

Acceptance and Use of Payments at the Point of Sale in Canada

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- Using data from two recent surveys conducted by the Bank of Canada, this article studies how consumers and merchants interact with each other to determine which payment methods are accepted and used at the point of sale.
- Merchants in Canada almost universally accept cash. While nearly all large businesses accept debit and credit cards, only two-thirds of small or medium-sized businesses do. Our analysis suggests that merchant's perceptions and the costs they incur from accepting payment methods are not the only factors that determine which methods they accept. Merchants also consider which payment methods consumers are likely to carry and prefer.
- Most consumers carry cash as well as debit cards and credit cards—their perceptions and the costs of using a specific payment method seem to have only a small influence on which ones they carry.
- Given that most merchants accept several methods, it is mainly consumers who determine which they will use. We find that cash is still widely used, especially for small-value transactions, even at large businesses that accept cash and cards. Debit cards are used mainly for medium-value transactions and credit cards for large-value transactions.
- These findings highlight the importance of the interaction between consumers and merchants as well as network externalities in a two-sided market.

In Canada, consumers pay for transactions using several payment methods, including cash, debit cards and credit cards. As the sole issuer of bank notes in Canada, the Bank of Canada has an interest in conducting surveys to determine which payment methods consumers prefer to use at the point of sale (POS) to track the evolution of cash use.¹ Research based on these consumer surveys found that the share of cash payments is decreasing in

◀ *The Bank of Canada has an interest in conducting surveys to track the evolution of the use of cash*

¹ See Arango and Welte (2012) and Henry, Huynh and Shen (2015) for more information about the method-of-payment surveys conducted by the Bank of Canada in 2009 and 2013, respectively.

terms of value and volume (Arango et al. 2012; Fung, Huynh and Stuber 2015). To better understand the replacement of cash by cards and other payment methods, the Bank of Canada undertook another survey in 2015 on the costs Canadian merchants incur when they accept payments.²

The goal of this article is to combine data from two of the Bank's recent surveys to analyze how consumers and merchants in Canada interact with each other to determine POS payment methods. This is necessary because the payments market is two-sided, with a distinct user group on each side.³ On one side, consumers choose a payment method among those the merchant will accept. Consumers can also favour stores that accept their preferred method. On the other side, merchants will likely accept payment methods that help them attract customers, even if they are costlier or less preferable than other payment methods.

We begin with a brief description of the methodology used in the surveys. We then discuss perceptions and the costs of different methods, as well as their acceptance by merchants and adoption by consumers. Next, we turn to a discussion of how merchants and consumers interact with one another to determine payment outcomes. We end with a discussion of future work.

Survey Methodology

Merchant survey

The objective of the 2015 Retailer Survey on the Cost of Payment Methods (RSCPM) was to collect information from merchants about the payment methods they accepted at the POS in 2014 and the costs of accepting these methods, with a focus on cash, debit cards and credit cards (**Box 1**). Details of the survey objectives and measurement are available in Kosse et al. (2017). Merchants are diverse, so the data were collected based on merchant size, sector and region. For sectors, we focused on the retail trade, the food and accommodation sector, and personal service providers such as dry cleaners and hair stylists. For size, we segmented the merchants into two broad categories: (i) small and medium-sized businesses (SMBs), which have a single store and employ fewer than 50 people, and (ii) large businesses (LBs), which have a single store with more than 50 employees or have multiple locations. Details about the sampling framework, questionnaire, response rate and coverage are discussed in Welte (2017).

Consumer survey

The Bank of Canada regularly conducts surveys to study the use of different methods of payment, the most recent of which was conducted in 2013.⁴ The 2013 Methods-of-Payment (MOP) Survey consisted of two parts: a questionnaire that asked for detailed demographic information about the respondent and a diary that captured a respondent's transactions during a three-day period. Henry, Huynh and Shen (2015) provide a detailed discussion of the 2013 MOP Survey and the results.

² This survey was one of the main components of the wider cost-of-payments study that included consumers, merchants, financial institutions and infrastructure providers (for example, cash-in-transit companies), the Bank of Canada and the Royal Canadian Mint. Results of this study are available in Kosse et al. (2017). The Bank also conducted a smaller-scale study on the costs of accepting payments by retailers in 2006; see Arango and Taylor (2008).

³ Rysman (2009) offers an in-depth explanation of two-sided markets.

