

the PYMNTS.com

Global Cash Index™

a **CARDTRONICS** collaboration

United States Analysis | MARCH 2017



Introduction

The onslaught of digital wallets and contactless payments may have created a buzz in the U.S. market, but they are seemingly far from replacing good old cash.

In fact, when cash usage is measured in terms of gross domestic product (GDP), the largest economy in the world relies on it more than any other form of payment method.

Since 2003, cash usage in the U.S. has been on a relatively stable course, ranging between 14.3 percent and 15.5 percent of the GDP. In 2009, overall cash usage spiked around the global financial crisis but then went into decline, dipping to 13.1 percent in 2015.

While cash continues to be the most used payment method in the U.S., its relative importance is decreasing, according to the U.S. Federal Reserve's Survey of Consumer Payment Choice. Cash usage fell from representing 40 percent of transactions in 2012 to 32 percent in 2015, the study found.

A look at the usage of other forms of payments reveals changing consumer attitude. The number of debit card transactions, for example, went up from 25 percent in 2012 to 27 percent in 2015. At the same time, credit card usage increased from 17 percent of transactions to 21 percent.¹

The rate of use of alternate forms of payments and growth in America's GDP, which, with the exception of 2009, the year of the financial and subprime crisis, has been on an upward trajectory. The International Monetary Fund suggests that a similar growth rate is likely to continue in the following years.

With the economy growing, an overall increase in use of various payment methods, including cash, is expected – even though cash usage has lessened in comparison to other payment methods, over the past eight years.

Our projections estimate cash usage to continue growing in the near future. The competition from alternate forms of payment such as mobile wallets, contactless cards, cryptocurrencies and others has the potential to slow down or flatten the pace of cash growth, but is unlikely to render it obsolete. After all, Americans still love cash – and plenty of it.

¹ The More Things Change, Cash Remains, Federal Reserve Bank of San Francisco. November 3, 2016. <http://www.frbsf.org/our-district/about/sf-fed-blog/more-things-change/fce>. Accessed on February 27, 2017. The State of Cash: Preliminary Findings from the 2015 Diary of Consumer Payment Choice, Federal Reserve Bank of San Francisco. <http://www.frbsf.org/cash/publications/fed-notes/2016/november/state-of-cash-2015-diary-consumer-payment-choice>. Accessed on February 27, 2017.

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Cash Share Projection

The U.S. has a cash-intensive economy, but overall use of cash in the country is far less intensive than the total use of credit and debit card payments. In 2015, Americans spent a total of \$2,359 billion in cash and \$5,527 billion with cards.

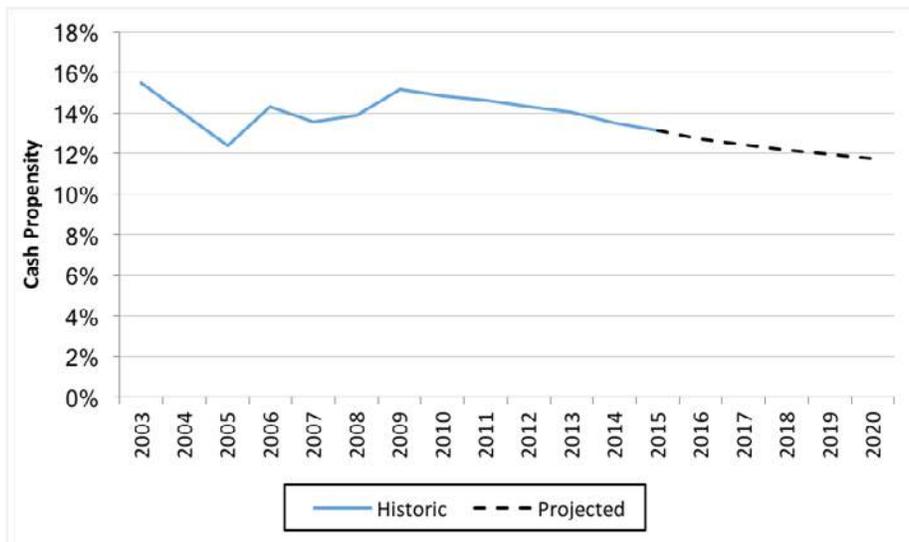
After a period of stability between 2003 and 2009, cash share has been on a downward path, and today its usage is among the lowest in the leading economies in the Americas, including Brazil and Mexico.

In comparison, cash usage in the U.S. is still higher than in Western European countries. In 2015, cash usage in the U.S. represented 13.1 percent of its GDP, whereas at the same time, it represented 7.7 percent of GDP in Finland, 7.1 percent in France, 7.4 percent in Netherlands, 5.6 percent in Sweden and a mere 4.5 percent in Switzerland.

Countries with similar cash usage as the U.S. are the United Kingdom (11.6 percent), Luxembourg (12.8 percent) and Belgium (15.5 percent).

We estimate that cash share in the U.S. will represent 11.7 percent of its GDP by 2020.

Figure 1. Historic and Projected GDP for the United States, 2000-2020 (Nominal in Billion Dollars)



Source: IMF. World Economic Outlook Database. October 2016. <https://www.imf.org/external/pubs/ft/weo/2016/02/weodata/index.aspx>. Accessed on February 27, 2017.

