

Strategic Review of Innovation in the Payments System: Results of the Reserve Bank of Australia's 2010 Consumer Payments Use Study

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Reserve Bank

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1. Introduction

This paper reports the results of the Reserve Bank of Australia's 2010 Consumer Payments Use Study. This is the second study of this kind undertaken by the Reserve Bank. The first study was undertaken as part of the 2007/08 Review of the payments system reforms.¹ This second study was undertaken to complement the Payments System Board's Strategic Review of Innovation in the Payments System.

The 2010 Study has several aims. The first is to identify how different payment methods, including cash, are currently being utilised in Australia and how this has changed over the three years since the first payments use study. The second is to gain a better understanding of the reasons for individuals' use of different payment methods, which may shed light on the ways in which the Australian payments system can be made more responsive to the needs of its users. The third is to provide information on consumer responses to recent payment reforms, including surcharging of card transactions and direct charging at ATMs.

The 2010 Consumer Payments Use Study was conducted during October and November 2010. Around 1 200 participants carried a payments diary with them for one week and recorded details of each payment and cash withdrawal made. Participants also completed a separate questionnaire about their payment behaviour and views on making different types of payments.

The following are the main conclusions of the study.

- The broad patterns of payment behaviour observed in the first study still hold. In particular, cash remains the most widely used payment method in Australia and the dominant method for low-value payments (under \$40). Cards are the dominant payment method for mid-sized transactions, while BPAY, internet/telephone banking and cheques are important payment methods for higher-value transactions (particularly those above \$500).
- Payment patterns have nonetheless evolved in the three years between the first and second studies. Notably, cash use has declined significantly as a share of both the number and value of payments by individuals. Debit cards appear to have been substituted for cash, with both eftpos and scheme debit (MasterCard/Visa debit cards) gaining market share.
- Cheque use continues to decline, but cheques remain important for some high-value payments. Fewer than 40 per cent of respondents made a payment by cheque in the preceding year. The most common reason people gave for using a cheque was that there was no alternative for the type of payment they were making.

¹ See Emery, West and Massey (2008).

- The 2010 Study explicitly captured the use of online payment methods for the first time. Even though only 2 per cent of all payments are made via internet/telephone banking, they are typically high-value payments and, therefore, account for 10 per cent of the value of consumer payments.² Specialised online payment schemes, like Paymate, PayPal and POLi, account for only around 1 per cent of total transactions by both number and value.
- Overall, Australian consumers appear to be reasonably comfortable with making online payments. However, a significant proportion of respondents identified risk of fraud as a factor discouraging them from making more online payments.
- Adoption of contactless payments (where the consumer holds their card in proximity to, or touches their card against, the terminal and does not have to sign or enter a PIN) and mobile payments is quite low to date. Only around 3 per cent of respondents recorded that they had made a contactless payment in the month prior to the study. Around 9 per cent of respondents have made a mobile payment at some stage, although the payments made were mainly to purchase ringtones, games or applications for their phone, rather than for a broader range of goods and services.

The rest of the paper is structured as follows. Section 2 describes the data in more detail, while Section 3 summarises the overall results from the 2010 Study. Section 4 then compares the results from the 2007 and 2010 studies to determine how payment patterns have evolved in recent years. This section also examines the reasons why people choose the payment methods they do and their views on making different types of payments. Section 5 examines consumers' use of newer payment methods and Section 6 examines the effects of selected payment systems reforms on consumers' payment behaviour. Section 7 summarises the main findings and concludes.

2 Internet banking includes 'pay anyone' transactions from a financial institution's internet-banking website.

2. Description of Data

The 2010 Consumer Payments Use Study was undertaken for the Reserve Bank by Roy Morgan Research, as was the 2007 Study. Once again, the study comprised two main components: the Roy Morgan Research Financial Transaction Diary® (the diary); and a questionnaire to be completed at the end of the diary period (the end-of-study questionnaire). For the diary component, individuals were asked to record, in a specially designed pocket-sized diary, the details of every purchase, bill payment and cash withdrawal made over a one-week period. For each payment, the participants were asked to record the day and date, the payment amount, the payment method used, the merchant category, the payment channel (in person, internet, phone or mail), and whether a surcharge was paid for a card payment. For cash withdrawals, participants recorded the withdrawal amount and method (ATM, eftpos cash-out, over-the-counter or other), as well as whether a direct charge was paid.³

Roy Morgan Research recruited around 1 700 participants for the 2010 Study, with all 662 participants who completed the study in 2007 being invited to participate again. In total, 1 240 valid responses were received, including 317 participants that completed both the 2007 and 2010 studies. This resulted in a sample of almost 19 500 payments for a total value of around \$1.3 million. In addition, around 1 800 cash withdrawals were recorded, with a total value of around \$320 000.

Generally, the diary data are directly comparable across the two study periods. Only relatively minor changes were made to the diary between 2007 and 2010, in particular:

- the classification of payment methods was expanded to explicitly capture internet/telephone banking and specialised online payment methods (for example, PayPal);
- small amendments were made to the merchant categories; and
- the diary period was reduced from two weeks to one week.

The end-of-study questionnaire was significantly expanded in the 2010 Study. This questionnaire had three aims: to capture information about the use of automatic payments (direct debits) that are difficult to record in a diary, as well as newer payment methods that are not yet in widespread use; to gain some insight into consumer reactions when faced with a credit card surcharge or an ATM direct charge; and to help identify gaps in the services offered by current payment systems from a consumer perspective.

Demographic information about each respondent was obtained from Roy Morgan Research's Single Source re-contact database, and included information such as gender, age, personal income and postcode.⁴ Data were also available on the cards held by each study respondent, including details of annual fees and rewards

³ Further details of the diary fields are provided in Table A1.

⁴ Demographic information for participants who completed the 2007 Study was dated. These participants were, therefore, required to complete a demographic update questionnaire.

programs for their credit cards. These demographic and background data could be directly matched to the responses for the diary and the end-of-study questionnaire for each respondent.

Recruitment targets for the study participants were based on Australian population statistics for gender, age and location (metropolitan or regional). To adjust for differences between the recruitment targets and actual responses, an individual weighting factor was calculated using the same demographic variables. An adjustment for over-representation of credit card holders in the final sample was also included in the weighting factor.

Further details of the study are provided in Appendix A.

3. The Current Payments Landscape

The use of various payment methods, as reported in the 2010 diary, is summarised in Table 1.⁵ Cash accounted for 62 per cent of all payments made by individuals, but less than one-quarter of the value of all payments. By contrast, payments by personal cheque, BPAY and internet/telephone banking collectively accounted for less than 10 per cent of the number of payments, but around one-quarter of the value of payments. Card-based payments made up the bulk of the remainder, accounting for around one-third of the total number and value of payments.

Table1: Payment Methods
Number and value (per cent)

Payment method	Share of number	Share of value ^(a)
Cash	62	23 (29)
eftpos	13	12 (15)
MasterCard/Visa debit card	8	10 (12)
MasterCard/Visa credit card	8	12 (14)
BPAY	3	10 (10)
Internet/telephone banking	2	10 (12)
American Express/Diners Club card	1	1 (1)
Paymate, PayPal & POLi	1	1 (1)
Other ^(b)	1	16 (3)
Personal cheque	1	5 (3)

(a) Figures in brackets exclude transactions of \$9 999 or above

(b) 'Other' payment methods include Cabcharge payments, money orders, petrol cards, prepaid cards and store cards

Source: Roy Morgan Research

As with the 2007 Study, the diary results suggest that consumers make a higher share of total card payments with debit cards than indicated by other sources, and a correspondingly lower share of card payments with credit cards.⁶ This appears to be mainly driven by some study respondents over-estimating their use of scheme

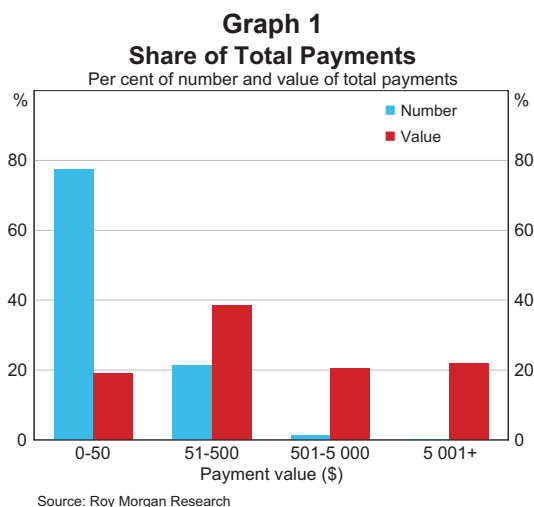
5 Graph 1 and Table 1 include transactions for all payment values. Subsequent tables and graphs include only transactions less than \$9 999 to ensure that the 2007 and 2010 data are comparable. Although the 2007 diary allowed high-value payments to be recorded, the format of the diary and the diary instructions may have discouraged respondents from entering payment amounts of greater than four digits. One large transaction amount was also truncated to \$9 999 by Roy Morgan Research.

6 The 2010 diary results indicate that debit cards account for 71 per cent of the number of total card payments. By contrast, the Reserve Bank's regular data collection – the Retail Payments Statistics – suggests that the debit card share of card payments is around 62 per cent – almost 10 percentage points lower than the diary results. Differences can also be found when comparing the eftpos share of payments, with the 2010 diary results indicating that eftpos accounts for 44 per cent of the number of card payments, while the Retail Payments Statistics suggest a share closer to 52 per cent. However, the diary results and the Retail Payments Statistics are not strictly comparable, as the diary is limited to personal transactions, whereas the Retail Payments Statistics cover both personal and commercial transactions for debit cards (for credit cards, personal and commercial transactions are separately identifiable).

debit cards (MasterCard/Visa debit cards), possibly because of confusion between scheme debit and credit cards, which look quite similar.⁷ Business payments are also excluded from the Consumer Payments Use Study; business payments are more likely to be made with credit cards than debit cards.

Payment Size

The 2010 diary results suggest that most payments made by individuals are for low values. Transactions up to \$50 account for around three-quarters of the number of payments, but only one-fifth of the value of payments (Graph 1). By contrast, only 0.1 per cent of transactions are more than \$5 000, but they account for over 20 per cent of the value of payments. These payments fall into the holiday travel, services and 'other' merchant categories.



Payment size is an important factor in determining which payment method is used (Graph 2). Cash is the dominant payment method for low-value transactions, making up around 80 per cent of payments of \$25 or less and almost three-quarters of payments of \$50 or less, but accounts for only a small share of high-value transactions. Cards are the dominant payment method for mid-sized transactions, with the share of card payments made on credit cards increasing as the payment value increases. BPAY, internet/telephone banking and personal cheques (not shown separately in Graph 2) are important for high-value payments.

