

Transcript

Fed Talk: Federal Reserve Cash Services in the 21st Century

Federal Reserve Bank of Cleveland

May 28, 2025

Presentation

Speakers:

Brian Williams, Senior Vice President of Operations, Federal Reserve Bank of Cleveland

Brad Smith, Assistant Vice President of Cleveland Cash Services, Federal Reserve Bank of Cleveland

Kristin Hamblin, Program Manager, Federal Reserve Bank of Cleveland

Moderator:

Jimmie Gray, Assistant Vice President of Cash Services Support, Federal Reserve Bank of Cleveland

Jimmie Gray:

Good afternoon everyone, and thank you for joining us and welcome to today's Fed Talk. I'm Jimmie Gray, assistant vice president of Cash Service and Support at the Federal Reserve Bank of Cleveland. It is a pleasure to kick off today's Fed Talk session titled Cash Service in the 21st Century.

If you're not familiar with Fed Talk, it's the Cleveland Fed Speaker Series in which we share research that is relevant to our community. Some of our past events cover subjects such as inflation, access to the labor market, and financial literacy. All of our events can be found on our website at clevelandfed.org.

A few housekeeping items before we begin. During the event, your microphone and camera are disabled. Please type and submit your questions to our panelists in the chat box. And in case the Zoom drops, please use the dialing information provided in the invitation you receive to join the call.

Before we begin the program, I would like to state that the views shared today by myself and our panelists are of our own and not necessarily those of the Federal Reserve Bank of Cleveland or the Federal Reserve System. And I'm happy to present our three panelists today from the Federal Reserve Bank of Cleveland. We have Brian Williams, senior vice president of Operations, Brad Smith, assistant vice president of Cleveland Cash Services, and Kristin Hamblin, program manager.

Today, we're going to cover an overview of how cash works in the Federal Reserve System and learn more about our money in the 21st century. To facilitate an impactful discussion about Cash Services, I will be asking our expert panelists some questions to gain additional insight. I want to start with a big picture question. What is the role of the Fed in our economy? I'm going to turn this over to Brian Williams to get his insights on this question.

Brian Williams:

Thanks, Jimmie. And Christian, if you can go to the next slide. Oh, one more please. The Federal Reserve's core responsibilities are really focused on five main areas. Those are monetary policy, financial stability, supervision and regulation, payment services, and supporting our consumers and communities. We thought it'd be helpful to provide some context regarding the role of the Federal Reserve in the payments ecosystem.

The Federal Reserve supports the payment system in many ways beyond Cash Services, which is our main topic today. There are other payment methods such as check, ACH, wholesale payments, FedNow that all play a critical role in managing the payment system. The Federal Reserve ensures we foster integrity, efficiency, and accessibility of the US payment system, which in turn helps support financial stability and economic growth. Customers for our payment services include different financial institutions such as banks, credit unions, the US Treasury, and ultimately the US consumer, all of you, the public.

Jimmie Gray:

Brian, you talked a little bit about payments. I want to dig a little deeper here as we think about our participation specifically in the payment space. Actually, I'm going to have Kristin jump in to answer this question. What does the Federal Reserve System do to support the economy?

Kristin Hamblin:

If you go to the next slide, please. Within the Federal Reserve System, you'll see here there are three entities that are responsible for the management and distribution of currency. The Federal Reserve Board is the issuing authority for the Federal Reserve Notes and ensures that there is enough cash in circulation to meet the public's demand. We also work alongside a Bureau of Engraving and Printing as well as the Mint to ensure that we receive new currency. The board then works closely with our system team called FedCash, who is also responsible for strategic leadership of all 12 Federal Reserve Banks. Then the Federal Reserve Banks, including Cleveland, receives, processes, and distributes currency in collaboration with our depository institutions. Overall, our mission is really to focus on meeting demand for currency all while maintaining the quality and integrity of our currency.

Jimmie Gray:

Thank you, Kristin. I want to get some insights from Brad. Brad, could you paint a picture how this looks within the US payment systems?

Brad Smith:

Sure, Jimmie. This is a quick view of the US payment systems in its current state. Data reveals that around 336 million people make an average of 250 billion payments annually. And it is estimated that roughly 40 billion of those payments are made with cash. The public is serviced by almost 11,000 financial institutions and obtain cash from over 500,000 ATMs annually. Those financial institutions and ATMs receive financial services from the Federal Reserve System, a network of 12 Reserve Banks that operate 28 cash operations across the country.

Jimmie Gray:

You said 28 offices. Can you expand on what that looks like?

