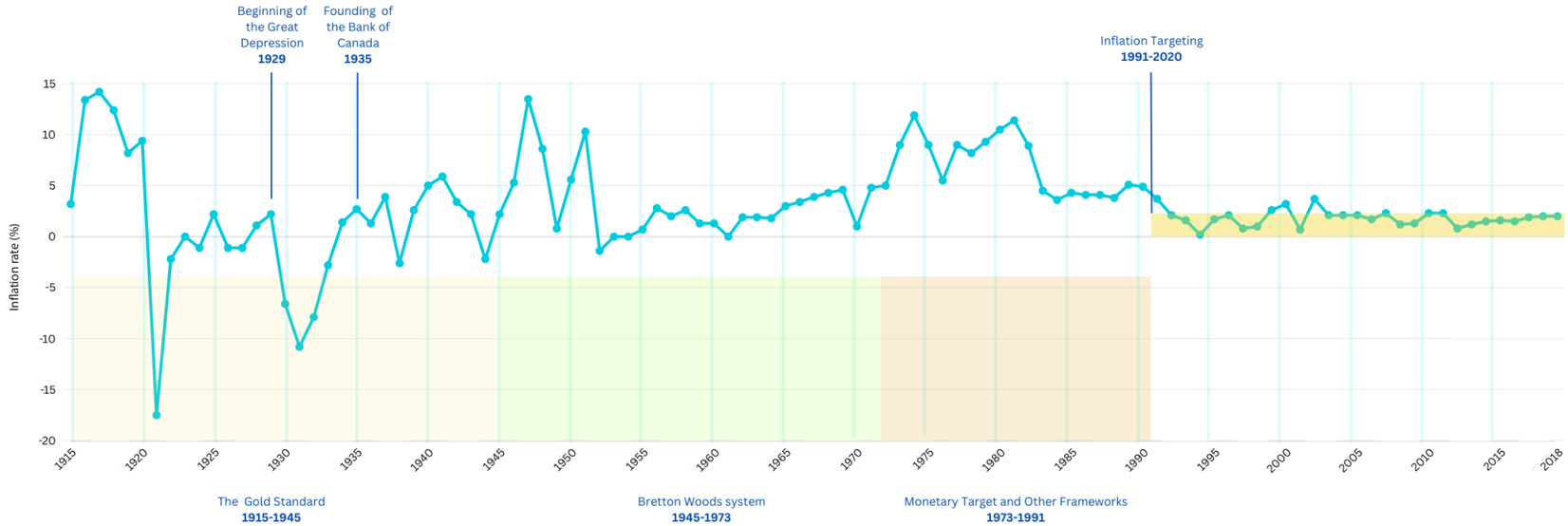
> Keeping inflation low and predictable helps Canadians make decisions about the future.
>
> - Dan, Bank of Canada

1 - Inflation throughout the years



Sources: Statistics Canada and Bank of Canada calculations

PREWORK

1 Label the following historical markers by drawing vertical lines across the data at these time periods:
a. beginning of the Great Depression in 1929
b. founding of the Bank of Canada in 1935

2 Label the following time periods below the graph:
a. The gold standard from 1915-1945
b. Bretton Woods system from 1945-1973
c. Monetary target and other frameworks 1973-1991
d. Inflation targeting from 1991-2020

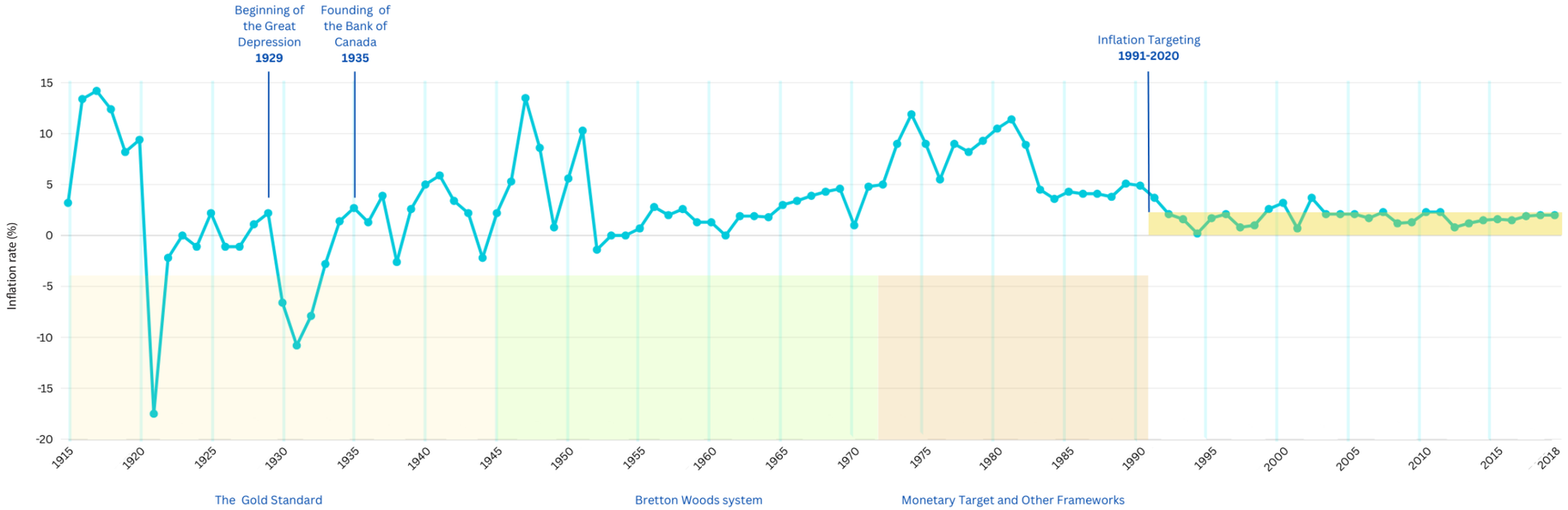
3 Looking at the valleys and peaks of the chart, can you spot any recessions? Label "R" next to each of the periods. A recession is temporary decline in economic growth. Can you identity five?

For recessions, look for significant dips (troughs) in the data, with clear ones in 1929-1933 (during the Great Depression) and 1974-1975.

Others include:
1937-1938, 1947-1948, 1951, 1953-1954, 1957-1958, 1960-1961, 1981-1982, 1990-1992, 2008-2009.

4 Since 1991 the Bank has targeted inflation at a certain percentage with a range above and below that. Looking at the data, can you guess what those numbers are? If helpful, try running a highlighter through the middle area of the data to determine the percentage range.

The target for inflation is 2% with a target range of 1% to 3%.



Sources: Statistics Canada and Bank of Canada calculations

EXPLAINER

Inflation is the change of the value of money over time, meaning your purchasing power generally gets smaller as time goes by. Nearly everything costs more money now than it used to years ago.

Ever since the Bank of Canada was founded during the Great Depression, it has tried to keep inflation rates stable with a moderate growth. It's a bit like the fable Goldilocks—inflation that is too high or too low can heat or cool the economy too quickly.

Until the 1990s, when the Bank began targeting the inflation rate, there were different approaches to controlling inflation in Canada. Historically, the value of the Canadian dollar was pegged either to the amount of gold the Bank had (the gold standard) or to the value of the US dollar (the Bretton-Woods system). After some years of looking for an anchor for its currency, Canada was an early adopter of targeting an inflation rate of 2%. The Bank does this by adjusting the interest rate it charges commercial banks to borrow money so they can settle their accounts overnight. Inflation targeting has been largely effective.

ANALYSIS

5 What happens when incomes rise slower than inflation? How might that affect people?

People's budgets are squeezed when their income "flatlines" compared with inflation. They then need to budget carefully to keep the same standard of living or reduce their spending. At a national level, labour actions such as strikes are more likely to happen during prolonged high inflation. This can lead to a wage-price spiral, where wages rise to meet the level of inflation, which then increases inflation even further.