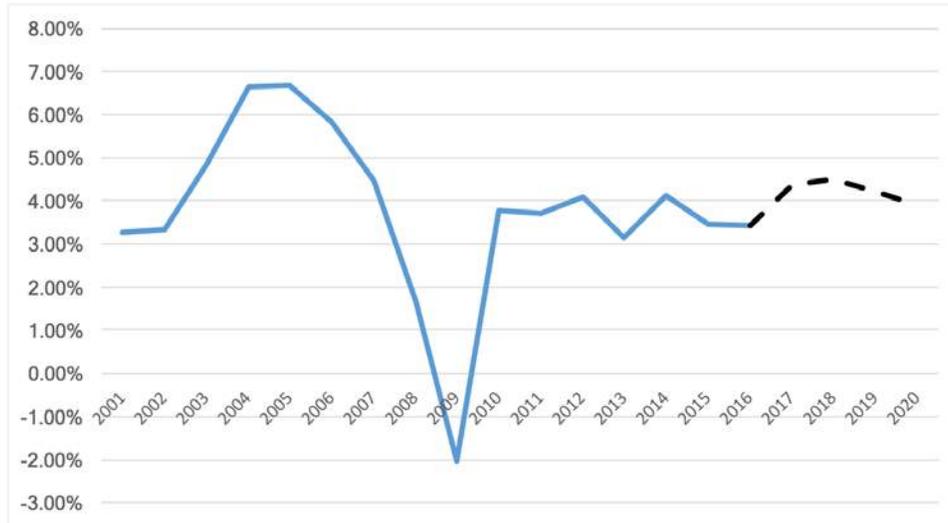
As depicted in Figure 2, the U.S. GDP has shown remarkable stability over the last 15 years. It grew at a compound annual growth rate (CAGR) of 3.8 percent per year between 2000 and 2015 and is expected to grow by an average of 4 percent between 2015 and 2020.

Annual GDP growth rate has ranged between -2 percent and 6.7 percent. Without considering those outliers, the growth rate has ranged between 3.1 percent and 4.5 percent in 10 of the 15 years between 2001 and 2016.

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At its current pace, the U.S. economy is expected to hold its position as the world's largest economy in 2020 with an estimated GDP of \$21.9 trillion.

Figure 2. Historic and Projected GDP Growth for the United States, 2000-2020



Cash Share Projection

A look at the change in number of ATM and over-the-counter (OTC) withdrawals helps in understanding the gradual decline of cash share in the U.S.

In 2003, OTC withdrawals represented 11.2 percent of the U.S. GDP, and their growth remained mostly flat until 2009, when it declined to 10.7 percent of the GDP. In 2012, they decreased to 10.1 percent of the GDP, marking the most significant reduction, and then to 9.2 percent in 2015.

ATM withdrawals, on the other hand, remained very stable until 2012. Between 2003 and 2012, they ranged between 4.2 percent and 4.5 percent of the GDP. In 2015, however, the total number of ATM withdrawals declined to represent 3.9 percent of the GDP.

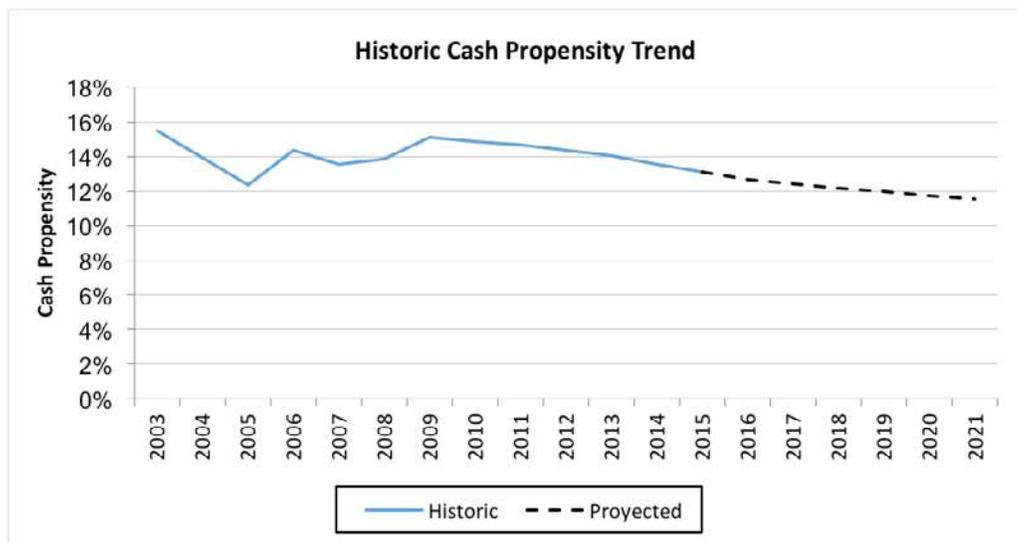
Our projections show that in the next five years, the decline in cash share will be led by waning OTC withdrawals and a slight decrease in ATM withdrawals. By 2020, we estimate cash share to represent 11.7 percent of the U.S. GDP. In Table 1, we show the contribution of ATM and OTC withdrawals in the overall cash share in the U.S.

