

Portfolio Item One: Analysis on Essential Costs of Living (CPI Index)

Introduction

This report was created to analyze and compare the average essential cost of living for both pre-pandemic and post-pandemic periods. An analysis is provided on the movement of average costs in four of the CPI Index categories, along with key trends in these CPI Index categories.

The dataset used for this analysis is the Consumer Price Index from Statistics Canada which has data from 2003 to 2023. The post-pandemic analysis will be solely based on data from the years 2020 to 2023. For this report, the essential costs of living are to be defined as food, shelter, transportation, and energy. The CPI Index includes many different consumer costs; however, these four categories are areas of consumer costs that are necessary for survival. Hence, the analysis will be based on these four consumer cost categories.

- Please [click here](#) to view the Power BI Dashboard

Tools Used and Process of Dashboard Development

The tool used for this analysis is Microsoft Power BI. The process of creating the dashboard involved downloading the dataset from Statistics Canada, and manually cleaning up the table by removing unnecessary headers and footers. The column names were also changed in accordance with the data. After cleaning up the data, it was imported into Power BI as a table. Using this data table, the dashboard was created by experimenting with different visualizations.

Up until the point of importing the Excel table onto Power BI, the process was straightforward. However, the real challenge began when the time came to prepare the dashboard and visualizations. Learning to navigate the tool was difficult at first, due to the arrangement of various options. One advantage of Power BI is the ability to generate many different types of visualization that can be used on a variety of data sets. There are also many different formatting options to choose from on each of the visualizations. A disadvantage would be the placement of the formatting options. For example, to edit the

colour of a text size of a column chart, one must navigate through various drop-down menus to find the corresponding section to edit.

Dashboard Component: Line Chart

The first component of the dashboard is the line chart (*Figure 1*). This line chart sets the basis for both the dashboard and the analysis. It outlines the movement of the average essential costs of living. This chart presents this data from the year 2003, up until the year 2023. This chart sets the basis for the dashboard as it provides a comprehensive view of how these average costs are moving throughout the years, along with specific trends. With this view, one can compare pre-pandemic and post-pandemic essential cost of living.

Dashboard Component: Line and Clustered Column Chart

The second component of the dashboard is the line and clustered column chart (*Figure 2*). This visualization presents the average essential cost of living for the pandemic and post-pandemic periods, which includes the years 2022 to 2023. The chart uses four different colours each representing a consumer cost category. The colours were chosen in a way that ensures the bars next to each other don't complement each other. This ensures that each bar stands out individually, as it is intended to represent different sets of data. There is also a line on the y-axis which shows the average cost for all four essential costs, per year. This line can help interpret how relative each cost category is to its average.

Dashboard Component: Table and Interactive Options

The final component of the dashboard includes a table with the list of all four average essential costs of living, for the pandemic and post-pandemic periods (*Figure 3*). This table helps understand the specific increases or decreases in these costs throughout the pandemic period, along with a total for each cost category. This table can be used to determine a more detailed analysis. The dashboard also includes interactive components (*Figure 3.1*) such as the slicer on the top left, which can be used to view the average costs on the line chart for a specific range of years. This is for the viewer to analyze the pre-pandemic average costs. There is also a card in the corner outlining the trend of energy cost being the highest among the others.

Conclusion and Interpretations

In conclusion, the dashboard (*Figure 4*) provides a comprehensive analysis of the movement of the four essential costs of living throughout 2003 and 2023. This dashboard concludes that the costs of living have significantly increased, during the pandemic and post-pandemic as well. A key takeaway in this analysis would be the average energy cost being the highest among the rest. The average energy cost was at an all-time high during 2022, with an average cost of \$214.40.

