| Univariate TS Models | **Pros** | **Cons** |
|---|---|---|
| (S)ARIMA family | Very general approach, can exhaustively search for the optimal parameters | The process of search for parameters is very computationally expensive, poor long-term forecasting performance |
| ETS | Equivalent to SARIMA models with special orders so much less parameters to search for, less computation burden. | Naïve SRIMA models, worst flexibility; has the same disadvantages of SARIMAs |
| Prophet | Very flexible, can add multiple seasonality components and holidays; perform well on long-term forecast | Only works well for linear or saturated growth trend; only works well for daily or sub-daily data |
| Multivariate TS Models | | |
| SARIMAX | Models the one-way relationship well -- one of the variables is the result (endogenous) from all the other variables (exdogenous); if the values of exdogenous features in the future are provided ,SARIMAX model works well | If the values of independent features in the future are not known, SARIMAX model does not perform well |
| VAR | Can model all variables simultaneously since we assume all variables are endogenous | Only assumes data being stationary, so have to difference out the trend and seasonality before fitting the model and reserve the differencing when forecasting |
| LSTM | Deep learning approach, input and output are very flexible we can define them however we want. | Interpretability is questionable |