

# The Federal Reserve Payments Study: 2018 Annual Supplement

A Federal Reserve System publication



This *Federal Reserve Payments Study* (FRPS) brief updates data on core noncash payment types and systems that support everyday payments by U.S. consumers and businesses.<sup>1</sup> The data show faster growth in electronic payments from 2016 to 2017 compared with previous years. Remote payments continued to grow as a share of general-purpose card payments, and the value of in-person chip-authenticated general-purpose card payments exceeded the value of those without chip-authentication for the first time. Meanwhile, partial data from large banks indicate the number of check payments and cash withdrawals from automated teller machines (ATMs) continued to decline.<sup>2</sup>

## Highlights

- **Card payments** continued to show robust growth from 2016 to 2017, collectively increasing 10.1 percent by number and 8.4 percent by value. The increases represent an acceleration in overall card payment growth compared with the previously reported 2015 to 2016 and 2012 to 2015 periods.<sup>3</sup>
- **Remote payments** continued to grow as a share of total general-purpose card payments. The number of remote payments increased 22.8 percent from 2016 to 2017, compared with in-person payments, which grew 7.2 percent. Over the same period, the value of remote payments increased 14.8 percent, compared with in-person payments, which increased 4.4 percent.
- **Chip-authenticated payments** accounted for more than half of the value of in-person general-purpose card payments in 2017. Consistent with the 2015 to 2016 period, in-person chip-authenticated card payments continued to post substantial gains, increasing from 19.0 percent of all in-person general-purpose card payments by number and 26.4 percent by value in 2016 to 41.6 percent by number and 51.5 percent by value in 2017.
- **Network automated clearinghouse (ACH) payments** exhibited accelerating growth, increasing 5.7 percent by number and 6.9 percent by value from 2016 to 2017.
- **Large-institution check payments** showed an accelerated decline of 4.8 percent by number from 2016 to 2017. As previously reported, the decline in the national total number of check payments was 3.0 percent per year from 2012 to 2015 compared with steeper declines from 2000 to 2012. Large-institution check payments increased 7.5 percent by value from 2016 to 2017, opposite the decrease from 2015 to 2016.
- **Large-institution ATM withdrawals** declined by number and increased by value, consistent with changes reported for 2012 to 2015 for all institutions and 2015 to 2016 for large institutions.

<sup>1</sup> The most recent triennial FRPS was conducted in 2016 and collected data for 2015. The first FRPS supplement was conducted in 2017 and collected data for 2016. For reports and data, see the Federal Reserve Payments Study website at [www.federalreserve.gov/paymentsystems/fr-payments-study.htm](http://www.federalreserve.gov/paymentsystems/fr-payments-study.htm). Business payments include those made by for-profit and not-for-profit enterprises and local, state, and federal government agencies.

<sup>2</sup> Payments over wire transfer systems, which are typically used for a relatively small number of large-value inter-bank financial transactions, are not discussed in this brief. Because of ongoing study of the composition of non-network ACH transfers, trends in the portion of ACH transfers that depository institutions processed internally are also not included in this brief.

<sup>3</sup> For comparison with yearly growth rates, annual growth rates over multiple years—such as the three-year period from 2012 to 2015—are computed as the compound annual growth rate (CAGR). The CAGR is the average annual growth rate over a multiyear period of interest, assuming the growth rate is the same in each year.

This brief provides 2017 national estimates and 2016 to 2017 growth rates for card payments. These estimates are based on survey data from a census of general-purpose card networks, payment processors, and issuers of private-label cards. The surveys covered four types of debit cards (non-prepaid, general-purpose prepaid, private-label prepaid, and electronic benefits transfer (EBT) supporting certain government assistance programs) and two types of credit cards (general purpose and private label).

This brief also provides new estimates of 2016 to 2017 growth rates for ACH and check payments as well as ATM withdrawals. The growth rate estimates for ACH payments are based on reports compiled by the ACH operators and, therefore, only cover payments on the ACH network. The growth rate estimates for check payments and ATM withdrawals are based on surveys of a group of the largest depository institutions for the 2018 supplement.<sup>4</sup>

In addition to new estimates, the brief includes some restated estimates from previous years based on data revisions received during the 2018 survey process.

## Card Payments

Because the data collection and estimation processes for cards were the same as for the triennial studies, it was possible to estimate national totals for card payments in 2016 and 2017 along with growth rates. Since 2016, total card payments—the sum of credit card, non-prepaid debit card, and prepaid debit card payments—increased 11.3 billion to reach 123.5 billion payments by number and increased \$0.50 trillion to reach \$6.48 trillion by value in 2017 (table 1).

Card payments have been growing rapidly since the FRPS first reported data for the year 2000 (figure 1). The number of payments made by credit, non-prepaid debit, and prepaid debit cards grew more rapidly than the number of payments made by any other payment type in the 2012 to 2015 and 2016 to 2017 periods (figure 2). The number of both credit and non-prepaid debit card payments also showed higher growth rates than any other payment type over the 2015 to 2016 period, while the number of prepaid debit card payments grew slightly slower than network ACH payments. As discussed in a previous report, both debit (including prepaid and non-prepaid) and credit cards held the largest shares of total payments by number in 2015; however, the values of debit and credit card payments were dwarfed by the values of both ACH and check payments in 2015.<sup>5</sup>

With 82.6 billion payments, debit cards made up 66.9 percent of card payments, by number, in 2017. As in previous periods, non-prepaid debit card payments led in total number of card payments, reaching 69.6 billion payments in 2017. Despite comprising a relatively small share by number, credit cards constituted 55.6 percent of the total value of card payments in 2017—\$3.60 trillion compared with \$2.88 trillion for combined prepaid and non-prepaid debit cards.

Within card payments, there was a surge in prepaid and non-prepaid debit card payments by number relative to credit card payments from 2016 to 2017, a change from the previous reporting periods. Prepaid debit card payments had the highest growth rate, by number, at 10.5 percent, compared with 10.4 percent for non-prepaid debit card payments and 9.4 percent for credit card payments from 2016 to 2017 (table 2). These growth rates displayed a reversal in

<sup>4</sup> The group of largest depository institutions surveyed for the 2018 supplement accounted for more than 45 percent of the total estimated number of check payments and more than 50 percent of the number of ATM withdrawals in 2015. The 2016 to 2017 growth rate estimates provide an indication of changes in national totals.

