

Project in Predictive Analytics

Effy Paulose

Predictive Analytics, The University of Winnipeg

Instructor: Dr. Jennifer Bodnarchuk

September 4, 2024



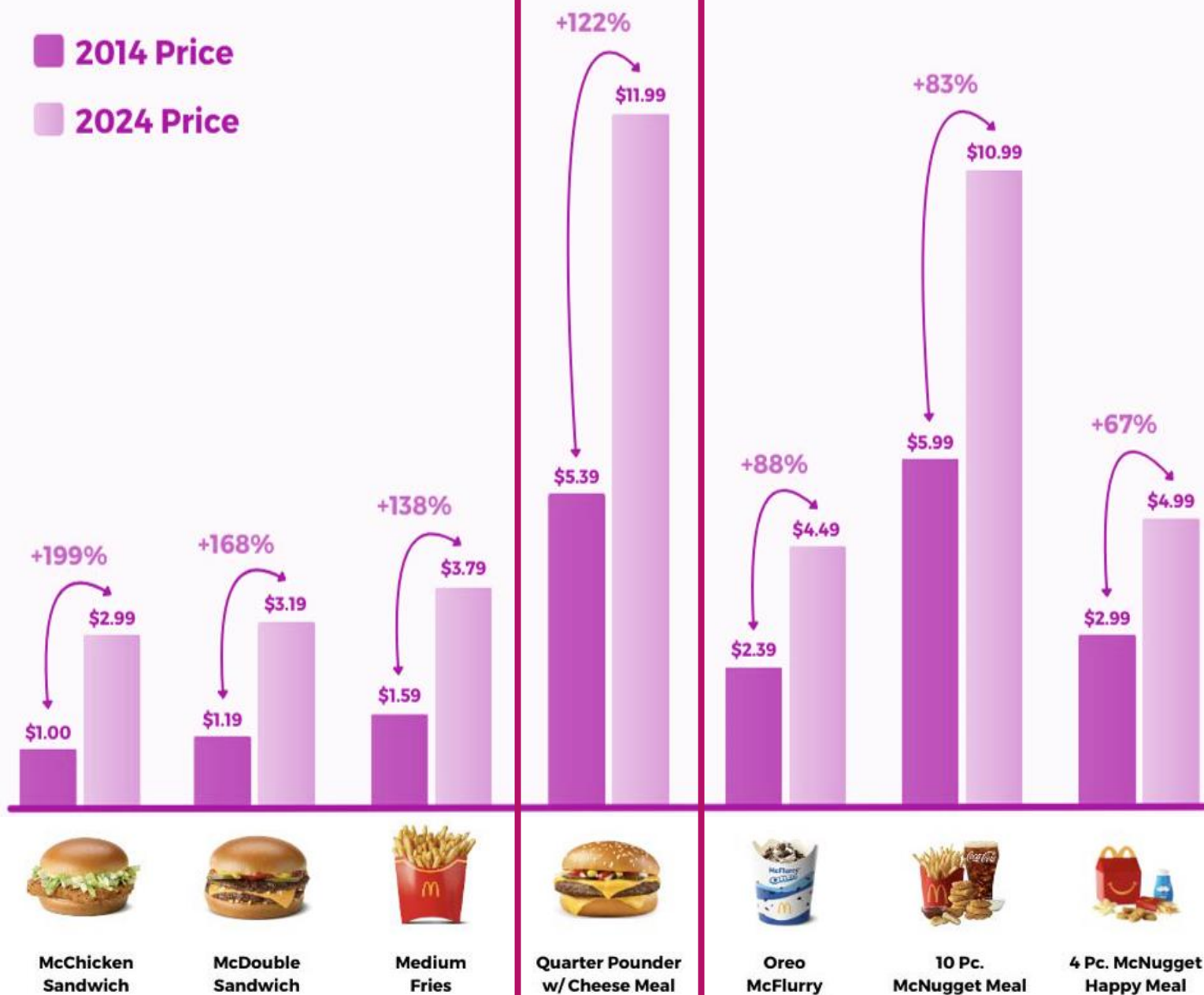
How can Dan still enjoy this ice cream without spending any extra money?