Median payment values are consistent with the above payment patterns (Table 2). Cash payments have the lowest median value (at around \$12), reflecting the dominant role of cash for low-value transactions, while methods used to pay bills, such as BPAY and internet/telephone banking, have the highest medians (around \$100 and \$132, respectively). These median values are largely unchanged from the 2007 Study.

⁷ While MasterCard and Visa debit cards are required to be visually identifiable, this may not have eliminated confusion for all respondents, particularly as a scheme debit card transaction requires the consumer to press 'credit' at the point of sale. In the payments diary, the option for scheme debit was intentionally positioned above scheme credit to emphasise the existence of the debit alternative. But this may also have biased respondents towards selecting debit when in doubt as to the true nature of the transaction.

Graph 2
Share of Payments

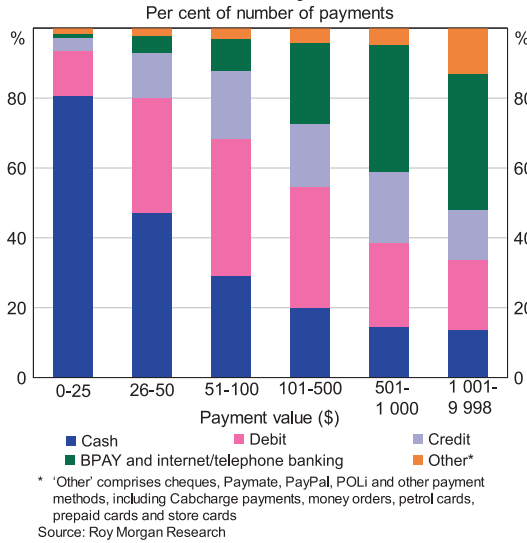


Table 2: Median Payment Values

Payment method	Dollars
Internet/telephone banking	132
BPAY	100
Personal cheque	90
American Express/Diners Club card	50
MasterCard/Visa credit card	49
eftpos	38
MasterCard/Visa debit card	38
Paymate, PayPal & POLi	27
Other ^(a)	16
Cash	12

(a) 'Other' payment methods include Cabcharge payments, money orders, petrol cards, prepaid cards and store cards
Source: Roy Morgan Research

Merchant Category

Payment patterns across merchant categories are broadly consistent with the 2007 Study.⁸ Cash is the dominant method where average payment values are low and where quick tender times are preferred, such as at take-away stores, pubs and small food stores (Table 3). Cheques are used infrequently and tend to be used when the average payment value is high, such as for holiday travel, household bills and services. BPAY stands out as a key method for paying household bills, although its share of these transactions is over-stated because direct debits – which are not captured in the diary – also account for a high proportion of bill payments.⁹ Cards are used across a wide range of merchants, with debit card use particularly strong in the petrol, electrical/furniture, holiday travel, supermarket and health merchant categories, while credit cards are used most heavily for holiday travel payments.

The 2010 Study also captures, for the first time, payments made by internet/telephone banking, and specialised online payment schemes, such as PayPal. Combined, these methods are significant for household bills (21 per cent) and ‘other’ payments (13 per cent).

Table 3: Payment Method by Merchant Category
Number of payments (per cent)^(a)

	Cash	Debit card	Credit/charge card	BPAY	Personal cheque	Internet/telephone banking and online schemes ^(b)	Other ^(c)
Take-away	87	10	3	*	*	*	*
Pub/bar	86	11	3	*	*	*	*
Small food store	85	11	4	*	*	*	*
Restaurant	85	11	4	*	*	*	*
Leisure	75	12	6	1	1	5	*
Transport	73	10	8	1	*	1	7
Other	62	13	5	3	3	13	1
Other retailer	58	27	13	1	*	1	*
Services	56	22	11	2	4	5	*
Supermarket	54	34	12	*	*	*	*
Health	44	32	19	1	2	1	1
Petrol	43	41	14	*	*	*	2
Electrical/furniture	31	40	17	1	*	8	3
Holiday travel	21	38	31	3	3	4	*
Household bills	15	16	6	38	3	21	1

(a) Amounts less than 0.5 per cent are marked with an asterisk

(b) Includes the specialised online payment schemes of Paymate, PayPal and POLi

(c) Includes Cabcharge payments, money orders, petrol cards, prepaid cards and store cards

Source: Roy Morgan Research

⁸ See Appendix B for a description of the merchant categories used in the 2010 Study.

⁹ The use of direct debits is analysed in more detail in Section 4.

Payment Channel

The majority of both the number and value of consumer payments are made in person (Table 4). Internet and phone payments are the next most popular payment channels, together accounting for around one-tenth of the number of all payments and one-third of the value of payments. By contrast, payments by mail account for a negligible share of both the number and value of payments.

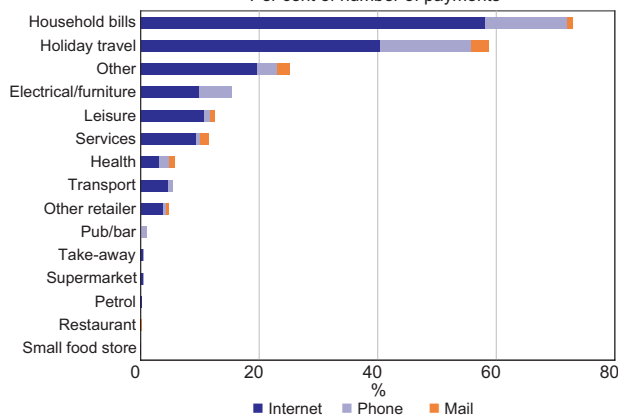
Table 4: Payment Channels
Share of payments (per cent)^(a)

	Number	Value
In person	91	67
Internet	7	26
Phone	2	6
Mail	*	1

(a) Amounts less than 0.5 per cent are marked with an asterisk
Source: Roy Morgan Research

Remote payments – all payments not made in person – are used mainly for household bills and holiday travel (Graph 3). Within remote payments, internet payments are widely used across all categories, whereas payments by mail tend to be used for particular categories – notably for holiday travel, ‘other’ and services. Phone payments are used in most categories where remote payments are made, but are particularly strong in the categories of household bills and holiday travel.

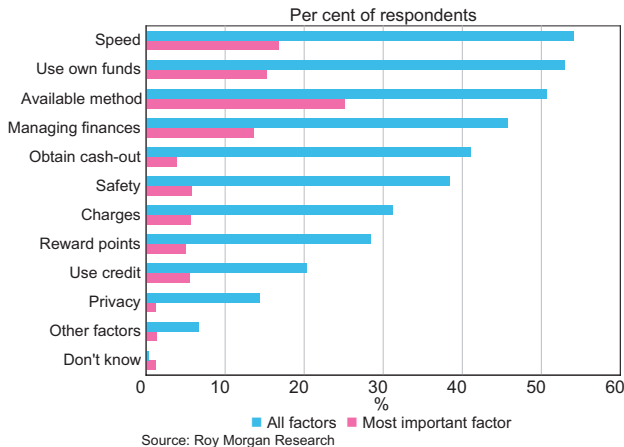
Graph 3
Remote Payments by Merchant Category
Per cent of number of payments



Source: Roy Morgan Research

The end-of-study questionnaire asked consumers about the factors that determine their choice of payment method when paying at the point of sale. Consumers were asked to mark all relevant factors and then to indicate which of these factors was the most important. A considerable proportion of consumers indicated that they simply use what they happen to be carrying with them. In terms of the characteristics of different payment methods, the speed of the transaction, a preference to use their own funds (that is, their deposit rather than credit account), and the ease of managing finances, were considered the most important factors in choosing which payment method to use (Graph 4). The importance of speed possibly explains why

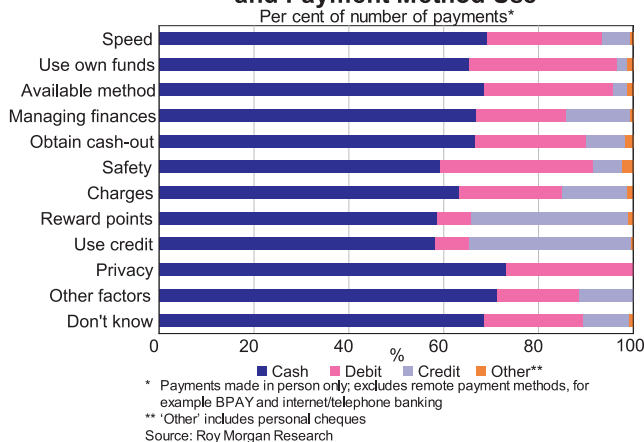
Graph 4
Factors Influencing Choice of Payment Method at Point of Sale



cash continues to be used for low-value transactions; however, it also suggests that there is the potential for cash displacement as transaction times for card payments decline. While reward points and charges were identified by around 30 per cent of consumers as factors affecting their payment decisions, relatively few identified either as the most important factor.

These preferences are reflected in the actual choices of payment methods made by respondents during the diary study (Graph 5). For example, consumers who highly valued being able to use their own funds made a higher share of their in-person payments with a debit card. Conversely, those respondents who indicated that the most important factor determining their choice of payment method was either reward points or their preference to use credit made a higher share of their payments with a credit card. Cash use was most dominant for respondents who valued privacy and speed of processing. Also, respondents who valued the ability to obtain cash at the point of sale also tended to use cash relatively more than other respondents (and their use of eftpos was also relatively higher).

Graph 5
Most Important Factor for Choice of Payment Method at Point of Sale and Payment Method Use



The Evolution of Payment Patterns and Cash Withdrawal Behaviour

The use of payment methods has evolved to some degree over the past three years.¹⁰ Most noticeably, the relative use of cards has grown strongly while the use of cash has declined (Table 5). Although the average use of cash actually increased slightly between the two studies, the increase was less than for other payment methods (Table 6). Therefore, the share of cash use in the total number of payments decreased from 70 per cent in 2007 to 64 per cent in 2010. The average number of card payments made by each respondent in a week increased from around 3.5 payments to 4.8 payments over the same period, while the average value of these card payments increased from \$290 to \$390. Within debit cards, growth has been particularly strong for payments on MasterCard/Visa debit cards. As discussed earlier, study respondents may have had difficulty distinguishing between credit and debit card transactions. Nevertheless, strong growth in the use of scheme debit cards is consistent with other data sources, possibly reflecting the active promotion of scheme debit cards in the period following the first study.

