Economic Viewpoint
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Is cash going the way of the dodo?

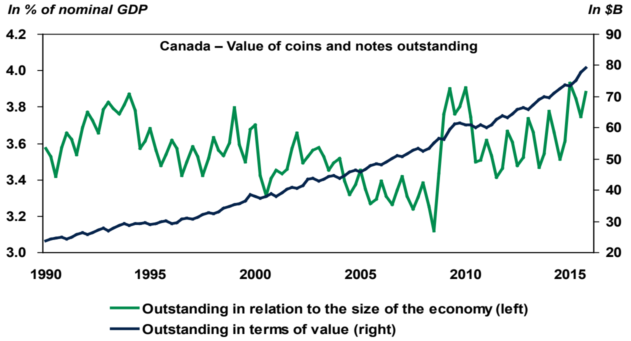
Technology and the proliferation of ways to pay are increasingly sidelining cash. Given the trend, will cash disappear completely? Other arguments also support this scenario. The disappearance of cash could make it easier to combat illegal activity and the underground economy. The central banks are also cognisant of the advantages, as it could be easier for them to adopt negative interest rates if people did not have the option of keeping their assets in cash.

This *Economic Viewpoint* looks at the credibility of a scenario that has cash disappearing from Canada within a decade or two. Despite the proliferation of payment methods and the alleged advantages of getting rid of coins and bank notes, this scenario is unlikely, in our opinion. In fact, although the use of cash will decline, there is no shortage of arguments that retaining some coins and notes would be a good thing. That being said, to curb the costs associated with keeping cash, it is important to regularly assess what denominations of coins and notes are kept in circulation, as well as their respective size and what they are made of.

USE OF CASH IN CANADA

Canada currently has about $80B in coins and bank notes in circulation. Although there are now many other methods of payment, the amount of cash outstanding has continued to increase in recent years, rising at a pace of 4% to 7% a year. The growth is, however, boosted by the economy's expansion and increase in the cost of living. To get a better picture of how cash is used, it is best to compare the total amount of bank notes and coins outstanding in terms of nominal GDP. Even with this adjustment, there is still a slight uptrend since 2009 (graph 1). Today, the amount of coins and bank notes in circulation totals approximately 3.8% of nominal GDP, compared with an average of 3.3% from 2005 to 2008.

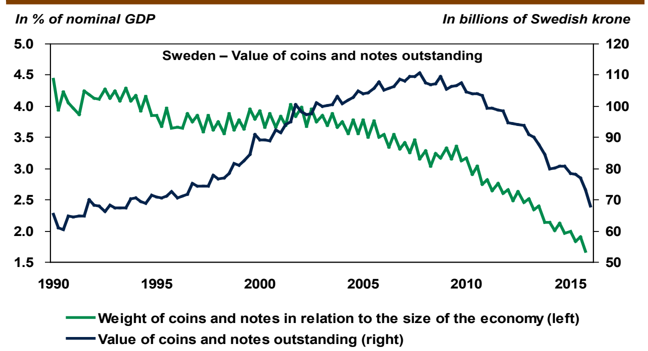
Graph 1 – The quantity of coins and notes outstanding continues to increase in Canada



Sources: Datastream and Desjardins, Economic Studies

This trend contrasts with what is happening in some countries, such as Sweden, where the use of cash is down sharply (graph 2). There, the value of cash now represents about 1.5% of nominal GDP, compared with 4% 15 years ago. Several factors seem to be responsible for the rapid decline. Among them, using cash seems to carry a very negative connotation, while innovations like the Swish application[1] for mobile payment are a big hit in Sweden.

Graph 2 – In Sweden, the quantity of cash outstanding is down sharply



Sources: Datastream and Desjardins, Economic Studies

[1] www.getswish.se.

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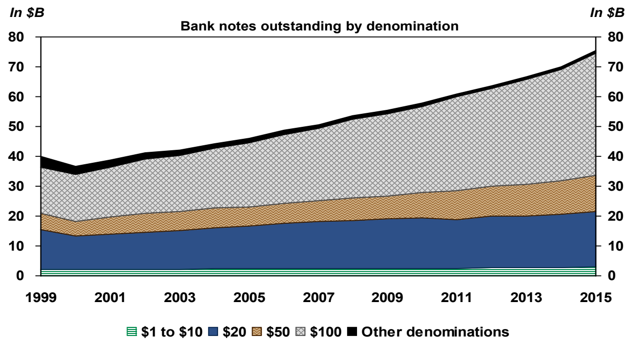
WHAT PORTION IS USED IN TRANSACTIONS?

