BANK OF CANADA
BANQUE DU CANADA

Staff Discussion Paper/Document d'analyse du personnel — 2020-8

Last updated: August 31, 2020

2019 Cash Alternative Survey Results

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ISSN 1914-0568

Acknowledgements

We are grateful to Heng Chen, Walter Engert, Ben Fung, Ted Garanzotis, Scott Hendry, Charles Kahn, David Laferriere, Francisco Rivadeneyra and various participants of conferences and seminars for providing comments. We acknowledge the efforts of the Ipsos team of Shelley Edwards, Lisa Canini, Carolyn DiMaria and Sasha Rozhnov. Thanks to Valérie Clermont and Geny Komery-Felice for project management to keep us on time and budget. We thank Meredith Fraser-Ohman for providing excellent editorial assistance. All prices are reported in Canadian dollars (CAD) unless otherwise noted. Errors are solely the responsibility of the authors. The views expressed in this paper are those of the authors and do not necessarily represent the views of the Bank of Canada.

Abstract

The role of cash in Canadians' lives has evolved over the past decade. During this period, two diverging trends have emerged in Canada: the use of cash for transactions at the point of sale has declined, but overall demand for cash has increased. The 2019 Cash Alternative Survey was designed to study these trends and update the Bank of Canada's understanding of Canadians' use of cash. We asked Canadians about their cash holdings, planned future use of cash and views on how they would be affected if cash were to disappear. In addition to declining cash use, the emergence of privately issued digital currencies has motivated many central banks to conduct research into central bank digital currencies (CBDCs). We contribute to the Bank of Canada's research on CBDC by monitoring Canadians' use of cash and their adoption of digital payment methods. We find that Canadians' cash holdings are stable and the adoption of cryptocurrencies remains limited and concentrated in a few sub-demographics. Moreover, we find that few Canadians plan to stop using cash entirely and that a considerable share of them would find the disappearance of cash problematic.

Bank topics: Bank notes; Central bank research; Digital currencies and fintech; Econometric and statistical methods
JEL codes: C9, C12, E4, O51

1. Introduction

In Canada, the use of cash at the point of sale[1] (POS) has been declining in favour of digital methods of payment, such as debit and credit cards. In 2009, for example, Canadians used cash for 54 percent of their POS transactions, but this fell to 33 percent in 2017 (Henry, Huynh and Welte 2018). Canadians have an increasing variety of digital payment methods at their disposal, including mobile applications, Interac e-Transfer and cryptocurrencies. Further, the POS has become more digital as transactions are frequently completed through online commerce platforms. These trends suggest that the role of cash is evolving as Canada's economy continues to digitalize. In a recent speech, Bank of Canada Deputy Governor Tim Lane concluded, "…it is clear that technology is changing the world around us. And while we cannot perfectly predict the future, we can certainly plan for contingencies. This includes readying ourselves in case a decision is made some day to issue a Bank of Canada digital currency" (Lane 2020).

If the Bank of Canada were to issue a central bank digital currency (CBDC), several conditions would first need to be met. A CBDC could become beneficial or necessary if Canadians' use of cash declines to a sufficiently low level or if privately issued digital currencies become a widely used method of payment, store of value and unit of account (Bank of Canada 2020). A public policy case would then need to be established to outline the benefits of issuing a CBDC and assess the potential risks associated.

This paper contributes to the Bank's research on CBDC by reporting results from the 2019 Cash Alternative Survey (CAS). We use the CAS to monitor the state of cash holdings in Canada and gauge the extent to which Canadians plan to stop using cash in the foreseeable future. We also ask respondents their views on how they would be affected if cash were to disappear from the Canadian economy. Our research relates to the growing literature on CBDC. In 2019, Boar et al. (2020) surveyed 66 central banks and found that 80 percent were conducting research on CBDC. In Canada, Engert and Fung (2017) analyzed the motivations and implications of issuing a CBDC. They concluded that if a central bank were to issue a CBDC, it should proceed incrementally with caution and be mindful of the interdependencies across design features, such as bearing interest and the degree of anonymity. In January 2020, the Bank of Canada announced its participation in a working group to assess the use case for a CBDC with the Bank of England, Bank of Japan, European Central Bank, Sveriges Riksbank, Swiss National Bank and the Bank for International Settlements.[2]

