

Crisis Analysis - Research & Evaluation Report

1. Introduction

This report contains the results of the automated research and evaluation pipeline executed on 2025-11-22 23:23:43. The analysis includes model performance comparison, feature explainability (SHAP), dataset quality checks, and stress testing.

2. Dataset Analysis

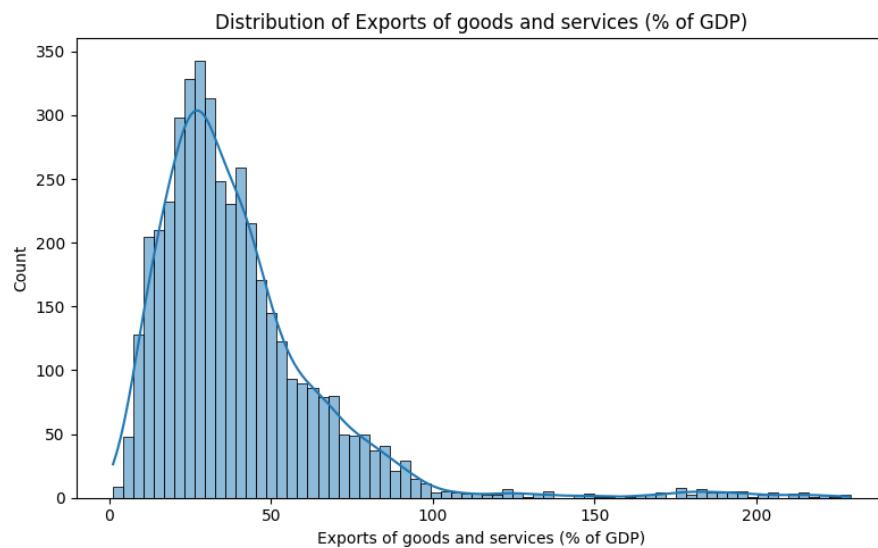
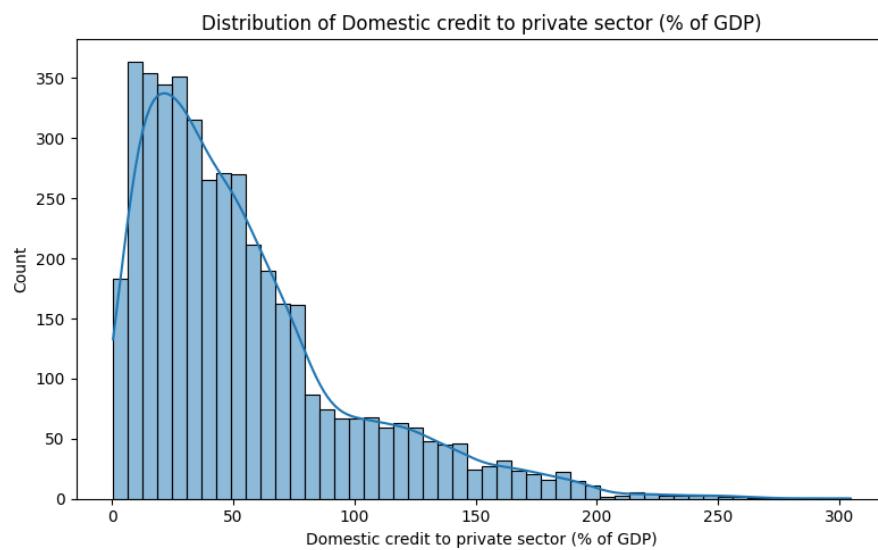
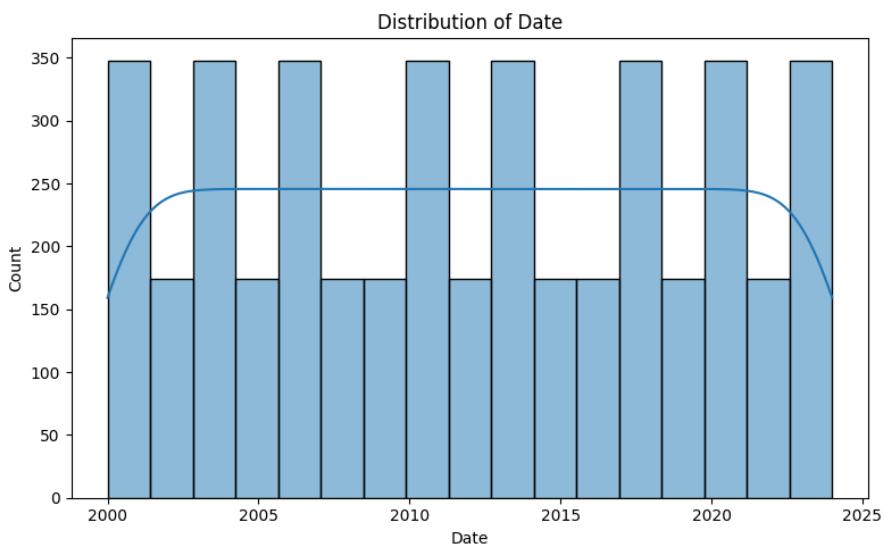
Summary statistics of the dataset used for evaluation:

Total Rows:	4350
Total Columns:	10
Missing Values:	0
Duplicate Rows:	0

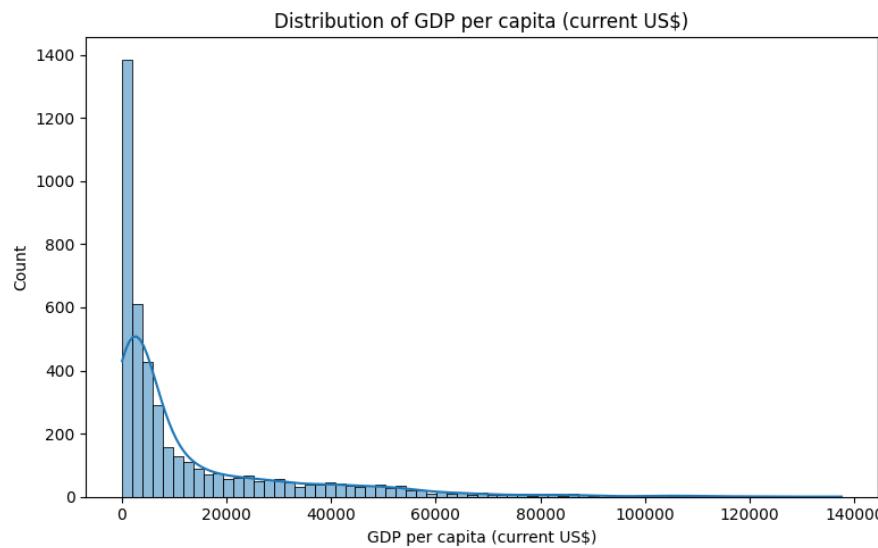
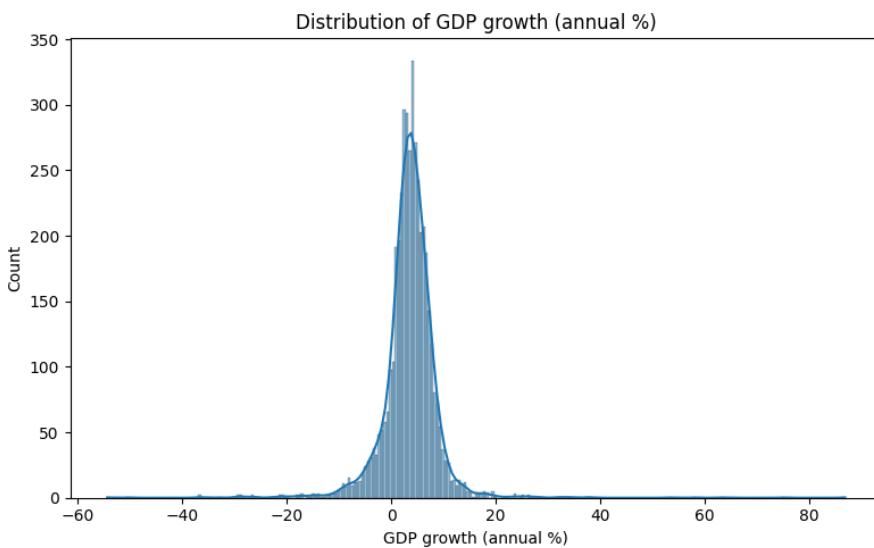