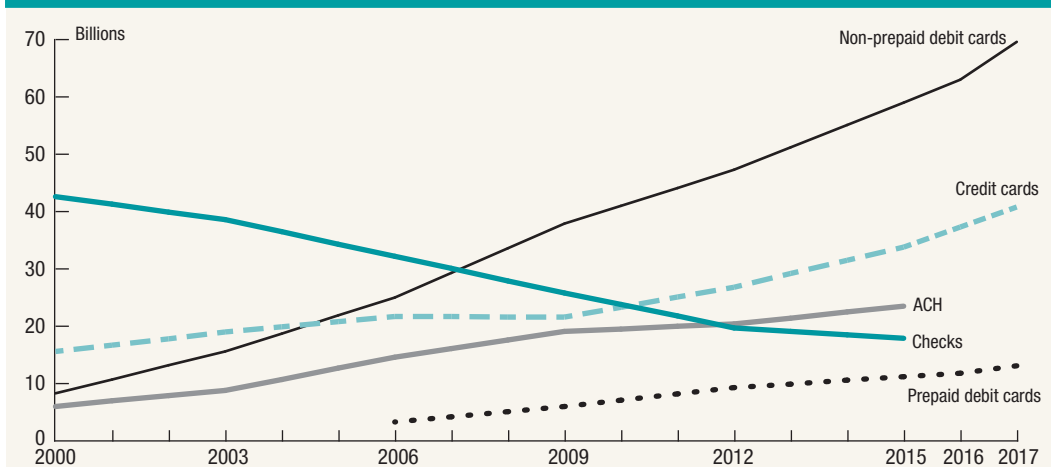
<sup>5</sup> See figure 1 in Federal Reserve System, *The Federal Reserve Payments Study 2016* (Washington: Federal Reserve Board, December 2016), [www.federalreserve.gov/paymentsystems/2016-payment-study.htm](http://www.federalreserve.gov/paymentsystems/2016-payment-study.htm).

**Table 1. Total card payments, 2016 and 2017**

Card payment type	2016			2017			2016-17			
	Number (billions)	Value (\$trillions)	Average (\$)	Number (billions)	Value (\$trillions)	Average (\$)	Change		Growth rate (percent)	
							Number (billions)	Value (\$trillions)	Number	Value
<b>Total cards</b>	<b>112.2</b>	<b>5.98</b>	<b>53</b>	<b>123.5</b>	<b>6.48</b>	<b>52</b>	<b>11.3</b>	<b>0.50</b>	<b>10.1</b>	<b>8.4</b>
<b>Debit cards</b>	<b>74.8</b>	<b>2.70</b>	<b>36</b>	<b>82.6</b>	<b>2.88</b>	<b>35</b>	<b>7.8</b>	<b>0.18</b>	<b>10.4</b>	<b>6.5</b>
<b>Non-prepaid</b>	<b>63.0</b>	<b>2.41</b>	<b>38</b>	<b>69.6</b>	<b>2.58</b>	<b>37</b>	<b>6.5</b>	<b>0.17</b>	<b>10.4</b>	<b>7.0</b>
In person	52.1	1.66	32	55.9	1.72	31	3.8	0.06	7.2	3.7
Chip	8.3	0.35	42	22.8	0.87	38	14.5	0.52	174.0	147.2
No chip	43.8	1.30	30	33.1	0.85	26	-10.7	-0.46	-24.5	-35.1
Remote	10.9	0.75	69	13.7	0.86	63	2.8	0.11	25.5	14.1
<b>Prepaid</b>	<b>11.8</b>	<b>0.29</b>	<b>25</b>	<b>13.1</b>	<b>0.30</b>	<b>23</b>	<b>1.2</b>	<b>0.01</b>	<b>10.5</b>	<b>3.0</b>
General purpose	4.4	0.15	34	5.3	0.16	30	0.8	0.01	18.9	5.5
In person	3.6	0.10	28	4.1	0.10	26	0.5	0.00	13.4	2.6
Chip	0.1	0.01	39	0.5	0.01	29	0.3	0.01	226.5	138.8
No chip	3.5	0.10	28	3.6	0.09	25	0.2	0.00	4.8	-5.0
Remote	0.8	0.05	59	1.2	0.06	46	0.4	0.01	42.4	11.3
Private label	4.9	0.07	15	5.4	0.08	15	0.5	0.01	9.8	7.9
Electronic benefits transfer (EBT)	2.5	0.07	28	2.4	0.06	27	-0.1	-0.01	-3.0	-7.4
<b>Credit cards</b>	<b>37.3</b>	<b>3.27</b>	<b>88</b>	<b>40.8</b>	<b>3.60</b>	<b>88</b>	<b>3.5</b>	<b>0.33</b>	<b>9.4</b>	<b>10.0</b>
General purpose	34.3	3.00	88	37.7	3.32	88	3.5	0.32	10.1	10.8
In person	23.4	1.36	58	24.8	1.43	58	1.4	0.07	6.2	5.4
Chip	6.6	0.47	71	12.1	0.79	65	5.5	0.32	83.3	69.6
No chip	16.8	0.89	53	12.8	0.64	50	-4.0	-0.25	-24.0	-28.1
Remote	10.9	1.64	151	12.9	1.89	147	2.0	0.25	18.5	15.2
Private label	3.1	0.27	90	3.1	0.28	89	0.1	0.00	2.0	1.7
<b>General-purpose cards</b>	<b>101.7</b>	<b>5.56</b>	<b>55</b>	<b>112.6</b>	<b>6.06</b>	<b>54</b>	<b>10.8</b>	<b>0.50</b>	<b>10.7</b>	<b>9.0</b>
In person	79.1	3.12	39	84.8	3.25	38	5.7	0.14	7.2	4.4
Chip	15.0	0.82	55	35.3	1.67	47	20.3	0.85	134.8	103.3
No chip	64.1	2.29	36	49.5	1.58	32	-14.6	-0.71	-22.8	-31.1
Remote	22.6	2.44	108	27.8	2.81	101	5.1	0.36	22.8	14.8

