The Cash-use Cycle in Australia

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Photo: Traceydee Photography – Getty Images

Abstract

The use of cash for day-to-day transactions has been declining for many years and this has implications for all aspects of the cash system. This article illustrates the interrelationships between consumers' use of cash for transactions, access to cash services and merchants' acceptance of cash as a payment mechanism through a 'cash-use cycle'. Recent data suggest that the cash-use cycle in Australia is functioning adequately at present. However, the ongoing adequacy of cash access is vulnerable to further withdrawal of access points; this issue warrants regular monitoring.

Introduction

For consumers to use cash successfully, they must first obtain it and then have businesses accept it for transactions. However, the use of cash for day-to-day transactions has been in trend decline in Australia since the mid-2000s. This has implications for all aspects of the cash system, including the infrastructure that underpins cash distribution and access and the willingness of businesses to accept cash for payments. This article illustrates the interrelationships between consumers' use of cash, access to cash and merchants' acceptance of cash through a 'cash-use cycle'.

The demand for cash is driven by consumer payment preferences, the relative ease and accessibility of alternative payment methods, such as debit and credit cards, and the ability to access and use cash. The demand for cash is also driven by precautionary and store-of-wealth purposes; however, this aspect of demand is less pertinent to the cash-use cycle, because hoarded banknotes change hands less frequently. The supply of cash for consumers is driven by factors such as the accessibility of a cash access point (like an ATM or bank branch) or the receiving of cash from others (such as an income payment or gift). The supply of cash to consumers is facilitated by the logistics of moving cash from cash-in-transit (CIT) companies' depots to bank branches, ATMs and retailers ('retail cash distribution'). This in turn is underpinned by the wholesale banknote distribution system, which involves the bulk movement of cash from the Reserve Bank of Australia (the Bank) – the sole issuer of banknotes – to CIT cash depots around the country, on behalf of the four major banks.[1]

The Bank, as part of its 2022/23 Corporate Plan and in the conclusions to the 2022 Review of Banknote Distribution Arrangements, has committed to working to support the ongoing provision of cash services in Australia, including by monitoring the ability of consumers to access and pay with cash. This article contributes to this goal by drawing together the latest data on the retail part of the cash system in terms of cash use, access and acceptance, to assess the state of the cash-use cycle in Australia.[2]

The article first presents the cash-use cycle as a stylised framework, followed by an assessment of the latest data on the use of cash by consumers, their access to cash and merchants' acceptance of cash in Australia. Overall, it concludes that Australia's cash-use cycle is functioning adequately, although the decline in the use of cash has led to vulnerabilities, in that further withdrawal of access points could make cash access – and so usage – difficult for some parts of the community.

The cash-use cycle

A stylised framework, that we term the 'cash-use cycle', can be used to illustrate the interdependencies between consumers' use of cash, access to cash and merchants' acceptance of cash (Figure 1), based on the following definitions:

- **Cash use** – the prevalence of consumers using physical cash to pay for retail transactions.
- **Cash access** – the ease in obtaining cash through various sources, including ATMs, bank branches, Bank@Post outlets (which offer cash services at Australia Post outlets to the customers of over 80 authorised deposit-taking institutions (ADIs)) or as cash-out from retailers.
- **Cash acceptance** – whether a merchant will accept cash as a means of payment in their store.

