

# Analyzing Inflation Dynamics in Canada During and After the COVID-19 Pandemic: A Deep Dive into Consumer Price Index Movements from 2019 to 2023\*

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The COVID-19 pandemic has left a significant imprint on global economic structures, influencing inflation rates worldwide. Canada, like many countries, experienced fluctuating inflation rates during and post-pandemic, marking a period of economic instability and adjustment. This paper delves into the inflation dynamics in Canada from 2019 to 2023, with a special focus on the consumer price index (CPI) as a reflection of the cost of goods and services impacting the everyday lives of Canadians. It explores the trajectory of the overall inflation rate, which peaked in 2023, highlighting the role of various sectors, including food, housing, and energy, in driving these trends. By analyzing data from Statistics Canada, this study provides insights into how the pandemic and subsequent recovery phases have affected inflation. It examines the interplay between supply chain disruptions, monetary policy responses, and changes in consumer behavior, culminating in a comprehensive overview of inflation's impact on the Canadian economy. This analysis not only sheds light on the inflationary trends but also contributes to understanding the broader economic implications of the COVID-19 pandemic on Canada.

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\*See the GitHub repository supporting this analysis: [https://github.com/qinheinfo/Canada\\_inflation](https://github.com/qinheinfo/Canada_inflation)

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# 1 Introduction

The decision to analyze Canadian inflation during the COVID-19 pandemic was prompted by the significant economic disturbances observed globally. As a G7 nation with a prominent economic footprint, Canada offers a nuanced perspective on the complexities of inflation during times of crisis. The Consumer Price Index (CPI), a critical economic indicator, measures the average change over time in the prices paid by urban consumers for a standard basket of goods and services ([investopedia\\_CPI?](#)). The CPI is instrumental in shaping economic policies, such as adjustments to interest rates, wages, and social benefits, which in turn directly influence the everyday economic experiences of individuals ([Forum\\_CPI?](#)).

Amidst the pandemic and subsequent global events like the war in Ukraine, consumer prices have been significantly impacted. Canadians have grappled with rising costs in many aspects of their daily lives due to supply chain disruptions, oil price volatility, and shifts in consumer demand. The CPI, Statistics Canada's primary measure of inflation, has captured these extraordinary impacts, with inflation rates reaching four-decade highs in 2022. ([Statisticsca\\_CPI?](#))

This paper delves into the relationship between the prices of various consumer goods and Canada's inflation rate. Leveraging data from Statistics Canada, it examines the five-year cost trajectory of common grocery store items across categories such as food, household goods, clothing, gasoline, healthcare, and recreation. Additionally, it analyzes yearly average inflation rates from 2019 to 2023. By studying the percentage increases in the prices of these items, this research seeks to uncover potential correlations between specific cost fluctuations and broader inflation trends, thereby enhancing our understanding of inflation's influence on the Canadian economy. ([CPI\\_data?](#))

## 2 Data

### 2.1 Measurement

### 2.2 Data Analysis

This paper uses data from both Statistics Canada's Consumer Price Index (CPI) and the Bank of Canada's Inflation Rate measurements. Within the CPI, the paper specifically examines 6 variables representing different food items: bacon (per 500 grams), eggs (per 1 dozen), chicken breasts (per kilogram), milk (per 2 liters), frozen peas (per 750 grams), and pasta sauce (per 650 milliliters). These 6 food items were selected as a representation of various food types and groups, allowing an analysis of meats, dairy, frozen goods, and shelf-stable food. The CPI displays a price of each food item by month of a given year, and was subsequently cleaned to find the average of a given year. Limitations in the history of the data only allow for analysis from 2017 up to 2022. Once the data was cleaned, a cost rate (the difference in price of a given

year against the previous year) was calculated to show the change in price in order to measure the food item against inflation. It is important to note that, since the data only extends to 2017, a cost rate analysis from the years 2018 to 2022. The rate of inflation measurements similarly recorded data month-to-month and required cleaning to show the yearly average. Although the inflation rate data set provided a far more robust history, only the years 2017 to 2022 were included in this analysis as inflation was only used as a comparison against food cost rates.

