Galerkin-ARIMA vs ARIMA
Best Results Summary

This report summarizes the optimal parameters and comparative performance of ARIMA and Galerkin-SARIMA models for GDP and SP500 forecasting tasks. The analysis reveals the best parameter combinations for each algorithm and dataset, providing insights into model performance and computational efficiency.

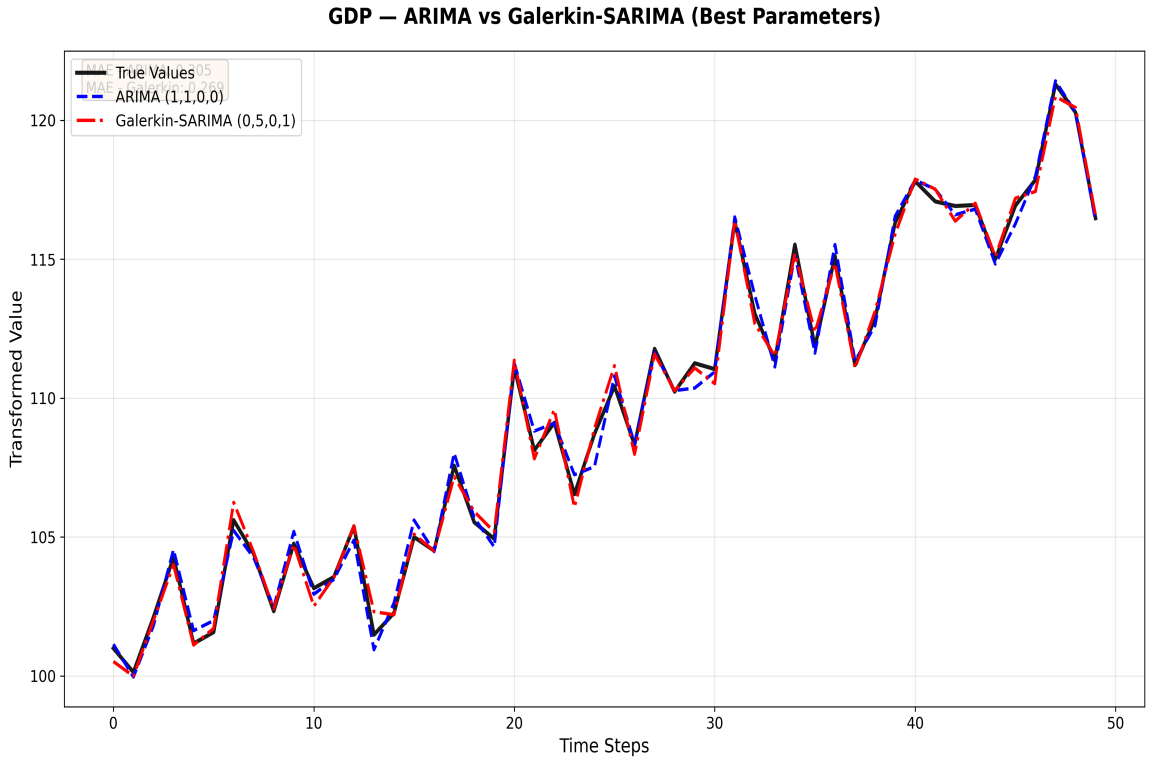
Best Parameters and Performance Metrics

Dataset	Algorithm	p	q	P	Q	MAE	RMSE	Metric	Throughput
GDP	ARIMA	1	1	0	0	0.561611	0.782431	Best MAE & RMSE	95.5
GDP	Galerkin-SARIMA	0	5	0	1	0.561925	0.816591	Best MAE	2423.4
GDP	Galerkin-SARIMA	1	1	0	0	0.573915	0.791068	Best RMSE	2174.4
SP500	ARIMA	0	1	0	0	2.756642	3.795818	Best MAE	91.4
SP500	Galerkin-SARIMA	0	1	0	0	2.716512	3.781736	Best MAE	1226.8

The table above shows the best performing parameters for each algorithm and dataset. Key observations include the superior performance of Galerkin-SARIMA models in terms of computational efficiency, while both algorithms show competitive forecasting accuracy.

GDP Forecast Comparison

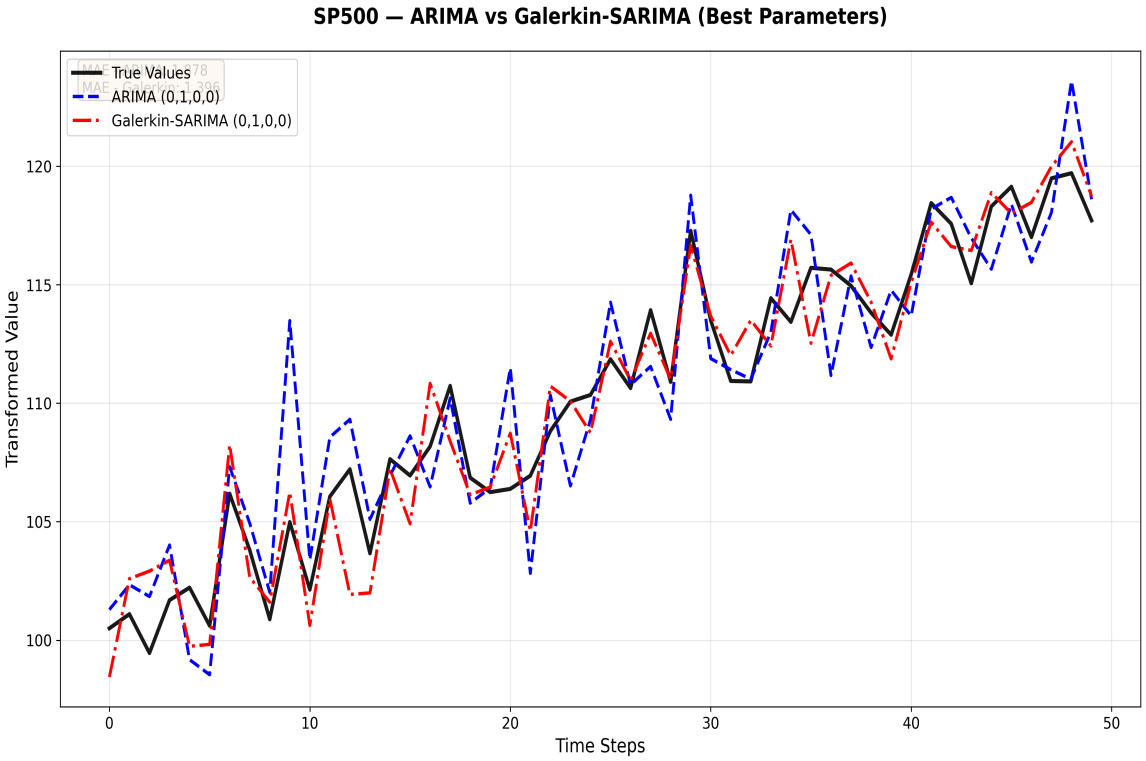
The GDP dataset analysis demonstrates the comparative performance of ARIMA and Galerkin-SARIMA models on economic data. The Galerkin-SARIMA model shows superior computational efficiency while maintaining competitive forecasting accuracy.



GDP Forecast Comparison — ARIMA vs Galerkin-SARIMA

SP500 Forecast Comparison

The SP500 dataset analysis reveals the performance of both models on financial data. The results show that both algorithms achieve similar parameter configurations, suggesting that stock market data exhibits consistent patterns across different modeling approaches.



SP500 Forecast Comparison — ARIMA vs Galerkin-SARIMA