

# Walmart store analysis

Walmart is one of the biggest international retail businesses with several outlets around the United States. Walmart plans to analyse sales data from many stores to improve customer satisfaction and optimise store performance over three years (2010 to 2012). The aim is to get a better understanding of sales trends, the effect of holidays, and how sales are correlated with other variables like temperature, fuel prices, the CPI, and unemployment rates. **R is used for this analysis**

The first analysis conducted was to describe the data using the mean, median, and standard deviation for some key metrics such as Weekly Sales, and Fuel Prices. The tibble shows results for the first 6 Walmart Stores.

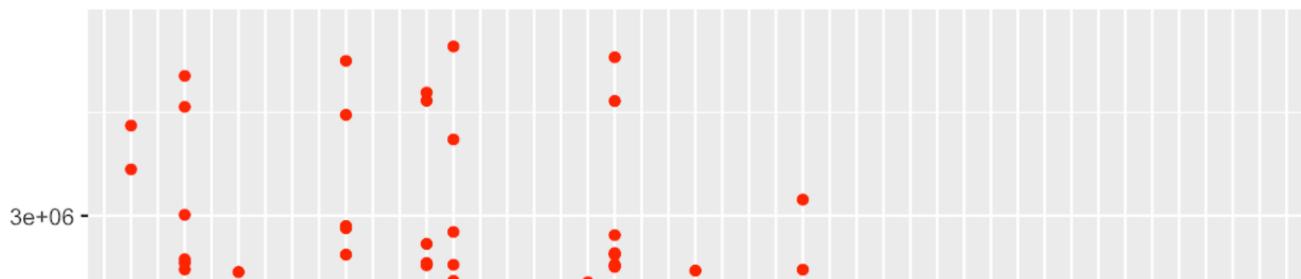
A tibble: 6 × 13

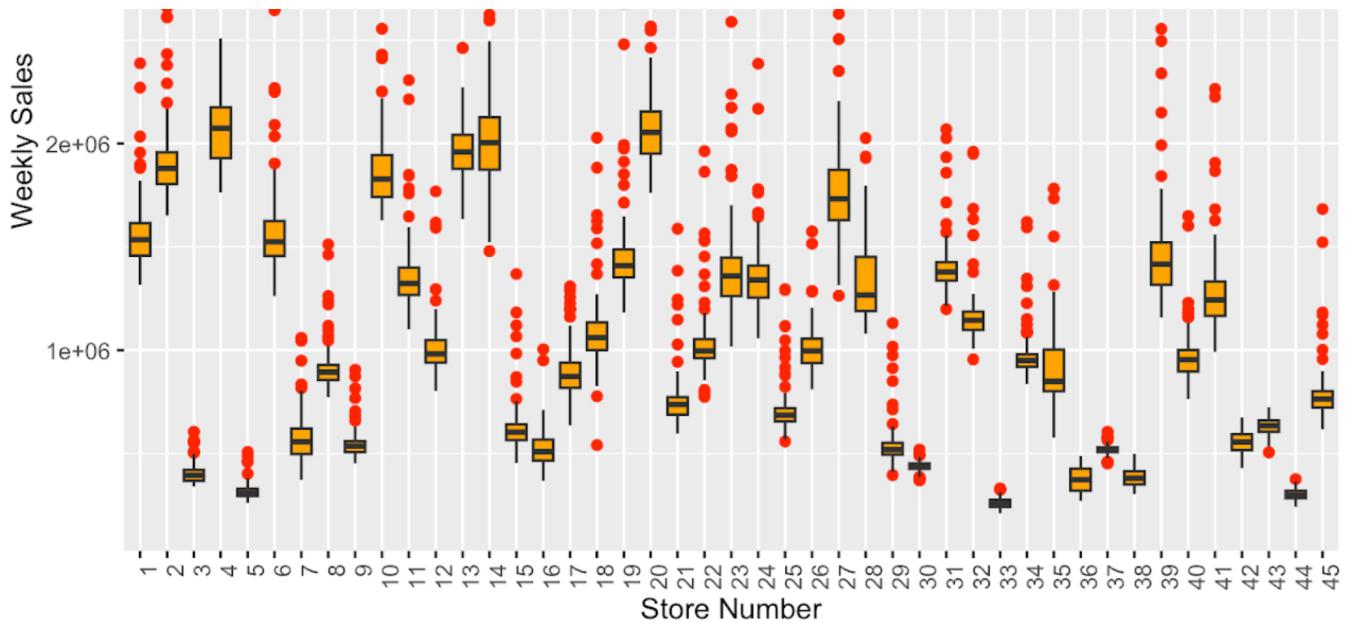
	Store	Mean_Weekly_Sales	Median_Weekly_Sales	SD_Weekly_Sales	Mean_Fuel_Price	Median_Fuel_Price	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>
1		1555264.	1534850.	155981.	3.22	3.29						
2		1925751.	1879107.	237684.	3.22	3.29						
3		402704.	395107.	46320.	3.22	3.29						
4		2094713.	2073951.	266201.	3.22	3.29						
5		318012.	310338.	37738.	3.22	3.29						
6		1564728.	1524390.	212526.	3.22	3.29						