6 How would you sum up the graph in one sentence?

Answers may vary. As a suggestion: The 2% inflation target has helped with economic stability.

FORECASTING

7 How might unpredictable inflation rates impact peoples' and businesses' financial decisions in the past?

When inflation is unpredictable, it is hard to plan for the future. Consumer expectations play a critical role in cooling down or heating up inflation. If consumers think prices will go up significantly in the future, they are more likely to make purchases sooner, increasing demand. Major purchases and investments, such as renovating, hiring staff or expanding a business are harder to do with unpredictable inflation because the cost of borrowing can rise and fall sharply.

8 At the start of the COVID-19 pandemic in 2020, the Bank of Canada brought interest rates as low as they could reasonably go, to 0.25%. Afterward, Canada's economic recovery was uneven, and interest rates took a while to return to near the targeted range. How would you compare the post COVID-19 high interest rates to rates in the ten prior years? What would you say to someone who compares periods of high interest rates of the past to the interest rates since the economy opened up after the pandemic lockdown?

While inflation in the wake of the pandemic hit the highest it has been in nearly 30 years, the rise and fall was much less drastic than in the past because of the Bank's short inflation targeting range of only a few percentage points. This spike may have still fuelled consumer uncertainty, but it was not as long as in the past due to the effectiveness of targeting.

HUMAN CONNECTION

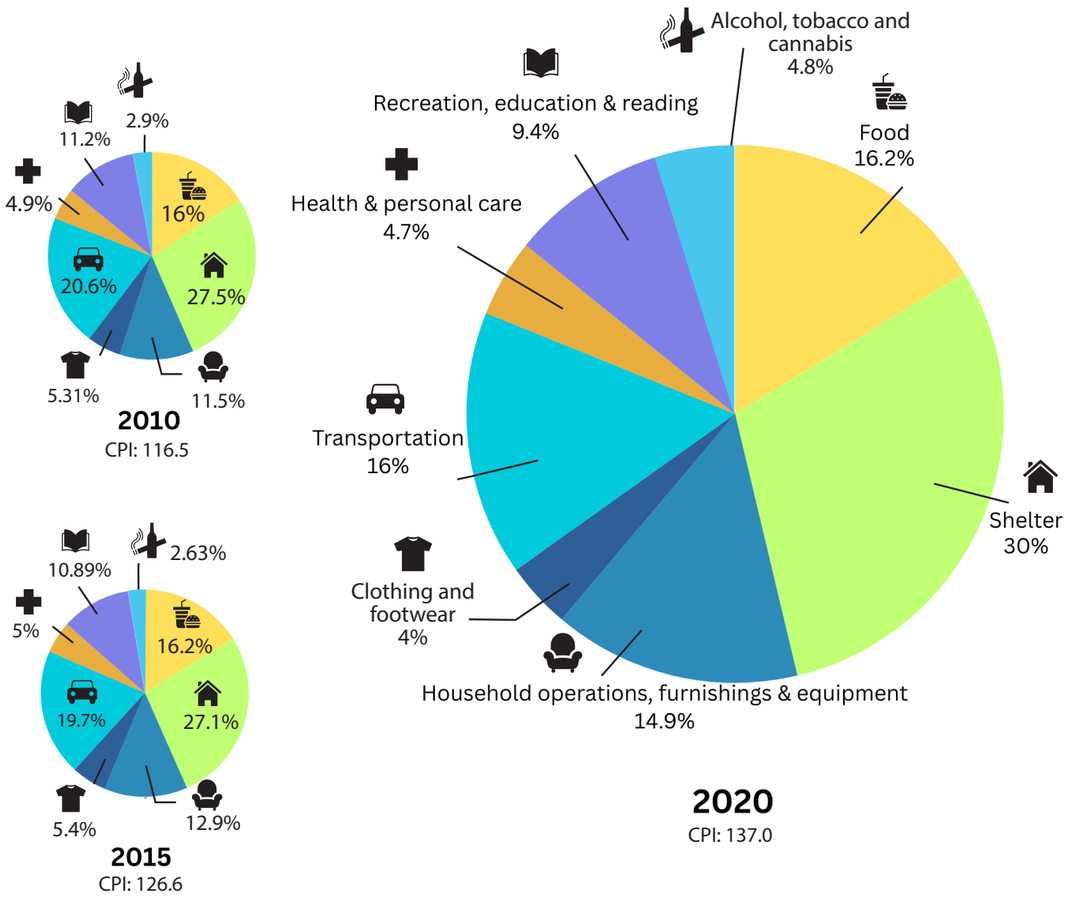
9 Consider how two different people can see inflation differently: Catherine was born in 1950 and Troy was born in 1980. Both have similar incomes, went to university and bought their homes in their mid-30s. Given that inflation is connected with interest rates for borrowing and saving, how might inflation have affected them differently?

Catherine grew up with more significant ups and downs of inflation. Rapid changes to the rate in the mid-1970s and the 1980s mean inflation would have affected both her mortgage rate and tuition borrowing costs more than it affected Troy. One solution to combating higher inflation—and therefore higher interest rates—would be to save more money upfront for a larger down payment on large purchases. While not reflected in the data for this chart, homes and vehicles in the past would not have been as expensive for Catherine as they were for Troy or people buying today.

Troy grew up with a relatively stable level of inflation. Because of this, he may have been less concerned than Catherine about paying off student loan debt as quickly as possible. Knowing inflation wouldn't change too much for mortgage rates either, he may have chosen a more expensive house and assumed his mortgage rate would stay low.

For both Catherine and Troy, smaller dips and rises in inflation can also be challenging. Economic uncertainty can make it difficult for wages to keep up with inflation.

2 - Consumer Price Index and Category Weights By Year



Source: adapted from Statistics Canada. 2024. Table 18-10-0004-01 Consumer Price Index, monthly, not seasonally adjusted.

> The CPI is the most relevant estimate of the cost of living for Canadians and helps us target inflation.
>
> - Patrick, Bank of Canada

PREWORK

1 Statistics Canada assigns a mathematical weight, or relative value, to each of the different categories of everyday goods and services in the consumer price index (CPI) basket. Can you guess which categories belong to which slices of the pie chart, based on their weights? Label the slices.

a. Alcohol, tobacco and recreational cannabis

b. Clothing and footwear

c. Food

d. Health and personal care

e. Household operations, furnishing and equipment

f. Recreation, education and reading

g. Shelter

h. Transportation

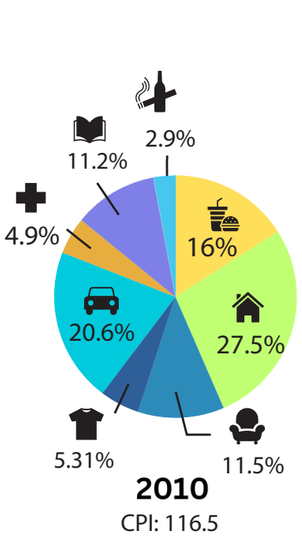
2 Calculate the rates of inflation for 2015 and 2020 and see how they compare to 2010 . Use the numbers for each of the years shown above and the formula below. Label the inflation rates next to the pie chart to show how much inflation has increased between each year.