Table 5: Use of Payment Methods
Share of number and value (per cent)^(a)

	Number		Value	
	2007	2010	2007	2010
Cash	70	64	39	34
Card	27	32	45	51
Personal cheque	1	1	6	3
BPAY	2	3	10	12

(a) Figures are based on payment methods included in both the 2007 and 2010 studies
Source: Roy Morgan Research

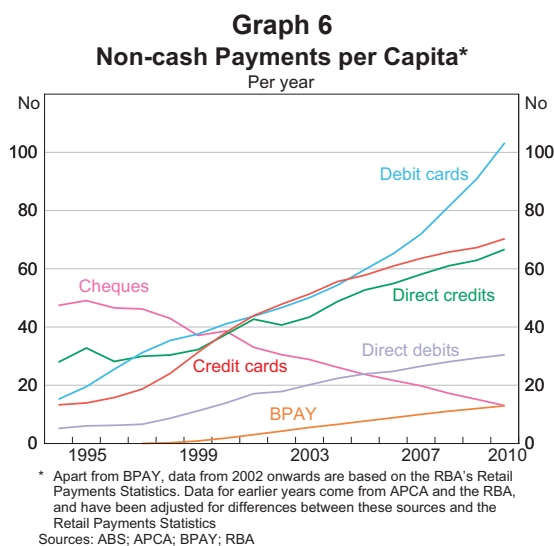
Table 6: Average Payments by Method
Number (per person per week)^(a)

	2007	2010
Cash	9.3	9.5
eftpos	1.5	2.1
MasterCard/Visa credit card	1.4	1.2
MasterCard/Visa debit card	0.5	1.3
American Express/Diners Club card	0.1	0.2
Total	12.8	14.3

(a) The average number of payments may be affected by survey fatigue, whereby fewer payments are recorded towards the end of the diary period, although the effect is likely to be small
Source: Roy Morgan Research

¹⁰ For comparisons between the 2007 and 2010 studies, we exclude payment methods not included in both studies, as well as payment methods classified in the 'other' category, unless otherwise stated. This is aimed at achieving a like-for-like comparison, whereby we are comparing the same payment methods in both 2007 and 2010; the 'other' category is excluded because of uncertainty over the types of transactions recorded in that category. In addition, Roy Morgan Research made some corrections to demographic data for some of the 2007 study participants, resulting in revisions to the 2007 weights. As a result, the 2007 results reported in this paper may differ slightly from those originally reported by Emery *et al.* (2008).

The study data also suggest that there have been changes in the use of personal cheques and BPAY, with payments by personal cheque declining and payments by BPAY increasing. These trends are consistent with payment patterns observed in the Reserve Bank’s regular data collection (which includes payments by business) and are a continuation of longer-term trends, as shown in Graph 6 for the non-cash payment methods.



Similar patterns can be seen in the proportion of respondents using each payment method at least once in the first week of the diary period (Table 7). These data give an indication of how widely different payment methods are used. Again, by this measure the data suggest an increase in the use of eftpos and scheme debit cards and a decline in the use of credit cards. The decline in the use of personal cheques is much more pronounced, indicating that cheque use is becoming rarer for most people. BPAY use has become much more widespread over recent years, with around one-quarter of respondents using BPAY at least once a week. Almost all consumers used cash, reinforcing the fact that, although cash use is declining, it remains an essential payment method.

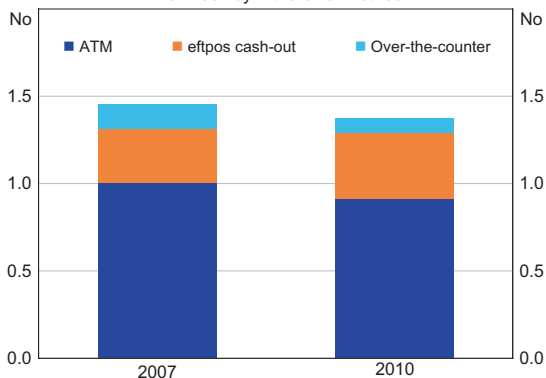
Table 7: Individuals Using Payment Methods
Share of respondents using method at least once per week (per cent)

	2007	2010
Cash	95	97
eftpos	44	49
Credit card ^(a)	36	29
MasterCard/Visa debit card	18	35
BPAY	13	24
Personal cheque	12	7

(a) Credit card includes transactions on MasterCard/Visa credit cards and American Express/Diners Club credit/charge cards
Source: Roy Morgan Research

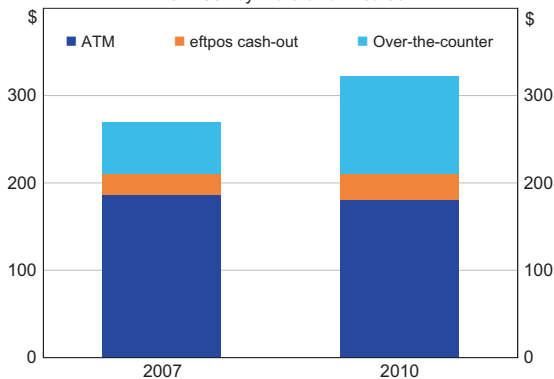
Consumers' cash withdrawal behaviour has changed significantly over the past three years. The average number of cash withdrawals made by an individual in a week (from the three main withdrawal methods) decreased by 6 per cent between 2007 and 2010 (Graph 7). Over the same period, the average value of cash withdrawn in a week increased from \$270 to \$322 (Graph 8).

Graph 7
Average Number of Cash Withdrawals
 Per week by withdrawal method



Source: Roy Morgan Research

Graph 8
Average Value of Cash Withdrawals
 Per week by withdrawal method



Source: Roy Morgan Research

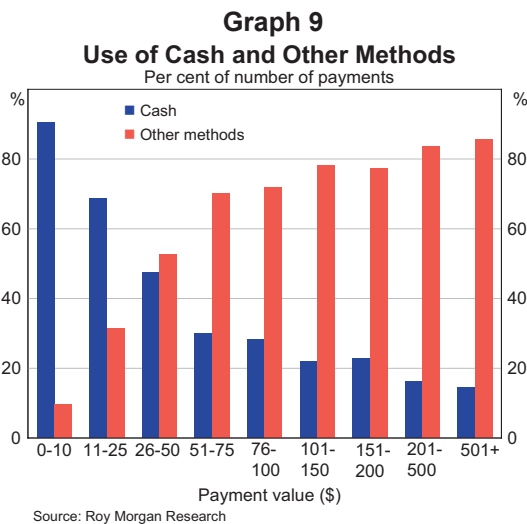
One of the main factors that may have influenced this change in cash withdrawal behaviour was the move to direct charging at ATMs from early 2009. This reform increased the transparency and flexibility of ATM charges, leading consumers to change their behaviour to avoid these charges. The impact of this reform is analysed in more detail in Section 6.

4. The Use of Established Payment Methods

This section analyses the evolution of the use of the more established payment methods of cash, credit cards, debit cards and cheques. We also examine why people choose particular payment methods, which provides insight into where there may be gaps in innovation in the payments system.

Cash Payments

As discussed above, although cash is still the most frequently used method of payment in Australia, its use is declining relative to other payment methods. For example, while cash accounted for around 80 per cent of payments of \$50 or less in 2007, this share declined to around 75 per cent in 2010.¹¹ Card payments, particularly those made with a debit card, are responsible for the bulk of this shift away from using cash for low-value payments: card payments accounted for around 24 per cent of payments of \$50 or less in 2010, up from 19 per cent in 2007. Furthermore, while in 2007 cash was used more frequently than all other payment methods combined for payments up to \$50, the same is now true only for payments up to \$40 (Graph 9).



The decline in cash use has been broadly based across industries, with use declining as a proportion of total payments for all merchant categories except restaurants and 'other' (Table 8). The largest decline in cash use was for household bills. This may reflect increased promotion by billing companies of 'paperless' bills, which encourages payment by electronic means, such as BPAY. Also, some billing companies have added charges for over-the-counter payments, including cash transactions.

¹¹ Figures are based on payment methods included in both the 2007 and 2010 studies (excludes internet/telephone banking and payments using the online payment schemes, prepaid cards, store cards and petrol cards).

Table 8: Cash Use across Merchant Categories
Change in share of payments from 2007 to 2010

Merchant category	Share of payments in 2010 (per cent) ^(a)	Change from 2007 (percentage points)
Take-away	87	-7
Pub/bar	87	-4
Small food store	85	-4
Restaurant	84	7
Transport	80	-3
Leisure	79	-8
Other	72	1
Services	59	-3
Other retailer	58	-6
Supermarket/liquor	54	-7
Health	45	-10
Petrol	44	-3
Holiday travel	22	-3
Household bills	20	-17

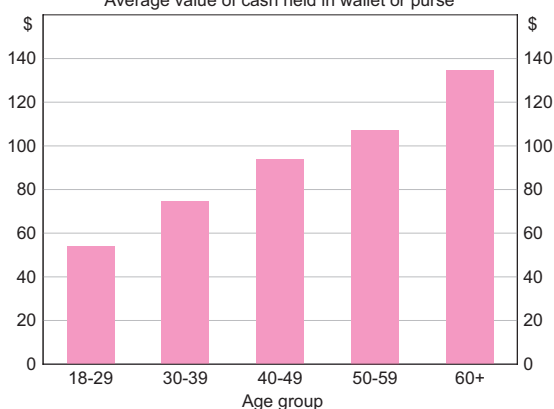
(a) Based on payment methods included in both the 2007 and 2010 studies (excludes internet/telephone banking and payments using the online payment schemes, prepaid cards, store cards and petrol cards)

Source: Roy Morgan Research

Despite the move away from cash, it remains an important payment method for spending at many businesses. The 2010 diary results indicate that cash is used for over 80 per cent of the number of payments for take-away and fast-food stores, pubs/bars, small food stores and restaurants. By contrast, only around 20 per cent of payments for household bills and holiday travel are made using cash.

On average, consumers carry \$93 in cash in their purse or wallet, with the amount increasing with age; consumers aged between 18 and 29 hold \$54, on average, compared with \$134 for consumers aged 60 years and over (Graph 10). This possibly reflects the fact that younger consumers are more comfortable relying on

Graph 10
Cash Holding by Age Group
Average value of cash held in wallet or purse



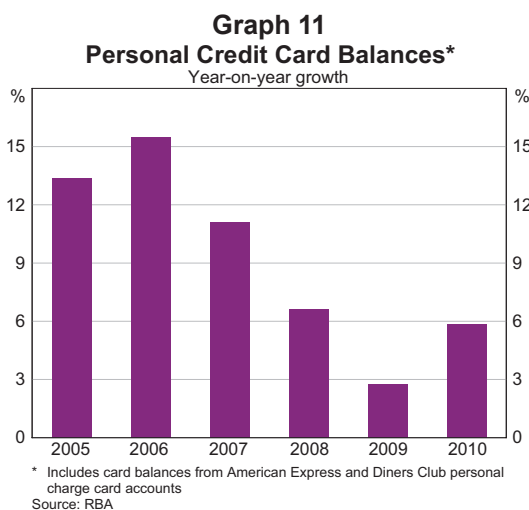
Source: Roy Morgan Research

electronic forms of payment for their everyday transactions; in contrast to cash, the use of cards relative to other payment methods broadly declines with age.

