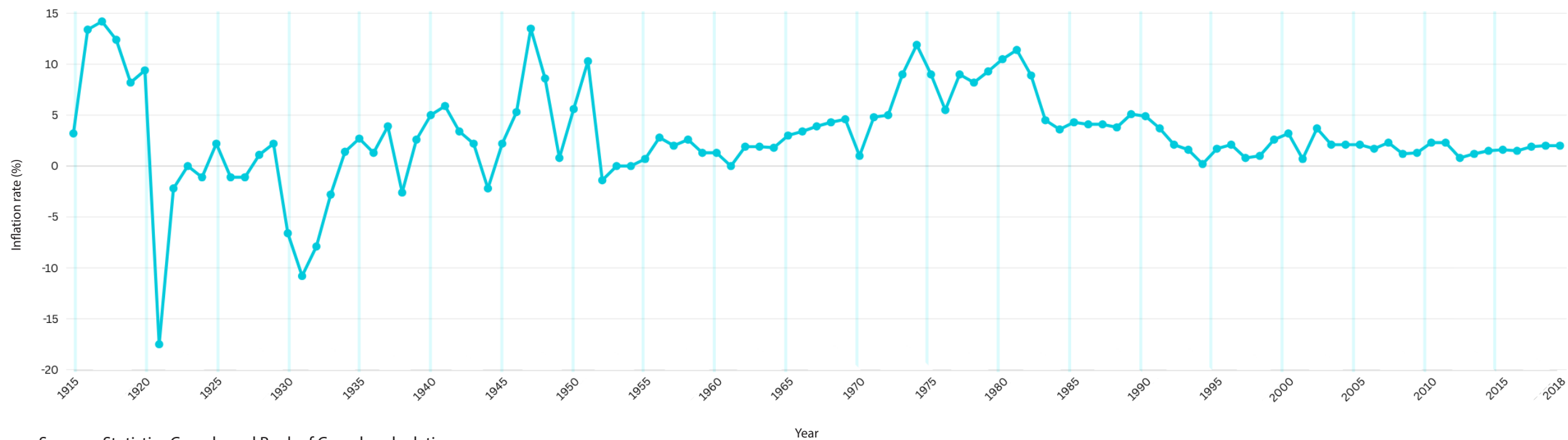# 1 - Inflation throughout the years

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

Inflation rate (%)

Year

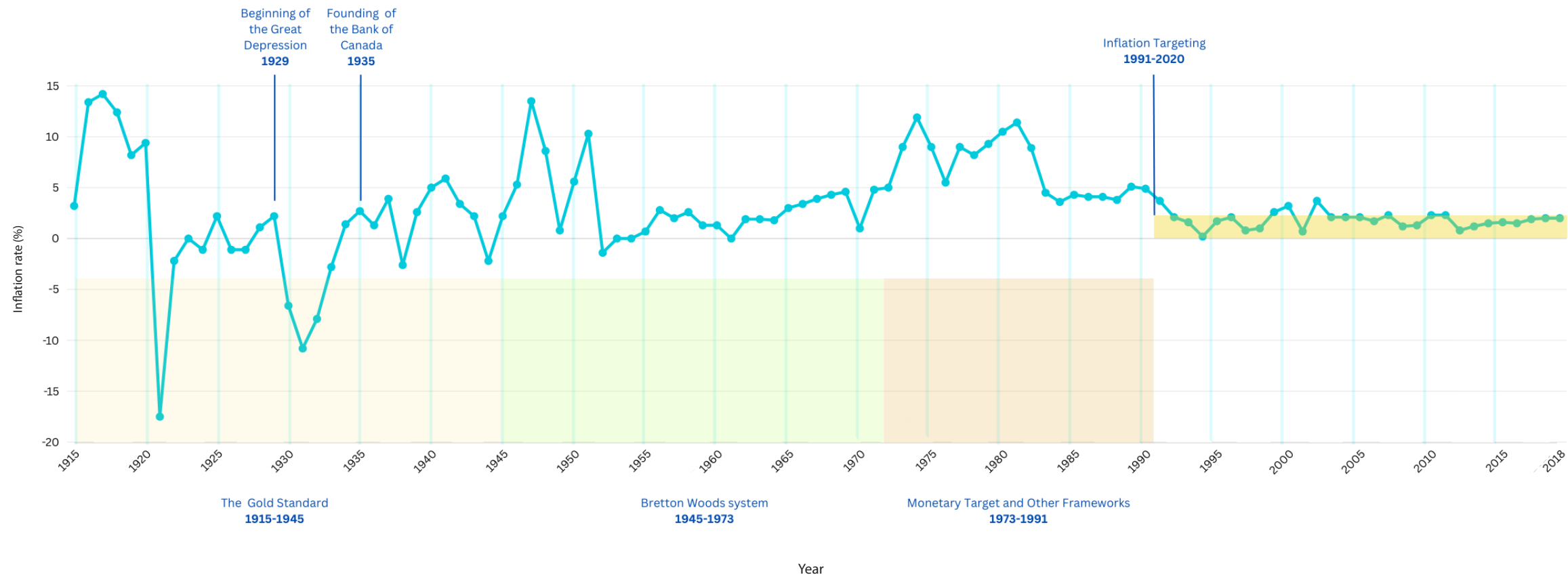Sources: Statistics Canada and Bank of Canada calculations

✏ 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?

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.

Beginning of the Great Depression
1929

Founding of the Bank of Canada
1935

Inflation Targeting
1991-2020

The Gold Standard
1915-1945

Bretton Woods system
1945-1973

Monetary Target and Other Frameworks
1973-1991

Inflation rate (%)

Year

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.

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?

