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# How Australians Pay: Evidence from the 2016 Consumer Payments Survey

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## **Abstract**

The Reserve Bank's triennial Consumer Payments Survey (CPS) provides a detailed snapshot of how Australian consumers make payments. The 2016 CPS recorded information on around 17 000 day-to-day payments made by over 1 500 participants during a week. The data show that Australian consumers continued to switch from paper-based ways of making payments such as cash and cheques, towards digital payment methods (particularly debit and credit cards). Cards were the most frequently used means of payment in the 2016 survey, overtaking cash for the first time. Contactless 'tap and go' cards are an increasingly popular way of making payments, displacing cash for many lower-value transactions. Despite these trends, cash still accounts for a material share of consumer payments and is intensively used by some segments of the population. Payments using a mobile phone at a card terminal are a relatively new feature of the payments system and this technology was not widely used at the time of the survey. However, consumers are increasingly using their mobile phones to make online and person-to-person payments. Similarly, consumers are using automatic payments, such as direct debits, more frequently.

JEL Classification Numbers: D12, D14, E42

Keywords: consumer payment choice, consumer survey, method of payment, payment systems

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## 1. Introduction

The Reserve Bank conducted its fourth Consumer Payments Survey (CPS) in November 2016.<sup>1</sup> The survey, which the Bank has undertaken every three years since 2007, provides a nationally representative dataset on how Australian consumers make their payments and how this has changed over time.<sup>2</sup> The CPS is the main source of information on the use of cash – for transactions and other purposes – in the Australian economy. As in previous surveys, participants in 2016 recorded details about every transaction they made for a week. They also provided demographic information and completed an additional questionnaire on their payment preferences and attitudes.

This paper discusses the findings of the 2016 CPS in the context of changes in consumers' payment preferences over the past decade or so.<sup>3</sup> It considers the influence of newer technologies – including contactless cards and mobile payments – on the payments mix; and also examines the payment preferences of different demographic groups.<sup>4</sup>

## 2. Overview of the Survey

The Reserve Bank's CPS is a national cross-sectional survey, which provides a comprehensive picture of Australian consumers' payment behaviour. The 2016 CPS consisted of three parts: a pre-diary questionnaire about the demographic characteristics of respondents; a seven-day payments diary; and a post-survey questionnaire about respondents' automatic payment arrangements and their preferences and attitudes about different payment methods.

In the diary, respondents recorded details about every transaction they made for a week (apart from automatic payments, which were recorded in the post-survey questionnaire; see Section 7.2). For every transaction, respondents recorded the value, payment method, channel (e.g. online or in-person) and type of merchant. They were asked to include only personal payments, and not those made for business reasons. Respondents also recorded details about their cash holdings and receipt of additional cash top-ups during the week (e.g. amount, source) and the amount of cash they held after the top-up. A total of 1 510 people participated in the 2016 CPS, recording around 17 000 day-to-day payments and about 350 transfers to family and friends in the week of the survey. Overall, including all payments, transfers, cash top-ups and automatic payments, around 19 500 transactions were recorded in the survey. For further details on the survey, see Appendix A.

## 3. Trends in Consumer Payments

The 2016 CPS showed a continuation of the broad trends in retail payments evident in earlier surveys. Australian consumers have been switching to electronic payment methods in preference to paper-based methods – cash and cheques – for their transactions. Most notably, the share of

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1 Fieldwork for the 2016 CPS was undertaken by the research firm Ipsos.

2 See Emery, West and Massey (2008), Bagnall, Chong and Smith (2011), and Ossolinski, Lam and Emery (2014) for the results of previous surveys.

3 See Doyle *et al* (2017) for a summary of the key findings of the 2016 CPS.

4 Additional data are available on the Bank's website (<https://www.rba.gov.au/publications/rdp/2017/2017-04/additional-files/supplementary-statistics-from-the-consumer-payments-survey-2016.xlsx>).

transactions using cards has doubled since 2007 (Table 1). Credit and debit cards combined were the most frequently used means of payment in 2016, overtaking cash for the first time. Cards were used for just over half of all consumer payments when measured by the number of payments.

In recent surveys, a notable development has been the increasing use of cards for lower-value transactions – for example, cards were used for 40 per cent of in-person payments less than \$20 in 2016, compared with 10 per cent in 2007. In recent years, this mainly reflects the widespread adoption of contactless functionality by merchants and consumers. In 2016, 85 per cent of survey participants reported holding a contactless card, compared with two-thirds of respondents in 2013. Most of the growth in contactless payments has been due to consumers tapping their 'physical' plastic cards at contactless terminals, with the ability to make tap-and-go payments using a mobile phone still a relatively new feature of the Australian payments system.

**Table 1: Consumer Payment Methods**

Per cent of payments

	2007	2010	2013	2016
<b>Number of payments</b>				
Cash	69	62	47	37
Cards	26	31	43	52
<i>Debit cards</i>	15	22	24	30
<i>Credit and charge cards</i>	11	9	19	22
BPAY	2	3	3	2
Internet/phone banking <sup>(a)</sup>	na	2	2	1
PayPal	na	1	3	3
Cheque	1	1	0.4	0.2
Other <sup>(b)</sup>	1	1	2	4
<b>Value of payments</b>				
Cash	38	29	18	18
Cards	43	43	53	54
<i>Debit cards</i>	21	27	22	26
<i>Credit and charge cards</i>	23	16	31	28
BPAY	10	10	11	8
Internet/phone banking <sup>(a)</sup>	na	12	10	10
PayPal	na	1	2	4
Cheque	6	3	2	2
Other <sup>(b)</sup>	3	3	5	3

Notes: Excludes payments over \$9 999, transfers (payments to family and friends) and automatic payments

(a) Payments made using banks' internet or telephone facilities; does not include other payments made using the internet

(b) 'Other' methods would include prepaid, gift and welfare cards, bank cheques, money order, Cabcharge, and other online payment methods apart from PayPal (e.g. POLi)

Source: RBA calculations, based on data from Colmar Brunton, Ipsos and Roy Morgan Research

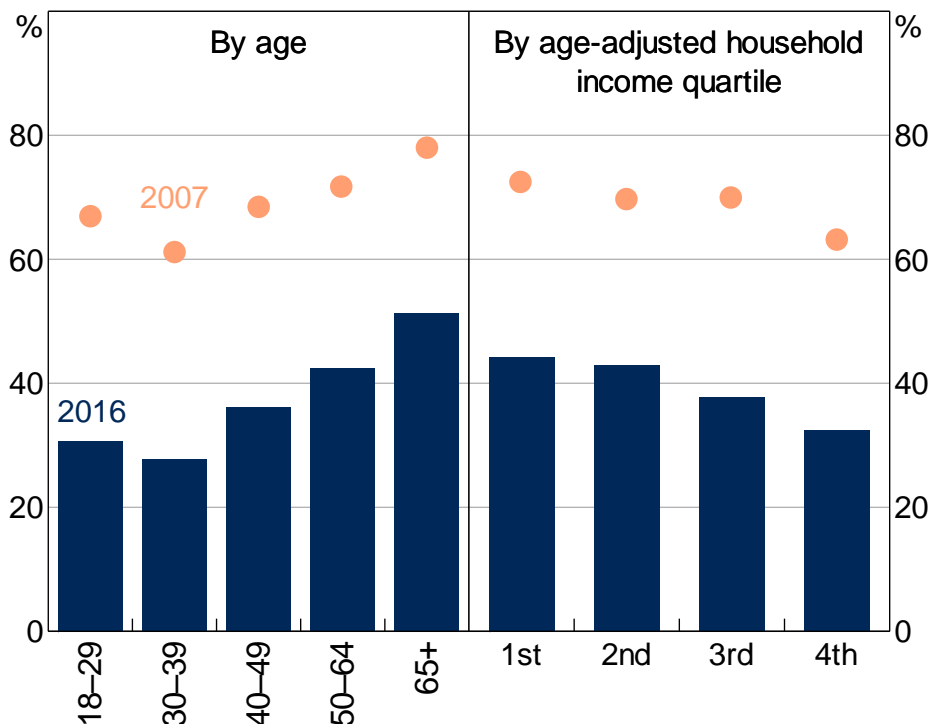


The share of transactions (by number) using some other electronic means of payment was broadly unchanged. PayPal, internet/phone banking and BPAY accounted for relatively small shares of the number of payments recorded in the survey. A small decline in the relative use of BPAY may reflect increased use of automated payments (which include BPAY) and direct debits for bill payments, which were recorded separately (see Section 7.2).<sup>5</sup>

As a greater share of consumer payments are made electronically, relatively fewer payments are made in cash. By number, cash was used for 37 per cent of consumer payments in 2016, compared with nearly 70 per cent a decade or so ago. Cash was, however, still used in a material share of consumer payments; and when measured by the value of transactions, the relative use of cash was unchanged from 2013 (Table 1). Personal cheques were used for only 0.2 per cent of consumer payments in the 2016 survey.

Although there are some notable differences in the payment patterns of different demographic groups, the move towards electronic means of payment has been evident quite broadly. Consumers of all ages and incomes are, on average, making a smaller share of their payments in cash than they were a decade ago (Figure 1). Nonetheless, some individuals continue to rely extensively on paper-based payment methods.

**Figure 1: Cash Payments**  
Per cent of number of payments within each category



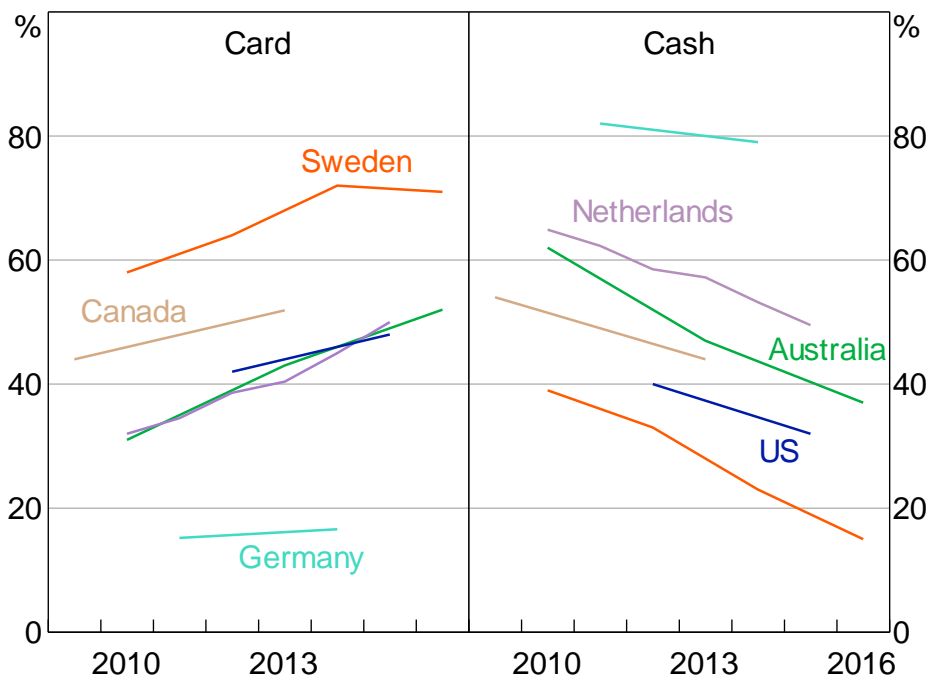
Source: RBA calculations, based on data from Ipsos and Roy Morgan Research

<sup>5</sup> This explanation is consistent with continued increases in these types of payments recorded in other sources. For instance, according to the RBA's monthly retail payment statistics, the number of direct debits and BPAY payments increased by around 30 and 20 per cent, respectively, between 2013 and 2016.

Similar trends in consumer payments have been apparent in a number of other countries. Several advanced countries conduct studies of payment patterns similar to the Reserve Bank's CPS. Although differences in survey design and coverage mean the results of these surveys are not fully comparable, they indicate that consumers globally are shifting away from cash and towards electronic payment methods such as cards (Figure 2). There are, however, some notable differences across countries. German consumers, for example, use cash in a higher share of their transactions than consumers in many other countries; and the transition to electronic payments has been particularly pronounced in Sweden.<sup>6</sup>

**Figure 2: Trends in Card and Cash Payments**

Per cent of number of payments



Notes: Card and cash do not sum to 100; observations are not directly comparable due to differing survey methods and inclusions across countries

Sources: Bank of Canada; Colmar Brunton; De Nederlandsche Bank; Deutsche Bundesbank; Federal Reserve Bank of San Francisco; Ipsos; RBA; Roy Morgan Research; Sveriges Riksbank

#### 4. Payment Cards

Between 2013 and 2016, the share of payments (by number) made using credit and debit cards increased by 9 percentage points to 52 per cent.<sup>7</sup> The recent increase in the frequency of card use relative to other payment methods was almost entirely because cards were used more often for in-person payments; card use for online payments barely increased as a share of total payments in the 2016 CPS (Table 2).

<sup>6</sup> See also Bagnall *et al* (2014) and Davies *et al* (2016) for a discussion of cash use across countries.

<sup>7</sup> In this paper, references to 'payment cards' or 'cards' refer to debit, credit and charge cards. In the 2016 survey, gift/prepaid cards were separately identified for the first time. However, for comparability with previous surveys, gift/prepaid cards have been included in the 'other' payment method category. These cards accounted for around 2 per cent of the number of consumer payments in 2016.