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Table 1. GDP and Cash Usage Data for the United States (in Billion Dollars)

Year	Nominal GDP	Cash Usage			ATM Share	OTC Share	Cash Share
		ATM	OTC	Total			
2003	11510.7	496.7	1286.3	1782.9	4.3%	11.2%	15.5%
2004	12274.9	--	--	--	--	--	--
2005	13093.7	--	--	--	--	--	--
2006	13855.9	578.8	1407.6	1986.5	4.2%	10.2%	14.3%
2007	14477.6	--	--	--	--	--	--
2008	14718.6	--	--	--	--	--	--
2009	14418.7	646.7	1536.4	2183.0	4.5%	10.7%	15.1%
2010	14964.4	--	--	--	--	--	--
2011	15517.9	--	--	--	--	--	--
2012	16155.3	687.0	1628.2	2315.2	4.3%	10.1%	14.3%
2013	16691.5	--	--	--	--	--	--
2014	17393.1	--	--	--	--	--	--
2015	18036.7	700.0	1659.0	2359.0	3.9%	9.2%	13.1%

Figure 3. Historic and Projected Cash Share with Logarithmic Trend



An analysis of the state of cash in the U.S. reveals that cash share declined by 0.73 percent CAGR between 2007 and 2015 and is further expected to decline by 0.43 percent CAGR between 2015 and 2020.

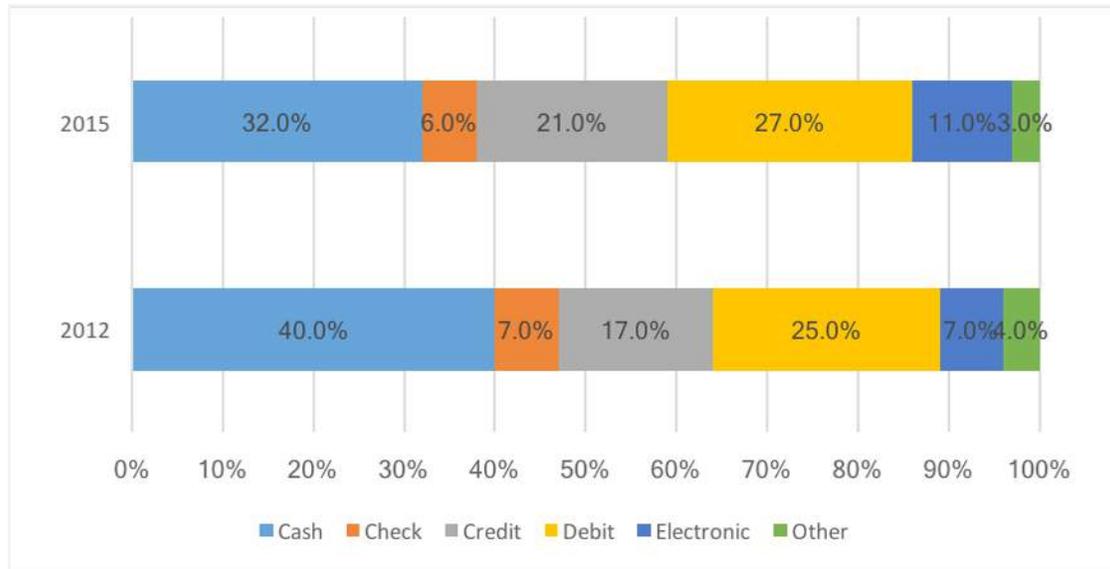
Cash Versus Alternative Payment Methods

When it comes to making payments, cash is the hands-down choice for most Americans, according to Fed's Survey of Consumer Payment Choice.

Despite the growth of alternative forms of payment, cash is used for more transactions than any other payment method in the U.S.² However, in terms of total value of transactions, the use of cards is higher than the use of cash.

Figure 4 shows the usage of different payment methods in the U.S.

Figure 4. Share of Transaction Numbers by Payment Instrument



Source: Matheny W, O'Brien S, Wang C. The State of Cash: Preliminary Findings from the 2015 Diary of consumer Payment Choice. Cash Product Office. Federal Reserve System. 2016. <http://www.frbsf.org/cash/publications/fed-notes/2016/november/state-of-cash-2015-diary-consumer-payment-choice>. Accessed February 27, 2017.

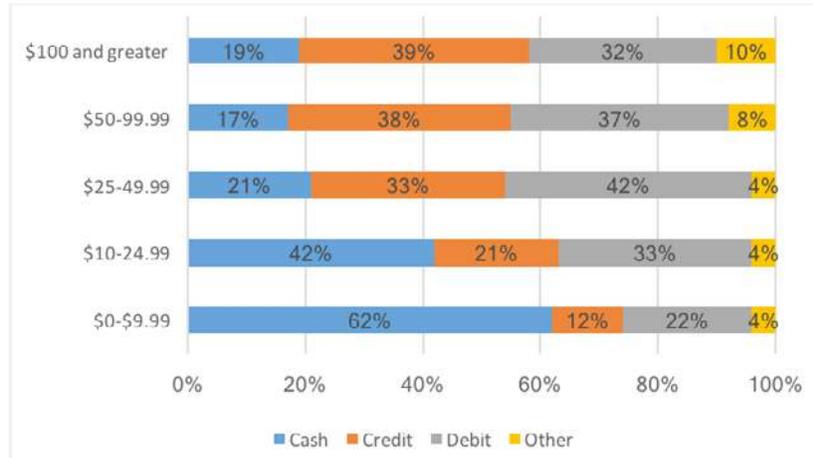
Figure 5 shows the usage of the different payment methods, by value of transactions.