_____

_____

_____

_____

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

_____

_____

FORECASTING

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

_____

_____

_____

_____

_____

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?
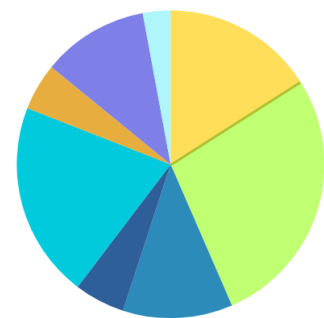
_____

_____

_____

_____

_____

HUMAN CONNECTION

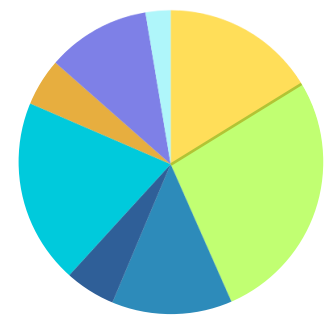**9** Consider how two different people can see inflation differently: Catherine was born in 1950 and Troy was born in 1980. Both have similar incomes, went to university and bought their homes in their mid-30s. Given that inflation is connected with interest rates for borrowing and saving, how might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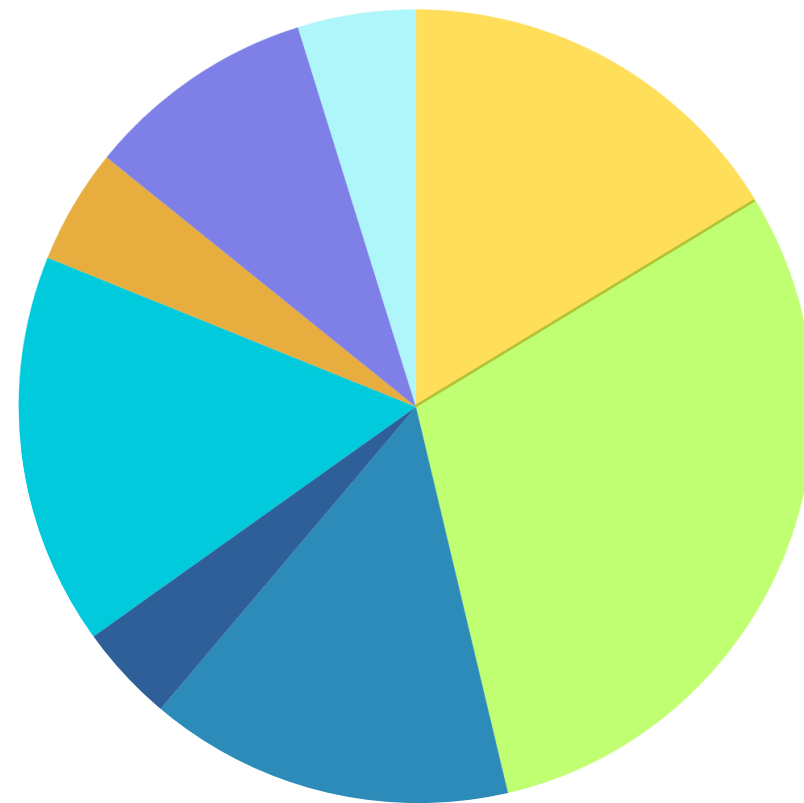
_____

_____

_____

_____

_____

_____

_____

_____

2 - Consumer Price Index and Category Weights By Year

> 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.

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

2010
CPI: 116.5

2015
CPI: 126.6

2020
CPI: 137.0

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

2010
CPI: 116.5

- 2.9%
- 16%
- 11.2%
- 4.9%
- 20.6%
- 27.5%
- 5.31%
- 11.5%

2015
CPI: 126.6

- 2.63%
- 10.89%
- 16.2%
- 5%
- 19.7%
- 27.1%
- 5.4%
- 12.9%

2020
CPI: 137.0

Alcohol, tobacco and cannabis
4.8%

Food
16.2%

Recreation, education & reading
9.4%

Health & personal care
4.7%

Shelter
30%

Transportation
16%

Clothing and footwear
4%

Household operations, furnishings & equipment
14.9%

For 2010: Inflation rate = (116.5 – 100) x 100 = +16.5%
                                              100
For 2015: Inflation rate = (126.6 – 116.5) x 100 = +10.1%
                                              115.1
For 2020: Inflation rate = (137.0 – 126.6) x 100 = +8.2%
                                              126.6

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

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

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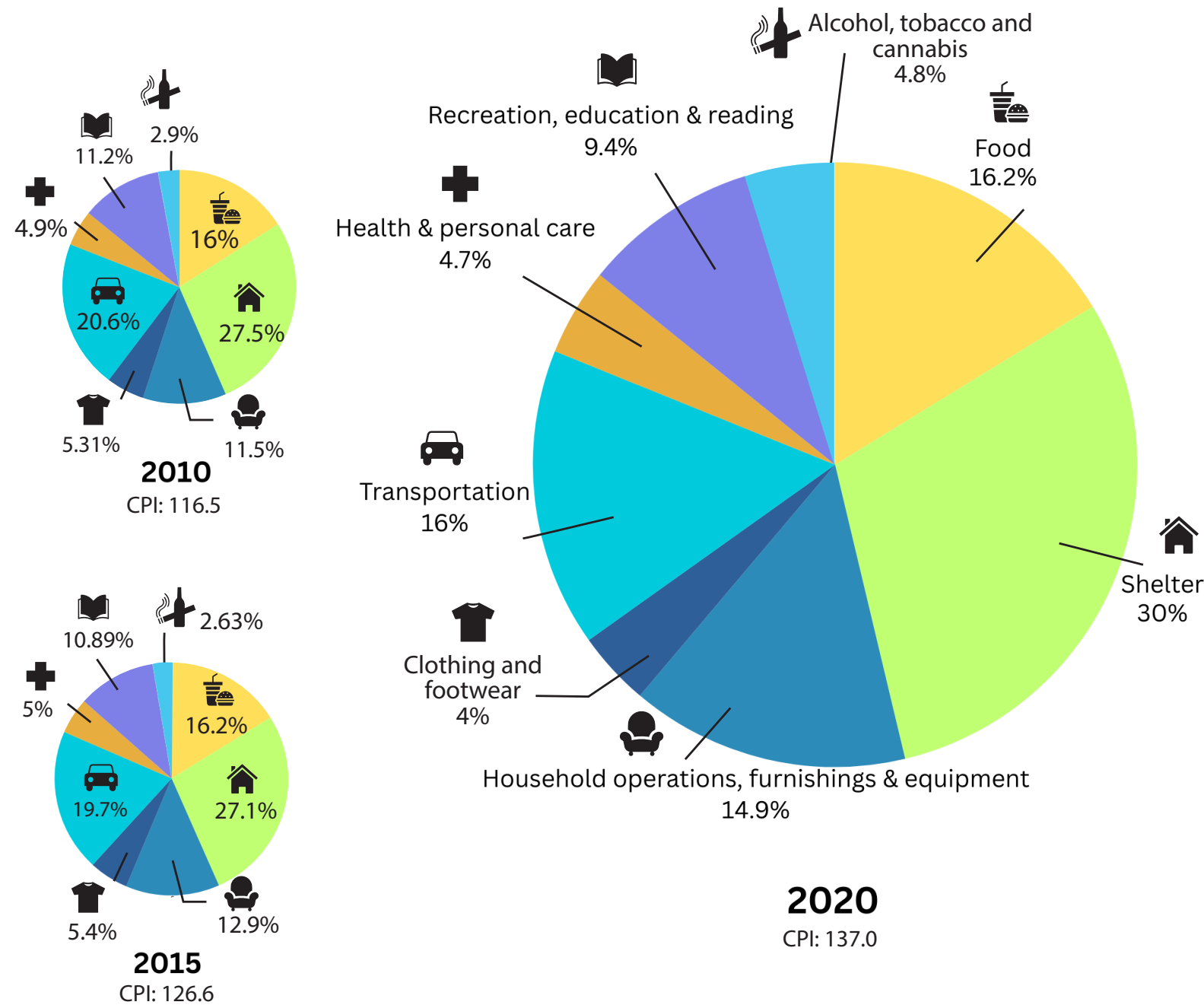
The full dollar amount of these purchases, both in each category and as a total, is converted to an index that can then be compared with indexes from prior years. The base period for this data is 2002, when CPI equals 100. Monthly CPI data are compared with the same month in the previous year, and annual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