Credit Card Payments

As noted above, there has been a clear shift towards consumers using debit cards in preference to credit cards between 2007 and 2010. A number of factors may have contributed to this slowdown in the use of credit cards. First is the increased prevalence of surcharging on credit card transactions since the first study was undertaken. In December 2010, almost 30 per cent of merchants surcharged at least one of the credit cards they accepted, compared with just over 8 per cent in June 2007.¹² However, consumers appear to have become more sensitive to surcharges, or better at avoiding them; the proportion of credit card transactions where a surcharge was actually paid by the consumer was virtually unchanged between 2007 and 2010, at around 5 per cent. Consumer responses to surcharging are discussed in more detail in Section 6.

A second factor that may have contributed to the relative decline in credit card use is consumers' more cautious attitudes towards personal debt. The Reserve Bank's regular data collection from financial institutions indicates that consumers have cut back on the use of credit since the global financial crisis, as shown by slower growth in balances on personal credit cards (Graph 11). Because debit cards allow consumers to use their own funds, these changes in attitude are likely to increase debit card use at the expense of credit cards.



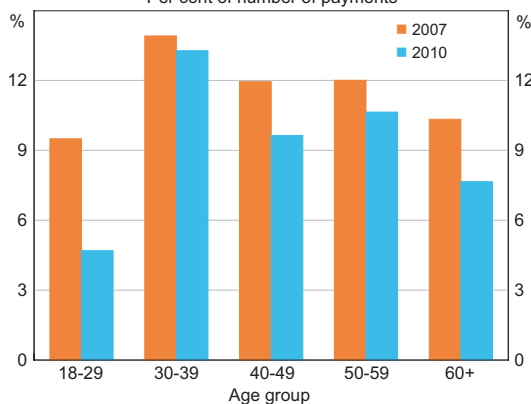
A third factor is the active issuance and promotion of scheme debit cards by the card schemes and some issuers in the years between the 2007 and 2010 studies. Like credit cards, scheme debit cards allow consumers to make payments remotely (that is, via the internet or phone, or through the mail). The four major banks began to issue scheme debit cards much more widely in the years following the first study, which contributed to scheme debit card ownership increasing from 22 per cent to 38 per cent of respondents. Conversely, the proportion of people owning a credit card declined slightly from 50 per cent in 2007 to 47 per cent in 2010.¹³

¹² East & Partners (2010), *Australian Merchant Acquiring and Cards Markets: Special Question Placement Report prepared for the Reserve Bank of Australia*, December.

¹³ The credit card ownership figures are sourced from Roy Morgan Research's Single Source re-contact database.

In addition, while the use of credit cards declined across all age groups between 2007 and 2010, the decline was most marked for the youngest age group (Graph 12). Payments on credit cards as a proportion of total payments for consumers aged between 18 and 29 fell from just under 10 per cent of all payments in 2007 to less than 5 per cent in 2010. This age group makes substantially more of their payments via the internet than most other age groups (discussed in more detail in Section 5).

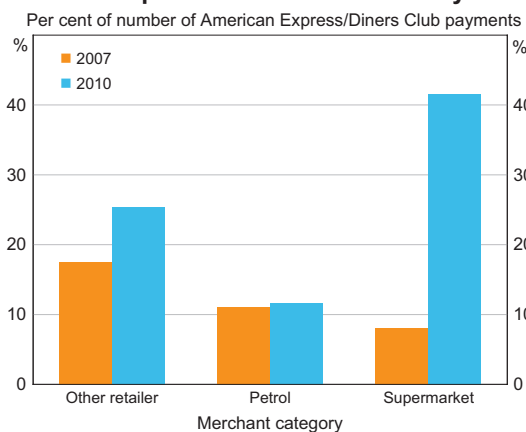
Graph 12
Use of Credit Cards by Age Group
 Per cent of number of payments



Source: Roy Morgan Research

Within credit card payments, the use of American Express and Diners Club cards across industries appears to have changed significantly between 2007 and 2010, although these data should be interpreted with some caution because of small sample sizes within merchant categories (Graph 13). The majority of purchases made on American Express and Diners Club cards in 2010 occurred at supermarkets (42 per cent), 'other retailers' (which include electrical/furniture stores and department stores, 25 per cent) and petrol stations (12 per cent). The increase in use at supermarkets is notable; in 2007, supermarket purchases made up only 8 per cent of American Express and Diners Club credit card transactions.

Graph 13
American Express/Diners Club Card Payments*
 Per cent of number of American Express/Diners Club payments



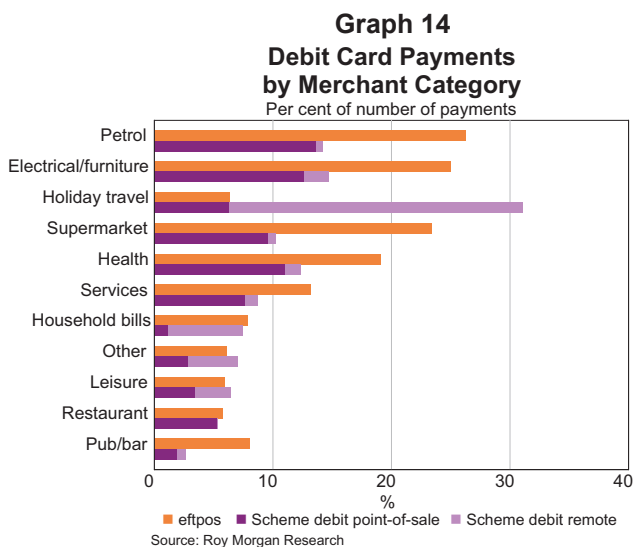
* Top three merchant categories by number of payments on American Express/Diners Club cards in 2010
 Source: Roy Morgan Research

There are a number of explanations for this change in the use of American Express and Diners Club cards. First, the characteristics of American Express cardholders may have changed as a result of significant growth in the issuance of 'companion' American Express cards by the four major banks. This may have shifted spending patterns away from the markets where American Express was traditionally strong, such as travel, towards more general spending categories such as supermarkets. Second, as the number of merchants that surcharge has increased over recent years, the use of American Express and Diners Club cards is likely to have become more heavily influenced by patterns of surcharging across industries. This may explain at least part of the increased spending at supermarkets and department stores, which do not tend to surcharge at present.

Debit Card Payments

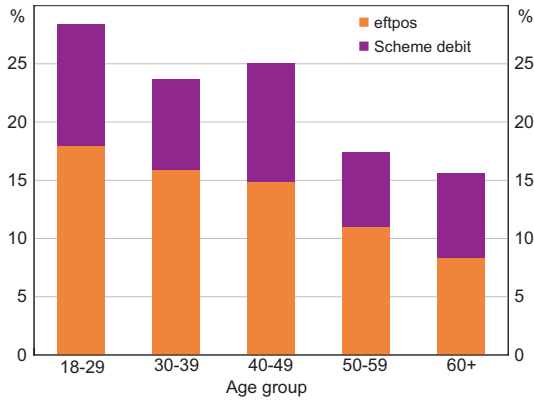
The strong growth of debit card payments has been driven by an increase in the use of scheme debit cards, although the use of eftpos has also increased. The increased availability of scheme debit cards is likely to be an important factor driving this strong growth. In the period following the 2007 Study, the major banks began to issue multi-function debit cards, which have access to both scheme debit and eftpos, in lieu of proprietary debit cards with access to only the ATM and eftpos networks. Furthermore, the major banks have at times actively encouraged cardholders to use scheme debit by pressing 'credit' rather than 'cheque' or 'savings' at the point of sale.

While eftpos accounts for a greater proportion of payments overall, scheme debit is used more frequently in industries where a high proportion of payments are made online due to its ability to be used for remote payments. For example, scheme debit cards are the dominant debit card option for holiday travel and leisure payments (Graph 14).



As in 2007, the use of eftpos is highest among the youngest age group and declines with age (Graph 15). Somewhat surprisingly, though, age appears to have less impact on scheme debit card use. In 2010, scheme debit accounted for 10 per cent of payments for people aged 18-29, compared to 7 per cent for people aged 60 and over.

Graph 15
Use of Debit Cards by Age Group
 Per cent of number of payments



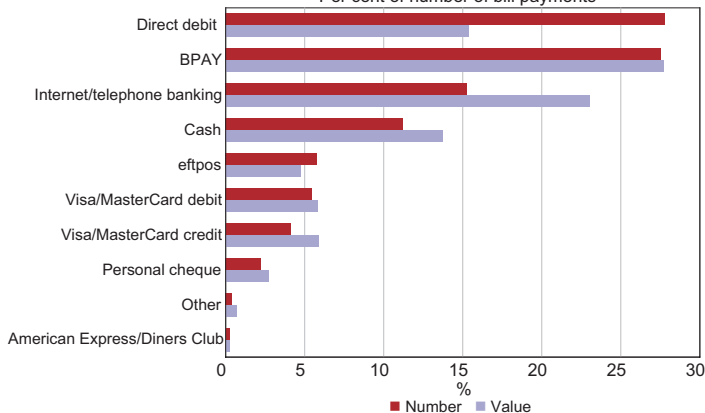
Source: Roy Morgan Research

Bill Payments

In order to examine methods of making bill payments, we are able to combine data on direct debits from the end-of-study questionnaire with the diary study data. The end-of-study questionnaire asked respondents to record the date and amount of all direct debits made in the month prior to the study. This covered all payments initiated by a third party, including direct debits through the direct entry system as well as automatic payments initiated on credit and scheme debit cards. The vast majority of these payments are likely to be for household bills.

The majority of bill payments are made by direct debit and BPAY, which together accounted for 55 per cent of the number of bill payments in 2010 (Graph 16). Other important payment options for bills are internet/telephone banking transfers and cash and card payments. Although bill payments are one of the main uses of personal cheques, only around 2 per cent of all bill payments were made by personal cheque in 2010.

Graph 16
Bill Payments by Payment Method
 Per cent of number of bill payments*



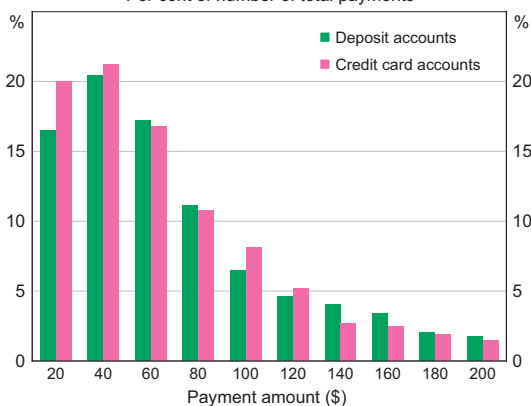
* Data for direct debits come from the end-of-study questionnaire and have been adjusted for differences between the questionnaire and the payments diary

Source: Roy Morgan Research

The above data point to widespread use of the internet to make bill payments, with around 40 per cent of bills being paid online. It is notable that credit and scheme debit cards make up around 11 per cent of internet bill payments – significantly less than their 25 per cent share of all internet payments across all merchant categories. This likely reflects the wider range of payment alternatives for paying household bills online than is generally available for the purchase of goods and services. The common practice of applying surcharges to cards may also contribute to the lower use of credit and scheme debit cards for online bill payments.