Brad Smith:

Sure. If we go to the next slide. Thank you. Yes, as we could see from the distribution map, not only do we have 28 cash offices, but we also have many custodial inventory locations including international and domestic as well as cash depots, coin terminals that assist us with keeping currency and coin flowing through the world's economy.

Jimmie Gray:

Thank you, Brad. Now that we understand the footprint, what does the supply chain look like to keep cash moving through the system? I'll go back to Brian on this one and get his insights on this question.

Brian Williams:

Yeah, Jimmie, we often take it for granted and don't think about how cash gets into our ATMs or our purses or wallets, so I wanted to touch on what goes on behind the scenes. And Brad will dig a little deeper into it, but the cash circulation cycle is how we move money around the economy. We work with the Bureau of Engraving and Printing for currency or the Mint for coin, and they supply us currency in coin based on our demand. Once the currency or coin is produced and sent to the Federal Reserve System, this happens through a vast network of armored carriers throughout the nation, eventually making its hands to the financial institutions that they are customers of, and those financial institutions pass it along to our retailers and consumers. This cycle then continues as we look for fit and unfit currency. And it could end up back at the bank, which I think Brad will touch a little bit more on next.

Jimmie Gray:

All right, perfect. That's interesting. Now that we have a better understanding of our supply chain to keep cash moving, I'm interested in the internal processes. And I'll go back to Brad for this one. Can you tell me more about how we process cash once it hits the doors at the Cleveland Fed?

Brad Smith:

Sure. The currency is received at the banks by armored carriers and moved through a five-step process, from receiving to processing to paying to settlement. All of these steps include the safe and secure movement of valuables in and out of our vaults.

But before I get into too much detail, I want to share the fourth district's footprint. We have two cash offices here in the fourth district; one in Cleveland and one in Cincinnati. They're servicing all of Ohio and Kentucky, parts of West Virginia, Indiana, and Tennessee. Additionally, our cash footprint goes beyond traditional fourth district boundaries as we provide cash and coin services to the Buffalo, Pittsburgh, and Louisville geographical regions. To accomplish our mission logistically, we worked with armored carriers, all three of the depots previously mentioned, and 19 coin terminals that our cash team supports. But instead of walking you through the process, we're going to show you a quick video describing a typical day in operations.

Video:

Every day, you buy products and services. When it's time to pay for those purchases, the most common way to transfer funds has always been our old friend, cash. You may touch and interact with paper money daily without really thinking about how it's maintained, and that's okay because at the Federal Reserve Bank of Cleveland, we work every day along with other Reserve Banks to keep cash moving smoothly from coast to coast. Let's take a look at how our modern cash operations department works. It all starts when your local bank has either too much or too little currency on hand. When this happens, they schedule a deposit or request for cash with their assigned Federal Reserve Bank, just like the one here in Cleveland.

The notes that we receive most in receiving our 1s and 20s, we have to inspect the bags, make sure there's no holes, that nothing's been tampered with. We match the deposit ticket to the manifest, and then we process it.

Once they're unloaded, the notes are sent to high-speed sorting where they're inspected to see if they're fit for recirculation.

Our operators will order currency. Once they get the currency in, they will count the currency, then they will run it through our currency processor. If it's unfit, it will either shred at the currency processor or reject, and our operators will shred it by hand.

The fit notes are joined with fresh, new notes, which are printed by the Bureau of Engraving and Printing. New notes are ordered by the Fed to fulfill cash requests placed by financial institutions within our district.

Our average, I would say high-speed sorting area, we would go through about 780,000 notes per day.

The next step on our journey is the paying department. Here we use automated guided vehicles, or AGVs for short, to transport money to and from the vault, getting the notes exactly where they need to go.

We will send the command out, they will go to the vault, retrieve the container that we're asking for, bring it to the room, drop it off. Then we're able to use it to process our orders for the day. Once the notes are loaded into the armored truck, we ship it out and it goes to the local banks.

Before you know it, we've come full circle; cash comes back to your bank and is ready for its next destination, your wallet. The next time you get some spending money from an ATM or get a couple dollars back in change, you'll know a little more about what happens behind the scenes and how the Federal Reserve Bank of Cleveland keeps our economy moving.

Jimmie Gray:

Great video. Thank you for sharing the video. And that's really a typical day in operations. And just as a reminder, if you have any questions, please type and submit those in the chat box.