_____

_____

_____

_____

_____

_____

_____

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?

_____

_____

_____

_____

FORECASTING

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

_____

_____

_____

_____

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?

_____

_____

_____

_____

_____

_____

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?

_____

_____

_____

_____

_____

_____

_____

_____

3 - Wages and Productivity

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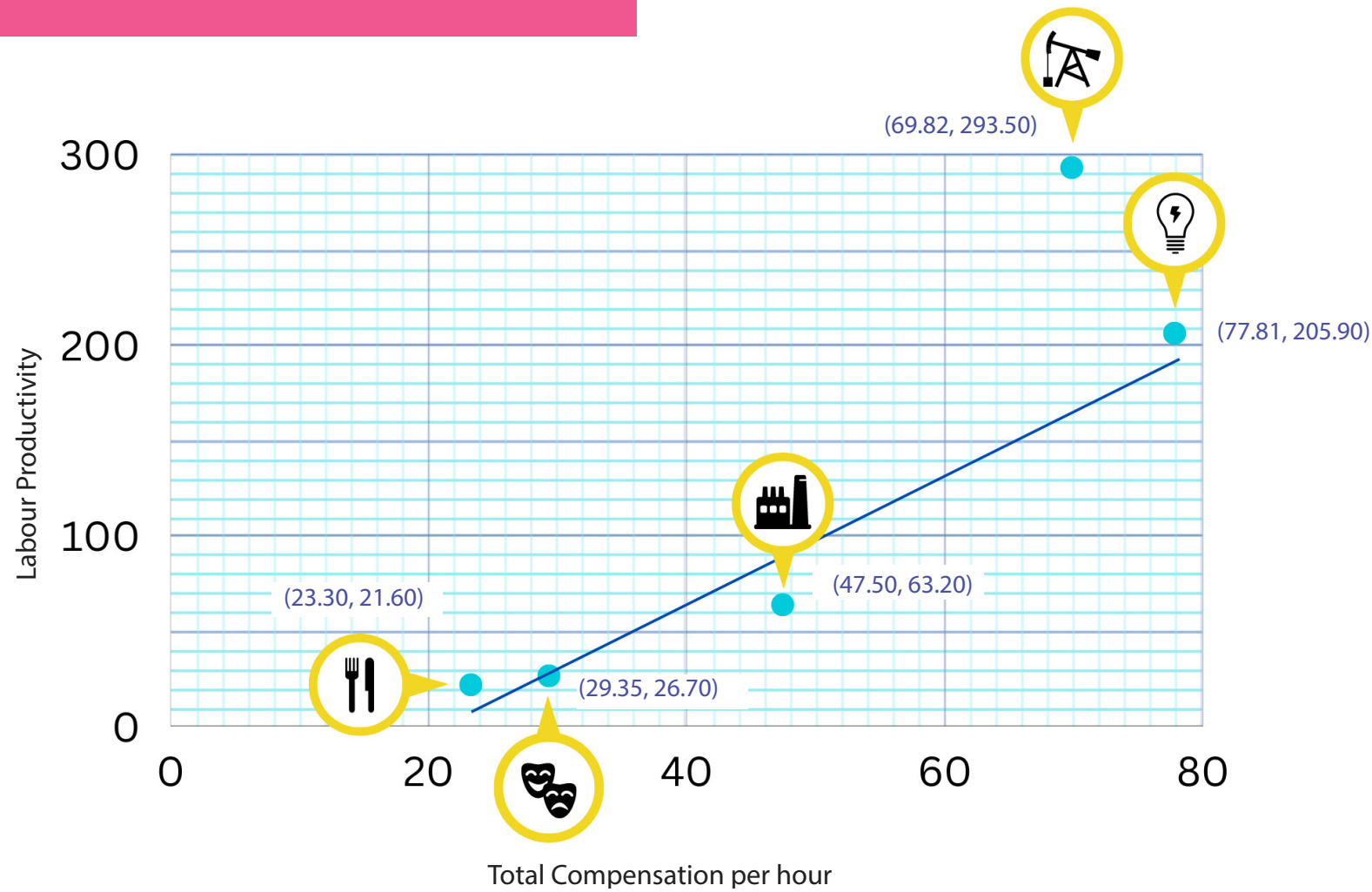>
> - Tatjana, Bank of Canada

