

## RESEARCH ARTICLE

# Benchmarking Bitcoin Adoption in Canada: Awareness, Ownership and Usage in 2018

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**Abstract.** The Bank of Canada commissioned the Bitcoin Omnibus Survey in 2016 to monitor trends in the adoption and use of Bitcoin and other cryptoassets. This report presents findings from the latest iteration of the survey, which was conducted in 2018. We find that between 2016 and 2018 the share of Canadians who were aware of Bitcoin increased from 62 percent to 89 percent and those that owned Bitcoin increased from 3 percent to 5 percent. However, the share of past owners also increased, suggesting an influx of Bitcoin owners who subsequently divested after the steep rise of prices in 2017. The main reason for owning Bitcoin remains speculation, though this share decreased slightly since 2017. On the other hand, the share of Canadians who reported using Bitcoin for transactions a few times a month or more increased. Finally, we discuss how Bitcoin adopters differ from overall Canadians with respect to their financial literacy and cash holdings.

## 1. Introduction

The Bank of Canada continues to use the Bitcoin Omnibus Survey (BTCOS) to monitor trends in Canadians' awareness, ownership, and use of Bitcoin and other cryptoassets. The most recent iteration was conducted in late 2018, following an 85 percent decline in the price of Bitcoin throughout the year (Figure 1). In 2017, almost half of Bitcoin adopters reported investing as their primary reason for owning it, meaning that the dramatic decline in price could have implications for whether Canadians continue to own Bitcoin and if so, how they use it.

The Bank of Canada's main interest in monitoring Bitcoin adoption is to understand how its usage by Canadians could affect the financial system. Consequently, the BTCOS will aid the Bank of Canada in understanding Bitcoin's potential impact on its core functions. First, our findings on Canadians' cash holdings and plans to go cashless may have implications for the production and distribution of Canadian currency. Regarding the Bank of Canada's role in maintaining financial stability, its 2019 *Financial System Review* (FSR) upgraded cryptoassets to one of the six key financial vulnerabilities it closely monitors. The FSR states that while cryptoassets do not currently pose a financial stability concern, the Bank of Canada will continue to monitor this rapidly evolving technology.<sup>1</sup> The BTCOS contributes to these efforts by characterizing the adoption of cryptoassets by Canadians, which may inform the Bank of Canada about the

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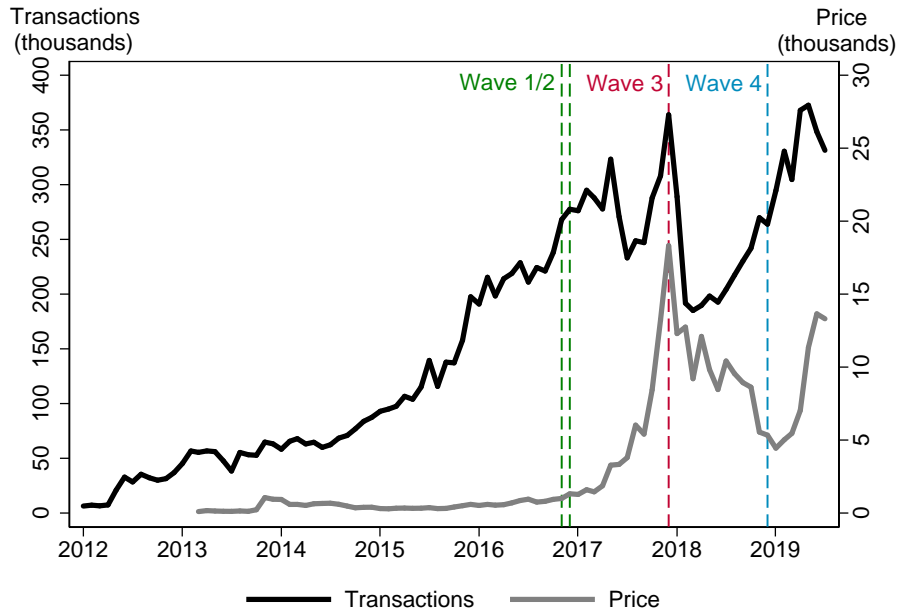
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**Note:** This graph shows the price of Bitcoin in Canadian dollars and the number of daily transactions made with Bitcoin, averaged over each month from January 2012 to January 2019. The data series for price starts at March 12, 2013. The green vertical lines show when the first two waves of the BTCOS were in the field, the red vertical line shows the third wave and the blue line indicates the most recent iteration, the 2018 BTCOS. The last monthly observation is July 2019. **Sources:** Daily Transactions (*Charts.Bitcoin.com/BTC*); Bitcoin Prices (BTC/CAD) (*Yahoo! Finance*).

Fig. 1. Price and number of Bitcoin transactions, 2012–19 (monthly average)

likelihood of risks materializing.

In 2018, Canadians continued to increase their awareness, as 89 percent reported having heard of Bitcoin. Similarly, Bitcoin ownership increased, although it remained concentrated within a few sub-demographics such as those aged 18 to 34, university-educated, and male. We estimate that 5 percent of Canadians owned Bitcoin in 2018, which represents an increase from 2017 (4 percent) and 2016 (3 percent). The primary reason for owning Bitcoin remained speculation in 2018, though reasons such as an interest in the technology and privacy concerns became more common compared with the previous year. While ownership has grown, we also observed an increase in the number of Canadians who reported having stopped owning Bitcoin, and those who continued to own Bitcoin tended to hold smaller amounts than in previous years.

