Retail Performance and Pricing Strategy Analysis

Problem Statement

Sales are growing, but profitability is inconsistent across regions and product categories. We need to understand where profits are being lost and where to focus growth.

Data Source

Raw dataset "Global Superstore" downloaded from Kaggle.

Tools & Technologies

- **Microsoft Excel** – Used for initial data exploration, validation, and understanding data structure.
- **PostgreSQL** – Used to model and transform raw data into an analytical **Sales Analytics** table, including calculated fields and data type standardization.
- **Tableau** – Used to build interactive dashboards and perform visual analytics to support business decision making.

Key Assumptions

- Profit margin is calculated using aggregated profit divided by aggregated sales.
- Discount values represent order-level discounts and are averaged at higher aggregation levels used as a proxy to analyze pricing strategy.
- Pareto analysis uses an 80% cumulative contribution threshold to identify concentration risk.
- Time-series trends assume consistent quarterly data coverage without seasonality adjustments.
- Regional profitability differences are assumed to reflect associated cost structures.
- The dataset is treated as representative of overall business performance.
- Negative profit values are preserved to reflect real loss-making segments.

Summary of Findings

Product & Profitability Analysis Dashboard:

- Nearly half of all sub-categories contribute to 80% of total sales, indicating moderate product concentration risk.
- A smaller subset 41% of subcategories generates 80% of total profit, revealing some reliance on high-margin products.
- A subset of subcategories Tables, Machines and Furnishing achieve high revenue but very low profits revealing a operational inefficiencies.

Discount Impact Analysis Dashboard:

- Higher discount levels are associated with lower profit margins, suggesting diminishing returns from discount-led sales strategies.

Regional and Market Performance Dashboard:

- Revenue is fairly diversified across regions.
- Central, Southeast Asia, and South regions achieve high revenue but below-average profitability, signaling operational inefficiencies.

- High revenue does not consistently translate into high profit, highlighting the need for margin-focused growth strategies.

Recommendations

- Optimize discount strategies by reducing discounts in high-sales but low-margin sub-categories.
- Prioritize growth investments in sub-categories that contribute disproportionately to total profit.
- Address structural margin inefficiencies in high-revenue regions such as Central, Southeast Asia, and South.
- Diversify the product mix to reduce dependency on a limited number of profit-generating sub-categories.
- Shift performance evaluation from revenue-centric KPIs to margin-driven metrics.
- Use Pareto analysis to guide resource allocation across products and regions.

Project Description:

This project analyzes retail sales and profitability across regions, categories, and sub-categories to uncover drivers of revenue and margin performance. Using PostgreSQL, raw transactional data was transformed into an analytical sales model, which was then visualized in Tableau through executive and diagnostic dashboards. The analysis highlights profit concentration, discount-driven margin erosion, and regional inefficiencies, leading to actionable recommendations on pricing optimization, product focus, and regional strategy.