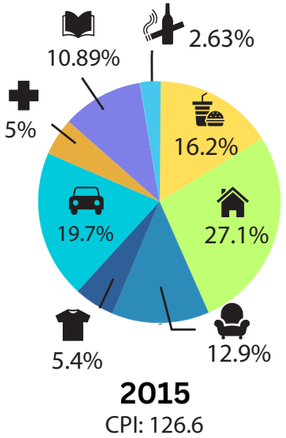
$$\text{Inflation rate} = \frac{(\text{CPI year 2} - \text{CPI year 1})}{\text{CPI year 1}} \times 100$$

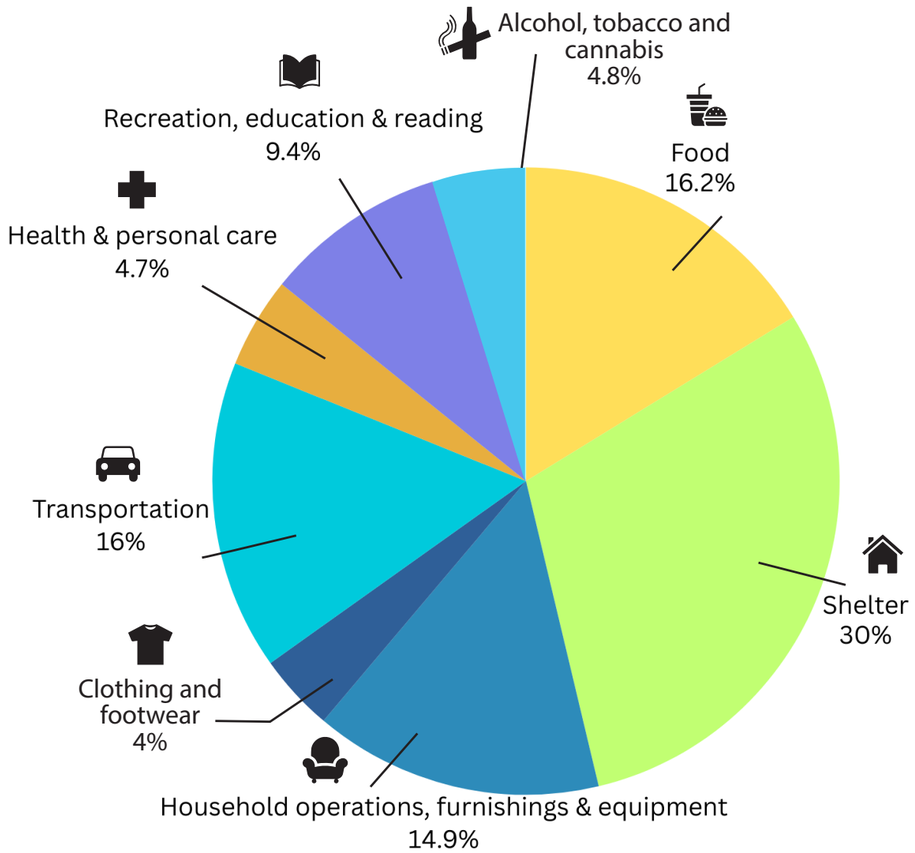
For 2010: Inflation rate $= \frac{(116.5 - 100)}{100} \times 100 = +16.5\%$

For 2015: Inflation rate $= \frac{(126.6 - 116.5)}{115.1} \times 100 = +10.1\%$

For 2020: Inflation rate $= \frac{(137.0 - 126.6)}{126.6} \times 100 = +8.2\%$







2002-2010: interest rate increased 16.5%
2010-2015: interest rate increased 10.1%
2015-2020: interest rate increased 8.2%

EXPLAINER

The most effective way to measure inflation is to use the CPI. This index is made up of an imaginary shopping basket of hundreds of goods and services that Canadians purchase. Interviewers at Statistics Canada collect prices of frequently bought items (such as milk and toilet paper) and major purchases (such as cars and dishwashers). The basket's spending categories reflect an average consumer's own spending.

The full dollar amount of these purchases, both in each category and as a total, is converted to an index that can then be compared with indexes from prior years. The base period for this data is 2002, when CPI equals 100. Monthly CPI data are compared with the same month in the previous year, and annual data are compared among overall years.

The Bank of Canada filters out items in the basket that have extreme price fluctuations by removing the top 20% and bottom 20% of price variations. This version of CPI is called CPI-trim. The Bank also analyzes individual goods and services to see how they affect inflation.

ANALYSIS

3 Thinking like a statistician, can you think of some challenges in collecting data and using the CPI to accurately predict inflation?

- Consumer spending on certain items can change quickly. Most items purchased in one CPI year need to be replaced the next year to account for new spending habits and new products.
- Even though Statistics Canada releases CPI data monthly, there will always be a slight lag in showing consumers' real-time spending.
- The shelter category includes house prices, even though these can vary wildly from an average price. Homes also generally appreciate in value over time and include equity (the down payment for buying a home).
- The CPI tries to account for shrinkflation (where the size of a good shrinks but its price remains the same). But this can be challenging to measure.
- Quality adjustments due to technology can also affect the prices of items. For example, even though the price of a cellphone may have been 20% lower in the past, the quality of the product today is better.

Source: adapted from Statistics Canada. 2024. Table 18-10-0004-01 Consumer Price Index, monthly, not seasonally adjusted.

4 CPI-trim gives the Bank a good sense of long-term inflation trends. What kinds of goods and services do you think the CPI-trim list of volatile items might exclude?

Items that can have sudden spikes or drops in prices often depend on seasonal and other factors. For example, extreme weather can affect the prices of food components, so these are excluded in CPI-trim. And gasoline prices are almost always excluded. They fluctuate because people drive more in the spring and summer and less in the winter.

FORECASTING

5 Gathering CPI data from the territories can be difficult. Why do you think that is?

It is harder for interviewers to gather information about prices when communities are small and far away from each other.

6 The CPI does a good job of calculating inflation, but it's not perfect. This is due to factors like substitution, new products, technological advances and the rise of online shopping. How could you explain the effect each of these factors has on consumer spending?

Substitution: People change their buying habits when prices go up or down. That means they may swap beef for chicken to save money. But the data may still reflect the cost of the basket with the original weights for all the goods.

New products: Statistics Canada updates the CPI basket every two years to reflect changes to products and services and how Canadians buy them. This means it doesn't include products that come onto the market between updates.

Technological advances: Rapid advances tend to lower the cost of products like computers and electronics over time. For example, a very basic computer cost thousands of dollars in 1985. Today, one costs only a few hundred dollars and can do far more.

Online retailers: More and more, people are shopping online, where prices tend to be lower than in traditional brick-and-mortar stores. If the effect of this change is not fully captured, the CPI could be overstating the cost of living.