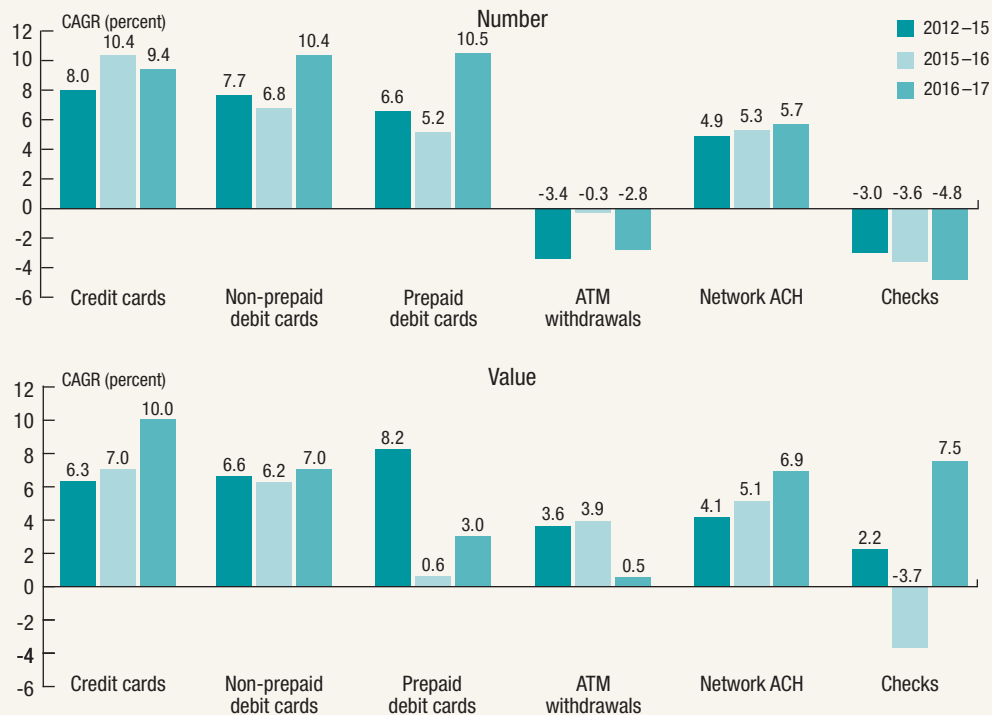
Note: Figures may not sum because of rounding. Card payments are defined as net, authorized, and settled transactions. General-purpose cards include general-purpose credit, non-prepaid debit, and general-purpose prepaid debit card payments. ATM withdrawals are not included. Some figures are restated from previous years based on data revisions received during the 2018 survey process.

**Figure 1. Trends in noncash payments, by number, 2000-17**



Note: National estimates for card, automated clearinghouse (ACH), and check payments are available on a triennial basis from 2000 to 2015. National estimates for card payments are also available for 2016 and 2017. Prepaid debit card payments include general-purpose prepaid, private-label prepaid and electronic benefits transfer (EBT) card payments. Credit card payments include general-purpose and private-label credit card payments. Automated teller machine (ATM) withdrawals are not included. Prepaid debit card estimates are not available for 2000 and 2003.

**Figure 2. Annual growth rates by payment type, by number and value, 2012–17**



Note: CAGR is compound annual growth rate. ATM is automated teller machine. ACH is automated clearinghouse. The 2015–16 and 2016–17 growth rates for check payments and ATM withdrawals are based only on information from the largest depository institutions. Prepaid debit card payments include general-purpose prepaid, private-label prepaid, and electronic benefits transfer (EBT) card payments. Credit card payments include general-purpose and private-label credit card payments.

**Table 2. Annual growth rates by payment type, 2012–17**

Payment type	CAGR (percent)					
	2012–15		2015–16		2016–17	
	Number	Value	Number	Value	Number	Value
<b>Cards</b>	<b>7.7</b>	<b>6.5</b>	<b>7.8</b>	<b>6.3</b>	<b>10.1</b>	<b>8.4</b>
<b>Debit cards</b>	<b>7.5</b>	<b>6.8</b>	<b>6.5</b>	<b>5.5</b>	<b>10.4</b>	<b>6.5</b>
Non-prepaid	7.7	6.6	6.8	6.2	10.4	7.0
Prepaid	6.6	8.2	5.2	0.6	10.5	3.0
<b>Credit cards</b>	<b>8.0</b>	<b>6.3</b>	<b>10.4</b>	<b>7.0</b>	<b>9.4</b>	<b>10.0</b>
<b>Network automated clearinghouse (ACH)</b>	<b>4.9</b>	<b>4.1</b>	<b>5.3</b>	<b>5.1</b>	<b>5.7</b>	<b>6.9</b>
Credit transfers	5.0	5.7	5.2	5.1	6.0	7.5
Debit transfers	4.8	1.4	5.3	5.2	5.5	5.9
<b>Checks</b>	<b>-3.0</b>	<b>2.2</b>	<b>-3.6</b>	<b>-3.7</b>	<b>-4.8</b>	<b>7.5</b>
Interbank	-1.5	6.7	-3.4	-3.8	-4.2	12.5
On-us	-7.1	-6.9	-4.2	-3.3	-6.7	-2.3
<b>Additional estimates</b>						
<b>ATM withdrawals</b>	<b>-3.4</b>	<b>3.6</b>	<b>-0.3</b>	<b>3.9</b>	<b>-2.8</b>	<b>0.5</b>