PREWORK

300

200

100

0

0   20   40   60   80

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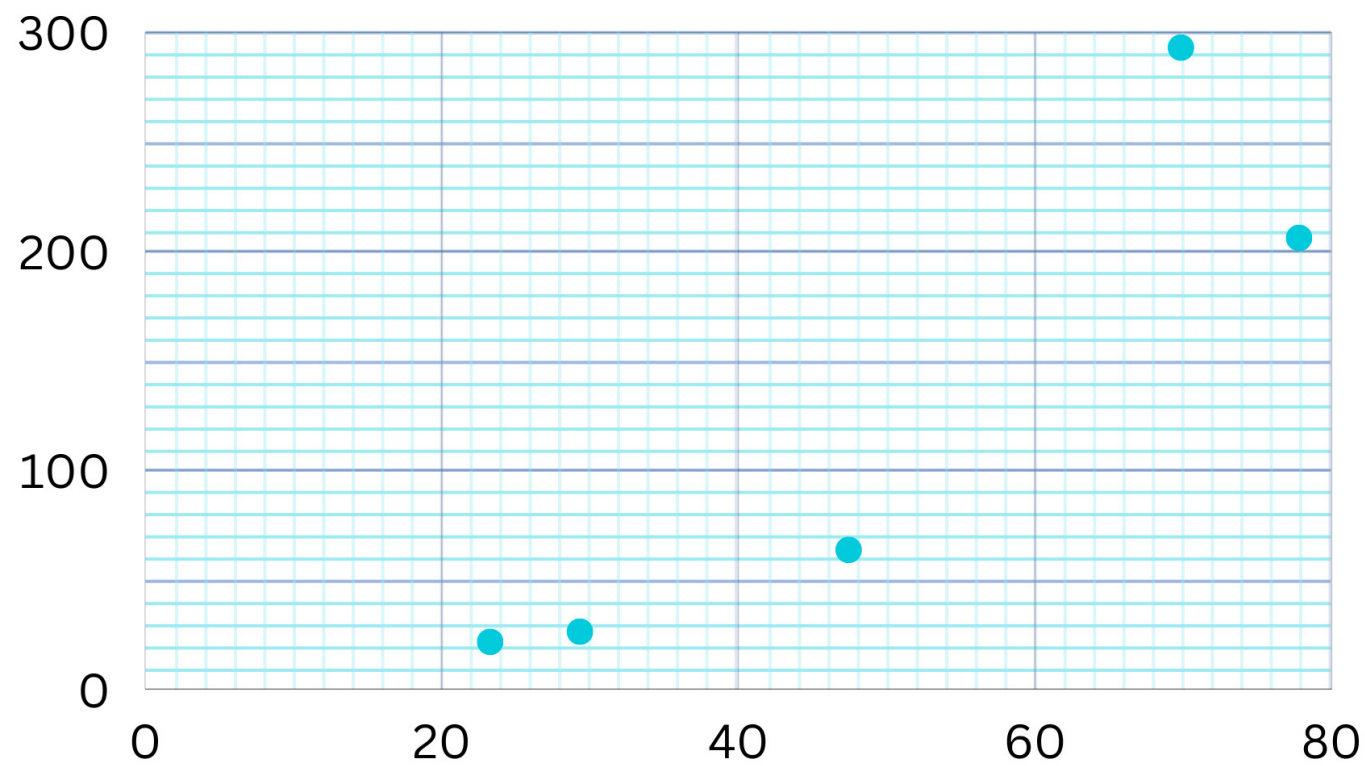
Source: Adapted from Statistics Canada. 2024. Table 36-10-0480-01 Labour productivity and related measures by business sector industry and by non-commercial activity consistent with the industry accounts.

Labour Productivity (y-axis) vs Total Compensation per hour (x-axis)

(69.82, 293.50)
(77.81, 205.90)
(47.50, 63.20)
(23.30, 21.60)
(29.35, 26.70)

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?

_____

_____

_____

_____

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

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

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)?

_____

_____

_____

_____

_____

_____

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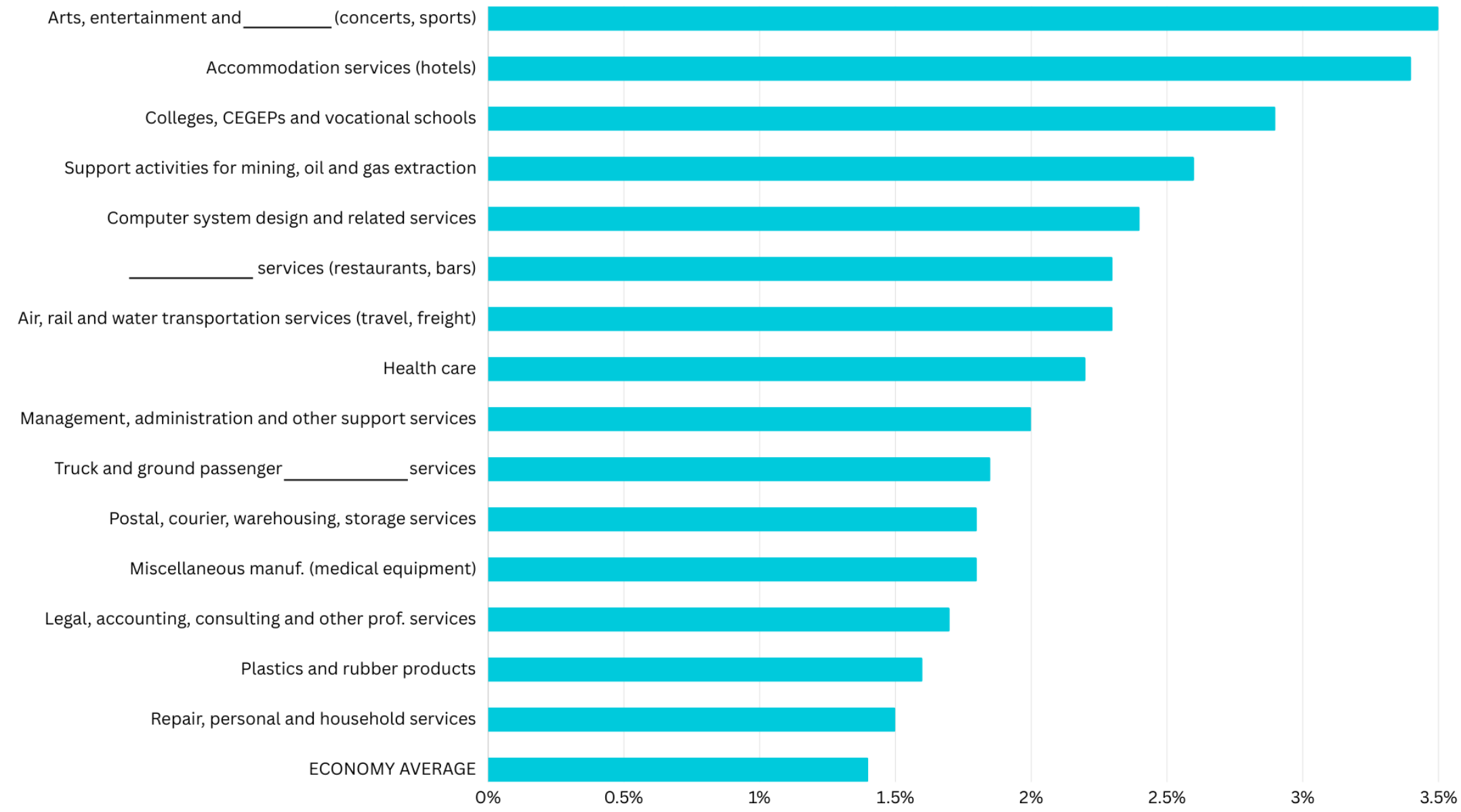
_____