⁴ The Bank of Canada is now conducting the 2017 MOP survey, and the results will be available in 2018.

Box 1

The 2015 Retailer Survey on the Cost of Payment Methods

The 2015 Retailer Survey on the Cost of Payment Methods (RSCPM) collected 900 responses from small and medium-sized businesses (SMBs), and sample weights were constructed to create a representative sample.¹ As well, 169 large businesses (LBs) responded.² Based on the sampling frame of the survey, the LB responses accounted for almost two-thirds of point-of-sale (POS) turnover at Canadian LBs. For a detailed discussion of the sampling methodology used for SMBs and LBs, see Chen and Shen (2017) and Jiongo (2017), respectively. Hatko (2017) discusses the methodology used to account for unit non-response (not answering a survey) and item nonresponse (omitting survey questions).

Table 1-A shows that the characteristics of the SMB and LB samples for sales, employees and payment infrastructure are quite different. Half of SMBs have sales of less than \$375,000 and fewer than four employees. The median sales

and the median number of employees for LBs are much higher at \$2,426,508 and 85 people, respectively. More than half of SMBs have one POS terminal and one cash register, which is considerably fewer than for LBs. In terms of cash holdings, half of the SMBs that responded hold less than \$300 of cash on hand compared with a median cash holding of \$1,800 among LBs.

Table 1-A: Merchant characteristics and infrastructure (median)

	SMB	LB
Total annual sales	\$375,000	\$2,426,508
Number of employees	4	85
Point of sale terminals	1	6
Cash registers	1	3.5
Cash holdings	\$300	\$1,800

Notes: SMB means small and medium-sized business. LB means large business.

Source: 2015 Retailer Survey on the Cost of Payment Methods

- 1 Only 826 of the responses from SMBs were usable for analysis.
- 2 This includes 114 large independent businesses and 55 chains.

Merchant Acceptance, Stated Perceptions and Costs

Since a payment method can be used only if it is accepted at the POS, the merchant plays a large role in the evolution of the use of cash and other payment methods. Using data from the 2015 RSCPM, we examine how merchants' choices are influenced by their stated perceptions and the costs of various payment methods at the POS.

◀ *Merchants play a large role in the evolution of the use of cash and other payment methods*

Merchant acceptance

Canadian merchants were asked to report which of the following payment methods they accepted: cash, debit cards, credit cards, store-branded prepaid gift cards, cheques, mobile payments and even bitcoin (Table 1). As expected, cash is almost universally accepted, by 94 per cent of SMBs and 98 per cent of LBs. Debit and credit card acceptance by LBs is also nearly universal, at around 98 per cent, while card acceptance by SMBs is considerably less frequent, at approximately only 67 per cent. When merchants accept cards, they tend to accept both debit and credit cards. Overall, LBs accept cash, debit cards and credit cards at similar rates, while SMBs are more likely to accept cash than cards.⁵

Among SMBs, cash and card acceptance varies across industries and locations. Venues that offer accommodation or food have the highest acceptance of both cash and cards. While cash is uniformly accepted across the country, cards are accepted most often in Ontario and the Atlantic provinces and least often in Quebec.

⁵ Prepaid store-branded gift cards are accepted by more than half of LBs and by only 22 per cent of SMBs. More than 60 per cent of merchants accept cheques, although their use has continued to decline in recent years. In contrast, personal service providers (e.g., dry cleaners, hair stylists) have the lowest acceptance of cards. However, 78 per cent of these merchants still accept cheques, which is the highest among all sectors. Very few merchants accept newer payment methods, such as mobile payments and bitcoin, reflecting the low adoption and use of these payment methods by consumers.

Table 1: Merchant payment acceptance (percentage)

