Monster Energy in Canadian Grocery Stores*

An analysis of Monster Energy's offerings and prices across various Canadian Grocers

Dhruv Gupta Justin Klip Kevin Shen

November 14, 2024

Project Hammer's data set was used to compare prices for the variant Monster Zero Ultra across time and across vendors. We find that Metro and NoFrills have consisntetly demonstrated the cheapest prices (around $3) for a single can of Monster Zero Ultra, which is approximately $1 cheaper than other vendors for the same product. Additionally we find that Metro has the greatest variety in offerings of Monster Energy products according to the dataset we use. For heavy consumers of these products, this analysis is important as we find that choosing the cheaper option for a single can of Monster Zero Ultra has the possibility of one saving more than 30 dollars a month.

Table of contents

*https://github.com/dhruv5423/Monster_Energy_Analysis

1 Introduction and Personal Motivation

Monster Energy is a widely popular energy drink brand across the world. Created in April 2002, it is a caffeinated beverage with a multitude of flavours and offerings (Wikipedia contributors 2024). As of July 2019, the Monster brand contains 34 different drinks on the market in the US, and has brand sponsorships with multiple different large sporting events, including Formula 1, Nascar, and Horse racing companies.

Personally, we are avid drinkers of the variant, 'Monster Zero Ultra', with some group members consuming 1-2 cans per day. It contains 0 sugar, 140mg of caffeine and is extremely refreshing. Therefore a large part of this paper will utilize the data set to understand the price differences of this particular flavour across Canadian grocery stores. As the price of these cans can differ significantly across stores, it is of great personal interest to identify where money can be saved.

2 Data

2.1 Data Extraction and Measurement

The statistical software DB Browser for SQLite (Piacentini 2003) will be used to query the dataset provided by Jacob Fillip in 'Project Hammer' (Filipp 2024). Additionally the statistical software R will be used to visualise the selected datasets. (R Core Team 2023). Packages used include Tidyverse (Wickham et al. 2019) and KableExtra (Zhu 2021).

Project Hammer endeavours to reduce collusion in the Canadian Grocery sectors. They have created a database that displays historical grocery prices from top grocers in Canada so a community of people can create insightful analyses regarding the prices of goods across Canadian grocery stores.

According to Jacob Filipp's website, the data has been gathered from a screen-scrape of website UI, for the grocers Voila, T&T, Loblaws, No Frills, Metro, Galleria, Walmart Canada, and Save-On-Foods.

2.2 Raw Data

The Raw Data was originally organised into 2 tables. A product table, which contained vendors, associated product names, units, and brands. Table 1 and Table 2 shows a sample of this below. Additionally the 'raw' table contained time series price data for each product_id, found in the product table.

Table 1: Sample of Raw Product Data - Part 1

ID	Description	Vendor
1	Voila~Anjou Pears Large 1 Count @($0.99 per item)^	Voila
3	Voila~Apples Ambrosia@1.36kg^	Voila

Table 2: Sample of Raw Product Data - Part 2

Product Name	Units	Brand	Detail URL	SKU	UPC
Anjou Pears Large 1 Count	($0.99 per item)	NA	NA	NA	NA
Apples Ambrosia	1.36kg	NA	NA	NA	NA

2.3 Data Cleaning

SQL Querying was used in DB Browser for SQLite to first select the products referring to Monster Zero Ultra cans of 473ml if a store sold it. (See scripts/raw_selection_script.sql). Upon further inspection, we found that for some grocers, for example 'Metro', they offered these cans as a deal. That is, the cans were sold as 2 for 6 CAD. This was cleaned to account this as a normalized price of 3 CAD per can. An example of the cleaned data can be shown below in Table 3.

Table 3: Sample of Cleaned Price Data with Updated Column Names

Product ID	Date & Time	Current Price	Normalized Price	Vendor
693972	2024-06-11 01:38:00	2.99	2.99	Voila
693972	2024-06-11 20:20:00	2.99	2.99	Voila

Here, Product ID refers to the corresponding product in the product table. In this case, Product ID of 693972 refers to 'Voila~Monster Energy Drink Zero Ultra 473 ml (can).' The

unit price is 2.99, and because there are no special deals offered, the normalized price is the same. An R script was used to add the corresponding vendors to the products and clean the names of the columns.

