

BY CHARLES GERENA

# Researching Payments System Changes

**T**he Federal Reserve has supported the smooth operation of the nation's payments system since its founding in 1913. It has done this by providing services directly — from distributing currency to processing checks and ACH, wire, and instant payments. It has also implemented regulations intended to maintain the system's safety and stability for all users. At the same time, the Fed has convened industry stakeholders and has worked with them to help the payments system meet the evolving needs of businesses and consumers.

Aside from these roles, the Fed has studied the payments system to better understand user needs, detect emerging risks, and identify inefficiencies and service gaps. “Understanding the system we support and regulate isn't just beneficial, it's essential to fulfilling our mandate and serving the public interest,” notes Zhu Wang, vice president for research in financial and payments systems at the Federal Reserve Bank of Richmond. “Many employees across the Fed work on payments, spanning research, operations, supervision, legal, community outreach, and other departments.”

Economists at the Richmond Fed have studied various aspects of the payments system over the years. Research during the 1990s examined the Fed's role as a service provider in the system, while more recent work has focused on changes in how consumers pay for goods and services. These include the shift from cash to card and mobile payments, the rise of digital currencies, and the emergence of buy now, pay later installment loans.

“We have also studied the changing payments industry landscape, such as the diffusion of online banking and the lifecycle of the ATM and debit card industry,” describes Wang. He has researched payments-related topics alongside economists from around the world as well as other researchers at the Richmond Fed, including Huberto Ennis, group vice president for micro, macro, and financial economics; Alexander Wolman, vice president for monetary and macroeconomic research; and Russell Wong, a senior economist and research advisor.

According to Wang, this research has deepened the Fed's knowledge of the payments system beyond the operational aspects of moving funds from point A to point B. “Researchers and policymakers need to understand the complexity of the system and its innovations to design effective policy and regulation,” he explains. “We need nuanced, context-specific policies that enhance the system's efficiency, safety, and accessibility while still preserving incentives for beneficial innovation.”

One thing that the Richmond Fed's economists have learned is that adoption of a new payment method isn't

guaranteed. Wang says it depends on the market pricing and structuring of that new service, as well as how widely it is used by both consumers and merchants. “A payment method is only valuable if both sides of the transaction can use it,” he notes. This is an example of what economists call network effects: The more merchants accept a payment method, the more valuable it becomes to consumers, and vice versa. Regulatory constraints and the responses of competitors can also shape the adoption of payment innovations.

Another key finding of the Richmond Fed's payments research is that “innovation can cut both ways when it comes to market power,” says Wang. “Some innovations create opportunities for new entrants to challenge established players, while others may actually reinforce existing market advantages through scale economies or network effects.”

Some of this research has leveraged large, anonymized datasets. For example, in 2016, Wang and Wolman analyzed 2 billion transactions at a discount retailer to identify factors that influence consumers' use of cash. More recently, Wang and Wong estimated the cost to consumers of phasing out the penny using data from the Fed's Diary of Consumer Payment Choice. Other Richmond Fed research has used payments industry data to track market trends and cross-country datasets to understand how different regulatory and market structures shape payments systems around the world.

The Fed continues to monitor the evolution of conventional payment services as well as emerging platforms. A Payments Innovation Conference was held at the Federal Reserve Board of Governors in October 2025, while a conference on the future of finance and payments was co-sponsored by the Richmond Fed, the Atlanta Fed, and the Boston Fed last February.

The Richmond Fed's ongoing payments research will focus on the evolution of instant payments following the July 2023 launch of FedNow, the first new U.S. payment platform launched by the Federal Reserve in 50 years. “We need to understand adoption patterns, usage cases, and how instant payment availability affects consumer and business behavior,” says Wang. The Bank's economists will also be exploring the implications of other innovations, such as stablecoins, artificial intelligence, and the embedding of payment services into nonfinancial platforms like social media.

“By studying these innovations systematically using diverse datasets and methodologies, we can provide evidence-based guidance for policy, regulation, and our own operational decisions,” concludes Wang. **EF**