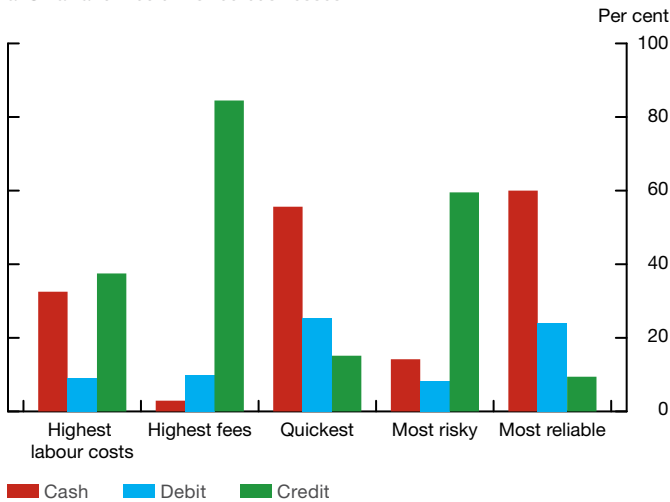
	Cash	Debit	Credit	Cheques	Prepaid	Mobile	Bitcoin
By size							
SMBs	94	67	66	64	22	5	2
LBs	98	97	98	63	54	8	2
By industry (SMBs only)							
Specialized retail stores	93	75	72	66		6	1
General retail stores	98	69	64	63		8	1
Accommodation and food places	98	74	72	37		5	1
Personal service providers	92	56	59	78		3	3
By region (SMBs only)							
Atlantic	95	75	73	71		3	2
Quebec	91	59	56	59		4	1
Ontario	96	73	73	59		3	1
Prairies	93	64	68	77		4	5
British Columbia	94	66	60	70		11	0

Notes: Only the results of small and medium-sized business (SMBs) are further broken down by industry and region because many large businesses (LBs) operate in more than one industry and in more than one province. "Prepaid" refers to store-branded prepaid gift cards.

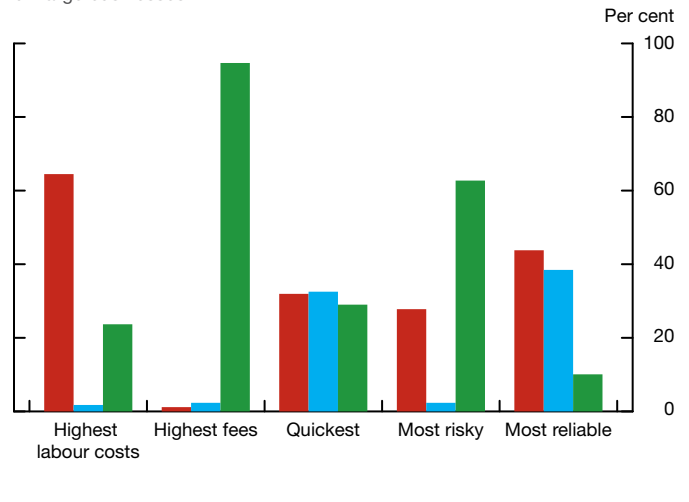
Source: 2015 Retailer Survey on the Cost of Payment Methods

Chart 1: Merchants' stated perceptions of payment methods

a. Small and medium-sized businesses



b. Large businesses



Note: These figures present the percentage of merchants in the sample who selected each method of payment as being the most costly in terms of labour or fees, most reliable, most risky in terms of fraud and safety, and quickest at the point of sale.

Source: 2015 Retailer Survey on the Cost of Payment Methods

Merchants' stated perceptions

In the 2015 RSCPM, merchants were asked to indicate their perceptions of the following five attributes of payment methods, such as cash, debit cards and credit cards: labour costs, fees, reliability, safety and speed. **Chart 1a** and **Chart 1b** show the stated perceptions of these five attributes according to both SMBs and LBs.⁶

⁶ All charts and tables in this paper are weighted to be representative of the relevant Canadian population.

SMBs perceive debit cards to have the lowest labour costs and to be the least risky in terms of fraud, while cash is perceived to have the lowest fees and to be the most reliable (the least sensitive to malfunctioning) and fastest. SMBs perceive credit cards to be the least preferred in all five of the attributes. LBs perceive debit cards to be the least costly in terms of labour, the least risky, and the fastest in terms of the speed of the transaction at the counter.⁷ While they perceive cash to be the least costly in fees and the most reliable, they also perceive cash to be the most expensive in terms of labour. LBs also perceive credit cards to be the most expensive in fees, the riskiest, the least reliable and the slowest.

Accordingly, merchants are likely to prefer cash and debit cards. Overall, these perceptions are quite consistent across sectors and locations.