Direct debits are widely used by consumers, with over 70 per cent of respondents having made at least one direct debit in the month prior to the study period. The median value of direct debits from bank accounts was \$57, compared with \$50 for those from credit card accounts. The distribution indicates that a fairly high proportion of low-value payments are made via direct debit, with payment amounts of \$40 and below representing around 40 per cent of total direct debits in 2010 (Graph 17). Interestingly, a small proportion (around 1 per cent) of direct debits were for micropayments of \$1 to \$5. This likely reflects the increasing use of direct debits by online payment facilities, such as iTunes accounts and PayPal, whereby payments are made for digital goods from a credit card or bank account linked to the facility.

Graph 17
Distribution of Direct Debits
 Per cent of number of total payments



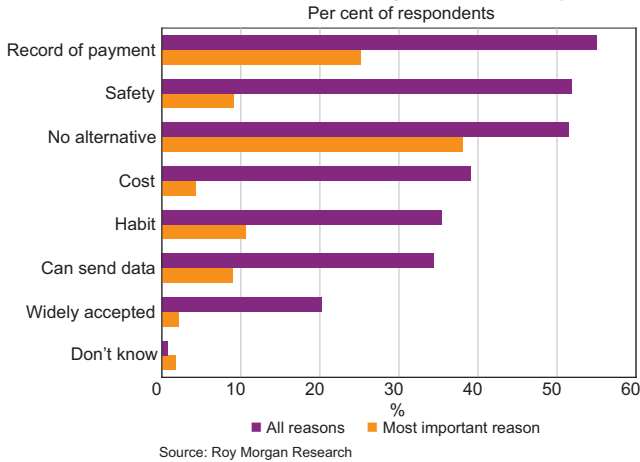
Note: Payment amount refers to a transaction band e.g. \$100 represents transactions from \$81 to \$100
 Source: Roy Morgan Research

Cheque Use

Consistent with long-term trends evident from other data sources, the diary data show a decline in cheque use. This is reflected in the change in the proportion of study participants using cheques, down from 12 per cent in 2007 to 7 per cent in 2010 (based on the first week of the 2007 Study). There has been a corresponding decline in the average number of cheque payments per person, down from 0.2 payments per week in 2007 to 0.1 payments per week in 2010.

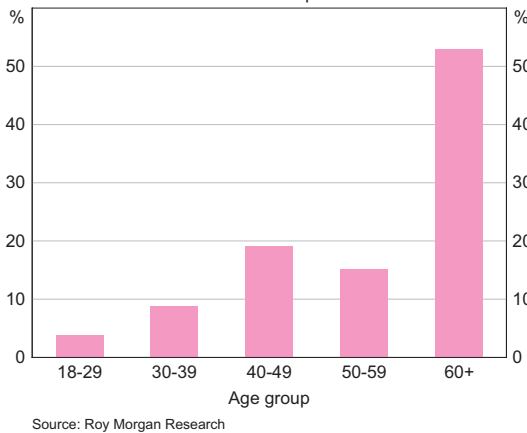
Less than 40 per cent of participants indicated in the end-of-study questionnaire that they had made a payment by cheque in the *past year*. The most important reason people gave for having used a cheque was that they believed there was no alternative for the type of payment they were making (38 per cent, Graph 18). This was followed by respondents who said that they value the record of payments that cheques provide (25 per cent). Other important factors in the use of cheques included habit, the ability to send information with cheques and cost, but these tended not to feature when people were asked for 'the single most important' reason for using cheques.

Graph 18
Reasons for Making a Cheque Payment



One of the main uses for personal cheques is for the payment of household bills. The diary results suggest that around 30 per cent of personal cheques were used to pay bills in 2010, although they represented only around 2 per cent of bill payments (including payments by direct debit). The 'other' merchant category accounted for around 25 per cent of the number of cheques and 45 per cent of the value, suggesting that cheques tend to be used for special purpose high-value payments. Cheques are the most common form of payment method used for payments made by mail, making up around 57 per cent of payments by that channel.

Graph 19
Cheque Use by Age Group



Consistent with the 2007 results, cheque use is heavily influenced by the age of individuals. In 2010, respondents 60 years and older accounted for more than 50 per cent of the number of cheques written, while cheque use by people under the age of 30 was negligible (Graph 19). People over 60 gave similar reasons for using cheques to the broader population, with the most important reasons being that there was no alternative to cheques (39 per cent) and that cheques provide a good record of payment (34 per cent). Older people also accounted for the majority of transactions made by mail, which, as noted above, are commonly made by cheque.

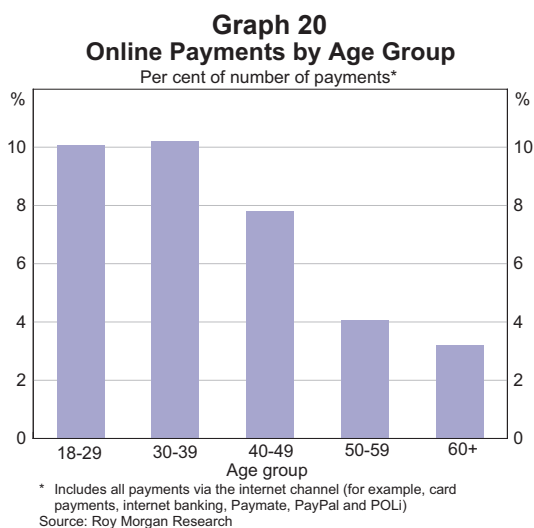
5. The Use of Online and Newer Payment Methods

The 2010 Study in part focuses on newer payment methods, which are of interest for the Bank's Strategic Review of Innovation in the Payments System. As noted in Section 3, online payments are becoming an increasingly important part of the Australian payments landscape and now account for 7 per cent of consumer payments and around one-quarter of the value of payments. This section discusses some of the more detailed data collected on online payments, including information on areas that may be constraining further uptake of this channel. It also provides some early data on two of the emerging payment methods – contactless cards and mobile payments.

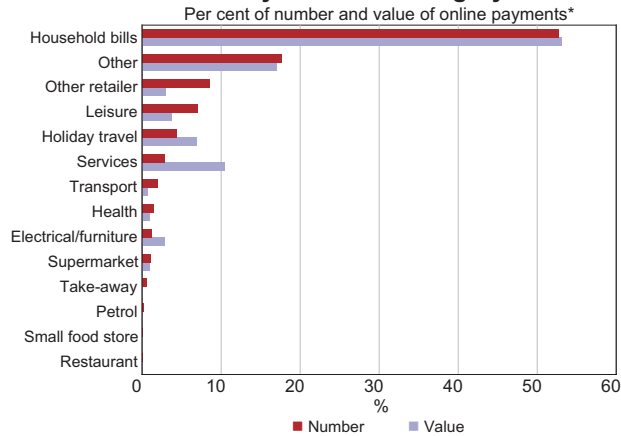
Online Payments

The adoption of online payments is quite high in Australia. The 2010 Study suggests that around 90 per cent of Australians have internet access at home or work. Of those, about 80 per cent have made a purchase online and almost 60 per cent have made online transfers to a family member or friend. Just over 60 per cent of people with internet access pay most of their bills online.

Consumers have several methods with which they can make payments online, including: credit card; scheme debit card; BPAY; internet-banking transfers; and the specialised online payment schemes of Paymate, PayPal and POLi. It should be noted, however, that not all these methods are suitable for all types of payments; for example, BPAY is largely used for bill payments. In addition, merchants may not accept all these forms of online payments.



Graph 21
Payments Made Online
by Merchant Category



* Includes all payment methods via the internet channel (for example, card payments, internet banking, Paymate, PayPal and POLi)
 Source: Roy Morgan Research

Age is an important factor affecting whether payments are made online. Payments made online account for around 10 per cent of all payments for people aged under 40, compared to around 3 per cent for people aged 60 and above (Graph 20). This may reflect differences in shopping preferences between age groups, as well as younger people potentially being more comfortable with making online payments.

Around half of online payments are made to pay household bills (Graph 21). The bulk of the remainder fall into the ‘other’, ‘other retailer’, leisure, holiday travel and services merchant categories.

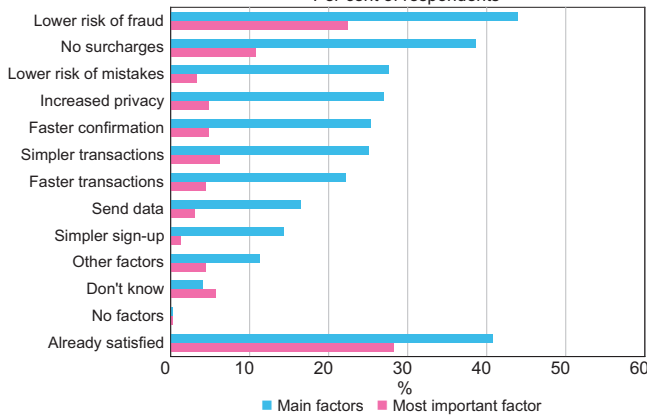
Major deterrents to the use of online payments

As part of the end-of-study questionnaire, participants were asked to indicate the various factors that would increase their use of online bill payments, purchases and transfers.¹⁴ They were initially asked to identify all the factors that are important to them and then the single most important factor. These questions were aimed at providing a perspective on perceived gaps in the services that online payments offer.

The results of the end-of-study questionnaire indicate that a substantial proportion of people are perfectly satisfied with current online payment methods and do not believe there are factors that would lead them to increase their use of these methods. This is true of around 40 per cent of people for online *bill payments* and *funds transfers to friends or family* (Graphs 22 and 23). This may be a reflection of a degree of comfort with internet banking based payment options, such as BPAY for bill payments and ‘pay anyone’ arrangements for transfers. A smaller proportion (31 per cent) are perfectly satisfied with the way they can make *online purchases*, for which credit and scheme debit cards, and PayPal are more typically used (Graph 24).

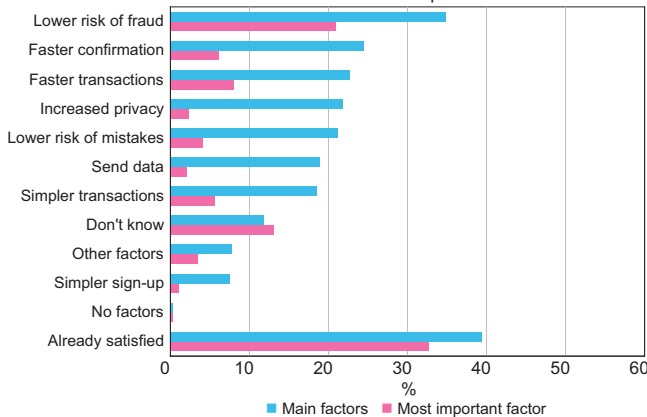
¹⁴ For online bill payments, if consumers indicated that they paid most of their bills online, they were asked ‘What factors would most improve your experience of paying those bills online?’ or if they indicated that they did not pay most of their bills online, ‘What factors would make you pay more of your bills online?’ For online purchases, consumers were asked ‘What factors would make you more likely than currently to pay for goods or services online?’ For online transfers, consumers were asked ‘What factors would make you more likely than currently to transfer money over the internet to a friend or family member?’

