

Baselines in forecasting projects: why the naive method must be beaten

A forecasting model does not earn its complexity unless it measurably beats a method as simple as “repeat the last value”.

In short

- A naive forecast carries the last observation forward, and on many industrial series this simple method is surprisingly strong.
- Random shuffling leaks knowledge of the future into training, so a time-ordered method should train on the past and test on the period just after.
- Compare a proposed model with the baseline over the same time windows, and prefer the simple method when the gap is within measurement uncertainty.

01 / Simple methods

A naive forecast carries the last observation forward. A seasonal naive forecast uses the value from the previous season, for example the same hour a week earlier. A moving average is the mean of the last few values. These methods need no setup and are surprisingly strong on many industrial series.

02 / Validation that respects time

Splitting a time series by random shuffling leaks knowledge of the future into training. Evaluate with a method that moves forward in time: train on the past, test on the period right after, advance the window and repeat. With this method, every forecast is made only with data known at that moment.

03 / Choose the error measure

Absolute error depends on the series scale. To compare different series, a scale-free measure relative to the baseline's error can be used. Percentage errors become undefined near zero. Tie the measure to the cost of the decision: over- and under-forecasting can carry different costs.

04 / Decision rule

Compare the proposed model with the baseline over the same time windows. If the difference is not larger than the measurement uncertainty, use the simple method. This is a suggested evaluation approach; a method's success depends on the specific data and no field-performance claim is made here.

Try it

On the synthetic Lab series, make a repeat-last-value forecast and compare its absolute error with linear regression.

References and online guide

[Open the online guide](#)

[Forecasting: Principles and Practice: simple methods](#)

Proposed pilot steps do not claim field accuracy. Synthetic examples are not measurements from a production site.