When it comes to paying for small-value purchases, consumers more often pull out bills or change from their pockets than their credit or debit cards, the Fed Reserve study found.

According to the 2015 Diary of Consumer Payment Choice, 62 percent of transactions valued at \$10 or less are paid by cash. Consumers' preference for using cash for small-value transactions comes more out of convenience and not any kind of merchant-specific pressure, such as acceptance of cards for transactions that are over a certain dollar value, according to the Fed.

² Matheny W, O'Brien S, Wang C. The State of Cash: Preliminary Findings from the 2015 Diary of consumer Payment Choice. Cash Product Office. Federal Reserve System. 2016. <http://www.frbsf.org/cash/publications/fed-notes/2016/november/state-of-cash-2015-diary-consumer-payment-choice>. Accessed February 27, 2017.

Figure 5. Payment Instrument by Amount, In-Store 2015

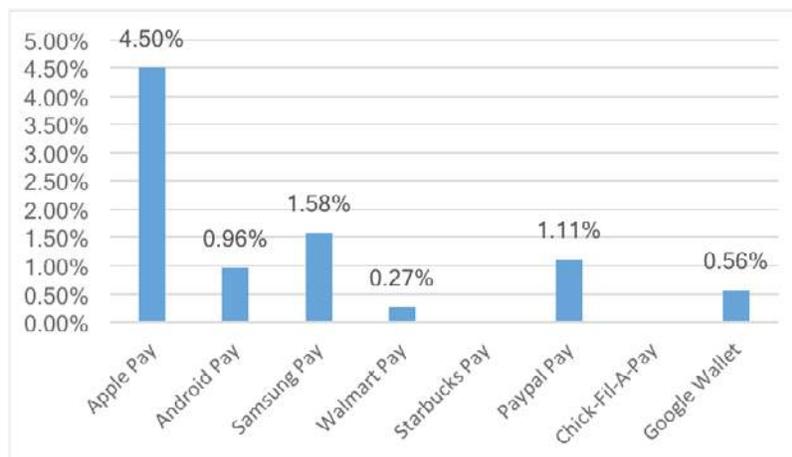


Source: Matheny W, O'Brien S, Wang C. The State of Cash: Preliminary Findings from the 2015 Diary of consumer Payment Choice. Cash Product Office. Federal Reserve System. 2016. <http://www.frbsf.org/cash/publications/fed-notes/2016/november/state-of-cash-2015-diary-consumer-payment-choice>. Accessed February 27, 2017.

One of cash's new competitors that is slowly but steadily growing in popularity is the mobile wallet. While the use of mobile wallets has not shown ignition or great adoption yet, there is a growing list of mobile and retail service providers that are offering their own version of mobile wallet, including Android Pay, Apple Pay, Google Wallet, Paypal, Samsung Pay and Walmart Pay, among others.

Figure 6 shows the results of the latest PYMNTS.com-InfoScout mobile payments adoption survey that asked consumers paying in-store if they used a mobile wallet to pay for the transactions.

Figure 6. Percent of People Who Used the Different Mobile Wallets for This Transaction



Source: PYMNTS.com-InfoScout mobile payments adoption survey, October 2016

The survey results showed that the most popular form of mobile payment was Apple Pay. However, only 4.5 percent of iPhone users chose to pay using their phone's mobile wallet. The rest of the wallets fared worse in terms of overall usage.

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One of the factors detrimental in the widespread adoption of mobile wallets is their struggle to gain traction with users over the age of 35, who are more conditioned to pay by cards or cash.

Figures 6a and 6b take a look at the usage of mobile wallets among different age groups.