This paper is structured as follows: Section 2 describes the survey design and methodology of the 2018 BTCOS; Section 3 discusses Canadians' financial literacy and their awareness and knowledge of Bitcoin; Section 4 provides a profile of Bitcoin users in 2018; and finally, Section 5 summarizes the overarching takeaways of the 2018 BTCOS.

## 2. The 2018 Bitcoin Omnibus Survey

This section briefly summarizes improvements made to the survey design of the 2018 BTCOS; for a full description, see the original paper.<sup>2</sup> This iteration evolved considerably from those conducted in 2016 and 2017.<sup>3,4</sup> First, we updated how respondents report their Bitcoin holdings and how Bitcoin knowledge is assessed. We also added new questions measuring financial literacy, preferences for payment attributes when making online transactions, and plans to stop

using cash. Finally, we updated the survey weighting procedure used in previous iterations.

In the 2018 survey we asked respondents to report their Bitcoin holdings as a continuous variable, rounded to the nearest Canadian dollar. In contrast, previous iterations asked respondents to report their holdings in categorical ranges, which were denominated in Bitcoin. This change allows us to gain more information about the distribution of Canadians' Bitcoin holdings. When comparing our estimates across time, we group the 2018 Bitcoin holdings data into the same categories used in previous years.

We simplified the knowledge module in 2018 by reducing the number of questions asked to three. The questions, which could be answered with "true," "false," or "don't know," tested knowledge about the total supply of Bitcoin, whether Bitcoin is backed by a government, and its public ledger (Table 1). Other questions asked in previous years were removed, as they had relatively fewer attempts and correct answers in the 2017 BTCOS.

Inspired by results from the Bank of Canada's 2017 Methods-of-Payment (MOP) survey, we added a module on financial literacy.<sup>5</sup> Broadly speaking, financial literacy is a foundational understanding of economic and financial concepts central to economic decision making, such as investing and saving for retirement. The 2018 survey measured financial literacy using the "Big Three" questions.<sup>6</sup> These multiple choice questions, summarized in Table 2, test respondents' understanding of compound interest, inflation and the diversification of risk.

We report a full schematic of the 2018 survey instrument in Appendix A.1 of our original paper.<sup>2</sup> Final sample sizes were 1,997 in 2016; 2,623 in 2017; and 1,987 in 2018. Similarly, we captured 58, 117 and 99 Bitcoin owners in each year, respectively. Note that all estimates for overall Canadians, such as the results found in Table 3, include the subset of Canadians who adopted Bitcoin.

Table 1. Bitcoin knowledge questions

<b>Question</b>	<b>Response options</b>
<i>The total supply of Bitcoin is fixed.</i>	<b>True</b> False
<i>Bitcoin is backed by a government.</i>	True <b>False</b>
<i>All Bitcoin transactions are recorded on a distributed ledger that is publicly accessible.</i>	<b>True</b> False

**Note:** This table shows the three Bitcoin knowledge questions, which were also asked in the 2017 BTCOS. The correct answers are highlighted in bold.

Table 2. Financial literacy questions

Concept	Question	Response options
Interest	<i>Suppose you had \$100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have left in the account if you left the money to grow?</i>	<b>More than \$102</b> Exactly \$102 Less than \$102 Do not know
Inflation	<i>Imagine the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with this money in this account?</i>	More than today Exactly the same <b>Less than today</b> Do not know
Risk	<i>Please tell me whether or not this statement is true or false: Buying a single company's stock usually provides a safer return than a mutual fund of stocks.</i>	True <b>False</b> Do not know

**Note:** This table reports the “Big Three” financial literacy questions.<sup>6</sup> The “Big Three” questions have been used in many research papers to study financial literacy, which yields comparability across survey instruments, countries and time. The correct answers are highlighted in bold.

### 3. Knowledge, Financial Literacy, and Awareness

This section analyzes the state of knowledge about certain aspects of Bitcoin and financial literacy, and explores the differences between Bitcoin owners and the general Canadian population. Further, we examine how awareness of Bitcoin has evolved since previous iterations of the BTCOS.

*3.1. Bitcoin Knowledge and Financial Literacy in 2018*—For the Bitcoin knowledge and financial literacy questions, we computed an overall measure by summing the number of correct answers and subtracting incorrect answers, while questions answered “don’t know” did not contribute to the measure. Our measure, denoted *score*, can take any integer from -3 to 3, with 3 indicating all questions were answered correctly and -3 indicating all were answered incorrectly. Knowledge and literacy were categorized as low ( $score \leq 0$ ), medium ( $score = 1$  or  $score = 2$ ) or high ( $score = 3$ ).