Additionally, the variety of Monster Energy drinks offered is of interest to those who consume the energy drinks regularly. Therefore we have further used SQL to select and count the number of monster energy items offered in each grocery store. This is shown in Table 4 below.

Table 4: Number of Monster Energy Items Offered in Each Grocery Store

Grocery Store	Monster Energy Count
Metro	53
Walmart	46
Voila	36
Loblaws	35
SaveOnFoods	34
NoFrills	25
Galleria	6
TandT	1

3 Results and Discussion

3.1 Price Evolution Monster Zero Ultra by Grocer

Figure 1: Price Progression of Monster Zero Ultra Across Vendors

From Figure 1, we observe that Metro and NoFrills are the cheapest options to buy a single 473ml can of Monster Zero Ultra, with prices around 3 CAD per can. Further, Save On Foods has historically had the highest prices for Monster Zero Ultra, sometimes having prices above 5 dollars per can. On average it seems to be that prices for 1 can are around 3.25-4 CAD, with 4 out of the 7 vendors who sell this variant having prices within that range. This further shows the relative cheapness of Metro and NoFrills: if one were to buy 1 can a day for a month, they could save around 30 dollars a month, compared to other 'averagely priced' options.

Important to note is that these prices are for a single can on Monster Zero Ultra. Costco for example, which is not included in this analysis, offers a pack of 24 cans for 45.99 - considerably cheaper than any other option in this data set. So, what would be interesting as a next step would be to compare wholesale prices of cans, and normalize them to their 'price per can'. If one is a heavy drinker of these energy drinks, it would make more sense for them to buy them wholesale.

3.2 Monster Product Offerings by Grocer

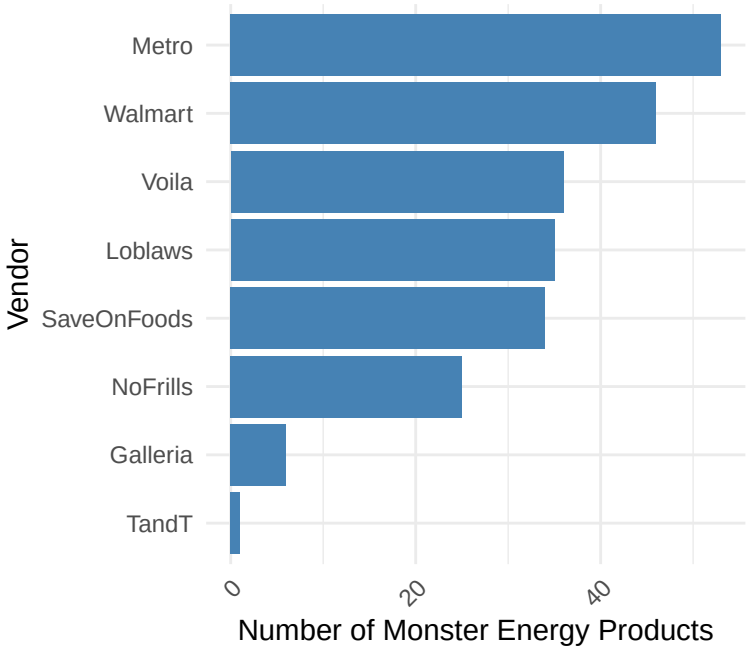

Figure 2: Monster Energy Offerings by Vendor

Figure 2 visualises the number of Monster Energy products offered by vendor. We see that Metro leads the way, with 53 products offered. Galleria and T&T being smaller convenience stores are expected to have low varieties of products offered.

So, in terms of price and variety, Metro seems to be the best option for Monster enjoyers (assuming one is buying a single can). While NoFrills is comparable in terms of price, Metro has more than double the variety in product offerings.

Bibliography

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

Piacentini, Mauricio. 2003. "DB Browser for SQLite." https://sqlitebrowser.org.

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

Wickham, Hadley, Mara Averick, Jennifer Bryan, Winston Chang, Lucy D'Agostino McGowan, Romain François, Garrett Grolemund, et al. 2019. *Welcome to the Tidyverse*. https://doi.org/10.21105/joss.01686.

Wikipedia contributors. 2024. "Monster Energy — Wikipedia, The Free Encyclopedia." https://en.wikipedia.org/wiki/Monster_Energy.

Zhu, Hao. 2021. *kableExtra: Construct Complex Table with 'Kable' and Pipe Syntax*. https://CRAN.R-project.org/package=kableExtra.