Inflation Forecast and Smart Purchasing

■ 2014 Price

■ 2024 Price





2021: \$695,999

2024: \$719,999

Analysis - Core Focus Areas



Food Price



Oil Price



Weekly
Earnings



Housing
Prices

Objective

01

Product Trend over
time and Regional
Analysis

02

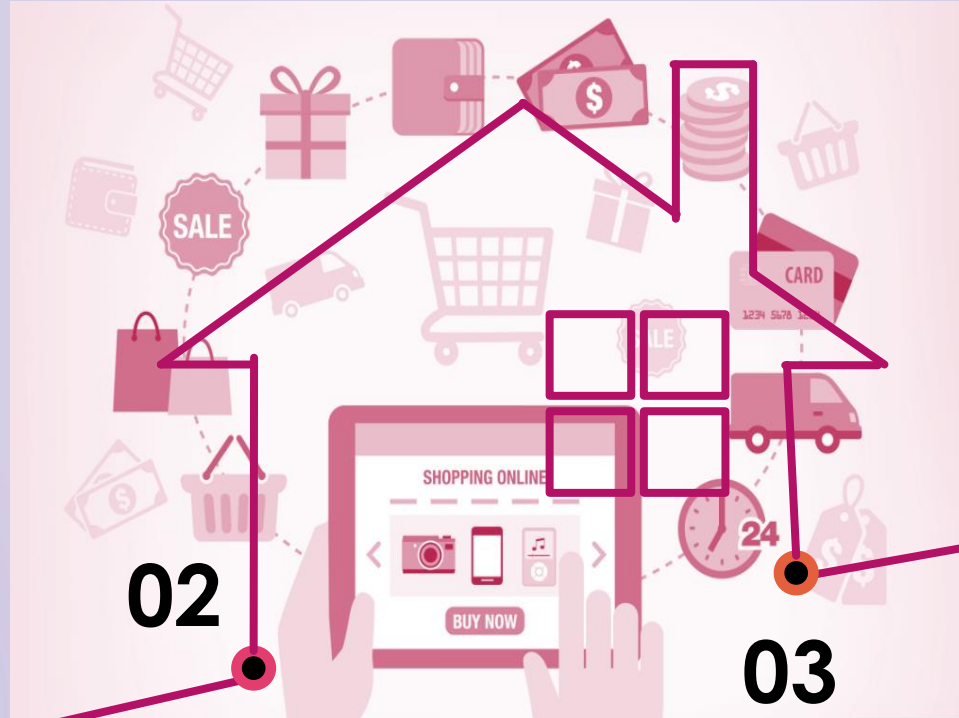
Pricing Index
Forecasting

03

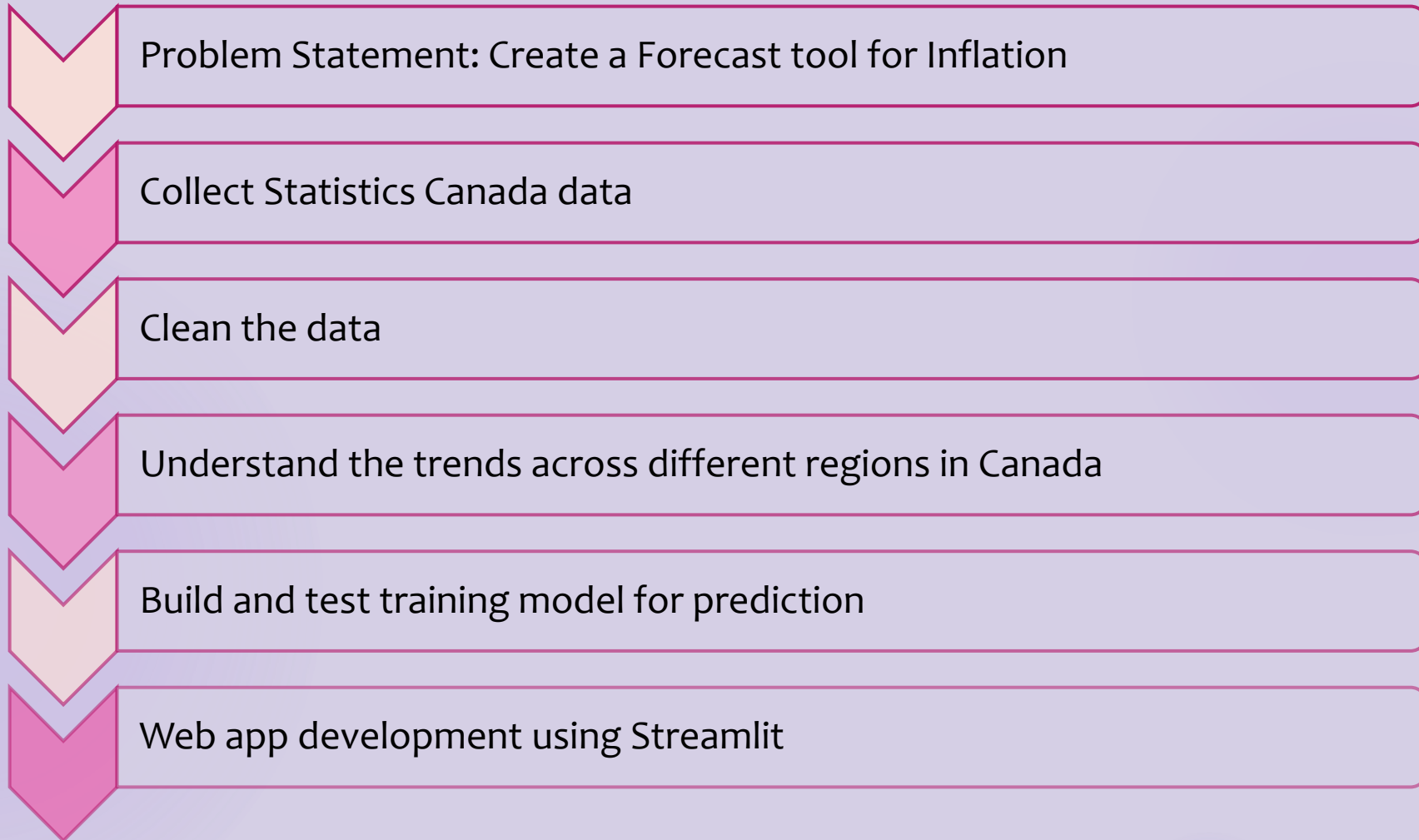
Smart Purchasing
Option

04

Web application
Development



Methodology



What is Inflation?

- Rate of increase in prices of goods over a given period of time
- Measured by Consumer Price Index