i 7 more variables: SD\_Fuel\_Price <dbl>, Mean\_CPI <dbl>, Median\_CPI <dbl>, SD\_CPI <dbl>, Mean\_Unemployment <dbl>, Median\_Unemployment <dbl>, SD\_Unemployment <dbl>

The next analysis conducted was the sales distribution across the stores. The boxplot sales performance across the various stores. The weekly sales distribution analysis reveals variations in performance across different stores. Some stores achieved higher sales than others. This variation is highlighted by outliers in the data, where stores with exceptionally high sales stand out. This potentially indicates successful strategies or favourable conditions.

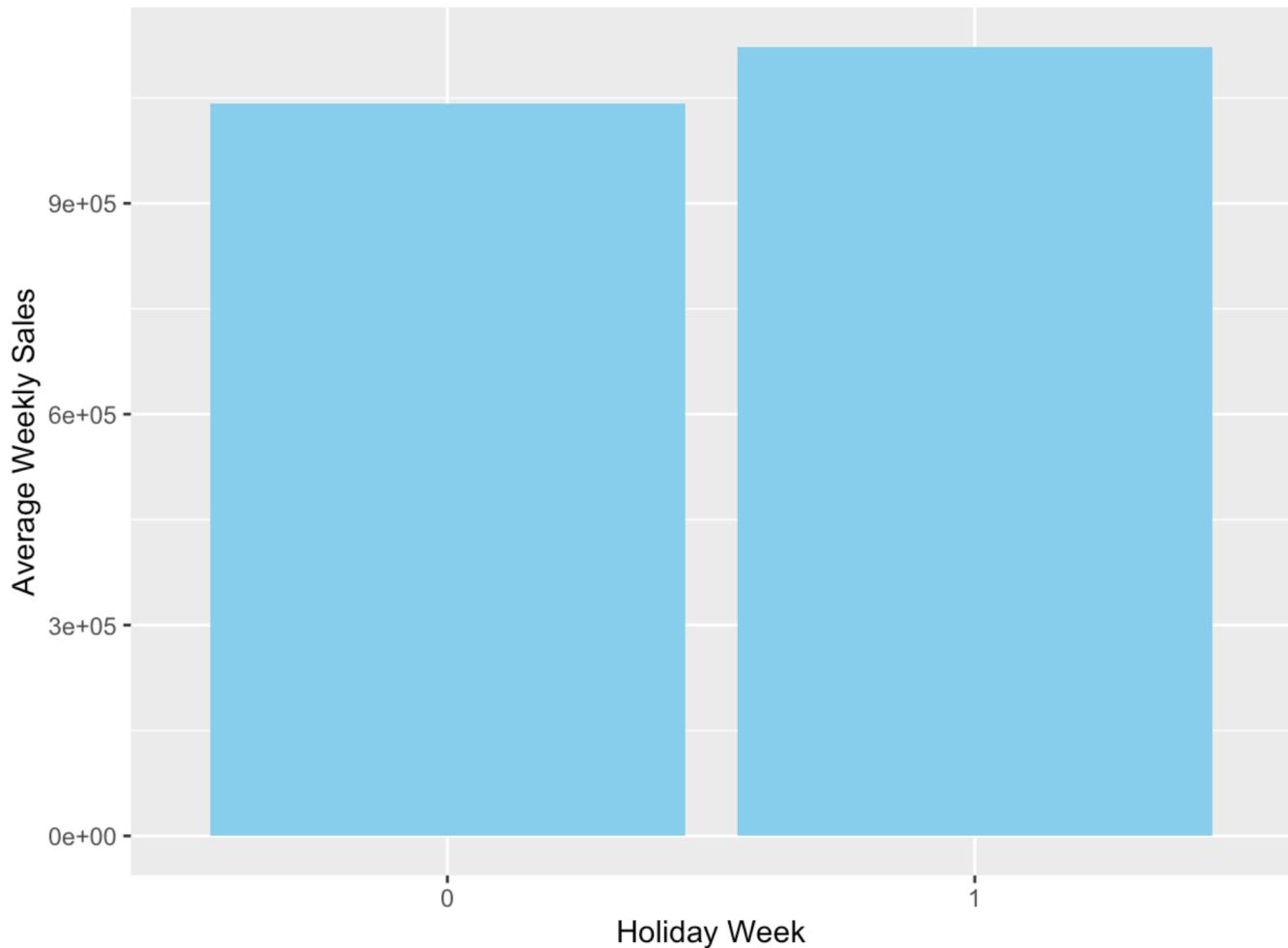
Distribution of Weekly Sales Across Stores