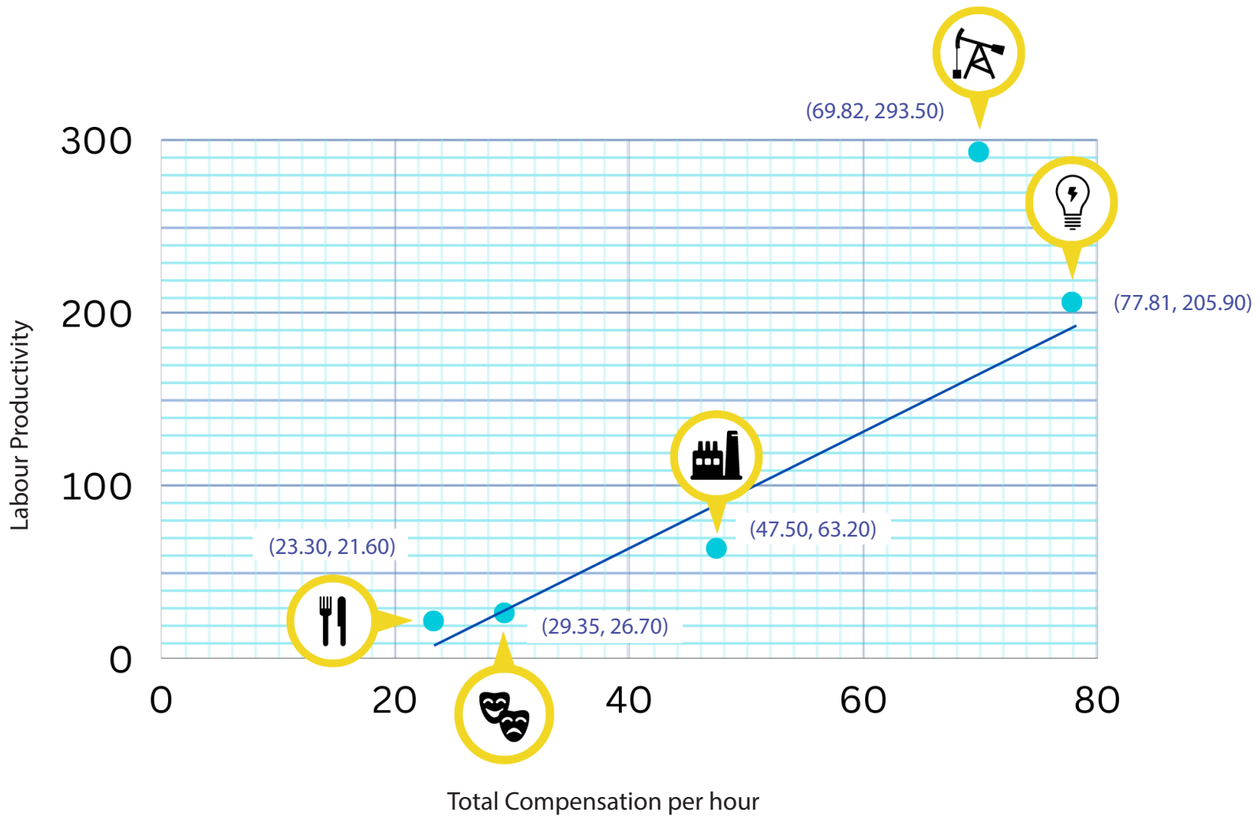
HUMAN CONNECTION

7 How would you compare your household's spending weights to those in the CPI? Do you think your personal spending inflation rate is lower, higher or the same as the CPI?

Answers will vary. If interested, consider using Statistics Canada's personal inflation calculator online to get an accurate personal rate to compare with actual inflation.

3 - Wages and Productivity

> High productivity helps raise our standard of living and keep our economy competitive.
>
> - Tatjana, Bank of Canada



PREWORK

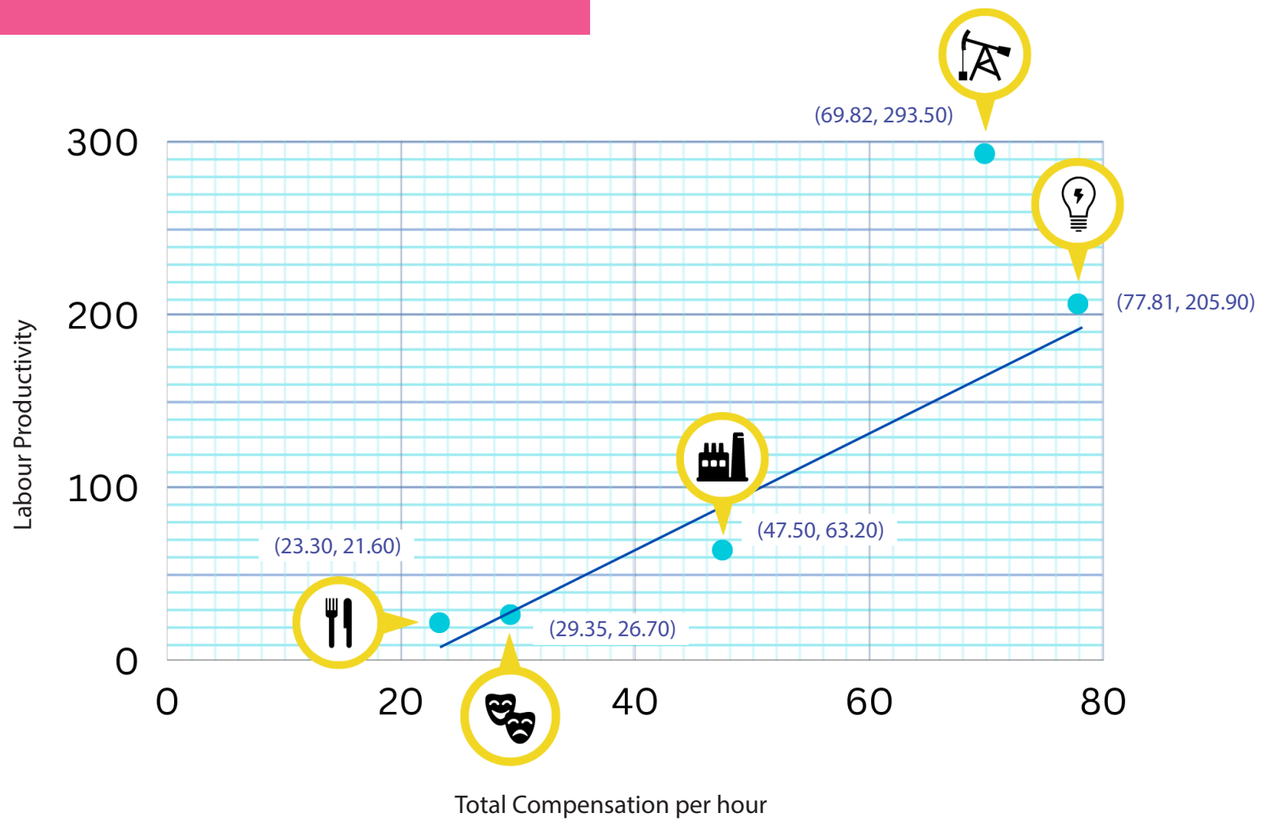
1. Label the x and y axis with the following:
   a. x: Total compensation per hour ($)
   b. y: Labour productivity

2. If compensation means wages, and labour productivity is a measure of a worker's output, think about where you might place the following workers in the chart. Then, think about the larger industries that each worker's job falls under, and label each next to a numbered dot:

- a waiter (food services)
- a car manufacturer (manufacturing)
- a stagehand (arts, entertainment and recreation)
- a power engineer (utilities)
- a geologist (mining, oil and gas extraction)

3. Using a ruler, determine the approximate compensation and productivity for each industry you placed. Label these amounts next to them.

Source: Adapted from Statistics Canada. 2024. Table 36-10-0480-01 Labour productivity and related measures by business sector industry and by non-commercial activity consistent with the industry accounts.



Source: Adapted from Statistics Canada. 2024. Table 36-10-0480-01 Labour productivity and related measures by business sector industry and by non-commercial activity consistent with the industry accounts.

EXPLAINER

Labour productivity is measured by how much an industry produces over a certain amount of time. It considers both compensation (wages) for the worker and output, or the value of what that worker produces per hour of work.

Improvements in labour productivity can lead to higher wages and a better standard of living. But not every industry provides a high output. The accommodation and food services industries have lower output with smaller profit margins, and therefore wages are lower. Of course, this also means these sectors can offer many jobs to people with less-specialized skills and fill a demand in society for these goods and services.

Labour productivity usually rises with combined higher wages and higher output. A highly specialized workforce with specialized equipment may cost more but can also boost output. Two sectors stand out for this: utilities, and mining, oil and gas extraction.

ANALYSIS

4 What kinds of industries do you think have the largest swings or unpredictability in wages or output?

Answers vary, but here are two examples:

Retail and food services might swing more because this industry has lower output with slimmer profit margins. These industries also pay less because they usually require fewer skills than other jobs, meaning there may be more movement of workers in and out of these jobs.

Mining, oil and gas as well as manufacturing are industries often connected with booms and busts in the economy, at both national and global levels. And increased technology helps automate the work formerly done by workers, which increases output but lowers the total number of employees.

5 Considering the data, why do you think not every job pays the same?

Answers will vary, including the output of different jobs, the amount and cost of education required for certain jobs, and years of experience. Also, society places value on certain jobs over others, leading to different levels of pay.

FORECASTING

6 A factor not included in the chart is the level of education required for different jobs. How would you describe the relationship between education, productivity and compensation (wages)?

Jobs with less specialization usually require less education. Highly specialized roles such as operating special machinery are harder to fill given the education or training required.

7 Now that you've thought about the work above, what job advice would you offer a new high school graduate about careers?

Answers vary, but advice may include recognizing that many high-paying jobs are specialized and require more education. Even within an industry, there are different skill sets and ranges of possible wages. Some industries also show flexibility in the market—where labour mobility is possible. It's okay to pursue jobs with lower output, depending on what is important for you and what your passions are.