The remainder of the paper is organized as follows: Section 2 reviews the design and methodology of the 2019 CAS. Section 3 updates the Bank's existing findings on Canadians' cash holdings and adoption of cryptocurrencies. Section 4 presents our new findings on cash use, with a particular focus on Canadians' views in the event a cashless society were to emerge. Based on our findings, we highlight three key takeaways. First, most Canadian consumers and merchants have no plans to stop using cash. Second, Canadians held a median of $70 of cash on hand, despite declining transactional use at the POS. Third, a sizable share of Canadians reported they would find the disappearance of cash problematic.

[1] This refers to all transactions conducted by Canadians in-store and excludes transactions made online, where cash does not play a role.
[2] See the Bank's website for more information.

2. Survey methodology

The 2019 CAS was conducted in August and September 2019. Respondents completed a survey questionnaire focused on their cash use, adoption of digital payment methods and views regarding the potential impact of cash disappearing from the economy. In this section, we discuss the design of the questionnaire and our survey weighting methodology.

The questionnaire was adapted from other surveys conducted by the Bank of Canada, including the 2017 Methods-of-Payment (MOP) Survey and the 2018 Bitcoin Omnibus Survey (BTCOS). Additionally, several questions related to the impact of cash disappearing were inspired by the United Kingdom's *2019 Access to Cash Review*. In total, the survey consisted of 11 questions.

To minimize bias and improve the comparability of our estimates over time, we used calibration weights to match our sample with the sociodemographic composition of the Canadian population. Using population totals from the 2016 Census, we calibrated our sample on age, gender, region, education, marital status, employment status and income. This methodology was developed from the 2018 BTCOS, and more details are available in Appendix A.2 of Henry et al. (2019).

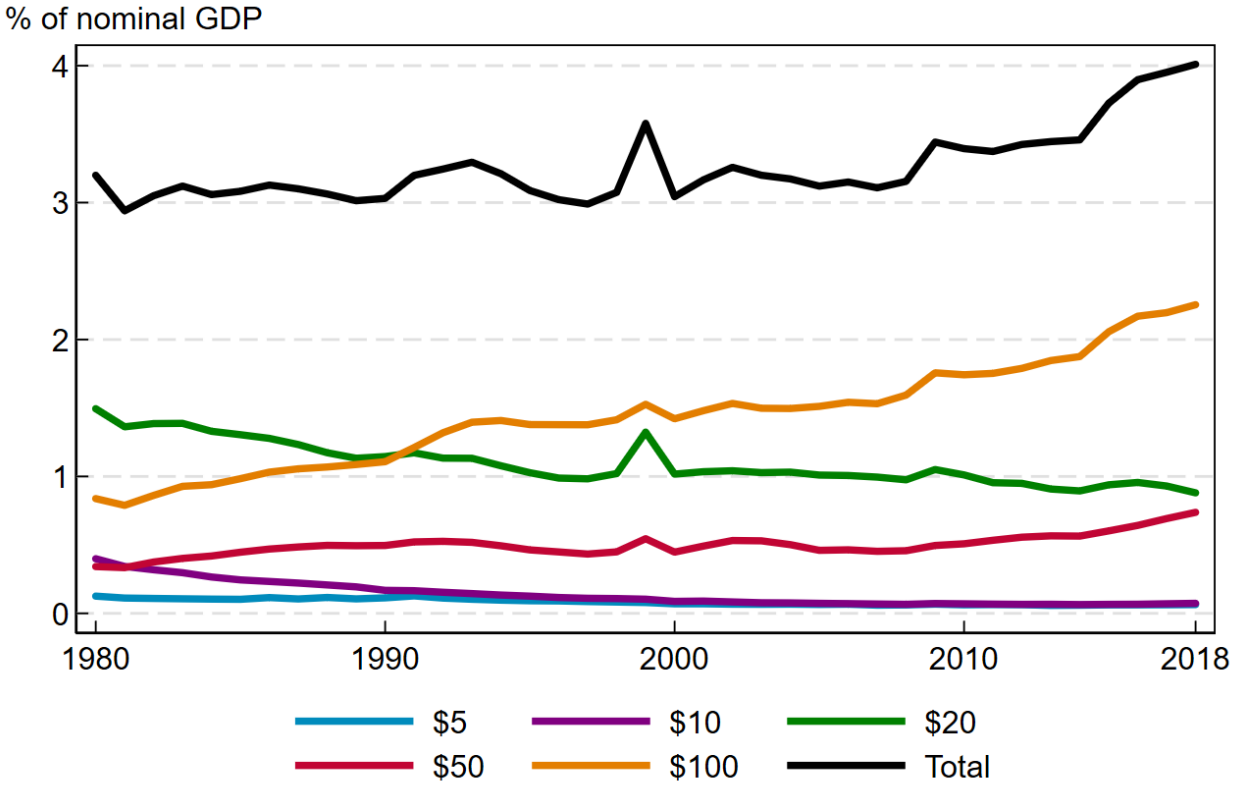
The 2019 CAS is a non-probability survey, sampled from an opt-in panel. As such, we follow the guidelines outlined in Baker et al. (2013) and do not report margins of error because they cannot be computed reliably for non-probability surveys.