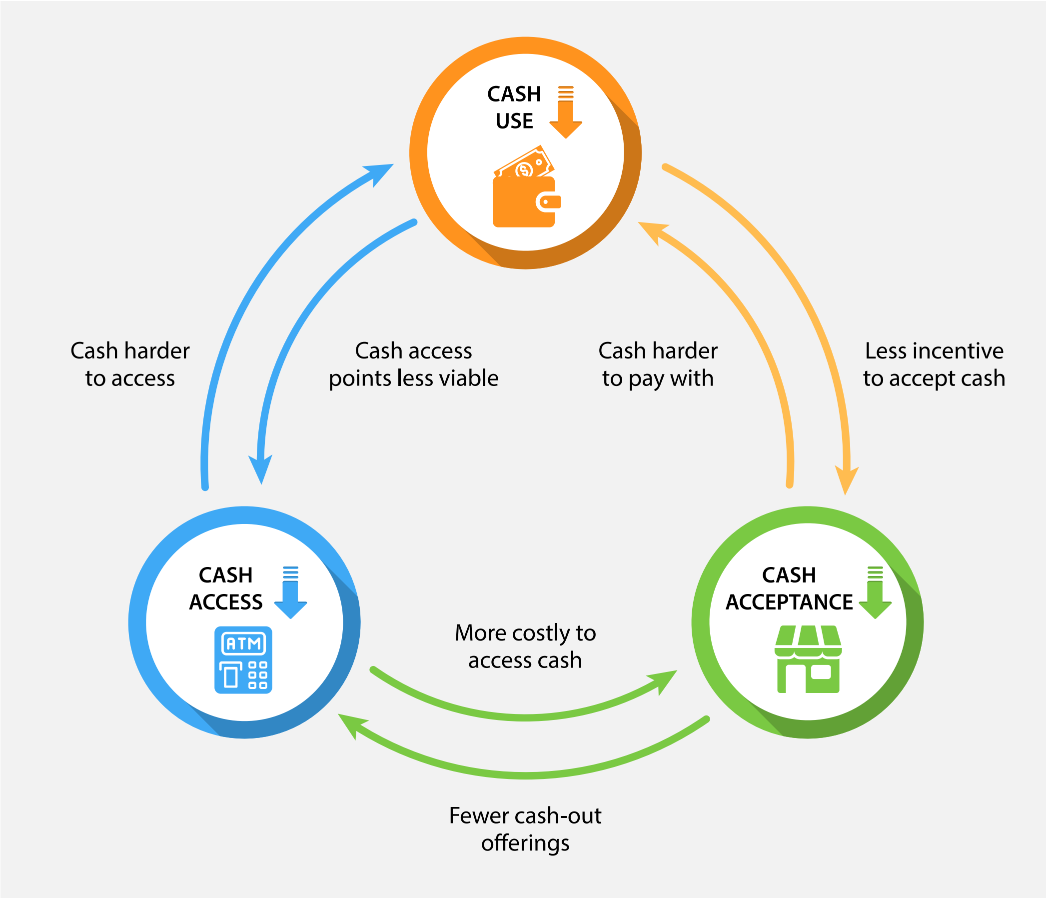
While the framework shows the three aspects are interdependent, other factors can also trigger a shift in the cycle – such as consumer preferences away from paying with cash or merchant preferences around accepting cash.

The cash-use cycle demonstrates how the decline in cash use can be self-reinforcing, where a marked decline in one aspect could lead to downward pressure on the others. For example, consider a shift in consumers' preferences away from using cash (cash use falls), in favour of other payment methods. This could make it uneconomic for ADIs and ATM providers to offer cash services in some regions. The geographic coverage of cash access points would then decline, and so cash access would fall. This in turn affects the ease and cost at which businesses can meet their cash needs (such as obtaining cash floats or depositing the day's takings), resulting in fewer merchants accepting cash for payments (cash acceptance falls). A decline in merchant acceptance of cash makes it harder for consumers to pay with cash, further reinforcing a decline in cash use (cash use falls).

Similarly, a decline in cash use (cash use falls) may reduce the incentive for businesses to accept cash for payments (cash acceptance falls) or provide cash-out services (cash access falls), particularly as the average cost of cash handling rises with lower cash volumes. This highlights network effects where consumers value methods of payments that are widely accepted, and merchants value methods of payments that are widely used. Furthermore, if accessing cash becomes harder or more expensive, it can reduce consumers' ability or preferences to continue paying with cash.

The cash-use cycle points to how a decline in cash use *can* affect the whole cash system, but it does not necessarily mean that cash access and acceptance *will* decline. For instance, there may be several ATMs servicing a particular location, so the removal of an unprofitable or underutilised machine will have little impact on cash accessibility. Furthermore, merchants may still accept cash payments if the benefits outweigh the costs of doing so.[3] As such, cash access and acceptance may be fairly stable, even in the face of declining cash use. Nonetheless, a tipping point could

Figure 1: The Cash-use Cycle



conceivably be reached where providing or accepting cash becomes economically unviable for the private sector. While we do not believe that point has been reached in Australia, the Bank is monitoring the situation and will continue to do so going forward.

Cash use

The use of cash for day-to-day payments has declined for many years, with consumers increasingly preferring to make their payments electronically. The Bank's Consumer Payments Survey (CPS) showed that the share of total retail payments made in cash fell from 69 per cent in 2007 to 27 per cent in 2019 (Caddy, Delaney and Fisher 2020). Based on payment diaries, this survey provides the richest source of data on payment trends, but it is only run every three years; the results from the 2022 survey will be published later this year. To understand trends in transactional cash demand on a more frequent basis, we can examine a number of different data sources.

