Do Discounts Really Drive Revenue?
An end-to-end e-commerce analysis using SQL, Python, and Tableau

Problem Statement

Discounts are commonly used to drive sales, but their true impact on order-level revenue and profitability is often assumed rather than measured.

Data and Tools

Dataset:
- 505 customers
- 60 products
- 3000 orders

Tools:
SQL (SQLite), Python (pandas, statsmodels), Tableau

Method

Transaction-level data was modeled using OLS regression to isolate the independent effect of discounts on revenue, while controlling for price, quantity, and customer attributes.

Key Insight

Discounts have a statistically significant negative impact on order revenue, and the revenue loss is not offset by higher order volumes.

Evidence
- OLS regression ($R^2 \approx 0.89$) shows a strong, statistically significant negative effect of discounts on revenue
- Visual analysis confirms that both average order value and total revenue decline as discount levels increase

Discounts reduce order-level revenue, and the loss is not compensated for by increased order volume.

Link: *https://tinyurl.com/discount-revenue-dashboard*
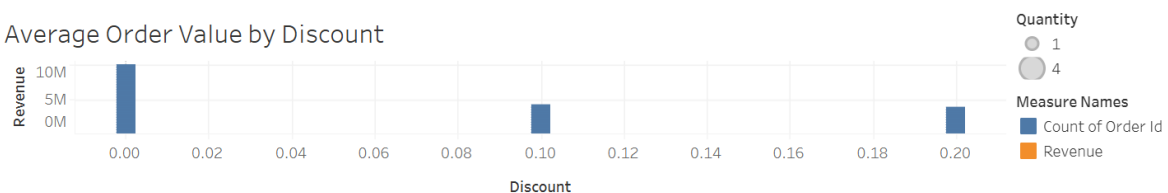
Business Implication

Revenue optimization strategies should prioritize basket size and pricing discipline over aggressive discounting.

Project artifacts: SQL schema & queries, Python analysis, Tableau dashboard.