**Table 2: Payments by Channel**

Per cent of number of payments

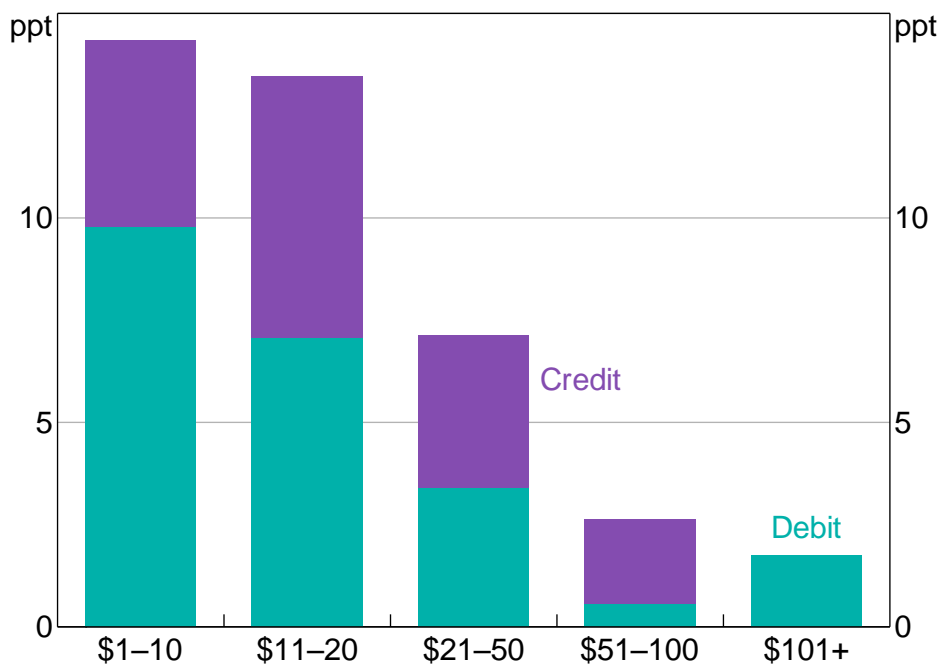
	2013	2016
In-person payments	86	86
<i>of which: card purchases</i>	37	45
Online payments	13	13
<i>of which: card purchases</i>	5	6
Telephone/mail payments	1	1

Note: Excludes payments over \$9 999, transfers (payments to family and friends) and automatic payments  
Source: RBA calculations, based on data from Colmar Brunton and Ipsos

The recent growth in the relative use of cards was strongest for lower-value transactions, with consumers increasingly using debit (and to a lesser extent credit) cards for payments of \$20 or less (Figure 3, Table 3). Cards are now the most commonly used payment method for all but the lowest-value transactions (i.e. those of \$10 or less). As a result, the median value of card payments at the point of sale continued to decline, from \$40 in 2007 to \$28 in 2016.

**Figure 3: Change in Point-of-sale Card Payments**

By transaction size, change in share of number of payments, 2013 to 2016



Source: RBA calculations, based on data from Colmar Brunton and Ipsos

The relative use of cards increased across all merchant categories, with the most notable rise in the past three years occurring at food retailers (excluding supermarkets) and for transport (e.g. public transport and taxis) (Table 3).<sup>8</sup> The greater frequency with which cards were used at smaller food retailers is mainly because of a rise in the relative use of contactless cards, consistent

<sup>8</sup> Food retailers include cafés/restaurants, pubs/bars, small food stores, and takeaway/fast-food retailers.

with both rising merchant acceptance of contactless cards for smaller transactions, as well as shifting consumer preferences (Section 4.2). For transport, an increase in the share of payments by card may have been associated with the rollout of electronic public transport ticketing arrangements in Sydney and Adelaide, and to some extent the introduction of mobile booking apps for ride-sharing and traditional taxi services (both of which allow in-app card payments).<sup>9</sup> In comparison, there was a smaller increase in the card share of payments at supermarkets and petrol stations – these merchants had mostly implemented contactless terminals by late 2013 and already received a relatively high share of payments by card.

**Table 3: Cash and Card Payments for Different Types of Purchases**

Per cent of number of payments within each category

	2007		2010		2013		2016	
	Cash	Card	Cash	Card	Cash	Card	Cash	Card
Payment value (\$)								
1–10	95	4	91	7	78	18	62	32
11–20	77	21	71	26	56	39	42	52
21–50	55	40	50	43	37	54	28	61
51–100	36	54	29	59	23	63	18	65
101–500	30	51	20	53	14	59	14	62
501+	19	49	14	41	7	51	11	50
Broad merchant categories								
Supermarket	60	39	54	46	38	59	31	63
Food retail	90	10	85	14	72	27	55	43
Goods retail	62	35	56	40	40	48	30	55
Transport	82	15	73	17	58	34	37	49
Petrol/service station	45	51	43	54	31	66	29	67
Leisure/entertainment	85	12	75	19	49	36	46	37
Holiday	25	65	21	69	4	74	2	79
Bills <sup>(a)</sup>	37	28	16	22	12	33	12	35
Services	51	27	56	33	50	38	35	46
Other	63	25	55	30	40	41	38	47

Notes: Excludes payments over \$9 999, transfers (payments to family and friends) and automatic payments; cash and card percentages do not sum to 100 due to the use of other payment methods

(a) Excludes bill payments that are automatically withdrawn from a bank account (see Section 7.2)

Source: RBA calculations, based on data from Colmar Brunton, Ipsos and Roy Morgan Research

<sup>9</sup> For example, the Opal card was rolled out in Sydney in 2013 and paper tickets were withdrawn from September 2014. Opal cards can be topped up in a number of ways, including by making an online or in-person card payment.

## 4.1 Debit and Credit Cards

Australian consumers use debit cards more frequently than credit cards for transactions. Debit cards – which allow people to make payments from funds in their bank account – accounted for 30 per cent of consumer payments (by number) in 2016, compared with 22 per cent for credit cards (Table 1). Since the 2013 survey, the share of debit card payments has increased by slightly more than that of credit cards (6 percentage points compared with 3 percentage points). When measured by the value of payments, credit cards still account for a larger share of consumer payments than debit cards, although the gap narrowed to less than 2 percentage points in the 2016 survey.

The increasing use of debit and credit cards recorded in the CPS is consistent with aggregate data from the Bank's Retail Payments Statistics (RPS).<sup>10</sup> The RPS show that the combined number of credit and debit card transactions increased at an average annual rate of 11 per cent since 2007, with growth in debit card payments outpacing that in credit cards since the mid 2000s.<sup>11</sup> There are a number of explanations for the relatively strong growth in debit card payments, including the Reserve Bank's reforms to interchange fees since the early 2000s, which have reduced incentives for consumers to use higher-cost credit cards (Simon, Smith and West 2009). Another factor has been the introduction in the mid 2000s of international scheme debit cards, which provide much of the same payment functionality as credit cards (e.g. the ability to make contactless and online payments). The broader macroeconomic environment is also likely to have played a role, with households less inclined to finance consumption using debt since the crisis (Lowe 2017).

The CPS indicates that growth in the relative use of debit cards has been concentrated among younger Australians. In 2016, respondents aged under 30 made around 4 debit card payments for every credit card payment, up from a ratio of 2 in 2007. In contrast, respondents aged 30 and over have tended to make a similar share of their payments using debit and credit cards. The difference between age cohorts appears to be because younger consumers are increasingly using debit cards for payments that they would previously have made in cash, whereas other age groups have substituted cash with both debit and credit cards (Figure 4).

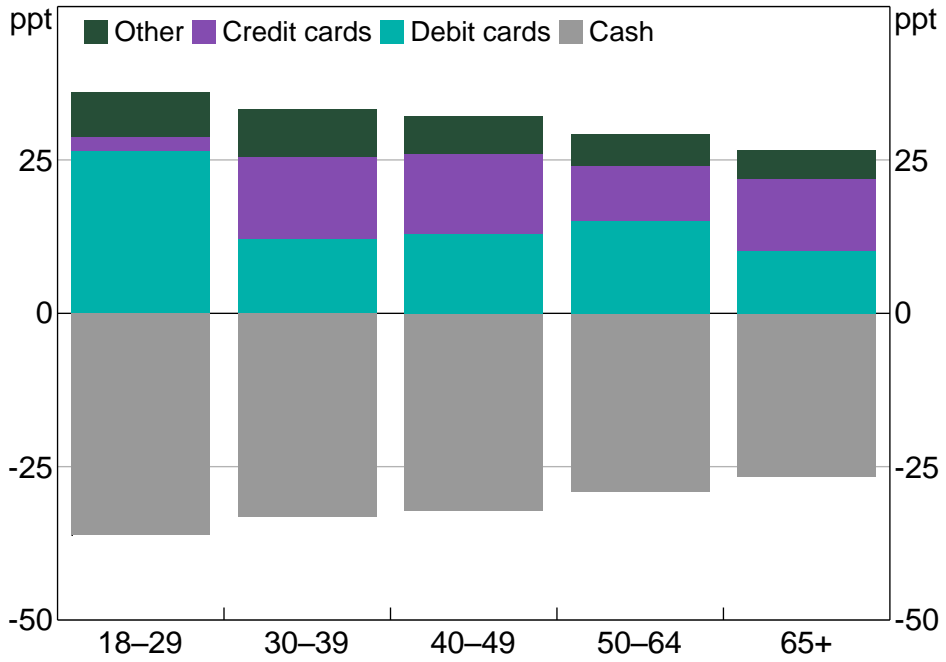
The CPS also provides some insights into why younger Australians, on average, tend to use debit cards rather than credit cards. A significant factor is that around 70 per cent of respondents aged under 30 reported that they did not hold a credit card in 2016, compared with around 40 per cent of respondents aged 30 and over. However, younger credit card holders also used their debit card relatively more often than older credit card holders. Respondents aged under 30 who held a credit card made a roughly equal number of payments with debit and credit, while credit card holders aged over 30 made, on average, 2 credit card payments for every debit card payment (Figure 5).

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10 RPS data are collected monthly from financial institutions by the Reserve Bank. They provide aggregate estimates of the number and value of a range of non-cash payment methods. Available at <<https://www.rba.gov.au/statistics/tables/>>.

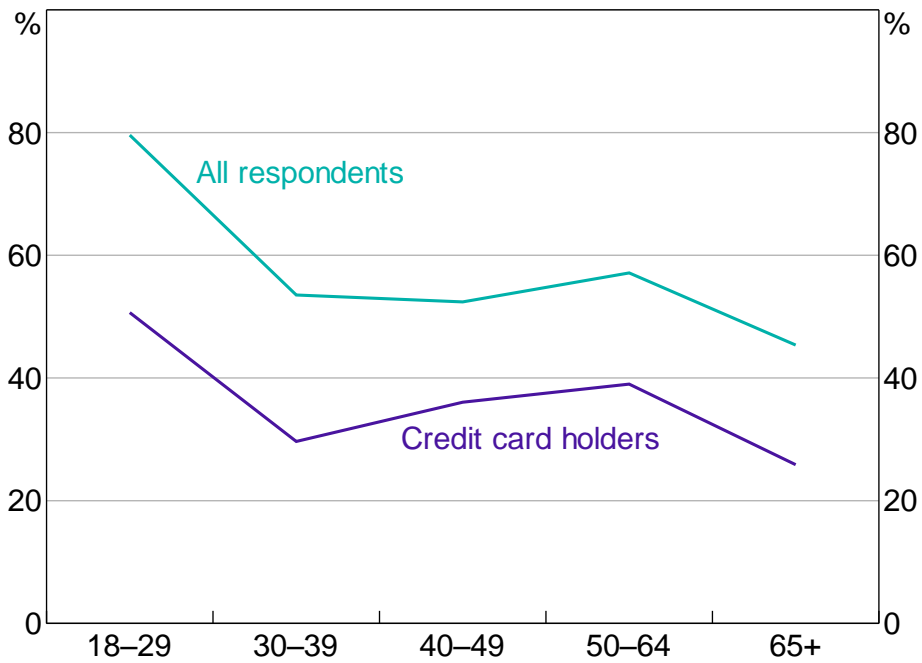
11 As noted by Ossolinski *et al* (2014), in previous waves of the survey some respondents may have confused debit cards from MasterCard and Visa with these schemes' credit cards, particularly when making a debit payment over the internet or by pressing the 'credit' button on merchant terminals. Changes to the online delivery of the payment diary in 2016 may have reduced the potential for this confusion, allowing respondents to select the actual card used from a list of the cards that they held, rather than selecting the type of card (i.e. debit or credit) as in previous waves.

**Figure 4: Change in the Payment Mix by Age**  
Change in share of number of payments, 2007 to 2016



Source: RBA calculations, based on data from Ipsos and Roy Morgan Research

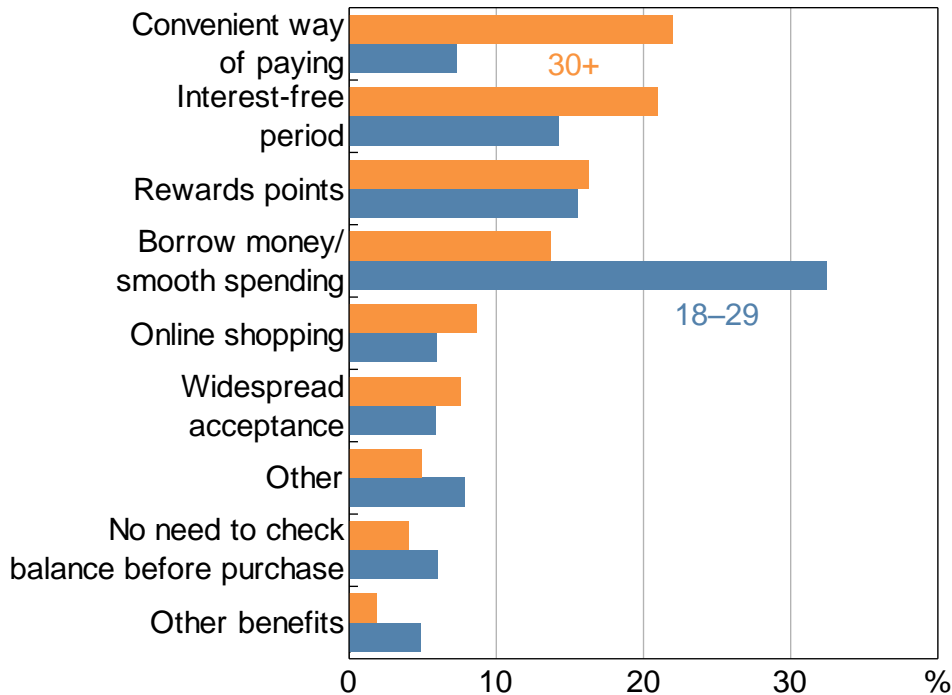
**Figure 5: Debit Card Payments by Age**  
Per cent of number of card payments, 2016



Source: RBA calculations, based on data from Ipsos

These patterns are consistent with age-related differences in the reported reasons why consumers hold a credit card. For example, a relatively small proportion of consumers aged under 30 cited the convenience of making payments as the most important reason for holding a credit card (Figure 6). Instead, they tended to perceive debit cards as more convenient for making payments and managing finances, but were more likely than older respondents to value the ability to use a credit card to borrow money or smooth spending.

