By Paul Krugman, *The New York Times*, Jan. 28, 2011

### What are some of the most unusual series you might find in FRED?

**Fortova:** One of the most notable is our extensive historical series published by the National Bureau of Economic Research. In that data set, you can find series on shipments of sinks and toilets to the U.S. during the industrialization of indoor plumbing. You can really see the correlation of the two items during that time.



We have a series published by the Bank of England of the population of England. That one goes all the way back to 1086, the year of the *Domesday Book*. Who would have known data existed back then?



### How do you decide the data series that get put into FRED?

**Fortova:** In reality, the FRED team is small, and our bucket list of data sets that we wish to add to FRED is fairly large. When trying to decide what data sets to add to FRED, we look at many different aspects. We look at what kind of institution or organization the data is coming from. Is it a reliable data set? How can it benefit

users? We really are making careful decisions on which data sets will hit the FRED mark.

## The Future of FRED

### Where will FRED go next?

**Taylor:** I would say in general we've got the U.S. macroeconomy pretty solid with our data sets. There are some gaps that we could fill, but I think the future data acquisitions will be international and probably more socioeconomic, less traditional macroeconomics.

**Stierholz:** One thing that might surprise people is a third of the people who come to FRED are international. So, we serve a public that is larger than the United States. We serve the world.



### The Future of FRED

Learn how old FRED is and more about the team's aspirations for the database at [stlouisfed.org/annual-report/2018](http://stlouisfed.org/annual-report/2018).

### What do you see FRED growing into? And how do you see people using FRED?

**Taylor:** In the immediate future, we're really focused on helping people find economic information or data sets, and then, once they've found it, to quickly understand it. And, of course, we're always adding more data to FRED. That's a continuous process.

Longer term, we want to focus on helping people understand the data: either pulling in additional content or working more closely with the providers of data to make sure that we're presenting it in the best way possible so that users have the best experience.

**Stierholz:** We really want to focus on the user experience. Some of that will be small things that people don't notice. Perhaps if there's a busy part of the page, we dial that down. We test and make sure that people can use the page easily, can understand how to make transformations and can do some of the sophisticated things you can do in FRED.

**Taylor:** Also, then starting to integrate our other data products: Imagine looking at a FRED graph and having a policy paper that talks about that, or an ALFRED graph, all on the same page. You have a richer experience, a better understanding of economics, and it's not just the data in isolation.

**Fortova:** There's always a chance for improvement, so our plans are to devote time to looking at different search possibilities and seeing if we can provide users with a better experience: how to find series in FRED and, with that, how we can link our FRED products together.

Ideally, we would really like world dominance [laughs]. I don't think people can really imagine their lives without cellphones. We would like them to not imagine their lives without FRED. 📱

## Visit FRED at the Economy Museum



What are you curious about? Come inside the St. Louis Fed, and immerse yourself in one of the nation's leading economy museums. Use the FRED app in an interactive exhibit to find search results. Try out GeoFRED on the big screen. Explore nearly 100 fun and interactive games, exhibits and videos on the economy.

**FREE admission**

Monday through Friday, 9 a.m. to 3 p.m.  
Plan your visit:

[stlouisfed.org/economymuseum](http://stlouisfed.org/economymuseum)



**ECONOMY  
MUSEUM**  
AT THE ST. LOUIS FED

**#LetsFREDthat**

# FRED at a Glance

Free to all, easy to customize and updated 24 hours a day. FRED puts the power of data, and the tools to understand them, in people's hands.

## What's in FRED?

All numbers are as of Dec. 31, 2018.

**528,425** regional, national and international data series

Most popular U.S. series



Most popular non-U.S. series



**87**

data sources worldwide

Bureau of Economic Analysis

International Monetary Fund

Equifax

World Bank

S&P Dow Jones Indices LLC

Bureau of Labor Statistics

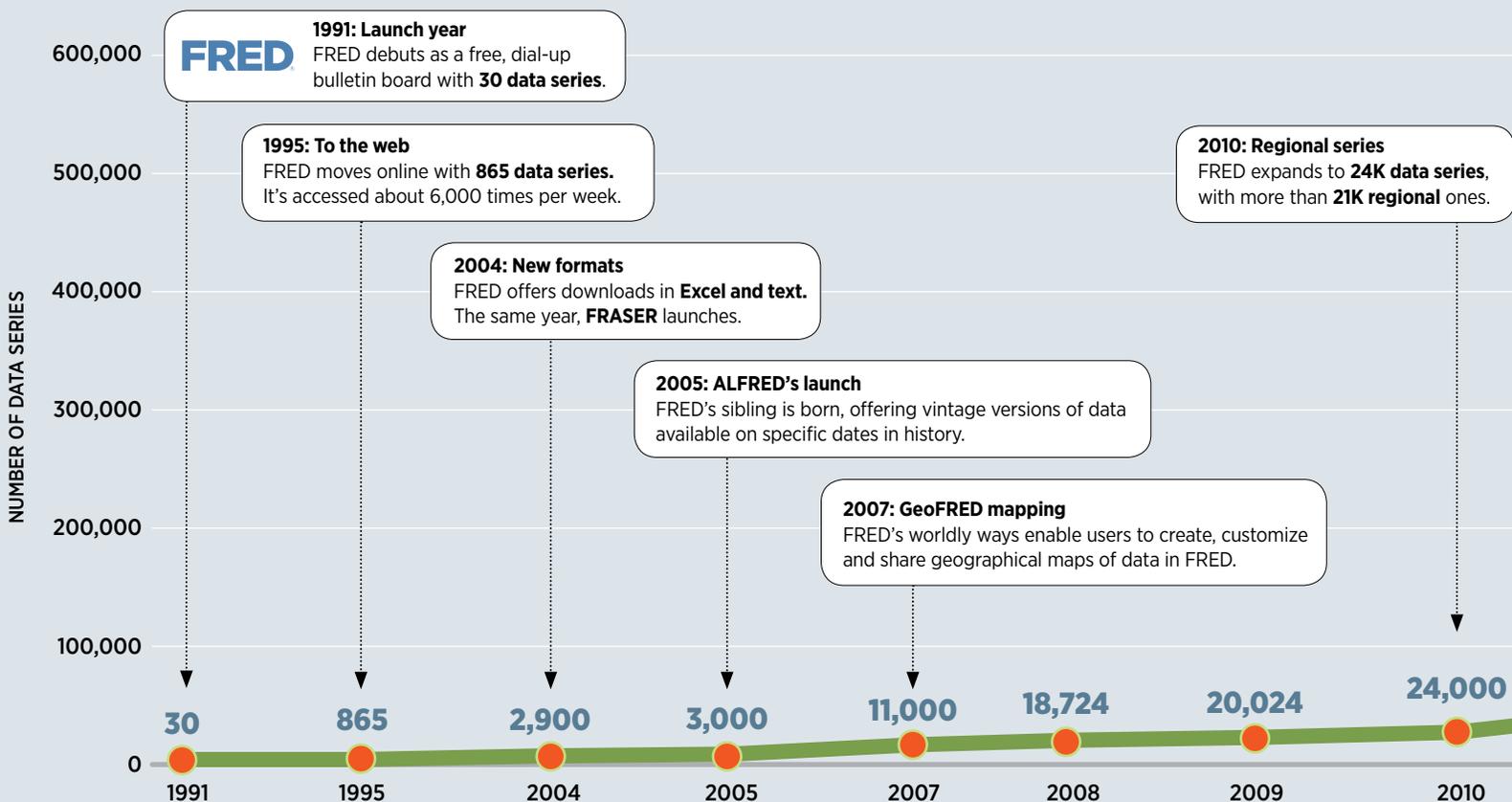
Eurostat

Organization for Economic Cooperation and Development

Census Bureau

BOARD OF GOVERNORS

## How the service evolved



# Who Uses FRED?

FRED users run the gamut from policymakers and researchers to students, teachers, businesses and journalists—basically, anyone who's interested in accessing data to make informed decisions.