I actually want to switch gears a little bit here. I want to jump into the 21st century. And actually Kristin, if you can come on, I want to have you answer a question for me. What are some of the biggest trends in the payment landscape? And do you have any thoughts on how cash usage might change in the future? If you could provide a little insight, that'll be helpful.

Kristin Hamblin:

Yeah, good. Thank you so much, Jimmie. Before we get started, let us outline with you that the Federal Reserve publishes the Diary of Consumer Payments, which really guides and outlines,

helps us with our strategic direction. The survey is completed every year to understand US consumer payments, behavior, preferences, and how consumer payment changes are made from year to year. The latest survey was conducted in October of 2024. The 2025 reveals that consumers still use a wide range of payment instruments including cash and checks to electronic payments such as credit and debit and mobile payment apps. The findings were released in May of this year on fbsservices.org, and there will also be linked, or are linked with our FRB Cleveland website under publications.

Let's get into the good stuff. If you can go to the next slide. We'll talk about what cash is changing today. You can see here that as of March 2025, US currency in circulation reached \$2.32 trillion worldwide. That is a 1.1 year-over-year increase. As of March 2025, year to date the Federal Reserve payments are down 2.6% and receipts are also down 3.1%. What this means is there's a strong use for cash, but today people are holding onto cash and using it less to pay out. That's why we're seeing our payments and receipts not come in as often into the Federal Reserve System.

Jimmie Gray:

Thank you, Kristin, for sharing that. Year over year, what is changing in the cash industry? And are people moving to electronic payments or credit cards more often now? Can you provide a little insight? Well, actually, I'm going to go to Brian on this question. Brian, can you provide a little insight on that? What are some of the things that are changing in the cash industry? And are people moving to electronic payments or credit card payments more often now?

Brian Williams:

Yeah, thanks Jimmie. And all this good work was really conducted by our partners in FedCash Services. They complete this annual survey. What we can see based on the consumers is that they continue to make more payments regardless of what vehicle type. The average number of monthly payments increased, which has continued trends since 2021. In 2024, as you can see, consumers made an average of 48 payments per month up two payments from the previous year. Credit card payments continue to drive the most overall growth. And most of the increase we saw this past year occurred in remote payments, which we'll talk about in a little bit.

Interestingly, the use of cash has continued to be consistent since the post-pandemic years. Cash was and continues to be the third most used instrument averaging about seven payments per month for the last four. This four-year trend suggests that we might be at a floor of cash usage and that consumers are choosing not to fall below that threshold. The number of cash payments accounted for about 14% of all payments as well. Interestingly, consumers are most likely to use cash for small value payments under \$25 at about five cash payments per month. And I mentioned remote payments. Remote payments can be conducted through mail, phone, voice, mobile apps, text. And about 45% of our mobile or remote payments were used using a mobile device, which we know is an increasing demand for most consumers.

Jimmie Gray:

Thank you, Brian. I'm going to go back to Kristin for another thought or some insight on this question. What factors impact the use of cash?

Kristin Hamblin:

You can go to the next slide, please. Really, we look at multiple factors, but the two main ones here are age and demographics. As we think about age, people 65 and older are utilizing cash at 20% of their transaction. We are also seeing a high trend of cash being used in ages 55 and older. One thing we'll continue to monitor is if the generational shift continues. For example, will those that are 18 to 24 who are currently only using cash at 10% continue to use cash at a similar rate or will it slow with their age?

Another reference point is the use of mobile phone payments. While consumers of all ages have increased using their phones to pay in person, the younger consumers are more likely to make in-person mobile phone payments. On average, consumers younger than 35 use their phone four times per month for in-person non-bill payments while consumers aged 55 and older used their mobile phones only two times per month.

As we think about the demographics, we found that rural locations continue to have a higher usage of cash payments. We found that household earnings less than \$25,000 per year relied on cash 24% of their payments, whereas household earnings more than \$150,000 per year use cash for only 9% of their payments. Although as we look into the future, cash may be affected by also by our retail locations and willingness to accept cash, we are noticing a slight increase of cash not being accepted within our urban locations, which again could change our demographics and the use of cash.

Jimmie Gray:

Thank you for sharing the age and demographics data. And just as a reminder to everyone, if you have any questions, please type and submit those questions in the chat box. I want to go to Brad on this question here. Will people keep using cash? Brad, can you provide some insight on that question?