Lower demand for cash for transactional use is evident from the decline in cash withdrawals from ATMs. The use of ATMs has been declining since 2008, with the number and value of ATM withdrawals falling by about 60 per cent and 40 per cent, respectively (Graph 1). This decline was previously occurring at a steady pace, but cash withdrawals fell dramatically during the COVID-19 pandemic and have only partially recovered. Cash withdrawn using debit card cash-outs and cash advances has followed a similar pattern to ATM withdrawals over the past decade, while cash withdrawn over-the-counter from ADI branches has recovered faster.

Another indicator of cash spending in the economy is the value of cash that is lodged by CIT companies at their cash depots (CIT companies transport cash from retailers and ADIs to their depots). Both the number and value of banknote lodgements at major cash depots are around 50 per cent lower than at their peaks, and remain well below pre-pandemic levels.

These longer term trends partly reflect the shift to online shopping. The share of retail sales conducted online increased sharply during the pandemic-related lockdowns, and remains higher than it was prior to the pandemic. Online sales have been steady at around 11 per cent of total retail sales over 2022, which is a marked rise compared with around 7 per cent at the end of 2019. This, along with the other indicators of cash system activity, suggests that the changes in shopping habits and payment behaviour induced by the pandemic have endured.

An alternative source of data is from an annual survey commissioned by the Bank – the Online Banknotes Survey (OBS) – which asks individuals about their cash use behaviour. The survey shows that, in 2022, cash was used by 25 per cent of respondents in their most recent in-person transaction, which is similar to the previous two years (Graph 2). While not directly comparable, this is lower than the 32 per cent of in-person payments made in cash in 2019 as found in the CPS (Delaney, McClure and Finlay 2020). Debit and credit cards remain the most popular payment method, although electronic options – such as tapping with smartphones – are becoming more prevalent. The survey points to a permanent shift in payment behaviour for a significant proportion of the population; 39 per cent of respondents said they have been using cash less often since the pandemic began, while only 16 per cent said they use it more often. Furthermore, only 9 per cent of respondents considered themselves high cash users, compared to 68 per cent that said they are low cash users. Those on lower incomes were more likely to have used cash for their most recent transaction and consider themselves a high cash user. Respondents generally preferred to use cash for lower value transactions.

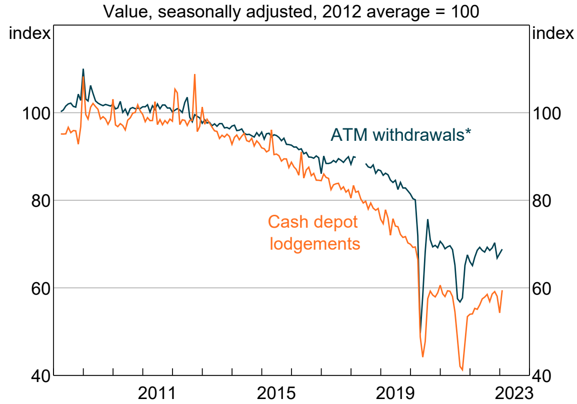
Finally, the denominational mix of banknotes that are in circulation can provide insight into cash use trends. In recent years, growth in low denomination banknotes ($5, $10 and $20 banknotes) has been slow, outside of the periods where the Next Generation Banknote series for each denomination was first issued (Graph 3). These denominations – particularly the $5 and $10 denominations – are typically used for in-person transactions and for merchants to provide change, so subdued demand for these banknotes aligns with reduced use of cash for consumer spending. This trend has remained even after the end of pandemic-related lockdowns.

By contrast, the trend rate of growth in high denomination banknotes on issue ($50 and $100 banknotes) has remained strong over the past decade, with a particularly large spike during the pandemic. Strong growth in high denomination banknotes reflects the increased desire in the community to hold banknotes as a precaution or store of wealth, as well as macroeconomic factors (Flannigan and Staib 2017). However, when banknotes are hoarded they change hands less frequently, which means the strong growth in demand for these banknotes has less bearing on the cash-use cycle.