HUMAN CONNECTION

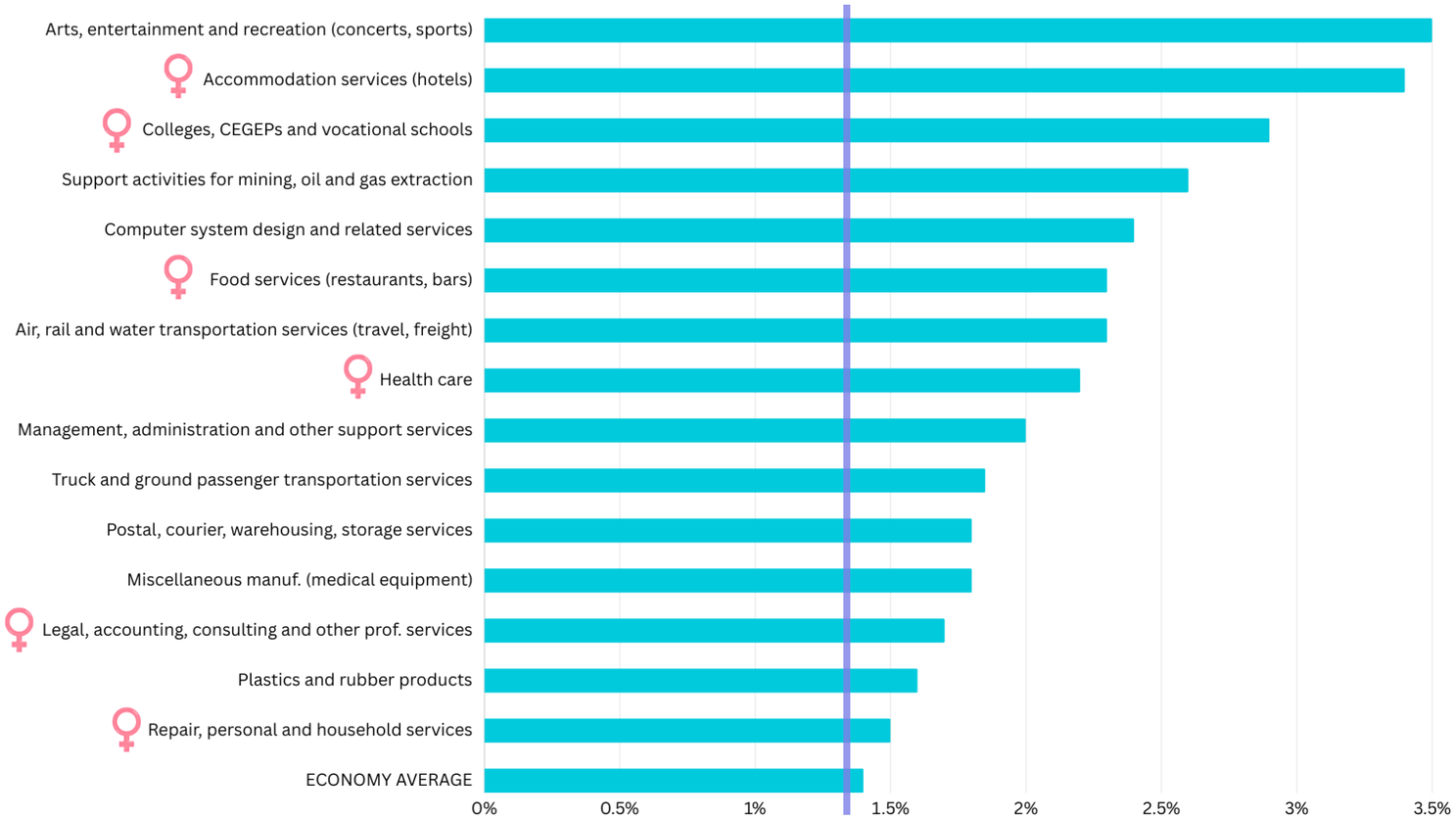
8 Debate the merits of the following argument: All work is valuable; it just depends on who is measuring it.

Students might note the output and labour productivity graph doesn't seem to acknowledge important and meaningful jobs that may not pay a lot or have a high output but that bring joy to society. If labour was measured in terms of happiness or job satisfaction, industries may rank very differently, especially because some of the highest output jobs may also be some of the most stressful.

Measuring only by output and wages also fails to address the inequity in setting wages and valuing jobs by compensation instead of societal need. Finally, people of different abilities need a variety of jobs, and even people seeking casual employment, such as young people and casual workers, need meaningful work.

4 - Future of Work

> Developing workers with the right skills is essential for Canada's long-term growth and prosperity.
>
> - Corinne, Bank of Canada

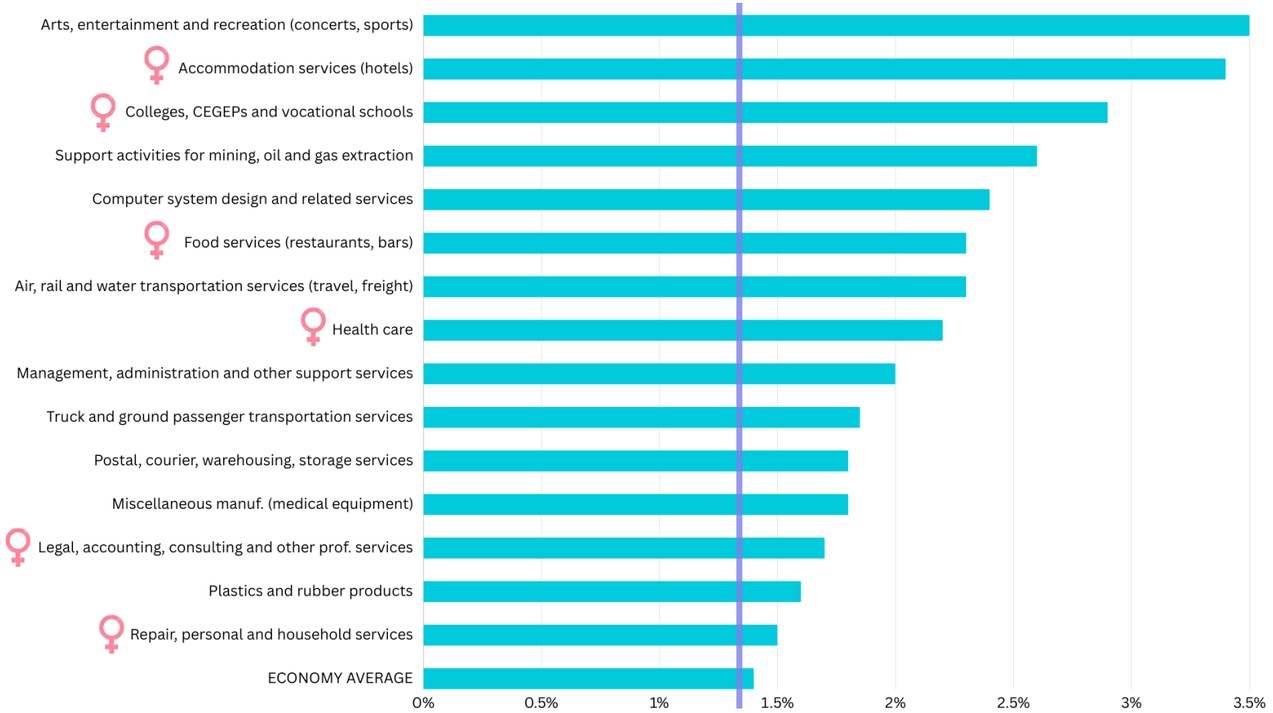


♀ Industries with a majority female workers (more than 50% in 2021)

Source: Employment and Social Development Canada. 2022. Canadian Occupational Projection System (COPS) Job Openings (2022–2031)

PREWORK

1. Fill in the missing words in the industry labels.
2. Add the economy average (1.4%) as a vertical line in the dataset.
3. Of the 15 industries listed, 5 have a majority of women workers. Label which ones you think these are using the symbol ♀



Industries with a majority female workers (more than 50% in 2021)

Source: Employment and Social Development Canada. 2022. Canadian Occupational Projection System (COPS) Job Openings (2022–2031)

EXPLAINER

Economic and Social Development Canada is a federal government department that measures Canadian jobs and employment growth. The industries it tracks in its Canadian Occupational Projection System are expected to have strong output, a lot of labour intensity and human-centric jobs.