Feature Distributions (Top 5):

Crisis Analysis - Research & Evaluation Report



Crisis Analysis - Research & Evaluation Report



3. Model Performance Comparison

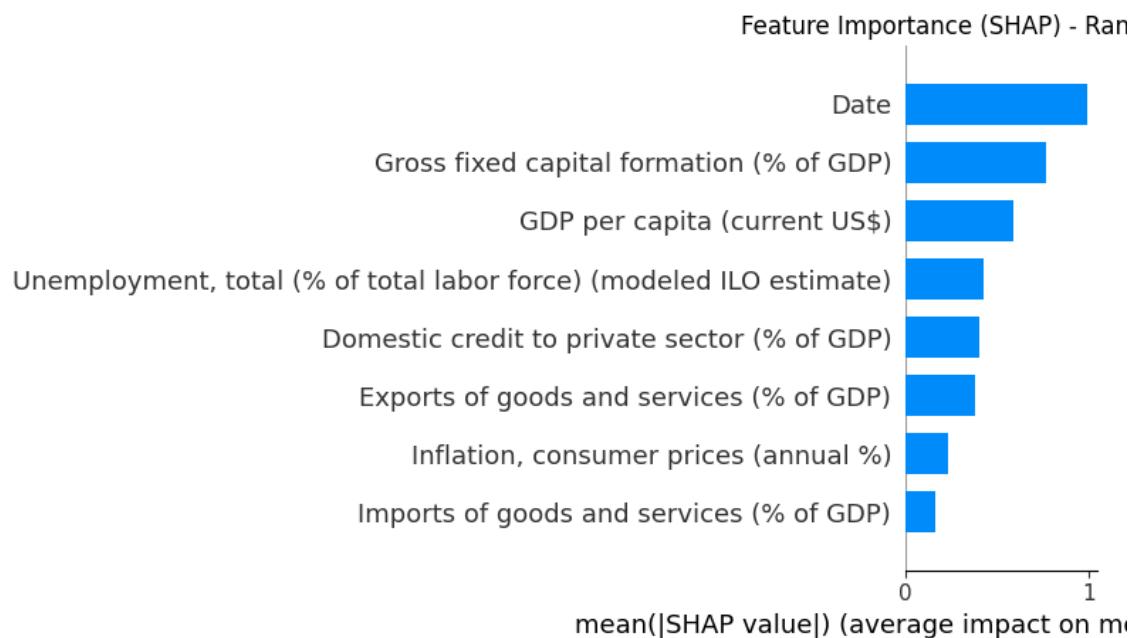
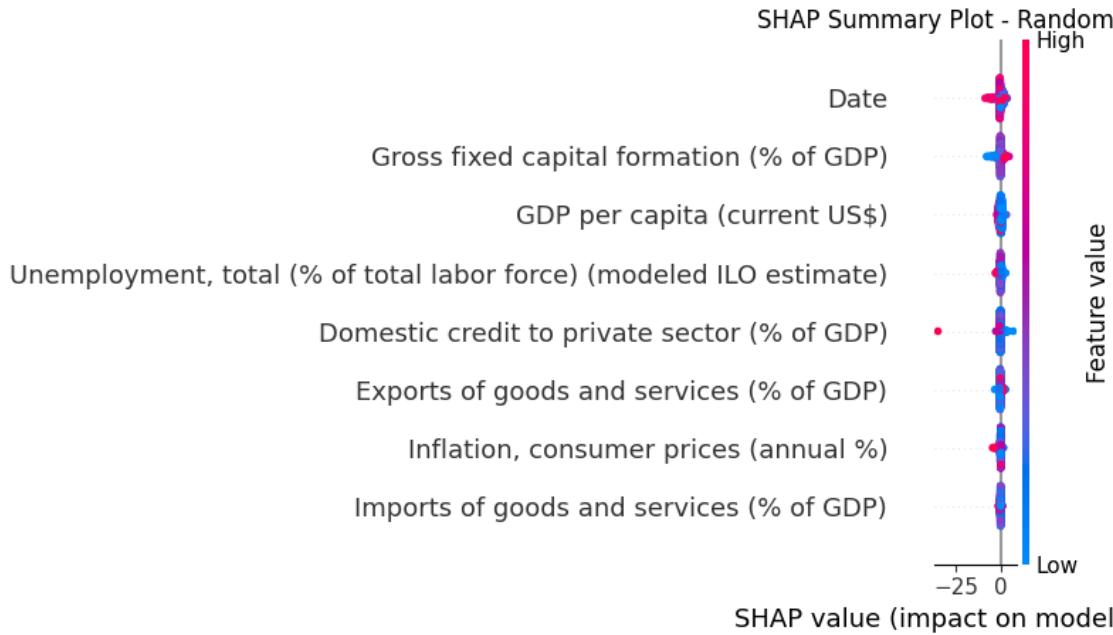
Comparison of multiple machine learning models on the crisis dataset.