_____

_____

_____

_____

_____

HUMAN CONNECTION

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

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

4 - Future of Work

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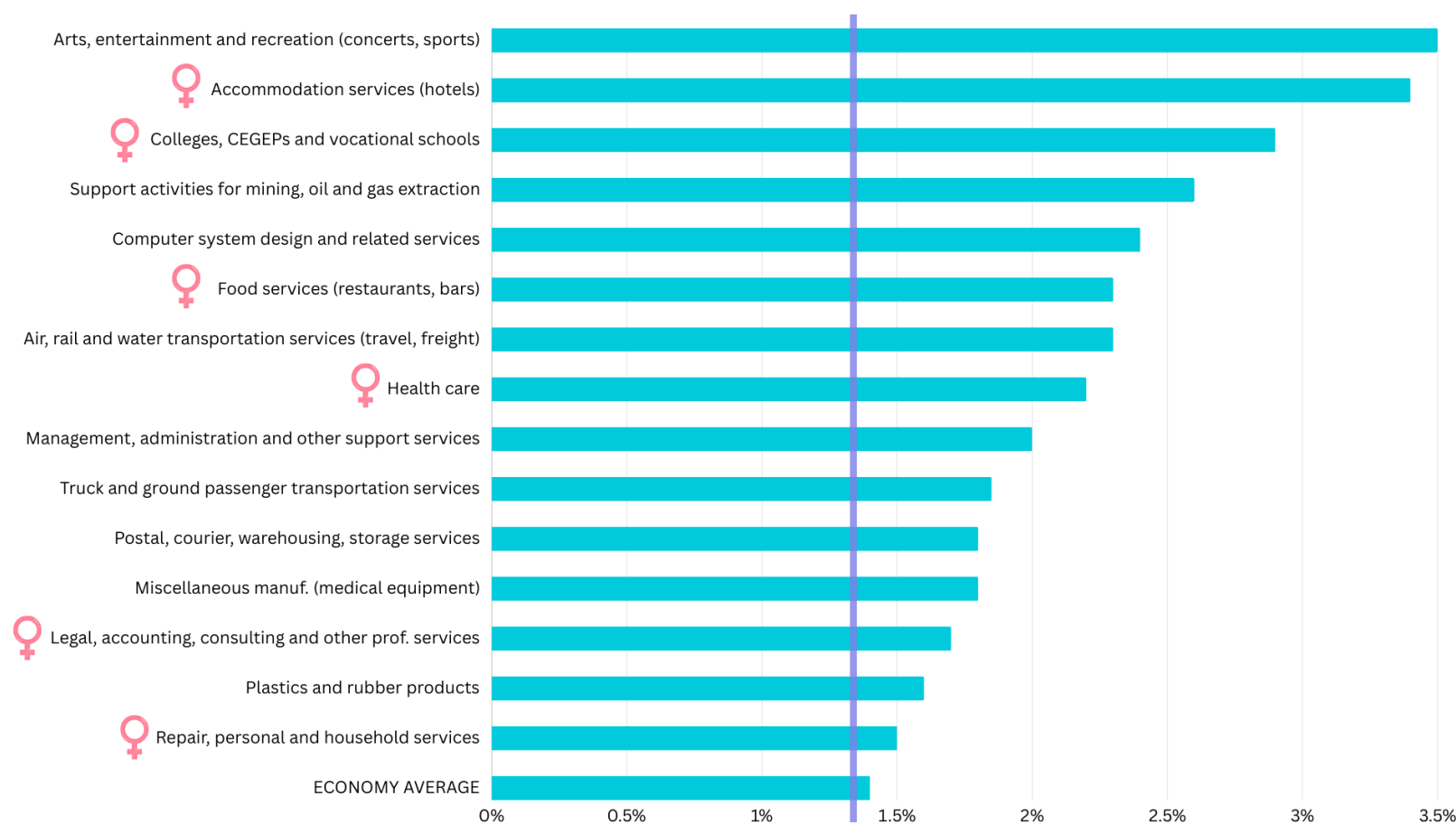>
> – Corinne, Bank of Canada

Arts, entertainment and _____ (concerts, sports)

Accommodation services (hotels)

Colleges, CEGEPs and vocational schools

Support activities for mining, oil and gas extraction

Computer system design and related services

_____ services (restaurants, bars)

Air, rail and water transportation services (travel, freight)

Health care

Management, administration and other support services

Truck and ground passenger _____ services

Postal, courier, warehousing, storage services

Miscellaneous manuf. (medical equipment)

Legal, accounting, consulting and other prof. services

Plastics and rubber products

Repair, personal and household services

ECONOMY AVERAGE

0%   0.5%   1%   1.5%   2%   2.5%   3%   3.5%

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 ♀

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

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

Chart axis labels (top to bottom):
- Arts, entertainment and recreation (concerts, sports)
- ♀ Accommodation services (hotels)
- ♀ Colleges, CEGEPs and vocational schools
- Support activities for mining, oil and gas extraction
- Computer system design and related services
- ♀ Food services (restaurants, bars)
- Air, rail and water transportation services (travel, freight)
- ♀ Health care
- Management, administration and other support services
- Truck and ground passenger transportation services
- Postal, courier, warehousing, storage services
- Miscellaneous manuf. (medical equipment)
- ♀ Legal, accounting, consulting and other prof. services
- Plastics and rubber products
- ♀ Repair, personal and household services
- ECONOMY AVERAGE

X-axis: 0% 0.5% 1% 1.5% 2% 2.5% 3% 3.5%

♀ 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?