Brad Smith:

Yeah, that's a great question, Jimmie, and something that we're very interested in considering the business. As you can see, on average, people are still holding to cash in their wallet or within their own piggy banks. The green bar graph represents on-person cash holdings, meaning people are carrying the currency with them in their wallet. Conversely, the blue bar graph represents store of value holdings, and this is describing what people are holding in reserve. You will notice the holdings were highest in 2022 at around \$418, but they have declined since, reaching an average of \$306 in 2024. But holdings still remain higher than in 2019. The increase between 2020 and 2022 and the subsequent decrease in holdings since 2023 likely reflects the temporary effects of the pandemic. Next slide, please.

If we move to the next slide, when asked, consumers report no plans to give up cash as a method of payment or a store of value for emergencies. More than 90% of consumers stated that they had no plans to stop using cash amid growth in non-cash payments, a share consistent since 2022. In comparison, 5% said they already did not use cash, and about 3% of consumers planned to stop using cash within an expected timeframe, ranging from the next two years to more than five years from now. All these questions were added to the survey instrument in 2022 to gain a better perspective on current and future cash usage.

Jimmie Gray:

Wow. Thank you, Brad, for sharing that insight. I'm going to switch it and go to Brian. Brian, I want to get your thoughts on this question. How do these trends impact your multi-year strategy with you being the lead or the head of operations? And I want to get your insights there. And are there any advancements and/or technology being utilized to strengthen the industry?

Brian Williams:

Yeah, as we think about the future of cash usage, we know it'll continue to evolve, and we remain prepared to support our customers. No matter how cash usage changes, we're prepared to respond to the needs of the public. We're always monitoring cash volumes, making sure the supply chain of cash that we talked about earlier is as efficient as possible or always under tight budget constraints. We're always using our limited resources and budget and making sure that we're creating long-term optionality within our business. What that means is that we're identifying ways to utilize our resources more effectively as well as looking for ways to automate and modernize our cash operations, as you saw in that video earlier where we have automated guided vehicles and automated vaults to help store our currency and make our operations more efficient. All these initiatives help us be prepared to make the right decisions as well as increase flexibility to adapt our resources to changing conditions as the cash industry changes.

One of the specific enhancements we wanted to mention is implementation of cash visibility. Cash visibility is a program that creates greater transparency and efficiency to cash handling through our partnerships with financial institutions, armored carriers, and retailers. Cash visibility is a joint initiative with the industry that'll help identify, track, and share data on the movement of cash as it moves throughout the supply chain, providing more transparency. Collaboration with our industry partners to implement cash visibility is essential to build the resilient cash supply chain to help us meet our public demand. This is just one of the examples of technology improvements we're utilizing to help the US economy.

Jimmie Gray:

Perfect. Thank you for sharing that, Brian. And just as a reminder, if you have any questions, please type and submit those questions in the chat box. Kristin, I want to come to you for a quick question. It seems like there's so much more to learn about cash. How do I learn more?

Kristin Hamblin:

Yeah, there's a lot to learn about cash. We have a lot of insight data out there for you, including our US Currency Education program. It has training courses, education material about currency, our life cycle content, and much more. If you're looking to help educate your communities or younger generation, we have financial literacy curriculum guides that are aligned specifically to our Ohio model financial curriculum within our clevelandfed.org. We also have all of our national trends that are listed on the Board of Governors website, and then many of the things that we talked about today as we look at trends with the 2025 Consumer Diary of Payments and that whole article of where you can find the details of many of the trends that are happening within cash. And we'll put that here, all of those reference points, for you available in the chat. You can all link to those.

Jimmie Gray:

Thank you, Kristin.

Kristin Hamblin:

Yeah.

Jimmie Gray:

I see we have a few questions that's come into the chat. At this point, we're going to start addressing those questions as they come in. If you do have additional questions, please type and submit those in the chat box. Looking here, one of the questions that came in, I'm going to read it as stated. "Will cash be phased out in favor of a digital currency? With digital payments on the rise in consumer behavior shifting, how is the Federal Reserve preparing its cash operations to remain resilient and relevant, both in terms of infrastructure and public trust?" I'm going to go to Brian to see if he can provide some insights on this question here.

Brian Williams:

Well, Jimmie, we talked about the Federal Reserve's financial payment and ecosystem. There's lots of different methods of payment processes. We talked about the Diary of Consumer Payments earlier. As a reminder, credit, debit, and cash payment forms continue to be the top three used methods. Our role at the Fed isn't to dictate what payments or influence what payments people use our goal is to provide the consumer a variety of secure and resilient payment methods. We're not in the position to dictate what'll happen with digital currency or to advocate for one way or the other; our goal is to provide the public options and make sure that they're safe and secure, as I mentioned.