Graph 1

Indicators of Cash System Activity

Value, seasonally adjusted, 2012 average = 100



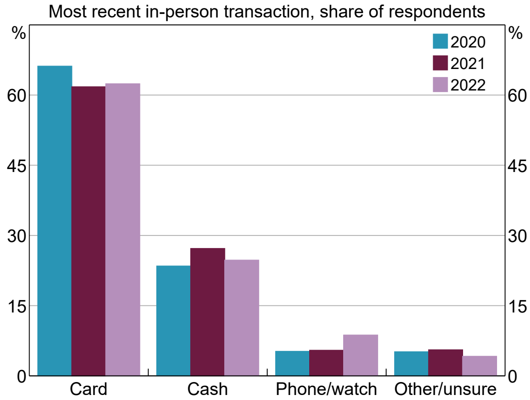
* Series break from February–May 2018 due to changes in collection and reporting methodology.

Source: RBA

Graph 2

Payment Method Used

Most recent in-person transaction, share of respondents



Source: RBA

Cash access

Cash access is the ability or ease with which people can withdraw or deposit cash. In Australia, cash can be accessed through a variety of methods; however, according to the OBS, withdrawals from ATMs are the most common method of accessing cash (Graph 4). Over-the-counter services – at ADI branches and Bank@Post outlets – are also a common method for withdrawing and depositing cash, particularly for larger values of cash. Outside of these options, individuals can receive cash at the point of sale (e.g. eftpos cash-outs) or by receiving payments or gifts in cash (e.g. wages, payments for goods or services provided or transfers from friends), although these are not examined here.

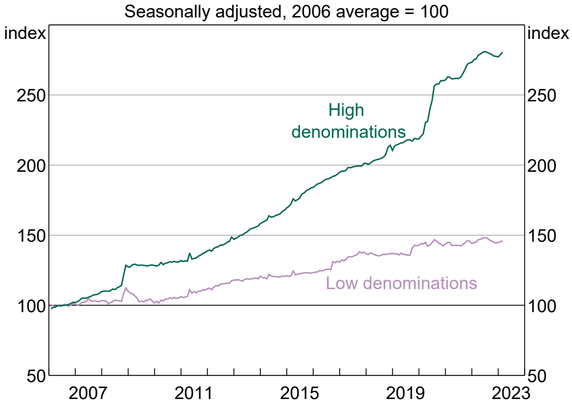
The number and availability of these cash access points, therefore, are important to consider when assessing the ease with which Australians can deposit or withdraw cash. In recent years, a substantial number of cash access points have been removed from locations around Australia. Since 2016, when ATM numbers peaked, around 8,000 ATMs (or 25 per cent) have been closed (Graph 5). Most of these closures have been ATMs owned by ADIs, whereas independently owned ATMs have gained an increasingly large share of the ATM market. Independent deployers are more likely to charge a fee for the use of their machines, compared with ADI-owned ATMs, which can be a barrier to cash access.

ADI branch numbers have also been in trend decline. The total number of ADI branches is now 30 per cent lower than in 2017, when comparable data are available. The majority of these closures have been in major cities (60 per cent) or in inner regional parts of Australia (20 per cent). However, given the relative lack of alternative branches, as well as the larger geographic area of regional Australia, the impact of these closures may be more pronounced for non-metropolitan communities. Against this background, the Australian Government established a Regional Banking Taskforce to investigate the impact of these closures on regional areas, which included in its recommendations: a review of the Australian Banking Association's Branch Closure Protocol; actions to better communicate and alleviate the negative impact on regional communities; and a review of the relevant