_____

_____

_____

_____

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?

_____

_____

_____

_____

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

_____

_____

_____

_____

_____

b. e-commerce and online shopping

_____

_____

_____

_____

_____

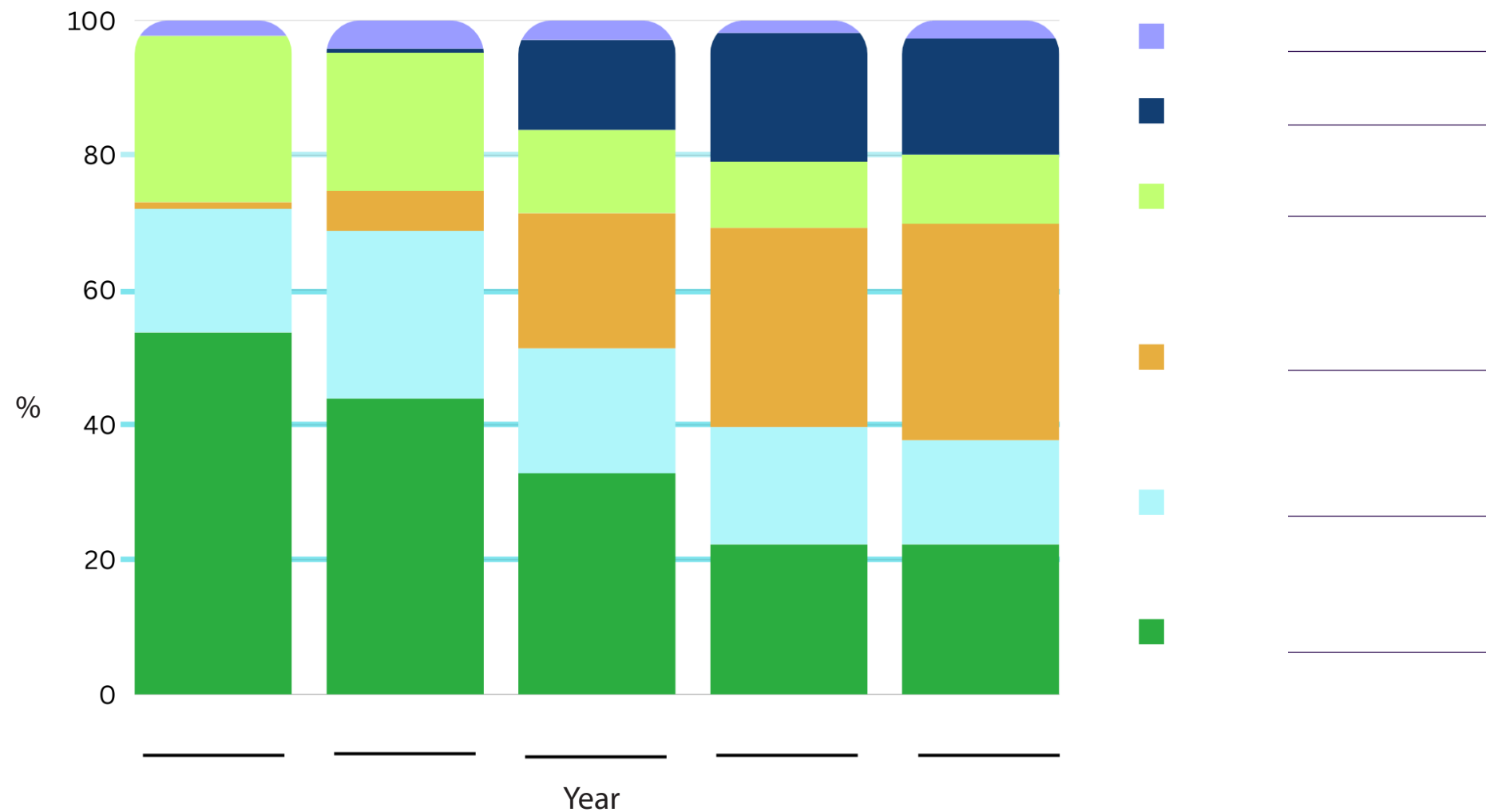c. an aging population

_____

_____

_____

_____

_____

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."

