# Forecasting Inflation in Latin American Countries Using a SARIMA-LSTM Combination

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# Abstract

Inflation forecasting has been and continues to be an important issue for the world's economies. Governments, through their central banks, watch closely inflation indicators to make national decisions and policies. Controlling growth and contraction requires governments to keep a close eye on the rate of inflation. When planning strategic national investments, governments attempt to forecast inflation over longer periods of time. Getting the inflation forecast wrong, can result in significant economic hardships. However, even given its significance, there is limited new research that applies updated methodologies to forecast it, and even fewer studies in emerging economies where inflation may be drastically higher. This study proposes to forecast the inflation rate in emerging economies based on the commonly used Seasonal Autoregressive Integrated Moving Average (SARIMA) approach combined with Long Short Term Memory (LSTM). The results indicate that the proposed model based on the combination of SARIMA and LSTM, have a higher accuracy in inflation forecasts as measured by the Mean Square Error (MSE) of the proposed models over the SARIMA model and LSTM alone. The loss function used is Mean Squared Error (MSE), and the Model Confidence Set (MCS) is used to test the superiority of the models in the economies of Mexico, Colombia and Peru.


# Full Text

This preprint is available for download as a PDF.

# Figures

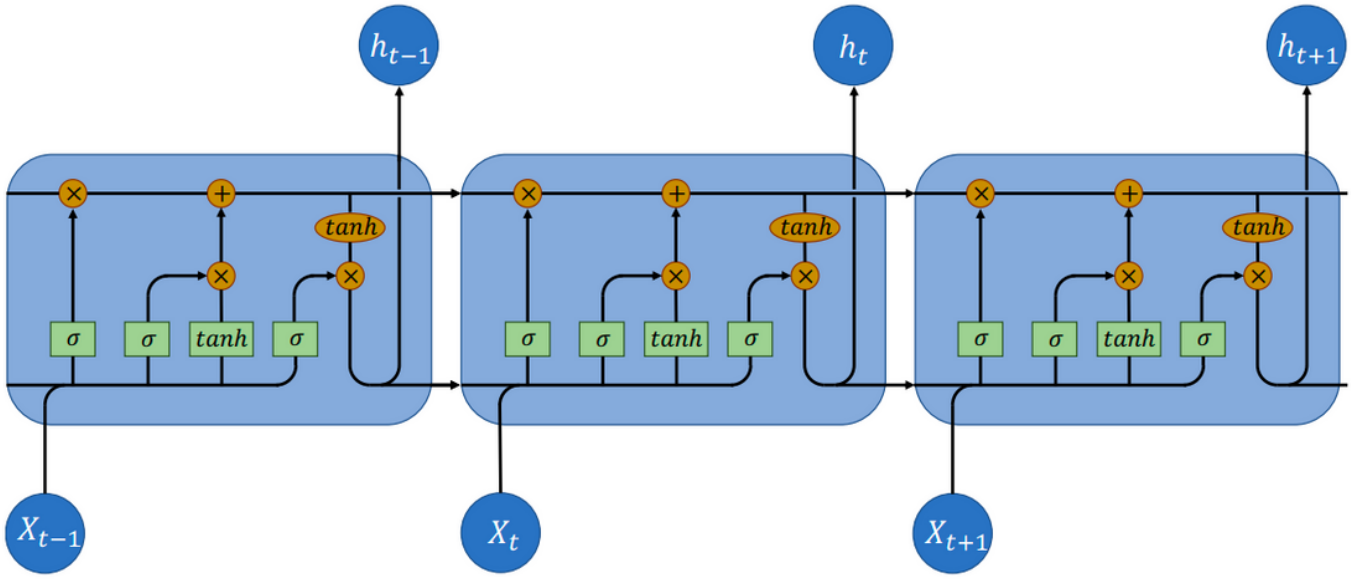
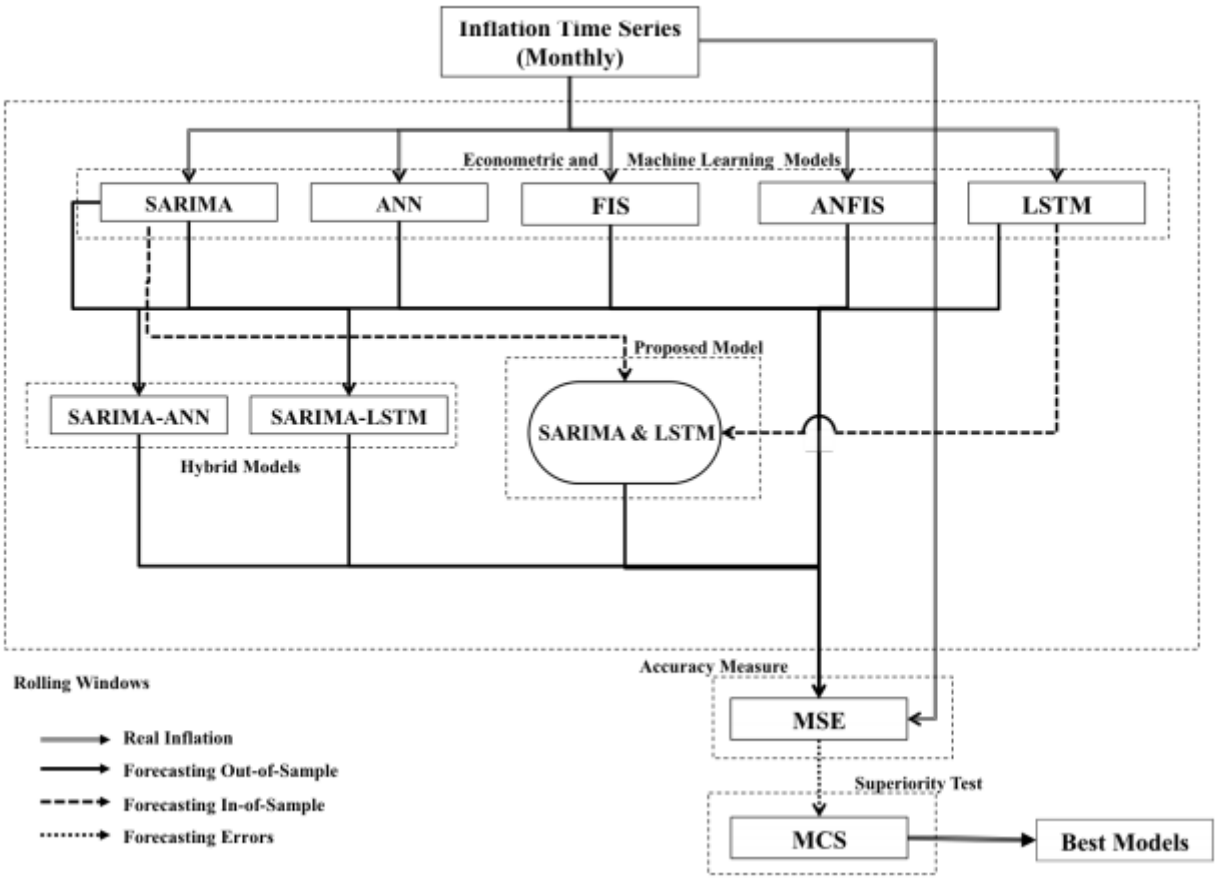



