

# High-Frequency Inflation Forecasting: A Two-Step Machine Learning Methodology\*

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## Abstract

This study introduces a novel two-step machine learning methodology to generate high-frequency (daily and weekly) inflation forecasts in developing economies, where official statistics are typically available only at a monthly frequency and with delays. High-frequency forecasting in this context is understood as nowcasting or interpolation—real-time prediction ahead of official releases or within-period estimation using mixed-frequency indicators—while also functioning as a data-augmentation strategy. Applying the approach to Bolivia, the framework first constructs monthly-aligned features by aggregating high-frequency predictors, followed by training and validating machine learning models. Feature selection via L1 regularization and fine-tuned hyperparameters yield a final model that achieves superior out-of-sample accuracy. This model is deployed to produce high-frequency year-on-year CPI inflation nowcasts. Forecasts exhibit strong temporal alignment with observed monthly values, while distributional equivalence is confirmed via Kolmogorov–Smirnov tests. Compared to benchmark econometric models, the two-step machine learning approach delivers improved predictive performance, offering timely, granular insights to support forward-looking monetary policy in data-scarce environments.

**Keywords:** Inflation; Forecasting; Nowcasting; Machine Learning; High-frequency data; Mixed-frequency models; Data-Augmentation

**JEL Codes:** C53, E31, C22, C55

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