◀ Merchants, across sectors, are likely to state that they prefer cash and debit cards

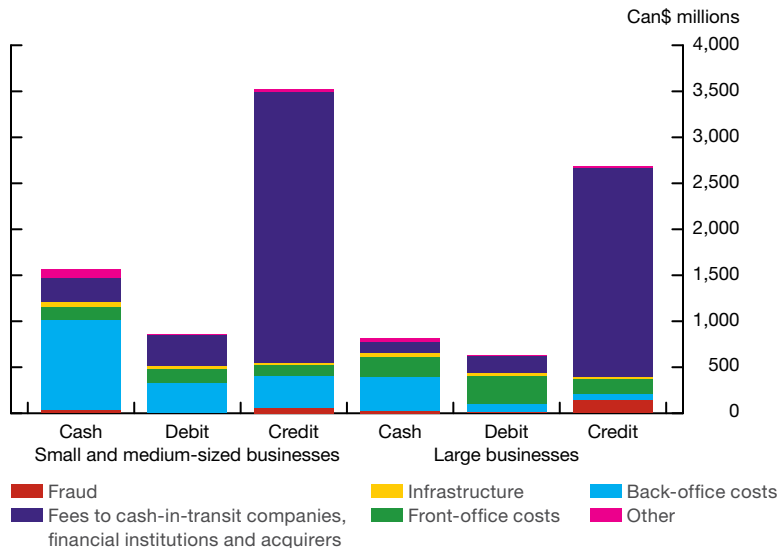
Costs of payment methods to merchants

Merchants incur costs for accepting each payment method. Their total private costs include both the resources they employ (i.e., time spent on payments administration) and fees they pay to other parties (i.e., transaction fees paid to payment processors).⁸ In 2014, it cost Canadian merchants \$10 billion to accept payments at the POS. The majority, \$6.2 billion, was incurred for accepting credit cards, followed by \$2.4 billion for cash and \$1.5 billion for debit cards.

The composition of costs varies among payment methods and with merchant size. For credit cards, processing fees accounted for most of the costs (Chart 2). For cash, the greatest expense was on back-office functions, such as time spent counting cash and depositing it in the bank. This component is especially high for SMBs, which suggests differences in the way merchants deal with their back-office activities. For example, SMBs might prefer to deposit their cash receipts at their bank on a daily basis.

Chart 2: Total private cost by cost item

By merchant size

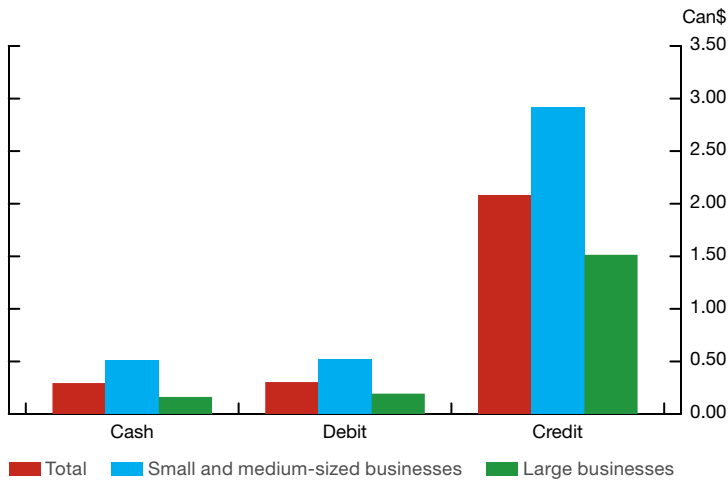


Source: 2015 Retailer Survey on the Cost of Payment Methods

⁷ Labour costs include time spent on processing payments at the cashier and on back-office activities such as counting and depositing cash receipts.

⁸ In this article, all cost measures refer to the private costs to merchants. In the literature, another cost measure is the resource cost, which differs from the private cost by excluding the fees paid to another party. For a more detailed discussion of these cost measures, see Kosse et al. (2017).

Chart 3: Average private cost per transaction

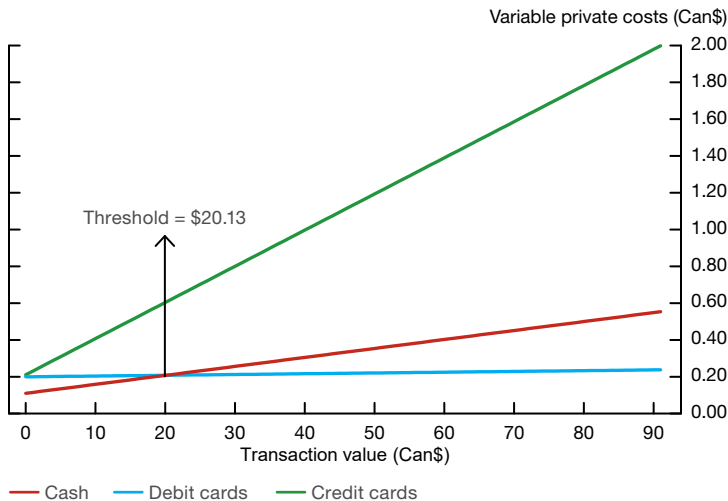


Note: The average private cost per transaction for each method of payment is calculated by dividing the private cost incurred by the number of transactions.