Graph 3

Value of Banknotes in Circulation

Seasonally adjusted, 2006 average = 100

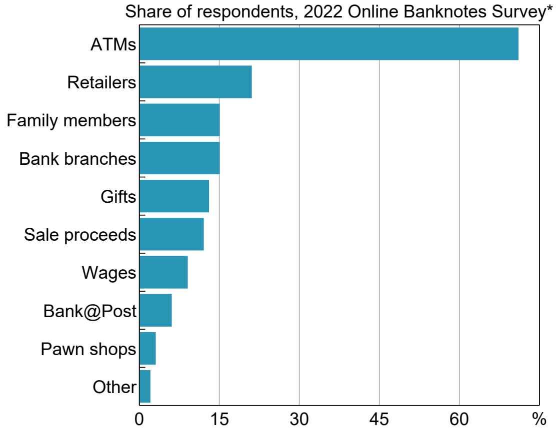


Source: RBA

Graph 4

How Consumers Access Cash

Share of respondents, 2022 Online Banknotes Survey*



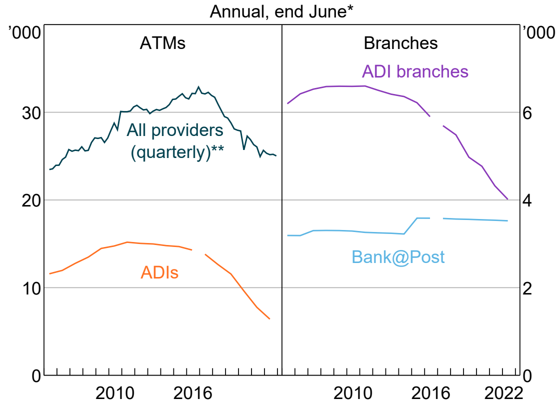
* Multiple responses were allowed, so bars do not sum to 100 per cent.

Source: RBA

Graph 5

Cash Access Points

Annual, end June*



* Series break in annual data in June 2017 due to APRA data collection change.

** The decrease in the number of active ATMs in June 2020 was largely due to temporary COVID-19-related venue closures.

Sources: APRA; AusPayNet; RBA

Table 1: Cash Access Points and Distance to Cash Services(a)

	June 2022		Change from June 2020(b)	
	Number	Distance in kilometres(c) 95 per cent	Number	Distance in kilometres(c) 95 per cent
ADI deposit	8,469	5.6	−886	0.1
– ADI branches	4,944	10.7	−864	0.8
– Bank@Post outlets	3,525	5.8	−22	0.1
All withdrawal types(d)	24,356	4.5	−1,403	0.2
– ADI withdrawal	14,881	5.4	−4,095	0.5
– ADI ATMs	6,412	11.1	−3,209	1.8
– All ATMs	15,887	6.7	−517	0.2

(a) Distances are measured as the shortest distance between two points (i.e. as the crow flies).

(b) The change in distance captures population changes – that is, the distances are calculated using population data at different points in time.

(c) Distance within which 95 per cent of Australia's usual resident population lives.

(d) Includes ADI ATMs, ADI branches, Bank@Post and independent ATMs.

Sources: ABS; APRA; Australian Banking Association; Banktech; ggmap; Google; Linfox Armaguard; Next Payments; Prosegur; RBA

data produced by the Australian Prudential Regulation Authority (APRA), which this article uses to examine cash access (Treasury 2022).

Distance to cash services

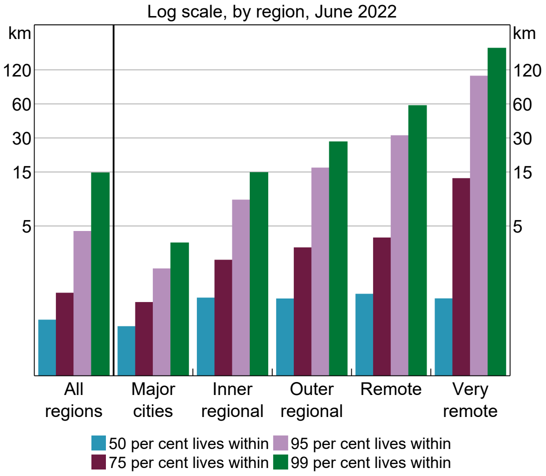
Despite the decline in the number of cash access points, the removal of *some* access points may not substantially affect people's ability to access cash if these points are located sufficiently close to one another. To better incorporate the locality of access points and the population that live around them in our assessment of changes to cash access, we estimated the distance that people have to travel to reach their nearest cash access point. We examined the locations of all ADI access points (ADI-owned ATMs, branches and Bank@Post outlets) using data from APRA and some independently operated ATM deployers as at June 2022. The data cover around half of the independently owned ATMs and so our analysis likely underestimates access to cash.[4]

Overall, distance to cash services has been little changed in recent years, despite the significant number of cash access point closures. As of June 2022, 95 per cent of the population lived within 5.6 km of a cash deposit point and 4.5 km of a cash withdrawal point (Table 1). It reflects the strong geographic coverage of Bank@Post outlets, which are limiting any increase in overall distances. The closures of ADI branches and ADI-owned ATMs, however, have increased the distances to these particular services; this is especially the case for more remote communities (Graph 6). Since 2020, the median distances to ADI branches and ADI ATMs in remote locations have increased by 3.4 km (12 per cent) and 6.5 km (18 per cent), respectively; in very remote areas, the increases are 7.6 km and 19 km (although these regions already had very high distances to cash access points to begin with).