## 3 Results

### 3.1 Food

Figure 1 illustrates the trajectory of both the Food Value and the All-items Value over a five-year span, from 2019 to 2023. A stark contrast is evident in the divergence of these two lines post-2020, potentially indicative of the varying impact of the pandemic on food prices compared to general inflation. The steeper gradient of the Food curve suggests an amplified reaction to pandemic-related factors, which may include disruptions in the supply chain, changes in consumer demand, and perhaps shifts in agricultural productivity.

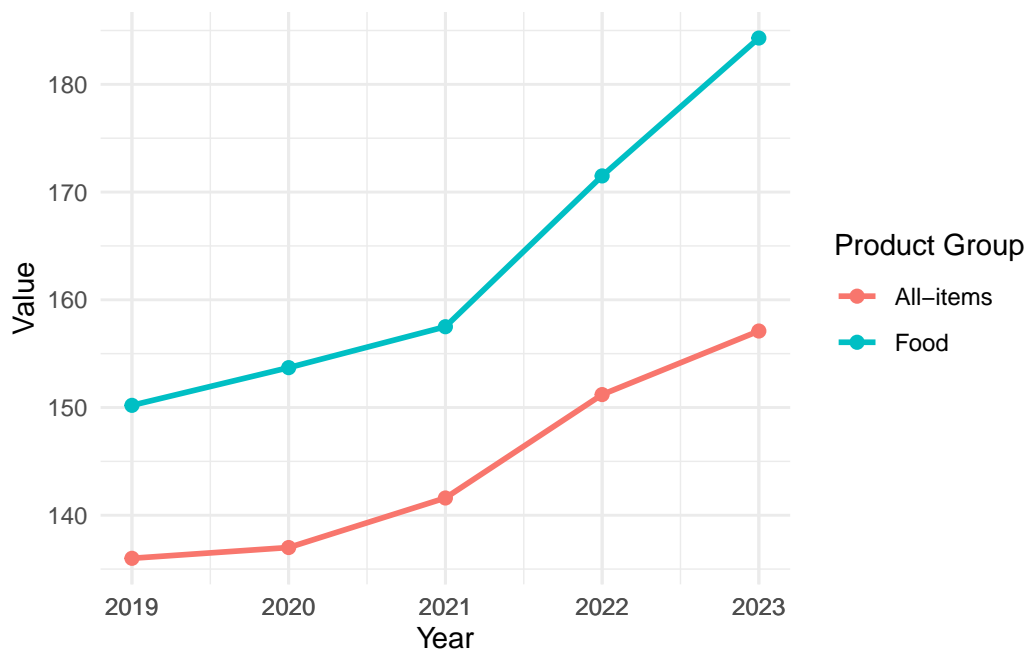


Figure 1: Comparison of Food Value and All-items Value Over Time

Table 1 offers a numerical perspective on the trends highlighted in Figure 1, providing the exact annual values that reflect the differential inflation rates for Food and All-items. It is clear from the table that the Food Value consistently increased at a higher rate than the All-items Value each consecutive year. Notably, between 2022 and 2023, the Food Value rose from 171.5 to 184.3, while the All-items Value exhibited a more moderate climb from 151.2 to 157.1. This quantifiable data underscores the disproportionate inflationary pressures on food items.

Table 1: Comparison of Food Value and All-items Value Over Time

Year	Food Value	All-items Value
2019	150.2	136.0
2020	153.7	137.0
2021	157.5	141.6
2022	171.5	151.2
2023	184.3	157.1

both Figure 1 and Table 1 reveal that food-related inflation has outstripped the general inflation rate during the period analyzed. This divergence is most pronounced in the later years, notably between 2022 and 2023, suggesting that while the general cost of living increased during the pandemic, the cost of food increased even more markedly. These findings could have implications for economic policy, as they underscore the need to address the specific drivers of food inflation in the context of the pandemic's broader economic impact.