Source: 2015 Retailer Survey on the Cost of Payment Methods

Chart 4: Variable private costs by transaction value

All merchant sizes



Source: 2015 Retailer Survey on the Cost of Payment Methods

For debit cards, back-office costs and fees to payment processors are the largest cost components for SMBs, whereas front-office time costs make up the largest share for LBs.

The average cost per transaction is the highest for credit cards at \$2.08, compared with \$0.29 for cash and \$0.30 for debit cards (Chart 3). For each payment method, SMBs incur a higher average transaction cost than LBs do. In the case of credit cards, it costs SMBs almost twice as much as it does LBs, likely because of economies of scale.⁹

Chart 4 shows that the cost of a cash or credit card transaction increases with the transaction value. In the case of cash, this is because more bank notes are involved in large-value transactions. For a payment by credit card,

◀ The cost to merchants of a cash or credit card transaction increases with the transaction value, but it is constant for debit cards

⁹ Cash is used mainly for small-value transactions, and the median credit card transaction value for SMBs is almost twice as much as that for LBs. See Kosse et al. (2017) for a comparison of the costs with the value of transactions.

this is because the merchant fee is proportional to the amount paid. However, the cost of a debit card transaction is constant. **Chart 4** also shows that, ignoring fixed set-up costs, such as investments in terminals, cash is the cheapest payment method for merchants for purchases up to around \$20, whereas debit cards are the least costly for transactions greater than \$20.¹⁰ Credit cards are the costliest for all transaction values. Based on the variable costs alone, merchants would prefer consumers to use cash for small purchases and debit cards for large purchases.

The stated perceptions of LBs suggest that they prefer debit cards over cash and credit cards. LBs prefer debit cards because they have similar average transaction costs as cash in general and are cheapest for purchases larger than \$20. Notwithstanding their preferences and costs, LBs accept cash, debit cards and credit cards almost universally. And while fewer SMBs accept cards, those that do accept debit and credit cards at a similar rate, even though costs and stated perceptions would favour debit cards.

These results suggest that merchant perceptions and costs are not the only factors that determine their acceptance of payment methods.

Consumer Adoption, Perceptions and Costs

Consumers first choose which payment methods to carry and then which method to use at the POS. Using the results of the 2015 RSCPM and the 2013 MOP Survey, this section studies whether consumer perceptions of and costs for making a payment at the POS affect their decision about which payment methods they carry.

Consumer adoption

Most consumers in Canada have access to several payment methods they can use at the POS, including cash, debit cards and credit cards. Based on the 2013 MOP Survey, more than 87 per cent of Canadians carry cash in their wallets, while 86 per cent carry a debit card and 83 per cent carry a credit card.¹¹

Consumer perceptions

In the 2013 MOP Survey, consumers were asked to indicate their perceptions regarding various aspects of different payment methods. Fung, Huynh and Stuber (2015) reported that consumers rated cash as considerably less costly and more secure than debit and credit cards. However, consumers considered all three payment methods to be about the same in terms of ease of use and acceptance and noted only a relatively small difference in terms of acceptance of cash and cards.