3. Cash and cryptocurrencies in 2019

Cash use at the POS has decreased since 2009 in favour of digital payment methods—mainly debit and credit cards. In particular, credit cards made up nearly 40 percent of transactions at the POS in 2017 compared with 20 percent in 2009 (Henry, Huynh and Welte 2018). Similarly, a growing array of digital payment innovations have been adopted by Canadians. For example, Henry, Huynh and Welte (2018) estimate that in 2017, 57 percent of Canadians used Interac e-Transfer to make a purchase from a retailer and 54 percent used this same digital method to make a person-to-person transaction. Regarding cryptocurrencies, Henry et al. (2019) estimate that most Canadians had heard of Bitcoin (89 percent) while 5 percent had adopted it as of 2018. Given the necessary conditions for issuing a CBDC noted earlier, we focus on trends in cash holdings and cryptocurrency adoption in the 2019 CAS.

While cash use at the POS is declining, cash is not disappearing from the Canadian economy. Overall demand for cash, as measured by the total value of cash in circulation as a share of nominal gross domestic product, has remained stable and increased in recent years (Engert, Fung and Segendorf 2019). Notably, Canadian cash in circulation is demand-driven. The Bank of Canada issues cash in the form of bank notes in response to demand from consumers, merchants and financial institutions. Hence, we measure overall demand for cash with the aggregate value of cash in circulation (**Chart 1**). Small-value notes ($5 and $10) constitute a very minor share of overall demand for cash. Additionally, the share of $20 bank notes in circulation has been steadily decreasing over time. In contrast, large-value notes ($50 and $100) account for a large and growing share of overall cash demand.

Chart 1: **Canadian bank notes in circulation over nominal GDP, 1980–2018**



Note: Total value of all Canadian bank notes in circulation, by denomination, divided by Canada's annual nominal gross domestic product (GDP)

Sources: Statistics Canada, Bank of Canada and authors' calculations Last observation: December 2018

The trends in overall cash demand highlight the need to analyze Canadians' cash holdings from both transactional and non-transactional perspectives. Accordingly, we distinguish between cash on hand (COH) and other cash holdings (OCH). COH includes cash that Canadians have in their wallets, purses or pockets while OCH refers to cash that Canadians have stored elsewhere, such as in their car, home or other safe location. **Table 1** presents median cash held as well as the share of each denomination of bank note held by those holding cash.[3] In the 2019 CAS, we find that 20 percent of Canadians had no COH, while 71 percent reported no OCH. In terms of value, we find that Canadians hold a median of $70 in their COH and $185 in their OCH. Together, these findings suggest that typical Canadians still have cash on hand despite the declining use of cash at the point of sale for transactions. Furthermore, the value of Canadians' OCH is significantly larger than their COH, which provides some evidence of demand for non-transactional cash. With that said, survey responses to questions on cash holdings may be under-reported, as respondents could have privacy or other concerns about stating the true value of their cash holdings.

We drill down further by examining differences across denominations in Canadians' COH and OCH.