Jimmie Gray:

Perfect. I see another question just came in. The question is, "Do you face any coin management challenges? What solutions have been adopted to encourage wide usage and recirculation of coins?" I'm going to go to Brad for this question. Brad, can you provide some insight on this question?

Brad Smith:

Sure. Interestingly enough, the fourth district, I mentioned it earlier, we have 19 coin terminals that handle coin on our behalf. The same footprint that I had mentioned earlier, Ohio, Kentucky, Indiana, West Virginia, Buffalo, Pittsburgh, and Louisville, all 19 of those or all those areas are served by coin terminals. Those coin terminals work in conjunction with depository institutions and coin processors to recirculate coin and make it available to the public. I think we have a robust system. We did have somewhat of an issue of circulation during the pandemic, but that was really more about just the overall movement of coin slowing down within the population and not so much a shortage of coin that was publicly said; it really had to do with the movement of coin. And I think that we learned a lot of great lessons from that and have done a really great job across the country providing coin to the public.

Brian Williams:

Hey, Jimmie, I see a number of other coin questions jumping in, so maybe we'll continue on that thread. There's some questions about the penny disappearing and us modeling what Canada

does. As many people probably read in the news, the US Department of the Treasury stated that they will stop putting new pennies into circulation by early next year. The US Mint, under the direction of the Treasury, is the nation's issuing authority for coin and is responsible for the production of coin. The Federal Reserve does not decide which coins are produced or when or how many. Our role is to help distribute the coin, not to decide whether it's minted or not. In partnership with our FedCash Services team, we continue to operate as business as usual for all cash and coin activity. We'll fulfill all the penny orders using all available inventory. We'll make adjustments to orders that are outside of our historical norms as needed, which is part of our normal practice. But for us, we're business as usual when it comes to the penny and any coin or currency.

Jimmie Gray:

Thank you, Brian. Some great questions are coming into the chat now. The next question I have is, "Do you plan to add any additional cash facilities beyond your current footprint?" I'm going to go to Kristin for this question.

Kristin Hamblin:

Yeah, I'll keep it simple. No, not at this time. We do not plan on adding any additional facilities beyond our current footprint.

Jimmie Gray:

Right. As a reminder, if you have any questions, type and submit those in the chat box. I see a few more coming in here. This question, "Are there any recycling initiatives to collect coins from the consumer or business, process them, and reissue the fit coin for circulation?" I'm going to go to Brad for his response to this question.

Brad Smith:

Sure. Really, that's happening today. Other than coin that is minted, this is what happens every day. Coin is recycled today by coin terminals as well as independent coin operators. That equipment is used to identify genuine coin and wrap it for redistribution. The coin that you're getting today is being recycled in various locations throughout the country for redistribution.

Jimmie Gray:

All right. Okay. The questions are coming, so I'm going to keep us going here. "What would be the likelihood of the government following suit with Canada and a recall of pennies at some point?" I'm going to go to Brian for this question.

Brian Williams:

Well, similar to what I mentioned earlier, Jimmie, we don't... And I don't know if Canada recalled, I'd have to brush up on that, but our plan is not to recall the penny, our plan is to continue to operate business usual within the Federal Reserve. It's not my place to comment on what the US treasury's decision is about stopping the production of the penny, so I don't have anything to share on that. I would imagine a gradual phase out as consumers use pennies, but there's a lot of pennies out there, so I'm sure it'll take decades if not more for us to stop using the penny.

Jimmie Gray:

Right. Perfect. I'm going to go to Kristin on this question here. "How many people use cash? How many people use cash? You mentioned that approximately 95% of survey participants have no plan to stop using cash. How did you go about conducting this survey? Who would engage? And how many people provided response?"

Kristin Hamblin:

Yeah, FedCash leads this initiative across the entire US. It's a national representative survey to several thousand people each year. To ensure a national representative sample, the responses are weighted to match our national population estimates. That's a high level, but gives you an idea that this is something that's done nationally with many thousand peoples that are represented as a part of it.

Jimmie Gray:

Perfect. Here's a fun question that came in. Anyone can respond to this question. "What is your favorite fun fact about cash?"

Brian Williams:

Well, to me it's pretty interesting to know how long the lifespan of different bills are. The \$1 bill averages about six and a half years of lifespan, the \$5 bill about 4.7 years, the \$10 bill a little over five years, the 20 about eight years, the \$50 about 12. But most interestingly to me, the \$100 bill typically lasts for almost 23 years.

Jimmie Gray:

Anyone else have any fun facts?