Metric	Random For	Linear Reg	XGBoost	LightGBM
RMSE	4.18	4.8744	4.4795	N/A
MAE	2.3945	3.0064	2.6807	N/A
R2 Score	0.352	0.1189	0.2559	N/A
MAPE	188.5747	283.7471	194.9036	N/A

4. Feature Importance & Explainability

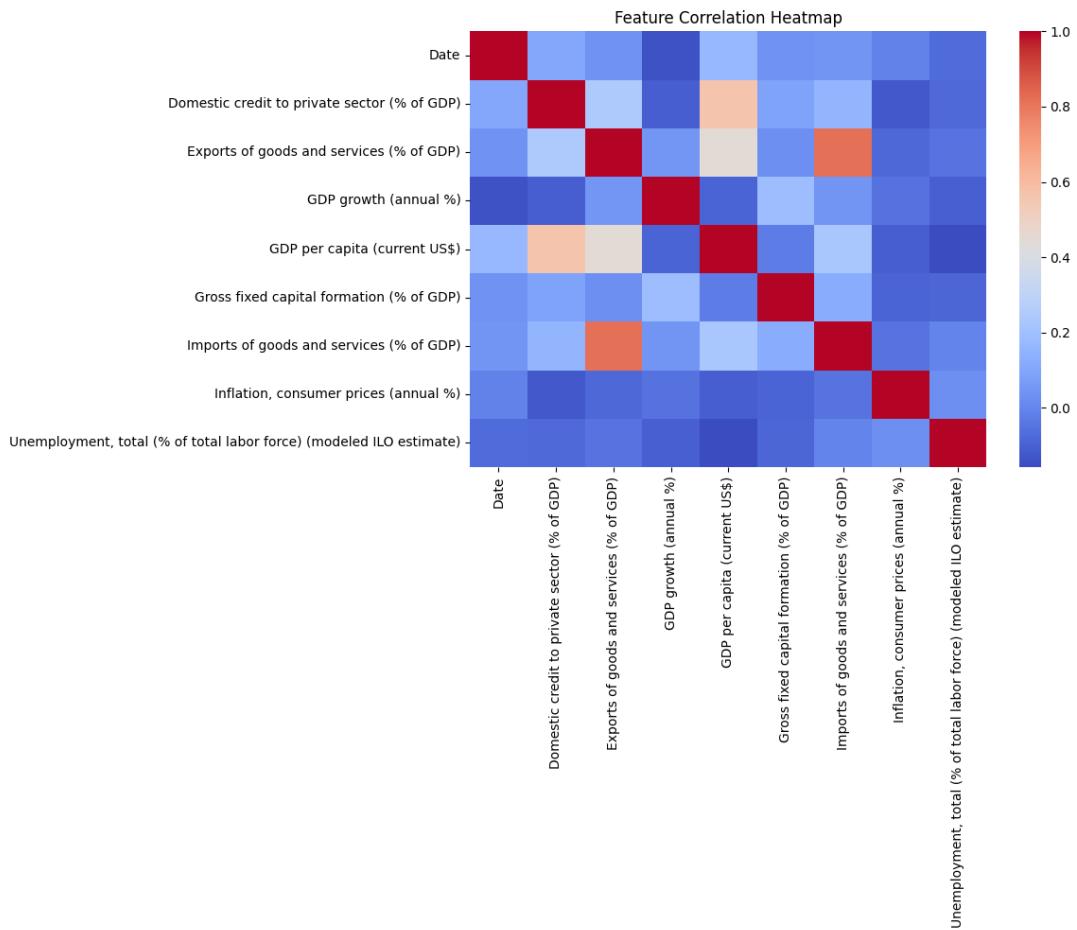
SHAP (SHapley Additive exPlanations) analysis for the best performing model.