The industries listed in the chart benefit from an increased demand from both consumers and businesses. Many are connected to other industries that lost or paused significant numbers of jobs during the COVID-19 pandemic. A lot of service jobs are hard to do remotely and were affected by regional health measures. This made the recovery in the late stage of the pandemic uneven. Tourism and consumer disposable income are essential to many of these industries. Supply chains were also significantly impacted.

Predicting the future of work requires looking at a lot of data, such as global demand for goods and services, rising technology and long-term government policies that support or discourage growth in different sectors.

ANALYSIS

4 Categorize the industries in the chart as belonging to either the services sector or the primary (resources) and secondary (manufacturing) sectors. How many are in each sector? What is the ratio? What does that tell you?

The industries with strongest growth are in services. The services sector tends to employ more people than other sectors, so although the COVID 19 pandemic reduced many of these industries, a return in demand would bring back many jobs.

5 How do you explain what kinds of industries will see the strongest growth following the COVID-19 pandemic? Why do you think that might be?

Entertainment, food and accommodation industries all require many workers—and consumers—located near each other. These industries' goods and services are also usually the first purchases to be cut when people are on a reduced income. This helps explain the decline of these industries during the pandemic. When the economy opened up again, people were looking for more recreational activities. Domestic and international tourism also returned, leading to growth in these industries.

FORECASTING

6 Many factors help explain why each industry might see a large growth. Make an argument for how each of the following elements could affect some of the industries listed below.

a. increasing immigration numbers

Immigrants have the same expenses that Canadian-born people do, so service industry jobs and demand both rise. Canada's international student population boosts the demand for post-secondary education. And temporary foreign worker programs help to put people in jobs—primarily in the services sector—that are needed but difficult to fill.

b. e-commerce and online shopping

Shopping requires transportation of goods—first to warehouses, then shops, and eventually consumers' homes and businesses. The transportation industries listed in the chart would naturally grow to make this happen, in both e-commerce and brick-and-mortar stores. Warehousing and postal or courier services would also be in more demand.

c. an aging population

As the population ages, demand for health care and health administration increases. However, leisure time also increases, so presumably more seniors travel and spend money on accommodations, food and entertainment.

HUMAN CONNECTION

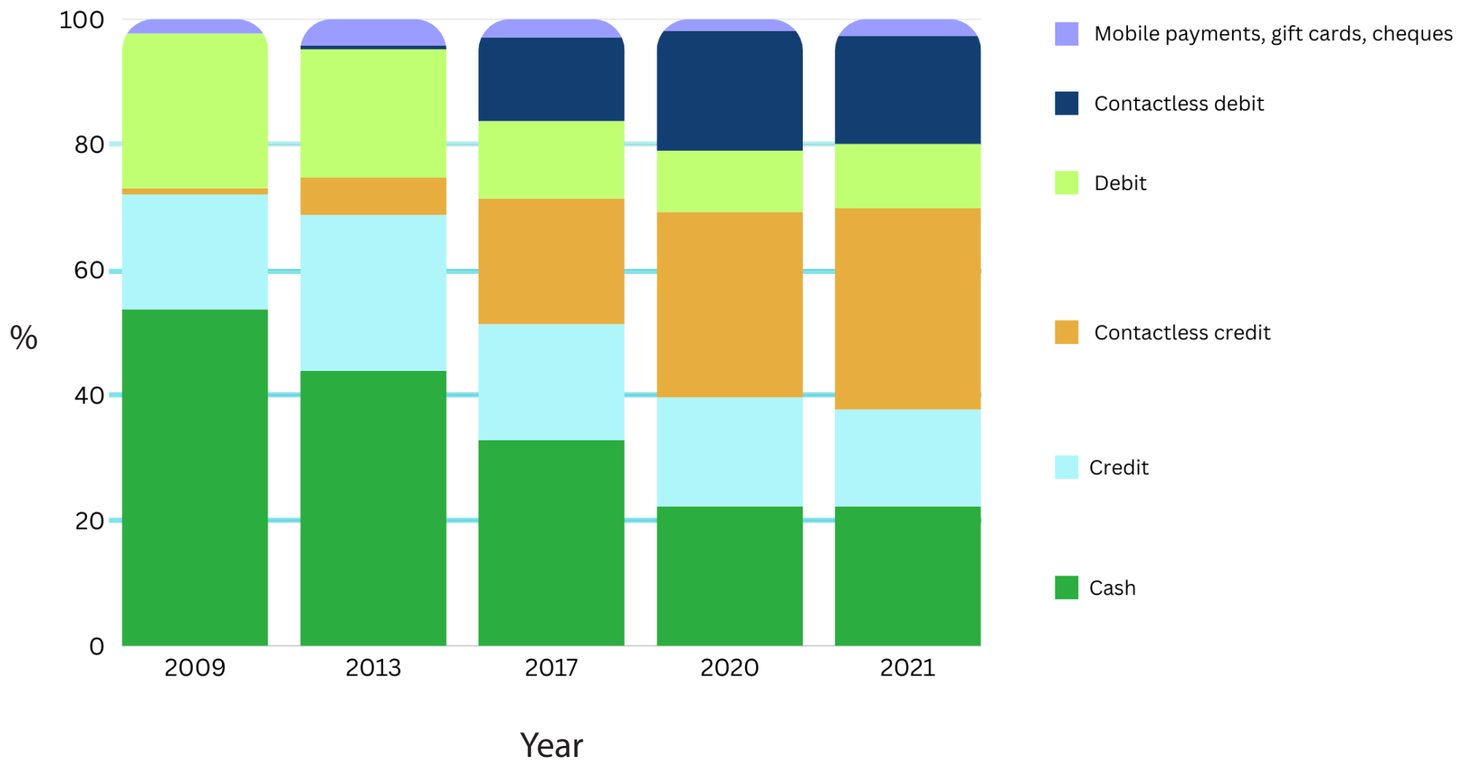
7 Decide if the following statement is true or false, using the data in the chart: "The COVID-19 pandemic has hit female workers harder than male workers."

The data suggest it has. Many industries with predominantly women workers are in the top half of the data for projected growth, and most of these industries are connected to pandemic-related job loss and the subsequent economic recovery. Other considerations are the number of jobs in the service industry and how losses of these jobs would affect women, who are often the primary caregivers in families.

5 - Cash Use

> Understanding how Canadians pay for things helps the Bank manage cash supply and distribution.
>
> - Karen, Bank of Canada

Payment methods over time



PREWORK

1. Label the following years along the x-axis. Write one year under each dataset, from left to right: 2009, 2013, 2017, 2020, 2021.

2. Each colour of each bar chart represents a different category of payment methods. Try identifying which colour represents each payment method, then label the methods in the legend.