Although the cash in circulation is increasingly steadily in Canada, this does not mean it still gets as much use as a method of payment. A breakdown by denomination shows that the increase in bank notes outstanding is primarily occurring with $100 bills (graph 3), which now account for more than half of the total amount outstanding. These bills are likely little used to purchase goods and services and are more likely used for hoarding purposes. We might also assume that they are used more for illicit activities, or in the underground economy. This is one of the reasons the $1,000 bill has not been issued in Canada since May 2000.

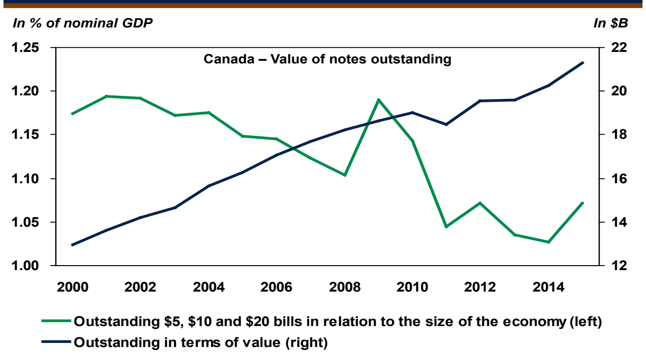
Graph 3 – The $100 denomination accounts for much of the increase in notes outstanding



Sources: Bank of Canada and Desjardins, Economic Studies

The $50 bill is also more popular. Its share of total cash outstanding has risen from 14% in 2009 to about 16%. This note can also be used for hoarding, but is more likely to be used as a method of payment than the $100 bill. It has also been added to some ATMs. In contrast to the gains made by the $50 and $100 bills, the $5, $10 and $20 bills have all lost ground. The downtrend in use of these three denominations is confirmed by expressing the value of the amount outstanding as a per cent of nominal GDP (graph 4).

Graph 4 – $5, $10 and $20 bills outstanding decline as percentage of nominal GDP



Sources: Datastream and Desjardins, Economic Studies

The Bank of Canada (BoC) occasionally conducts surveys to get more definite information on how Canadians use cash and other methods of payment. The latest survey covers the year 2013.[2] An article in the Spring 2015 *Bank of Canada Review* compares the results of the 2013 and 2009 surveys, clearly demonstrating the decline of cash as a method of payment.[3] In 2009, cash was used to settle 53.6% of transactions compared with 43.9% in 2013. In terms of value, however, cash's share is stable at around 23%. These results suggest that cash's popularity has dwindled for low-value transactions. Volumes have declined substantially for such things as gasoline, as well as for travel and parking (table 1). It also seems that the value of some cash transactions has increased more, offsetting the decline in volume. For example, the value of cash transactions increased for health care and personal and professional services.

Table 1 – Share of cash transactions by type of good and service

	Volume		Value	
Type of good or service in %	2009	2013	2009	2013
Durable goods	35	29	10	17
Entertainment/meals	69	56	45	37
Gasoline	36	22	29	17
Groceries/drugs	49	39	28	24
Health care	38	35	10	16
Hobbies/sporting goods	46	44	18	19
Personal attire	36	26	16	13
Professional/personal services	42	41	12	25
Travel/parking	74	57	36	22
Other goods and services	65	54	24	26

Source: Bank of Canada, *Bank of Canada Review*, Spring 2015, p. 50,
www.bankofcanada.ca/wp-content/uploads/2015/05/boc-review-spring15.pdf

The BoC's surveys also bring to light disparities in cash use that pertain to a variety of sociodemographic factors (table 2 on page 3). For example, people aged 55 to 75 are more inclined to pay cash than younger cohorts. The method of payment also seems to be influenced by income and education level. Those with lower incomes and less education are more inclined to use cash in their transactions. That being said, the volume of cash transactions is also trending down, regardless of age, income and education level.

[2] Christopher S. Henry *et al.*, "2013 Methods-of-Payment Survey Results", Bank of Canada, *Staff Discussion Papers 2015-4*, April 2015, 46 p., www.bankofcanada.ca/wp-content/uploads/2015/04/dp2015-4.pdf.

[3] Ben Fung *et al.*, "The Use of Cash in Canada", Bank of Canada, *Bank of Canada Review*, Spring 2015, p. 45-56, www.bankofcanada.ca/wp-content/uploads/2015/05/boc-review-spring15.pdf.