Notably, we found no change in Bitcoin knowledge from 2017 to 2018, in contrast to the sizable increase previously observed between 2016 and 2017. In 2018, almost two-thirds of Canadians had low Bitcoin knowledge and only 6 percent answered all three questions correctly (Table 3). As expected, knowledge scores were higher among Bitcoin adopters. In particular, non-adopters were much more likely to answer “don’t know” to a knowledge question (almost 50 percent), compared with Bitcoin adopters (less than 15 percent). However, Bitcoin knowledge was not universal even among those who owned the digital currency, with about one-fifth of adopters having low knowledge.

Consistent with the 2017 MOP Survey, we found that 27 percent of Canadians had low financial literacy and 36 percent had a medium level of financial literacy (Table 3). Moreover,

Table 3. Financial literacy and Bitcoin knowledge scores

	<b>Financial literacy</b>		<b>Bitcoin knowledge</b>			
	2018		2017		2018	
	Overall	Adopters	Overall	Adopters	Overall	Adopters
Low	27	38	55	24	61	19
Medium	36	33	38	49	33	52
High	37	29	6	27	6	29

**Note:** This table reports the share of Canadians, in percent, in each category of financial literacy or Bitcoin knowledge. The sample consists of 99 adopters in 2018 and 117 in 2017. All estimates were calculated using MICAL (multiple imputation in calibration) survey weights.

37 percent answered all three questions correctly, indicating high financial literacy. While 40 percent of Canadians may seem low, Canada has high financial literacy level relative to many other developed countries.<sup>7</sup>

*3.2. Canadians' Awareness of Bitcoin*—Awareness of Bitcoin continued to increase in 2018, with 89 percent of Canadians stating they had heard of Bitcoin, compared with 83 percent in 2017, and 62 percent in 2016. Most demographic patterns observed in previous years persisted in 2018 (Table 4). In particular, Canadians who were male, young, university-educated or had high household income were more likely to be aware of Bitcoin. However, gaps in awareness decreased as those groups who were less aware of Bitcoin in previous years became more aware in 2018. For example, awareness among males grew marginally from 90 to 93 percent, while awareness among females increased from 77 percent to 85 percent. Other examples of demographic groups catching up include those who have a high school education (76 to 84 percent) and those with household incomes below \$30,000 (74 to 87 percent). Finally, as expected, we found that higher financial literacy was associated with higher awareness.

#### 4. A Profile of Bitcoin Adopters in 2018

In this section, we analyze the demographic composition of Bitcoin ownership in Canada. We also discuss cross-validation of our estimates using other surveys on Bitcoin adoption and we utilize regression analysis to drill down further on Bitcoin ownership. Moreover, we delineate the main reasons respondents gave for owning Bitcoin, including for payments and speculation. Finally, we analyze the group of past owners and the interplay between cash holdings and Bitcoin adoption, as well as Canadians' plans to go cashless.

*4.1. Ownership of Bitcoin in 2018*—Bitcoin ownership continued to increase in 2018; we estimate that 5 percent of Canadians owned Bitcoin in 2018, an increase from 4 percent in 2017 and 3 percent in 2016 (Table 4). However, Bitcoin ownership did not increase for all demographic groups. For instance, male ownership remained constant around 6.7 percent, while female ownership increased from 2.1 to 3.7 percent. Similarly, ownership for those aged 18 to 34 was similar in 2018 at about 10.5 percent, while ownership tripled among those aged 55 and older from 0.5 to 1.7 percent.

In contrast, the disparity in ownership by education widened. Ownership among the high-

Table 4. Awareness and Ownership of Bitcoin in Canada, 2016–18

	Awareness			Ownership		
	2016	2017	2018	2016	2017	2018
<b>Overall</b>	62	83	89	3.2	4.3	5.2
<b>Gender</b>						
Male	71	90	93	4.4	6.6	6.7
Female	54	77	85	2.2	2.1	3.7
<b>Age</b>						
18–34	69	87	91	9.1	11.1	10.5
35–54	58	82	88	1.6	3.2	4.9
55+	62	82	88	0.5	0.5	1.7
<b>Education</b>						
High school	55	76	84	3.8	3.7	2.3
College	59	85	90	1.5	3.1	5.7
University	78	92	95	4.3	6.7	9.1
<b>Income (\$)</b>						
<30,000	49	74	87	3.1	4.3	2.8
30,000–69,999	61	82	88	3.9	5.6	4.8
70,000+	69	87	91	3.7	4.3	7.0
<b>Region</b>						
British Columbia	74	93	94	2.8	5.2	6.3
Prairies	66	84	89	2.1	4.1	6.0
Ontario	64	85	92	2.5	3.9	5.2
Quebec	49	75	84	5.5	5.1	4.6
Atlantic	65	80	83	3.2	3.1	2.8
<b>Financial literacy</b>						
Low	.	.	80	.	.	7.3
Medium	.	.	90	.	.	4.7
High	.	.	94	.	.	4.1

**Note:** This table reports the percentage of Canadians who were aware of and owned Bitcoin in 2016, 2017 and 2018. The sample consists of 99 adopters in 2018, 117 in 2017 and 58 in 2016. All estimates were calculated using MICAL (multiple imputation in calibration) survey weights.

school-educated only demographic fell from 3.7 to 2.3 percent, while university-educated Canadians increased their ownership from 6.7 to 9.1 percent. Additionally, ownership fell from 4.3 to 2.8 percent among those with household incomes below \$30,000 and rose from 4.3 to 7.0 percent among those with incomes above \$70,000, creating an ownership gap that did not exist in previous years. Geographically, ownership in the Prairies and British Columbia continued to rise, while Quebec and the Atlantic region experienced a decline in ownership during 2018.