Figure 6a. Usage of Mobile Wallets by Age

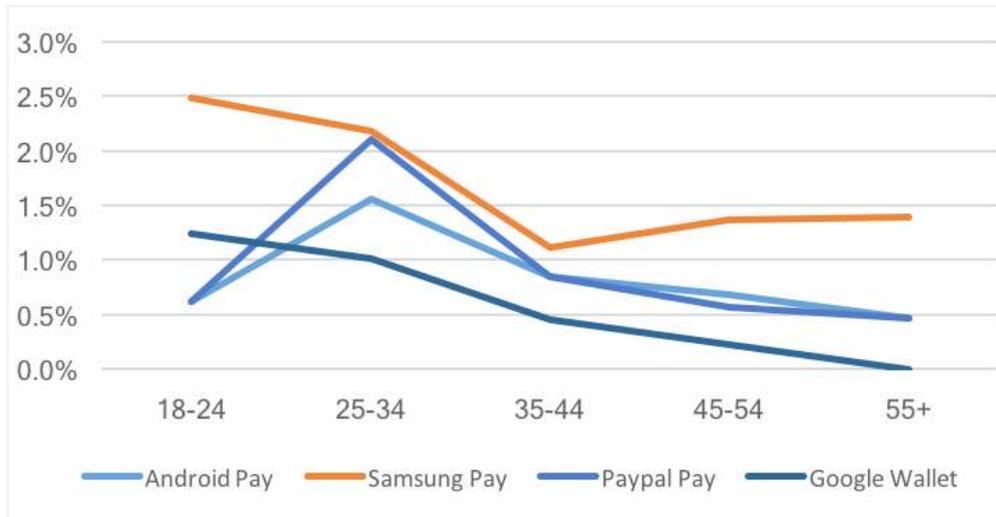
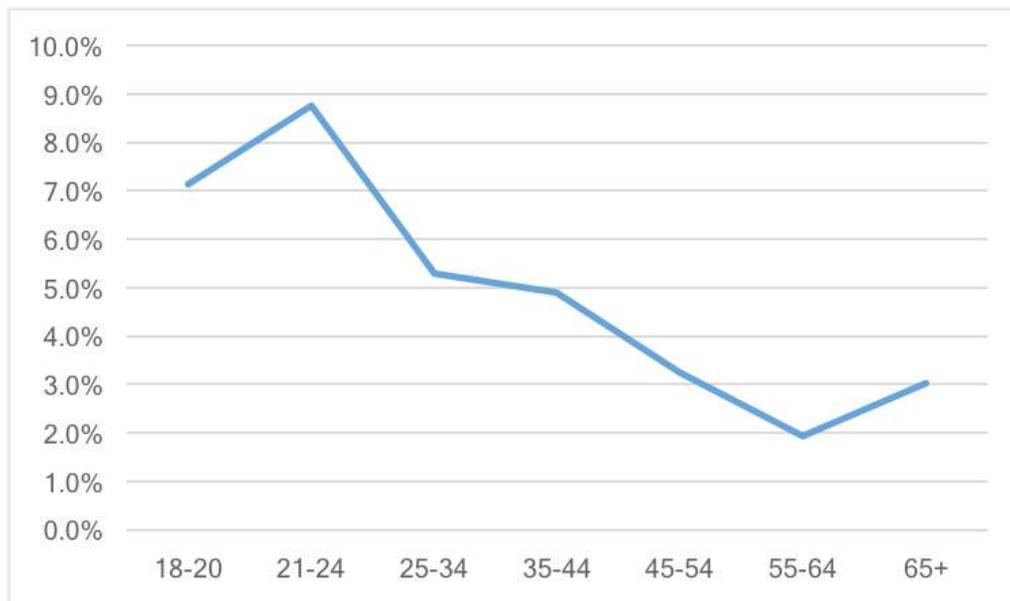


Figure 6b. Usage of Apple Pay by Age



The low usage of mobile payments suggests that these digital wallets are not further decreasing friction at the point of sale and hence do not pose a threat to cash or cards just yet.

As for cash, the competition comes from two fronts: high usage of card-based payments and eCommerce.

While cash continues to be the go-to payment method in terms of overall transaction volume, the number of card-based payments is set to surpass cash-based transactions at some point in the future. Between 2012 and 2015, the transaction volume of card-based payments increased from 42 to 48 percent – a significant improvement.

In terms of transaction value, the switch was flipped in favor of card-based payments over a decade ago. In 2003, the total value of cash-based payments stood at \$1,782 billion – not far behind from the \$2,053 billion processed through credit and debit cards.

As of 2015, however, the gap more than doubled, with cash showing a 2.4 percent CAGR and accounting for \$2,359 billion in payments and the volume of card-based payments growing by 8.9 percent and accounting for \$5,720 billion.

Within the card-based payments category, the use of debit cards showed a greater increase than credit cards. Total payments with debit cards grew by 13 percent CAGR between 2003 and 2015, while total payments with credit cards grew at a CAGR of 6.6 percent during the same period.

Nonetheless, it might be a while before cards completely catch up to the popularity of cash. Currently, about 55 percent of small businesses do not accept card payments.³ Additionally, cards are not the top choice of payment method in several industries. Fifty percent of government and non-profit payments and 42 percent of entertainment and transportation payments, for instance, cannot be made with debit or credit cards. Also, a quarter of payments in the financial, professional and miscellaneous services category still do not accept card-based payments.⁴

The second potential threat to cash comes from eCommerce sales, which are mostly paid by cards in the U.S. While as of 2015, eCommerce sales represented only 7.5 percent of overall retail sales, their share has sharply increased over the past decade.⁵ In 2015, eCommerce accounted for \$294 billion in retail sales and grew to \$322 billion in 2016 – a 9.5 percent increase.

It is estimated that by 2020, eCommerce sales will grow at a 9.3 percent CAGR and balloon to \$459 billion,⁶ representing 9.2 percent of total retail. In other words, between 2015 and 2020, \$165 billion of retail sales, which has long been paid by cash and other payment methods, will mostly be paid with credit or debit cards.