Graph 22
What Would Improve
Online Bill Payments?
 Per cent of respondents



Source: Roy Morgan Research

Graph 23
What Would Improve
Online Transfers?
 Per cent of respondents



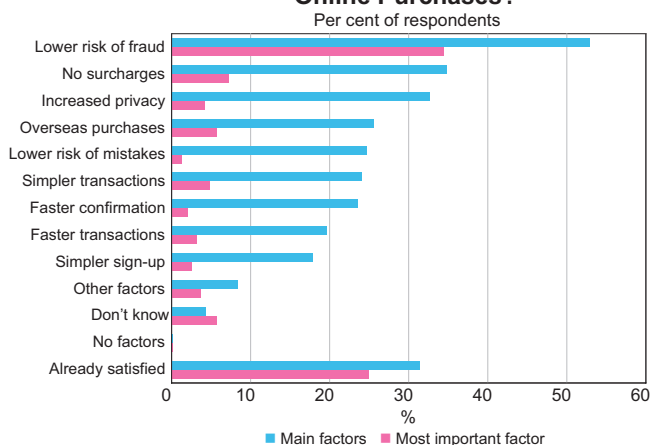
Source: Roy Morgan Research

By far the biggest deterrent to making any type of payment online is the risk of fraud. This concern is higher for online purchases than for bill payments and transfers, again possibly reflecting the fact that consumers tend to feel most secure making payments online when they can be made through their financial institution's internet-banking site, although the degree of trust in the payee might also be a factor.¹⁵

The major deterrents to the use (or further use) of online payments are similar, regardless of whether the consumer is a frequent or infrequent user of online payments. In either case, fraud risk is the biggest concern. The need for increased privacy is also viewed as being a quite important impediment across all payment types for consumers who do not make many payments online. Therefore, overall, the results are suggestive of some need for further security innovation in the online payments market.

¹⁵ BPAY payments can be made via a bank's internet-banking site, phone-banking service or mobile payments service. The diary results suggest that around 77 per cent of BPAY payments are made via internet banking.

Graph 24
What Would Improve
Online Purchases?



Other factors affecting the use of online payments

Other factors that affect consumers' use of online payments are quite specific to the different types of payments that can be made online. A significant deterrent to the increased use of online methods for bill payments (though much less important than fraud risk) is the presence of surcharges. Around 39 per cent of people identified surcharges as being a factor that deters use and 11 per cent of people identified it as the most important factor. For personal transfers, a lack of transaction speed and the speed of confirmation were seen as more significant impediments than for other types of online payments. Around 30 per cent of respondents who had made an online transfer indicated that improvements along one of these dimensions would increase their preference for online payments.

There are some factors that may have been expected to be important to consumers but were not identified as being significant impediments to online payments. For example, the ability to transmit additional data or information with a payment, which has been a concern for business, does not stand out as a factor constraining consumers' use of online payments, although consumers with experience of online transfers were somewhat more concerned with this issue (25 per cent).¹⁶ Factors related to ease of use were also relatively minor concerns for both respondents with and without experience of making online payments. To the extent that they were rated as important by some consumers, factors such as simpler sign-up and simpler transactions appear to be much less important for online transfers than for bill payments and online purchases, possibly reflecting a high level of comfort with the setup of internet-banking sites.

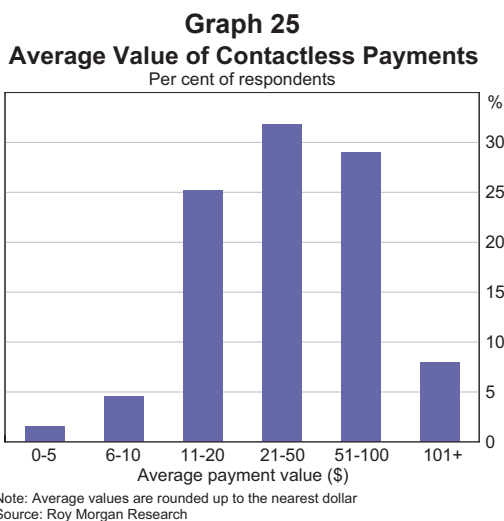
¹⁶ Currently, internet-banking transfers only allow consumers to enter a maximum of 18 characters of text to describe a payment.

Contactless Payments

Contactless card payments require the consumer only to hold their card in close proximity to, or to touch the card against, the terminal and do not require a PIN or signature for the transaction. While the roll-out of contactless cards has accelerated in recent years, at the time of the 2010 Study contactless payments were still not being widely used. Indeed, just 3 per cent of respondents indicated they had made a contactless payment in the month prior to the study. This most likely reflects the limited availability of, or education about, contactless functionality, with less than 8 per cent of respondents indicating that they held a contactless MasterCard/Visa credit or debit card and relatively limited availability of contactless terminals at the time.

Nonetheless, consumers appear to be willing to use the technology if they are aware of it. Of those who stated they held a contactless card, 39 per cent had made a contactless payment in the month prior to the study. The frequency of use by cardholders was modest though, with two-thirds of users making three or fewer contactless payments during that period. Usage was also concentrated in urban areas, with 72 per cent of users living in a capital city.

It is unclear whether contactless payments are primarily being substituted for cash or card payments. Although contactless functionality is largely targeted at cash replacement, the relatively high payment values recorded for contactless payments in the study suggest that they may be primarily replacing more standard debit and credit card transactions at the point of sale. Specifically, more than two-thirds of respondents indicated that their average contactless payment was over \$20 – well above the median cash payment of \$12 (Graph 25).

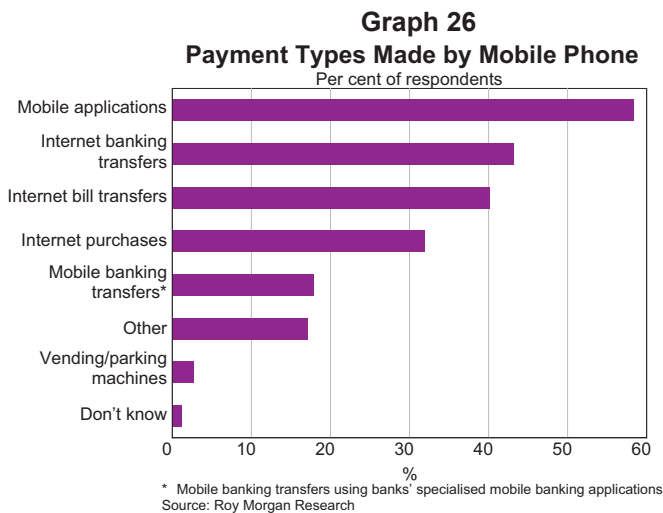


The responses suggest that contactless technology has the potential to be more widely used by consumers in the future. Indeed, contactless payments appear to possess many of the characteristics that consumers like in cash. For example, around half of respondents indicated that the speed of processing – a prominent feature of contactless payments – was an important factor in their choice of payment method at the point of sale (Graph 4).

However, there are also some important characteristics of cash at the point of sale that are not possessed by contactless cards. For example, around 15 per cent of respondents stated that privacy influenced their choice of payment method at the point of sale. For these individuals, cash may be preferred over contactless payments because of its anonymity.

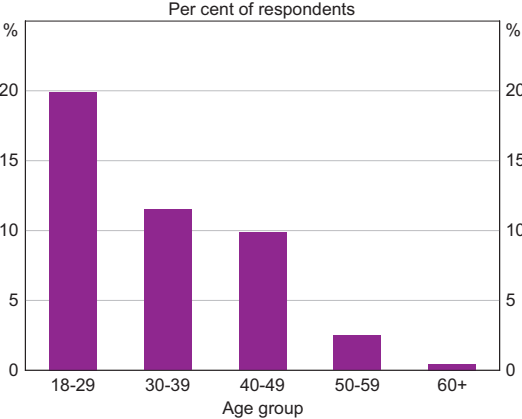
Mobile Payments

Despite very high penetration of mobile phones in Australia (91 per cent of respondents), adoption of mobile payments is modest. Only around 10 per cent of people with a mobile phone have made a mobile payment at any stage. Usage of mobile payments also appears to be primarily for phone-related services and products, with about 60 per cent of users buying ring-tones, games or applications ('apps') for their phones (Graph 26). Most of the remaining use seems to be internet payments made via mobile phone, for example personal transfers using internet banking (43 per cent of mobile payments users), bill payments (40 per cent) and online purchases (32 per cent).



An important influence on mobile payments usage is age, with younger people more likely to make a payment using their mobile phone. About 20 per cent of people aged between 18 and 29 years have made a mobile payment, compared with less than one per cent of people aged 60 years or over (Graph 27).

Graph 27
Mobile Phone Payments by Age Group



Source: Roy Morgan Research

6. Insights into the Impact of Payment Systems Reforms

The Consumer Payments Use Study has provided an opportunity to gain new insights into consumers' responses to some of the reforms to retail payment systems that have occurred over recent years. In particular, the Payments System Board of the Reserve Bank has long considered that strong price signals to consumers about the relative costs of different payment methods are important for an efficient and competitive payments system. To that end, a number of reforms have been initiated to strengthen price signals to consumers. These include reforms to the charging of ATM fees, which increased their transparency and flexibility, and earlier reforms to remove rules which prevented merchants surcharging for credit and scheme debit cards. This section examines how these reforms have influenced consumer cash withdrawal and payment behaviour.

ATM Reforms

Consumers' cash withdrawal behaviour changed significantly following the ATM reforms that came into effect in March 2009. The main element of these reforms was the introduction of direct charging at ATMs, resulting in increased transparency and flexibility of ATM charges. As seen in other data previously reported by the Reserve Bank, consumers have reacted to the greater transparency by changing their behaviour to avoid ATM charges.¹⁷ This is also evident in the changes in cash withdrawal behaviour observed between the 2007 and 2010 consumer use studies. One way in which individuals have sought to avoid fees is by making fewer ATM withdrawals. The average number of withdrawals from ATMs made by an individual in a one-week period decreased by 9 per cent between 2007 and 2010.