**Figure 6: Why Hold a Credit Card?**  
Most important reason, by age, 2016



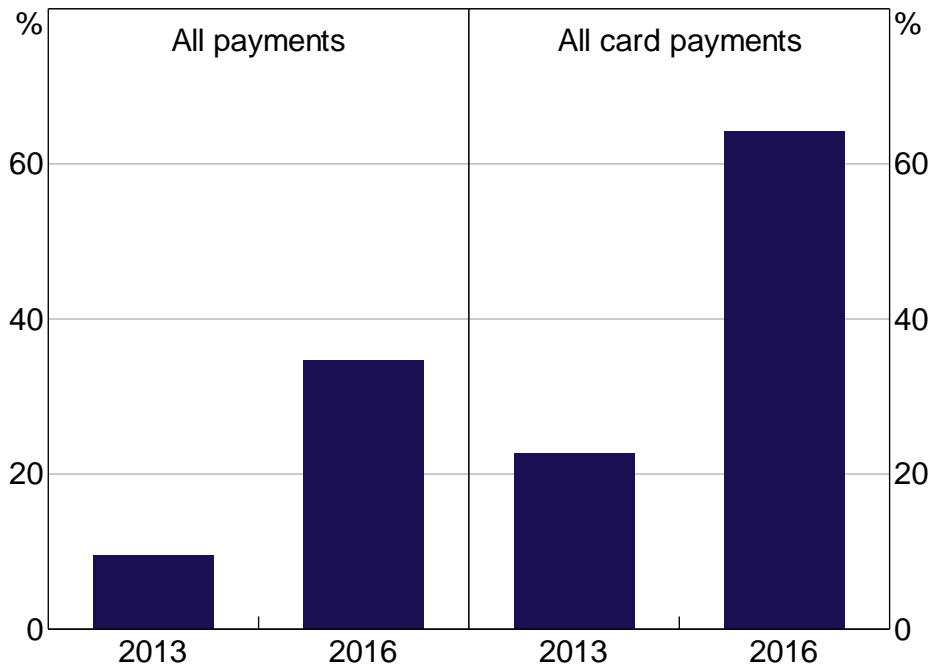
Note: Per cent of credit card holders

Source: RBA calculations, based on data from Ipsos

## 4.2 Contactless Payments

The increased use of cards for lower-value payments since 2013 has been facilitated by the adoption of contactless 'tap and go' functionality by consumers and merchants at the point of sale. Around one-third of all point-of-sale transactions were conducted using contactless cards in 2016, which is 3½ times the share reported by participants in the 2013 survey (Figure 7, left panel). As a share of card payments only, nearly two-thirds of all point-of-sale payments were contactless in 2016 (Figure 7, right panel).

**Figure 7: Contactless Card Payments**  
Per cent of number of point-of-sale payments



Note: Does not include mobile payments

Source: RBA calculations, based on data from Colmar Brunton and Ipsos

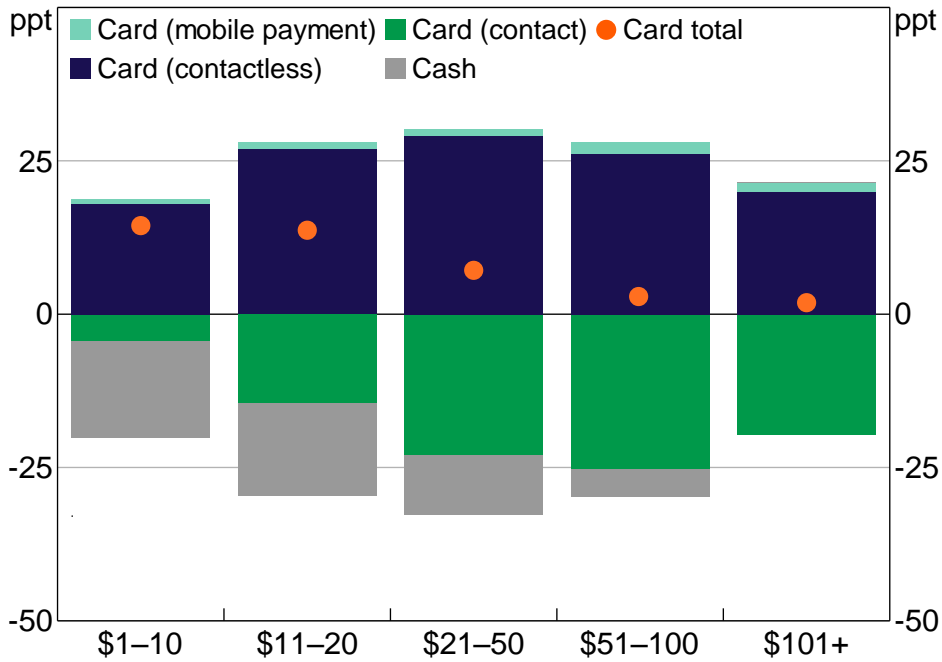
Contactless card payments have displaced both cash and contact card payments (where the consumer swipes or inserts their card in the terminal) at the point of sale, with the pattern of displacement related to transaction value. For lower-value transactions, particularly those of \$10 or less, contactless payments have mostly displaced cash (Figure 8). However, for payments over \$20, contactless payments have mostly replaced contact card payments.

Consumers of all ages are using contactless cards more frequently than they did three years ago, with nearly 60 per cent of participants in the 2016 CPS making at least one contactless card payment during the week of the survey, compared with about one-third of participants in 2013. Notably, the share of respondents aged 65 and over that made at least one contactless payment more than doubled between 2013 and 2016 (Figure 9, top panel). But the use of contactless cards does, on average, decline with age. For participants aged 65 and over – the age group that made the fewest contactless payments – this mainly reflects the fact that they tend to use cash relatively frequently. However, once older Australians have adopted contactless cards as a means of payment – as indicated by having made at least one contactless card payment during the week – the latest CPS suggests that there is little difference in how frequently they use them compared to younger consumers (Figure 9, bottom panel).



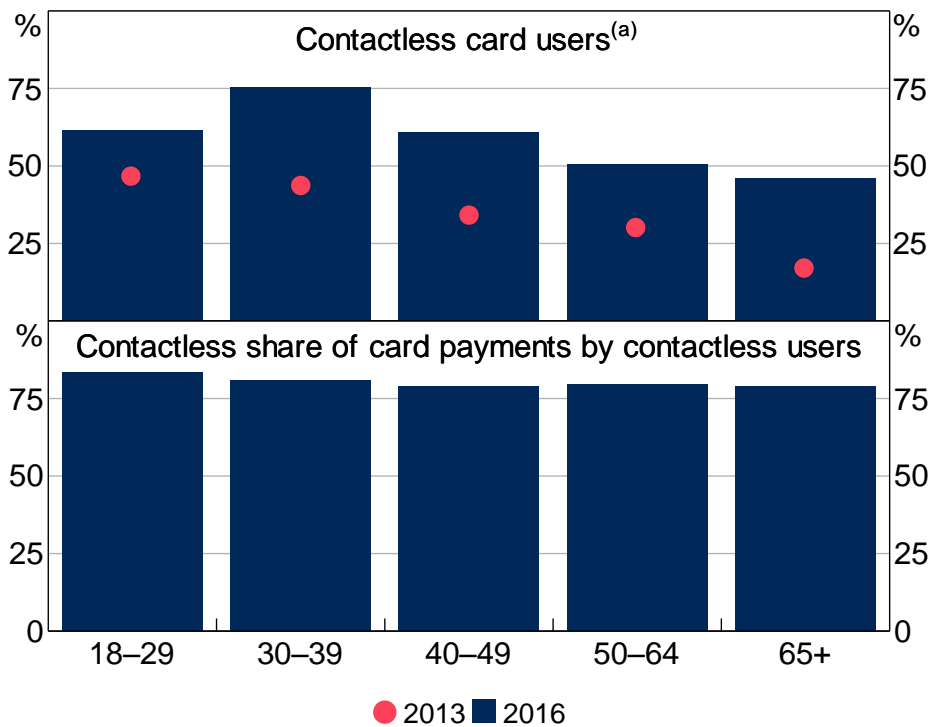
**Figure 8: Change in Point-of-sale Payments**

By transaction size, change in share of number of payments, 2013 to 2016



Source: RBA calculations, based on data from Colmar Brunton and Ipsos

**Figure 9: Contactless Card Payments by Age**



Notes: Does not include mobile payments

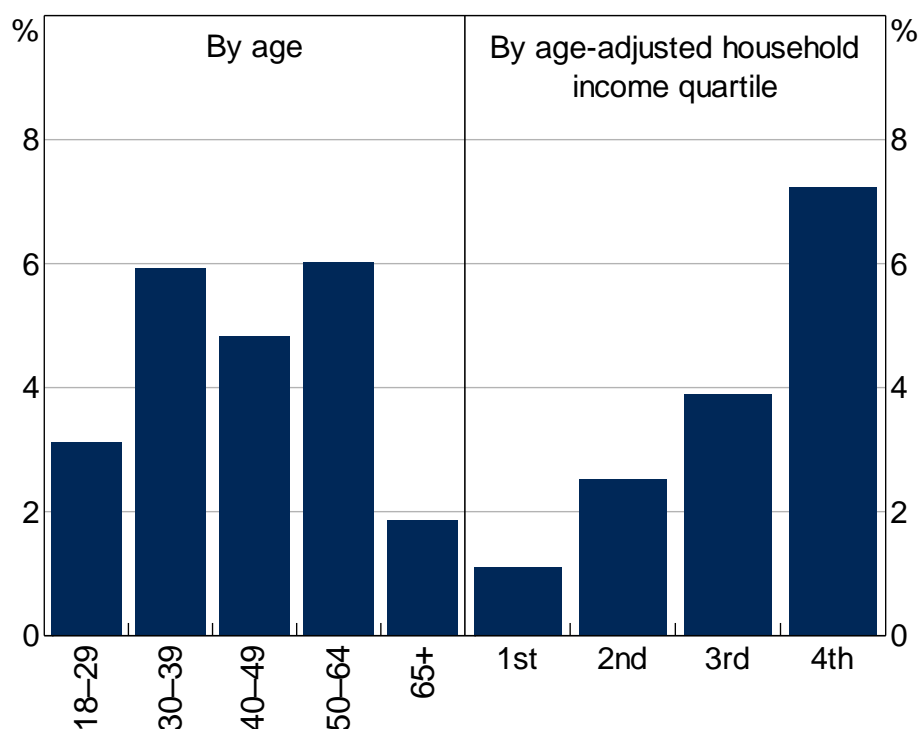
(a) Share of respondents who made at least one contactless payment during the week of the survey

Source: RBA calculations, based on data from Colmar Brunton and Ipsos

### 4.3 Mobile Payments

The 2016 CPS provided some preliminary insights into the use of mobile devices to make card payments at the point of sale (mobile payments). These payments are made by tapping or waving a mobile phone or other portable device in front of a card terminal rather than using a physical (plastic) card.<sup>12</sup> The ability to make mobile payments – whether provided via third-party mobile wallets or banks’ proprietary banking applications – is a relatively new feature of the payments landscape (and was not available for all card schemes and issuers at the time of the survey). Consistent with this, mobile payments accounted for only around 1 per cent of the number of point-of-sale transactions in the week of the survey (around 2 per cent of in-person card payments). The users of mobile payments were spread across a range of age groups and tended to have above-average incomes (Figure 10).

**Figure 10: Users of Mobile Payments**  
Per cent of respondents within each category, 2016



Note: Made at least one mobile payment by tapping or waving their smartphone at the checkout of a store during the week of the survey

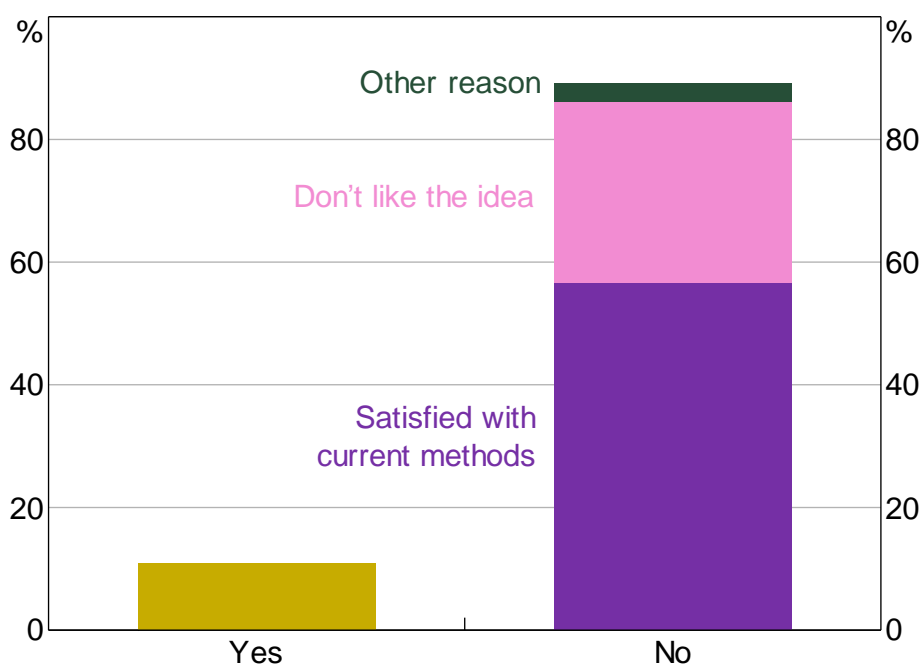
Source: RBA calculations, based on data from Ipsos

<sup>12</sup> The physical card details are typically stored (provisioned) in a digital 'wallet' application on the mobile device, which is equipped with near field communication (NFC) technology that enables contactless payments. These payments are different from remote payments using the internet through a mobile phone (see Section 7.1).