Graph 6

Distance to Cash Withdrawal

Log scale, by region, June 2022



Sources: ABS; APRA; Australian Banking Association; Banktech; ggmap; Google; Linfox Armaguard; Next Payments; Prosegur; RBA

Vulnerabilities in cash access

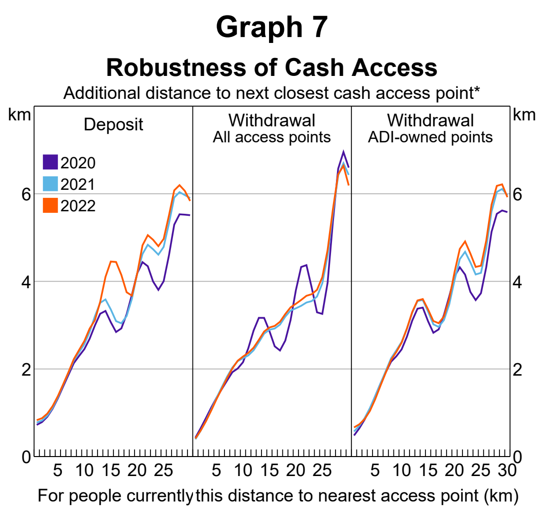
Although the overall change in the distance most people need to travel to access cash has not changed substantially, the vulnerability to further removal of cash access points is increasing. This can be seen by examining the average distance to the next closest cash access point. Increasing vulnerability is particularly evident in cash deposit services, where the additional distance to the next closest access point has increased considerably over the past couple of years (Graph 7); robustness of withdrawal services has worsened only slightly over this time, although ADI-owned access points – which are important in providing fee-free access – have relatively greater vulnerability. Much of the deteriorating robustness in the cash access network has been concentrated among people who are already far from access points, suggesting some non-metropolitan communities are increasingly at risk of a further significant increase in distance to the nearest cash access point.

The increases in distances reflect that vulnerabilities in the system are concentrated in particular service types. For ADI branches (including other ADI face-to-face outlets), we estimate 190 of the 864 net closures (22 per cent) since June 2020 did *not have an alternative branch* within a 1 km radius. By contrast, only 51 (6 per cent) of these withdrawn branches lacked any alternative access point (i.e. an ATM, Bank@Post or alternative bank branch) within a 1 km radius. This highlights the compositional shifts in cash access, where consumers may have to switch to alternate service types in order to withdraw or deposit cash, if they are unable to travel the extra distance.

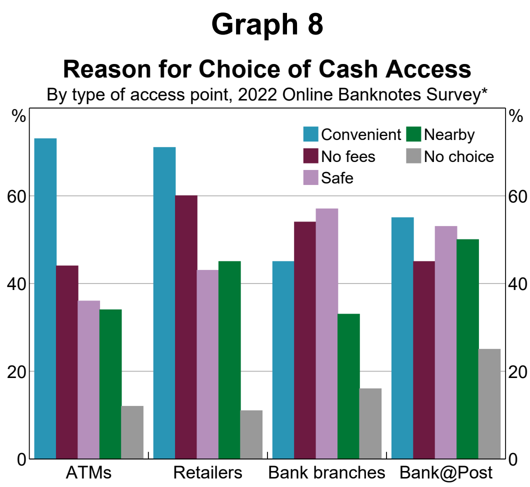
This can be an issue for consumers because the type of cash access point – ADI branches, ATMs and Bank@Post – is not always fully substitutable in the services it offers. For example, independently operated ATMs often carry fees, which can be a financial barrier for some. Some ATMs may also be inaccessible at certain hours – for example, if they are inside a shopping centre, hotel or other venues. There are also some limitations to the Bank@Post service, as outlined by the Regional Banking Taskforce, including that not all ADIs are able to be accessed, there are different withdrawal and deposit limits, and the Bank@Post service may not be sufficiently well-known by some communities (Treasury 2022). As such, while access to Bank@Post outlets remains strong, it may be insufficient for some consumers. These considerations are consistent with survey data, which find consumers hold different perceptions about the convenience, safety, fees and location of different sources of cash (Graph 8).