Table 2 – Use of cash based on selected sociodemographic criteria

	Volume		Value	
In %	2009	2013	2009	2013
Total Canada	**53.6**	**43.9**	**22.9**	**23.1**
Region				
Atlantic	57.5	43.2	25.1	29.2
Quebec	53.8	44.4	24.3	25.6
Ontario	56.5	43.2	22.7	21.1
West	50.5	44.6	21.2	22.6
Age				
18-34	48.7	40.8	22.9	24.6
35-54	54.1	40.1	23.0	19.5
55-75	58.8	49.3	22.8	23.8
Income				
Low	60.4	52.0	31.6	31.8
Medium	56.3	45.2	24.4	23.1
High	48.1	35.7	17.4	16.7
Education				
High school	60.6	49.5	33.0	30.8
Technical/comm. college	56.1	42.3	24.0	21.8
University	48.6	38.5	16.6	16.2

Source: Bank of Canada, *Bank of Canada Review* , Spring 2015, p. 53, www.bankofcanada.ca/wp-content/uploads/2015/05/boc-review-spring15.pdf

ARGUMENTS FOR PICKING UP THE PACE ON MOVING AWAY FROM CASH

Beyond the decline in use of cash as a method of payment, there are other arguments for eliminating cash. Among other things, it could make it easier to combat illegal activity and the underground economy; it could also make monetary policy more efficient and even reduce transaction costs.

Combating illegal activity and the underground economy

Those engaged in illegal transactions or who are trying to avoid tax and other tariffs need secrecy and discretion in their method of payment. Cash is a leading option; the disappearance of cash could make life much more complicated for those who use this method of payment for the wrong reasons. The surge in $100 bills in circulation probably reflects this unsavoury need for cash. According to various studies, the size of Canada's underground economy, including illegal activity, is between 10% and 20% of GDP.[4]

Making monetary policy more efficient

In recent years, several central banks have had to turn to negative interest rate monetary policies when they were running out of ways to stimulate the economy and inflation. The BoC has also been open to taking this path, if necessary. As with traditional monetary policy, the goal is mainly to reduce borrowing costs so as to stimulate credit and demand. That being said, if key interest rates were lowered to the point that even depositors' interest rates were negative, it could encourage people to hold more cash, on which they would not have to pay any interest. Money that is taken out of financial institutions cannot be used to increase lending volumes, however, which would make the monetary policy less effective.[5] By getting rid of cash, interest rates could more easily be lowered into negative territory, further reducing lending costs. On the other hand, this would leave depositors with a sour taste in their mouths.

Reducing transaction costs

A variety of costs are involved in using cash. There are, of course, the costs involved in making, handling and distributing cash, which are partially borne by consumers who pay the ATM or bank fees for withdrawals. Merchants also bear costs, many of which are indirect, such as the labour costs associated with the time involved in payment, cash reconciliation, preparing deposits, and depositing them at a financial institution. The costs associated with security and fraud (counterfeit) must also be considered. A 2009 article in the *Bank of Canada Review* showed that it could cost a merchant around $0.25 to accept a $36.50 cash transaction.[6]

McKinsey also attempted to estimate the costs of using cash, this time including financial institutions, consumers and governments.[7] Between 2007 and 2011, these costs accounted for 0.47% of U.S. GDP, or US$490 per household. The information was not available for Canada.

SEVERAL COUNTER-ARGUMENTS

While the arguments for dropping cash may seem convincing, several arguments against doing so add some complexity to the issue. For one thing, it is likely not that simple to get rid of cash in a country, even without considering the drawbacks and harm it could create.

Substitutes

The argument that getting rid of cash could hinder illegal activity and the underground economy quickly runs aground on the possibility that other tactics and methods of payment offering secrecy and discretion will take root. We

[4] Desjardins, Economic Studies, *Perspective*, "The underground economy overshadows the official economy", Volume 26, February 2016, www.desjardins.com/ressources/pdf/per0216e.pdf?resVer=1456755853000.

[5] Desjardins, Economic Studies, *Economic Viewpoint*, "What should we make of the negative interest rates that we now see in many countries?", May 27, 2015, www.desjardins.com/ressources/pdf/pv150527-e.pdf?resVer=1432732947000.

[6] Carlos Arango and Varya Taylor, "Merchants' Costs of Accepting Means of Payment: Is Cash the Least Costly?", Bank of Canada, *Bank of Canada Review*, Winter 2008-2009, p. 15-23, www.bankofcanada.ca/wp-content/uploads/2010/06/arango_taylor.pdf.