To help understand interest in mobile payments, survey participants were also asked whether they had made mobile payments in the past, or if they would like to do so.<sup>13</sup> A little over 10 per cent of respondents said that they had made or were interested in making mobile payments (Figure 11); this share was a bit higher for respondents aged under 30 (15 per cent). The remaining respondents reported that they had not or did not currently intend to adopt mobile payments. The majority of these (amounting to around 55 per cent of all participants) indicated that it was because they were satisfied with current payment methods. A further 30 per cent of respondents said it was because they did not like the idea of making mobile payments.

**Figure 11: Would You Make Mobile Payments?**

Per cent of respondents, 2016



Note: Respondents were asked: 'Do you make contactless payments by tapping/waving your smartphone at the checkout of a store, or would you if you were able to?'

Source: RBA calculations, based on data from Ipsos

The apparent lack of interest in mobile payments among many survey respondents may partly reflect consumers' lack of familiarity with the technology, which was not widely available in the Australian marketplace at the time of the survey. It may also reflect a degree of scepticism about the potential benefits of mobile payments over contactless payments using plastic cards at this time; as noted, many consumers already use plastic contactless cards to make payments. Nonetheless, it would not be surprising if the share of mobile payments were to increase in the future as the availability of, and familiarity with, the technology expands. While just over 80 per cent of survey participants had a smartphone, less than half of these respondents reported that their phones were capable of making mobile payments. The remainder reported that their smartphones could not make payments, which for some respondents may have been because their

<sup>13</sup> Specifically, respondents were asked: 'Do you make contactless payments by tapping/waving your smartphone at the checkout of a store, or would you if you were able to?' This should capture respondents that made mobile payments during or prior to the survey period, and those that would be amenable to using this method of payment if, for example, they had access to the appropriate technology and card issuer.

phone was not equipped with the NFC technology required to make a mobile payment. Some other respondents may have been unfamiliar with the technology; around one-fifth of respondents were unsure whether their phone was capable of making mobile payments.

#### 4.4 Surcharges Paid on Card Transactions

The 2016 CPS showed some evidence of a reduction in the frequency and value of surcharges paid on card transactions.<sup>14</sup> Consumers paid surcharges on around 3½ per cent of all card payments in 2016, compared with around 4 per cent in 2013. The median value of surcharges fell to 1.0 per cent of the transaction value, from 1.8 per cent in 2013. However, the decline in the median value of surcharges should be interpreted with caution because of the small number of surcharges recorded in both surveys.

In May 2016, as part of its Review of Card Payments Regulation, the Bank announced some changes to its standards on surcharging. Under the new rules, surcharges cannot be more than the average amount that it costs a merchant to accept a particular type of card for a given transaction. The aim of the new standard was to improve price signals to consumers about the relative costs of different payment methods, and to eliminate instances of excessive surcharging (including in particular industries where this practice had emerged in recent years).<sup>15</sup> The new rules took effect for large merchants on 1 September 2016, so were in place for a bit over two months prior to the survey.<sup>16</sup> These changes led to reductions in the *value* of surcharges levied by some large merchants – particularly domestic airlines – on some lower-value transactions.

The 2016 survey showed little change in the main factors that influence whether a consumer paid a surcharge on a particular card transaction. These factors can be broadly split into those arising from the type of card used by the consumer and those arising from the merchant environment.<sup>17</sup> Surcharges were paid more often on credit card payments (4.7 per cent of payments) than on debit card payments (2.5 per cent). This difference is consistent with credit cards tending to be more expensive for merchants to accept than debit cards. In particular, a surcharge was paid on a lower share of eftpos payments – which attract relatively low merchant service fees – than MasterCard/Visa or American Express/Diners Club payments (Table 4). Individuals who held a credit card that offers reward points were more likely to have paid a surcharge than people who did not hold a rewards credit card.<sup>18</sup>

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14 Consistent with the 2013 survey, a surcharge was recorded in the diary only if the respondent completed a card payment where a surcharge applied. Accordingly, the CPS provides no information about situations where a consumer switched payment methods (or purchased from a different merchant) due to a surcharge.

15 For more information on these changes and the 2015–16 Review of Card Payments Regulation, see Reserve Bank of Australia (2016).

16 The new surcharging rules will take effect on 1 September 2017 for other (smaller) merchants.

17 Ossolinski *et al* (2014, pp 34–38) discuss these factors in more detail; here we focus only on the key results from the 2016 survey.

18 Lam and Ossolinski (2015) find that consumers have a higher willingness to pay surcharges for credit than for debit card transactions.

**Table 4: Card Surcharges Paid – 2016**

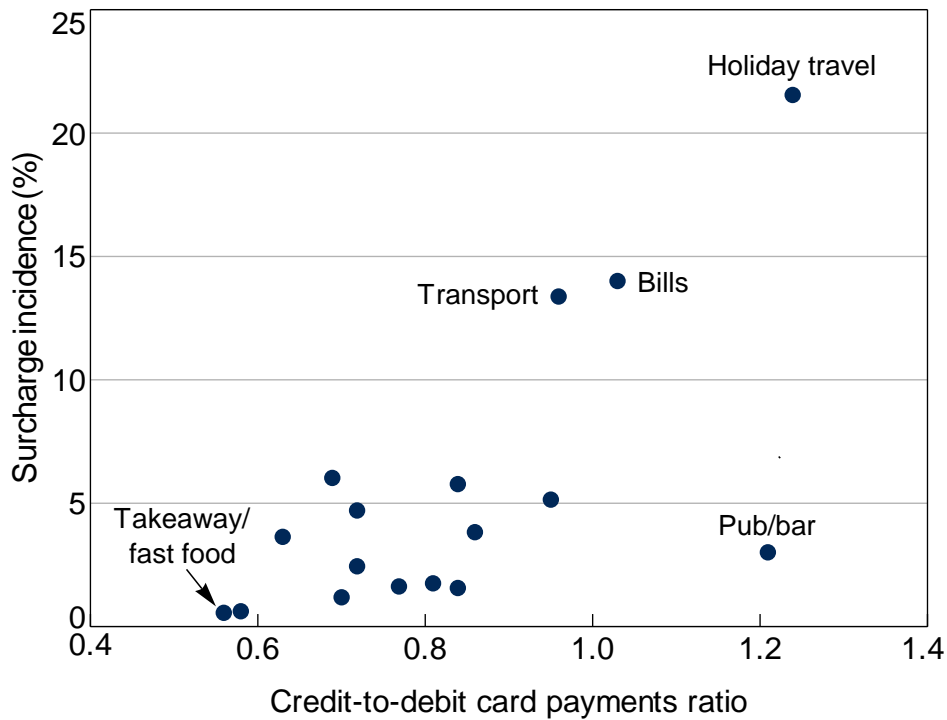
	Per cent of card payments where a surcharge was paid
All card payments	3.4
Credit	4.7
Debit	2.5
By card scheme	
eftpos	1.1
MasterCard/Visa debit	3.2
MasterCard/Visa credit	4.9
American Express/Diners Club	4.1
Rewards cardholder status	
Owns a rewards card	4.3
Does not own a rewards card	2.2
By payment channel	
In-person	2.6
Remote	9.3
Note:	Excludes payments over \$9 999, transfers (payments to family and friends) and automatic payments
Source:	RBA calculations, based on data from Ipsos

On the merchant side, it is more common for online (and over-the-phone) card payments to attract a surcharge than in-person payments. In 2016, a surcharge was paid on around 9 per cent of these remote card payments, compared with about 2½ per cent of in-person card payments. This difference is likely to partly reflect the fact that consumers usually have the convenient, non-surcharged, option of paying in cash at the point of sale. Furthermore, average card acceptance costs may be higher for online merchants than for 'bricks and mortar' merchants. As noted, eftpos payments tend to be less expensive for merchants to accept, but at the time of the survey eftpos cards could not be used for online transactions.

Merchants in some industries are also more likely to levy card surcharges than others. Merchant categories with a relatively high propensity to surcharge include those involved in holiday travel (e.g. airlines, accommodation) and those involved in (other) transport (e.g. taxis); 22 per cent and 13 per cent of card payments at merchants in these sectors incurred a surcharge in 2016.<sup>19</sup> Merchant categories with the lowest rate of surcharging included goods retailers, petrol stations and takeaway/fast-food retailers. In general, surcharges are more commonly paid at merchants in sectors where credit cards are used more frequently than debit cards (Figure 12).

<sup>19</sup> The high rate of surcharging for merchants involved in holiday travel could partly reflect that most card payments (62 per cent) at these merchants are made online. However, a surcharge was paid on around 7 per cent of in-person card payments at these merchants, which is higher than the average frequency for all in-person card payments.

**Figure 12: Surcharge Incidence versus Credit-to-debit Ratio**  
By merchant category, 2016



Notes: Each dot represents a different merchant category; x-axis reports the ratio of credit card to debit card payments by merchant category; y-axis reports the per cent of card payments where a surcharge was paid by merchant category

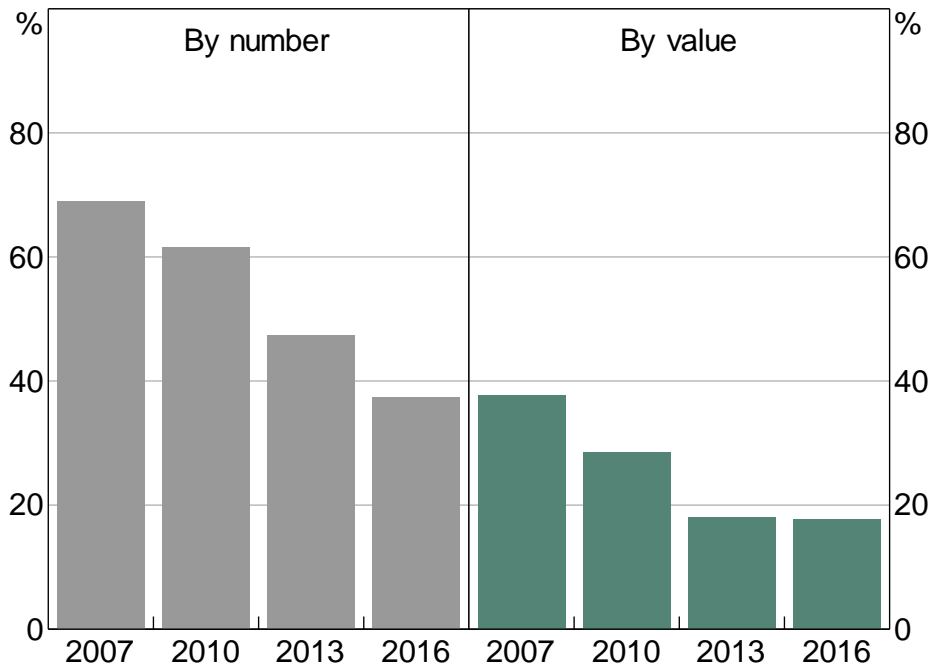
Source: RBA calculations, based on data from Ipsos

## 5. Cash

### 5.1 Cash Payments

The share of consumer payments made in cash has fallen markedly over the past decade or so – to 37 per cent of the number of payments in 2016 from 69 per cent in 2007 (Figure 13). The main contributor has been an increase in the use of cards for in-person payments, although other factors have played a role. For example, between 2007 and 2013 an increasing share of consumer payments were made via 'remote' payment channels – e.g. online card payments. Between 2013 and 2016, the decline in the use of cash relative to other payment methods was almost entirely due to consumers using cards more frequently for in-person payments, as discussed above.

**Figure 13: Cash Payments**  
Per cent of consumer payments



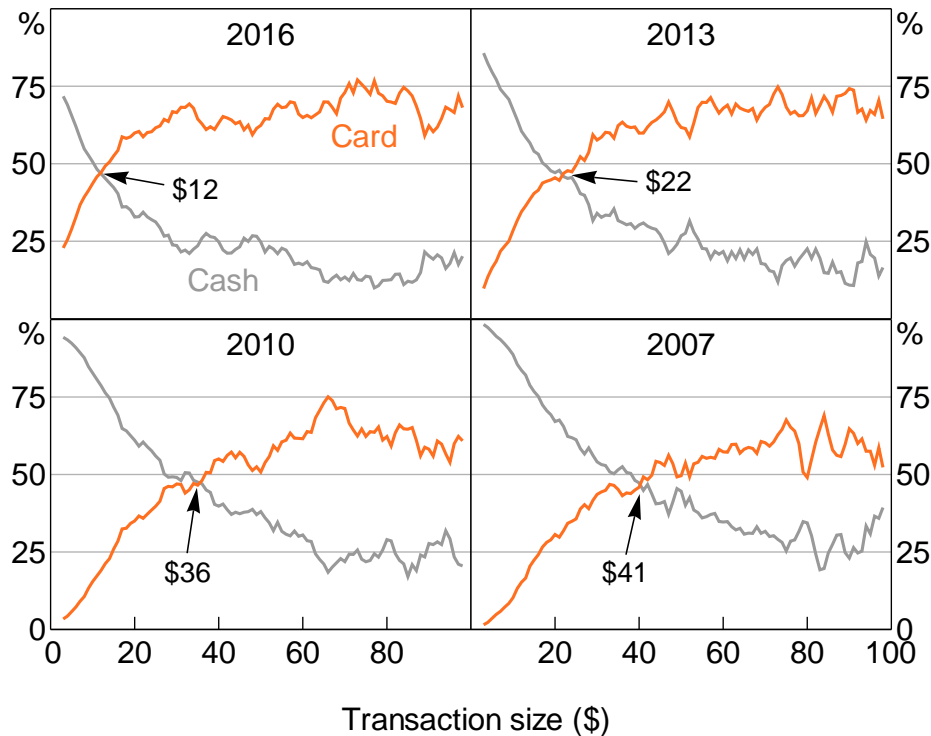
Source: RBA calculations, based on data from Colmar Brunton, Ipsos and Roy Morgan Research

Cash continues to be used more often for lower-value transactions – it was the most common way of making payments of \$10 or less in 2016, accounting for over 60 per cent of these small payments. Consumers are, however, increasingly using alternatives to cash for lower-value payments. For example:

- The share of payments of \$10 or less made in cash was 16 percentage points lower in 2016 than in the 2013 survey (33 percentage points lower than in 2007).
- The payment value at which cash is the most common means of payment has been falling over time. In 2016, this 'threshold' was \$12, whereas cash was the most frequently used payment method up to \$22 in 2013, and up to \$41 in 2007 (Figure 14).