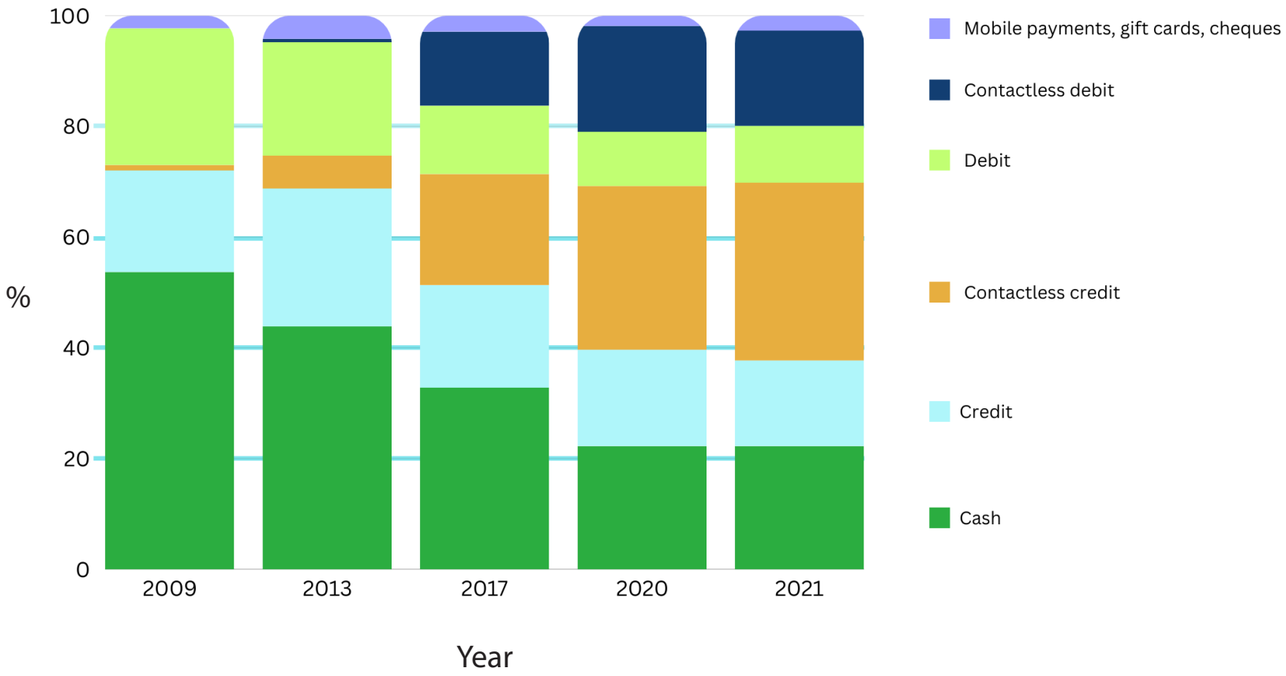
   They are:

   - cash
   - credit card
   - tap-and-go credit card
   - debit card
   - tap-and-go debit card
   - other (mobile payments, gift cards, cheques)

3. Provide a title for this chart based on your analysis of the data.

Source: Henry, C., M. Shimoda and J. Zhu. 2022. "2021 Methods-of-Payment Survey Report". Bank of Canada Staff Discussion Paper 2022-23.

Payment methods over time



Source: Henry, C., M. Shimoda and J. Zhu. 2022. "2021 Methods-of-Payment Survey Report". Bank of Canada Staff Discussion Paper 2022-23.

EXPLAINER

The Bank of Canada is the sole authority for issuing bank notes, and it supplies banks and financial institutions with cash for consumers. It also measures payment methods, including in-person cash transactions, using a survey for Canadians to track their daily purchases in a diary.

Analyzing cash demand in Canada allows the Bank to make business decisions about how many bank notes to produce and distribute. The analysis shows most Canadians do not see themselves going cashless anytime soon. However, they increasingly use card payments, including contactless (such as mobile or tap-and-go) payments, for most of their transactions. Analysis also helps the Bank track:

- demand for bank notes in the future
- access to automated teller machines in remote communities
- the effects of new technology on payment methods
- the life cycle of polymer bank notes

The Bank will continue to research these topics to ensure cash remains a payment method for those who want to use it.

ANALYSIS

4 Think about your own methods of payments for everyday transactions, or ask a few of your peers and estimate an average per category. Write down the percentages and compare them with the data provided.

Answers will vary.

5 Credit card use is on the rise in Canada. What might be some reasons for this?

E-commerce, such as online shopping, is continuing to grow in Canada, and most e-commerce transactions need credit cards. Canadians might also choose credit cards for the incentive of loyalty programs with points and rewards. Many Canadians are also carrying high levels of household debt, so they may be relying on borrowing and paying with credit cards.

6 Given the data and what you already know, do you think Canada will become a cashless society? Explain why or why not.

The decline in cash use seems to have levelled off in 2020 and 2022. Survey results from the Bank show that cash is still regularly used for small-value purchases. Cash use also seems likely to continue in Canada's remote communities, where access to cellular data or the internet may be limited. And fees that credit card companies charge merchants also encourage businesses to continue accepting cash.

FORECASTING

7 How would you describe the relationship between cash use and technology? Explain your reasoning.

As e-commerce grows and payments get easier with contactless technology, Canadians may use cash less and less. Age is another factor in the choice of payment methods and comfort with cash. As new generations of Canadians grow older, their habits (such as online shopping and relying on cards for payments) may change. Young people are often unable to open bank accounts until a certain age, so they commonly start out using cash for saving and spending.

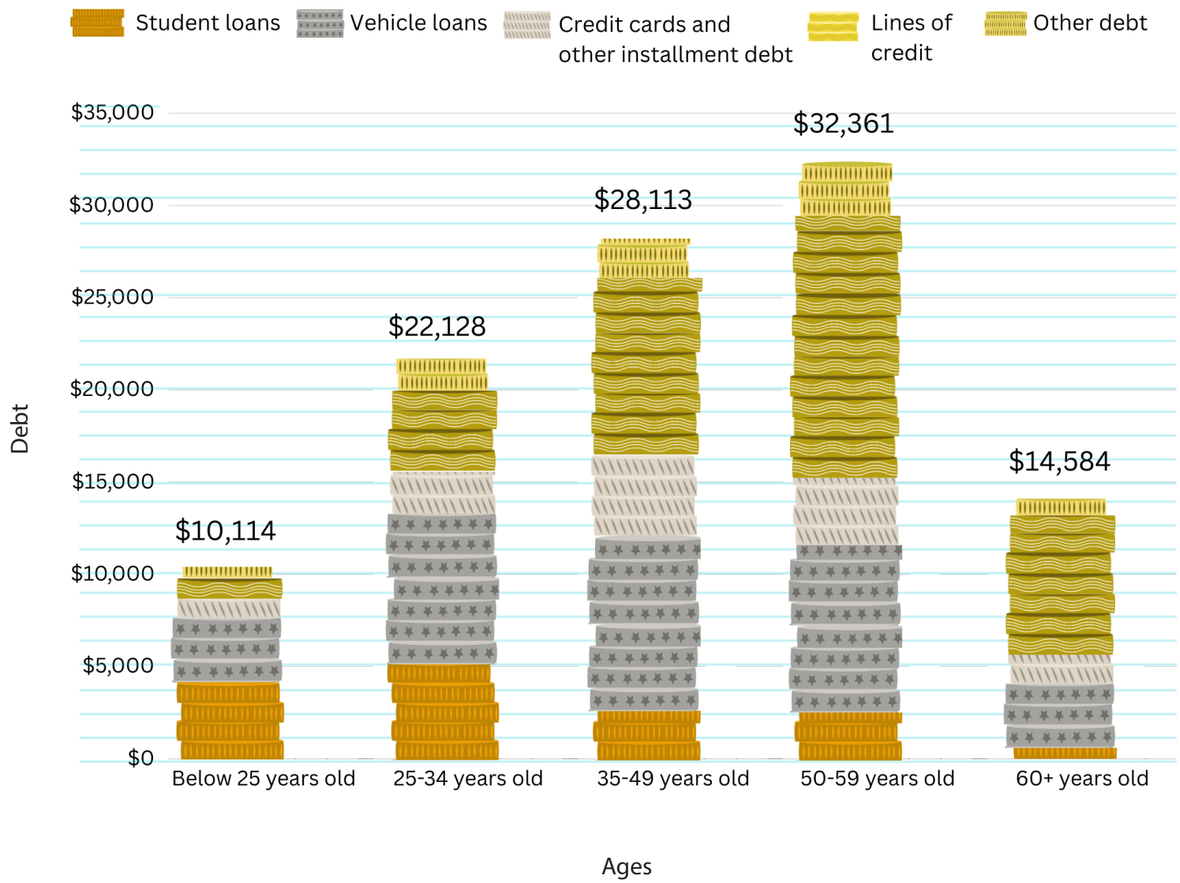
HUMAN CONNECTION

8 Cash is particularly important for unbanked people in Canada. Why do you think some people do not have bank accounts or credit cards? What does this mean for the role cash plays in the economy?