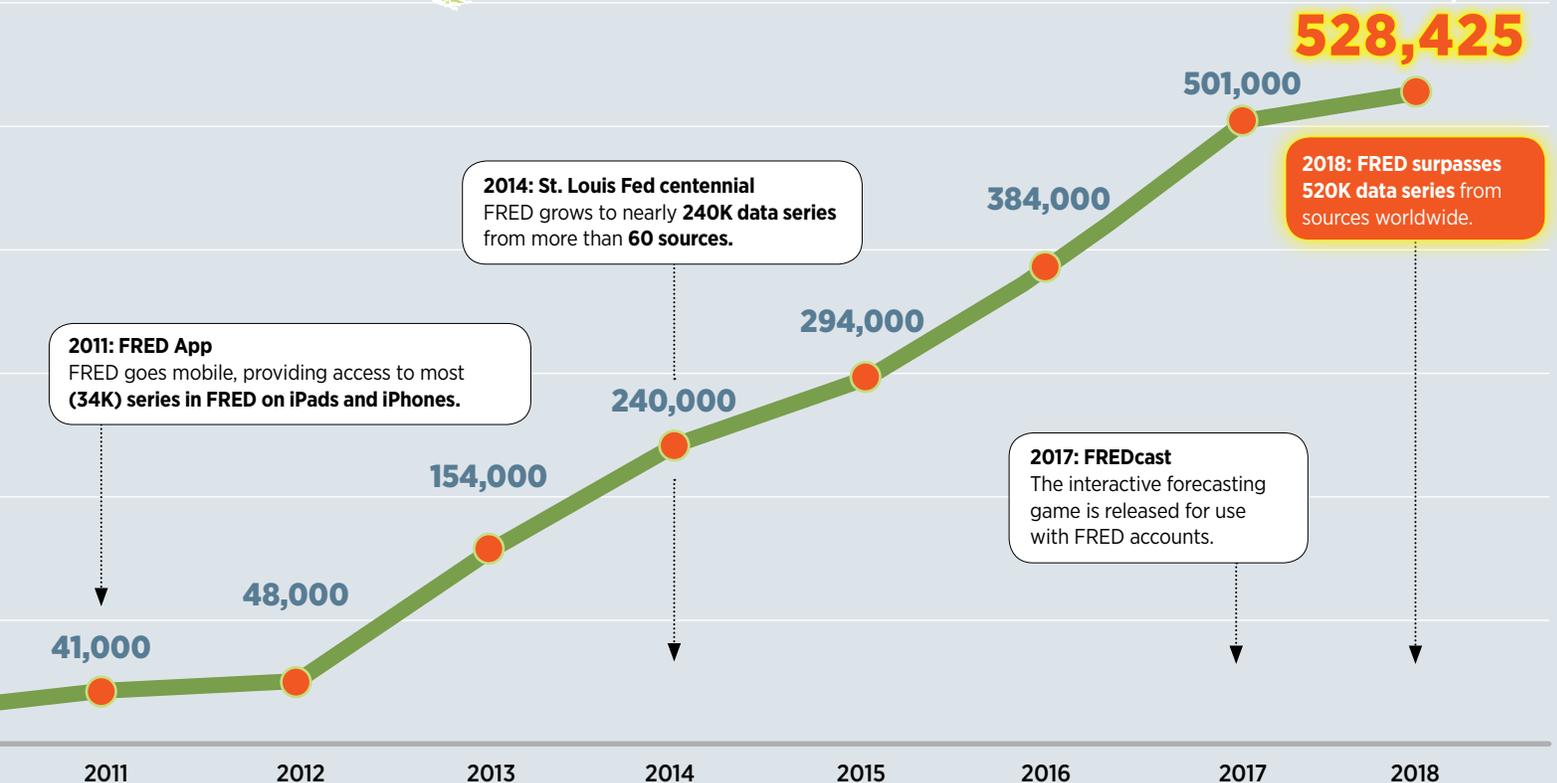
## Where are FRED's fans?

FRED saw visitors from 193 countries in 2018.



### Top FRED Fans

- Countries with the most FRED users
- U.S. states with the most FRED users



# Economic Education and FRED: **Keeping It Real**

*“What does this have to do with real life?”*

—Every student in the world

By Mary Suiter

It’s an age-old question and not an unfair one. Students can’t always see how their studies relate to the “real world.” So, Economic Education staff at the St. Louis Fed have developed tools and resources for teachers to help their students make sense of the real world. And FRED is an integral part of this mission.

With FRED (and its extended family), students have access to the most current data from the most reputable sources. Specific classroom tools tap into the data in FRED and offer graphs and maps that help reveal the world. Other tools use FRASER’s archive of original source documents, which connects students to economic history. (See “Do You Know FRASER?” on pages 19 and 20.) All these tools allow students to practice and apply critical thinking and data literacy skills across many disciplines.

## **FRED in Real Life**

Most students have seen headlines or heard news reports about immigration, taxes and the U.S. economy compared with other economies. FRED can bring some objectivity and clarity to discussions about these issues. For example:

- GeoFRED maps can show **net migration flows** (the difference between the number of people entering and leaving an area) for each U.S. county.
- FRED graphs can show how **federal tax revenues** have changed over the past five years.
- A map of **GDP per capita** can show how the U.S. economy compares with other countries’ economies.



Suiter leads the Economic Education team at the St. Louis Fed. She has taught economics and personal finance to teachers across the U.S. and the world. She has also written articles, lessons and curricula on economics and personal finance for K-12 classrooms.

**Mary Suiter**, Assistant Vice President, Economic Education



**Members of the FRED team** sometimes take to the road to show off the database's power and capabilities, with classrooms and lecture halls being frequent stops.

Moreover, with such a wide-ranging assortment of data and information, this type of learning can occur in a variety of classrooms. Economics and personal finance classes are the most obvious, but history, social studies and geography classes also can benefit from these tools.

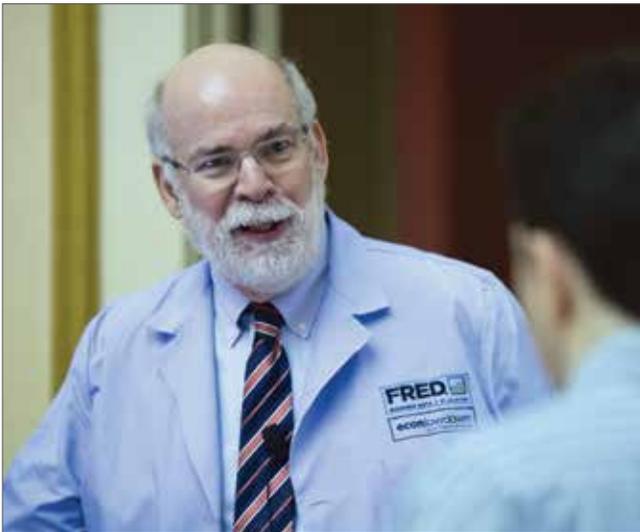
Regardless of the course, teachers are always trying to accomplish multiple goals in a limited amount of time. Economic education staff, librarians, data experts and teachers at the St. Louis Fed are continually creating resources to make the task easier and the effort more effective.



### **Lessons in History, Social Studies and Geography**

U.S. history teachers can use a St. Louis Fed lesson titled “Everything Including the Kitchen Sink” to help students understand how public health reforms inspired a commercial response to the growing demand for sanitation. Students analyze FRED data to see how bathroom-fixture production changed throughout the 1920s. Then they examine original documents—1920s’ advertising—to see how companies fused the Progressive Era with the new consumer culture.





**Senior Economic Education Specialist Mark Bayles** speaks to teachers and other education professionals about the advantages of using FRED and FREDcast in classroom instruction.

In another lesson, “Money for Nothing: Economic Affluence in Postwar America,” students dig deeper into the post-World War II economic boom through the 1960s to see that a growing economy can occur at all levels and affect people in different ways.

Social studies teachers are great at assessing and analyzing documents to build a narrative, but what about the teacher who shies away from numbers? Tables, graphs, maps and diagrams can help provide a graphical view of information and be a powerful way to display evidence. So our librarians and economic educators developed a “Historical Inquiry with Charts Toolkit,” which provides a series of resources to help students read, interpret and think critically about charts in textbooks and historical documents.

Geography teachers can use our GeoFRED lessons to help students create and interpret maps of data, such as GDP per capita for every country in the world or the unemployment rate for the counties in their state. In a lesson titled “Demonstrating the Distribution of Innovation and Entrepreneurship Using Patent Data and a Mapping Tool: GeoFRED Marks the Spot,” students learn about innovation, the distribution of innovation across the country, and what can be patented.

For more economic education resources from the St. Louis Fed, browse “Tools for Teaching” with FRED, GeoFRED and FRASER (starting at [stlouisfed.org/education](http://stlouisfed.org/education)). 

## Raise Your Forecasting Game with FREDcast

FREDcast, powered by FRED, is an interactive forecasting game. It allows users to forecast four economic variables, track the accuracy of their forecasts on scoreboards, and compete with friends and other users in leagues. It’s a hit with teachers, students and economics enthusiasts.

Make predictions for:

- Real gross domestic product
- Employment
- Unemployment
- The consumer price index

Forecasts are compared with actual release numbers and scored monthly for accuracy. Players can judge their performance by looking at their rankings within leagues or for all FREDcast users.

There’s no cost to play FREDcast, so set up your account today. Start at [research.stlouisfed.org](http://research.stlouisfed.org).

The screenshot shows the FREDcast website interface. At the top is the header for the Federal Reserve Bank of St. Louis. Below that is a navigation bar with links for FRED, Economic Data, Informational Services, Publications, Working Papers, Economics, and About. The main content area features the FREDcast logo and a description: "Play the St. Louis Fed's economic forecasting game." Below this is a video player for "an interactive forecasting GAME" brought to you by the St. Louis Fed. A "Sign In to Play!" button is visible. On the right side, there is a "Leaderboard" section with a "View Your Scores" link. The leaderboard table is as follows:

Position	Player	Points
1	FREDcast-492107	748.1
2	CSHS_odanowski	745.5
3	Benjamin23	744.1
4	Jake.powers	742.6
5	Cierra	741.8
6	Snehakan	741.1
7	Philmore	740.3
8	AnsleyWhitley	739.6
9	gsb1899	738.7
10	IL_dhtwv3_103	738.0

At the bottom of the page, there is a footer with the text: "Federal Reserve Bank of St. Louis, One Federal Reserve Bank Plaza, St. Louis, MO 63102."