Kristin Hamblin:

Yeah, I'll jump in and say I think the other interesting part is we look at counterfeit. We are counterfeit certified within our operations, and so we have counterfeit bills that come through here. We're identifying those and ensuring they're secured and sent out to the right location. We are doing that as a part of our processing all of our currency.

Jimmie Gray:

Thank you both. All right, there's another question that came in. "What is the relationship between the Federal Reserve and the US Treasury Department? Do they work together?" I'll let anyone that's like to jump and respond to that question.

Brian Williams:

I can start and then others can chime in. We do partner with the US Treasury. As I said earlier, they're part of the cash circulation process. They work with the Bureau of Engraving and Printing and the Mint to produce both currency and coin. As you saw on the video, when currency comes back into the Federal Reserve, we run it through our high-speed machines and it's deemed either fit or unfit currency. If it's fit currency, it goes back into our vault, and then we end up paying it out. If it's unfit currency, it gets shredded. We use a variety of different

things such as how much currency is shredded, how much currency that our FedCash partners see as volume that's needed for the future. We provide that information to the US Treasury to help us for future currency print orders, and that's what helps determine what the US Treasury prints from a current standpoint on an annual basis. We partner very closely with them to help produce the new currency coming up as far as what volume and consumer demand is.

Jimmie Gray:

Perfect. Perfect. If you have any additional questions, please submit those in the chat. Looking through to see if there are additional questions here that came through that wasn't already addressed. And it looks like the bulk were around coin, and we addressed the bulk of those.

Brian Williams:

Yeah, Jimmie, I'll add onto one question. Somebody asked if the Mint is responsible for minting and the Fed is responsible for distribution. We are responsible for distribution and redistribution. As you think about... I might get some change at the coffee shop, and I use that over at the gas station; that money might eventually make its way back to the Fed. And same with the currency. And again, it's just a circle, the circle of life of cash or coin where we get it from the US Treasury, we pass it out to our financial institutions via armored carriers. Ultimately, that reaches the pockets of our US consumers who use it to buy goods and services. At that point in time, a retailer or a gas station, coffee shop, any sort of retail organization would then send that back to a financial institution via an armored carrier. And that might make its way back to our doors, again, from a receiving standpoint. That point in time, we'll continue to run it through the high-speed machines that we have, determining fit and unfit currency. It just is vicious cycle of currency getting recirculated.

Jimmie Gray:

Thank you, Brian. I see another question that came through. "What is the most counterfeit bill? And if you're able to say what is the number per million."

Brad Smith:

Yeah, Jimmie, I can take that one. I should preface it by saying I don't know if it's the most counterfeited bill, but the bill that we find most often in the fourth district is the \$20. I cannot say what per million. I can tell you what happens when we find a select counterfeit. We secure that, team members secure that. And then on a weekly basis, we send the bill and all the information; who sent the bill in any additional information to the Secret Service so they can do background and try to find the counterfeiter. We do get \$100s. At a system level, the \$100 may be a little bit more, but for our purposes, we certainly find more \$20s than \$100s.

Jimmie Gray:

Thank you, Brad. Another question that came through, "How do coin get back to the Fed?"

Brad Smith:

I could take that one, Brian, if you'd like. We don't get a lot of the coin back here at the Fed. And we mentioned earlier, the concept of coin terminals is that we... It is symbiotic relationship between us and the coin terminals. Most of those coin terminals are armored carriers. We carry

the actual value of that coin on our books so it's not a burden on them. But instead of hauling coin, as you can imagine, very heavy, very cumbersome, across the road, we have those coin terminals. Now, there are times that we move that coin from one coin terminal to another depending on the regional needs. But that is in a nutshell what we do there. We do have obviously vault space across the country to take coin back if need be, but we prefer to keep it in the coin terminals and move coin in that manner.

Jimmie Gray:

Okay. Thank you, Brad. Another question came through which states, "You talked about fit and unfit currency. What about unfit coin?"

Brian Williams:

Yeah, sometimes there's mutilated coin, and it might be bent or might be cracked in some way. And again, that, I believe, is a partnership we have with the US treasury where several times a year or once a year, we'll work with them to collect all that mutilated coin and send that back to the US Treasury. Brad, check me there if I'm wrong, but I believe that's the-

Brad Smith:

That is correct, Brian.