The shift away from cash to other payment methods has occurred across all types of merchants (Table 3). For most merchant categories, consumers now pay with cash less frequently than with cards. One exception is at food retailers – which includes specialty food stores, cafés, pubs and takeaway food outlets – where cash was used for 55 per cent of purchases in 2016. But this share has also fallen markedly in recent years; cash accounted for over 70 per cent of payments at food retailers in 2013. Consumers also tend to pay in cash relatively frequently for leisure and entertainment, transport and services – which includes items such as home repair, professional services and haircuts. But again, participants in the 2016 CPS paid in cash at these merchants less often than participants in 2013.

**Figure 14: Card and Cash Payments by Transaction Size**  
Per cent of number of payments within each category



Note: \$5-centred moving average

Source: RBA calculations, based on data from Colmar Brunton, Ipsos and Roy Morgan Research

The overall decline in the relative use of cash is consistent with both changing consumer preferences and a greater willingness of merchants to accept cards. For smaller businesses, such as cafés, the availability of contactless card terminals is likely to have increased the speed at which they can handle card payments, potentially lowering the overall cost of accepting cards.<sup>20</sup> Similarly, a reduction in interchange fees for small/contactless card payments by one of the international card schemes in late 2012 may have contributed to a greater willingness by some businesses to accept cards for low-value purchases (and may also have reduced the incentive to specify a minimum spend for card transactions); see Reserve Bank of Australia (2013).

For merchants such as supermarkets and petrol stations, recent changes in the payments mix are more likely to be explained by consumer payment preferences than merchants' acceptance decisions. Supermarkets, for example, were among the first merchants to routinely accept contactless card payments, with Coles and Woolworths engaging in an extensive rollout of contactless terminals across their stores well before the 2013 survey.<sup>21</sup> Accordingly, the decline in relative cash use at supermarkets – 7 percentage points between 2013 and 2016 – is consistent with an increasing share of shoppers preferring to pay by card (changes in technology, such as the rollout of self-service checkouts, are likely to have also played a role).

<sup>20</sup> Stewart *et al* (2014) found that smaller businesses faced higher card acceptance costs than larger businesses, partly because of smaller economies of scale in back-office processing. They also generally face higher prices for payment services due to differences in bargaining positions and payment needs.

<sup>21</sup> These are the two largest supermarket chains in Australia (Woolworths 2011; Coles 2012).



The decline in cash as a share of payments was also observed across different demographic groups. Respondents of all ages, income groups, and locations used cash less frequently, on average, in 2016 than participants in previous surveys (Table 5).<sup>22</sup> But there are still some significant differences in the relative use of cash among different segments of the population. Most notably, cash remains the most common payment method for respondents aged 65 and over, who made around half of their payments in cash in 2016. In contrast, cash was used for less than one-third of payments made by respondents aged under 40. The survey also suggests that lower-income households tend to use cash more intensively than households in the highest income quartiles.<sup>23</sup>

**Table 5: Cash and Card Payments by Demographic Groups**

Per cent of number of payments by respondents in each group

	2007		2010		2013		2016	
	Cash	Card	Cash	Card	Cash	Card	Cash	Card
Age (years)								
18–29	67	29	58	33	44	47	31	58
30–39	61	33	54	37	40	47	28	59
40–49	68	27	57	35	47	43	36	53
50–64	72	24	66	28	48	41	42	48
65+	78	18	73	21	60	33	51	40
Age-adjusted household income								
1st quartile	72	22	67	24	49	39	44	44
2nd quartile	69	26	59	33	50	39	43	45
3rd quartile	70	25	59	34	49	41	38	51
4th quartile	63	32	59	34	43	49	32	58
Location								
Regional	70	25	62	30	51	39	44	46
Capital city	69	27	61	32	46	44	34	55

Note: Excludes payments over \$9 999, transfers (payments to family and friends) and automatic payments

Source: RBA calculations, based on data from Colmar Brunton, Ipsos and Roy Morgan Research

Although the share of consumer payments made in cash has declined across the board, there is evidence of a widening dispersion in the use of cash across the community. That is, the switch away from cash recorded in the 2016 CPS was more pronounced for demographic groups that tended to use cash the least frequently in 2013 than it was for groups of relatively frequent cash users. For example, the share of payments made in cash by consumers aged under 40 fell by 13 percentage points between 2013 and 2016, compared with a fall of 8 percentage points for

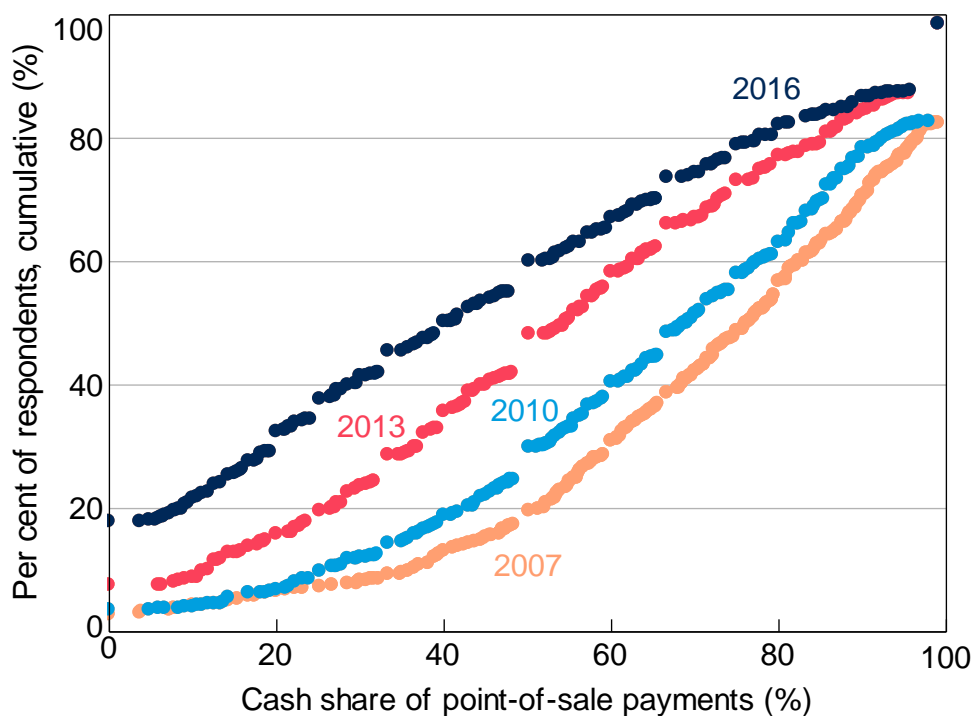
22 These figures will reflect both a change in the composition of demographic cohorts (e.g. people moving into different age categories) and a shift away from cash by members of a particular cohort (e.g. older Australians using cash less frequently).

23 Because of the overlap between age and income groups, the figures for income quartiles are adjusted for respondents' age. Using the previous three waves of the survey, Meredith, Kenney and Hatzvi (2014) found that income was generally not a statistically significant determinant of cash use once other factors were controlled for in a regression framework.

older consumers. Similarly, higher-income consumers have switched away from cash towards cards at a faster rate than respondents with lower incomes in recent years.

A wider dispersion is also evident at an individual level. The standard deviation of individual respondents' relative cash use (measured as a share of all in-person payments) increased to 34 percentage points in 2016 from 30 percentage points in 2013. Relatedly, the share of respondents who used cash for less than 20 per cent of their in-person transactions doubled between 2013 and 2016, to nearly one-third (Figure 15). Within this group, the share of survey respondents that did not use cash at all in the diary week more than doubled between 2013 and 2016, to 18 per cent. Meanwhile, there was little change in the share of consumers that use cash very intensively – one-fifth of respondents continue to use cash for more than 80 per cent of their transactions, compared with one-quarter in 2013. Within this group, around 12 per cent of respondents in both 2013 and 2016 reported paying in cash for all of their in-person transactions in the survey week.

**Figure 15: Individuals' Cash Payments**  
Cumulative distribution



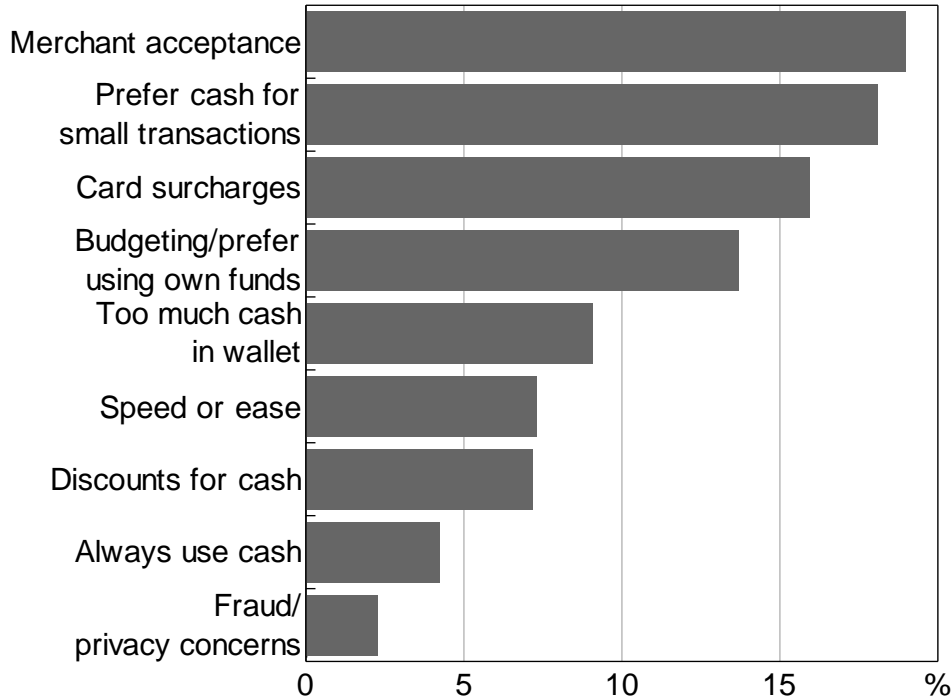
Source: RBA calculations, based on data from Colmar Brunton, Ipsos and Roy Morgan Research

Despite the trend decline in relative cash use, there are a variety of reasons why people continue to use cash for their transactions. When asked about the most important reason for using cash in the 2016 CPS, the responses were fairly evenly split between those that relate to merchant acceptance and those relating to respondents' own preferences and habits (Figure 16). The most common response, cited by 19 per cent of participants, was that merchants did not accept alternative payment methods or had minimum spend requirements. A further 16 per cent of participants reported a desire to avoid card surcharges, while 7 per cent cited discounts for cash use. Relating to their own preferences and habits, respondents indicated a preference for using cash in small transactions (18 per cent of respondents) and a preference for using their own funds

or to use cash as a budgeting tool (14 per cent). A smaller share indicated that fraud and privacy concerns were their most important reasons for using cash.

### Figure 16: Why Use Cash?

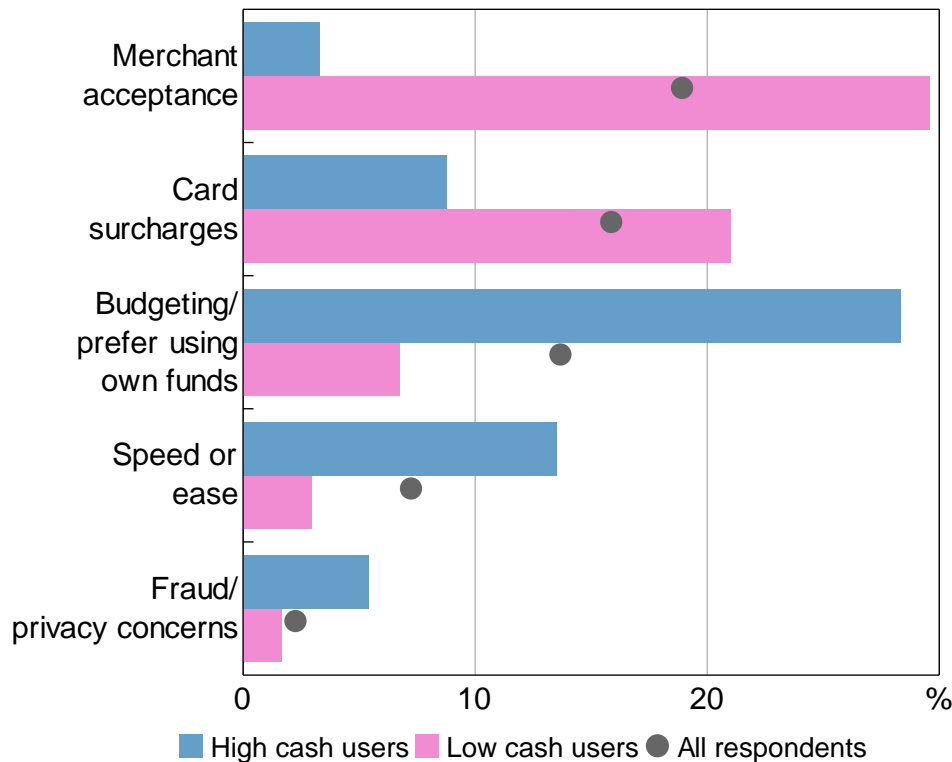
Most important reason, per cent of all respondents, 2016



Source: RBA calculations, based on data from Ipsos

For the participants who used cash the most intensively, consumer preferences were more prominent than factors relating to merchant acceptance. As an illustration, people who used cash for 80 per cent or more of their in-person transactions were more likely than other respondents to report that they prefer to use cash as a budgeting tool, prefer using their own funds, or view cash as more convenient (Figure 17). Conversely, respondents who used cash relatively infrequently (for less than 20 per cent of their in-person transactions) were more likely to cite reasons related to merchant acceptance and price incentives at the point of sale.

