Canadian Bread Price Variations Across Vendors*

An Observational Study on Pricing Trends and Data Limitations

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November 14, 2024

This study analyzes the average price of bread across various vendors to understand pricing trends and highlight differences in consumer costs. By examining observational data, we found notable variations in bread prices between vendors, with some consistently offering higher or lower prices. These findings shed light on how vendor practices, product offerings, and possible external factors can impact bread affordability. Understanding these price variations is important for consumers seeking cost-effective options and for stakeholders aiming to address pricing disparities in everyday essentials.

1 Introduction

Bread is a staple food item across households, and understanding price variations among different vendors can provide insights into the accessibility and affordability of basic food products. This study aims to examine the average price of bread across various vendors in Canada to identify patterns and potential disparities in pricing. Using data on both overall average prices and per-unit prices (where available), we assess how bread pricing differs between vendors and highlight the factors that may contribute to these differences.

The primary estimand in this analysis is the average price of bread offered by each vendor. Additionally, for vendors that provide per-unit pricing, the analysis includes the average unit price, which helps standardize cost comparisons across varying product sizes and quantities. The focus on vendor-based pricing provides a granular view of how pricing might vary by store brand and supply chain factors.

Our results indicate a noticeable range in average bread prices across vendors. For instance, Walmart exhibits the highest average bread price among the surveyed vendors, while Voila

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*Code and data are available at: https://github.com/aj3616/Canadian_Groceries_SQL/tree/main

offers the lowest average price. However, the availability of unit prices is limited, with only Walmart providing sufficient data to calculate an average per-unit price. This lack of unit price data highlights a gap in the dataset, suggesting inconsistencies in reporting or data availability across different vendors.

Understanding these variations in bread prices matters for consumers and policymakers alike. For consumers, awareness of price disparities between vendors can guide more cost-effective shopping decisions. For policymakers, identifying patterns in food pricing could support initiatives aimed at improving food affordability and accessibility. By shedding light on vendor-based pricing differences, this study contributes to broader discussions on food cost dynamics and potential areas for consumer advocacy.

The remainder of this paper is structured as follows. Section 2 discusses the data used for this analysis, including key variables and sources, with particular attention to the quality metrics that affect polling accuracy. Section 3 outlines our modeling approach for each candidate, incorporating lessons learned from recent electoral cycles. Our predictions are under section of each model. Finally, our Section 4 discusses the implications of our findings and suggests directions for future research by addressing three critical aspects: correlation vs. causation, missing data, and sources of bias.

2 Data

2.1 Overview

We use the statistical programming language R (R Core Team 2023)…. Our data (Filipp 2024)…. Following Alexander (2023), we consider…

Overview text

2.2 Measurement

Some paragraphs about how we go from a phenomena in the world to an entry in the dataset.

2.3 Outcome variables

Add graphs, tables and text. Use sub-sub-headings for each outcome variable or update the subheading to be singular.

Talk more about it.

2.4 Predictor variables

Add graphs, tables and text.

Use sub-sub-headings for each outcome variable and feel free to combine a few into one if they go together naturally.

3 Model

The goal of our modelling strategy is twofold. Firstly,...

Here we briefly describe the Bayesian analysis model used to investigate... Background details and diagnostics are included in Appendix B.

3.1 Model set-up

Define y_i as the number of seconds that the plane remained aloft. Then β_i is the wing width and γ_i is the wing length, both measured in millimeters.

$$y_i|\mu_i, \sigma \sim \text{Normal}(\mu_i, \sigma) \tag{1}$$
$$\mu_i = \alpha + \beta_i + \gamma_i \tag{2}$$
$$\alpha \sim \text{Normal}(0, 2.5) \tag{3}$$
$$\beta \sim \text{Normal}(0, 2.5) \tag{4}$$
$$\gamma \sim \text{Normal}(0, 2.5) \tag{5}$$
$$\sigma \sim \text{Exponential}(1) \tag{6}$$

We run the model in R (R Core Team 2023) using the `rstanarm` package of Goodrich et al. (2022). We use the default priors from `rstanarm`.

3.1.1 Model justification

We expect a positive relationship between the size of the wings and time spent aloft. In particular...

We can use maths by including latex between dollar signs, for instance θ.

4 Results

5 Discussion

5.1 First discussion point

If my paper were 10 pages, then should be be at least 2.5 pages. The discussion is a chance to show off what you know and what you learnt from all this.

5.2 Second discussion point

Please don't use these as sub-heading labels - change them to be what your point actually is.

5.3 Third discussion point

5.4 Weaknesses and next steps

Weaknesses and next steps should also be included.

Appendix

A Additional data details

B Model details

B.1 Posterior predictive check

B.2 Diagnostics

References

Alexander, Rohan. 2023. *Telling Stories with Data.* Chapman; Hall/CRC. https://tellingstorieswithdata.com/.

Filipp, Jacob. 2024. "Hammer." https://jacobfilipp.com/hammer/.

Goodrich, Ben, Jonah Gabry, Imad Ali, and Sam Brilleman. 2022. "rstanarm: Bayesian applied regression modeling via Stan." https://mc-stan.org/rstanarm/.

R Core Team. 2023. *R: A Language and Environment for Statistical Computing.* Vienna, Austria: R Foundation for Statistical Computing. https://www.R-project.org/.