Brian Williams:

I see a question in here, Jimmie, talking about the Cincinnati Federal Reserve. As Brad mentioned earlier, that is part of the fourth district. I think Kristin mentioned this earlier; there's 28 different cash operations across the United States. While we're talking about Cincinnati and Cleveland specifically because that's within our fourth district, we all work together as an enterprise, as a system. When we talk about the federal services system or FedCash Services, that's our way of saying that we work collectively as all 28 operations across the system. Some operations are bigger than others, but for the most part, we all have a role, a critical role we play in making sure that the cash industry is effective, efficient, resilient, secure. There really isn't one Reserve Bank that has more power over another. We like to think of ourselves as one team that collaborates and works on behalf of the US consumer.

Jimmie Gray:

Thank you, Brian. Question related to... It says, "Are there private companies that store and process cash in the US cash value chain, or is processing of cash exclusively handled by the Federal Reserve and large commercial banks?"

Brad Smith:

Yeah, I can take that one. There is processing that happens outside of the 28 cash offices. Companies can use sorting machines to call out good notes, fit notes, send them back to the public. They do not have to send them to us. The key difference is the 28 Federal Reserve offices are the only entity that have the ability to shred unfit currency. There's a big distinction there between what larger banks, as you mentioned, can do. Even our armored carriers have processing centers that they do on behalf of the financial institutions. But at the end of the day, the 28 cash offices within the Federal Reserve System are the only ones that have the ability to

shred. And Brian mentioned it earlier, every day we report that to the Board of Governors as our shred totals, and they take that information as part of their decision-making when they order new currency at the BEP.

Jimmie Gray:

Thank you, Brad. If you have any questions or anything you would like to submit, please type in, enter it in the chat box and we'll go through. I'm looking through our list. Some of the questions have been answered through previous conversations and discussions. There's a question that came through that says, "How much money, cash, and coin is deemed loss?" I'm not sure if we have an answer for that one.

Brad Smith:

I don't think anything's deemed loss. Everything is on the books. Brian, I don't know if you-

Brian Williams:

Yeah, every day we reconcile down to the penny in our operations. If the question was deemed more outside of the Federal Reserve, I can't speak to currency, but I do recall a recent article in the Wall Street Journal that talked about how Americans throw away about \$68 million in coin every year. That could be as you pass through TSA at an airport, it could be leaving your change behind, but I don't know the currency number. But here at the Federal Reserve, no money, to Brad's point, is lost. We reconcile every day to make sure that we balance, and we can't close our books until we balance.

Jimmie, I see a question in here about who's the boss of 12 regional banks? While there's 28 cash operations, there are 12 Federal Reserve Banks. Each bank has a Reserve Bank president and a Board of Directors. Each Reserve Bank is really relied upon for some of those other, not only just payments, but as I mentioned, supervision and regulation to gain insight on the local economies. I know our Bank President, Beth Hammett, goes out to all the different regions throughout the fourth district to hear what's on the minds of local business owners, organizations, the public. And she takes that qualitative data and then matches it up to our quantitative data that's produced by our research department to help inform different monetary policy decisions. Each Reserve Bank is independent, and then we collaborate with the Board of Governors in Washington, DC to set monetary policy, so things like the federal funds rate, but each Reserve Bank is independent from one another.

Jimmie Gray:

Thank you, Brian. The questions have slowed down a little bit. Another shout out, if you have any questions you would like to submit, please type and enter it in the chat. I'm just looking through to make sure I didn't miss anything that hasn't already been addressed. All right, I think we've covered everything. I don't want to hold us just to hold us. Any final thoughts related to a question if there's a question I might've missed? Anything Brian, Kristin, or Brad that I might've missed? I'm looking through to make sure there's nothing outstanding.

Brian Williams:

Well, why don't we talk about what becomes of this money that's shredded? There's a couple of questions in here, I think, that I've seen. A couple things. It gets disposed of like anything else

does. But also sometimes if you come at a tour, a lot of the Federal Reserve Banks have different tour programs, money museums, educational exhibits to help you better understand the role of the Federal Reserve and the financial markets as a whole. A lot of times, we've got little bags of money as tokens of appreciation giveaways. If you're at a local Reserve Bank, feel free to pop into their money museum or search it online for the hours, as many of them are open on a daily basis. And grab yourself a bag of shredded money and see if you can put it back together.

Jimmie Gray:

Another question just popped in. "Are there any banks that are moving away from accepting or ordering coin?"

Brian Williams:

I'm not aware of any yet doing that, so to my knowledge, no. But I must admit that's not an area that I study or research. The business is still thriving from our standpoint as armored carriers hit our loading docks every day, multiple times a day, not only in our location, but all 28 cash operations.

Jimmie Gray:

And here's another question. "What factor's driving your improvement initiatives in the cash cycle?"