Higher food costs



Higher gasoline prices



Higher utility costs



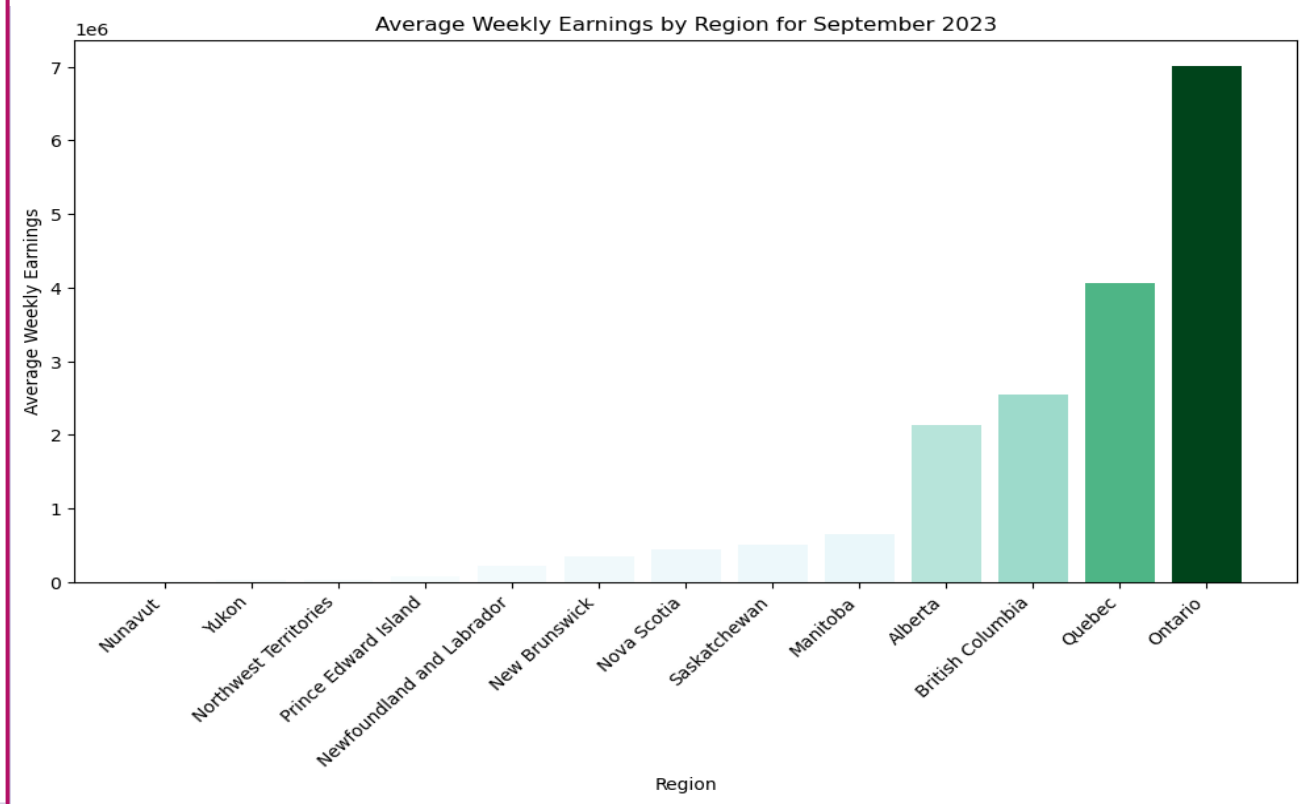
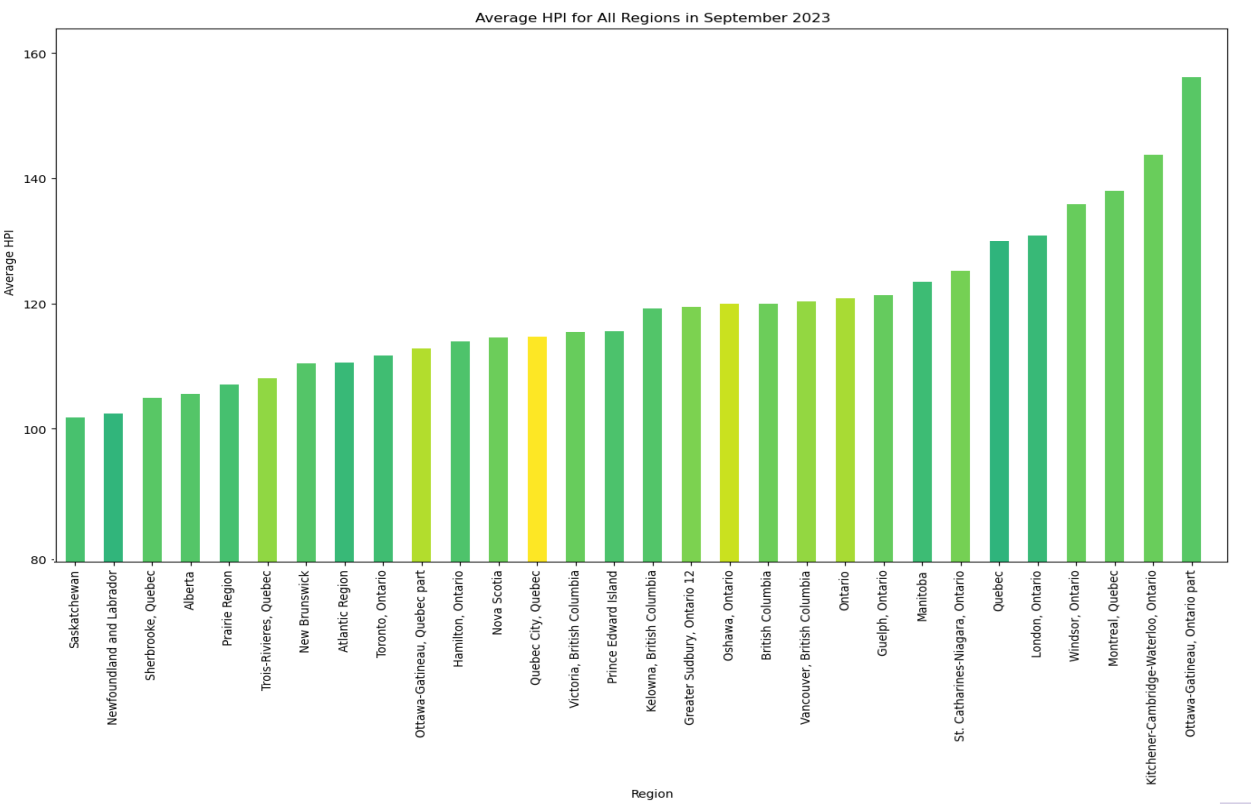