Bitcoin owners were more likely to have low financial literacy (38 percent), compared with the overall population (27 percent) (Table 3). In particular, we estimate that 4.1 percent of Canadians with high financial literacy owned Bitcoin, compared with 7.3 percent of those with low literacy. This yields an interesting result, as those with high financial literacy are more likely to have heard of Bitcoin but less likely to adopt it. Our findings align with similar research, as other studies have found higher technology adoption among those with lower literacy.<sup>8</sup>

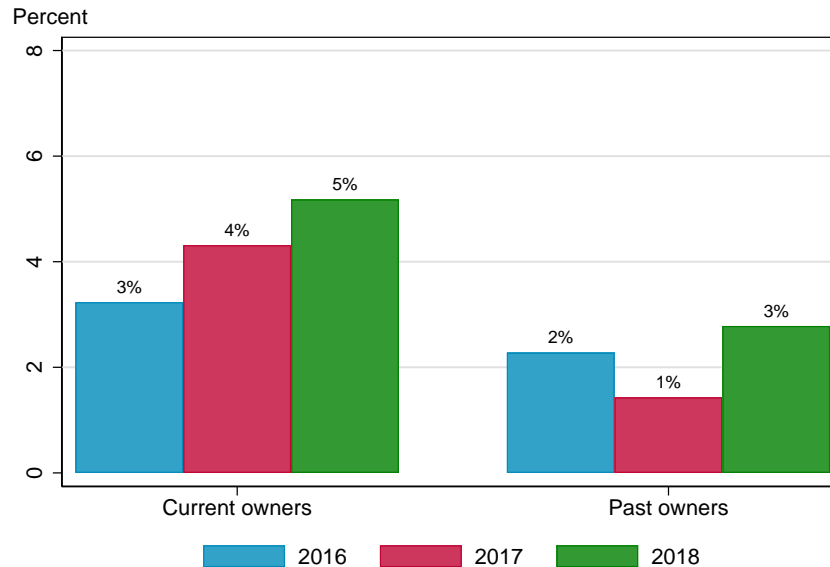
The 2018 BTCOS also asked respondents to report if they owned alternative cryptoassets, which are often referred to as “altcoins.” We estimate that over half of Bitcoin adopters, or 3.2 percent of all Canadians, owned at least one altcoin. A further 1.6 percent reported owning altcoins but not Bitcoin. The most commonly owned altcoins were Bitcoin Cash (3 percent) and Ethereum (2 percent).

To cross-validate our estimates, we compare results with the Ontario Securities Commission (OSC), which surveyed over 2,500 Ontarians in March 2018 regarding their views on cryptoassets.<sup>9</sup> This acts as a good source of external validation, as the OSC used a different survey provider and sampling methodology, but included several of the same survey questions. The OSC estimates that 5 percent, or approximately 500,000 Ontario residents, owned Bitcoin and an additional 4 percent owned Bitcoin in the past. The BTCOS estimates the same for ownership (5 percent) and slightly lower for past ownership (3 percent). Similarly, the Canadian Consumer Payments Survey, conducted by Technology Strategies International, estimates that 3.9 percent of Canadians owned Bitcoin in 2019.<sup>10</sup>

Surveys from other countries on the adoption of Bitcoin provide another source of cross-validation. In Austria, a study found 1.5 percent owned Bitcoin in 2018.<sup>11</sup> The United Kingdom’s Financial Conduct Authority conducted a survey in 2018 and concluded Bitcoin ownership was 3 percent.<sup>12</sup> In Japan, a recent survey found 10 percent of respondents adopted cryptoassets in the past three years.<sup>13</sup> Closer to home, in 2018 the Federal Reserve Bank of New York added several questions on cryptoassets to their Survey of Consumer Expectations and found that 85 percent of respondents had heard of cryptoassets, while 5 percent reported they currently or previously owned them.<sup>14</sup> Similarly, the Federal Reserve Bank of Atlanta found 2.5 percent of respondents owned Bitcoin or other cryptocurrencies in 2018.<sup>15</sup> Together, these other surveys provide evidence that the magnitude of our ownership estimate is reasonable.

We classify past owners as the group of Canadians who once adopted Bitcoin but have decided to stop owning it as of the time they are surveyed. As Figure 2 shows, around 2 percent of Canadians were past owners in 2016, and this share decreased to 1 percent in 2017 as Bitcoin’s price rose. However, in 2018, after a dramatic drop in the price of Bitcoin, the share of past owners grew once again to 3 percent. Taken at face value, the fact that current *and* past ownership grew in 2018 suggests an influx of new Bitcoin owners who then quickly sold their Bitcoin in between the 2017 and 2018 surveys, and suggests that a total of 8 percent of Canadians have ever owned Bitcoin.