³ Austin B. Cost-Benefit Analysis of Accepting Credit Cards for your Small Businesses. Quickbooks Intuit. <http://quickbooks.intuit.com/r/getting-paid/cost-benefit-analysis-of-accepting-credit-cards-for-your-small-business/>. Accessed February 27, 2017.

⁴ Matheny W, O'Brien S, Wang C. The State of Cash: Preliminary Findings from the 2015 Diary of consumer Payment Choice. Cash Product Office. Federal Reserve System. 2016. <http://www.frbsf.org/cash/publications/fed-notes/2016/november/state-of-cash-2015-diary-consumer-payment-choice>. Accessed February 27, 2017.

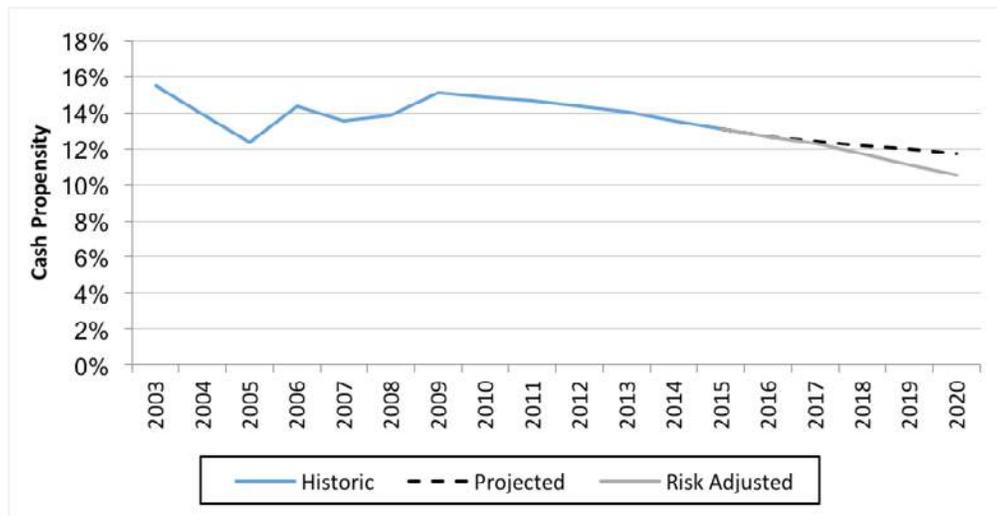
⁵ Latest Quarterly E-Commerce Report. U.S. Census Bureau. <https://www.census.gov/retail/index.html#ecommerce>. Accessed February 27, 2017.

⁶ Statista. Retail e-commerce sales in the United States from 2015 to 2021 (in billion U.S. Dollars). <https://www.statista.com/statistics/272391/us-retail-e-commerce-sales-forecast/>. Accessed February 27, 2017.

Risk Adjustments

Based on the factors mentioned above, it appears that the reduction of cash could be accelerated by 50 percent among 19-to-24-year-olds, 30 percent among 25-to-34-year-olds, 15 percent among 35-to-44-year-olds and 5 percent among 45-to-54-year-olds. Assuming that these accelerated reductions are realized over a six-year time period, the risk-adjusted cash share, as depicted in Figure 7, could reach 10.5 percent in 2020.

Figure 7. Historic and Risk-adjusted Cash Projection



Total Cash Usage

When we combine the projected cash share and the GDP, we see that the total use of cash has increased over the last decade in the United States. We also expect that the total use of cash will continue to grow in the future. In Table 3, we show the evolution of the cash share in the U.S. and our estimates for 2020.

Table 2. United States Cash Share, GDP and Total Cash Usage

	Cash usage and projections				Compounded annual growth	
	2005	2010	2015	2020	2010-2015	2015-2020
Cash share	12.4%	14.8%	13.1%	11.7%	-0.4%	-0.4%
GDP	13093.7	14964.4	17947.0	21926.5	3.7%	4.1%
Total cash usage	1621.4	2220.9	2356.2	2571.1	1.2%	1.8%

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In Figures 8, 9 and 10, the charts show the historic and projected cash share, GDP and total cash usage.