**FREDcast**   
 FORECASTING GAME | ST. LOUIS FED

# Do You Know FRASER?

By Aaron Collie and Genevieve Podleski

FRASER, the St. Louis Fed's digital library of economic history, was originally created to store economic data publications. When it launched on July 1, 2004, FRASER was considered an adjunct to FRED's database.

Former Research Director Bob Rasche, who was instrumental in the creation of FRASER (Federal Reserve Archival System for Economic Research), believed that economists need to be able to see the data as they were published to understand the "expectational forces" that sway the economy (that is, the expectations that the data created at the time). Data contained in FRASER are frozen in a specific moment and show the limitations of estimation and forecasting in a way that continually revised FRED data cannot.

The FRASER collection started with just a handful of scanned statistical publications, one data release from the Federal Reserve Board of Governors, and one Senate document related to the Federal Reserve Act. But FRASER has grown significantly in its 15 years, with input and guidance from Fed economists, museum and archives partners, educators, and scholars such as Allan Meltzer, who literally "wrote the book" on the Fed.

FRASER holds over a half-million documents today, including:

- The most complete collection of Fed **statistical releases** available anywhere
- Unique digital copies of the **archival papers** of Fed policymakers and economists
- Publications from across the entire **Fed System**
- A growing number of **photos, videos** and **audio recordings**

All of this helps explain the decisions that shaped the U.S. economy while shedding light on the people who made them.



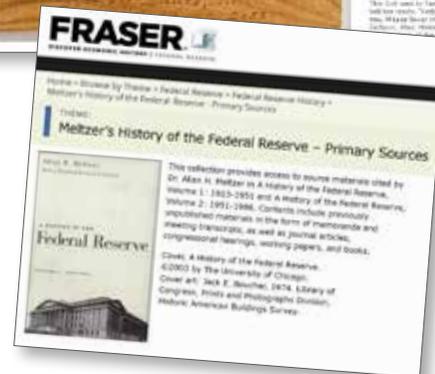
Collie is the manager of the FRASER digital library. He oversees collection development, scanning and metadata operations, and regional and national digitization partnerships. He is active in the National Digital Stewardship Alliance, among other groups.

**Aaron Collie**, Manager, Digital Library Services



Podleski is a metadata and outreach specialist who also serves as FRASER's reference librarian. In her role, she collaborates with Research staff to improve the visibility, usability and educational value of the division's online content.

**Genevieve Podleski**, Senior Analyst, Research Information



The collection is now so large and eclectic that the FRASER team of librarians and digitization experts has created a variety of signposts and tools to help guide users. Like your local library's collection, FRASER is searchable by author, title or subject. Users can also browse "themes," or special collections of the best or most-thorough FRASER documents on topics such as "The Great Depression" or "Women in the Economy."

Teachers and students of all ages can find ready-to-go classroom materials in the "Teaching and Learning with FRASER" portal. History buffs can follow us on Twitter (@FedFRASER) for daily updates on everything FRASER, from Alexander Hamilton to market commentary on 1978's top-selling Cher doll. And the Inside FRASER blog provides a deeper dive where readers can learn about the Fed's famous "punch bowl" metaphor or the history of the \$20 bill.

To browse the collection or for help with how to use FRASER, start at [fraser.stlouisfed.org](https://fraser.stlouisfed.org). 



Hear the voices of economist Milton Friedman and others who helped shape the U.S. economy in this **Timely Topics** podcast. David Wheelock, St. Louis Fed group vice president and deputy director of research, provides historical and policy background, and FRASER's director Katrina Stierholz talks about oral history interviews and other resources available in FRASER.

Listen at [stlouisfed.org/timely-topics](https://stlouisfed.org/timely-topics).

"As a librarian, it's much faster and easier for me to use a digitized version in FRASER than it is to use our library's own physical copy."

**Marie Concannon**,  
Head of Government  
Information and Data  
Archives, University of  
Missouri—Columbia



## FRASER in the Library

**Marie Concannon** is head of Government Information and Data Archives for Ellis Library at the University of Missouri—Columbia. Ellis Library has over 3 million books, but since most of the older volumes are in remote storage, the staff often directs patrons to the digital realm. One go-to tool that Concannon and her team of library professionals use frequently is FRASER:

"As a librarian, it's much faster and easier for me to use a digitized version in FRASER than it is to use our library's own physical copy. With FRASER, you can search an entire volume for words or phrases within a few seconds. Its page-level linking feature allows me to easily share the results of my search. It's great for providing reference service!

"Our library maintains a website that points to data tables found in primary source, digitized books and government documents. Roughly half of our links lead to pages in the FRASER digital library. We feel confident pointing to FRASER because it provides 'envelope information' for every page. Even first-time visitors can easily see and understand the source for the data they view.

"These days, when anyone can put content on the web, it is crucial to have access to trustworthy, authentic economic data from authoritative sources. FRASER provides all of that."

# FRED's Got Friends

By George Fortier

## FRED in College

Students who take an economics class with **Diego Mendez-Carbajo**, professor of economics at Illinois Wesleyan University, will learn about FRED. And, more importantly, it means they will learn by *using* FRED. Mendez-Carbajo has been a strong believer in the St. Louis Fed's economic database for most of his career, and he shares FRED with his students through lectures, in-class assignments and homework. "I started using FRED in my classes," he said, "because it allows my students to gain insights into economics through its easy-to-use data visualization resources."



"With the FRED site, graphing the data is only the beginning."

**Diego Mendez-Carbajo**,  
Professor of Economics,  
Illinois Wesleyan University

Mendez-Carbajo first learned about FRED when he was a graduate student in the late 1990s, when data began to migrate from printed yearbooks to the internet. "I remember the university library dedicated one computer station for us, including access to a subscription statistical database whose name I've forgotten," Mendez-Carbajo said. "But I remember FRED!"

As FRED has matured into a much larger, multifaceted resource, Mendez-Carbajo has adapted his teaching to take full advantage: "To me, FRED's ability to transform the data without downloading it first into a spreadsheet and the significant graphing flexibility were

Fortier is manager of the Research division's publications group at the St. Louis Fed. He oversees numerous publications including *Review*, *Economic Synopses*, *Agricultural Finance Monitor*, *Page One Economics* and the FRED Blog.



**George Fortier**, Managing Editor, Research Publications

game-changers. And FRED's ability to combine data series from different sources into one graph made me redesign all my assignments."

FRED also fosters a collaborative environment for conducting and sharing research, including the research his students undertake. "When students come to me for advice on how to locate and gather data, the process always starts with FRED," Mendez-Carbajo said.

FRED dashboards allow him to save his work for repeated use and share it with his students and colleagues. "I love talking about FRED," he said. "Many series in FRED also can be mapped through GeoFRED. With the FRED site, graphing the data is only the beginning."





“I use FRED as a practical resource for data searching.”

**Charissa Jefferson**, Business and Data Librarian, California State University, Northridge



“FRED’s tools are both accessible for generalists and powerful for specialists, adding real value.”

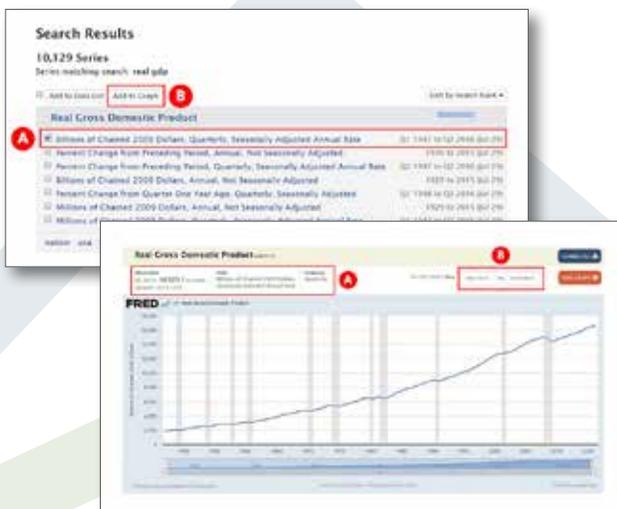
**Kristin Fontichiaro**, Clinical Associate Professor, University of Michigan School of Information

## FRED in the Library

**Charissa Jefferson** is another FRED enthusiast. As a business and data librarian at California State University, Northridge, Jefferson believes in the value of data literacy. “I use FRED as a practical resource for data searching and creation in the library instruction classroom,” she said.

Jefferson is a librarian, but she’s also an educator who instructs students in how to understand and use data to answer questions and solve problems. Because she is a data educator, she looked to the St. Louis Fed’s Economic Education team for resources. “One of the first FRED tools that exposed my students to FRED was ‘10 FRED Activities in 10 Minutes,’” she recalled. “This helped me learn about breaking down tasks in FRED in manageable steps and guiding the student from an initial data search through creation of a FRED graph.”