Not everyone has access to bank accounts or credit cards. Some reasons for this may be:
- low levels of personal wealth
- the lack of a fixed address (for example, due to homelessness)
- remoteness and distance from banks
- limited access to their own money (for example, if they have a severe cognitive disability and a guardian manages their finances

Being unbanked means these people are not able to build credit, can't easily make online purchases, and can't purchase goods and services at businesses that have gone cashless.

6 - Debt



Source: adapted from Statistics Canada. 2019. Survey of Financial Security

> "Financial stability is threatened when households can't pay back their debt."
>
> - Louis, Bank of Canada

PREWORK

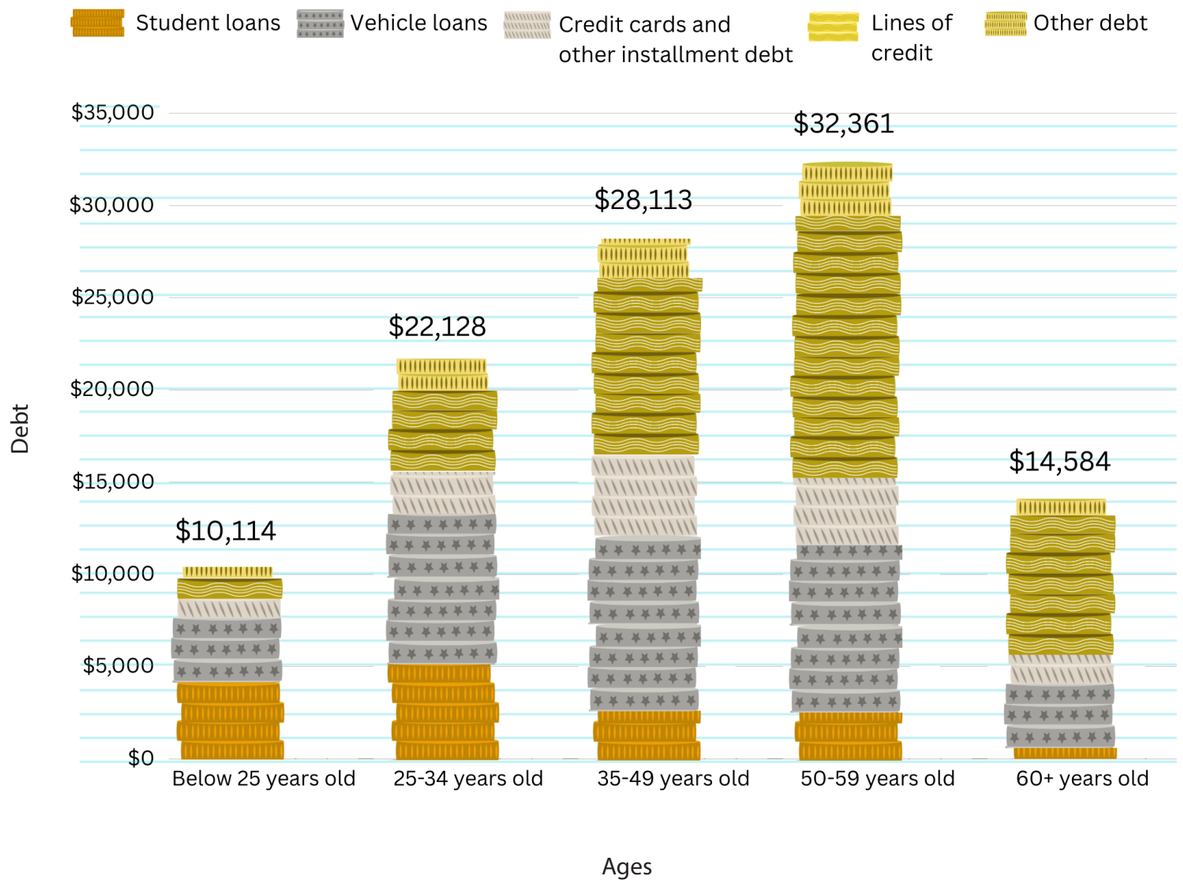
1. Each whole coin represents a value of $1,000. Label each of the stacks of coins (i.e., bars in this bar chart) with their total dollar amount.

2. What age group would you assign to each stack of coins (bar)? Along the x axis, write the following labels:

   - Below 25 years old
   - 25–34 years old
   - 35–49 years old
   - 50–59 years old
   - 60+ years old

3. What would you use as a title for this chart?

   Answers will vary.



Source: adapted from Statistics Canada. 2019. Survey of Financial Security

EXPLAINER

Over a person's lifetime, it's common to borrow money to help cover expenses that would be difficult to pay right out of pocket. These include paying for a home, vehicle or post-secondary education. In the middle years of life, people tend to maximize their earning potential and take on debt based on their comfort level for being able to pay it back. Most importantly, the types of debt and the interest rates attached to the debt matter in paying it off.

The data in this chart do not include mortgage debt, which would increase the amounts even more. In 2023, around two-thirds of Canadians owned their homes, with many in their 30s and 40s owing around half a million dollars for them on top of other debt.

Canadians have a significant amount of household debt, more than most comparable countries. As people live longer today than in past decades, older adults still hold high amounts of various kinds of debt. And increased interest rates make debt harder to pay off because more of the payment goes to paying the interest on that debt.

ANALYSIS

4 What are some possible risks for the Canadian economy if older Canadians hold more debt?

Owning a home doesn't mean just having shelter at a reliable cost—it's also an investment. Older Canadians have fewer working years—and fewer years of life—than younger Canadians for making significant payments. Traditionally, home ownership has been higher in older age groups, and they can use their homes as collateral for other debts. However, if upcoming generations of aging Canadians are less likely to own homes or have enough other forms of debt collateral, it may be harder for them to borrow at a low interest rate. Worse, they may default on their loans.

5 Make a list of types of debt and rank them according to which you think would have the lowest to highest interest rates.

According to regulatory returns from Canadian financial institutions, average interest rates from 2016 to 2023 were:

- 2.9% on mortgages
- 3.5% on personal lines of credit (secured with collateral)
- 4.5% on auto loans
- 7.2% on personal lines of credit (unsecured)
- 19.2% on credit card debt

You may also want to look up more recent data to compare.

FORECASTING

6 Mortgage debt is not included in the chart above. Why do you think that might be?

Mortgages are complicated given the ups and downs of the housing market and the fact that mortgages are very long-term loans compared with other types of debt. Homes are also commonly used as a long-term investment that would hopefully pay off the debt and make a profit later. Finally, unlike for many other loans, the borrower's house is collateral that the lender could take back if the debt is unpaid, providing another layer of complexity.

7 How might higher-than-normal interest rates affect the amount and type of debt held by each age category?

Most loans are immediately affected by a change in interest rates because of the prime rate, an interest rate used by banks. An increase in the interest rate means more money from payments will be used to pay the interest and less to pay the principal amount. For debts with high interest rates such as credit cards and personal lines of credit, this increase can make a huge impact if a considerable amount is still owed.

HUMAN CONNECTION

8 What significant life events could affect the amounts and types of debt that occur in each of the age groups?

Following the waves of when certain types of credit rise and fall will help tell a story. For example, student loan debt increases from people below 25 years old to those aged 25–34, and then tapers off for older groups. At the same time, vehicle loan debt increases significantly from people aged 35 years onward, likely because older people have higher incomes and can upgrade their cars. As young people build their credit rating, banks may offer them more and higher lines of credit. These are useful for major purchases such as home renovations or as a low-interest source for everyday spending (especially with growing families).