Figure 8. Historic and Projected Cash Share

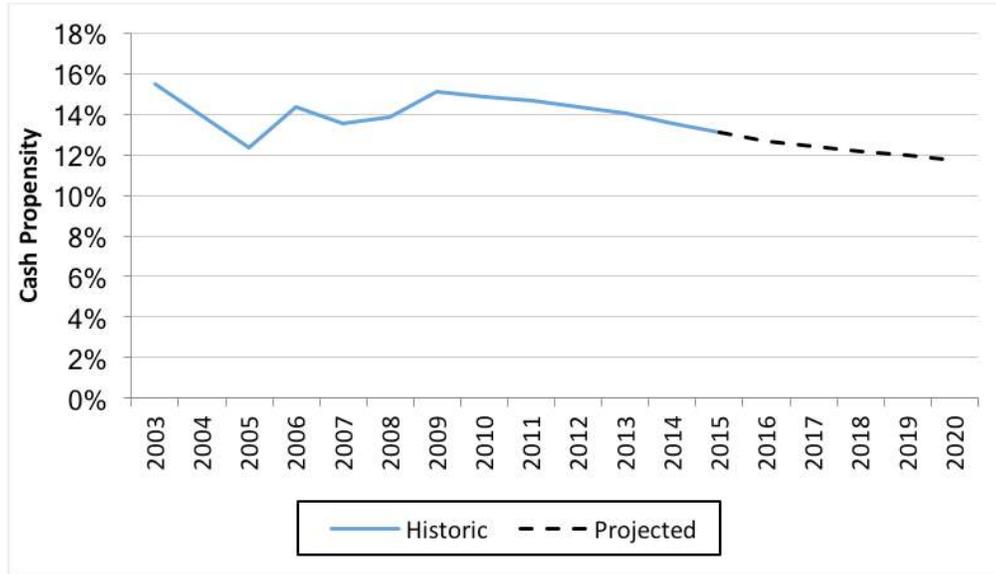


Figure 9. Historic and Projected GDP (in Billion Dollars)

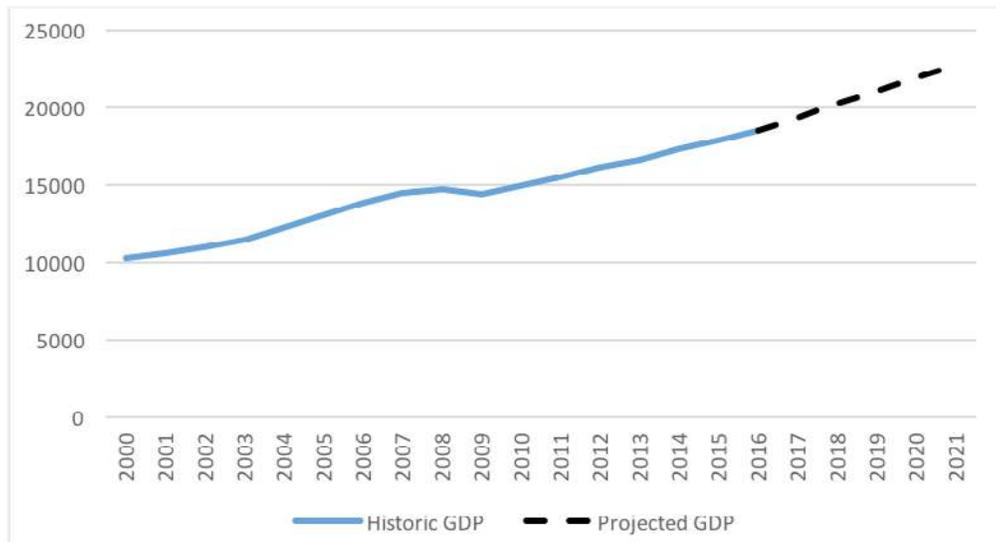
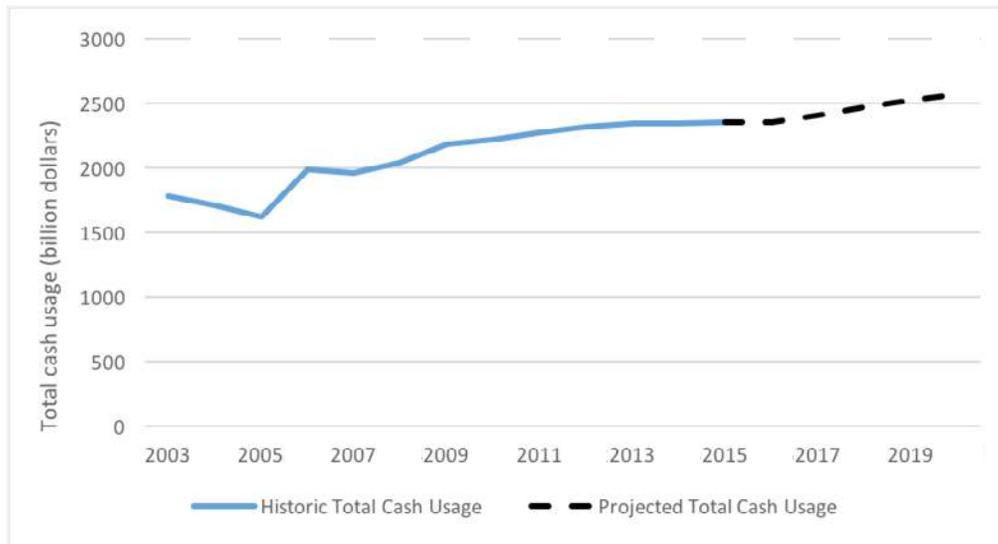


Figure 10. Historic and Projected Total Cash Usage (in Billion Dollars)



Conclusion

Cash continues to face stiff competition from alternate forms of payment; nonetheless, it's far from losing its top spot as a preferred payment method. Cash's overall usage is, in fact, bound to increase with growth of GDP.

While the growth in popularity of card- and mobile-based payments is changing how Americans prefer to pay for their purchases, cash is sure to survive and thrive in years to come.

After all, for most Americans, cash is the preferred payment method when it comes to buying their daily soda and gum.