Crisis Analysis - Research & Evaluation Report



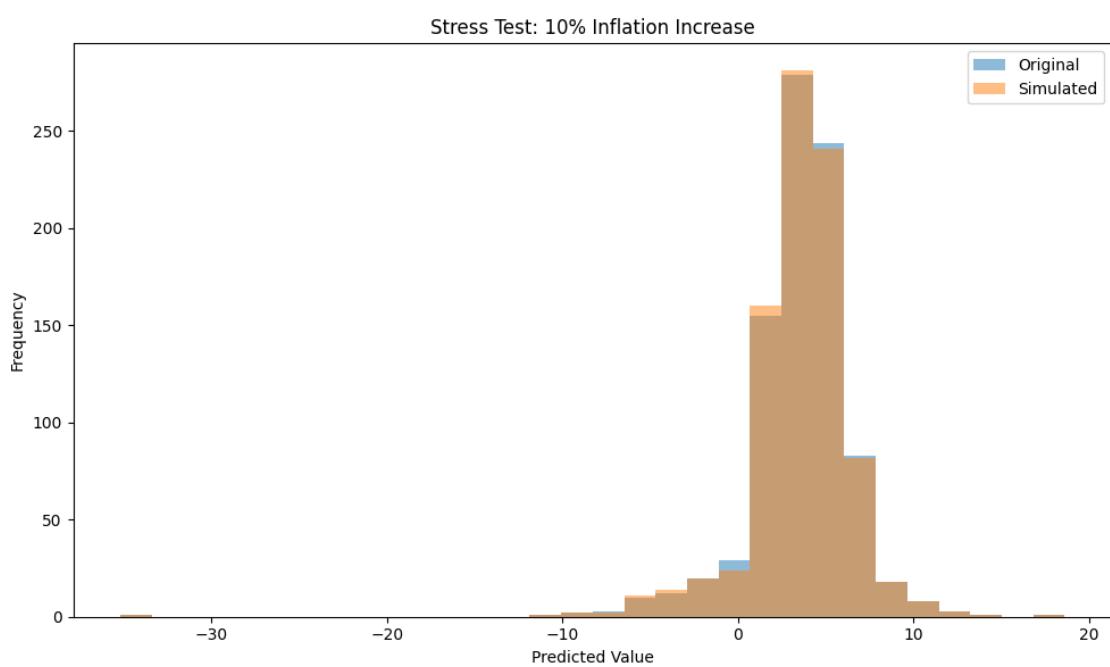
Feature Correlation Heatmap:

Crisis Analysis - Research & Evaluation Report



5. Stress Testing & Sensitivity Analysis

Simulation of 'What-If' scenarios using a shadow model.



Crisis Analysis - Research & Evaluation Report