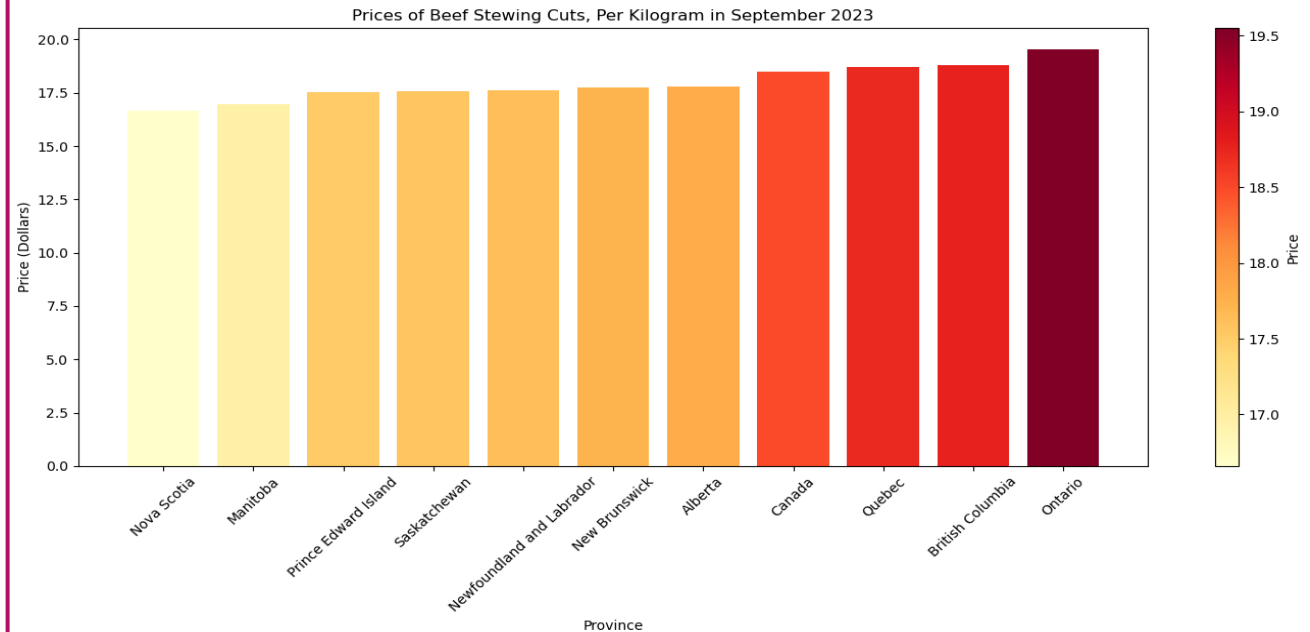
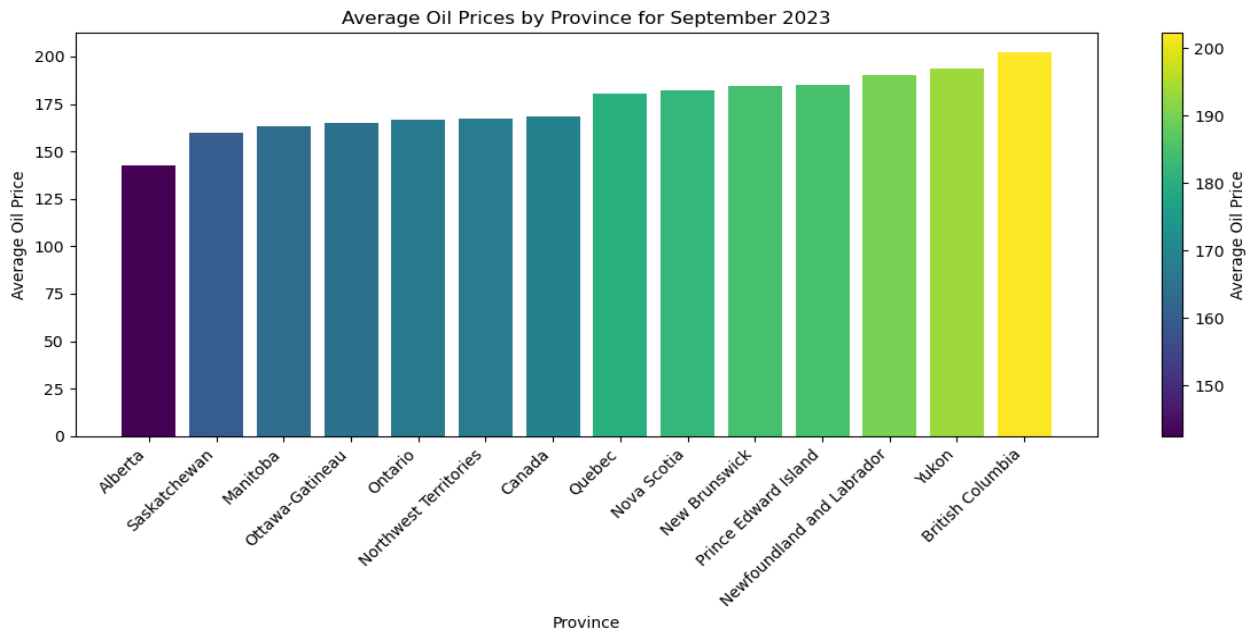
Not receiving an increased wage