_____

_____

_____

_____

_____

5 - Cash Use

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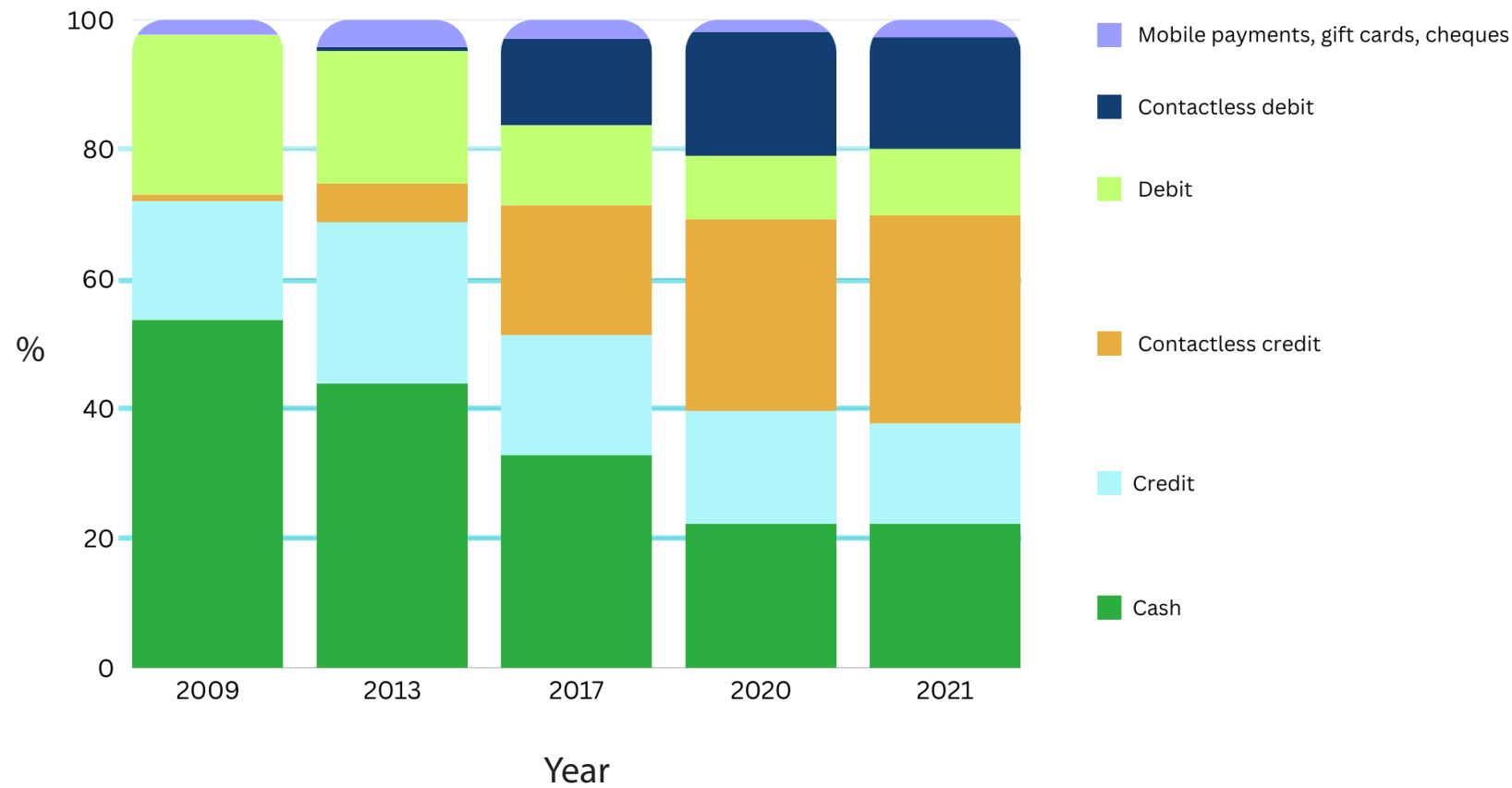> -   Karen, Bank of Canada
> "

Title: _____

%

Year

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.

Payment methods over time

Legend:
- Mobile payments, gift cards, cheques
- Contactless debit
- Debit
- Contactless credit
- Credit
- Cash

X-axis (Year): 2009, 2013, 2017, 2020, 2021
Y-axis (%): 0, 20, 40, 60, 80, 100

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.

_____

_____

_____

_____

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

_____

_____

_____

_____

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

_____

_____

_____

_____

_____

_____

_____

_____

FORECASTING

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

_____

_____

_____

_____

_____

_____

_____

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?
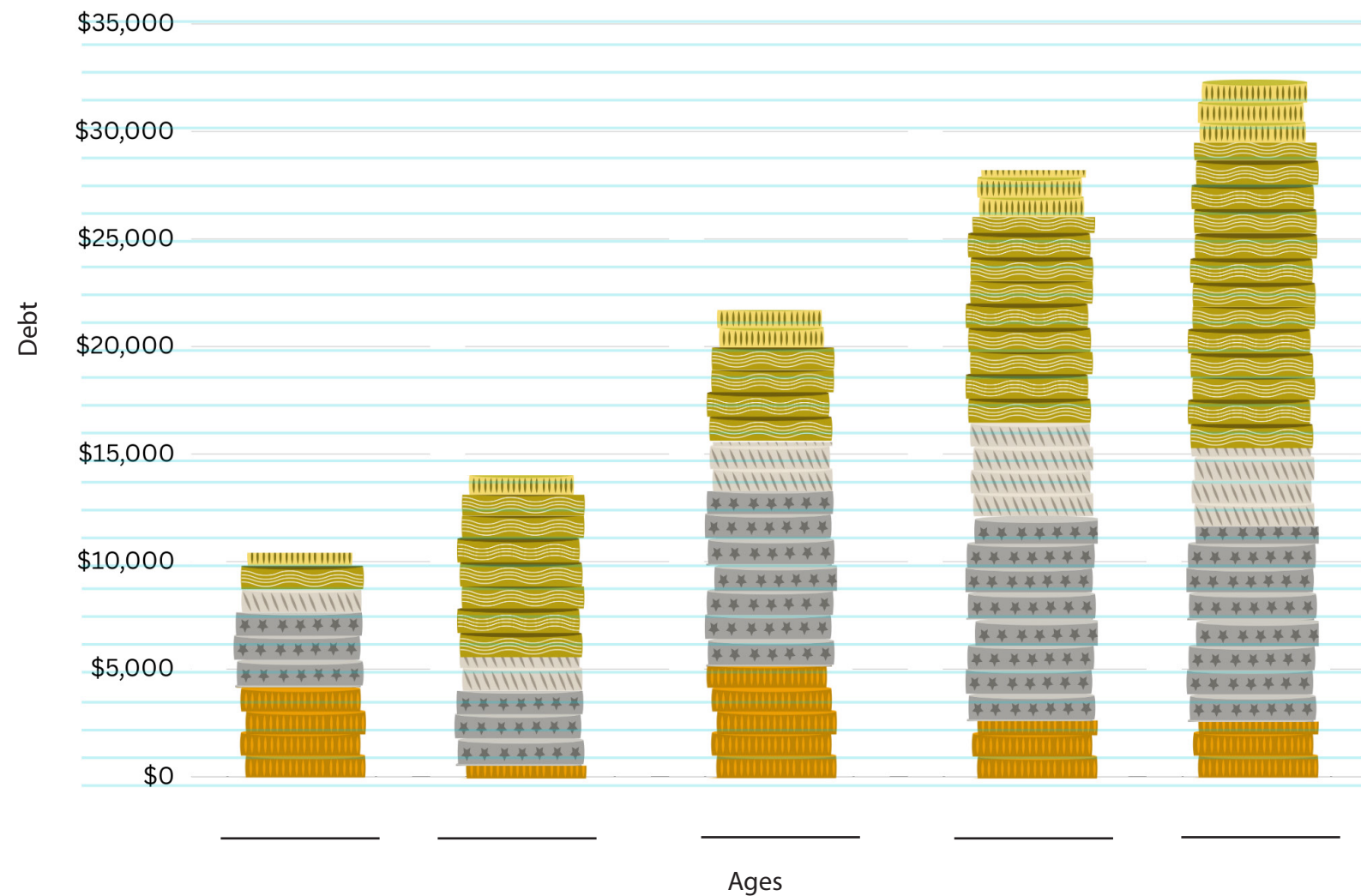
_____