Consumer costs of payment

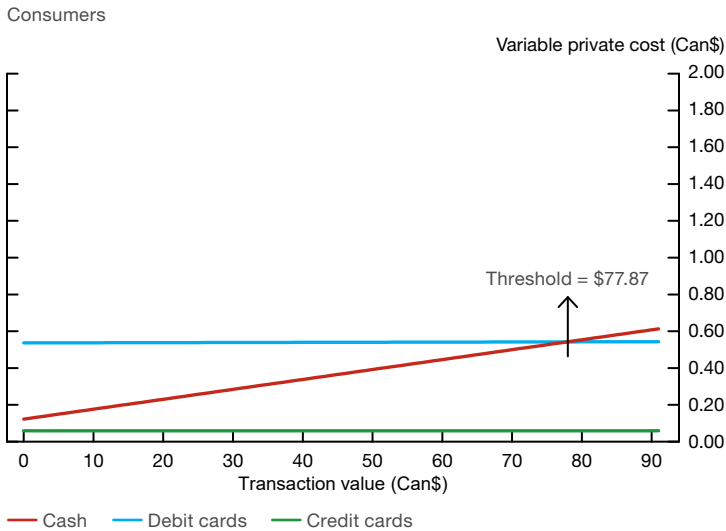
Based on the 2015 RSCPM, Canadian consumers incurred a total cost of \$5.5 billion from POS payments in 2014, with the majority arising from debit cards (\$2.9 billion) and cash (\$2.2 billion). Consumers incurred the least costs from credit cards (\$0.4 billion), of which the main cost items are annual credit card fees and the time needed to carry out the payments.¹²

¹⁰ The threshold for LBs is slightly higher than that for SMBs. For a more detailed discussion of the chart and its calculation, see Kosse et al. (2017).

¹¹ These results are based on the 2013 MOP diaries. Ownership is higher for debit cards; however, consumers do not necessarily carry all the payment methods they own in their wallet.

¹² Interest costs of credit cards to consumers are excluded in the 2015 RSCPM since the focus of the study is on the use of credit cards as a method of payment and not as a source of credit.

Chart 5: Variable private costs by transaction value



Sources: 2013 Methods-of-Payment Survey and other sources described in Kosse et al. (2017)

Most of consumer costs for cash came from withdrawal fees, followed by time spent withdrawing cash from automated banking machines and using it at the POS.¹³ For debit cards, transaction fees paid to financial institutions and time spent at the counter making the transaction constitute the main cost items.

Chart 5 shows that, at the transaction level, the costs of making an additional cash payment vary with the transaction size, while the costs of credit card or debit card payments do not because they mainly consist of the time costs associated with these transactions. Debit cards, however, are more expensive than credit cards because consumers are often charged a fixed fee for each transaction. Thus, consumers incur the lowest cost when using credit cards, whereas they pay the highest cost when using debit cards, except for transactions greater than \$78, for which cash is most expensive.¹⁴

Consumers perceived cash as less costly than debit cards. This perception is in line with the actual relative costs incurred by consumers. Yet, consumers are almost equally likely to carry cash or a debit card.¹⁵ A slightly lower percentage of consumers carry a credit card.¹⁶ Overall, consumer perceptions and costs seem to have only a small influence on the payment methods they carry. However, these factors could have a bigger influence on the payment method they use when making a purchase.

The Use of Cash and Cards at the Point of Sale

This section discusses the use of cash and cards at the POS in terms of the number and value of transactions. Table 2 reports the payment shares of cash, debit cards and credit cards by volume and value, calculated using the total number and value of transactions reported by merchants in the

◀ Consumers incur the lowest costs when using credit cards and the highest when using debit cards, except for transactions greater than \$78, when cash is most expensive

◀ Mainly used for small-value transactions, cash has the highest volume share and the smallest value share for merchants

¹³ Costs of cash to consumers also include forgone interest for holding cash.

¹⁴ For more details about the calculation, see Kosse et al. (2017).

¹⁵ Access to cash and debit cards is almost universal. More than 98 per cent of Canadians have a bank account, which typically comes with a debit card.

¹⁶ Only 82 per cent of Canadians hold a credit card, according to the results of the 2013 MOP Survey (Henry, Huynh and Shen 2015). Some consumers may not qualify for a credit card, and some may choose not to apply for one because of annual fees or concerns of getting into debt.

Table 2: Payment shares in the 2015 RSCPM (percentage)

	Volume			Value		
	Cash	Debit	Credit	Cash	Debit	Credit
All merchants	51	31	19	24	34	42
By size						
SMBs	54	27	18	26	29	45
LBs	48	33	19	22	39	40
By industry (SMBs)						
Specialized retail stores	47	32	21	22	29	48
General retail stores	64	28	8	32	35	33
Accommodation and food places	62	22	16	38	23	38
Personal service providers	51	24	25	23	28	49
By region (SMBs)						
Atlantic	60	28	13	38	29	33
Quebec	56	27	17	25	32	43
Ontario	60	23	17	30	22	48
Prairies	50	31	20	22	34	43
British Columbia	46	31	23	21	30	49

Notes: This table presents the proportion of the total value and number of transactions by each method of payment. Percentages may not always add up to 100 per cent because of rounding. The shares by industry and region are for small and medium-sized businesses (SMBs) only. LBs means large businesses.