Higher interests on home loans

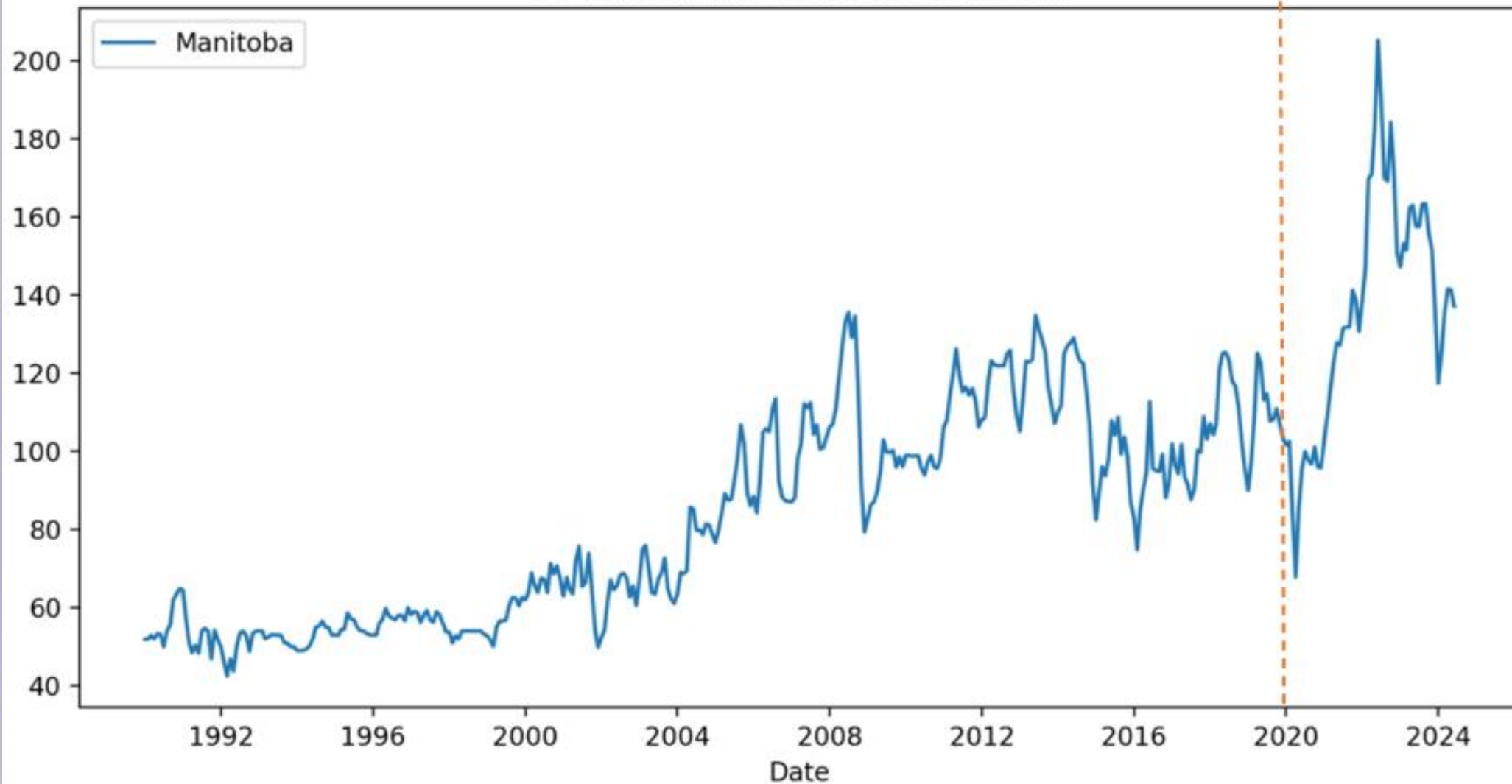


Regional Analysis for September 2023

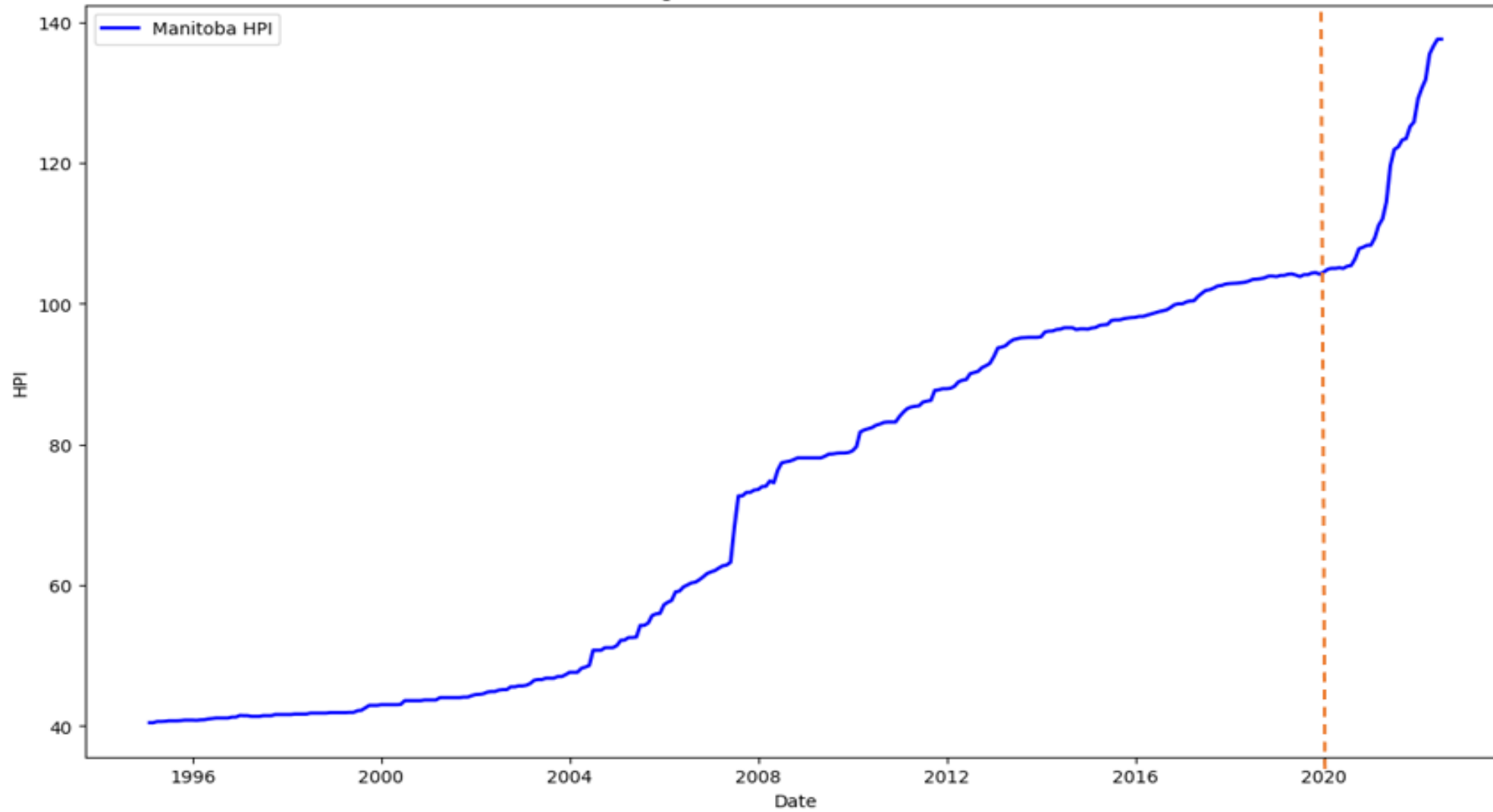


Regional Analysis(Manitoba) and effect of Covid

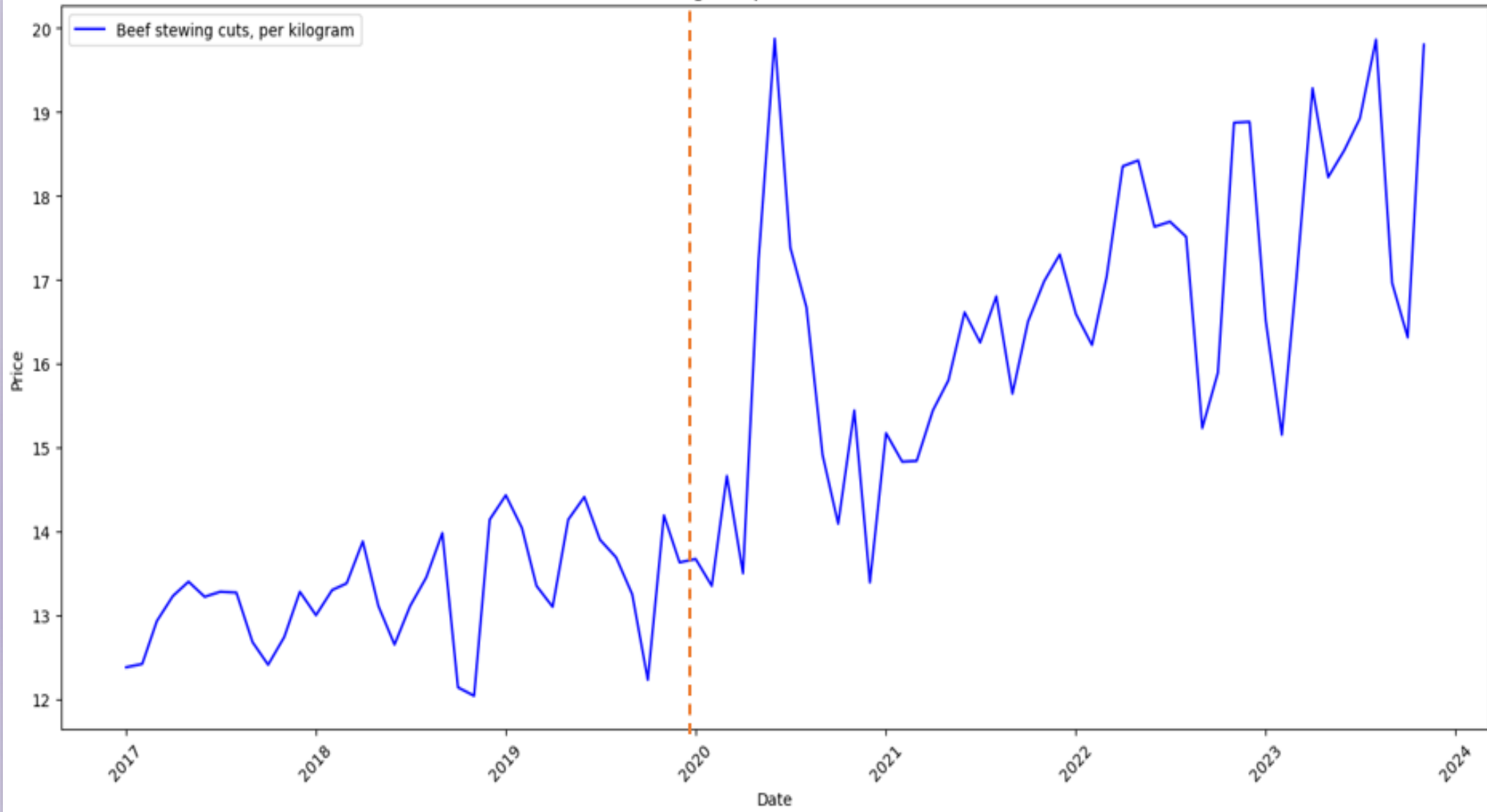
Oil Price Trends from 1990 to 2024



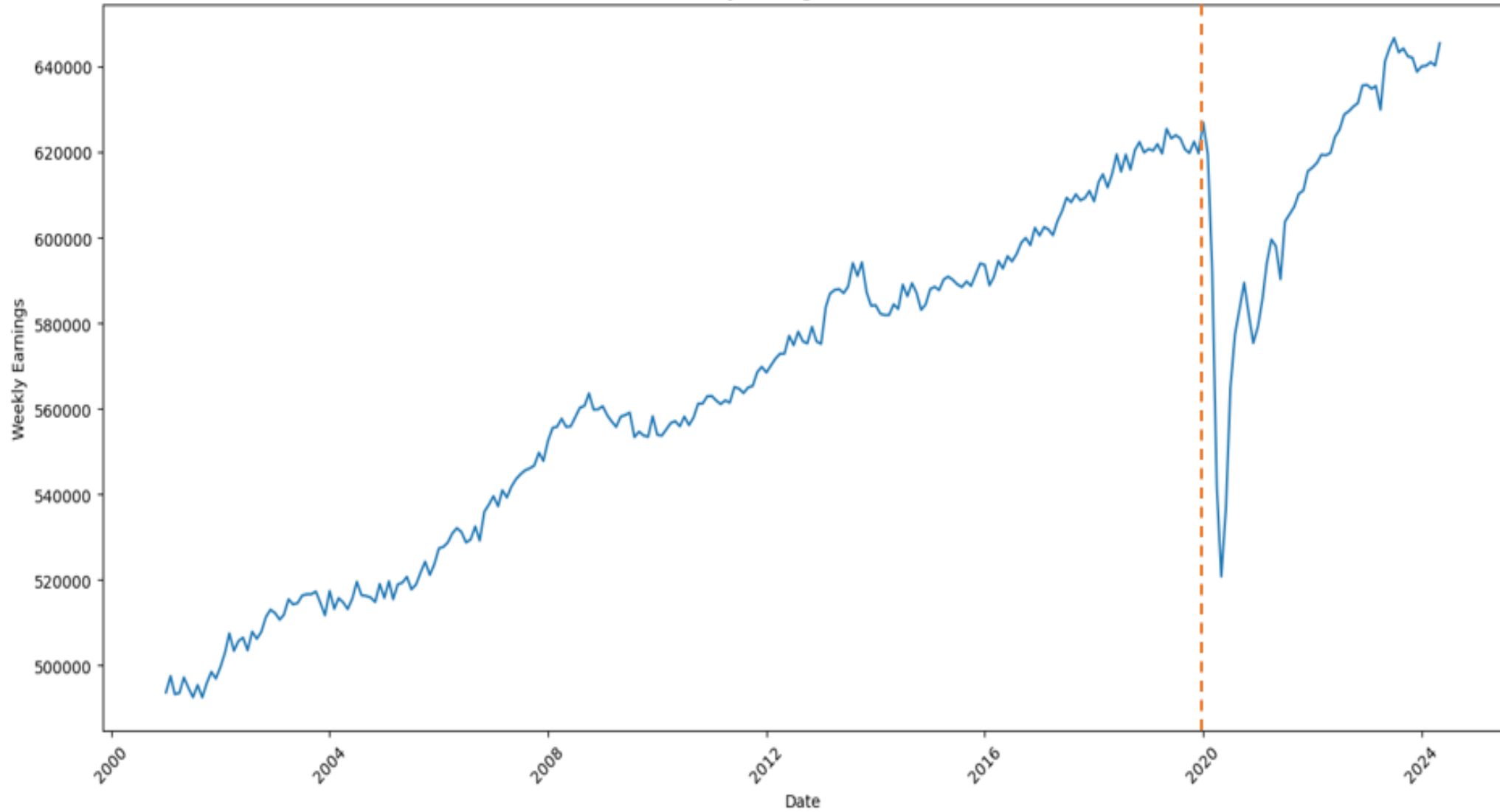
Housing Price Index (HPI) for Manitoba



Beef stewing cuts price trend in Manitoba



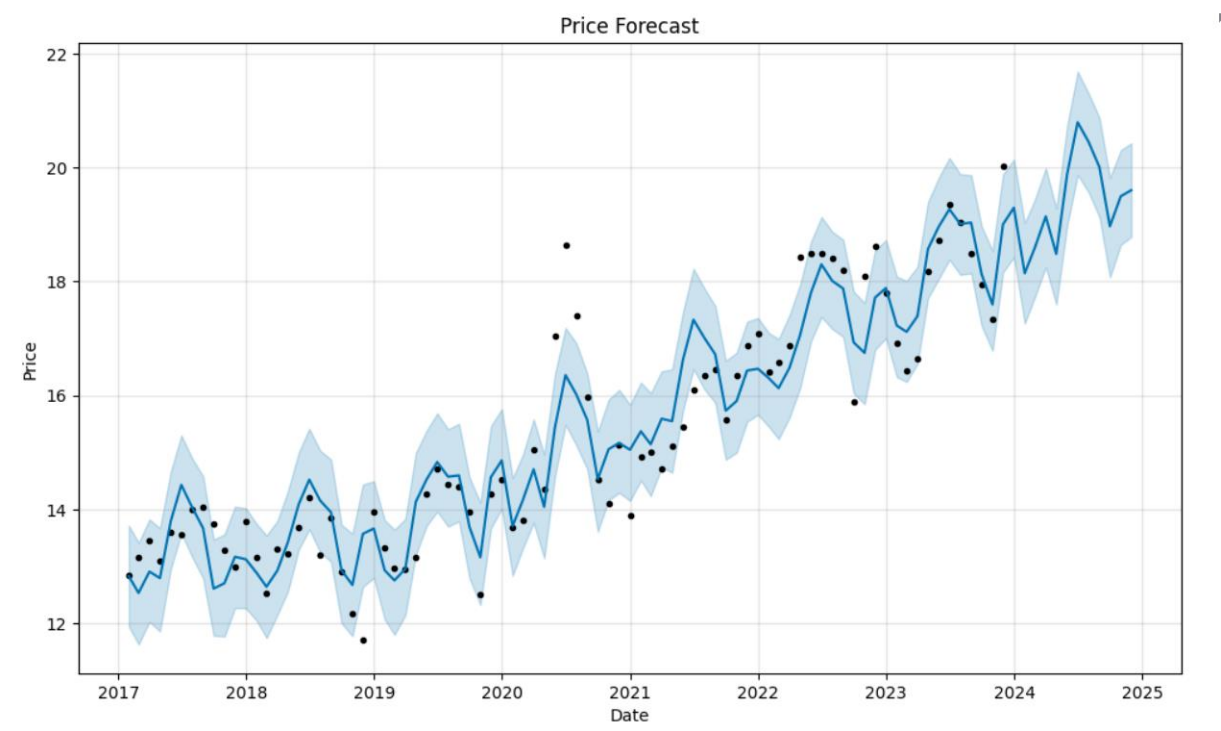
Weekly Earnings in Manitoba





Planning a family dinner, or a special celebration?

Predicted Price for Beef stewing cuts, per kilogram in 2025-09: 19.60



Search for a Product in nearby store