Cash acceptance

Cash acceptance refers to how merchants communicate their intentions to their customers about whether they accept cash payments or not. In most countries, including Australia, cash is legal tender (cash generally needs to be accepted to



* Population weighted; smoothed.
Sources: ABS; APRA; Australian Banking Association; Banktech; ggmap; Google; Linfox Armaguard; Next Payments; Prosegur; RBA



* Multiple responses were allowed, so bars do not sum to 100 per cent.
Source: RBA

Table 2: Surveys of Cash Acceptance in Australia

	Frequency	Range	Most recent survey	Sample	Sample size	Acceptance question
RFI Global	Biannual	2016–2022	April 2022	Card-accepting offline businesses	~800	Do you accept cash for payments?
Phone	Ad hoc	2020–2022	June 2022	Offline businesses	~350	Do you accept cash for payments?
OBS	Biennial	2019–2021	November 2022	Representative sample of individuals	~1,000	Did you come across a business that did not accept cash in the past month?

Sources: RBA; RFI Global

settle debts), but there is no legal requirement for merchants to accept cash for retail payments (RBA 2022b). It is the decision of the merchant as to whether they accept or encourage payments in cash. At one end of the spectrum, merchants may accept only cash for payments, displaying 'cash-only' signage. Alternatively, merchants may refuse to accept cash for payment. Some merchants may accept cash, but verbally discourage its use or display 'we prefer card' signage.

To help understand trends in merchant cash acceptance, we drew on three different surveys, providing both a business perspective and a consumer perspective (Table 2):

1. A biannual survey of businesses, undertaken by global business intelligence provider, RFI Global (RFI) and including additional questions commissioned by an industry working group run through AusPayNet. The survey includes around 1,000 card-accepting merchants; the sub-sample of merchants that have an offline presence (around 800 businesses) is most relevant to assessing merchant cash acceptance.
2. The Bank conducts a phone survey of around 350 businesses on an ad-hoc basis to assess merchants' acceptance of cash.[5]
3. The OBS, described above, captures responses from around 1,000 consumers on their experiences of businesses accepting cash.

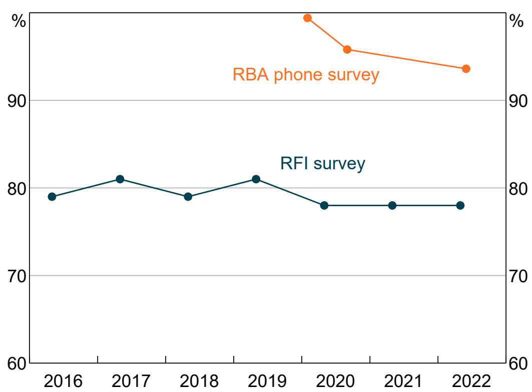
Trends in cash acceptance

The two business surveys differ in their estimates of the rate of merchants' cash acceptance. The RFI data suggest that cash is accepted by 78 per cent of card-accepting merchants with a physical presence (Graph 9). This sample excludes cash-only firms and therefore underestimates the rate of cash acceptance. The RBA phone survey, which includes cash and/or card-accepting merchants with a physical presence, suggests that 94 per cent of businesses surveyed reported accepting cash for payments. The two surveys also imply slightly different trends in merchants' cash acceptance. RFI data suggest that cash acceptance has been little changed since 2016. By comparison, the phone survey suggests a decline in the share of merchants accepting cash from 99 per cent just prior to the pandemic, to 94 per cent in June 2022.

From the consumer perspective, the OBS suggests that cash acceptance declined somewhat after the onset of the pandemic, but has partly rebounded since (Graph 10). One-third of respondents noticed a vendor did not accept cash in 2022, compared with around half of respondents in 2020. Note that

Graph 9

Merchant Cash Acceptance



* Offline businesses.
** Card-accepting offline businesses.
Sources: RBA; RFI Global

the difference between the consumer and business survey estimates can be reconciled in that more than one consumer may have experienced cash non-acceptance at the same store (or large company with multiple stores). Overall, the indicators suggest that cash acceptance may be a little lower than prior to the pandemic, but nonetheless remains at a high level.

Plans to dissuade cash usage

The RFI survey provides a forward-looking indicator of merchant cash acceptance. The data suggest that half of merchants that accepted cash in April 2022 planned on actively discouraging cash payments or displaying signage to that effect at some point in the future. Those merchants that plan to move away from accepting cash were more likely to have higher turnover and be in metropolitan areas.