In 2018, almost 50 percent of past users reported one of three main reasons for not owning Bitcoin. Consistent with results from Section 3.1, the most common reason provided was that they do not understand enough about the technology. Other reasons included that they do not trust privately-issued currencies, and that they do not believe the Bitcoin system will survive in the future.



**Note:** The sample includes 99 Canadians aged 18 or older who reported they owned Bitcoin in 2018; similarly, 117 in 2017, and 58 in 2016. Additionally, the sample includes 45 past owners in 2018, as well as 37 in 2017, and 41 in 2016. All estimates were calculated using MICAL (multiple imputation in calibration) survey weights.

Fig. 2. Current and past ownership of Bitcoin, 2016–18

*4.2. Regression Analysis of Awareness and Ownership*—We complement our analysis of Canadians’ awareness and ownership of Bitcoin by employing a logistic regression framework, which allows us to control for all demographics simultaneously. Being aware of Bitcoin and deciding to own Bitcoin are both binary events, making logistic regression a natural choice. In particular, we model choices as a sequential logit, where one first becomes aware of Bitcoin, then chooses whether to own it once they become aware. In this way we can decompose demographic effects on ownership into these two stages. Table 5 reports our estimates of the awareness stage (column 1), ownership stage conditional on awareness (column 2) and overall ownership taking into account both stages (column 3). All estimates reported represent the marginal effect of each demographic variable on the outcome variable of interest, holding all other demographic variables constant.

In all three regression models, we include dummy variables for the following demographic variables: age, gender, region, education, marital status, employment and income. We also include dummy variables for responses to each financial literacy question. We have specified the model so that marginal effects are measured relative to the following reference groups: male, aged 18 to 24, from British Columbia, high-school-educated, married, employed full time, earning income less than \$25,000, and who have correctly answered each financial literacy question.



We find that the likelihood of Bitcoin awareness declines with age, being female, and living in regions outside British Columbia. Conversely, we estimate Canadians are more likely to be aware of Bitcoin as their education and income increase, as well as if they answer any financial literacy question correctly. These findings are largely consistent with our unconditional, tabular analysis discussed in Section 3.2.

The second column displays our estimates of the probability of Canadians owning Bitcoin, conditional on being aware of it. Our results are consistent with our findings in the first column and our discussion in Section 4.1. In particular, we estimate that the probability of ownership, conditional on awareness, decreases with age and for Canadians living outside British Columbia. Conversely, we estimate that the likelihood of ownership increases with income and education, as well as with being unemployed. As we previously noted, we find that Bitcoin awareness increases with financial literacy, but the likelihood of ownership decreases as financial literacy increases. This finding is also present in the logit framework, as all coefficients on the incorrect component of each financial literacy question became positive in the second column.

Finally, the third column of Table 5 reports our findings from the full sequential logit model. These estimates support our previous findings: that ownership decreases with age and location but increases with education and income. In particular, we estimate the likelihood of Canadians owning Bitcoin, conditional on holding all other demographics constant, is 8 percentage points lower if they are aged 55 or older than if they are between 18 and 24 years old. Similarly, we estimate Canadians are 3 percentage points more likely to own Bitcoin if they are university educated as opposed to only having graduated from high school, holding all other demographic variables constant. The most interesting finding is the net positive correlation between low financial literacy and Bitcoin ownership. For example, we estimate that failing to understand the diversification of risk is associated with an increase in the likelihood of Bitcoin ownership by 6 percentage points. An alternative explanation for these results may also be that Bitcoin owners are simply more risk tolerant and therefore do not care as much about diversification.

*4.3. Why Do Canadians Own Bitcoin?*—We studied Canadians' usage of Bitcoin to pay for goods and services (Figure 3) or to send peer-to-peer payments (Figure 4). An overarching trend emerged in 2018 for both types of transactions: Bitcoin adopters are trending toward using Bitcoin more frequently for transactions. The observation is consistent with the increasing trend in aggregate Bitcoin transactions throughout 2018, reported in Figure 1.

Table 6 summarizes the share of adopters who reported each category as their primary reason for owning Bitcoin. In 2018, speculation decreased from 56 to 40 percent, but remained the most selected option.<sup>16</sup> Moreover, privacy-related reasons tripled to 19 percent and payments remained stable around 20 percent. Further, interest in the technology increased from 16 to 22 percent, approaching the level observed in 2016, prior to the large run-up in prices.