**Figure 17: Most Important Reason for Using Cash – By Frequency**  
Per cent of respondents, 2016



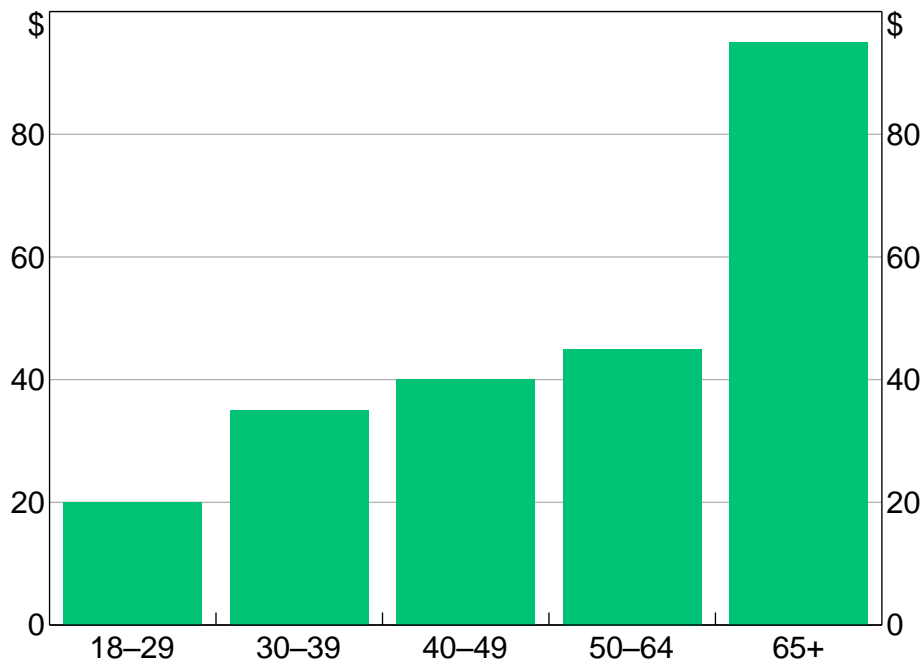
Notes: Selected reasons; frequency based on share of point-of-sale payments in cash (low: <20 per cent, high: ≥ 80 per cent)  
Source: Source: RBA calculations, based on data from Ipsos

## 5.2 Cash Holdings

Consistent with the decline in transactional use of cash, the median value of cash held in consumers' wallets or on their person fell to \$40, from \$55 in 2013. But there was a wide dispersion across participants in the amount of cash carried in their wallets, with a standard deviation of \$199 in 2016, compared with around \$180 in 2013 and 2010. Around one-fifth of respondents did not hold any cash at the beginning of the survey week (compared with 8 per cent in 2013), while around one-third held more than \$100, a similar share to the 2013 survey.

Respondents that used cash most often for transactions also tended to hold more cash. For example, the median respondent aged 65 and over held \$95 in their wallet at the beginning of the survey week; more than twice as much as the value of cash held by people in other age groups (Figure 18). The main reason given by respondents for holding cash in their wallets, other than for day-to-day transactions, was for precautionary purposes (i.e. to fund emergency transactions).

**Figure 18: Cash Holdings by Age**  
Median, 2016



Source: RBA calculations, based on data from Ipsos

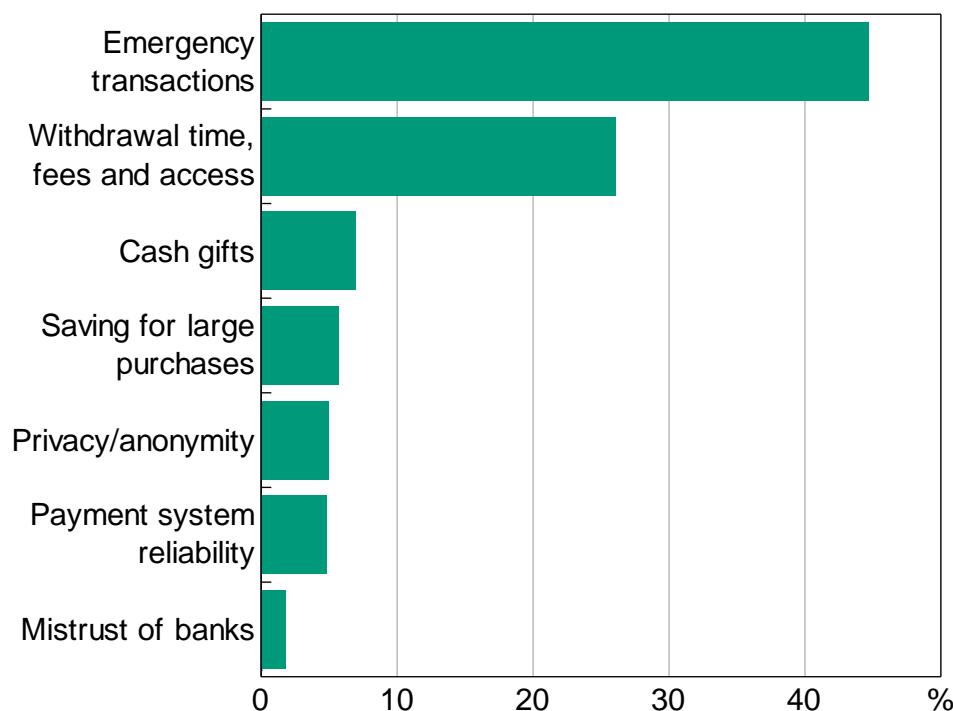
In 2016, around 70 per cent of survey participants reported also holding some cash outside of their wallet, compared with about 75 per cent in 2013. While the majority of respondents in 2016 reported that they typically held \$100 or less outside of their wallet, around one-quarter typically held between \$101 and \$1 000, and only a small share (around 3 per cent) reported holding over \$1 000 outside their wallets.

For the first time in 2016, respondents were asked about their reasons for holding cash outside of their wallet separately from their reasons for holding cash in their wallet.<sup>24</sup> As with cash held in wallets, the most common reason was for emergency transaction needs (Figure 19). A smaller but still significant share of respondents (26 per cent) cited issues relating to the accessibility of cash – such as automated teller machine (ATM) fees and access, and withdrawal time – as their most important reason.

<sup>24</sup> In 2013, respondents were asked about their reasons for all cash holdings (i.e. inside and outside of their wallets).

**Figure 19: Why Hold Cash Outside of Wallet?**

Most important reason, 2016



Note: Per cent of respondents who hold cash outside of wallet

Source: RBA calculations, based on data from Ipsos

### 5.3 Cash Withdrawals and ATM Fees

As Australian consumers use cash less often for their transactions, they are 'topping up' their cash holdings less frequently. For the first time since the inception of the CPS, in 2016 the majority of respondents (55 per cent) did not top-up their cash holdings during the week. The average number of top-ups per person fell to 0.7 over the week, compared with 1½ per person in each of the previous surveys (Table 6). People are withdrawing cash from ATMs, bank branches and via the 'cash out' option at the point of sale less frequently than in the past.

The frequency at which consumers received additional cash from other sources – e.g. cash wages and transfers from friends or family – was also a bit lower than in 2013 but has been broadly stable across different vintages of the CPS. The majority of cash top-ups from other sources were for relatively low values (70 per cent were worth \$100 or less), indicating that many are likely to have been person-to-person transfers. The slower decline in the frequency of this type of top-up is consistent with consumers currently having fewer electronic options that replicate the convenience of cash for some person-to-person payments. However, as discussed below, the New Payments Platform (NPP), due to be launched around the end of 2017, will provide a convenient, fast and secure option for person-to-person payments once it becomes operational (see Section 7.3).

**Table 6: Cash Top-ups by Source**

	2007	2010	2013	2016
Share of respondents making one or more top-ups (%)	86	72	76	45
Number of cash top-ups per person per week	1.4	1.6	1.5	0.7
Via ATM	0.9	0.9	0.7	0.4
Via cash out at point of sale	0.3	0.4	0.4	0.1
Via over the counter at a bank branch	0.1	0.1	0.1	0.0 <sup>(b)</sup>
Via other source	0.1	0.2	0.3	0.2
Median value of top-ups (\$)	100	100	60	100
Via ATM	100	100	80	100
Via cash out at point of sale	50	50	50	50
Via over the counter at a bank branch	250	385	100	200
Via other source	85	45	50	50
Share of ATM top-ups attracting a fee (%)	na	23	15	8
Average ATM fee (\$) <sup>(a)</sup>	na	na	na	2.16
Notes:	(a) For withdrawals that attracted a fee			
	(b) Rounds to zero			
Source:	RBA calculations, based on data from Colmar Brunton, Ipsos and Roy Morgan Research			

When 2016 CPS participants withdrew cash from an ATM – the most common way of topping-up cash – the median amount was \$100. Despite a decline in the transactional use of cash, this value has been fairly stable over time (with the exception of a fall in the median value in 2013), implying that each withdrawal is lasting longer. More comprehensive information on cash withdrawals comes from the Bank’s RPS, which corroborate the survey findings of a decline in the number of withdrawals (Figure 20). The RPS also show that the total value of ATM withdrawals has fallen at a slower pace than the number of withdrawals, indicating a rise in the average value of each withdrawal since 2007 (which was not observed in the survey data).<sup>25</sup>

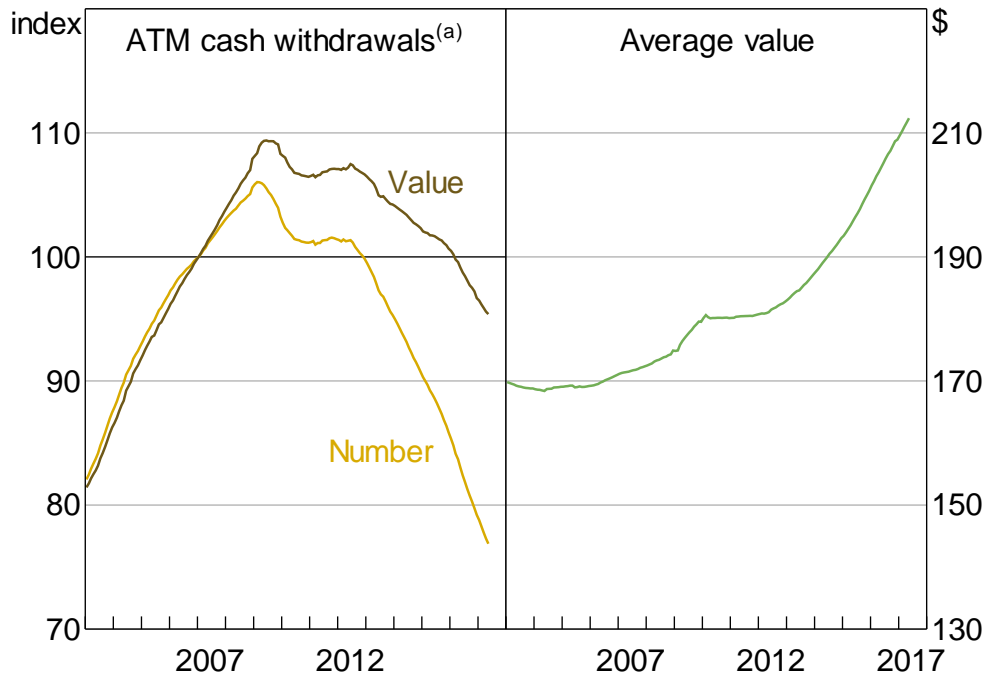
Consistent with other datasets, the CPS suggests that people are withdrawing money from ATMs less frequently and paying a fee on a smaller share of these withdrawals.<sup>26</sup> The CPS also provides useful information on the relationship between cash top-up behaviour and demographic characteristics. For instance, it indicates that ATM fees were most commonly paid by lower-income respondents and those living outside of capital cities (potentially due to greater difficulty accessing own-bank ATMs in regional areas).

25 The average ATM withdrawal value was \$192 in the 2016 CPS, an increase from 2013 but little changed from 2007 and 2010.

26 The incidence of ATM fees recorded in the CPS (8 per cent) was lower than that recorded in the Bank’s survey of ATM operators which suggested that the share of ATM withdrawals that incurred a fee was 28 per cent in 2014/15 (Flood and Mitchell 2016).