_____

_____

_____

_____

_____

_____

_____

6 - Debt

Title: _____

Legend:
- Student loans
- Vehicle loans
- Credit cards and other installment debt
- Lines of credit
- Other debt

Debt axis: $0, $5,000, $10,000, $15,000, $20,000, $25,000, $30,000, $35,000

Ages

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

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?

Chart

Legend:
- Student loans
- Vehicle loans
- Credit cards and other installment debt
- Lines of credit
- Other debt

Debt (y-axis): $0, $5,000, $10,000, $15,000, $20,000, $25,000, $30,000, $35,000

| Age group	Total debt
Below 25 years old	$10,114
25-34 years old	$22,128
35-49 years old	$28,113
50-59 years old	$32,361
60+ years old	$14,584

Ages (x-axis)

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.
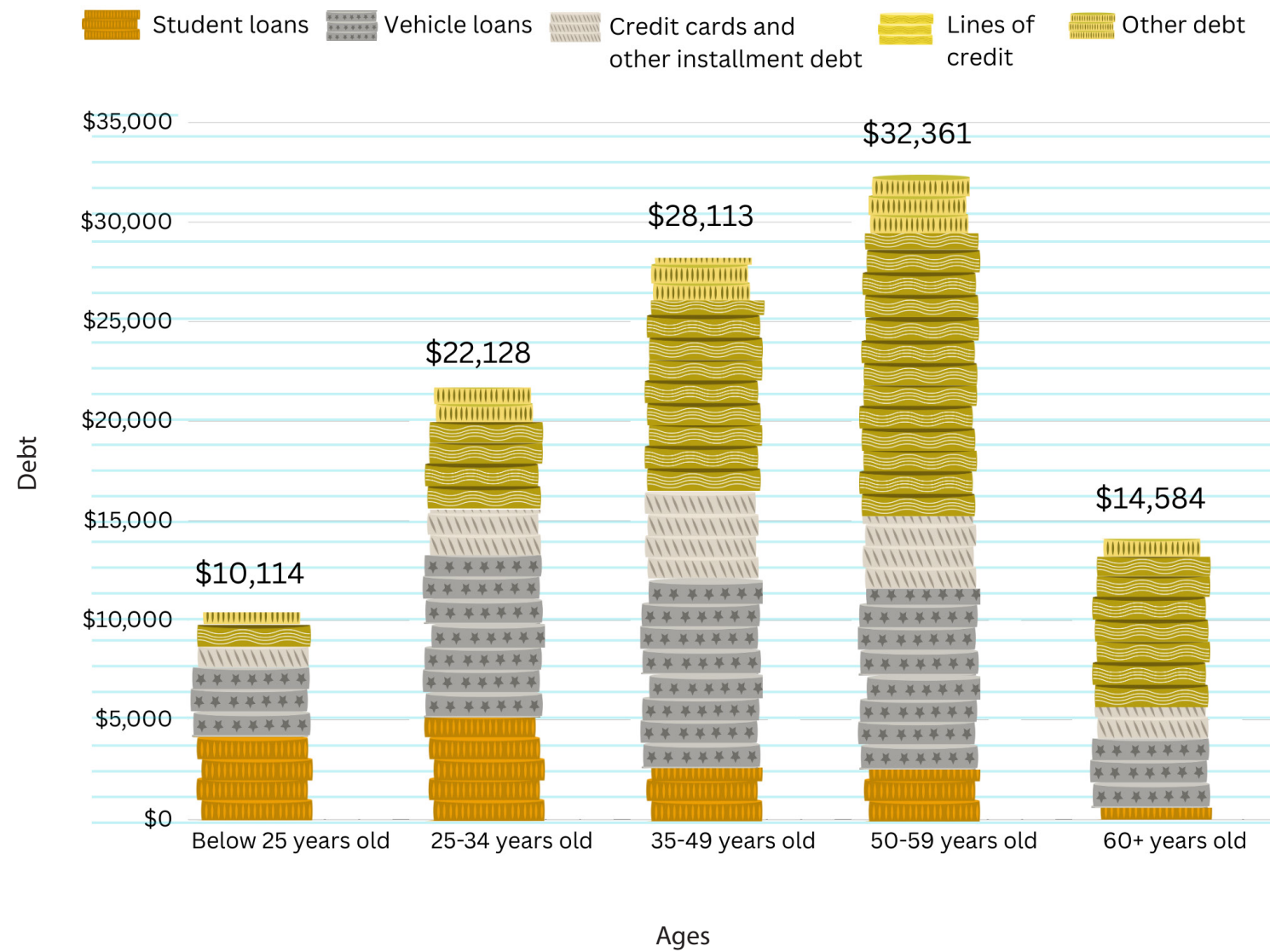
ANALYSIS

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

_____

_____

_____

_____

_____

_____

_____

_____

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

_____

_____

_____

_____

_____

_____

_____

FORECASTING

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

_____

_____

_____

_____

_____

_____

_____

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

_____

_____

_____

_____

_____

HUMAN CONNECTION

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

_____

_____

_____

_____

_____

_____

_____