Enter a product keyword to search:

beef stewing

Find Related Products

Name	Price	File Name
Beef Stewing Cubes, Boneless	\$12.74	Loblaws
Longo's Angus Beef Stewing Beef Value Pack	\$25.09typically	Longos
Beef Stewing Cubes, Boneless	\$5.88	Real_Canadian_Superstore
Beef Stewing Cubes, Boneless	\$12.74	Walmart
Beef Stewing Cubes, Boneless	\$12.74	Zehrs

Related Products with lowest price

Enter a product keyword to find related products:

beef stewing

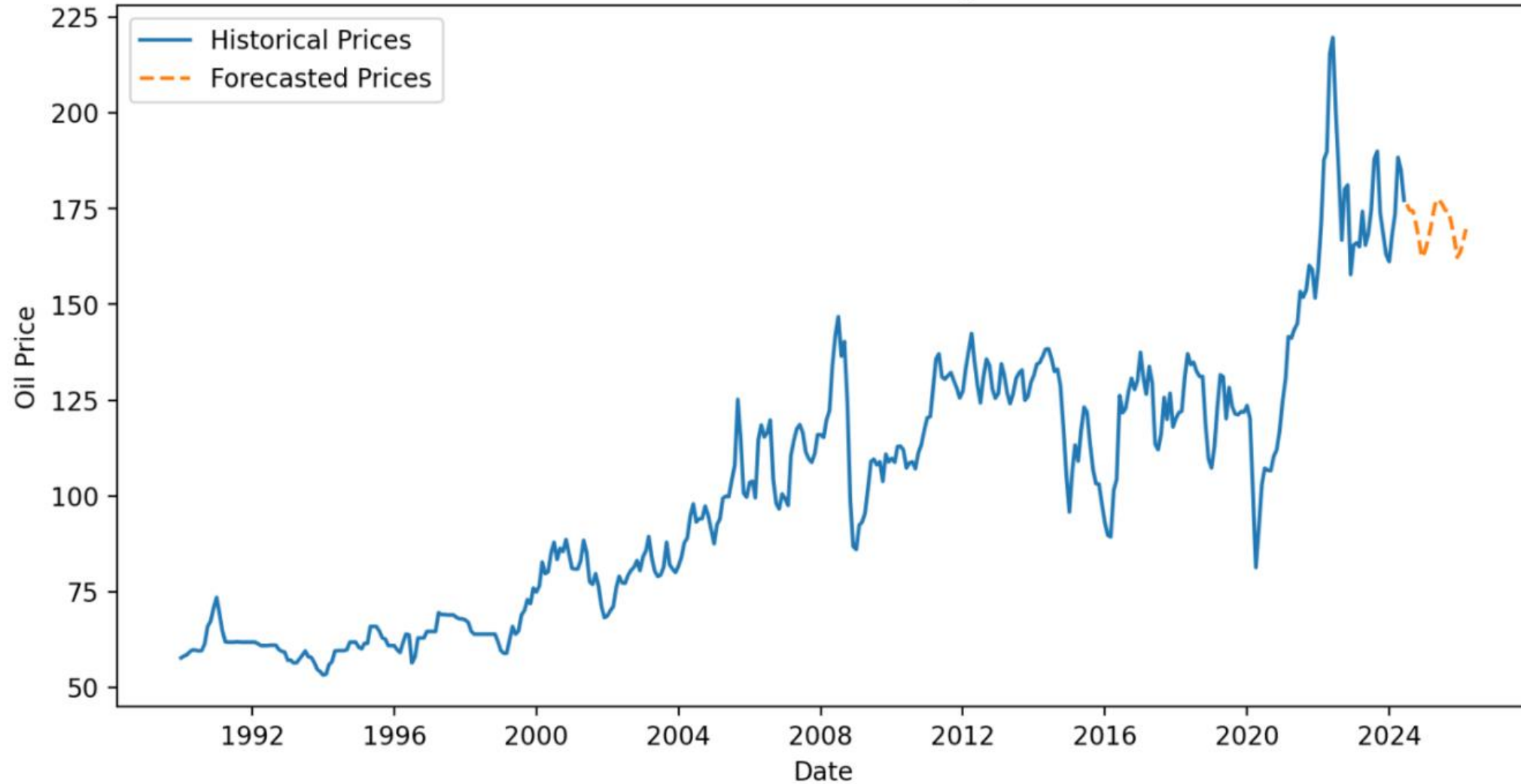
Find Related Products

Name	Price	Store
Cremini Mushrooms	\$0.36	Independent_Grocery
Cremini Mushrooms	\$0.36	Independent_Grocery
Sunfeast Yippee Masala Noodles	\$0.49	Nofrills
Mr Noodles Spicy Beef Simulated Flavour Instant Noodles	\$0.59	Real_Canadian_Superstore
Mr Noodles Instant Noodles Beef Simulated Flavour	\$0.59	Wholesale_Club
From Our Chefs Spicy Thai Dipping Sauce	\$0.79	Dominion
Parle G Monaco Biscuits Classic 63.3 g	\$0.79	Chalo
Farm Boy Cajun Mix Louisiana Style 70 g	\$0.99	Farmboy
Lucky Me! Instant Pancit Canton, Hot	\$0.99	Real_Canadian_Superstore
Grace Island Soda	\$1.19	Real_Canadian_Superstore



Planning for a vacation, or a long weekend drive?

Oil Price Forecasting



The current oil price for 9/2024 is 177.20

The predicted oil price for 9/2025 is 169.71



Planning to ask for a raise?