### 3.2 Household operations, furnishings and equipment

In Figure 2 depicts a comparative analysis specifically focusing on the Household Value, relative to the All-items Value, over a period from 2019 to 2023. The value associated with Household operations, furnishings, and equipment shows a gradual increase over the five-year span. The progression is steady from 2019 to 2021, followed by a more noticeable rise from 2021 to 2023. This suggests a delayed but eventual response to inflationary pressures within the household sector during and post the pandemic period. The consistency in the upward trajectory, however, does not match the sharp incline observed in the All-items Value, especially from 2021 onwards.

Table 2 supports the observations from the graph by providing the exact figures for the Household Value. With a modest rise from 123.6 in 2019 to 132.0 in 2023, the increase in household-related costs is apparent, yet not as drastic as the general inflation trend. The year-to-year change remains relatively moderate, with the most significant jump observed between 2021 and 2022, suggesting a particular period where inflation hit household items more significantly compared to the preceding years.

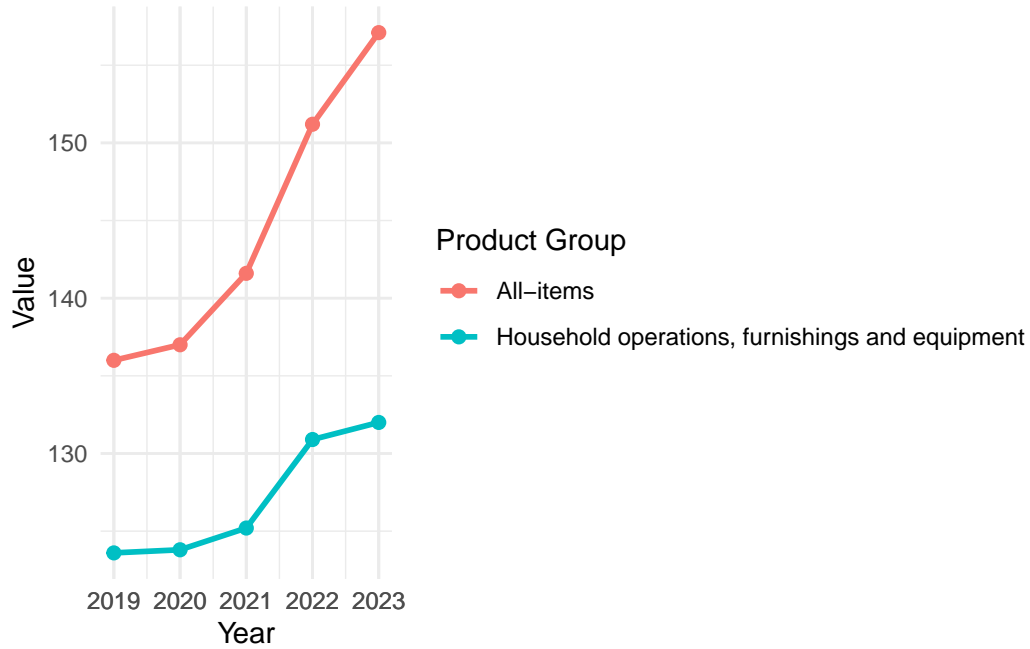


Figure 2: Comparison of Household Value and All-items Value Over Time

Table 2: Comparison of Household Value and All-items Value Over Time

Year	Household Value	All-items Value
2019	123.6	136.0
2020	123.8	137.0
2021	125.2	141.6
2022	130.9	151.2
2023	132.0	157.1

In light of the inflation dynamics in Canada during and after the COVID-19 pandemic, the Household Value data illustrates that this category has experienced inflation, but not to the extreme extents seen in the aggregate of all items. This could indicate that household operations, furnishings, and equipment were subjected to different economic forces or benefited from factors that mitigated more extreme price increases, such as alternative supply chains, less volatile demand, or different pricing strategies within the sector.

