Sales Analysis Report

Sales Analysis Summary

Total Sales (2013-2020): $235,001,603

Average Sales per Transaction (2013-2020): $2,025

Total Transactions (2013-2020): 442,295

Data Cleaning Summary:

Records with sales=0 and transactions>0 removed: 124481

Records with sales>0 and transactions=0 removed: 0

Duplicate records removed: 36715

XGBoost Prediction Results:

Train RMSE: 119951.8918, Train R²: 0.9952

Test RMSE: 191304.5997, Test R²: 0.9911

T-Test Results:

T-Test between Quito and Guayaquil: t-statistic = 53.0228, p-value = 0.0000

Graph-Based Sales Impact (Eigenvector Centrality):

Top Product: GROCERY I with Centrality: 0.5662

Recommendations:

- Increase inventory for GROCERY I due to high sales impact.

- Focus marketing efforts in Quito as it has significantly higher sales (T-Test p-value: 0.0000).