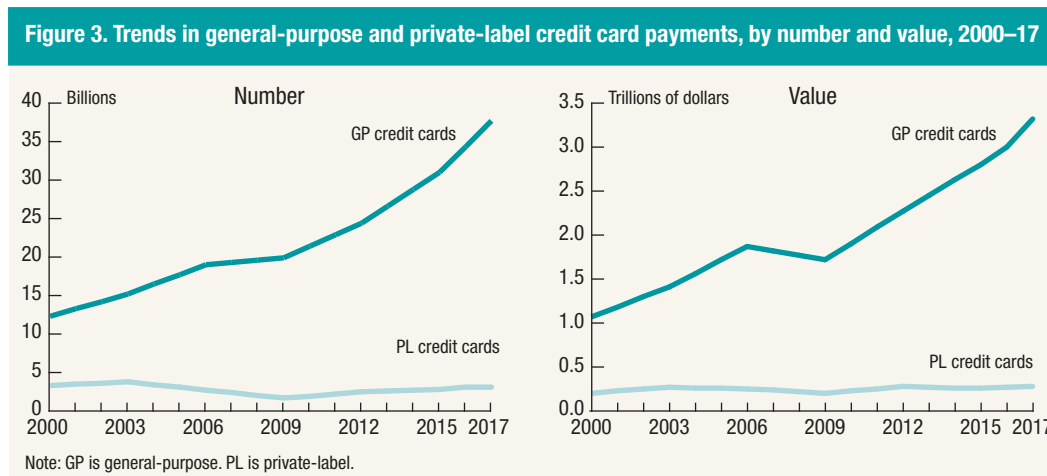
Note: CAGR is compound annual growth rate. Card payments are defined as net, authorized, and settled transactions. Network automated clearinghouse (ACH) covers only payments processed by network operators. The 2015–16 and 2016–17 growth rates for check payments and automated teller machine (ATM) withdrawals are based only on information from the largest depository institutions. ATM withdrawals are not included in card estimates. Some figures are restated from previous years based on data revisions received during the 2018 survey process.

rank compared with the 2015 to 2016 period, when growth rates in the number of credit card payments was 10.4 percent, non-prepaid debit card payments was 6.8 percent, and prepaid debit card payments was 5.2 percent. Credit cards also led growth in the number of payments from 2012 to 2015, increasing at 8.0 percent per year. That annual growth rate was higher than the rates for non-prepaid debit cards and prepaid debit cards, 7.7 percent and 6.6 percent per year, respectively, over the same period.

By value, a different picture emerges for growth in card payments. At 10.0 percent, credit card payments had the highest growth rate, by value, from 2016 to 2017. In comparison, non-prepaid debit card payments had a growth rate of 7.0 percent, by value, and prepaid debit card payments had a growth rate of 3.0 percent, by value, over the same period. Credit card payments also grew most rapidly, by value, from 2015 to 2016, at 7.0 percent, followed by non-prepaid debit card payments, at 6.2 percent, and prepaid debit card payments a distant third at 0.6 percent. From 2012 to 2015, however, prepaid debit cards led growth in payments value, at 8.2 percent per year, compared with 6.6 percent annual growth for non-prepaid debit cards and 6.3 percent annual growth for credit cards.

### General-Purpose and Private-Label Cards

Most card payments are made with general-purpose cards. These cards carry a network brand, or logo, from one of the four major card networks (American Express, Discover, MasterCard, Visa) or from smaller or regional networks and can be used wherever that network card is accepted, regardless of merchant or merchant type. In 2017, just 7.6 percent of credit card payments by number and 7.7 percent by value were made with private-label credit cards, which are accepted only by the sponsoring merchant. General-purpose credit card payments grew substantially by both number and value from 2012 to 2017, while private-label credit card payments stayed relatively low with a consistent increase by number and inconsistent growth by value (figure 3).

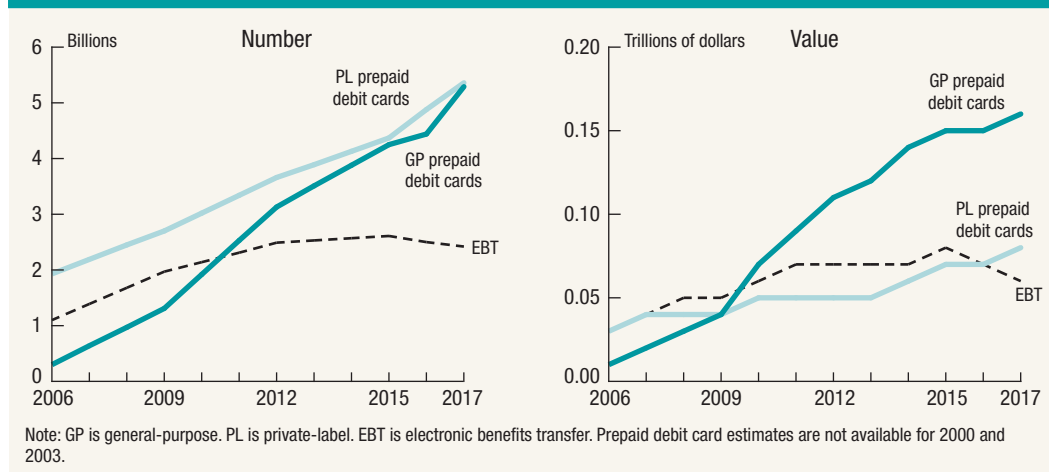


As a share of debit card payments, prepaid debit cards made up just 15.8 percent of the number and 10.5 percent of the value in 2017. Non-prepaid debit cards are those connected to transaction or checking accounts at banks. Prepaid debit cards include gift cards, payroll cards, and cards issued for special purposes. They are defined in the FRPS to include private-

label cards issued by merchants, general-purpose cards that are processed by national and regional debit card networks, and EBT cards.<sup>6</sup>

General-purpose and private-label prepaid debit cards have been included in the triennial studies since 2006 (figure 4). Introduced earlier than general-purpose prepaid debit cards, private-label prepaid debit and EBT cards dominated prepaid debit card payments, by number and value, in 2006. In 2017, however, the number of general-purpose prepaid debit card payments, at 5.3 billion, had nearly caught up to the number of private-label prepaid debit card payments, at 5.4 billion. By value, general-purpose prepaid debit card payments began to exceed private-label prepaid debit card payments before 2012. In 2017, the value of general-purpose prepaid debit card payments was more than twice the value of either private-label prepaid debit card payments or EBT payments.