### 3.3 Clothing and footwear

In Figure 3, the line graph showcases the ‘Clothing and footwear’ value relative to the ‘All-items’ value over a five-year period, from 2019 to 2023. The ‘Clothing and footwear’ line remains remarkably flat, indicating that the value has not significantly increased over time. This stability suggests that clothing and footwear were less affected by inflationary pressures compared to the average of all consumer goods and services, which is depicted by the rising ‘All-items’ line.

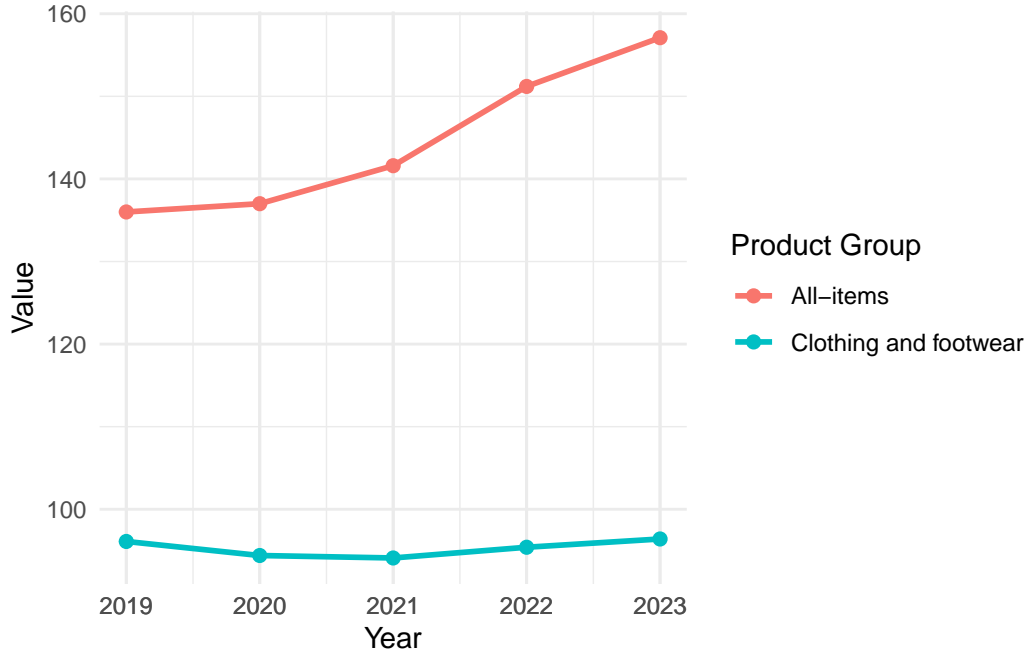


Figure 3: Comparison of Clothing Value and All-items Value Over Time

Delving into the numerical details provided in Table 3, we see that the Clothing Value begins at 96.1 in 2019 and shows a slight decrease until 2021, where it reaches its lowest at 94.1. This could indicate a reduced demand for clothing and footwear during the peak periods of the COVID-19 pandemic, possibly due to lockdowns and shifts in consumer spending towards essentials. However, by 2023, the Clothing Value modestly increases to 96.4, suggesting a slow return towards pre-pandemic levels.

Table 3: Comparison of Clothing Value and All-items Value Over Time

Year	Clothing Value	All-items Value
2019	96.1	136.0
2020	94.4	137.0

Table 3: Comparison of Clothing Value and All-items Value Over Time

Year	Clothing Value	All-items Value
2021	94.1	141.6
2022	95.4	151.2
2023	96.4	157.1

The juxtaposition of the flat trend for Clothing and Footwear against the rising trend of the All-items Value highlights a distinct economic behavior within the clothing sector. This sector appears to have been shielded from the inflation that affected other sectors more broadly. Possible reasons for this could include a decrease in consumer spending on fashion and discretionary items during the pandemic, shifts in retail and e-commerce strategies, or an oversupply in the market.