Since then, she has used more FRED tools to engage her students: “Teaching with FRED leverages my data information literacy instruction, because I can facilitate a discussion with it.”



**Kristin Fontichiaro** is a clinical associate professor at the University of Michigan School of Information, teaching courses in information literacy, library and information science, contextual inquiry, and user-needs assessment. And, yes, she also uses FRED.

“Aspiring librarians, like those I teach, can be overwhelmed by the diversity of reference questions they receive and the challenge of finding reliable information quickly,” Fontichiaro said. “FRED is part of our [department’s] resource starter kit because it is one-stop shopping for a wide range of government data.”

Her librarian students study to educate themselves, as students typically do, but they also aim to educate and guide others in their own searches for content and resources. Many subjects—such as economics, sociology and history—tend to require strong data literacy skills.



“As their expertise evolves, these librarians recognize FRED’s many other tools, like access to historical economic data, web-based visualization tools and economic simulations,” Fontichiaro said. “FRED’s tools are both accessible for generalists and powerful for specialists, adding real value to libraries and those they serve.”

FRED’s many instructional resources help these educators—and others like them—engage students in data-related conversations and research. But what about those who aren’t educators or students? Is FRED a valuable resource for professionals, too? The answer is yes.

“FRED is one of the first places I look for economic data.”



**Kate Warne**, Principal and Investment Strategist, Edward Jones

## FRED in the Office

**Kate Warne** has been an investment strategist for the financial services firm Edward Jones for more than 20 years and is a member of its Investment Policy Committee. Earlier, she taught finance at Washington University in St. Louis and lectured at Yale.

So, where does Warne turn when she needs credible, accurate numbers? “FRED is one of the first places I look for economic data,” she said. “It includes a wide variety of economic and market indicators, covers many years of history and is user-friendly.”

Warne interprets market conditions and makes financial recommendations for investors. FRED helps her collect and discern economic and financial information that she can then use in conversations about investing. “FRED makes it simple to create easy-to-understand charts, which is especially important because many people need to ‘see the whole picture’ to really understand the information,” she said, adding that she views FRED as “one incredibly valuable resource for the business community.” 📊

# FRED in the News

## My Friend FRED

“It’s great, and keeps getting better: it now has the ability to do transformations on data . . . . So, if you want to make pretty graphs of U.S. data quickly, make friends with FRED.”

By Paul Krugman, *The New York Times*, Nov. 8, 2010

## Meet FRED, every wonk’s secret weapon

“Today, FRED is more than a little bit famous, thanks to the public’s fascination with economic data.”

By Todd C. Frankel, *The Washington Post*, Aug. 1, 2014

## The 10 Most Popular Charts On The World’s Most Amazing Economics Website

“The St. Louis Fed’s ‘FRED’ (Federal Reserve Economic Data) database is arguably the most amazing economics site on the Internet.”

By Matthew Boesler, *Business Insider*, Sept. 26, 2013

## The Most Amazing Economics Website in the World

“There are two reasons we go to FRED just about every day. The database is amazing. . . . And the charting tool can’t be beat.”

By Joe Weisenthal, *Business Insider*, March 23, 2012

## Why “Fred” Is the Best Friend of Economics Writers

“Every economics writer’s best friend is named Fred. . . . A big part of the advantage is simply that once you’re familiar with the interface, which is intuitive, you don’t have to relearn the data retrieval tool for each statistical agency every time.”

By Neil Irwin, *The New York Times*, Aug. 8, 2018

# Where Can **FRED** Take You?

Join today's FRED fans and others like them by learning how FRED can help you. There's always an opportunity to discover more.

Listen to the Timely Topics podcast.  
[stlouisfed.org/timely-topics](http://stlouisfed.org/timely-topics)

### Have You Met FRED?

This 12-minute podcast was released Jan. 24, 2018.

Meet FRED (Federal Reserve Economic Data) from the St. Louis Fed. Economists, journalists, teachers, students and even your neighbors are using this free database to access financial and economic data from around the corner and around the world. "FRED Heads" Keith Taylor and Yvette Fortova of the data desk at the Federal Reserve Bank of St. Louis make the introduction. Popular in FRED are national data on the unemployment rate, consumer price index and gross domestic product, as well as local data on commute times, crime statistics, household income and more. FRED has all the data you need to understand the economy.



Watch the "Let's FRED that!" user video series.  
[youtube.com/stlouisfed](http://youtube.com/stlouisfed)

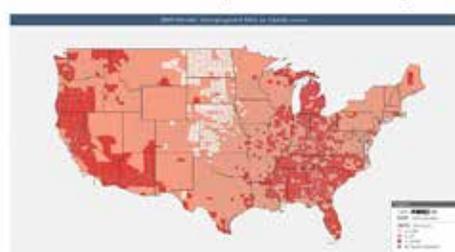
What's the inflation rate using CPI?

Let's FRED that!

Read our blog for timely economic issues brought to life in FRED charts. [fredblog.stlouisfed.org](http://fredblog.stlouisfed.org)

### The FRED® Blog

The mosaic of U.S. unemployment  
 Even the Great Recession didn't stop some counties from working



View on FedFRED

In October 2009, in the wake of the Great Recession, the U.S. unemployment rate peaked at 10%. The economy-wide number is useful but masks important regional patterns. To reveal a more detailed picture, we use GeoFRED to look back at county-level unemployment in October 2009.

In this map, counties are divided into three types, according to their unemployment rates:

- a rate above the economy-wide peak of 10%
- a rate between 4% (the current rate as of January 2018) and 10%
- and a rate below 4%.

Counties in the first group, with rates above 10%, were concentrated on the West Coast and in the Midwest and South Atlantic regions. Counties in the second group, with below-average rates, include other parts of the West and a significant portion of counties in the Northeast (e.g., Wyoming, New York, and Massachusetts).

Share your own #LetsFREDthat moments on Twitter.  
[@stlouisfed on Twitter](https://twitter.com/stlouisfed)





FEDERAL RESERVE BANK *of* ST. LOUIS  
CENTRAL TO AMERICA'S ECONOMY®

ANNUAL REPORT | 2018

# Our Leaders. Our Advisers.

The Federal Reserve's decentralized structure—the Board of Governors, the Federal Open Market Committee and 12 Reserve banks—ensures that the economic conditions of communities and industries across the nation are taken into account when deciding monetary policy.

Members of our boards of directors and advisory councils help inform the work of the St. Louis Fed by representing the diverse perspectives of Main Street across the Eighth Federal Reserve District.

The following pages list our board members from each of the four zones of the Eighth District: St. Louis; Little Rock, Ark., which is celebrating its centennial year; Louisville, Ky.; and Memphis, Tenn. Members of our advisory councils are also listed, as are retirees from our boards and our advisory councils, members of the Bank's Management Committee and officers of the Bank.

*All lists are current as of March 15, 2019.*

## CHAIR'S MESSAGE



Kathleen M. Mazzarella is the chairman, president and CEO of Graybar Electric Co. Inc.

# What It Means to Be a Trusted Provider

The Federal Reserve Bank of St. Louis motto, “Central to America’s Economy,” captures so well the daily drive across the organization to serve the public as a trusted provider of innovative ideas and solutions.

This mindset influences the way the Bank’s economists conduct cutting-edge macroeconomic research, and it guides the development of critical financial management applications for the U.S. Treasury. It shapes the Bank’s approach to providing comprehensive training and certification programs for bank examiners across the Federal Reserve System and inspires the creation of innovative educational curricula for teachers across the country. And, it is exhibited by the Bank’s renowned publicly available data services tool we have come to know fondly as FRED®—Federal Reserve Economic Data—which is the subject of this annual report.

Launched in 1991 as an electronic bulletin board, FRED has transformed over the years into an easy-to-use online repository of more than 520,000 U.S. and international economic and socioeconomic time series from 87 different sources—all in one place. In providing free access to such vast data, along with the tools to analyze them, FRED puts the power to better understand the economy and economic issues in real time at

all of our fingertips—from the academic or financial expert to anyone who is simply curious. That, in turn, better equips policymakers, researchers, media, businesses, families and communities to make better financial decisions.

As chair of the board of directors, I am pleased to see how the Bank’s long-standing passion for innovation and excellence has led to the creation of publicly available tools like FRED.

