

Exploratory Data Analysis – Gold Trade Dataset

1. Introduction

This report presents an Exploratory Data Analysis (EDA) of the gold trade dataset involving Egypt, Burkina Faso, and multiple partner countries from 2018 to 2024. The objective is to understand trade flows, product types, trade values, and trends over time.

2. Dataset Overview

The dataset contains 524 rows and 47 columns, covering various trade-related attributes such as countries, trade flow, products, and multiple value metrics.

3. Missing Values

- Only one column, 'altqtyunitabbr', has missing values (~60%).
- All other columns are complete and ready for analysis.

4. Categorical Feature Analysis

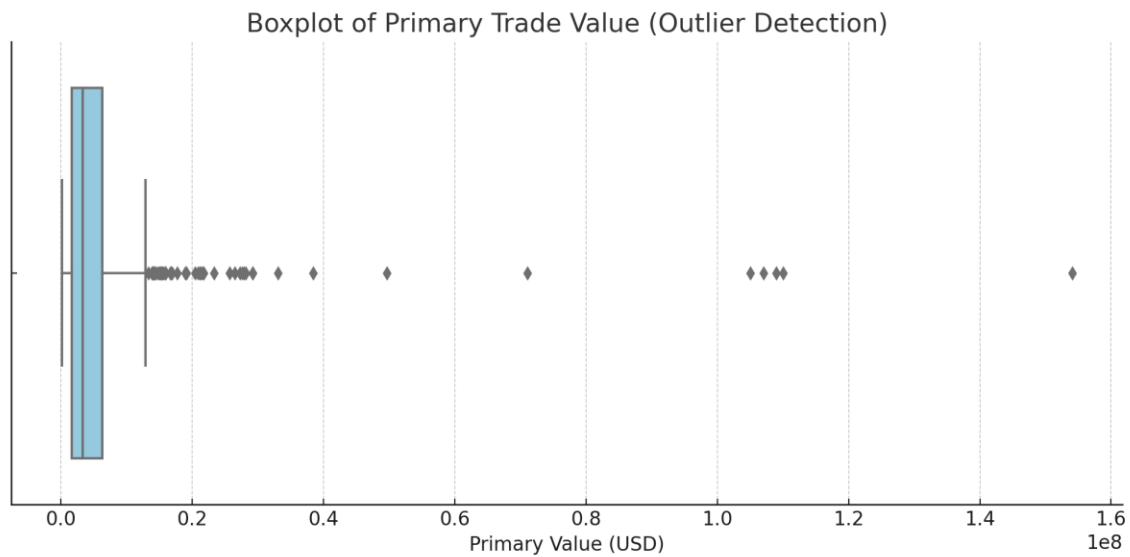
- Trade Flow: 'Export' (343) and 'Import' (181)
- Reporting Countries: Egypt (314) and Burkina Faso (210)
- Top Partner Countries: Canada, India, Italy, Germany, France, South Africa, USA, UK, China, Japan
- Product Descriptions: Mainly gold in various forms (unwrought, powder, semi-manufactured)

5. Numerical Feature Summary

- Primary Trade Value Statistics:
 - * Mean: \$19,985,930
 - * Std Dev: \$26,860,870
 - * Min: \$26.90 | Max: \$110,705,400
 - * Median: \$3,592,370
- Correlation Matrix:
 - * Strong positive correlation between primaryvalue, fobvalue, qty, and netwgt (~0.97 - 0.99)
 - * Negative correlation between cifvalue and other metrics (~ -0.28 to -0.34)