### 3.4 Gasoline

Figure 4 presents a line graph comparing the Gasoline Value to the All-items Value from 2019 to 2023. The Gasoline line shows a significant and volatile shift over the period, with a notable dip in 2020 followed by a sharp increase through to 2022. This volatility is contrasted against the more gradual upward trend of the All-items Value.

The steep decrease in Gasoline Value in 2020 aligns with the global reduction in oil prices and travel activity during the early stages of the COVID-19 pandemic. However, the subsequent sharp rise through 2021 and into 2022 might reflect the resurgence in travel demand, combined with fluctuations in oil production and supply chain issues, leading to a spike in gasoline prices that outpaces the general inflation rate.

Table 4 supports the graphical data by providing the exact figures for both Gasoline and All-items Values. Starting at 170.5 in 2019, the Gasoline Value decreases to 146.7 in 2020. The year 2021 marks the beginning of a steep climb to 192.4, continuing to a peak at 247.2 in 2022 before a slight retreat to 228.4 in 2023. The All-items Value, in comparison, rises steadily from 136.0 in 2019 to 157.1 in 2023, without the same level of fluctuation seen in gasoline prices.

Table 4: Comparison of Gasoline Value and All-items Value Over Time

Year	Gasoline Value	All-items Value
2019	170.5	136.0
2020	146.7	137.0
2021	192.4	141.6
2022	247.2	151.2
2023	228.4	157.1



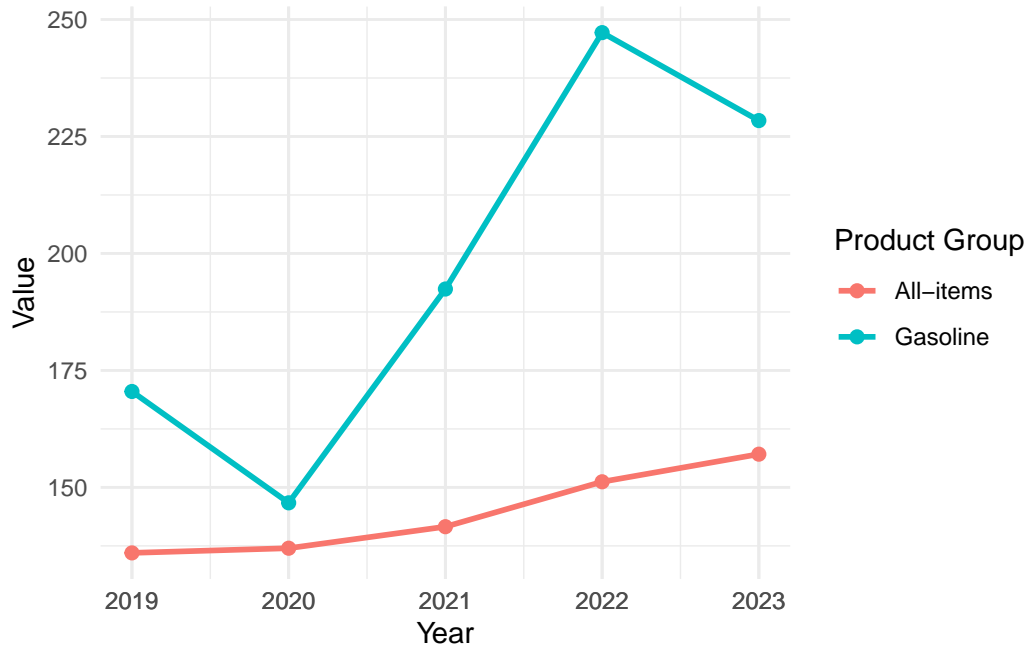


Figure 4: Comparison of Gasoline Value and All-items Value Over Time

Gasoline prices experienced significant fluctuations, with a dramatic increase that far exceeds the inflation trend of other consumer goods and services. The sharp rise in gasoline prices could have a cascading effect on the broader economy due to the essential nature of fuel in transportation and logistics, potentially contributing to the inflation of other items. The trend in gasoline prices is indicative of the unique economic pressures faced in the energy sector, including the impact of global events on oil markets and the transition to alternative energy sources.