[3] Angrisani, Foster and Hitczenko (2018) suggest trimming the highest 2 percent of observations when computing mean cash holdings. Rather than adopting a position on a trimming parameter, we report the median as a more robust measure for both COH and OCH in the 2019 CAS. Note that estimates in **Table 1** are computed only among those

Table 1 reports the share of Canadians holding at least one bank note, by denomination, in their COH or OCH. We find that Canadians are more likely to hold small, transactional bank notes in their COH and larger, non-transactional bank notes in their OCH. We estimate that 73 percent of Canadian cash holders typically hold a $5 bank note in their COH and 59 percent hold a $10 bank note. In Canadians' OCH, these

Table 1: Canadians' estimated cash holdings, 2019

	Cash on hand	Other cash holdings
Median	$70	$185
Mean	$136	$460
	Proportion holding zero cash in:	
	Cash on hand	**Other cash holdings**
Share	20%	71%
	Proportion holding each denomination in:	
	Cash on hand	**Other cash holdings**
$5	73%	46%
$10	59%	37%
$20	78%	65%
$50	23%	44%
$100	11%	35%

Note: Cash on hand (COH) refers to cash in Canadians' wallets, purses or pockets. Other cash holdings (OCH) refers to cash stored in Canadians' houses, cars or other safe locations. All estimates were calculated conditional on those who reported positive cash holdings.

shares are 46 percent and 37 percent, respectively. In contrast, we estimate that 23 percent of Canadians hold a $50 bank note in their COH and only 11 percent hold a $100 bank note. For OCH, these figures are 44 percent and 35 percent, respectively.

The 2019 CAS was also designed to complement the Bank's annual Bitcoin Omnibus Survey by studying Canadians' awareness and ownership of cryptocurrencies. We estimate that 84 percent of Canadians have heard of cryptocurrencies and 5 percent own cryptocurrencies. In comparison, the 2018 BTCOS found 89 percent of Canadians have heard of Bitcoin, with 5 percent owning Bitcoin and an additional 1.6 percent exclusively owning other cryptocurrencies, such as Ethereum and Litecoin (Henry et al. 2019). While we do estimate a small decline in Canadians' awareness of cryptocurrencies, the difference may be due to variation in survey sampling. Analyzing our findings by demographic, we find the same trends within groups across both surveys. For example, awareness and ownership tend to be highest among young, male, university-educated or high-income Canadians.

In addition to demographics, we examine the level of financial literacy among respondents. Financial literacy represents an understanding of the concepts central to economic decision making, such as investing and saving for retirement. In the 2017 MOP Survey, Henry, Huynh and Welte (2018) found that

who had more than $0 in cash, respectively.

Canadians' adoption and use of payment methods differed across levels of financial literacy. Similarly, the 2018 BTCOS found that awareness of Bitcoin increased with financial literacy, but the likelihood of ownership declined as the level of financial literacy increased (Henry et al. 2019). The 2019 CAS asked respondents the "Big Three" financial literacy questions (see Lusardi and Mitchell 2011). We estimate that 47 percent of Canadians have a high level of financial literacy, 35 percent have a medium level and 18 percent have a low level.[4] These estimates are highly similar to results from the same questions asked in the 2018 BTCOS and the 2017 MOP Survey.

Notably, the trend that financial literacy is positively associated with the awareness of cryptocurrencies but negatively associated with ownership is also present in the 2019 CAS. We find that 93 percent of Canadians with high financial literacy are aware of cryptocurrencies, as opposed to only 72 percent of those with low financial literacy. Conversely, 8 percent of those with low financial literacy reported they own cryptocurrencies compared with 4 percent of Canadians with high financial literacy.

4. Canadians' views on a "cashless society"

In line with the observed decline in the use of cash at the POS, the 2018 BTCOS and the 2019 CAS asked respondents about their plans to stop using cash in the future. In the 2019 CAS, 10 percent of Canadians stated they have stopped using cash, with an additional 8 percent stating they have plans to stop using cash in the future (**Table 2**). Overwhelmingly, 82 percent of Canadians reported they have no plans to stop using cash. Notably, this survey question was stated very generally and does not distinguish between transactional and non-transactional cash use. In future iterations of the CAS, we may explore further how respondents interpret the phrase "stop using cash."