The pandemic appears to have influenced some merchants' plans to dissuade cash use. Merchants that have or plan to dissuade cash use point to hygiene concerns around cash handling during the pandemic as the most prominent reason (Graph 11). Preferences of consumers to not use cash is the second most cited reason, followed by the risk of theft and mishandling, cash handling costs, and difficulty for businesses in accessing cash.

Amongst merchants that do not have plans to dissuade cash usage, most indicate that there is no reason to change the status quo. They also cite consumer preference to pay with cash and a lack of alternative methods of payment for some customers. Other prominent reasons included lower costs of accepting cash than other payment methods and the immediacy of cash payments.

Conclusion

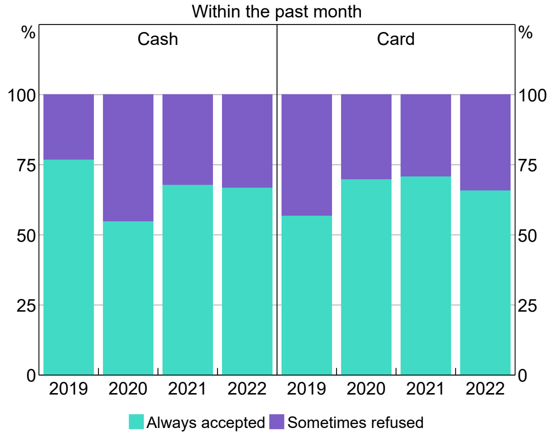
The use of cash for day-to-day payments has declined for many years, with the COVID-19 pandemic accelerating this trend. Indicators of cash system activity suggest that the change in payment behaviour induced by the pandemic has endured. Despite declining cash use, its flow-on effects to cash access and cash acceptance have been less evident. Regarding the public's ability to access cash, the distance to cash services has been little changed in recent years, with Bank@Post outlets supporting ease of access. The acceptance of cash for payments by merchants remains at a high level, although it is a little lower than prior to the pandemic. As such, we assess that the cash-use cycle in Australia is functioning adequately.

Nevertheless, the data point to some vulnerabilities in the cash system. Some communities, particularly in non-metropolitan areas, are increasingly susceptible to a decline in cash access if there were to be further removal of cash access points. Furthermore, a substantial share of merchants indicated plans to discourage cash payments at some point in the future. The Bank will continue to monitor these trends. ✠

Graph 10

Consumers' Payment Acceptance Experience

Within the past month

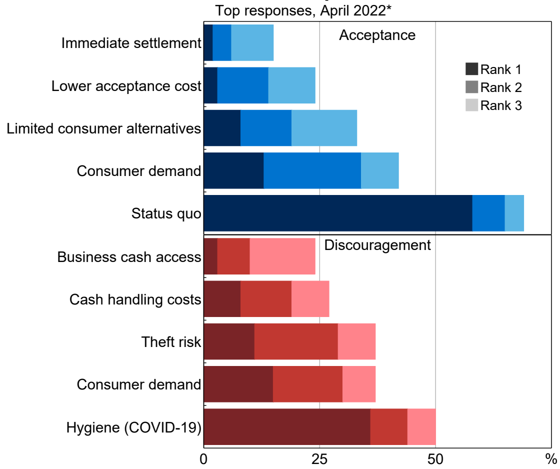


Source: RBA

Graph 11

Reasons for Cash Acceptance and Refusal

Top responses, April 2022*



* Sum of top three ranked responses from surveyed businesses; only top five categories shown.

Source: RFI Global

Endnotes

[*] The authors are from Note Issue Department. Thanks to Zan Fairweather who contributed to early work on merchant cash acceptance, and to Jay Narayanan, Jack Mulqueeney and Varsha Patel for assisting with data collection.

[1] Cash and banknotes are used interchangeably in this article. Although coins are also part of cash, the Royal Australian Mint is responsible for issuing Australia's circulating coinage.

[2] Wholesale cash distribution was the main topic of the Review and is not covered here (RBA 2022a).

[3] Specifically, if the marginal cost of accepting a cash payment from an additional customer exceeds the marginal benefit of making that sale, then a business may decide to stop accepting cash.

[4] The data and the methodology used here are discussed in further detail in Caddy and Zhang (2021).

[5] Businesses were randomly selected from the universe of all registered and active Australian businesses according to the Australian Business Register in May 2022. Businesses that did not have a physical storefront or did not sell goods and services of a retail nature were excluded from the sample.

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