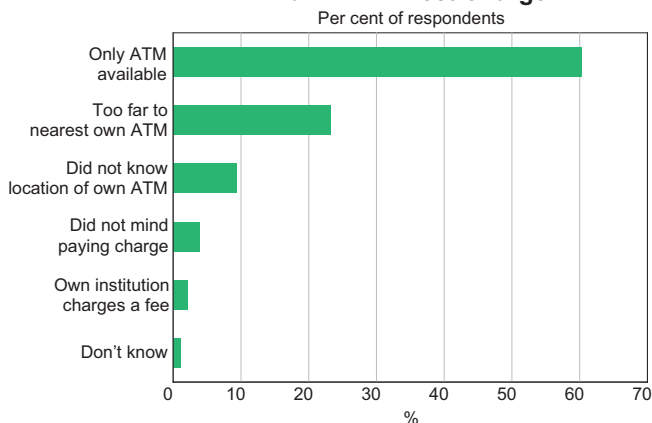
The diary data also support the previous finding that since the introduction of direct charging at ATMs, consumers have switched to cash withdrawal methods that do not incur a charge. For example, consumers made 24 per cent more eftpos cash-outs per week, on average, in 2010 than in 2007, although the average amount withdrawn per purchase was little changed.

Despite the significant changes in consumer behaviour, a reasonable proportion of consumers continue to pay an ATM direct charge. Around 23 per cent of ATM withdrawals made by respondents during the one-week diary study attracted a direct charge and around 50 per cent of respondents indicated that they had knowingly paid an ATM direct charge in the month prior to the study. The most common reason these respondents gave for paying a direct charge was that the ATM was the only one available (60 per cent, Graph 28). The next most common responses were that it was too far to the nearest fee-free ATM (23 per cent) and that the individual did not know the location of their nearest fee-free ATM (9 per cent).

¹⁷ See, for example, Filipovski and Flood (2010), and Flood, Hancock and Smith (2011).

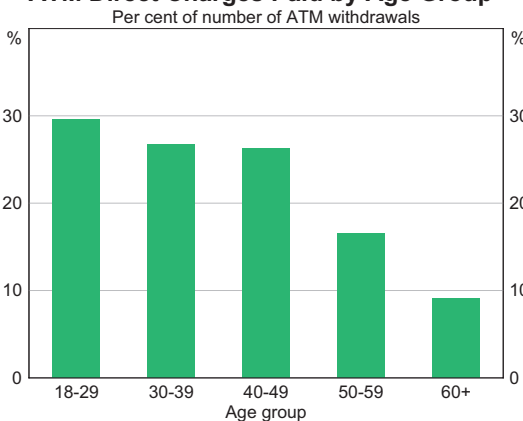
Age is also an important determinant of whether a consumer pays a direct charge, with younger people more likely to pay direct charges than older people (Graph 29). This is likely to reflect a variety of factors, such as different preferences regarding the use of their time and the locations of their cash withdrawals, with older people possibly more likely to withdraw cash from a particular (direct charge-free) ATM as part of a regular spending pattern. Alternatively, this may indicate greater price sensitivity on the part of the elderly.

Graph 28
Main Reason for Paying an ATM Direct Charge



Source: Roy Morgan Research

Graph 29
ATM Direct Charges Paid by Age Group

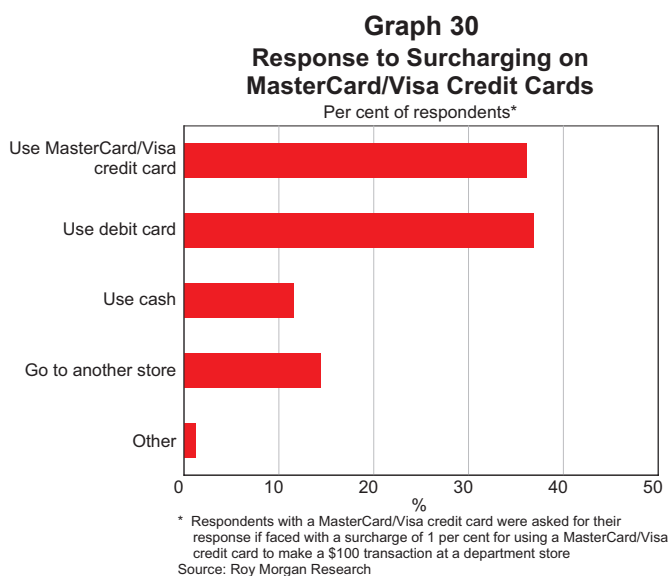


Source: Roy Morgan Research

Credit Card Surcharging

In 2003, the Reserve Bank introduced reforms that removed restrictions on merchants imposed by the international card schemes, including restrictions that had prevented merchants from surcharging for credit card payments. As discussed in Section 4, the prevalence of merchants that surcharge at least one type of credit card has increased significantly over the past few years. However, the proportion of transactions on which a surcharge is paid remained largely steady over the same period, suggesting that consumers have become more sensitive to surcharges or better at avoiding them.

The end-of-study questionnaire provides insight into the influence of surcharging on consumers' choice of payment method. Participants were asked to indicate their typical behaviour when presented with a hypothetical situation in which they faced a 1 per cent surcharge for using a MasterCard or Visa credit card in a department store.¹⁸ Only 36 per cent of consumers indicated they would choose to continue using their MasterCard/Visa credit card. A little under half of consumers would pay with a debit card or cash – payment methods that typically do not incur a surcharge – while 14 per cent of consumers would choose to go to another store (Graph 30).¹⁹



Respondents who reported holding an American Express or Diners Club card were also presented with another hypothetical situation where they faced a 2 per cent surcharge for using an American Express or Diners Club card, and a 1 per cent surcharge for using a MasterCard or Visa credit card.²⁰ This question was intended to examine consumer responses to 'differential' surcharging across card schemes. The majority of consumers would switch to using a MasterCard or Visa credit card (43 per cent – broadly similar to the proportion that would continue to use their MasterCard or Visa credit card in the first scenario), while 11 per cent would proceed

¹⁸ Only individuals who owned a MasterCard or Visa credit card were required to respond to this question.

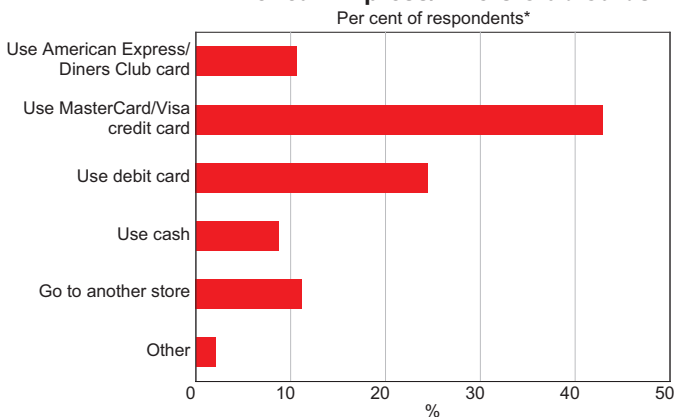
¹⁹ In a similar questionnaire on debit card surcharging in the Netherlands, only 5 per cent of consumers indicated they would go to a different store (Bolt, Jonker and Van Renselaar 2010). The application of surcharges is quite different in the Netherlands though, with consumers only being charged for low-value debit card transactions. Our results may also reflect not just consumers who would actually walk out of a store but also consumers who would avoid a particular store that they knew to surcharge.

²⁰ Only 10 per cent of consumers in the 2010 Study reported holding an American Express or Diners Club credit card.

with an American Express or Diners Club card (Graph 31). This result reflects the high degree of substitutability between American Express/Diners Club credit cards and MasterCard/Visa credit cards for those consumers that hold both cards, as well as the sensitivity of consumers to the higher surcharges that American Express/Diners Club cards typically attract. Of the remaining consumers, around 30 per cent would use a payment method that does not attract a surcharge, while around 10 per cent would go to another store.

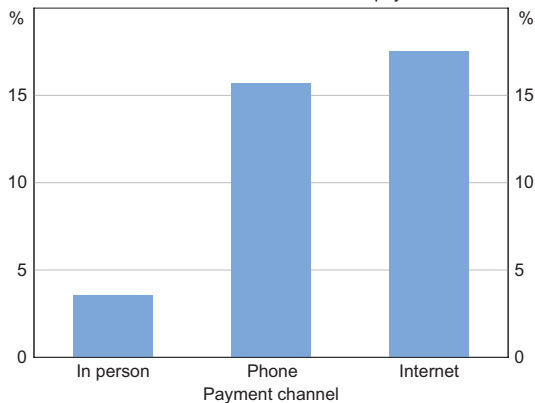
While these scenarios reflect the behaviour of consumers in stores, consumers have less ability to use alternative payment methods when faced with a surcharge for remote payments. Not surprisingly, the proportion of transactions on which a surcharge is paid is significantly higher for payments made over the internet (18 per cent) and via phone (16 per cent), than in person (4 per cent, Graph 32).

Graph 31
Response to Surcharging on American Express/Diners Club Cards



* Respondents with an American Express/Diners Club card were asked for their response if faced with a surcharge of 2 per cent for using an American Express/Diners Club card to make a \$100 transaction at a department store, while Visa and MasterCard credit cards are surcharged at 1 per cent
 Source: Roy Morgan Research

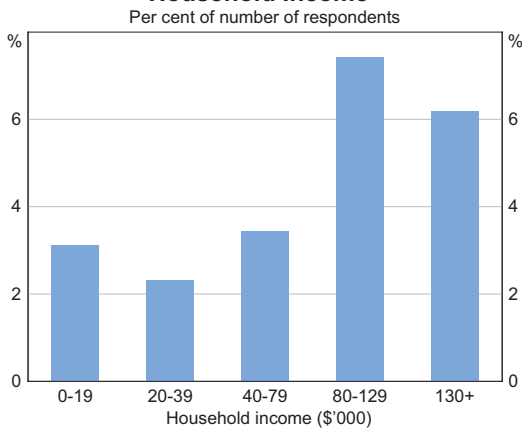
Graph 32
Credit Card Surcharges Paid by Channel*



* The mail payment channel is not shown owing to small sample sizes
 Source: Roy Morgan Research

Household income is another factor in paying a surcharge, with people from higher income households more likely to pay a surcharge on their credit card transactions (Graph 33). However, no evidence could be found that consumers who have a credit card with a rewards scheme are more willing to pay credit card surcharges. This is consistent with the lack of importance placed by consumers on credit card rewards when choosing between payment methods at the point of sale.

Graph 33
Credit Card Surcharges Paid by Household Income*



* Household income is rounded up to nearest \$1 000
Source: Roy Morgan Research

7. Conclusions

This study has sought to gain a clearer picture of how payment methods, including cash, are currently being used in Australia and how that use has changed over time. As an input to the Payments System Board's Strategic Review of Innovation in the Payments System, it has also focused on online and newer payment methods and the potential impediments to further take-up of some of those methods.

The study has found that traditional payment methods – cash, credit card, debit card and cheque – continue to be used for the majority of payments made by individuals in Australia. Cash remains the most widely used payment method and the dominant method for low-value payments (under \$40). Cards are the dominant payment method for mid-sized transactions, with the share of card payments made using credit cards increasing with payment value. BPAY, internet/telephone banking and cheques are important payment methods for higher-value payments, particularly those greater than \$500, although overall cheque use continues to decline.