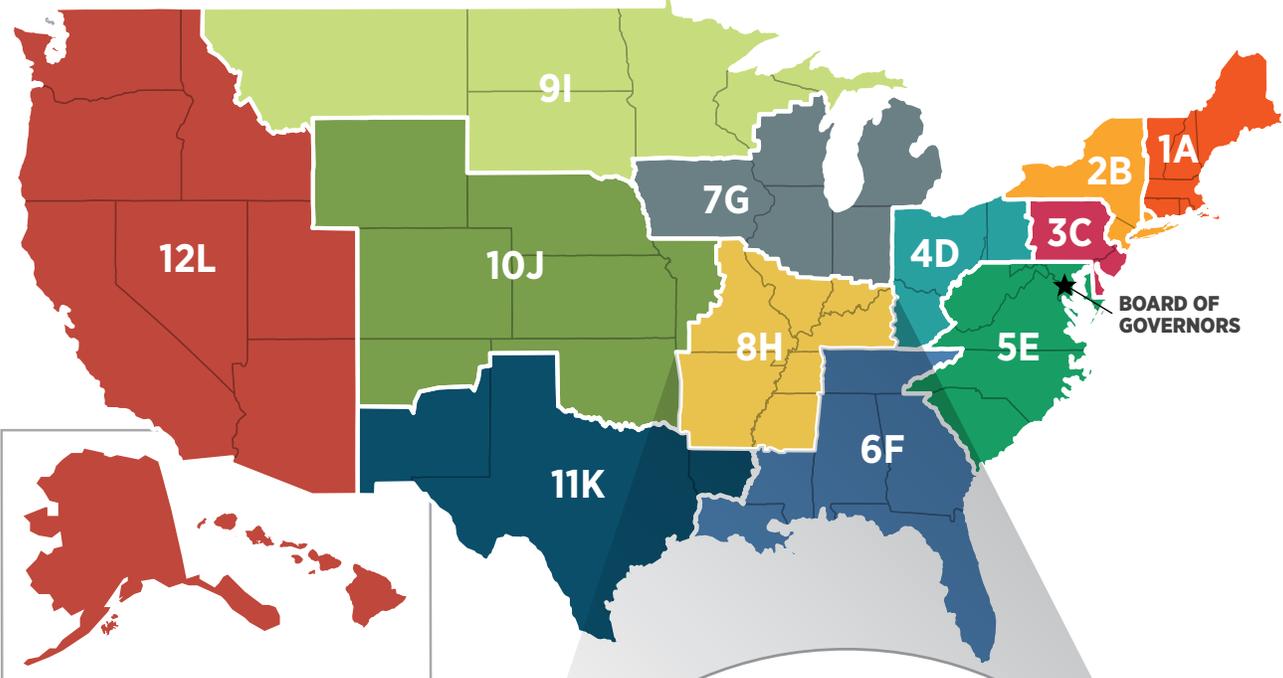
St. Louis Fed employees are consistently focused on the organization’s mission of ensuring a healthy economy and promoting financial stability. This sense of purpose is a main reason why the Bank was again named a top workplace by the *St. Louis Post-Dispatch* in 2018. Furthermore, the mission defines what the Bank has been since opening its doors in 1914: central to America’s economy. The people of the St. Louis Fed each day embrace a legacy of being independent-minded, engaged, innovative and trusted—enduring qualities that continue to strengthen our nation’s economy.



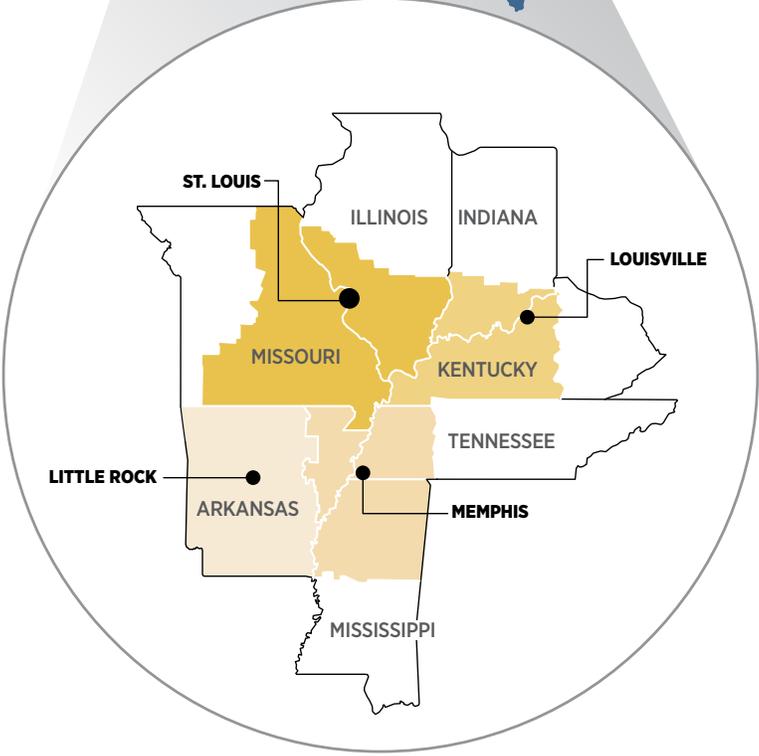
**Kathleen M. Mazzarella**

Chair of the Board of Directors  
Federal Reserve Bank of St. Louis

# The Eighth **Federal Reserve District**



**The Eighth Federal Reserve District** is composed of four zones, each of which is centered around one of the four cities where our offices are located: St. Louis (headquarters), Little Rock, Louisville and Memphis. Nearly 15 million people live in the Eighth Federal Reserve District.



BOARD OF DIRECTORS

# St. Louis

CHAIR



**Kathleen M. Mazzarella**  
Chairman, President and  
CEO, Graybar Electric  
Co. Inc.  
St. Louis

DEPUTY CHAIR



**Suzanne Sitherwood**  
President and CEO,  
Spire Inc.  
St. Louis



**Patricia L. Clarke**  
President and CEO,  
First National Bank  
of Raymond  
Raymond, Ill.



**Alice K. Houston**  
CEO, HJI Supply Chain  
Solutions  
Louisville, Ky.



**D. Bryan Jordan**  
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and CEO, First Horizon  
National Corp.  
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**Daniel J. Ludeman**  
President and CEO,  
Concordance Academy  
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**Elizabeth G. McCoy**  
CEO, Planters Bank Inc.  
Hopkinsville, Ky.



**James M. McKelvey Jr.**  
Founder and CEO, Invisibly  
St. Louis



**John N. Roberts III**  
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J.B. Hunt Transport  
Services Inc.  
Lowell, Ark.

BOARD OF DIRECTORS

# Little Rock Branch

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President, Stone Ward  
Little Rock, Ark.



**R. Andrew Clyde**  
President and CEO,  
Murphy USA Inc.  
El Dorado, Ark.



**Keith Glover**  
President and CEO,  
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**Jamie J. Henry**  
Vice President of Finance,  
Emerging Payments,  
Walmart Inc.  
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**Vickie D. Judy**  
CFO and Vice President,  
America's Car-Mart Inc.  
Bentonville, Ark.



**Jeff Lynch**  
President and CEO,  
Eagle Bank and Trust  
Little Rock, Ark.



**Karama Neal**  
President, Southern  
Bancorp Community  
Partners  
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REGIONAL EXECUTIVE

**Robert Hopkins**  
Senior Vice President, Little Rock Branch  
Federal Reserve Bank of St. Louis

# Little Rock Branch Centennial

COMMEMORATING  
**100**  
Years  
1918 2018

Because of its location along the Arkansas River and close proximity to the center of the state, Little Rock is well situated as the Arkansas state capital and as an economic leader in the state.

After months of hard work by Arkansas bankers to secure a Federal Reserve branch in their state, the St. Louis Fed's Little Rock Branch—the Bank's third branch—was approved by the Federal Reserve Board on Sept. 4, 1918. Four months later, the Branch opened for business in the Southern Trust Building at Second and Center streets. By the end of the year, the Branch had 38 employees and served 57 area member banks.

For the next several decades, the Branch served primarily in an operations capacity for financial institutions in the western two-thirds of Arkansas. In 2003, restructuring decisions related to its cash and check operations spurred a new mission for the Branch: outreach. Employees focused on promoting the Fed's community affairs, community development and economic education efforts, and on increasing the public's understanding of monetary policy and the economy at large.

To learn more about the Little Rock Branch, visit [stlouisfed.org/little-rock](http://stlouisfed.org/little-rock).



(Top right) For much of the Little Rock Branch's history, cash operations were a primary area of focus, including transporting cash to and from area banks.

(Middle right) Branch employees—shown here from the 1950s—have seen their areas of focus shift over the years but have always been dedicated to serving the Eighth District.

(Bottom right) The Little Rock Branch has had a few homes—including the one seen here from the 1960s—and currently resides in the Stephens Building in downtown Little Rock.