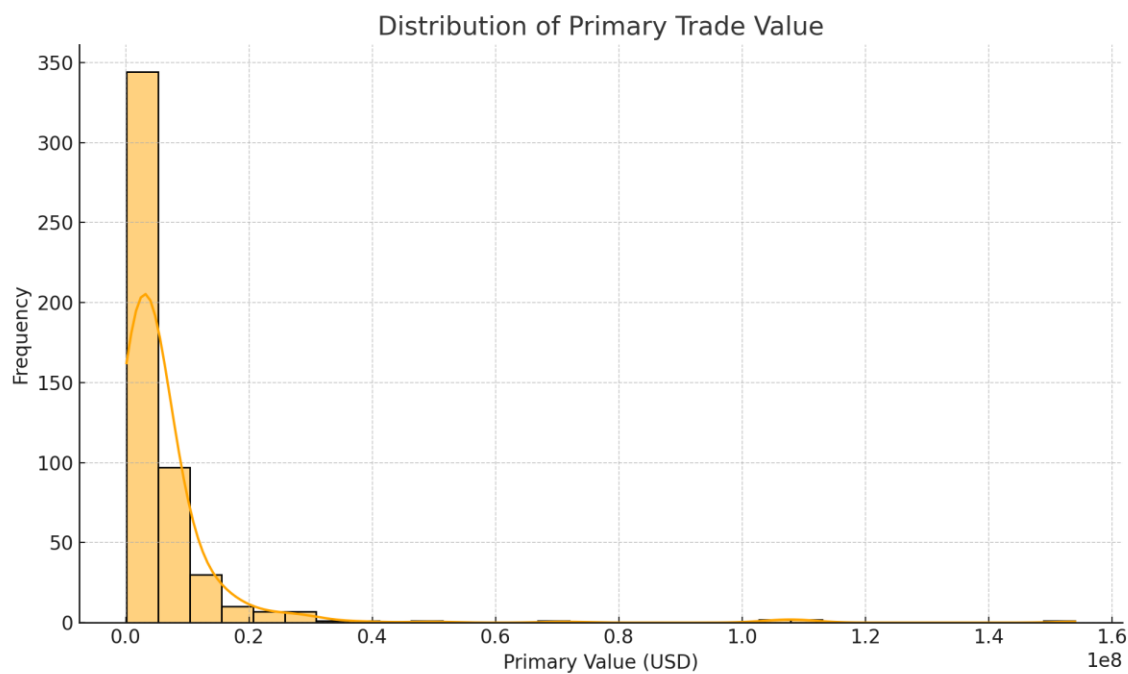
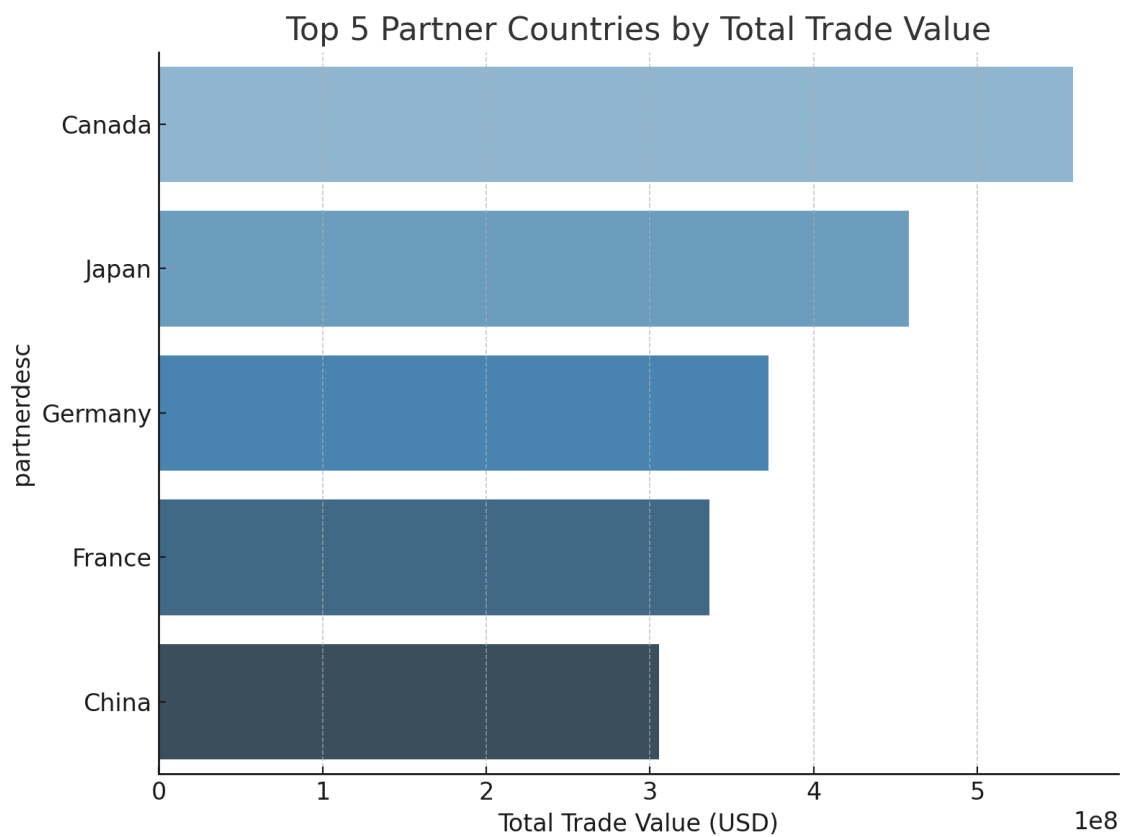
6. Outlier Detection

- Boxplot analysis revealed high-value outliers in primary trade value
- Using IQR method, over 100 outliers were detected
- These outliers are considered valid due to real-world high-value transactions



7. Trend Analysis

- Trade value fluctuates over years:
 - * 2019 and 2021 saw peak trade values
 - * Sharp decline noted in 2024
- Egypt leads in trade volume and value
- Partner-wise, Canada is the most frequent trade partner



8. Data Quality Notes

- Only one column has missing values (altqtyunitabbr)
- No duplicate entries detected
- Categorical fields are consistent (e.g., 'Export', not mixed-case)
- Outliers present, but they reflect genuine high-value trades

9. Key Insights

- Egypt accounts for the highest total trade value (~\$6.52B)
- Gold (in various forms) is the primary commodity traded
- 2019 and 2021 were peak years in terms of total trade value
- Canada emerged as the most common partner country

10. Next Steps

- Perform predictive modeling on trade values
- Develop an interactive dashboard using Power BI
- Analyze cost-benefit ratios using CIF, FOB, and Net Weight metrics