**Figure 4. Trends in general-purpose and private-label prepaid debit card and EBT payments, by number and value, 2006–17**

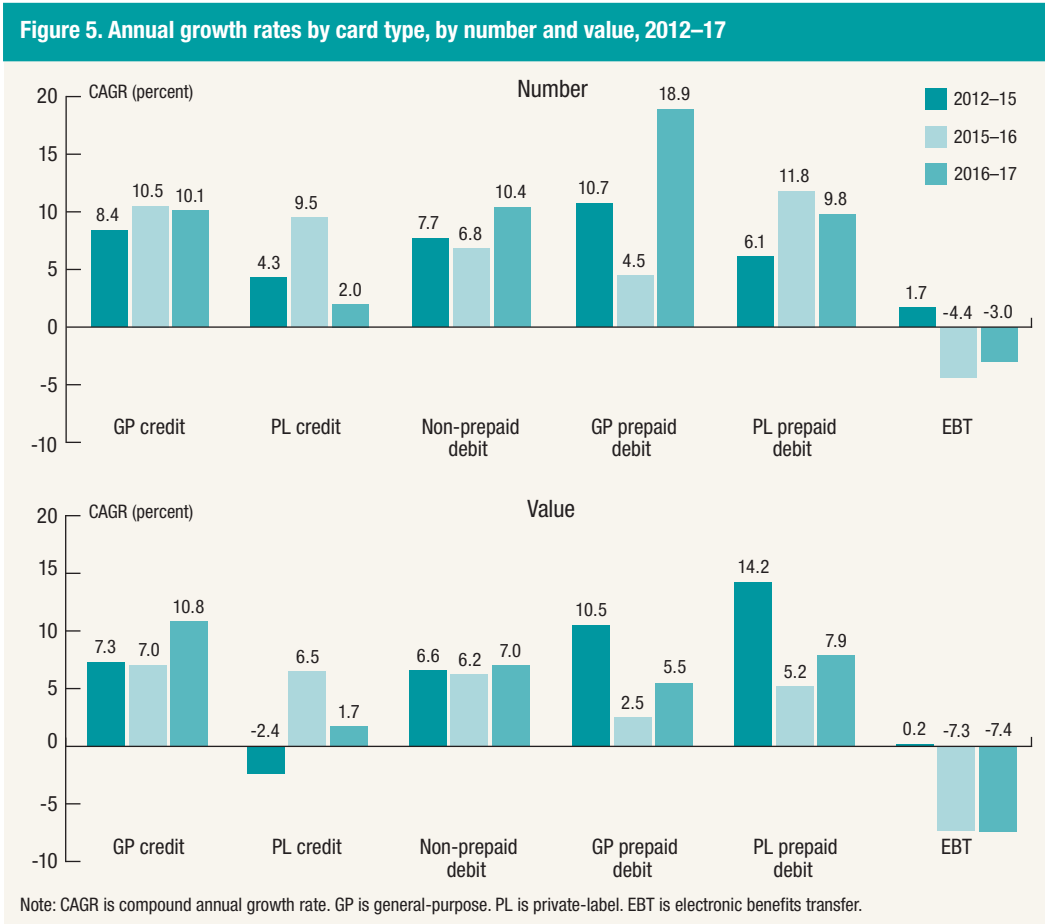


Of all the card types, only payments made using EBT cards declined by both number and value from both 2015 to 2016 and 2016 to 2017 (figure 5). These payments were a small share of all card payments, 2.0 percent and 1.0 percent, by number and value, respectively, in 2017. The level of EBT payments is generally driven by government policy and the needs of beneficiaries, and a decline in such payments can typically be associated with more favorable economic conditions, such as low unemployment.<sup>7</sup>

Among the card types, general-purpose prepaid debit card payments exhibited the strongest growth rate by number from 2016 to 2017, 18.9 percent. Over the same period, non-prepaid debit card and general-purpose credit card payments had similar growth rates, by number, to one another, 10.4 percent and 10.1 percent, respectively. The number of private-label prepaid debit card payments grew 9.8 percent from 2016 to 2017, while the number of private-label credit card payments grew just 2.0 percent. By value, general-purpose credit card payments had the highest growth rate from 2016 to 2017: 10.8 percent, followed by 7.9 percent for private-label prepaid debit cards and 7.0 percent for non-prepaid debit cards. Over the same

<sup>6</sup> Cards and tokens issued for transportation are not included in this definition.

<sup>7</sup> See, for example, U.S. Department of Agriculture, “What is Electronic Benefits Transfer (EBT)?” at [www.fns.usda.gov/snapp/what-electronic-benefits-transfer-ebt](http://www.fns.usda.gov/snapp/what-electronic-benefits-transfer-ebt) for more information.



period, the value of general-purpose prepaid card payments grew at 5.5 percent, while the value of private-level credit card payments grew at only 1.7 percent.

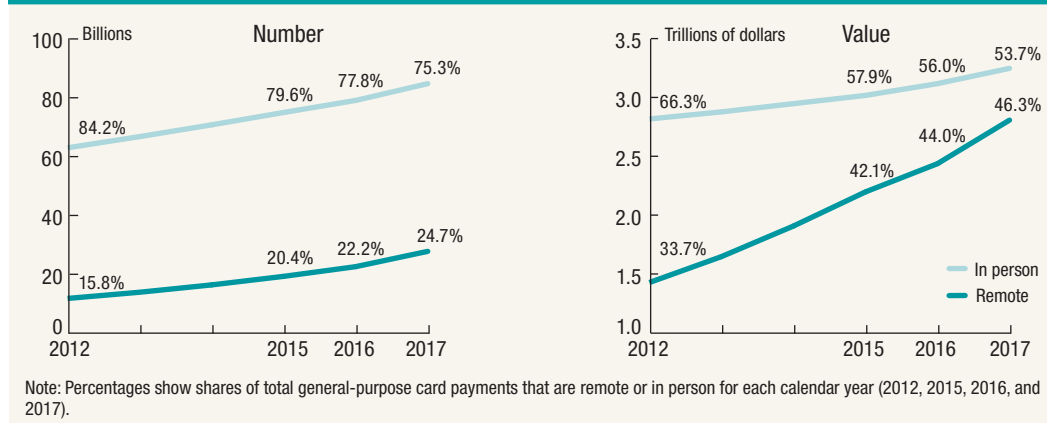
### In-Person and Remote General-Purpose Card Payments