Weekly Earnings Forecasting



The current weekly earnings for 9/2024 is 222698.00

The predicted weekly earnings for 9/2025 is 224120.88



Planning to buy a house?

Housing Price Prediction

Select City

Toronto, Ontario



Select Number of Beds

0

3

5

Select Number of Baths

0

2

5

Select Province

Ontario



Select Forecast Year

2024

2025

2027

Select Forecast Month

September

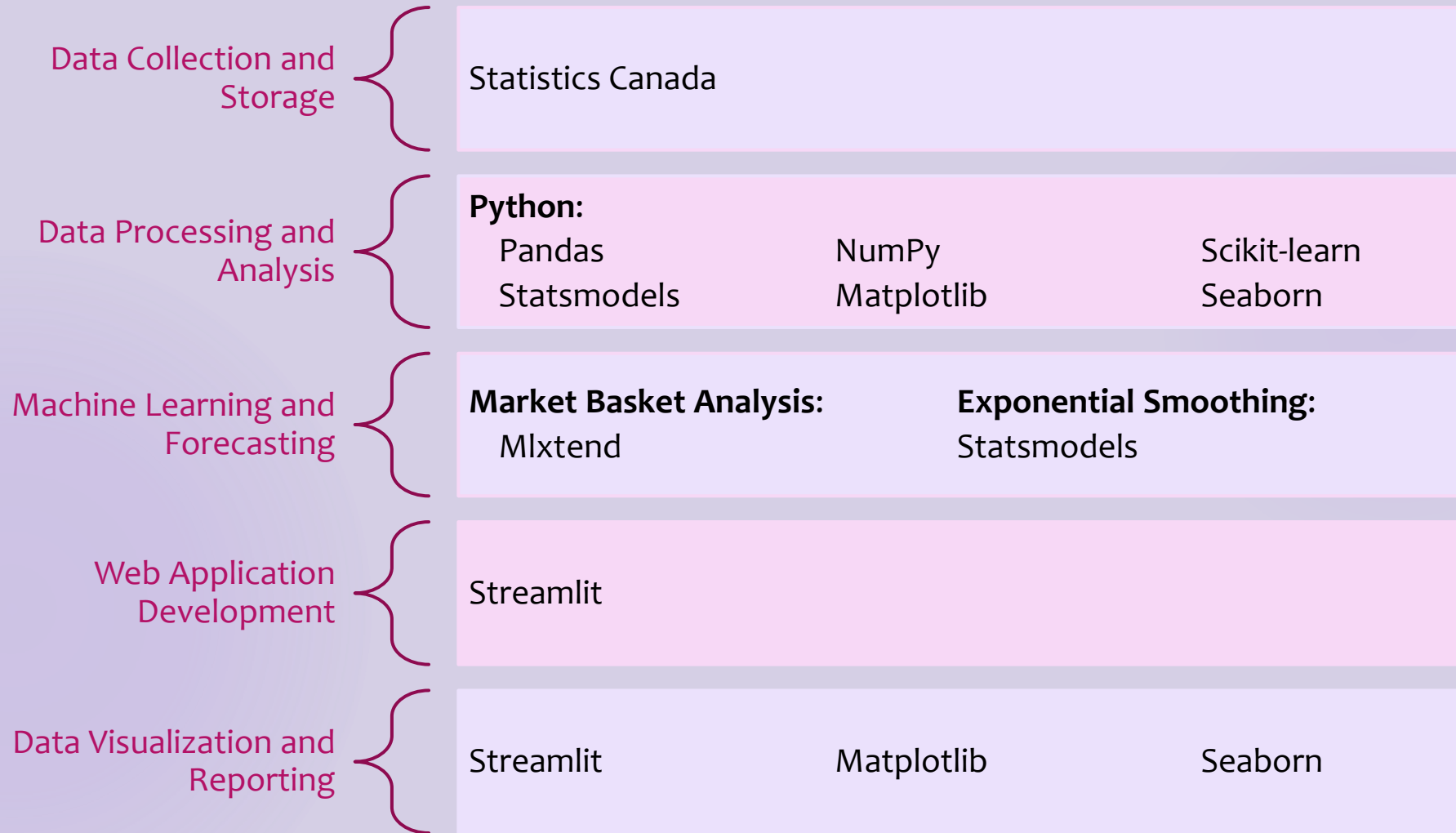


Current average price in Toronto, Ontario with 3 beds and 2 baths: \$1110869.72

Forecasted HPI: 125.59

Predicted price based on forecasted HPI: \$1395100.75

Tech Stack





Dashboard Demo

Inflation Dashboard

localhost:8501

Boom in credit / money supply

Rise in business taxes e.g. VAT

Depreciation of the exchange rate

High inflation in other countries

Inflation Causes

Possible Winners and Losers from High Inflation

Category	Group
Winners	<ul style="list-style-type: none">Workers with strong wage bargaining powerDebtors if real interest rates are negativeProducers if prices rise faster than costs
Losers	<ul style="list-style-type: none">Retirees on fixed incomesLenders if real interest rates are negativeSavers if real returns are negative
Additional Insights	<ul style="list-style-type: none">Small business owners may struggle due to increased costs and reduced consumer spending.Investors in assets like real estate or commodities may benefit as their investments may appreciate in value.

Analyze food price trends and forecasts

Food Prices

Oil Prices

Housing Prices

Weekly Earnings

From daily purchases to large investments, inflation affects everything.

Key Insights

- Understanding price changes
- Predicting future price movements
- Making informed decisions

Practical Application

- Empowering smart purchasing through a user-friendly tool.

"Stay informed, plan ahead, and use the right tools to navigate inflation with confidence."

References

- Monthly average retail prices for selected products Year 2017-2023
<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1810024501>
- Canadian Grocery Store Prices
<https://www.kaggle.com/datasets/joelmills2/canadian-grocery-store-prices>
- Statistics Canada Consumer Goods Prices Year 1995-2022
<https://www.kaggle.com/datasets/oganozsoy/statcan-consumer-goods-prices>
- CPI
<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1810000501>
- Oil
<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1810000101&pickMembers%5B0%5D=2.2&cubeTimeFrame.startMonth=01&cubeTimeFrame.startYear=1990&cubeTimeFrame.endMonth=06&cubeTimeFrame.endYear=2024&referencePeriods=19900101%2C20240601>
- Wage
<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1410022301&pickMembers%5B0%5D=2.1&pickMembers%5B1%5D=3.1&cubeTimeFrame.startMonth=01&cubeTimeFrame.startYear=2001&cubeTimeFrame.endMonth=06&cubeTimeFrame.endYear=2024&referencePeriods=20010101%2C20240601>
- HPI
<https://www.kaggle.com/code/anki112279/housing-prices-trend-in-canada/input?select=HPI+1981-2022+by+regions.csv>



Questions?