Sales trends on holidays and non-holidays were analysed. Overall, average sales were higher than non-holidays.

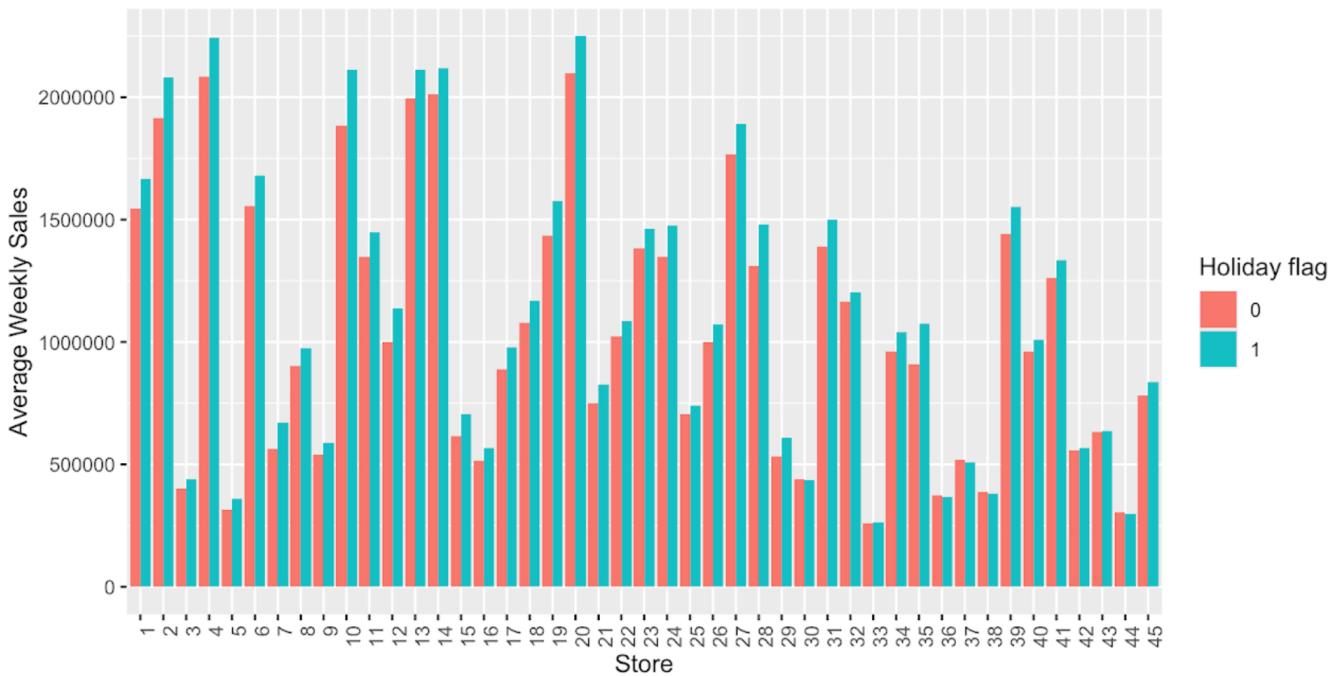
### Average Weekly Sales: Holiday vs Non-Holiday Weeks