### 3.5 Health and personal care

Figure 5 displays the value of 'Health and personal care' relative to the 'All-items' value over the span of 2019 to 2023. The line for 'Health and personal care' exhibits a steady upward trend, though at a slower rate than the 'All-items' value. The growth in the health sector is consistent, which could suggest ongoing inflationary pressures in health-related goods and services, but it is not as steep as the overall inflation.

The numerical data in Table 5 offers a clearer picture of this trend. Starting at a value of 127.4 in 2019, 'Health and personal care' experiences a moderate increase each year, reaching 145.8 in 2023. The annual growth is steady without any significant spikes, indicating that while there has been inflation within the healthcare sector, it has been relatively controlled and predictable.

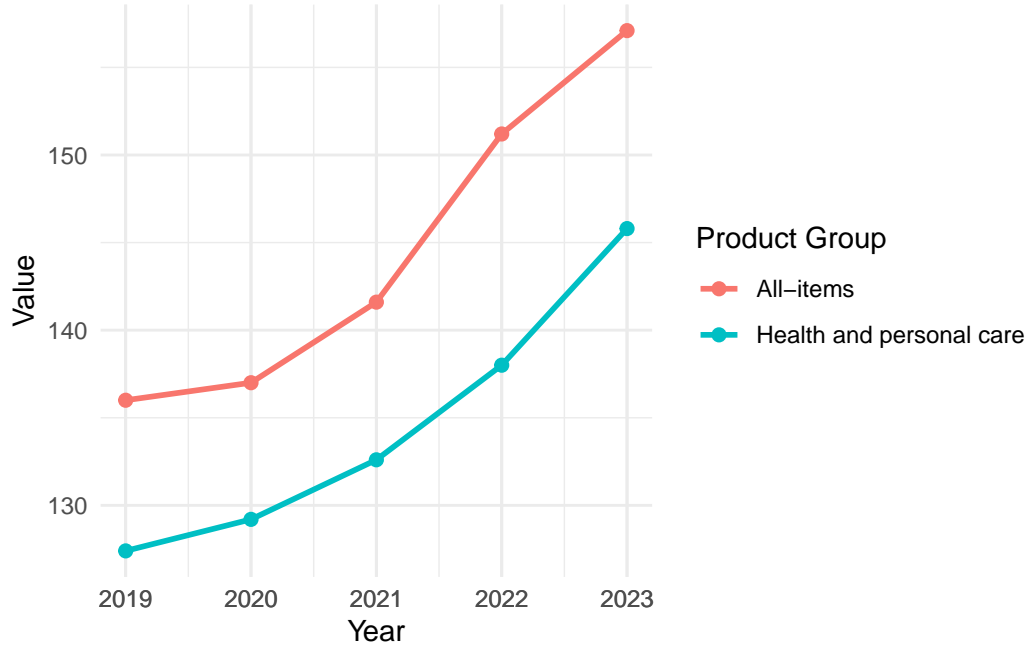


Figure 5: Comparison of Healthcare Value and All-items Value Over Time

Table 5: Comparison of Healthcare Value and All-items Value Over Time

Year	Healthcare Value	All-items Value
2019	127.4	136.0
2020	129.2	137.0
2021	132.6	141.6
2022	138.0	151.2
2023	145.8	157.1

This data may point to the fact that despite the overall economic turbulence experienced during the COVID-19 pandemic, the health and personal care sector has not inflated to the same extent as the aggregate of all items. It may also reflect the essential status of healthcare, which could lead to more stable pricing regardless of broader economic conditions. The relative stability in health and personal care costs could be critical for policy discussions around healthcare affordability and accessibility during times of economic stress.

### 3.6 Recreation, education and reading

In Figure 6, the trend for ‘Recreation, education, and reading’ demonstrates a gradual yet consistent upward movement over the years 2019 to 2023. It shows a steady increase in value, albeit not as steep as the ‘All-items’ category, which experiences a more pronounced rise during the same period. This suggests that while general inflation has been rising, the costs within the recreation and education sectors have been increasing at a comparatively milder rate.