**Figure 20: ATM Cash Withdrawals**

Twelve-month moving average, seasonally adjusted



Note: (a) January 2007 = 100

Source: RBA

## 6. Personal Cheques

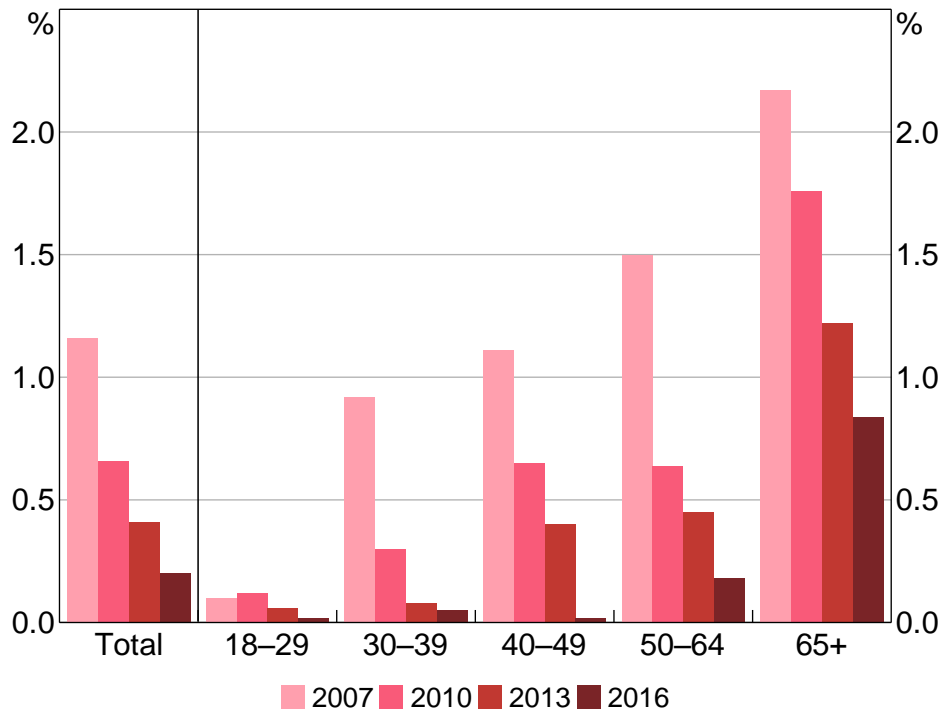
The use of personal cheques continued to decline, with cheques accounting for only 0.2 per cent of payments made by participants in the 2016 survey, compared with 0.4 per cent in 2013 and 1.2 per cent in 2007. Consistent with this, the share of respondents that reported making at least one personal cheque payment in the year prior to the survey fell to 12 per cent from around 20 per cent in 2013. While analysis of cheque use is complicated by the small number of cheque payments recorded in the survey, the broad results provide further evidence of the long-term decline in the use of cheques.<sup>27</sup>

Cheque use remains concentrated among older Australians; around 70 per cent of the number of cheque payments recorded in the 2016 CPS were made by participants aged 65 and over. Consistent with this, around half of the respondents that made cheque payments during the week reported that they had retired from the workforce. Nonetheless, fewer cheques are being written by consumers of all ages (Figure 21).

<sup>27</sup> See Richards (2016) and Tellez (2017) for a discussion of the trends in cheque use.



**Figure 21: Cheque Payments by Age**  
Per cent of number of payments within each age group

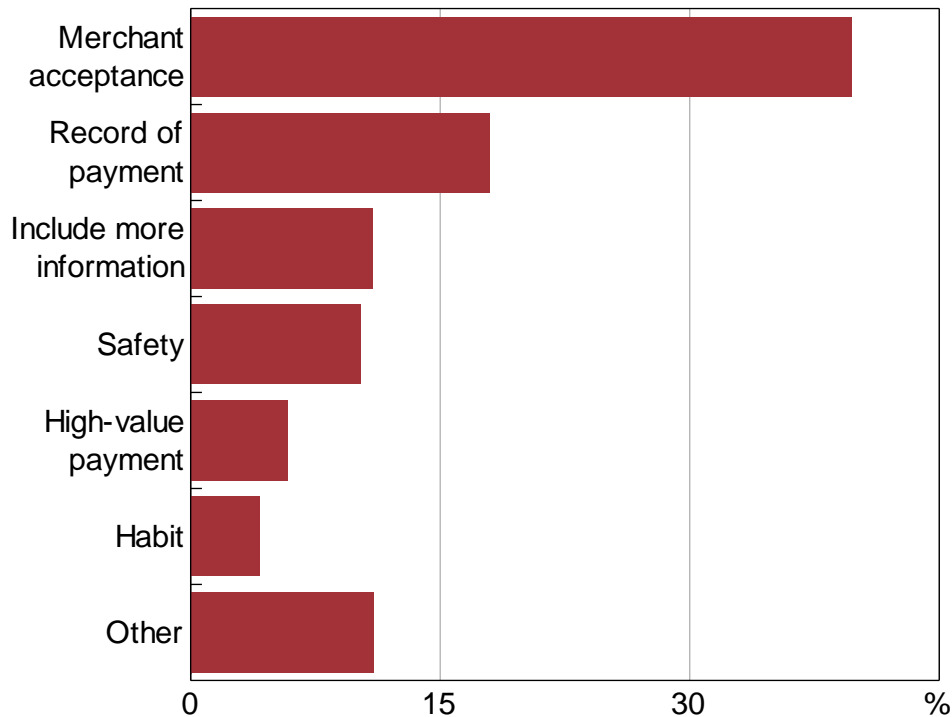


Source: RBA calculations, based on data from Colmar Brunton, Ipsos and Roy Morgan Research

As in previous surveys, personal cheques were mainly used for larger expenditures such as household services, bills or holidays. Accordingly, cheque payments have a higher median value (\$135) than cash or card payments. Relatedly, half of cheque payments recorded during the week were made by mail. It is likely that some consumers use cheques for remote payments because alternative payment methods are not readily available. Over one-third of respondents that made cheque payments did not use the internet on a regular basis.

As mentioned, 12 per cent of survey respondents reported making at least one personal cheque payment in the year prior to the survey. A large share of these respondents reported that they had done so because some merchants prefer to be paid by cheque or because there was no alternative for that particular type of payment (Figure 22). This suggests that in a number of cases respondents would have preferred to use another payment method but used cheques due to influence from the merchant. Consistent with this, only a very small number of consumers indicated a preference for cheque payments over other payment methods. However, some respondents also reported that they use cheques because cheques provide a useful record of the payment. Other respondents also valued the safety of cheque payments and that cheques allow them to include more information with the payment (by attaching documents).

**Figure 22: Why Use Cheques?**  
Most important reason, 2016



Notes: Per cent of respondents who made a cheque payment in the past year; 'Other' includes low cost, avoiding surcharges and useful for sending by post

Source: RBA calculations, based on data from Ipsos

## 7. Other Types of Payments

### 7.1 Online Payments

The latest CPS showed that the share of payments made online was about the same in 2016 as it was three years earlier.<sup>28</sup> However, these online purchases are increasingly being made by mobile phone, with around one-fifth of online retail payments made using a mobile phone in 2016, compared with 6 per cent in 2013 (Table 7).

Growth in the use of mobile phones to make online purchases was more pronounced at certain types of merchants than others. Notable examples include food retailers and transport services, which may be associated with increased use of mobile apps – which allow in-app payments – in these sectors.

<sup>28</sup> If automatic payments (which are typically set up using the internet) are included, the share of total payments made online increased from 16 per cent to 19 per cent between 2013 and 2016. Automatic payments are discussed in Section 7.2.

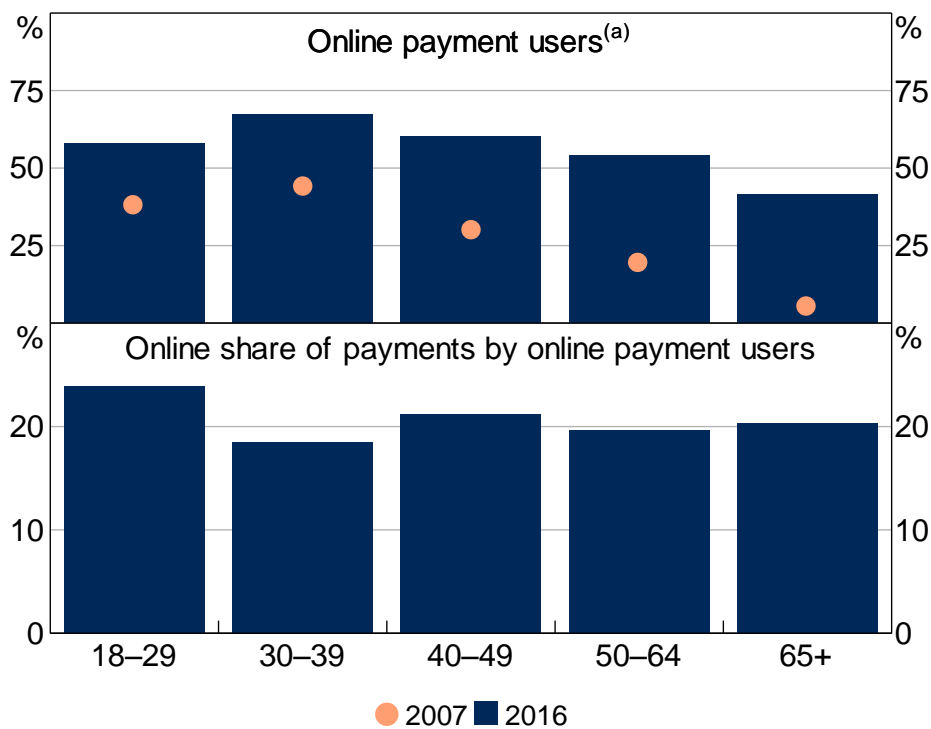
**Table 7: Online Payments**

	2007	2010	2013	2016
Online payments as a per cent of total payments				
Number	3	7	13	13
Value	13	26	36	39
Per cent of number of online payments by channel <sup>(a)</sup>				
PC/tablet	na	na	94	80
Mobile phone	na	na	6	20
Notes:	Excludes payments over \$9 999, transfers (payments to family and friends) and automatic payments			
	(a) 'Mobile phone' was recorded as a separate category of online payments only in 2013 and 2016			
Source:	RBA calculations, based on data from Colmar Brunton, Ipsos and Roy Morgan Research			

Cards accounted for about 40 per cent of the number of online payments in 2016 – a similar share to that recorded in 2013. Debit cards and credit cards were used evenly, but credit cards tended to be used for larger purchases. The share of payments using PayPal increased to 25 per cent of online payments, from 19 per cent in 2013 and 10 per cent in 2010.<sup>29</sup> Between 2013 and 2016, growth in the use of PayPal was mostly driven by online purchases made on mobile phones. BPAY and internet banking transactions accounted for the bulk of remaining online payments.

The share of participants that made at least one online payment during the survey week has doubled since 2007, to 56 per cent in 2016. Online payments continue to be made most frequently by younger respondents, although consumers of all ages appear to be adopting online payments (Figure 23, top panel). For example, around 40 per cent of respondents aged 65 and over used online payments in the 2016 diary week, compared with 5 per cent in 2007. As with contactless cards, older respondents who had adopted online payments made a similar share of their payments online as consumers in other age groups (Figure 23, bottom panel).

<sup>29</sup> As a share of all (online and in-person) payments, PayPal increased from 2.5 per cent to 3.4 per cent of the number of payments between 2013 and 2016.

**Figure 23: Online Payments by Age**

Note: (a) Share of respondents who made at least one payment online during the week of the survey

Source: RBA calculations, based on data from Ipsos and Roy Morgan Research

## 7.2 Automatic Payments

Respondents were asked to record details about the automatic payments they made during the week in the post-survey questionnaire. These payments include electronic 'pay anyone' or BPAY payments that are withdrawn from a savings or credit card account at regular intervals, and can be set up through internet banking. They also include direct debits, where an individual gives prior authorisation to a merchant for payments to be automatically deducted from their savings or credit card account.

Around two-thirds of respondents had at least one automatic payment arrangement – a similar share to that recorded in previous surveys.<sup>30</sup> These arrangements are a convenient way for people to pay recurring bills (e.g. rent, phone and utility bills) or make regular debt repayments (e.g. mortgage or credit card repayments). Together, bill payments and debt repayments accounted for three-quarters of all automatic payments recorded by respondents. Accordingly, the median value of automatic payments (\$66) was higher than the median value of non-recurring payments (\$23).

The latest CPS also indicates that people are using automatic payments more frequently than they did in 2013. Automatic payments accounted for 16 per cent of the value of respondents' total expenditure during the week, compared with 11 per cent in 2013. Between 2013 and 2016, the

<sup>30</sup> Changes between 2013 and 2016 are likely to reflect both the trend towards increased use of automatic payments and a change in how the question was asked. In 2016, respondents were specifically asked to record both direct debits and recurring 'pay anyone' transactions. In 2013, they were asked only about direct debits.

share of bill payments (by number) made automatically increased by 17 percentage points to 40 per cent (Table 8). The increased use of automatic payments (particularly for bill payments) may reflect consumers becoming more familiar with this means of payment (and online payments more generally) and valuing the convenience that it offers for recurring payments.<sup>31</sup>

**Table 8: Bill Payments by Payment Method**

Per cent of all bill payments

	Number		Value	
	2013	2016	2013	2016
Automatic	23	40	20	26
Non-automatic				
BPAY	28	21	25	24
Debit, credit/charge cards	26	21	28	27
Bank transfer	9	7	13	14
Other <sup>(a)</sup>	14	10	13	9
Total	100	100	100	100

Notes: Excludes payments over \$9 999

(a) Cash, cheque, PayPal, gift/prepaid card, and other payment methods

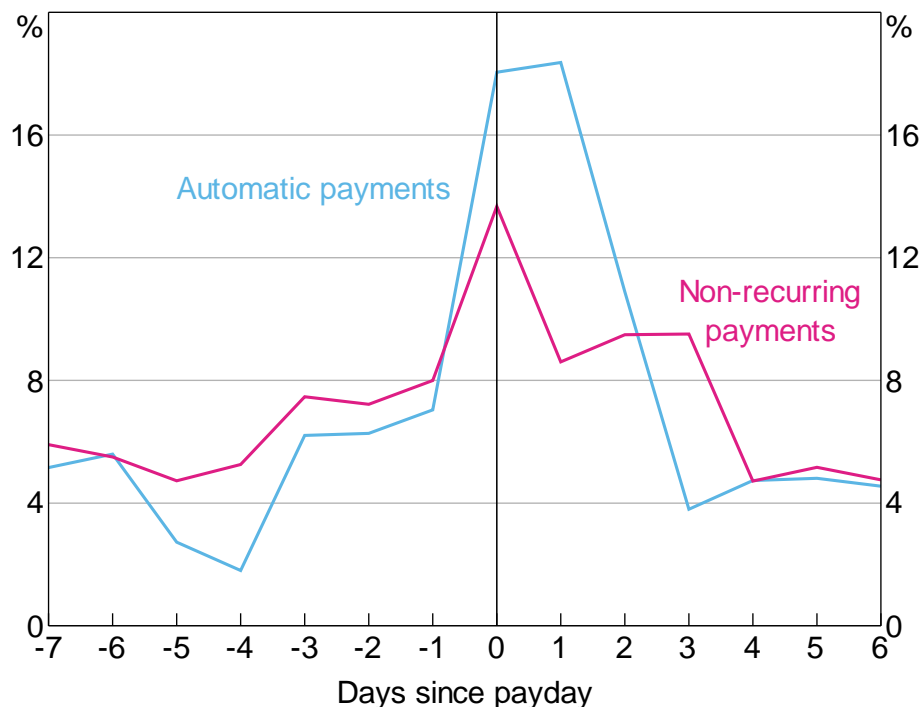
Source: RBA calculations, based on data from Colmar Brunton and Ipsos

The 2016 CPS, for the first time, also asked respondents who receive regular income payments from employment or other sources (e.g. a pension) to record the date of their most recent payday and how often they get paid (i.e. weekly, fortnightly or monthly). Combining this information with data on the transaction date of payments made by respondents provides an insight into how people organise the timing of their payments. Like other studies that find a response of spending to the arrival of anticipated income, the CPS shows that people tend to spend more on their payday and the day or two after, relative to their average level of daily spending (Figure 24). However, this increase in spending was more pronounced for automatic payments than for non-recurring spending. That is, people tend to organise their automatic payments to coincide with the receipt of regular income.<sup>32</sup>

31 In addition, some billers (e.g. energy retailers and insurers) now offer discounts for paying by direct debit.

32 This result is consistent with Gelman *et al* (2014), who use a high-frequency payments database for consumers in the United States. They find that 40 per cent of the excess sensitivity of total spending to the receipt of regular income can be explained by the coincident timing of regular income and recurring (automatic) payments.