Appendix

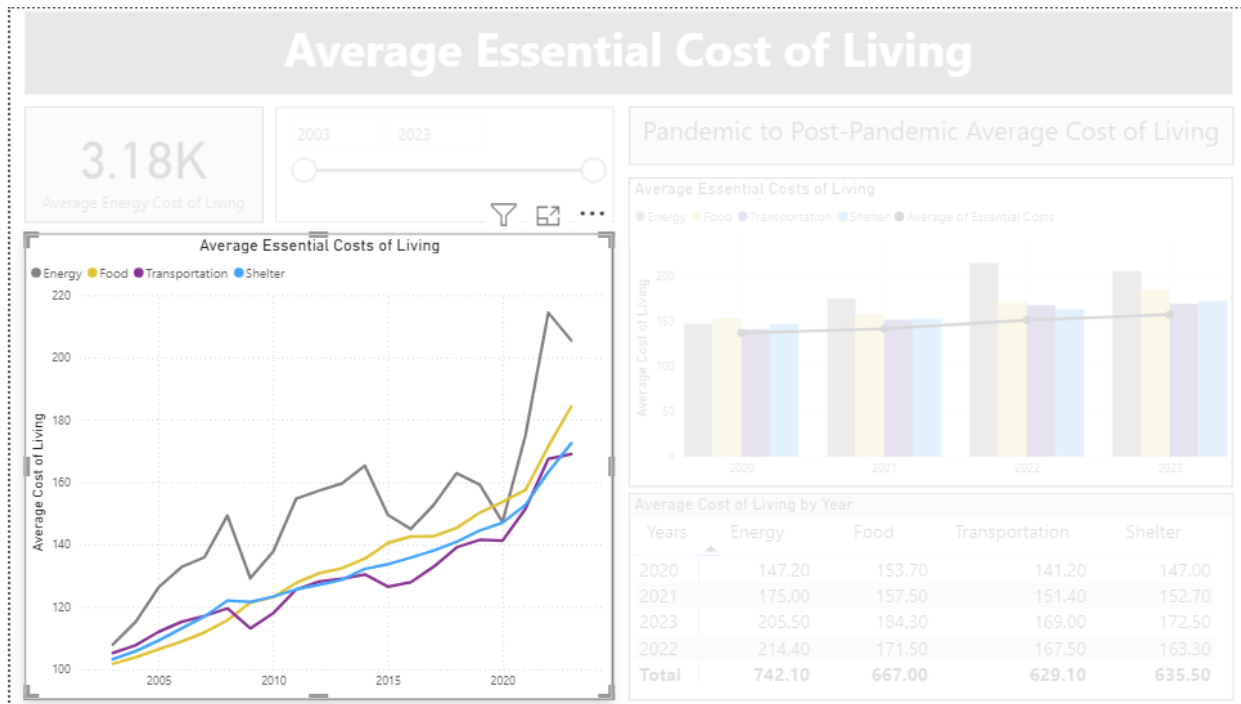


Figure 1: Line Chart

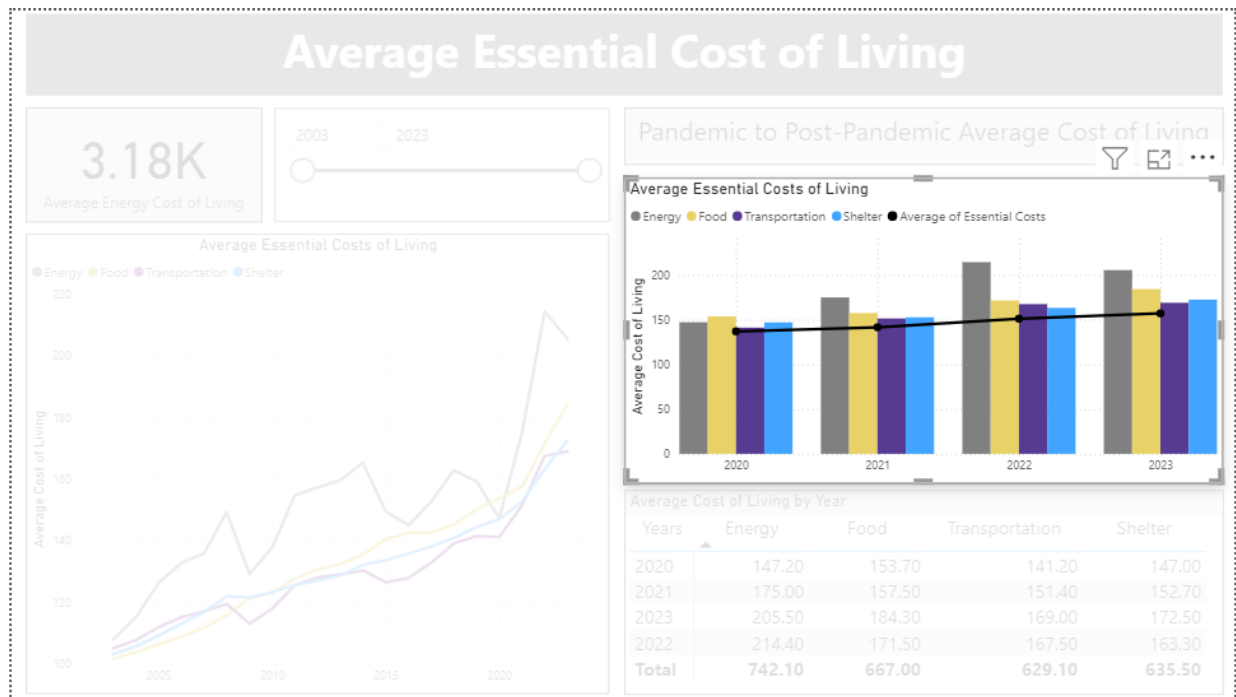


Figure 2: Line and Clustered Chart

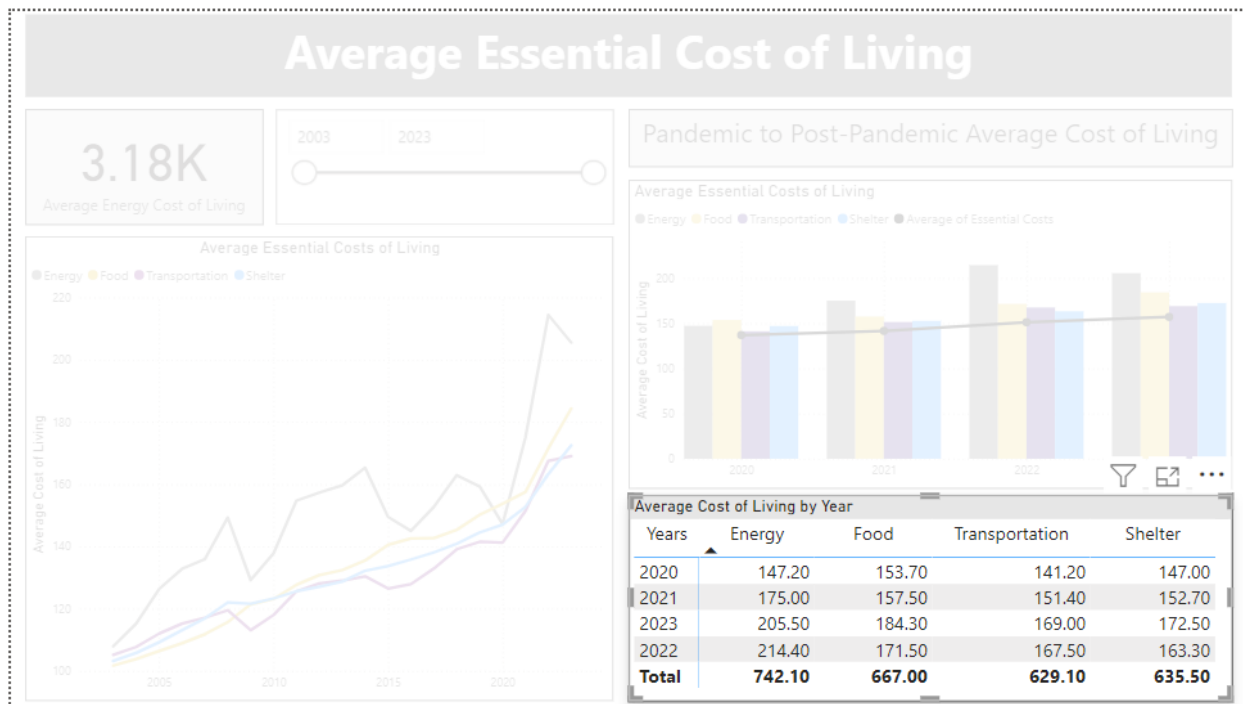