Source: 2015 Retailer Survey on the Cost of Payment Methods

Table 3: Median transaction value by size, industry and region (Can\$)

	Cash	Debit	Credit
All merchants	8.04	28.33	43.85
By size			
SMBs	10.00	25.00	33.33
LBs	4.66	31.52	46.17
By industry (SMBs)			
Specialized retail stores	14.08	27.73	38.54
General retail stores	4.80	31.22	69.94
Accommodation and food places	5.75	16.89	25.56
Personal service providers	15.00	54.25	12.18
By region (SMBs)			
Atlantic	9.00	27.73	38.69
Quebec	10.00	29.03	41.89
Ontario	10.00	20.00	40.07
Prairies	11.17	41.29	33.35
British Columbia	7.27	19.82	23.45

Note: SMBs means small and medium-sized businesses. LBs means large businesses.

Source: 2015 Retailer Survey on the Cost of Payment Methods

2015 RSCPM.¹⁷ Cash has the highest volume share (51 per cent) and the smallest value share (24 per cent), showing that consumers use cash mainly for small-value transactions. Merchants reported that more transactions were paid with debit cards (31 per cent) than with credit cards (19 per cent) at their stores, although the value share for credit cards was higher. The payment shares for SMBs and LBs are generally similar.

Table 3 shows the median transaction values (MTVs) for cash and cards from the 2015 RSCPM. The cash MTV for LBs (below \$5) is about half of that of SMBs (\$10), while the debit card and credit card MTVs for LBs are larger than those for SMBs. MTVs for cash and cards vary across sectors and locations; however, the overall pattern is similar.

These results indicate that cash is used mainly for small-value transactions, debit cards for medium-value purchases and credit cards for large-value purchases.

Making a Payment in a Two-Sided Market

We have discussed merchant acceptance and consumer adoption of payment methods as well as the actual use of cash and cards at the POS. A remaining question is “what determines which payment method is used for a given transaction at the POS?” Our analysis suggests that there is an interaction between consumers and merchants in which the value of the purchase and the size of the merchant play important roles.

¹⁷ Payment shares can also be calculated using the transaction data reported in the three-day consumer diaries in the 2013 MOP Survey. The results are similar to Henry, Huynh and Shen (2015).

First, merchants decide which payment methods they will accept. The survey results show that merchant perceptions and costs are not the only factors that influence their decisions. Indeed, merchants also consider what payment methods consumers are likely to carry and prefer. Even though credit cards are most costly to merchants, especially for SMBs, and perceived to be less reliable, less safe and slower, almost all LBs and about two-thirds of SMBs accept credit cards. Also, merchants who accept debit cards usually also accept credit cards and vice versa. This suggests that, in addition to preferences and costs, completing a sale with a payment method that consumers prefer to use is also very important for merchants.

Second, once merchants have decided which payment methods to accept, they have relatively limited influence on the use of payment methods at the POS.¹⁸ It is mainly the consumers who decide what payment method to use. Many consumers still carry cash in their wallets. However, since cash transactions are more expensive to consumers than credit card payments, one would expect that a consumer who has a credit card would use it whenever it is accepted and use cash only when cards are not accepted.¹⁹ Similarly, consumers would prefer to use debit cards over cash only for large-value transactions if accepted by the merchant.

Survey results, however, indicate that cash dominates cards for small-value transactions with an MTV of about \$8, considerably smaller than that of cards. Consumers choose to use cash for small-value transactions, even at LBs where card acceptance is almost universal. This suggests that the cost is just one consideration for consumers; they may prefer to use cash given consumer payment habits, perceived security or the speed and convenience of using cash for small-value transactions; see, for example, Wakamori and Welte (2017).

For large-value transactions, consumers also have a strong influence on the use of payment methods. Merchants generally prefer debit cards to cash and credit cards because they are the least expensive and most secure. Credit cards are the costliest to merchants, especially for SMBs, and the cost of accepting credit cards increases with the transaction value. Yet, our results suggest that debit cards were mainly used for medium-value transactions and credit cards for large-value purchases. Consumers prefer to pay for their large-value transactions with credit cards likely because they need only pay their card balances later when they are due and they can earn higher rewards.²⁰

The above analysis points to an important interplay between consumers and merchants, which is particularly prominent with respect to credit card use. As more consumers have and prefer to use credit cards, there is a higher incentive for some merchants to accept them. LBs, which generally face a lower cost than SMBs, tend to take the preferences of consumers into consideration by accepting credit cards for all transactions.