Table 2: Canadians' plans to stop using cash, 2018–19

Numbers in percent

	Already cashless	Within 5 years	More than 5 years	No plans
Consumers				
2018 BTCOS	7	5	3	85
2019 CAS	10	6	2	82
Merchants				
2018 MAS	4	8	2	86

Note: Estimates from the 2018 Bitcoin Omnibus Survey (BTCOS) are reported in Henry et al. (2019). Estimates from the 2018 Merchant Acceptance Survey (MAS) are reported in Huynh, Nicholls and Nicholson (2019).

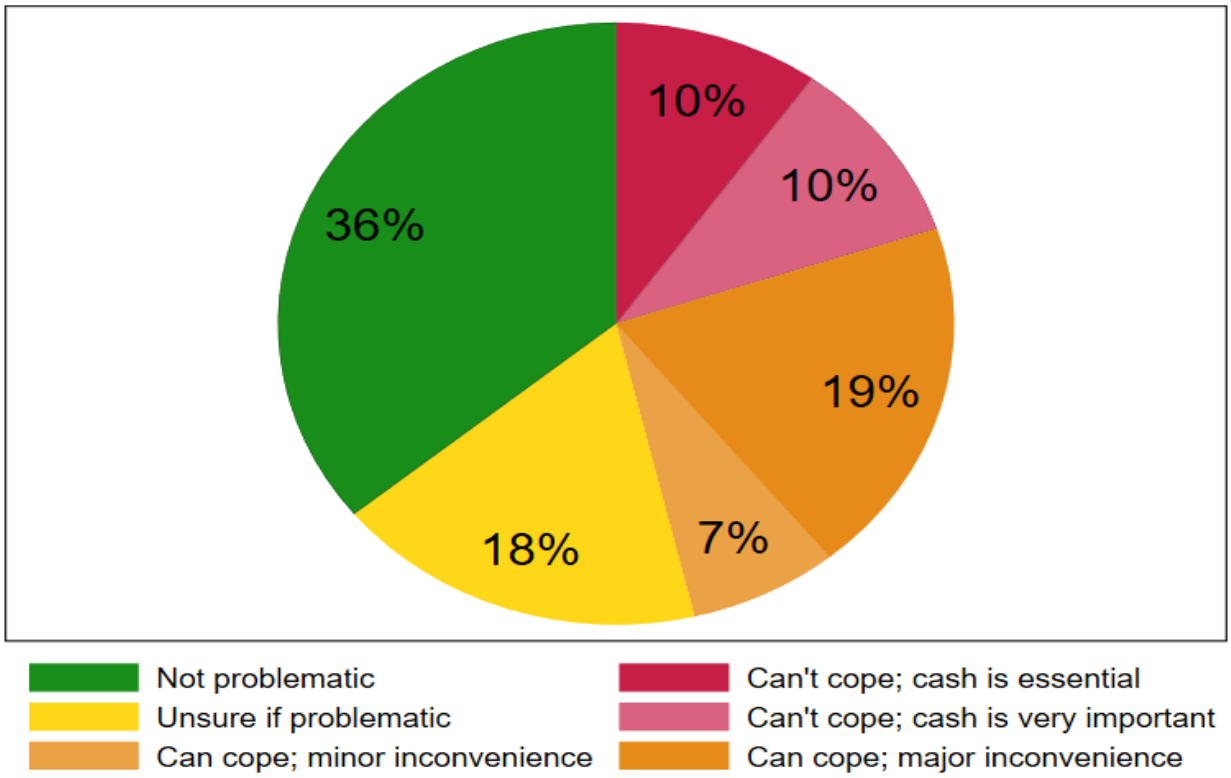
The Bank of Canada's 2018 Merchant Acceptance Survey (MAS) asked Canadian small and medium-sized businesses (SMBs) about their plans to stop accepting cash. It found that only 4 percent of Canadian SMBs do not accept cash. An additional 10 percent stated they have plans to go cashless and 86 percent

[4] For more details on the calculation of financial literacy levels from the "Big Three" questions, please see Section 3.1 of Henry et al. (2019).

stated they have no plans to stop accepting cash (Huynh, Nicholls and Nicholson 2019). Together, results from the 2018 BTCOS, 2018 MAS and 2019 CAS suggest that most Canadian individuals and SMBs have no plans to stop using or accepting cash in the foreseeable future.

