**Mean percentage error**

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In [statistics](https://en.wikipedia.org/wiki/Statistics), the **mean percentage error (MPE)** is the computed average of percentage errors by which forecasts of a model differ from actual values of the quantity being forecast.

The formula for the mean percentage error is

MPE = 100 % n ∑ t = 1 n a t − f t a t {\displaystyle {\text{MPE}}={\frac {100\%}{n}}\sum \_{t=1}^{n}{\frac {a\_{t}-f\_{t}}{a\_{t}}}}

where *at* is the actual value of the quantity being forecast, *ft* is the forecast, and *n* is the number of different times for which the variable is forecast.

Because actual rather than absolute values of the forecast errors are used in the formula, positive and negative forecast errors can offset each other; as a result the formula can be used as a measure of the [bias](https://en.wikipedia.org/wiki/Bias_%28statistics%29) in the forecasts.

A disadvantage of this measure is that it is undefined whenever a single actual value is zero.

**See also**

* [Percentage error](https://en.wikipedia.org/wiki/Percentage_error)
* [Mean absolute percentage error](https://en.wikipedia.org/wiki/Mean_absolute_percentage_error)
* [Mean squared error](https://en.wikipedia.org/wiki/Mean_squared_error)
* [Mean squared prediction error](https://en.wikipedia.org/wiki/Mean_squared_prediction_error)
* [Minimum mean-square error](https://en.wikipedia.org/wiki/Minimum_mean-square_error)
* [Squared deviations](https://en.wikipedia.org/wiki/Squared_deviations)
* [Peak signal-to-noise ratio](https://en.wikipedia.org/wiki/Peak_signal-to-noise_ratio)
* [Root mean square deviation](https://en.wikipedia.org/wiki/Root_mean_square_deviation)
* [Errors and residuals in statistics](https://en.wikipedia.org/wiki/Errors_and_residuals_in_statistics)

**References**

* *Khan, Aman U.; Hildreth, W. Bartley (2003). Case studies in public budgeting and financial management. New York, N.Y: Marcel Dekker.* [*ISBN*](https://en.wikipedia.org/wiki/International_Standard_Book_Number)[*0-8247-0888-1*](https://en.wikipedia.org/wiki/Special:BookSources/0-8247-0888-1)*.*
* *Waller, Derek J. (2003). Operations Management: A Supply Chain Approach. Cengage Learning Business Press.* [*ISBN*](https://en.wikipedia.org/wiki/International_Standard_Book_Number)[*1-86152-803-5*](https://en.wikipedia.org/wiki/Special:BookSources/1-86152-803-5)*.*

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