This interaction between consumers and merchants is typical for two-sided markets. The dominance of cash for small-value transactions might be because consumers prefer to use cash. But it could also be because merchants have influenced the use of payment methods for these small

◀ *Credit cards are the costliest to merchants, especially for small and medium-sized businesses*

¹⁸ In the future, it would be useful to study whether SMBs attempted to steer consumers to pay with cash, for example, by offering discounts and to use credit cards only for large-value purchases; see, for example, Welte (2016).

¹⁹ Other reasons for consumer preference for using credit cards are to gain rewards or other benefits, obtain short-term credit or for record-keeping.

²⁰ Bilyk and Peterson (2015) use 15 years of microdata from the *Canadian Financial Monitor* and find that consumers are increasingly using credit cards for payment methods relative to short-term borrowing.

transactions, for example, by applying a minimum purchase amount for card payments or by not accepting cards at all, as in the case of some SMBs. This observation is consistent with the finding in Huynh, Schmidt-Dengler and Stix (2014) that the lack of universal acceptance of payment cards is a reason consumers still hold cash.

The popular use of credit cards for large-value purchases, despite their higher costs for merchants, also points to the importance of network externalities in the payment cards market. By offering various consumer incentives, credit card companies promote the adoption and use of credit cards by consumers. As more consumers are carrying and using credit cards, more merchants are encouraged to accept credit cards, and this increases merchant acceptance, which in turn increases the benefits to consumers of carrying and using credit cards (Rysman and Wright 2014). Arango, Huynh and Sabetti (2015) find that consumers who have a credit card with rewards are committed to paying with credit cards and that merchant acceptance is a strong determinant of credit card use. So, even though the cost of credit cards is high for merchants, some, especially LBs, are willing to bear the higher cost to avoid losing sales. However, for some SMBs, the cost of a transaction may be higher than the benefits, especially for small-value transactions, so they would rather forgo the sale and not accept credit cards, or they accept credit cards only for large-value transactions.

Looking ahead, there are two important developments of note. First, the increased use of innovations such as contactless cards, especially for small-value transactions at the POS, will continue to displace cash (Fung, Huynh and Sabetti 2014; Chen, Felt and Huynh 2017). As merchant acceptance of contactless payments increases, consumers may use their debit and credit cards more frequently, accelerating the decline in the use of cash because of network externalities resulting from payment innovations. Second, the increasing popularity of Interac e-Transfer will reduce the reliance on cash for person-to-person payments.²¹ Again, as more consumers use e-Transfer, the effect of network externalities could result in rapid acceleration in the use of this payment method.

◀ *As merchant acceptance of contactless payments increases, consumers may use debit and credit cards more frequently, accelerating the decline in the use of cash*

Conclusion

Recent research by the Bank of Canada using consumer and merchant surveys has highlighted the continued role of cash as a popular means of payment, especially for small-value transactions. In the future, innovations in retail payments are likely to compete with and replace cash in these areas. Since the payments market is two-sided, consumers and merchants interact to determine the use of payment methods at the POS. This highlights the importance of studying both consumer use and merchant acceptance simultaneously. This paper has made a first step in that direction. A next step would be to build models of payments that further study the two-sided markets and the role of network externalities. In addition, these models could be amended to understand where consumers shop and how much they purchase given the payment acceptance of merchants. This analysis is beyond the scope of this article. The data collected from our consumer and merchant surveys will allow us to pursue this important research in the future.²²

²¹ Fung, Huynh and Stuber (2015) report that cash is still used frequently for person-to-person payments and accounts for two-thirds of these transactions. This may change, however, because Interac e-Transfer (typically free to receive and now free to send from some banks) has grown significantly in recent years. For example, according to Interac, Canadians made 158 million e-Transfers worth \$63 billion in 2016, an increase of more than 40 per cent from 2015.

²² This type of research will also provide information about payment efficiency and the role of credit card companies and POS steering incentives in promoting credit card use and acceptance. Rysman and Wright (2014) discuss a detailed evaluation of the theoretical and empirical results and possible policy options.

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