Related to Canadians' plans regarding cash, we wanted to understand further how Canadians would respond if cash were to disappear. Previously, Engert, Fung and Hendry (2018) concluded that the emergence of a cashless society would not cause material, system-wide problems. The 2019 CAS contributes to the discussion using questions from the United Kingdom's *Access to Cash Review* (Access to Cash Review 2019). Specifically, we asked respondents if they would find the disappearance of cash problematic. We find that 36 percent of Canadians stated they would not find the disappearance of cash problematic and 18 percent said they were unsure (**Chart 2**). However, 46 percent of Canadians reported they would find the disappearance of cash problematic; this includes 20 percent who stated they could not cope with the disappearance of cash as well as 26 percent who stated that, while it would be problematic, they could still cope. Among those who stated they could not cope, the group was evenly split between those who stated cash is essential to their daily living and those who stated that cash is very important. Of the 26 percent who stated they could cope with cash disappearing, almost four-fifths stated that the disappearance of cash would be a major inconvenience. These findings suggest that a sizable share of Canadians would be negatively affected by the disappearance of cash.

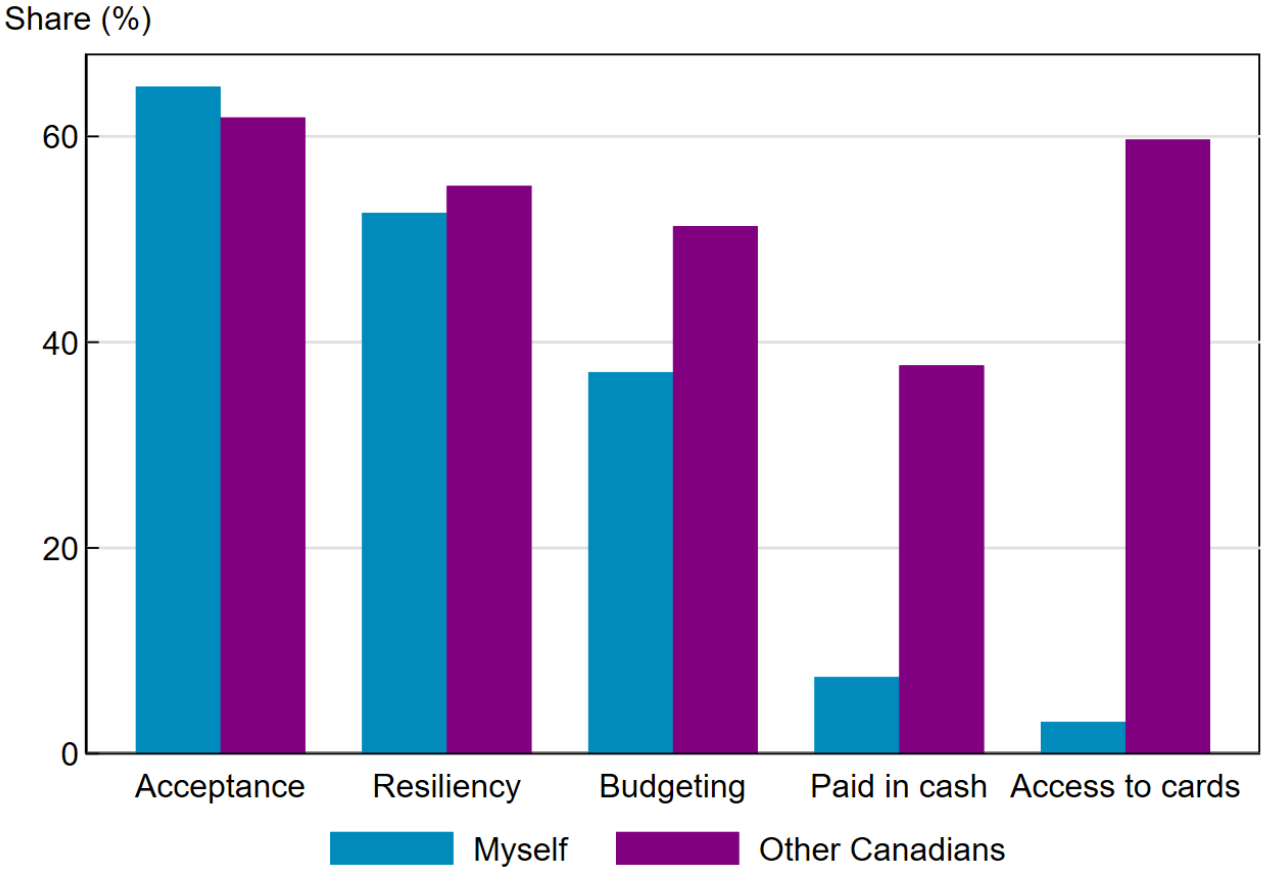
Chart 2: How Canadians would react to the disappearance of cash