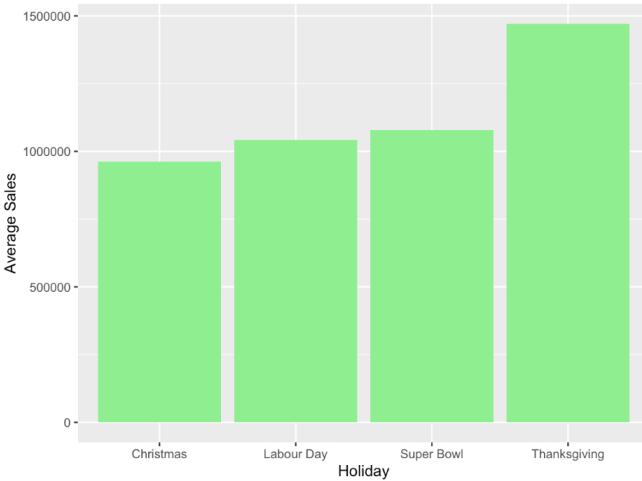
Further analysis revealed that average weekly sales during holidays are higher across many stores. This increase in sales can be attributed to

effective holiday strategies, including targeted discounts and promotions, which drive greater customer traffic and spending. This pattern suggests that leveraging holiday periods for promotional activities is a successful strategy that the company can continue to refine and implement to maximise revenue opportunities.

### Average Weekly Sales by Store for Holidays and Hon-holidays



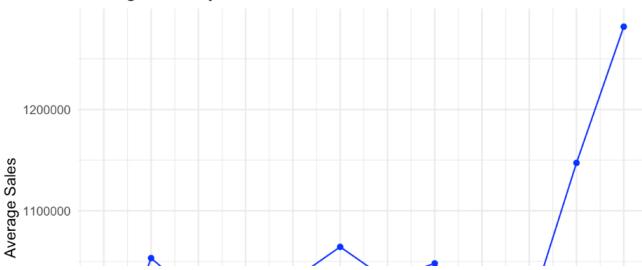
### Average Sales During Specific Holidays



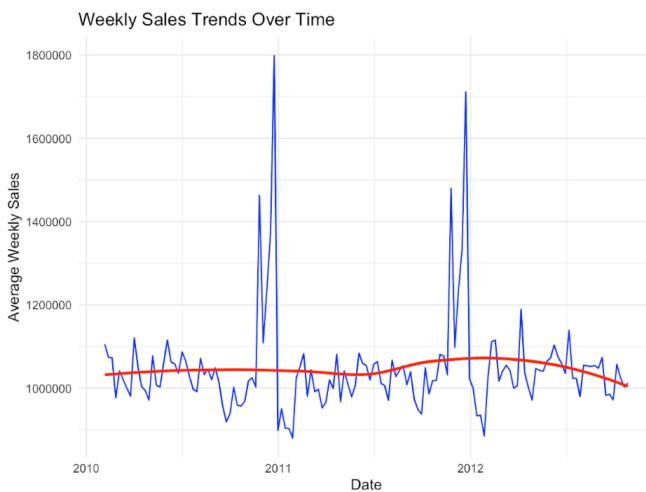
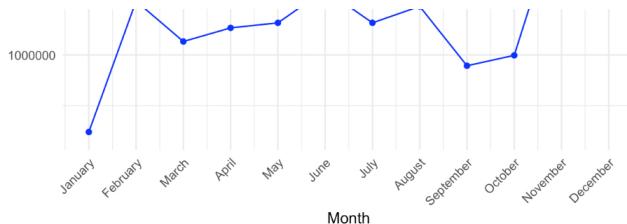
This barplot demonstrates how average sales are higher on Thanksgiving than they are during the Super Bowl. Sales figures during the Super Bowl are greater than those on Labour Day, which are higher yet than those during Christmas. Thanksgiving generates the best sales performance among four important holiday periods, according to this hierarchy, indicating that this is a particularly productive time for consumer behaviour and promotional techniques.