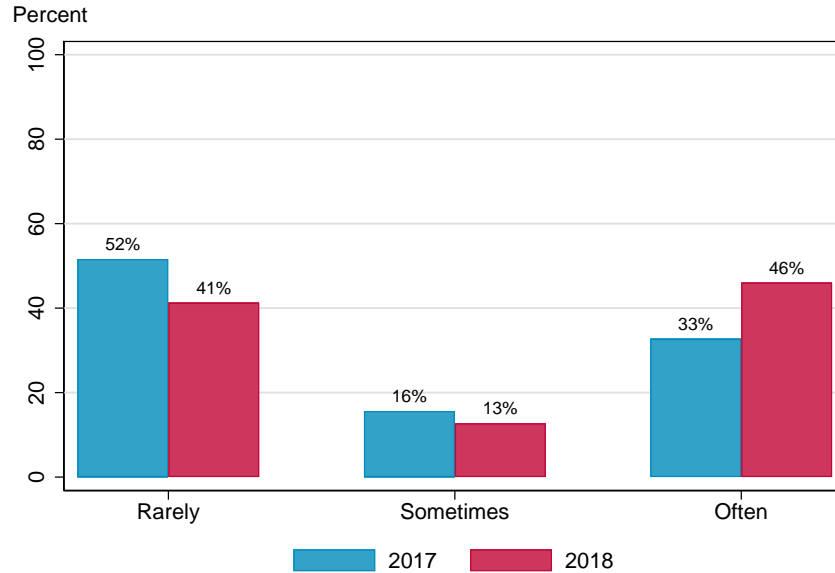
*4.4. Cash Holdings and Plans to Go Cashless*—Based on the results of the 2017 and 2018 BTCOS, as well as the 2017 Methods-of-Payment Survey, three different Canadian survey instruments yield the same conclusion: Bitcoin adopters hold more cash than typical Canadians (Table 7). The 2018 BTCOS estimates Canadians' median cash on hand to be \$40, while the subset of Bitcoin adopters have median cash holdings of \$200. Interestingly, the share of the population that reported currently holding no cash was stable at around 8 percent across all survey instruments and for both Bitcoin adopters and typical Canadians.

Motivated by the Bank of Canada's analysis of the potential implications of a cashless society

Table 5. Regression analysis of Bitcoin ownership

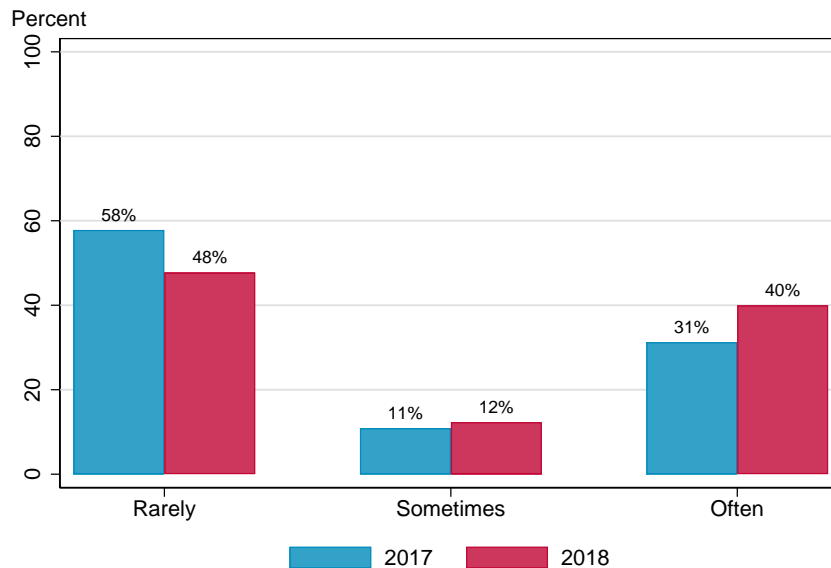
	Pr(Aware)	Pr(Own Aware)	Pr(Own)
<b>Age</b>			
25–34	-2.0	2.3	1.9
35–44	-3.9	-3.8	-3.7
45–54	-5.0 **	-7.3 **	-6.9 **
55–64	-5.0 **	-8.7 ***	-8.2 ***
65+	-4.2	-8.1 **	-7.6 **
<b>Gender</b>			
Female	-5.2 ***	-4.3 ***	-4.2 ***
<b>Region</b>			
Prairies	-2.9	0.1	-0.0
Ontario	-1.1	-0.7	-0.7
Quebec	-8.2 ***	-0.7	-1.1
Atlantic	-5.6 *	-1.2	-1.4
<b>Education</b>			
College	4.2 **	2.5 *	2.3 **
University	7.1 ***	3.4 **	3.3 ***
<b>Marital status</b>			
Single	4.3 ***	-1.7	-1.4
<b>Employment</b>			
Unemployed	-0.9	2.3	2.0
Not in labour force	0.6	-1.7	-1.6
<b>Income (\$)</b>			
25,000–44,999	-1.3	1.6	1.4
45,000–64,999	1.2	3.4 **	3.1 **
65,000–84,999	1.1	4.4 **	4.0 **
85,000+	1.5	3.8 **	3.5 **
<b>FL1 – Interest</b>			
Incorrect	-1.5	3.6 *	3.2 *
Don't know	-8.4 ***	1.5	1.0
<b>FL2 – Inflation</b>			
Incorrect	-5.0 ***	1.5	1.1
Don't know	-0.4	-1.5	-1.4
<b>FL3 – Risk</b>			
Incorrect	-4.5	6.7 ***	5.7 **
Don't know	-5.8 ***	-0.0	-0.2

**Note:** This table displays marginal effects from a sequential logit of Bitcoin awareness and ownership. Column **Pr(Aware)** shows the effect of each variable on the probability of having heard of Bitcoin. Column **Pr(Own|Aware)** shows the effect of each variable on the probability of owning Bitcoin conditional on having heard of it. The final column shows the overall net effect on the probability of ownership given that  $\text{Pr(Own)} = \text{Pr(Own|Aware)} * \text{Pr(Aware)}$ . FL1, FL2, and FL3 refer to the three financial literacy questions listed in Table 2. \*\*\*  $p < 0.01$  \*\*  $p < 0.05$  \*  $p < 0.1$ .