Feature Story



Why Technology Is Actually Helping Cash Thrive

Americans have more payment options than ever before, from the digital payment info stored in mobile wallets to credit and debit cards in their physical wallets.

But even with these new choices, Americans still cling to cash when making many purchases. According to research revealed inside the PYMNTS.com Global Cash Index™ Americas Analysis, while the onslaught of payment cards, digital wallets and contactless payments may have created a buzz in the U.S. market, they are still far from replacing cash. The U.S. relies more on cash than on any other form of payment, according to the analysis, with cash usage remaining relatively steady since 2003, ranging between 14.3 percent and 15.5 percent of the gross domestic product. In 2009, overall cash usage spiked around the global financial crisis but then went into decline, dipping to 13.1 percent in 2015.

And according to a report from the [Federal Reserve Bank of San Francisco](#), "... cash remains a unique, resilient and heavily used consumer payment instrument."

The report found that 32 percent of transactions used cash in 2015 and that demand for cash remains strong in the United States.

And cash's popularity isn't limited just to retail purchases. [PayNearMe](#) allows consumers to pay bills with cash by visiting local retail partners like Family Dollar or 7-Eleven. According to Mike Kaplan, senior vice president of merchant processing, the company's customers elect to pay bills for things like cell phones and utilities, because they may not have bank accounts or just find that paying in cash is more convenient.

PYMNTS recently caught up with Kaplan to find out more about why consumers are consistently choosing cash, even with more options than ever before, and the future of the physical payment method. He said that despite these new payment methods, consumers are eager to pay for even larger transactions, like utility bills, with cash. Customers pay bills by downloading a smartphone app and adding billers, before visiting one of many retail locations, where they present a barcode for a biller to a cashier, along with the amount of cash they wish to use to pay.

“There’s a perception that consumers either can’t or won’t pay their bills in cash. But families earning less than \$25,000 use cash for 48 percent of their transactions, and those who earn between \$25,000 and \$50,000 use it for 33 percent of transactions,” Kaplan said. “So that equates to roughly 45 percent of households who are using cash for at least a third of their transactions, and that’s a huge market, and the lack of services to pay bills with cash is a relatively big problem.”

Paid in cash, pay in cash

Kaplan told PYMNTS that most consumers who continue to choose cash when it comes time to pay do so because they feel more comfortable using physical currency over a credit or debit card or digital payment method. Despite the claims of simplicity offered by many modern payment methods, many cash-based consumers find it to be more convenient than digital or mobile wallets.

He noted that many of PayNearMe’s customers get paid in cash, meaning that is easier for them to then pay their bills using the same method. For those consumers and customers who are unbanked, cash bill payment services provide a way to use their payment method of choice for larger purchases.

“For a lot of these folks, this is how they get paid — they get paid in cash,” Kaplan explained. “Changing consumer behavior is hard. If you get paid in cash and that’s what you’re used to, that’s what you’re going to be most comfortable with. Any of these new payment methods need to prove that they are easier and faster than those consumers are currently used to, and right now that just isn’t there.”

In order to make their service as convenient as possible, Kaplan said that his team has partnered with familiar retailers with stores located close to the customers that most frequently use the service, including national retailers like CVS, Family Dollar and 7-Eleven.

Kaplan said that the company looks to partner with retailers like these because they combine to offer more than 28,000 locations around the U.S., meaning most customers have a local store that offers this service. He also noted that the company’s retail partners often have a history of embracing new types of payment methods.

“Our partners, and 7-Eleven in particular, have always been very forward-thinking and innovative when it comes to this sort of payment technology market,” Kaplan said. “They also have a fair number of these unbanked

or underbanked consumers who already shop at their stores frequently, so we know that these types of consumers frequent those stores and feel comfortable there.”

Cash's cold, hard future?

Along with the convenience that many of PayNearMe's unbanked or paid-in-cash consumers enjoy, Kaplan noted that many of the company's customers are older and are simply not used to using more modern payment methods like a credit or debit card, much less a mobile wallet or contactless payment.

But there are fewer consumers who are unfamiliar or uncomfortable with digital payment technology every day. The PYMNTS.com Global Cash Index™ Americas Analysis found that cash share has decreased steadily since 2009 and that trend is set to continue into the next decade.

But that doesn't mean cash's reign as king is on its death bed. While older consumers may not be used to these new payment methods, Kaplan noted that even those who have grown up with computers and smartphones still cling to cash. He said that, according to a [study published in late 2016](#) by the Federal Reserve Bank of San Francisco, millennials use more cash than anyone else, paying for nearly 40 percent of their transactions with physical currency.

And it isn't just Kaplan with a sunny view of cash. Brendan Burge, a currency processing and optimization specialist and owner and executive editor of [CountingOnCurrency](#), told PYMNTS that cash remains popular with younger millennials because of their difficulty in getting traditional financial resources like a credit card or bank accounts.

“Millennials have a very difficult time getting things like credit cards, debit cards or bank accounts, unless they are backed up by a parent or a guardian. So I don't see them moving away from cash anytime soon,” Burge said in an interview.

It seems that even as technology poses a threat to cash's dominance, it's also giving the many consumers who still turn to physical currency new ways to pay in cash.

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