[7] Olivier Denecker *et al.*, "Forging a path to payments digitization", McKinsey&Company, *McKinsey on Payments*, nº 16, March 2013, p. 3-9.

should never underestimate people's ability to adjust and innovate, especially if it's clearly to their benefit to do so.

Among the alternates that could be popular are cryptocurrencies like Bitcoin. Given that they have some shortcomings,[8] however, using another country's paper currency, like the U.S. dollar, would be a much more straightforward option. It would be more difficult to keep the U.S. dollar from circulating, and would probably require substantial controls on capital that are incompatible with a free-trade economy. The ideal would be broad international coordination in which all major currencies would be abolished simultaneously. However, it is very hard to believe that the U.S. government would be able to abolish cash. The greenback is a major symbol for Americans. Any proposal to get rid of it and make citizens use alternative methods controlled by the government and major financial institutions would be political suicide.

The desire for freedom and protection of privacy

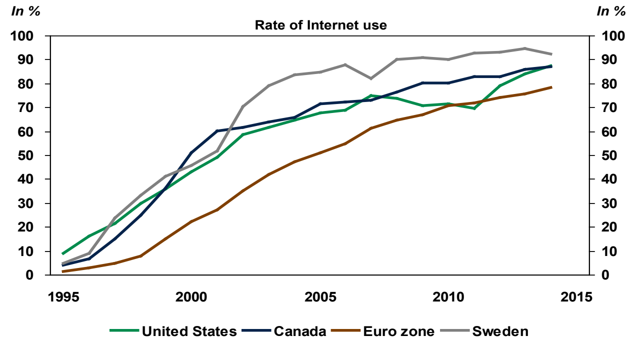
Like Americans, many Canadians are likely to see using cash as a strong symbol of individual liberty that keeps control by governments and other entities at bay. People don't pay cash just so they can engage in criminal activity or stay below the tax man's radar. Honest people may prefer this method of payment for a variety of reasons, and want to have that choice. Perhaps they think it is simpler to use coins and notes. Some may see it as a way to keep better control over their spending, or to teach their children how to manage their money. Protecting their privacy may be another reason to use cash rather than another method of payment that leaves tracks behind. Consumers might think that the information third parties gather during electronic transactions could potentially be used against them.

Universal accessibility

In a variety of areas, our society puts a lot of effort into making sure everyone has equal opportunity, and equal access. For some people, depriving them of the ability to use cash could be harmful if they have difficulty using other methods of payment.

As we mentioned earlier, cash is more used by the elderly, those with low incomes, and those with lower education levels. Penalizing these people would be ill advised. For some, the issue could be a lack of knowledge or skill, but it could also be a question of means. For example, Internet access could be an issue for using some payment methods. World Bank figures put the rate of Canadian Internet usage at around 87% (graph 5). This means that a sizable proportion of the population is still excluded. Lastly, we must also consider the impact of some handicaps on access to the various payment methods.

Graph 5 – Even if this number declines, many people do not have Internet access



Sources: World Bank and Desjardins, Economic Studies

The rainy day reserve

What if the power goes out or something else happens that makes it impossible to use electronic payment methods? These situations make cash a highly-valued backup, which is probably one reason most people keep a few bills and coins in their pockets or at home. Another look at the results of the BoC's last survey on the use of cash shows that Canadians kept an average of $84 in their wallets in 2013, up $14 from 2009. Younger people keep less cash on hand: an average of $61 for 18-to-34-year-olds, compared with $108 for those aged 55 to 75. The survey also established that Canadians kept a median amount of $300 in cash at home.

Demand for cash sometimes increases based on shifts in the risk associated with using other payment methods. For example, at the turn of the century, fears about a widespread computer bug resulted in a substantial increase in the amount of cash in circulation. In Canada, the increase primarily occurred in December 1999 and, as no bug actually materialized, demand for cash quickly dropped back to normal in the early months of 2000.

Decline in seigniorage revenue

Seigniorage revenue is the income a central bank derives from issuing money.[9] This revenue goes back to the government, minus the expenses associated with running the central bank. Essentially, the revenue corresponds to the interest generated by the bonds or other securities that make up the bank's assets, less the interest paid on its liabilities. Usually, little interest is paid on the liabilities, as they are

[8] Desjardins, Economic Studies, *Economic Viewpoint*, "The limits of currencies like Bitcoin", November 21, 2013, www.desjardins.com/ressources/pdf/pv131121-e.pdf?resVer=1385162817000.