Walmart can maximise revenue, by enhancing promotional strategies for Thanksgiving, where sales are strongest, and apply these insights to optimise performance during other key holiday periods.

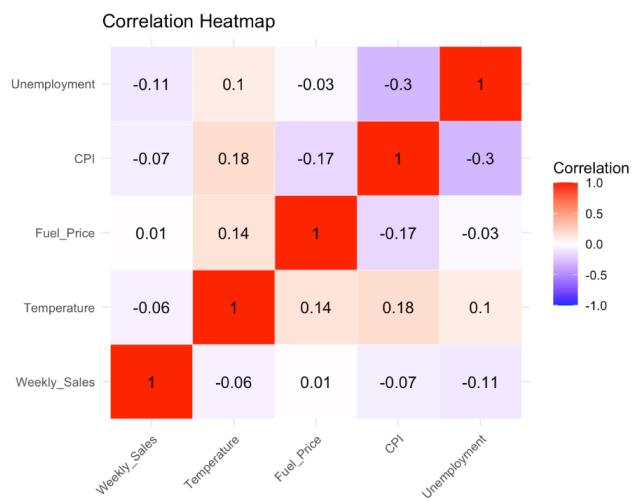
### Average Monthly Sales



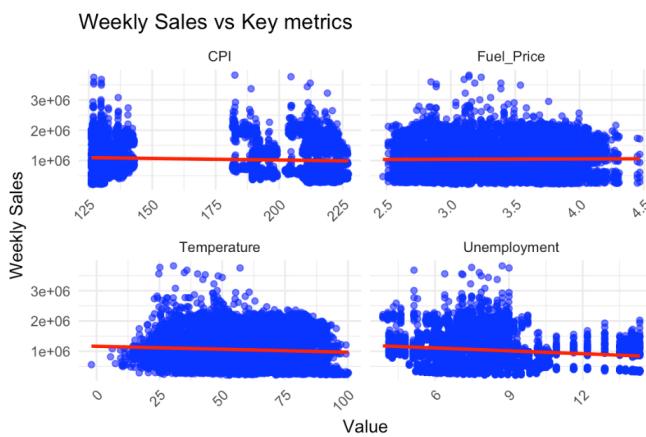
This chart shows the average monthly sales pattern. Sales increased sharply between October and December, peaking during the holiday season. This spike is followed by a significant dip in January, indicating a huge decline in consumer spending following the holidays. This trend emphasises the need to take advantage of the robust sales in the last quarter of the year and prepare for any possible downturn in the first few months of the next year.



The analysis of average sales across the years shows that 2010 experienced relatively low sales, which saw a significant peak in 2011. However, sales dipped slightly in 2012 and then declined sharply in 2013. This trend suggests a period of growth followed by a downturn, indicating potential shifts in market conditions or company performance that warrant further investigation to understand the underlying causes and address them effectively.



Overall, the correlations reveal that weekly sales have minimal associations with temperature, fuel prices, CPI (Consumer Price Index), and unemployment rates. None of these factors appear to strongly influence sales. This suggests that other variables or internal business factors might be more significant drivers of sales performance.



The correlations between sales and important measures including the CPI, fuel price, unemployment rate, and temperature are depicted in the scatterplot. Three separate clusters for sales and CPI are found in the analysis: one between 200 and 225, one between 175 and 200, and one around 125. CPI clusters and values may indicate inflationary trends over time and its effects on consumer spending and overall economic conditions

The unemployment rate, temperature, and fuel price, on the other hand, all show a single major cluster. The temperature and fuel costs are spread rather evenly across their ranges, however the

are spread rather evenly across their ranges, however the unemployment rate is concentrated between 6% and 10%. These trends point to more consistent distributions for various metrics and varying effects of CPI on sales.

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