**Figure 24: Payments and Proximity to Payday**  
Per cent of total value of payments by day



Notes: Payments under \$1 000; respondents who have a weekly or fortnightly payday

Source: RBA calculations, based on data from Ipsos

### 7.3 Person-to-person Payments

Person-to-person payments to family and friends (transfers) have remained stable as a share of total consumer payments since 2013, accounting for about 2 per cent of total payments by number, and 6 per cent by value. A higher share of person-to-person payments was, however, made using mobile phones in 2016 (Table 9). Despite this, the majority of these payments were still made face-to-face, and cash continued to be the most common way of making in-person payments. About half of person-to-person cash payments were made by respondents with children at home, suggesting that many of these payments were likely to be 'pocket money' payments to children.

Looking ahead, the NPP, which is due to be launched around the end of 2017, is likely to provide additional convenient electronic alternatives for making person-to-person payments. When in full operation, the NPP will offer some of the characteristics of cash that are valued for person-to-person payments, including being able to make a payment immediately.<sup>33</sup> Accordingly, it would not be surprising if the share of person-to-person payments made in cash declines further in coming years. However, certain types of transfers, such as pocket money payments to children, could remain a 'sticky' use for cash partly because relatively few electronic payment methods are available to younger children.

<sup>33</sup> The NPP will allow individuals and businesses to make account-to-account funds payments in real time, at any time of the day or night, seven days a week.

**Table 9: Person-to-person Payments**

	2013	2016
Per cent of number of person-to-person payments by channel		
Face-to-face	58	50
PC/tablet	31	32
Mobile phone	10	18
Telephone/mail	1	1
Per cent of number of person-to-person payments by method		
Cash	55	50
Bank transfer	35	47
Other <sup>(a)</sup>	11	4

Notes: Excludes payments over \$9 999; percentages may not add to 100 due to rounding  
(a) Debit, credit/charge cards, cheque, PayPal, BPAY, gift/prepaid card, and other payment methods

Source: RBA calculations, based on data from Colmar Brunton and Ipsos

## 8. Conclusion

The Bank's 2016 Consumer Payments Survey showed a continuation of trends evident in previous surveys in the way that Australians make their payments. Many people are paying in cash less often, preferring to instead use their debit and credit cards, including for low-value payments. Cheques are seldom used for most types of consumer transactions. The longer-term shift towards electronic payment methods is associated with a greater share of payments being made online than in the past, and the 2016 survey showed that contactless cards are becoming an ever more popular way of making in-person payments. While this does not yet appear to have translated into widespread use of mobile tap-and-go technology, people are using their mobile phones more often to make online and person-to-person payments. It would not be surprising if these general trends were to continue as more consumers adopt electronic payment methods and new ways of paying, such as the NPP, emerge.

While a shift towards electronic means of payment is evident across broad demographic groups, the transition away from paper-based payment methods has been more pronounced for some groups of consumers than it has for others. Perhaps unsurprisingly, younger generations have adopted electronic payment methods to a greater extent than older consumers. More generally, some people continue to rely heavily on cash (and to a lesser extent cheques) for their transactions and it will be important to consider the needs of these members of the community in the transition towards digital payments.

## Appendix A: Survey Methodology

The fieldwork for the 2016 CPS was conducted by the research firm Ipsos on behalf of the Bank in November 2016. The survey consisted of three parts: a pre-diary questionnaire about the demographic characteristics of respondents; a seven-day payments diary; and a post-survey questionnaire about respondents' automatic payment arrangements and their preferences and attitudes about different payment methods. To encourage participation and engagement with the survey, respondents received a gift card on completion of the three components.

The survey was delivered online for most respondents but to ensure the sample was broadly representative of the Australian population, participants without internet access were recruited by telephone to complete a paper-based survey. The overall response rate was good, resulting in a final sample of 1 510 respondents, of which 1 388 completed the survey online and 122 completed the paper-based survey (Table A1). Respondents recorded a total of around 19 500 transactions in the survey, comprising day-to-day payments, transfers to family or friends, automatic payments and cash top-ups (Table A2).

**Table A1: 2016 CPS Response Rates**

	Number recruited	Number of completed responses	Response rate (%)
Online respondents	1 972	1 388	70
Offline respondents	264	122	46
<b>Total</b>	<b>2 210</b>	<b>1 510</b>	<b>68</b>

Source: RBA calculations, based on data from Ipsos

**Table A2: Total Transactions Recorded in 2016 CPS**

	Number	Value (\$)
Day-to-day payments	16 838	1 381 275
Transfers to family or friends	346	81 205
Automatic payments	1 174	204 214
Cash top-ups	1 108	224 436
<b>Total</b>	<b>19 466</b>	<b>1 891 130</b>

Source: RBA calculations, based on data from Ipsos



## A.1 Survey Instruments

### *Pre-diary questionnaire*

The demographic information collected in the pre-diary questionnaire was mostly the same as that collected in 2013. Demographic variables included age, sex, personal and household income, family status, household size, location (capital city or rest-of-state), employment status, occupation, and education level. A full list of debit and credit cards held by the respondent was collected, with the respondent also identifying their primary debit and credit card. Respondents also provided information about how they usually paid off their credit card debt (i.e. whether they paid off their debt every month or whether they let part of the balance roll over from month to month).

### *Payments diary*

The payments diary was very similar to that used in 2013 to ensure comparability of data across surveys. In the diary, respondents recorded details about every transaction they made for a week, excluding automatic payments (which were recorded in the post-survey questionnaire). These details included the value, payment method, channel (e.g. online or in-person) and type of merchant. For card transactions, online respondents selected the specific card they used (from the list of cards they provided in the pre-diary questionnaire), and were asked to indicate whether they inserted the card into the reader or tapped/waved a physical card or their mobile phone over the reader. Respondents also recorded the dollar value or percentage amount of any card surcharges that they paid. Along with their payments, respondents were asked to include details of cash top-ups, including the value of any ATM fee paid (rather than indicating whether or not they paid an ATM fee, as in 2013). The full list of fields used in the 2016 diary is set out in in Table A3.

As part of the fieldwork for the 2016 CPS, Ipsos recruited a separate sample of 299 respondents to complete an online three-day diary instead of the week-long diary. Responses to the three-day diary were not included in any of the results presented in this paper, but will be used by the Bank to evaluate the case for shortening the duration of the diary in future surveys.<sup>34</sup>

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<sup>34</sup> Central banks in other jurisdictions conduct similar payment surveys over various durations, including one day (e.g. Netherlands), three days (e.g. Canada and the United States) and one week (e.g. Germany).

**Table A3: Fields in the 2016 Payments Diary**

<b>Payments</b>	
<b>Date</b>	<b>Payment purpose:</b>
<b>Day-of-week</b>	1 – Supermarket/bottle shop
<b>Payment amount</b>	2 – Small food store
<b>Card surcharge paid (dollar/per cent amount)</b>	3 – Electrical/furniture
<b>Payment method:</b>	4 – Other retailer
1 – Cash	5 – Takeaway/fast-food
2 – Debit/credit card <sup>(a)</sup>	6 – Café/restaurant
3 – Personal cheque	7 – Pub/bar
4 – BPAY	8 – Petrol/service station
5 – Bank transfer	9 – Transport
6 – PayPal	10 – Leisure/sports/entertainment
7 – Gift/prepaid card	11 – Holiday travel
8 – Other	12 – Household bills (paid at post office)
<b>Card action:</b>	13 – Household bills (not paid at post office)
1 – Tap/wave card on or near card reader	14 – Post office (excluding household bills)
2 – Tap/wave mobile phone on or near card reader	15 – Medical/health
3 – Insert card and press 'CR' button	16 – Services
4 – Insert card and press 'CHQ'/'SAV' button	17 – Transfer to family member or friend
<b>Payment channel:</b>	18 – Transfer within own accounts
1 – In person	19 – Cash deposit
2 – Internet (PC/tablet)	20 – Other
3 – Internet (mobile phone)	
4 – Telephone call	
5 – Mail	
<b>Cash top-ups</b>	
<b>Date</b>	<b>Source of cash:</b>
<b>Day-of-week</b>	1 – ATM
<b>Cash top-up amount</b>	2 – eftpos cash-out
<b>ATM fee paid (dollar amount)</b>	3 – Over the counter at a bank branch
<b>Total value of banknotes in wallet after top-up</b>	4 – Other
Notes: (a) Online respondents selected the specific card they used (from the list of cards they provided in the pre-diary questionnaire); offline respondents selected from: debit card; MasterCard/Visa credit card; and American Express/Diners Club	

*Post-survey questionnaire*

In the post-survey questionnaire, respondents were asked to record details of any automatic payments that occurred during the diary week, referring to their latest bank statements. This question was worded slightly differently from previous waves, to include both 'pull' payments (direct debits), and 'push' payments (recurring 'pay-anyone' payments set up by the respondent). In previous waves, the survey has only asked respondents to record direct debits.

In 2016, qualitative questions in the post-survey questionnaire focused on consumers' preferences and attitudes towards different payment methods. Questions from the 2013 survey regarding attitudes to the use of different payment methods and the use of cash and cheques, and response to a hypothetical surcharge were included. Questions on use and attitudes towards mobile wallets were included for the first time, as were a range of questions on consumers' use, repayment habits and holding decisions for their credit cards.

## **A.2 Survey Sample and Weighting**

The overall sampling process for the 2016 CPS was similar to that used for the 2013 survey. To ensure the survey sample was broadly representative of the Australian population, there were recruitment targets covering key demographic variables: age, sex, household income, location (i.e. capital city or regional area), credit card ownership, and household internet access. Recruitment targets for most demographic variables were based on data from the Australian Bureau of Statistics (ABS); data on credit card ownership were obtained from the Household, Income and Labour Dynamics In Australia (HILDA) Survey. Ipsos recruited most online participants from its proprietary online panel, while offline respondents were recruited via random digit dialling. Recruitment for the survey commenced on 10 November 2016, with the final dataset comprising responses collected between 14–30 November.

Due to different response rates across the demographic categories for which recruitment targets were set, we constructed survey weights so that the final (weighted) dataset aligns with population benchmarks. Weighting ensures that the survey data can be used to make inferences about the Australian population. We used the iterative proportional fitting procedure, or raking, to calibrate the survey weights, which is common in large social science surveys. The same procedure was used for the 2013 CPS and has been used for payment surveys in Canada and the United States (Henry, Huynh and Shen 2015; Angrisani, Foster and Hitczenko 2016). We implemented the raking algorithm using the 'ipfweight' program in Stata 13. As a cross-check, we also calibrated weights using the 'survey' package in R, which produced nearly identical results. Table A4 presents the unweighted sample distribution for selected demographic variables, alongside the population distribution and the mean weight for respondents in each group.

**Table A4: 2016 CPS Sample Distribution and Mean Weights**

	Unweighted sample proportion (%)	Population proportion (%)	Mean weight
Age <sup>(a)</sup>			
18–24	9	12	1.41
25–34	17	19	1.11
35–44	16	18	1.10
45–54	14	17	1.21
55–65	17	15	0.85
65+	27	19	0.73
Gender <sup>(a)</sup>			
Female	53	51	0.96
Male	47	49	1.04
Location <sup>(a)</sup>			
Regional	33	33	1.01
Capital city	67	67	1.00
Household income quartile <sup>(a,b)</sup>			
1st	29	25	0.87
2nd	32	23	0.72
3rd	25	26	1.02
4th	14	26	1.88
Credit card ownership <sup>(c)</sup>			
Yes	72	54	0.76
No	28	46	1.62

Notes: (a) Population proportion based on data from ABS

(b) In the CPS, respondents were asked to select their household income from a range (e.g. under \$7 799, \$7 800–\$19 999, \$20 000–\$29 000, etc); to ensure comparability with these ranges, we derive our estimates of population household income quartiles from ABS Cat No 6523.0 Table 1.3, where income is reported in similar ranges; accordingly, the constructed population income quartiles differ slightly from 25 per cent each

(c) Population proportion based on data from HILDA Survey Release 14.0

Source: RBA calculations, based on data from ABS, HILDA Survey Release 14.0 and Ipsos

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### **Disclaimer**

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