Figure 3: Table

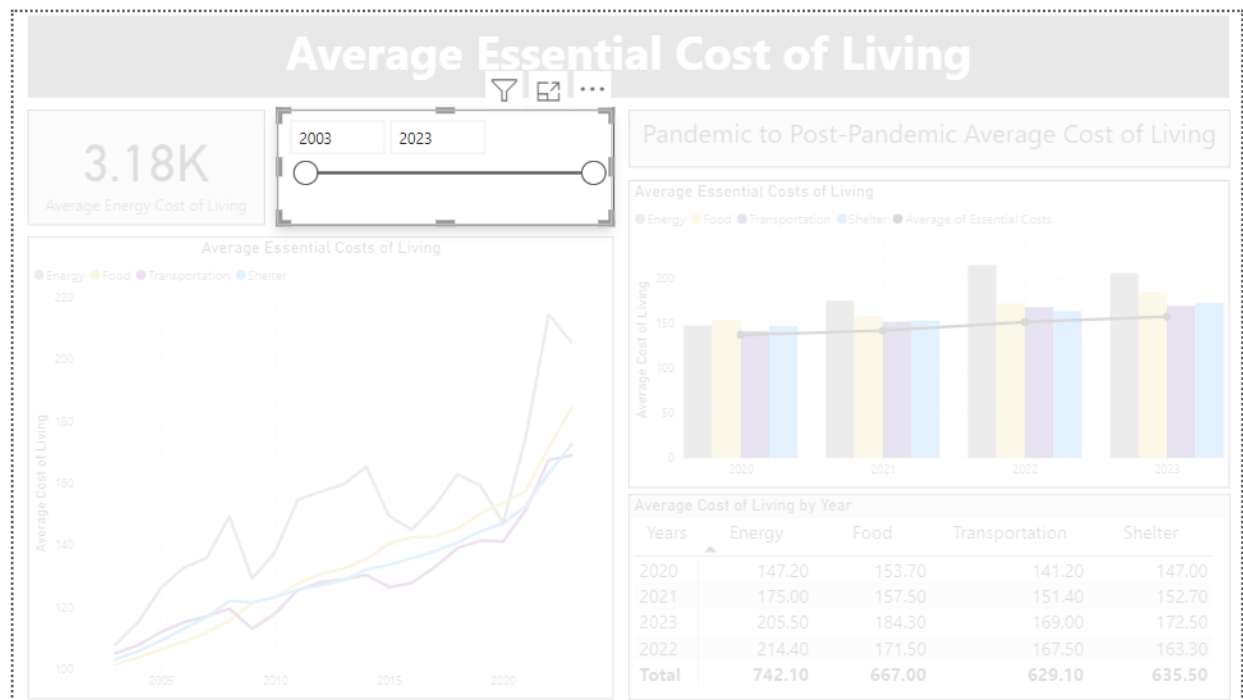


Figure 3.1: Interactive Component

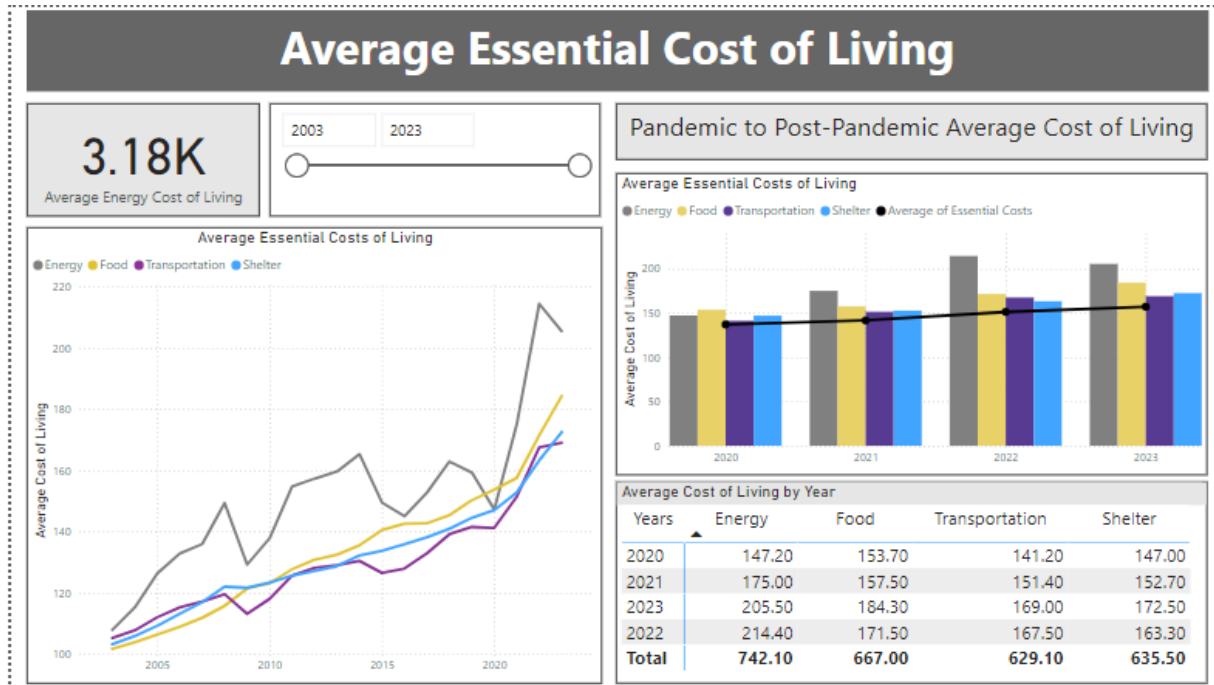


Figure 4: Average Essential Cost of Living Dashboard

References

Statistics Canada. Table 18-10-0005-01 Consumer Price Index, annual average, not seasonally adjusted.

<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1810000501>