BOARD OF DIRECTORS

# Louisville Branch

**CHAIR**



**Randy W. Schumaker**  
Former President and  
Chief Management Officer,  
Logan Aluminum Inc.  
Russellville, Ky.



**Patrick J. Glotzbach**  
President and CEO,  
New Independent  
Bancshares Inc.  
Charlestown, Ind.



**Emerson M. Goodwin**  
Vice President of  
Operations, KentuckyCare  
Paducah, Ky.



**Millie Marshall**  
President, Toyota Motor  
Manufacturing,  
Indiana Inc.  
Princeton, Ind.



**Ben Reno-Weber**  
Chief Storyteller,  
MobileServe  
Louisville, Ky.



**Sadiqa N. Reynolds**  
President and CEO,  
Louisville Urban League  
Louisville, Ky.



**Blake B. Willoughby**  
Chairman and President,  
First Breckinridge  
Bancshares Inc.  
Irvington, Ky.



**REGIONAL EXECUTIVE**

**Nikki Jackson**  
Senior Vice President, Louisville Branch  
Federal Reserve Bank of St. Louis

BOARD OF DIRECTORS

# Memphis Branch

CHAIR



**Eric D. Robertson**  
President, Community  
LIFT Corp.  
Memphis, Tenn.



**Michael E. Cary**  
President and CEO,  
Carroll Bank and Trust  
Huntingdon, Tenn.



**David T. Cochran Jr.**  
Partner,  
CoCo Planting Co.  
Avon, Miss.



**Beverly Crossen**  
Owner,  
FarmHouse Tupelo  
Tupelo, Miss.



**J. Brice Fletcher**  
Chairman, First National  
Bank of Eastern Arkansas  
Forrest City, Ark.



**Carolyn Chism Hardy**  
President and CEO,  
Chism Hardy  
Investments LLC  
Bartlett, Tenn.



**Michael Ugwueke**  
President and CEO,  
Methodist  
Le Bonheur Healthcare  
Memphis, Tenn.



REGIONAL EXECUTIVE

**Douglas Scarboro**  
Senior Vice President, Memphis Branch  
Federal Reserve Bank of St. Louis

# Industry Councils

Council members represent a wide range of Eighth District industries and businesses, and report on economic conditions to help inform monetary policy deliberations.

## Agribusiness Council

### **Bruce L. Ahrendsen**

Professor, University of Arkansas,  
Division of Agriculture and Bumpers College  
Fayetteville, Ark.

### **John Rodgers Brashier**

Vice President, Consolidated Catfish Producers LLC  
Isola, Miss.

### **Cynthia Edwards**

Deputy Secretary, Arkansas Agriculture Department  
Little Rock, Ark.

### **Dana Huber**

Vice President, Marketing/Public Relations, Huber's Orchard,  
Winery & Vineyards, and Starlight Distillery  
Borden, Ind.

### **Wayne Hunt**

President, H&R Agri-Power  
Hopkinsville, Ky.

### **Jennifer H. James**

Owner, H&J Land Co.  
Newport, Ark.

### **Susan L. Lang**

President, Bumper Crop Farm LLC  
Somerville, Tenn.

### **Brett Norman**

Business Development Manager, Trace Genomics  
Memphis, Tenn.

### **Henry N. "Hank" Reichle Jr.**

President and CEO, Staple Cotton Cooperative Association  
(Staplcotn)  
Greenwood, Miss.

### **Tania Seger**

Vice President of Finance,  
North American Commercial Operations,  
Bayer Crop Science  
St. Louis

## Health Care Council

### **Rhamy Alejeal**

Owner and CEO, Poplar Financial  
Memphis, Tenn.

### **Carla Balch**

President and COO, TransMed Systems  
Memphis, Tenn.

### **Mike Castellano**

CEO, Esse Health  
St. Louis

### **Zach Chandler**

Executive Vice President and Chief Strategy Officer,  
Baptist Memorial Health Care Corp.  
Memphis, Tenn.

### **Cynthia Crone**

Research Faculty Member, University of Arkansas for Medical  
Sciences, College of Public Health, Department of Health Policy  
and Management  
Little Rock, Ark.

### **June McAllister Fowler**

Senior Vice President, Communications and Marketing,  
BJC HealthCare  
St. Louis

### **Diana Han**

Chief Medical Officer, GE Appliances, a Haier company  
Louisville, Ky.

### **Lisa M. Klesges**

Professor of Epidemiology, University of Memphis  
Memphis, Tenn.

### **Leanne L. Lefler**

Associate Professor, University of Arkansas for Medical Sciences,  
College of Nursing  
Little Rock, Ark.

### **Brandy N. Kelly Pryor**

Senior Director of Programs, Humana Foundation  
Louisville, Ky.

### **Robert "Bo" Ryall**

President and CEO, Arkansas Hospital Association  
Little Rock, Ark.

### **Alan Wheatley**

President, Retail Segment, Humana  
Louisville, Ky.

## Real Estate Council

### **Amy Berg**

President, S.M. Wilson & Co.  
St. Louis

### **William “Bill” Burns**

Broker/Owner, RE/MAX FIRST  
Jeffersonville, Ind.

### **Ray Dillon**

Former President and CEO, Deltic Timber Corp.  
Little Rock, Ark.

### **Martin Edwards Jr.**

President, Edwards Management Inc., REALTORS®  
Memphis, Tenn.

### **John F. Eilermann Jr.**

Chairman and CEO, McBride & Son Homes  
Chesterfield, Mo.

### **Lisa C. Ferrell**

Founder, President and CEO, North Bluffs Development Corp.  
North Little Rock, Ark.

### **J.T. Ferstl**

President, Ferstl Valuation Services  
Little Rock, Ark.

### **David L. Hardy**

Managing Director, CBRE Inc.  
Louisville, Ky.

### **Larry K. Jensen**

President and CEO, Cushman & Wakefield | Commercial  
Advisors  
Memphis, Tenn.

### **Greg M. Joslin**

Senior Broker, Colliers International Arkansas  
Little Rock, Ark.

### **Joshua Poag**

President and CEO, Poag Shopping Centers LLC  
Memphis, Tenn.

### **Lester T. Sanders**

President-Elect, Kentucky REALTORS®  
Lexington, Ky.

### **Madison C. Silvert**

President, The Malcolm Bryant Corp.  
Owensboro, Ky.

## Transportation Council

### **Bryan Day**

Executive Director, Little Rock Port Authority  
Little Rock, Ark.

### **Michael D. Garriga**

Executive Director, State Government Affairs, BNSF Railway  
Memphis, Tenn.

### **Rhonda Hamm-Niebruegge**

Director of Airports, St. Louis Lambert International Airport  
St. Louis

### **Bertram C. “Bert” Hodge**

General Manager, Heritage Ford  
Corydon, Ind.

### **Stephanie Ivey**

Director, Intermodal Freight Transportation Institute,  
University of Memphis  
Memphis, Tenn.

### **Mike McCarthy**

President, Terminal Railroad Association of St. Louis  
St. Louis

### **William J. “Bill” Mines**

Senior Vice President of Finance and Strategy,  
Supply Chain, Walmart U.S.  
Bentonville, Ark.

### **Toks Omishakin**

Deputy Commissioner and Chief of Environment and Planning,  
Tennessee Department of Transportation  
Nashville, Tenn.

### **Ferdinand L. Risco Jr.**

Interim Executive Director, Transit Authority of River City (TARC)  
Louisville, Ky.

### **David Tatman**

Executive Director, Kentucky Automotive Industry Association;  
Associate Vice President, Advanced Manufacturing,  
Western Kentucky University  
Rockfield, Ky.

### **Zach Wagner**

CEO, Gateway Truck & Refrigeration  
Collinsville, Ill.

# Community Depository Institutions Advisory Council

The members meet twice a year to advise the St. Louis Fed's president on the credit, banking and economic conditions facing their institutions and communities. The council's chair also meets twice a year in Washington, D.C., with the Federal Reserve chair and governors.

**Ann Cowley Wells, Chair**

Chair and Co-CEO, Commonwealth Bank and Trust Co.  
Louisville, Ky.

**Russell "Rusty" Bennett**

President and CEO, First National Bank of Clarksdale  
Clarksdale, Miss.

**David Bentele**

President and CEO, Citizens National Bank of Greater St. Louis  
Maplewood, Mo.

**David Doedtman**

President and CEO, Washington Savings Bank  
Effingham, Ill.

**Craig Esrael**

President and CEO, First South Financial Credit Union  
Bartlett, Tenn.

**Roy Molitor "Mott" Ford Jr.**

Vice Chairman and CEO, Commercial Bank and Trust Co.  
Paris, Tenn.

**Gary Hudson**

President and CEO, Farmers and Merchants Bank  
Stuttgart, Ark.

**Margaret "Marnie" Oldner**

CEO, Stone Bank  
Mountain View, Ark.

**Bill Schirmer**

President and CEO, Evansville Teachers Federal Credit Union  
Evansville, Ind.

**Scott E. Spencer**

Vice Chairman, President and CEO, Sterling Bank  
Poplar Bluff, Mo.

**Marvin Veatch**

President and CEO, Jackson County Bank  
Seymour, Ind.

**Kelley Workman**

President, Planters Bank Inc.  
Hopkinsville, Ky.

# Community Development Advisory Council

The council keeps the St. Louis Fed's president and staff informed about community development in the Eighth District and suggests ways for the Bank to support local development efforts.

**Ivey Allen**

President, Foundation for the Mid South  
Jackson, Miss.

**Arlisa Armstrong**

Area Director, Rural Development, United States Department of Agriculture (USDA)  
Jackson, Tenn.