**Note:** The “Rarely” category consists of Canadians who used Bitcoin at most once a year for transactions. The “Sometimes” category constitutes those who used Bitcoin between a few times a year to once a month, and “Often” constitutes those who used Bitcoin at least a few times a month for transactions. The sample consists of 99 Canadians aged 18 or older who reported they owned Bitcoin in 2018; and similarly, 117 in 2017. All estimates were calculated using MICAL (multiple imputation in calibration) survey weights.

Fig. 3. Use of Bitcoin – Buying goods and services, 2017–18



**Note:** The “Rarely” category consists of Canadians who used Bitcoin at most once a year for transactions. The “Sometimes” category consists of those who used Bitcoin between a few times a year to once a month, and the “Often” category consists of those who used Bitcoin at least a few times a month for transactions. The sample is composed of 99 Canadians aged 18 or older who reported they owned Bitcoin in 2018; and, similarly, 117 Canadians in 2017. All estimates were calculated using MICAL (multiple imputation in calibration) survey weights.

Fig. 4. Making person-to-person transfers

Table 6. Main reason for ownership, 2016–18

	2016	2017	2018
Payment related	45	23	19
Investment	6	56	40
Trust/privacy related	16	5	19
Technology related	33	16	22

**Note:** Each column sums vertically but may sum to less than 100 percent, as we have omitted some options when consolidating the four categories. The sample consists of 99 adopters in 2018, 117 in 2017 and 58 in 2016. All estimates were calculated using MICAL (multiple imputation in calibration) survey weights.

Table 7. Cash management and Bitcoin adoption, 2017–18

	Median (\$)	No Cash on Hand (%)	Already Cashless (%)	Plans to go Cashless Within 5 Years (%)
<b>Overall</b>				
2017 MOP	40	9	.	.
2017 BTCOS	40	8	.	.
2018 BTCOS	40	8	7	5
<b>Adopters</b>				
2017 MOP (4.0%)	65	8	.	.
2017 BTCOS (4.3%)	100	4	.	.
2018 BTCOS (5.2%)	200	8	18	17

**Note:** We report results from three surveys conducted by the Bank of Canada: the 2017 BTCOS, the 2018 BTCOS and the 2017 Methods-of-Payment (MOP) Survey. The sample consists of 99 adopters in 2018 and 117 in 2017. All BTCOS estimates were calculated using MICAL (multiple imputation in calibration) survey weights and the 2017 MOP estimates used survey weights as well.

in Canada, the 2018 BTCOS included a question on whether respondents have stopped using cash or plan to stop in the future (Table 7).<sup>17</sup> We found that Bitcoin owners were more likely to report having stopped using cash (18 percent) and having plans to go cashless within the next five years (17 percent). In comparison, the overall Canadian averages were 7 percent and 5 percent, respectively.

Given this finding, an interesting puzzle emerges: Bitcoin adopters hold more cash than typical Canadians but are more likely to go cashless.<sup>18</sup> This puzzle may be driven by a key distinction between interpretations of going cashless. That is, some Canadians may interpret being cashless as ceasing to use cash for transactions. Others may have a stronger interpretation: that, along with ceasing to use cash for transactions, being cashless implies one no longer holds cash for precautionary savings or as a store of value. The Bank of Canada plans to conduct further research on the transactional and non-transactional roles of cash in Canada.

## 5. Conclusion

Findings from the BTCOS suggest that between 2016 and 2018 the share of Canadians who were aware of Bitcoin increased from 62 percent to 89 percent and those that owned Bitcoin increased from 3 percent to 5 percent. However, consistent with dramatic drops in Bitcoin prices in 2018, we also observed an increase in the number of past owners of Bitcoin, and those who continued to own Bitcoin did so in slightly smaller quantities. As in 2017, the main reason for owning Bitcoin remained speculation, though this reason was less common in 2018. In contrast, Bitcoin owners reported using it more often for buying goods and services and/or making person-to-person transfers in 2018.

While overall ownership increased, this was not uniform across demographics. For example, while there was little change in ownership among men or those aged 18 to 34, ownership increased more among women and those aged 35 or older. Further, those with high education or household income have become much more likely to own Bitcoin than their counterparts with low education or income. Regarding financial literacy, we found that, despite the fact that higher-literacy individuals were more likely to have heard of Bitcoin, they were less likely to own it.

New to the survey were questions related to Canadians' planned future cash use. We found that, while Bitcoin owners held more cash in their pockets at the median, they were more likely to say they had already stopped using cash. This presents something of a puzzle, which may be explained by how respondents interpret the phrase "stop using cash." For example, someone could claim to have stopped using cash at the point of sale, while still holding cash for precautionary purposes. Future surveys by the Bank of Canada will delve deeper into how respondents plan to use their cash for transactional or non-transactional purposes.