Trends in the in-person and remote card channels are a current focus of the FRPS because of the dominance of general-purpose cards in noncash payments and their versatility for a wide variety of payments. Remote payments are defined as those made when the payer is not in physical proximity to the payee, for example, using a card number at an e-commerce or bill-pay website, providing a card number over the phone, or shopping via a mobile app. These include both one-time and recurring purchases and bill payments. In addition to using the card at a terminal, in-person payments also include using a mobile device with near-field communications (NFC) technology or an NFC-enabled card to transmit payment information.<sup>8</sup>

<sup>8</sup> As described in *Changes in U.S. Payments Fraud from 2012 to 2016: Evidence from the Federal Reserve Payments Study*, “card-present” and “card-not-present” categories in the 2015 *Networks, Processors, and Issuers Payments Surveys* (NPIPS) were renamed “in person” and “remote,” respectively, for 2016 and following years. See Federal Reserve System, *Changes in U.S. Payments Fraud from 2012 to 2016: Evidence from the Federal Reserve Payments Study* (Washington: Federal Reserve Board, 2018), [www.federalreserve.gov/publications/files/changes-in-us-payments-fraud-from-2012-to-2016-20181016.pdf](http://www.federalreserve.gov/publications/files/changes-in-us-payments-fraud-from-2012-to-2016-20181016.pdf).

Remote card payments have been growing substantially compared with in-person card payments. In particular, remote card payments grew in total number and value from 2016 to 2017 and also grew as a share of all general-purpose card payments, by both number and value (figure 6). Remote payments increased to 24.7 percent by number and 46.3 percent by value of all general-purpose card payments in 2017, up from 22.2 percent by number and 44.0 percent by value in 2016. These are notable increases since 2012, when remote payments were 15.8 percent and 33.7 percent of all general-purpose card payments by number and value, respectively.

**Figure 6. Distribution and trends in total remote and in-person general-purpose card payments, by number and value, 2012–17**



The number of remote general-purpose card payments increased 22.8 percent from 2016 to 2017, compared with the number of in-person payments, which grew just 7.2 percent (table 1). Over the same period, the value of remote payments increased 14.8 percent, compared with the value of in-person payments, which increased just 4.4 percent. Growth rates varied across card types and channels from 2016 to 2017 (figure 7). General-purpose prepaid debit cards exhibited the highest growth rates by number, at 42.4 percent in the remote channel and 13.4 percent in the in-person channel. The high rates likely speak to a general surge in the use of general-purpose prepaid debit cards (18.9 percent of growth by number in the 2016 to 2017 period as noted above) and also the general movement of card payments to remote payment use cases. By value, the growth rate was highest for general-purpose credit cards in both channels, at 15.2 percent for remote payments and 5.4 percent for in-person payments over the same period.

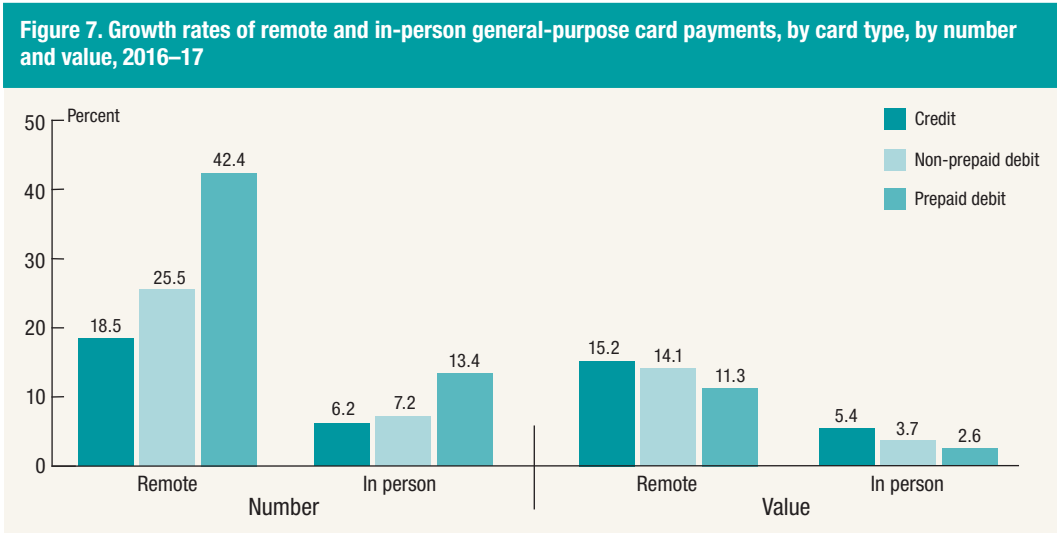
### In-Person Chip-Authenticated General-Purpose Card Payments

The use of chip authentication for in-person general-purpose card payments continued its increase from 2015, primarily reflecting recent growth in chip card issuance and chip-accepting point-of-sale terminals following the “Europay, MasterCard and Visa” (EMV) microchip-based specification.<sup>9</sup> As described in previous reports, chips are intended to thwart in-person counterfeit card fraud.<sup>10</sup> In-person chip-authenticated card payments continued to post sub-