**Jay Bassett**

Division Chief, Governor's Dislocated Worker Task Force, Arkansas Department of Workforce Services  
Little Rock, Ark.

**Bryce Butler**

Managing Director, Access Ventures  
Louisville, Ky.

**Rodney Crim**

President and Interim CEO, St. Louis Economic Development Partnership  
St. Louis

**Kevin Dunlap**

Executive Director, REBOUND Inc.  
Louisville, Ky.

**Timothy Lampkin**

CEO, Higher Purpose Co.  
Clarksdale, Miss.

**Marta Loyd**

Executive Director and CEO, Winthrop Rockefeller Institute  
Morrliton, Ark.

**Amanda Payne**

Assistant Vice President of CRA and Fair Lending Officer, Independence Bank  
Owensboro, Ky.

**Hillis Schild**

Vice President and Community Affairs Development Manager for Arkansas, Regions Bank  
Little Rock, Ark.

**Brittany Sims**

Program Director, Louisville Asset Building Coalition  
Louisville, Ky.

**Robert J. Wasserman**

Senior Vice President, U.S. Bancorp Community Development Corp.  
St. Louis

# Federal Advisory Council Representative

The council is composed of one representative from each of the 12 Federal Reserve districts. Members confer with the Fed's Board of Governors at least four times a year on economic and banking developments and make recommendations on Fed System activities.

## **Ronald J. Kruszewski**

Chairman and CEO, Stifel Financial Corp.

St. Louis

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## Retirees

We express our gratitude to those members of the boards of directors and of our advisory councils who retired over the previous year.

### From the Boards of Directors

Little Rock

**Robert Martinez**

Louisville

**Susan E. Parsons**

Memphis

**Julianne Goodwin**

### From the Community Depository Institutions Advisory Council

St. Louis

**Kevin Beckemeyer**

**Shaun Burke**

Louisville

**Karen Harbin**

### From the Industry Councils

Agribusiness

**Meredith B. Allen**

**Sam J. Fiorello**

**Edward O. Fryar Jr.**

**Chris Novak**

Health Care

**Jason M. Little**

Real Estate

**Janet Horlacher**

Transportation

**David Keach**

**Judy R. McReynolds**

**Brent Stottlemire**

### From the Community Development Advisory Council

St. Louis

**Debra Moore**

**Margaret S. Sherraden**

Little Rock

**Amy Whitehead**

Memphis

**Kenneth S. Robinson**

**Cassandra Williams**

# Bank Management Committee



**James Bullard**  
President and CEO



**David A. Sapenaro**  
First Vice President  
and COO



**Karl W. Ashman**  
Executive Vice President,  
Administration and  
Payments



**Karen L. Branding**  
Senior Vice President,  
Public Affairs



**Cletus C. Coughlin**  
Senior Vice President  
and Chief of Staff to  
the President



**François G. Henriquez II**  
Senior Vice President,  
General Counsel and  
Corporate Secretary



**Nikki R. Jackson**  
Senior Vice President  
and Regional Executive,  
Louisville Branch



**Kathleen O'Neill Paese**  
Executive Vice President,  
Treasury; and Treasury  
Relations and Support  
Office Product Manager



**Julie L. Stackhouse**  
Executive Vice President,  
Supervision, Credit,  
Community Development  
and the Center for  
Learning Innovation



**Christopher J. Waller**  
Executive Vice President  
and Director of Research

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President and CEO

**David A. Sapenaro\***

First Vice President and COO

**Karl W. Ashman\***

Executive Vice President

**Kathleen O'Neill Paese\***

Executive Vice President

**Julie L. Stackhouse\***

Executive Vice President

**Christopher J. Waller\***

Executive Vice President

**David Andolfatto**

Senior Vice President

**Karen L. Branding\***

Senior Vice President

**Cletus C. Coughlin\***

Senior Vice President

**Roy A. Hendin**

Senior Vice President

**François G. Henriquez II\***

Senior Vice President

**Robert A. Hopkins**

Senior Vice President  
and Regional Executive

**Nikki R. Jackson\***

Senior Vice President  
and Regional Executive

**B. Ravikumar**

Senior Vice President

**Michael D. Renfro**

Senior Vice President

**Douglas G. Scarboro**

Senior Vice President  
and Regional Executive

**Matthew W. Torbett**

Senior Vice President

**Jonathan C. Basden**

Group Vice President

**Timothy A. Bosch**

Group Vice President

**Anna M. Helmering Hart**

Group Vice President

**Amy C. Hileman**

Group Vice President

**Michael J. Mueller**

Group Vice President

**James A. Price**

Group Vice President

**David C. Wheelock**

Group Vice President

**Cassie R. Blackwell**

Vice President

**Adam L. Brown**

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**Timothy C. Brown**

Vice President

**Marilyn K. Corona**

Vice President

**Carlos Garriga**

Vice President

**Jennifer A. Haynes**

Vice President

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Assistant Vice President

**Robyn A. Arnold**

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**Jennifer M. Beatty**

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Assistant Vice President

**Susan M. Black**

Assistant Vice President

**Severin J. Blenkush II**

Assistant Vice President

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Assistant Vice President

**Winchell S. Carroll Jr.**

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**Nicholas J. Clark**

Assistant Vice President

**Daniel P. Davis**

Assistant Vice President

**Andrea Donsbach**

Assistant Vice President

**Jill S. Dorries**

Assistant Vice President

**William D. Dupor**

Assistant Vice President

**William R. Emmons**

Assistant Vice President

**Kathy A. Freeman**

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Assistant Vice President

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Assistant Vice President

**Kevin L. Henry**

Assistant Vice President

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Assistant Vice President

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Assistant Vice President

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**Subhayu Bandyopadhyay**

Officer

**YiLi Chien**

Officer

**Kevin L. Kliesen**

Officer

**Fernando M. Martin**

Officer

**Alexander Monge-Naranjo**

Officer

**Guillaume A. Vandenbroucke**

Officer

\*Members of Management Committee



FEDERAL RESERVE BANK *of* ST. LOUIS  
CENTRAL TO AMERICA'S ECONOMY®

ANNUAL REPORT | 2018

# Our People. **Our Work.**



The mission of the Federal Reserve Bank of St. Louis is to promote a healthy economy and financial stability. Corporate social responsibility is rooted in this mission, as the Bank's **1,385** staff members—from the District's head office in St. Louis to branches in Little Rock, Louisville and Memphis—work in the public's interest every day.



How does the St. Louis Fed make a positive difference? Through its **people** and its **work**. The Bank was named a 2018 Top Workplace and President James Bullard St. Louis' Top Workplace Leader by the *St. Louis Post-Dispatch* based on an employee survey. The following figures from the past year offer a window into the St. Louis Fed.

*All numbers are as of Dec. 31, 2018, unless otherwise noted.*



Providing **Thought Leadership** through Scholarly Economic Research



**Top 3%**

**research ranking** for President James Bullard on RePEC in a number of categories, including the h-index.

*The h-index, or Hirsch index, is a compound measure of publications and citations used to highlight research productivity.*

**#8**

**in research productivity** for the St. Louis Fed among all research departments at central banks worldwide.

- **#33** among all U.S. research institutions.
- **#42** among all research institutions worldwide.

**2.7 million**

**economic research items** from around the world available to search and download for free via IDEAS.

*IDEAS is the world's largest bibliographic database dedicated to economics. This service, provided by RePEC (Research Papers in Economics at ideas.repec.org), is hosted by the St. Louis Fed's Research division.*

**44 million**

**page views** of the St. Louis Fed's research site by people in **193 countries**.



**528,425**

**data series** in FRED, the St. Louis Fed's signature economic database.

**120,405**

**page views** for GeoFRED, a tool that allows users to create, customize and share geographical maps of data found in FRED.

**571,681**

**items** in FRASER, the St. Louis Fed's historical digital library, with materials dating from 1791 to 2018.



## Fostering **Financial Stability**

**128**

**state member banks** and **443 bank and savings and loan holding companies** supervised by the St. Louis Fed.

**1.134 billion**

**currency notes** inspected.

- **980 million notes** deemed fit for circulation.
- **154 million notes** removed from circulation and shredded.

**2,572**

**suspect counterfeit notes** withdrawn from circulation.

**\$35.5 million**

**in improper payments** identified by the St. Louis Fed in its role as fiscal agent to the U.S. Treasury Department and its Do Not Pay program, helping federal agencies eliminate payment error, waste, fraud and abuse.