Internet/telephone banking and the specialised online payment systems are used for only a small proportion of total consumer payments. Specifically, internet/telephone banking makes up only 2 per cent of all payments, although their high average payment value means that they account for 10 per cent of the value of payments. Specialised online payment methods, like Paymate, PayPal and POLi, account for only around 1 per cent of both transaction volume and value. This small proportion in part reflects the fact that the majority of payments are made in person: only around 7 per cent of the number of *total* payments are made online.

Consumers indicated that they are reasonably comfortable with the current means available to make online payments. This is important because around 90 per cent of respondents have internet access at home or work and, of those, about 80 per cent have made an online purchase. Notwithstanding this, the risk of fraud was identified as being the most significant deterrent to further adoption of online payments.

The adoption of newer payment methods, such as contactless payments and mobile payments, is so far fairly low in Australia. Only around 3 per cent of respondents had made a contactless payment in the month prior to the study. Less than 10 per cent of respondents had made a mobile payment at any time; most of these were for ringtones, games or applications for their phone.

Overall, the results of the 2010 diary and end-of-study questionnaire suggest that the mix of old and new payment methods available are generally meeting consumers' needs. Nonetheless, the study results reflect some potential areas for improvement, most notable being the security of online payments. There is also some evidence of dissatisfaction with the timeliness of internet-banking transfers. Further, many non-card, non-paper based methods have only been brought to market relatively recently and it is not yet clear whether there are institutional impediments to their growth.

Although it is difficult to be certain how trends in payment patterns will evolve, one clear trend is the decline in cash use. In the past three years, cash use has declined significantly as a share of both the number and value of payments by consumers. While cash remains an important payment method for low-value payments, cards are being substituted for cash for some of these payments. This substitution may increase further over time as the use of contactless payments becomes more widespread, given the importance placed by individuals on processing speed at the point of sale.

The Reserve Bank thanks the individuals who participated in this study.

Appendix A – Study Methodology

The 2010 Consumer Payments Use Study closely followed the Bank's 2007 Study of the day-to-day use of payment methods by individuals in Australia. As for the 2007 Study, the Bank commissioned Roy Morgan Research to assist with the design and to conduct the study. For the 2010 Study, around 1 700 individuals were recruited with the aim of yielding a representative sample of around 1 000 completed studies. Based on the experience of the first study, younger people were oversampled to overcome the fact that they were less likely to respond than older individuals. All respondents in the first study were invited to participate in the second study; 401 agreed to participate again and 317 completed the study. Including these repeat respondents, a total of 1 240 valid responses were received.²¹

Responses were weighted according to gender, age group, geographical location (metropolitan or regional) and credit card holding. Targets for the weightings were based on ABS population statistics for the demographic variables and Roy Morgan Research's Single Source re-contact database for the credit card holding variable. This was the same weighting scheme used in 2007, except for the addition of credit card holding, which was added when preliminary analysis of the 2010 data showed credit card holders were significantly over-represented in the sample. The original 2007 data were also reweighted using this new weighting strategy so that consistent study comparisons could be made. This made little difference to the 2007 results.

Like the 2007 Study, the 2010 Study had two main components: a payments diary; and an end-of-study questionnaire. Demographic data for each respondent was also obtained again from Roy Morgan Research's Single Source re-contact database, although the 2007 repeat respondents were required to complete a short demographic and background update questionnaire. These demographic and background data could be directly matched to the responses for the diary and the end-of-study questionnaire for each respondent.

In the second study, changes to the payments diary were kept to a minimum so that results from the two studies could be easily compared. However, some changes were made to address minor methodological issues raised by the first study, and to capture additional information in particular areas. Most notably, modifications were made to allow for online payment methods, such as internet/telephone banking, Paymate, PayPal and POLi. In sum, the 2010 diary captured data on the use of 12 different payment methods in 15 merchant categories. As before, the diary also captured information on the channel that was used to make the payment (in person, internet, phone or mail) and whether a surcharge was applied.

For cash withdrawals, the diary captured the same four methods of obtaining cash as used in the 2007 Study: ATM withdrawals; eftpos cash-outs; over-the-counter cash withdrawals; and other methods. The variable for a 'special trip' to obtain cash was dropped, while a new variable was added to indicate whether a direct charge was paid for ATM withdrawals.

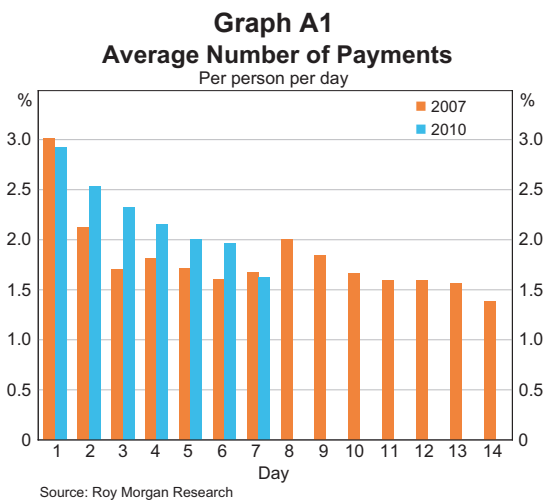
The scope of the end-of-study questionnaire was greatly expanded. This was done primarily to provide information needed for the Strategic Review of Innovation. Questions were added to investigate individuals'

²¹ In addition to incomplete responses, one response was dropped because of implausibly large payment values for all transaction types.

attitudes to payment methods; in particular, individuals were asked their reasons for choosing particular payment methods and what factors might increase their use of online payment methods. Respondents were asked about payment behaviour not captured by the payments diary, including questions on cash holding, credit card repayments and use of direct debits. Also, new questions were asked about individuals' responses to charges on payment and withdrawals (i.e. surcharging on cards and direct charging at ATMs).

General demographic information on the participants was provided by Roy Morgan Research from its Single Source re-contact database. Participants from the 2007 Study were asked to complete an additional end-of-study questionnaire to update their demographic data.

Results of both the 2007 and 2010 studies exhibit some signs of 'survey fatigue', as evidenced by a drop-off in payments reported after the first day of the diary (Graph A1). Detailed analysis of the 2010 data suggests that this drop-off is partly explained by week-day factors, with around half of respondents having started their payment diaries on the peak spending days of Thursday and Friday. However, estimates of the week-day factors (based on variation in the averages for first-day spending) indicate that this only accounts for a small part of the decline.



Despite the drop-off in the number of payments, the relative use of payments has remained constant. For both the 2007 and 2010 studies, the shares of the number and value of the different payment methods are similar across all days of the diary. This is slightly surprising as individuals might, for example, have been expected to increasingly overlook low-value cash payments, resulting in declining cash use over the study period. Alternatively, use of the payments diary may have caused individuals to modify their typical payments behaviour, perhaps by causing them to bring forward some payments to the early days of the diary period. Regardless of the cause of the 'survey fatigue', the consistency of the payment shares and the similar patterns across the two studies suggest that the results of the study are reliable.²²

Another potential issue with the results is seasonal patterns, which can be significant in payments data. Whereas the 2007 Study was conducted in June, the 2010 Study was conducted in October/November. However, using merchant acquiring data obtained from a major bank, we were able to confirm that these dates were broadly neutral in terms of seasonal changes in both the overall levels of spending and the relative spending across payment methods. Importantly, the diary dates avoided the months around the end of the year when there are significant seasonal effects owing to factors such as Christmas shopping, sales and summer holidays.

²² See Schmidt (2011) for a review of the literature on survey fatigue and an empirical analysis of survey fatigue in the 2008 diary study conducted by the Deutsche Bundesbank. Similar to the results here, Schmidt finds evidence of survey fatigue, but with a similar distribution of payments on each day, so that there is no bias with respect to the recording of low-value cash payments.

Table A1: Fields in the 2010 Payments Diary

Payments^(a)	Cash withdrawals
Date	Date
Day of week	Day of week
Payment amount (nearest dollar)	Withdrawal amount (nearest dollar)
Card surcharge paid (yes/no)	ATM operator fee paid (yes/no)
Payment method:	Withdrawal method:
1 – Cash	1 – ATM
2 – ATM/eftpos	2 – eftpos cash-out
3 – Visa Debit/Debit MasterCard	3 – Over-the-counter at a bank branch
4 – Visa/MasterCard credit	4 – Other (friends, Medicare office)
5 – American Express/Diners Club	
6 – Personal cheque	
7 – BPAY	
8 – Internet/telephone-banking transfer (pay anyone)	
9 – PayPal	
0 – Paymate	
X – POLi	
V – Other	
Payment channel:	
1 – In person	
2 – Phone	
3 – Internet	
4 – Mail	
Merchant category:	
A – Supermarket/bottle shop	
B – Small food store (butcher, deli, greengrocer)	
C – Electrical/furniture	
E – Other retailer (department, book, newsagent, hardware)	
F – Take-away food/fast-food	
G – Café/restaurant	
H – Pub/bar	
K – Petrol/service station	
L – Transport (tolls, parking, public transport, taxi)	
M – Leisure/sports/entertainment	
N – Holiday travel (accommodation, flights, car hire)	
P – Household bills (rent, phone, Pay TV, school fees)	
R – Medical/health	
S – Services (plumber, hairdresser, baby sitter, accountant)	
Z – Other	

(a) Participants were asked not to record: payments made for any business purpose; direct debits from deposit accounts or credit cards; payments made by someone else from a joint account; transfers of funds between members of the household; or loan repayments

Appendix B – Merchant Categories

Table B1: Merchant Categories

Name	Description/examples
Supermarket/bottle shop	Large food store offering a variety of goods; bottle shop/liquor store and cellars
Small food store	Butcher; deli; greengrocer; corner store
Electrical/furniture	Furniture and bedding store; whitegoods retailer; computer store
Other retailer	Department store; clothing/footwear store; book store; newsagent; hardware store
Take-away food/fast-food	Take-away food and beverages consumed at or away from a fast-food restaurant or food court; or food and beverages that require minimal preparation time (e.g. sandwich bar, vending machine)
Café/restaurant	Cafés and more formal sit-down meals requiring lengthier food preparation time
Pub/bar	Licensed premise; club
Petrol/service station	Petrol and diesel fuel for motor vehicles; service station purchases
Transport	Tolls; parking; public transport; taxi
Leisure/sports/entertainment	Cinema; zoo; sports ground
Holiday travel	Holiday accommodation; holiday flights; holiday vehicle hire
Household bills	Rent; insurance; phone and electricity bills; Pay TV subscription; school fees
Medical/health	Optometrist and related products dispensed (glasses, contact lenses); chiropractic care; dentist; doctor
Services	Plumber; hairdresser; home repair; baby sitting; accountant; legal services
Other	Any payments (including charitable donations) that do not fit into any of the above merchant categories

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