**Figure 1**

Basic representation of the LSTM




## Figure 2

Graphic representation of the proposed methodology

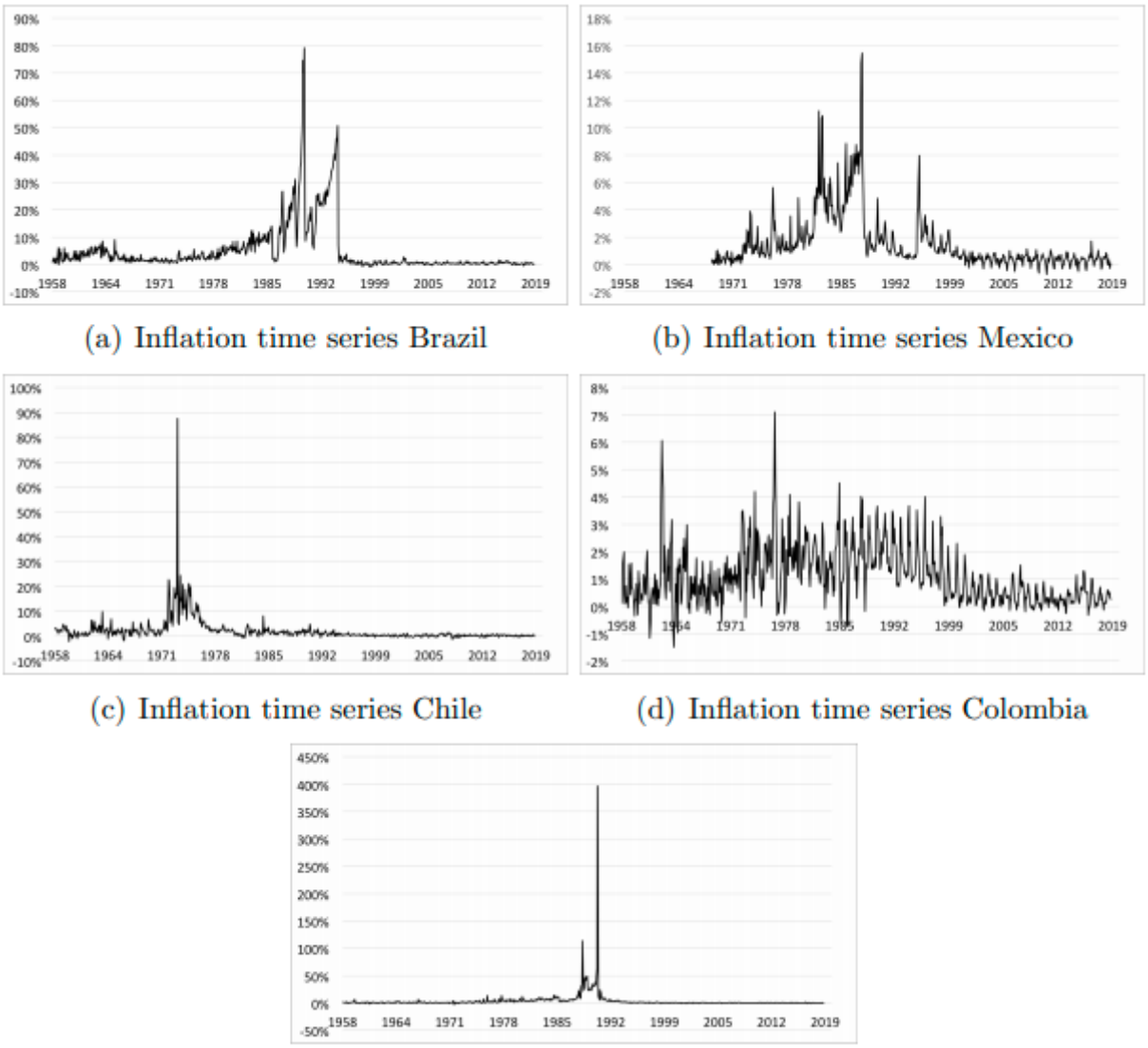



**Figure 3**

Inflation Series

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