*Total is for 2018 federal government fiscal year.*

**32,024**

**hours** spent by internal auditors reviewing St. Louis Fed operations.



## Empowering through **Education and Outreach**

**4,158**

**attendees** at Dialogue with the Fed and similar outreach events in St. Louis, Little Rock, Louisville and Memphis.

**16,882**

**attendees** at presentations requested through the St. Louis Fed's public speakers bureau.

**27,556**

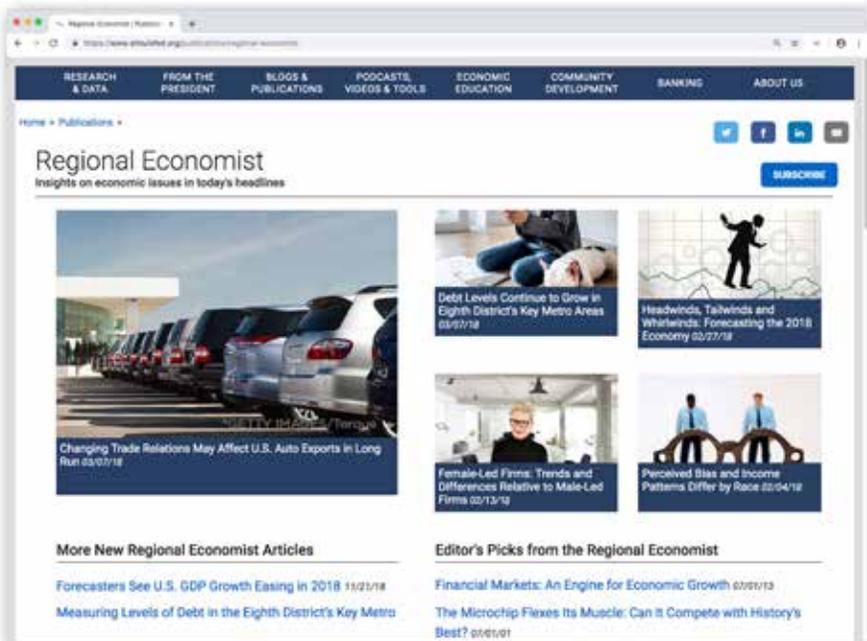
**bankers, regulators and other industry participants** in webinar and in-person information sessions held on timely financial and regulatory developments.

**450,000+**

**students** reached through educators who attended St. Louis Fed economic education programs.

**1.3 million**

**student enrollments** in the Bank's Econ Lowdown online economic education curriculum.



Sharing **Timely Information** about the Economy and the Fed

**2,761**

**students and their chaperones** from **93 area schools** welcomed at the St. Louis Fed's Economy Museum.

**18**

**student appointees** to the St. Louis Fed's student board of directors.

**34**

**college and 8 high school students** serving as interns for the Bank.

**\$1,003,250**

**in grants, loans and investments** committed to community and economic development projects through the St. Louis Fed's Investment Connection program.

**8,895**

**people** registered for **37 workshops, conferences, forums and other events** led by the Community Development department to promote economic resilience and mobility for low- and moderate-income and underserved households and communities.

**8,746**

**followers** on Facebook.



**10,924**

**followers** on LinkedIn.



**87,791**

**followers** on Twitter.

• Named one of **TraderLife's 10 Trading Twitter Accounts to Follow in 2018.**

• Listed on *U.S. News & World Report's 21 Pros to Follow on Twitter for Investment Advice.*



**499,283**

**page views** for *Regional Economist*, providing insights on economic issues in today's headlines—in its **26th year** of publication.

**12,914**

**downloads** of the Bank's Timely Topics audio channel—including **7,413 downloads** of the new "Women in Economics" series, which tells the stories of prominent female economists as a way to open the door for more young women to join the field.



## Embracing **Diversity and Inclusion**



**354,482**

**page views** for the FRED Blog, for a **49% growth rate** in one year.

**735,320**

**page views** for On the Economy blog—featuring commentary and analysis from St. Louis Fed economists and other experts—for a **68% increase** from 2017.

**52**

**Open Vault blog posts** focused on everyday economics for a general audience—in its first full year of publication.

**100**

**perfect score** earned for a third straight year in the Human Rights Campaign's Best Places to Work Corporate Equality Index, a national benchmarking tool for policies and practices pertinent to LGBTQ+ employees.

**80**

**vendors** benefited from the Bank's Supplier Diversity Outreach Workshops aimed at fostering economic development in our communities.

**90%**

**of inner-city, majority-minority and all-girls high schools** across the Eighth District reached by the St. Louis Fed's economic education resources.

**23%**

**of the Bank's workforce** engaged as members of employee-led resource groups, which are focused on women, African-Americans, Asians, military veterans and the LGBTQ+ community.



## Doing Good for the Sake of Good



**138,157**

**pounds of waste recycled** and **96,450 pounds of waste** (including food) **composted** as a result of the Bank's Zero Waste initiative.

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**\$238,417**

**donated** by employees to the United Way of Greater St. Louis campaign.

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**\$34,442**

**raised** by employees to help support food banks and feeding programs for the needy in the St. Louis area.

---

**1,836**

**school items** donated by employees to the Back-to-School Supply Drive to benefit area students.

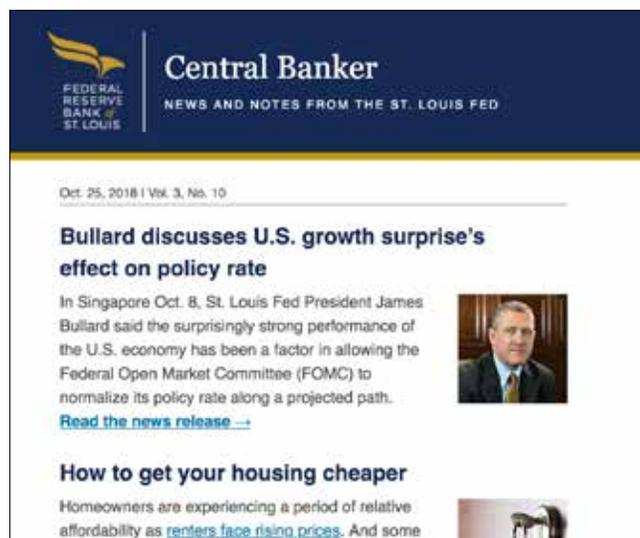
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**32**

**employee volunteers** for Teach Children to Save Day at local elementary schools.

# More from the St. Louis Fed

## Keep up with what's new at the St. Louis Fed.



Sign up for our monthly e-newsletter *Central Banker* for a sample of what we do—from academic research and public events to podcasts, blogs, videos, and more. Subscribe at [stlouisfed.org/central-banker-newsletter](https://stlouisfed.org/central-banker-newsletter).

## What's the state of U.S. household wealth?



Center for  
**HOUSEHOLD  
FINANCIAL  
STABILITY**®

Staff, research fellows and visiting scholars at the St. Louis Fed's Center for Household Financial Stability study the determinants of healthy family balance sheets, their links to the broader economy and new ideas to improve them. Go in-depth by reading the research, or check out an issue of *In the Balance* or *Housing Market Perspectives*. Start at [stlouisfed.org/hfs](https://stlouisfed.org/hfs).

## Listen to the latest episodes.



Hear St. Louis Fed economists and other experts talk about topics in the news or issues related to the Fed in our Timely Topics series. Our “Women in Economics” series tells the stories of prominent female economists and what led them to the field. Listen at [stlouisfed.org/timely-topics](https://stlouisfed.org/timely-topics).

## How competitive is your banking market?



CASSIDI is a one-stop, online shop for information related to banking competition around the country. Find information on an institution or entire banking markets. You can even see how a merger or acquisition would change a market's concentration. Start at [cassidi.stlouisfed.org](https://cassidi.stlouisfed.org).

This is just a sampling of the many free resources available to the public. To see more, go to [stlouisfed.org](https://stlouisfed.org).

The Center for Household Financial Stability and CASSIDI are registered trademarks of the Federal Reserve Bank of St. Louis.

## CONTACT US

### **Federal Reserve Bank of St. Louis**

One Federal Reserve Bank Plaza  
Broadway and Locust Street  
St. Louis, MO 63102  
314-444-8444

### **Little Rock Branch**

Stephens Building  
111 Center St., Ste. 1000  
Little Rock, AR 72201  
501-324-8300

### **Louisville Branch**

PNC Tower  
101 S. Fifth St., Ste. 1920  
Louisville, KY 40202  
502-568-9200

### **Memphis Branch**

200 N. Main St.  
Memphis, TN 38103  
901-531-5000

## FOR ADDITIONAL COPIES, CONTACT:

### **Public Affairs Federal Reserve Bank of St. Louis**

P.O. Box 442  
St. Louis, MO 63166  
or email [pubtracking@stls.frb.org](mailto:pubtracking@stls.frb.org)

This report is also available online at  
[stlouisfed.org/annual-report/2018](http://stlouisfed.org/annual-report/2018).

## CREDITS

### **Doreen Fagan**

Project Manager and Editor

### **RC Balaban George Fortier**

Contributing Editors

### **Joni Williams**

Art Direction and Design

### **Brian Ebert Ally Sykora**

Website Design

### **Michael Kera Mark E. Kunzelmann**

Multimedia Production

### **Jennifer Beatty Kristie Engemann Suzanne Shenkman**

Content Contributors

### **Adam Robinson**

Photographer

### **Scott Lamar Sharon Van Stratton**

Web Optimization



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CENTRAL TO AMERICA'S ECONOMY\*



#LetsFREDthat

**FOLLOW THE FED**  
[stlouisfed.org/followthefed](https://stlouisfed.org/followthefed)



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