## Acknowledgements

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## Notes and References

<sup>1</sup> Similarly, the Bank of International Settlements released a statement in March 2019 acknowledging that cryptoassets may pose future financial stability risks faced by banks.

<sup>2</sup> Henry, C. S., Huynh, K. P., Nicholls, G., Nicholson, M. W. “2018 Bitcoin Omnibus Survey: Awareness and Usage.” *Bank of Canada Staff Discussion Paper 2019-10* <https://www.bankofcanada.ca/2019/11/staff-discussion-paper-2019-10/>.

<sup>3</sup> Henry, C. S., Huynh, K. P., Nicholls, G. “Bitcoin Awareness and Usage in Canada.” *Journal of Digital Banking* **2.4** 311–337 (2018) <https://www.ingentaconnect.com/content/hsp/jdb001/2018/00000002/00000004/art00004>.

<sup>4</sup> Henry, C. S., Huynh, K. P., Nicholls, G. “Bitcoin Awareness and Usage in Canada: An Update.” *The Journal of Investing* **28.3** 21–31 (2019) <https://doi.org/10.3905/joi.2019.28.3.021>.

<sup>5</sup> Henry, C. S., Huynh, K. P., Welte, A. “2017 Methods-of-Payment Survey Report.” *Bank of Canada Staff Discussion Paper 2018-17* <https://www.bankofcanada.ca/2018/12/staff-discussion-paper-2018-17/>.

<sup>6</sup> Lusardi, A., Mitchell, O. S. “Financial Literacy and Planning: Implications for Retirement Wellbeing.” *NBER Working Paper 17078* <https://www.doi.org/10.3386/w17078>.

<sup>7</sup> Lusardi, A., Mitchell, O. S. “The Economic Importance of Financial Literacy: Theory and Evidence.” *Journal of Economic Literature* **52.1** 5–44 (2014) <https://doi.org/10.1257/jel.52.1.5>.

<sup>8</sup> Lusardi, A., Scheresberg, C. B., Avery, M. “Millennial Mobile Payment Users: A Look into Their Personal Finances and Financial Behaviours.” *GFLEC Insights Report* <https://gflec.org/wp-content/uploads/2018/04/GFLEC-Insight-Report-Millennial-Mobile-Payment-Users-Final.pdf?x83489>.

<sup>9</sup> No Author. “Taking Caution: Financial Consumers and the Cryptoasset Sector.” *Ontario Securities Commission* (2019) [https://www.osc.gov.on.ca/documents/en/Investors/inv\\_research\\_20180628\\_taking-caution-report.pdf](https://www.osc.gov.on.ca/documents/en/Investors/inv_research_20180628_taking-caution-report.pdf).

<sup>10</sup> No Author. “Canadian Payments Forecast 2019.” *Technology Strategies International* (2019) <https://www.researchandmarkets.com/reports/4766732/canadian-payments-forecast-2019>.

<sup>11</sup> Stix, H. “Ownership and Purchase Intention of Crypto-Assets—Survey Results.” *Oesterreichische Nationalbank Working Paper 226* <https://www.oenb.at/en/Publications/Economics/Working-Papers/2019/working-paper-226.html>.

<sup>12</sup> No Author. “Cryptoassets: Ownership and Attitudes in the UK.” *Financial Conduct Authority* (2019) <https://www.fca.org.uk/publication/research/cryptoassets-ownership-attitudes-uk-consumer-survey-research-report.pdf>.

<sup>13</sup> Fujiki, H. “Who Adopts Crypto Assets in Japan? Evidence from the 2019 Financial Literacy Survey.” *Journal of the Japanese and International Economies* **58.101107** <https://doi.org/10.1016/j.jjie.2020.101107>.

<sup>14</sup> Hundtofte, S., Lee, M., Martin, A., Orchinik, R. “Deciphering Americans’ Views on Cryptocurrencies.” *Liberty Street Economics* <https://libertystreeteconomics.newyorkfed.org/2019/03/deciphering-americans-views-on-cryptocurrencies.html>.

<sup>15</sup> Foster, K. M. “Measuring Consumer Cryptocurrency Adoption and Use in the United States.” *Working Paper* <https://ww2.amstat.org/meetings/jsm/2019/onlineprogram/AbstractDetails.cfm?abstractid=304413>.

<sup>16</sup> Speculation is defined based on respondents who selected the option “It is an investment”.

<sup>17</sup> Engert, W., Fung, B. S. C., Hendry, S. “Is a Cashless Society Problematic?” *Bank of Canada Staff Working Paper 2018-12* <https://www.bankofcanada.ca/2018/10/staff-discussion-paper-2018-12/>.

<sup>18</sup> *C.f.* Stix, H. “Ownership and Purchase Intention of Crypto-Assets—Survey Results” (2019),<sup>11</sup> who finds that while owners of cryptoassets believe that they provide relative benefits over other payment methods, only about 50% have actually used cryptoassets to make a payment. The author’s interpretation is that current adoption is driven in part by beliefs about the potential *future* importance of technologies such as Bitcoin for making payments. Further, he shows that while Bitcoin owners have similar levels of conventional bank deposits, they are much more likely to hold risky financial assets.



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