Brian Williams:

Like any business, we're always looking for ways to automate as technology becomes more prevalent. We might not be the first to implement a new technology, but we're always looking for ways to automate our processes, also to make the employee experience better. Our employees, as you saw in that video, are lifting heavy bundles of currency out of containers. They're bending over, they're on their feet all day, so a lot of times we're looking for different ergonomic improvements that can improve their experience while on the job here at the Fed. There's also in many manufacturing or warehousing industries, you might see automated warehousing, you might see HEVs like you saw on our video that help move currency around or other packaging around. There's different conveyor systems, different shrink wrap systems to help bundle currency, all things that we explore and make sure that we're using our taxpayer dollars most efficiently.

Jimmie Gray:

Thank you, Brian. All right, just looking through to make sure before we get ready to wrap up here.

Brian Williams:

The one question, Jimmie, "Does the Fed do research on financial inclusion aspect of cash?" There's definitely elements of that. And the consumer diary payments that we talked about earlier, we didn't have time to cover every page of it, but there's definitely research that shows that consumers and low moderate-income families tend to use cash more. I don't know if we hit on that earlier. We do have some different demographics in there. And if we didn't, I think I saw somebody post that in the chat earlier, I'd encourage everybody to give that review. Our

FedCash partners spend a lot of time and effort making sure that they have a wide, diverse group of individuals that they survey. They follow them for several weeks if not months at a time to learn their spending habits and especially related to cash. Really, that's a good read; really informative. And I would encourage you all to review the payments diary.

Jimmie Gray:

Here's another question related to cash. "Are you seeing a concentration in your cash and transit markets? Given decline in the cash use, are you foreseeing this and thinking of any ways to mitigate it and ensure strength of cash infrastructure, perhaps oversight?"

Brian Williams:

If the transit market's referring to armored carriers, we have an extensive network of armored carriers throughout the United States, throughout the Federal Reserve System that we partner with. And cash visibility is an example of how we're trying to strengthen the cash infrastructure to provide more visibility, transparency, to make it more efficient, shifting away from things like paper manifest to more digital technology. That's another example where we're trying to strengthen the overall infrastructure throughout the Federal Reserve, not just for our own operations, but for our partners in the armored carrier industry as well.

Switching gears to a question about the AGVs. That was those automated guided vehicles that look like robots in the video. We do not plan to have more AGVs. We have exactly what we need from a planning standpoint within our operation. It's interesting to know that I think about half of the Federal Reserves have AGVs, and about half the employees push those containers around. And while the containers are on wheels, it's a good workout. You can imagine that pushing bundles and bundles of currency that could weigh hundreds of pounds is not easy. We do not plan to add more AGVs, but it is fun to see them moving around the operation. And we have not lost anyone on a tour yet from one of the AGVs.

Jimmie Gray:

All right, I think I have one more question here, and it's around cash visibility, and then we can start wrapping things up here. "Are any of your Fed branches perform deposits and orders through cash visibility?"

Brian Williams:

Yeah, in the fourth district, we don't have any armored carriers or financial institutions quite yet, but that doesn't... As I mentioned earlier, we're a system. I know in other Reserve Banks, whether it's the Chicago Reserve Bank, San Francisco out in Seattle, or even many out... They've partnered with different armored carriers, maybe even in the Florida region out of Atlanta. Don't quote me on that one. But we have been rolling out cash visibility. It's not a mandate today, but it's something that we're really encouraging and, as I mentioned, working with the industry to make it as seamless as possible.

Jimmie Gray:

Perfect. Thank you all for your great questions today, and thank you for informative discussion. In the chat, you will see a link to a post-session survey. And the survey will also pop up in your browser after the Zoom session closes. And we invite you to take a moment to complete this

survey and share your valuable feedback. And we appreciate all the questions that came forth today.

Information about today's program will be sent in a follow-up email. A video and audio recording of the event will also be posted on clevelandfed.org/fedtalk. You can also listen to this and previous Fed Talk programs by subscribing to the Fed Talk podcast available everywhere you listen to podcasts.

We will not be holding the Fed Talk in June. Instead, we invite you to join us in Cleveland or virtually June 26th and 27th for the 17th Policy Summit. This year's theme is building strong and sustainable communities. And the focus will be on research and innovative strategies focused on housing, the workforce, small business, and economic development. Registration is required, and a link will be placed in the chat, or you can visit clevelandfed.org for more information. Thank you all for joining us today. Have a great rest of your day. Thank you.