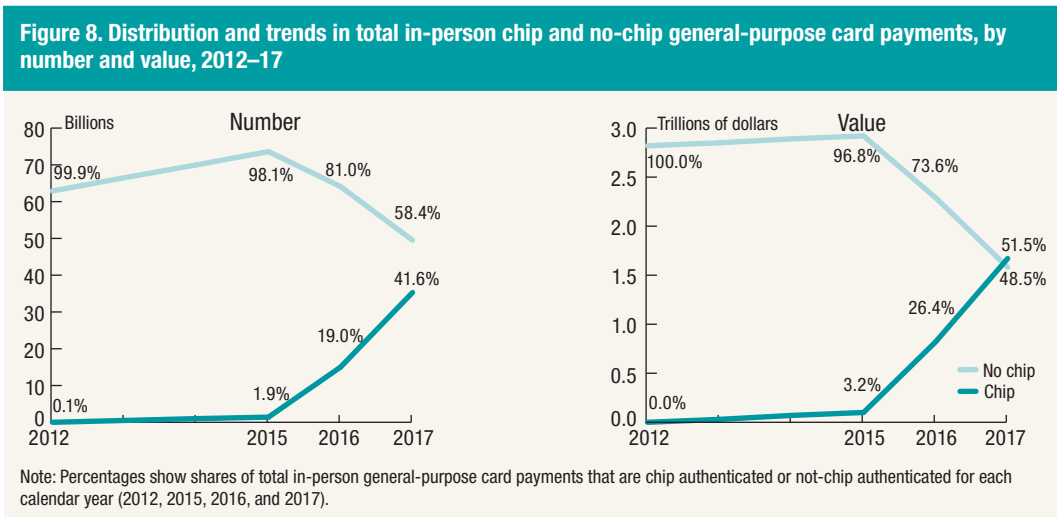
<sup>9</sup> Although most growth in chip-authenticated payments is largely attributable to EMV, some growth is also the result of other types of chip-authenticated payments, such as mobile device and contactless card payments.

<sup>10</sup> See Federal Reserve System, *The 2016 Federal Reserve Payments Study* (Washington: Federal Reserve Board, December 2016), [www.federalreserve.gov/paymentsystems/2016-payment-study.htm](http://www.federalreserve.gov/paymentsystems/2016-payment-study.htm); Federal Reserve System, *The Federal Reserve Payment Study: 2017 Annual Supplement* (Washington: Federal Reserve Board, December 2017), [www.federalreserve.gov/paymentsystems/2017-December-The-Federal-Reserve-Payments-Study.htm](http://www.federalreserve.gov/paymentsystems/2017-December-The-Federal-Reserve-Payments-Study.htm).





stantial gains since 2015, increasing from 15.0 billion or 19.0 percent of all in-person payments by number and \$0.82 trillion or 26.4 percent of all in-person payments by value in 2016 to 35.3 billion or 41.6 percent by number of all in-person payments and \$1.67 trillion or 51.5 percent of all in-person payments by value in 2017 (figure 8). In 2017, chip-authenticated payments reached more than half of the value of all in-person general-purpose card payments for the first time.



### Network Automated Clearinghouse Payments

The data on ACH credit and debit transfers provided in this brief are based on reports compiled by the ACH operators and, therefore, only cover payments on the ACH network.<sup>11</sup> These network ACH transfers are mostly passed between two depository institutions, that is, inter-bank payments. Because some depository institutions send all ACH transfers to ACH opera-

<sup>11</sup> Network ACH payments were estimated to have represented more than 80 percent of total ACH payments in 2015. The remainder of ACH payments not processed by network operators are out of the scope of this brief.

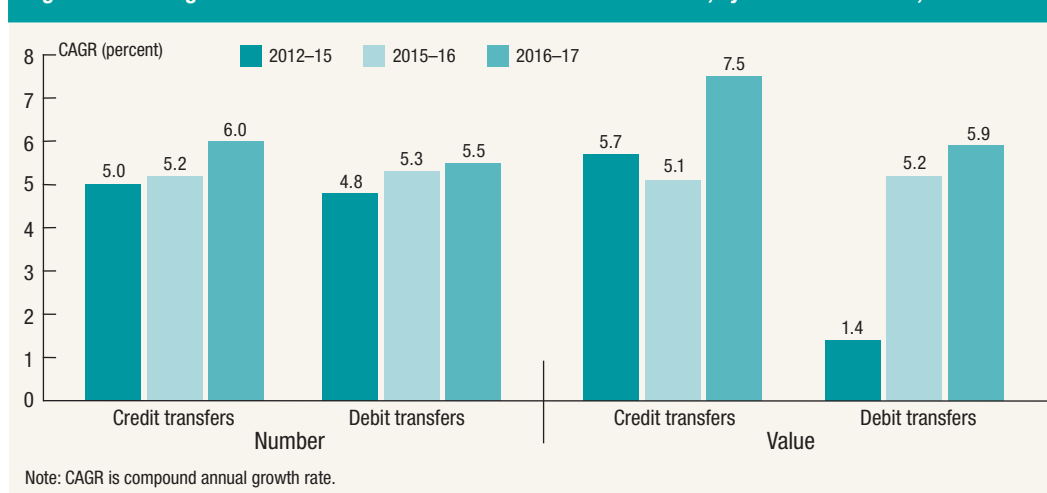
tors, however, ACH network payments also include a small portion of payments that are received by the same depository institution that sent them.

This partial information on ACH payments showed that growth in network ACH payments has continued to accelerate by number and value since 2012. Network ACH payments increased 5.7 percent by number from 2016 to 2017, up from an increase of 5.3 percent from 2015 to 2016, which, itself, was up from an increase of 4.9 percent per year from 2012 to 2015. Likewise, network ACH payments increased 6.9 percent by value from 2016 to 2017, up from an increase of 5.1 percent from 2015 to 2016, which, itself, was up from an increase of 4.1 percent per year from 2012 to 2015 (figure 2).

Funds transfers over the ACH network can be credit transfers, in which funds are pushed from a payer's depository institution to a payee's depository institution, or debit transfers, in which funds are pulled by the payee's depository institution from the payer's depository institution.

Overall, annual growth rates from 2016 to 2017 by both number and value were higher than in previous periods for both ACH credit and ACH debit transfers (figure 9). Among the three periods discussed here, 2012 to 2015, 2015 to 2016, and 2016 to 2017, ACH credit transfers showed the highest annual growth rate of 7.5 percent by value from 2016 to 2017. ACH debit transfers experienced the biggest increase in annual growth rates by value, reaching 5.9 percent from 2016 to 2017 compared with just 1.4 percent per year from 2012 to 2015.