[9] In Canada, the central bank is responsible for issuing bank notes and the Royal Canadian Mint is responsible for issuing coins. A similar division of labour can be seen in several other countries.

essentially comprised of bank notes in circulation. If cash were to be eliminated, the central bank would have to sell securities to pay for the bank notes that would be returned to it. In the end, its asset base would shrink, as would its interest income.

For 2015, the BoC's interest and investment income was $1,755.8M.[10] About three quarters of this income was associated with bank notes in circulation, meaning that withdrawing cash could trigger a recurring shortfall of more than $1B a year, even factoring in the amount saved on printing bills.

Other payment methods also have costs

An analysis of the costs of cash would not be complete without a comparison with other payment methods. The BoC's study on the costs for merchants of using cash did this exercise. For a typical $36.50 transaction, the study concluded that using a debit card cost $0.19, a little less than cash. Using a credit card for that same transaction cost merchants $0.82. As technology has evolved since then, particularly in terms of processing time, which is faster with Paypass (tap and go), the cost of electronic transactions has probably declined. In the fall of 2014, an agreement was also reached with VISA and MasterCard to limit the credit card charges imposed on merchants to 1.5% on average.[11] A more exhaustive estimate of costs should also include other factors, such as the fees billed to consumers (minus rewards) and other charges that may be borne by financial institutions or card issuers.

Cash costs can be better controlled

Still in terms of costs, it is important to make the right decision on issuing coins and notes. In Canada, taking the penny out of circulation was an important step in reducing the costs associated with using cash. A study we published in 2007 put the social burden of the coin at about $130M a year (production, storage, transportation and other costs).[12] A second study, released in 2008, took an overall look at all coins and notes so as to optimize cash denominations in Canada.[13]

Due to the gradual increase in the cost of living and decreased buying power of small coins, the time will come when the nickel will have to be taken out of circulation. In keeping with our 2008 conclusions, we can already start planning for this change, so as to see it materialize within about five years. Withdrawing the nickel will have to come along with other changes, such as withdrawing the quarter, and issuing new coins in multiples of 10 (¢10, ¢20 and ¢50). The decision on the size and make-up of these coins should also aim to minimize the costs of producing and using them.

Our 2008 study also looked at the possibility of converting the $5 bill into a coin. However, the shift from paper to polymer bills lessens the need for this change, as it has substantially increased the lifespan of the notes. Eventually, the evolution of buying power could still justify changing to a $5 coin. Also, adding another, larger denomination could become necessary, for the same reason. This should be quite some time in coming, however, as the $100 bill does not seem to be getting much use in purchasing goods and services. Adding a larger denomination could also run aground on the effort to make things tougher for transactions associated with illegal activity and the underground economy.

IN THE END, THE CONSUMER IS ALWAYS RIGHT

In light of this information, even though cash is in decline in Canada as a method of payment, in our view, it is very unlikely to vanish altogether over the next 10 to 20 years. Cash is still involved in nearly 40% of transactions, accounting for over 20% of their value. Consumers continue to be very much attached to this method of payment.

While there are arguments for speeding up the abandonment of coins and bank notes, there are many arguments against it as well. Among other things, cash can be identified with the desire for liberty, and can also prove an important tool in ensuring that all Canadians have access to a method of payment that is right for them, and suits their needs and preferences.

In the end, the solution is to adapt to consumers' needs, rather than trying to rush things. However, decisions will have to be made to minimize the costs associated with keeping cash, particularly as innovations could further reduce the costs of other methods of payment. These decisions should focus on the number of denominations of coins and notes that are kept in circulation as well as their respective size and what they're made of.

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[10] Bank of Canada, "Annual Report 2015", p. 65, www.bankofcanada.ca/wp-content/uploads/2016/03/annualreport2015.pdf.

11 Department of Finance Canada, "Minister of Finance issues statement on voluntary Visa and MasterCard proposals", November 4, 2014, www.fin.gc.ca/n14/14-157-eng.asp.

[12] Desjardins, Economic Studies, *Economic Viewpoint*, "Should we stop using the penny?", February 15, 2007, www.desjardins.com/ressources/pdf/pv150527-e.pdf?resVer=1432732947000.

[13] Desjardins, Economic Studies, *Economic Viewpoint*, "100th anniversary of the Canadian penny – An opportunity to re-examine the usefulness of our coins and bank notes in circulation", April 9, 2008, www.desjardins.com/ressources/pdf/pve80409-e.pdf?resVer=1385156065000.