Note: The red and orange sections represent the share of Canadians who would find the disappearance of cash problematic.

To extend our analysis, we asked some follow-up questions. Those who would find the disappearance of cash problematic were asked why, while those who would not find it problematic or were unsure were asked why they think *other* Canadians might find it problematic (**Chart 3**). The three most commonly cited reasons for the disappearance of cash being problematic were acceptance ("I need cash for when other payment methods are not accepted"), resiliency ("I use cash in case of power outages or other events") and budgeting ("I use cash to monitor my spending or as a budgeting tool"). Both groups were much less likely to cite being paid in cash or not having access to debit or credit cards as reasons it would be problematic. These findings are consistent with results from other surveys. For instance, the 2018 MAS revealed that cash is nearly universally accepted (96 percent) by SMBs, while only two-thirds accept debit or credit cards (Huynh, Nicholls and Nicholson 2019). Further, the 2017 MOP showed that 99 percent of Canadians have access to a debit card and 89 percent have access to a credit card (Henry, Huynh and Welte 2018).

Chart 3: Reasons why the disappearance of cash would be problematic



Note: The blue bars correspond to respondents (963) who said they would find the disappearance of cash problematic. The purple bars correspond to those (1,174) who said they would not find it problematic or were unsure, and were asked why other Canadians might find it problematic.

Finally, we analyze the demographic breakdown of those who stated they would find the disappearance of cash problematic (**Table 3**). We find that if cash were to disappear from the economy, the most vulnerable groups are those aged 55 or older and Canadians with low education, low income or

low financial literacy. With these groups identified, we will conduct further research on the heterogeneous effects of the disappearance of cash.

Table 3: Responses to the disappearance of cash, by demographic
Numbers in percent

	Problematic	Not Problematic	Unsure
Overall	46	36	18
Gender			
Male	44	40	16
Female	49	32	20
Age			
18–34	37	45	18
35–54	49	35	16
55+	50	31	19
Education			
High school	52	31	17
College	45	34	21
University	39	46	16
Income			
<$45,000	52	31	17
$45,000–$85,000	47	38	15
$85,000+	41	39	20
Financial Literacy			
Low	51	32	17
Medium	49	32	19
High	42	40	17

Note: This table reports the demographic composition of Canadians' views on the impact of cash disappearing from the Canadian economy based on **Chart 2**.

5. Discussion and further work

As discussed in Section 1, the Bank of Canada has established two necessary conditions for the issuance of CBDC. Canadians' cash use must decline to a sufficiently low level, or privately issued digital currencies must make considerable inroads into the Canadian economy. If either event materializes, a public policy case must be established that clearly indicates how Canadians will benefit from a CBDC (Lane 2020). Because the role of cash continues to evolve, the Bank undertakes ongoing research to improve its understanding of Canadians' use of cash. Moreover, the Bank's annual Bitcoin Omnibus Survey will continue to study the adoption of privately issued digital currencies as they evolve.

The 2019 Cash Alternative Survey was designed as a monitoring tool to gain an understanding of

Canadians' perspectives of cash and their adoption of digital payment methods. We conclude that, despite an overall decline in daily transactional use, cash remains important to many Canadians. However, if commerce in the Canadian economy continues to digitalize, overall demand for cash may be affected. We will continue to monitor Canadians' cash holdings as well as their use of cash and adoption of digital payment methods.

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