**Figure 9. Annual growth rates of network ACH credit and debit transfers, by number and value, 2012–17**



## Large-Institution Check Payments

Check payments are estimated from data gathered through the *Depository and Financial Institutions Payments Survey* (DFIPS). For the 2018 and 2017 annual supplements, only the largest institutions were surveyed to estimate the growth rates of check payments by number and value for the 2016 to 2017 and 2015 to 2016 periods.<sup>12</sup>

Evident from figure 1, results from the previous triennial FRPS showed that the decline in the number of checks began to taper off, declining at an annual rate of 3.0 percent from 2012 to

<sup>12</sup> Estimates of check payments based on a nationally representative, stratified random sample of depository institutions will be produced as part of the 2019 triennial FRPS.

2015, less than half the annual rate measured in previous study periods. More recent data from the largest depository institutions, however, showed an acceleration in the decline in the number of checks, decreasing by 3.6 percent from 2015 to 2016 and decreasing by 4.8 percent from 2016 to 2017. By value, changes in check payments have been inconsistent, increasing by 2.2 percent per year from 2012 to 2015, decreasing by 3.7 percent from 2015 to 2016, and then increasing by 7.5 percent from 2016 to 2017. Swings in value in the face of accelerating declines in number could reflect generally higher volatility in large-value check-based business transactions from year to year.

## Large-Institution ATM Withdrawals

Over the period from 2012 to 2015, ATM withdrawals by number declined.<sup>13</sup> The decline, based on the survey of the largest depository institutions, slowed significantly from 2015 to 2016 but increased from 2016 to 2017. The declines in the number of ATM withdrawals may be connected to increases in card payments. In part, increasing card payments by number may indicate the replacement of some cash payments, either directly for in-person purchases or indirectly as more shopping moves to remote payments. ATM access using a non-prepaid debit card is a common way to obtain cash, but only provides a partial, indirect indicator of the popularity of cash.

Data from the largest depository institutions showed a 2.8 percent decline in the number of ATM withdrawals from 2016 to 2017 and an increase in the value of ATM withdrawals of only 0.5 percent, less than the rate of inflation over the period (roughly 2 percent).<sup>14</sup>

## About the Federal Reserve Payments Study

The FRPS is a collaborative effort by staff members at the Federal Reserve Bank of Atlanta and the Board of Governors of the Federal Reserve System to track and document developments in the U.S. payments system through the collection of quantitative survey data.<sup>15</sup>

The estimates reported in this brief are based on information gathered in two survey efforts:

- The *Networks, Processors, and Issuers Payments Surveys* (NPIPS)
- The *Depository and Financial Institutions Payments Survey* (DFIPS)

Estimates of aggregate totals and trends are developed from individual institutions' response data provided in the surveys, which remain confidential.

Estimates reported here for the calendar year 2017 supplement the triennial FRPS, which has reported national aggregate volumes and trends in noncash payments in the United States since 2001.<sup>16</sup>

<sup>13</sup> Estimates of ATM withdrawals for 2015 and rates of change per year from 2012 to 2015 were restated in *Changes in U.S. Payments Fraud from 2012 to 2016: Evidence from the Federal Reserve Payments Study*, available at [www.federalreserve.gov/publications/files/changes-in-us-payments-fraud-from-2012-to-2016-20181016.pdf](http://www.federalreserve.gov/publications/files/changes-in-us-payments-fraud-from-2012-to-2016-20181016.pdf).

<sup>14</sup> See the Bureau of Labor Statistics, consumer price index for all urban consumers, all items less food and energy at [www.bls.gov/cpi/](http://www.bls.gov/cpi/).

<sup>15</sup> The Federal Reserve System thanks survey respondents who provided the information summarized in this brief. This information enables policymakers, the payments industry, and the public to better understand payment trends and inform strategies to foster further improvements in the U.S. payments infrastructure.

<sup>16</sup> The next triennial FRPS is being planned for 2019 and will cover payments made in calendar year 2018.

## Networks, Processors, and Issuers Payments Surveys

The 2018 NPIPS, administered with the help of Blueflame Consulting, collected the number and value of electronic payments in the United States for calendar year 2017. Data were collected by surveying payment networks, processors, and card issuers. A total of 80 organizations were included in the 2018 NPIPS, with 64 providing some response data, for a response rate of 80 percent. Alternative payment methods and systems were not covered in the calendar year 2017 and 2016 surveys.

With a small number of unique providers, routine statistical methods cannot be used to estimate missing information. When data are missing, they are imputed based on outside information and knowledge of the industry or interpolated based on relationships with other respondents.

## Depository and Financial Institutions Payments Survey

The 2018 DFIPS, administered with the help of the GCI Analytics office of McKinsey & Company, collected the number and value of various noncash payments, as well as ATM withdrawals from customer accounts, that took place during calendar year 2017. Noncash payments include transactions by checks, ACH, wire transfers, debit (including prepaid and non-prepaid) cards, and credit cards.

The past triennial estimates, such as those from the 2016 FRPS, which collected information on calendar year 2015 number and value of check payments and ATM withdrawals from 1,183 depository institutions, are based on separate estimates from representative, random samples of depository institutions of different sizes and types. Growth rate estimates for check payments and ATM withdrawals from 2015 to 2016 and 2016 to 2017 are based on survey data collected only from the largest depository institutions.

For the 2016 and 2017 results, the sample was chosen by stratifying the entire population of depository institutions and selecting the largest institutions based on the sum of transaction deposit and money market deposit balances for consolidated institutional charters and their affiliates at the level of the holding company. For 2016, a total of 117 depository institutions were surveyed, including commercial banks, savings institutions, and credit unions. Responses with data for calendar year 2016 were received from 71 institutions, for a response rate of a little less than 61 percent. For 2017, a total of 120 depository institutions were surveyed. Responses with data for calendar year 2017 were received from 64 institutions, for a response rate of a little more than 53 percent.

## Contact

Geoffrey Gerdes, Claire Greene, and Xuemei (May) Liu prepared this brief, with excellent research assistance from Lauren Clark. The authors take responsibility for any errors. If you have questions about the FRPS or this brief, please email [frpaymentsstudy@frb.gov](mailto:frpaymentsstudy@frb.gov). FRPS reports and data can be found at [www.federalreserve.gov/paymentsystems/fr-payments-study.htm](http://www.federalreserve.gov/paymentsystems/fr-payments-study.htm).