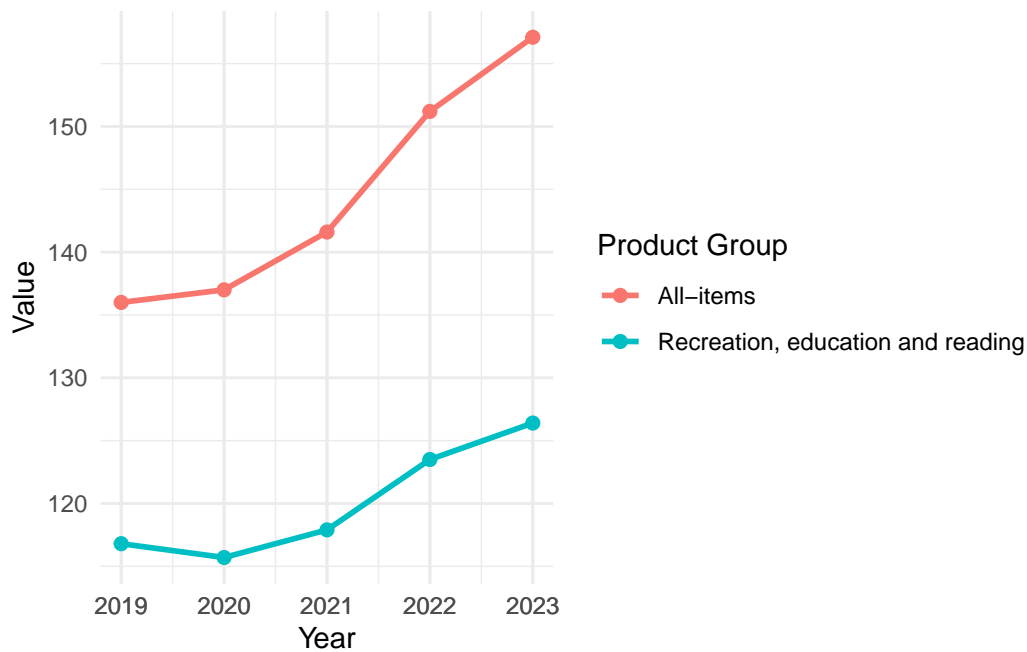


Figure 6: Comparison of Recreation, education and reading Value and All-items Value Over Time

Table 6 offers a year-by-year comparison of the values for ‘Recreation, education, and reading’ against the ‘All-items’ values. Beginning in 2019, the value for recreation and education starts at 116.8, dips slightly to 115.7 in 2020, and then gradually increases to 117.9 in 2021. This slight decrease followed by an increase could be indicative of the initial impact of the pandemic, with subsequent adaptation and recovery in the sector. Moving into 2022 and 2023, the values continue to rise to 123.5 and 126.4, respectively, underscoring a continued but moderate growth in contrast to the more significant inflationary trend seen across the broad spectrum of consumer goods and services, where the ‘All-items’ value moves from 136.0 in 2019 to 157.1 in 2023.

Table 6: Comparison of Recreation, education and reading Value and All-items Value Over Time

Year	Recreation, education and reading Value	All-items Value
2019	116.8	136.0
2020	115.7	137.0
2021	117.9	141.6
2022	123.5	151.2
2023	126.4	157.1

Recreation, education, and reading sector saw an overall increase in value throughout the five-year period, although at a pace that was slower than the overall increase in consumer prices. The resilience of this sector’s value, rising despite the economic challenges of the pandemic, may suggest a robust demand for recreational, educational, and reading products and services. Additionally, it could reflect the impact of digital alternatives and online services that became more prevalent during the pandemic, potentially offsetting higher costs or changes in consumer behavior as individuals and families sought at-home entertainment and learning options.

## 4 Discussion

## 5 References