



## Options

<code>SAMPLE = <i>arg</i></code>	The range within which cross-validation is performed. Arguments should be strings in valid EViews sample form (e.g., “1999m01 2015m12”). If omitted, SAMPLE will default to the workfile sample
<code>H = <i>arg</i></code>	Maximum proportion of the training range (specified in SAMPLE) to holdout. Arguments should be real numbers which satisfy $0 < H \leq 1$ . If omitted, H will default to 0.1 (10% of the training range).
<code>ERR = <i>arg(s)</i></code>	One or more error measures to return. <i>arg</i> takes values of “MSE” (mean squared error), “MAE” (mean absolute error), “RMSE” (root mean squared error), “MSFE” (mean squared forecast error), “medAE” (median absolute error), “MAPE” (mean absolute percent error), “SMAPE” (symmetric MAPE), “MPE” (mean percent error), “MSPE” (mean squared percent error), “RMSPE” (root mean squared percent error), “medPE” (median percent error), “SIGN” (count of times that the model forecast the correct direction of change over a given horizon), and “SIGNP” (SIGN, expressed as a percentage of forecasts produced). To specify multiple errors, pass in any combination of the arguments above as a space-delimited list (e.g. “MAE MAPE MSE”). Defaults to “MAE”.

## Examples

The commands

```
equation eq01.ls d(ip) c d(gdp)
eq01.tscval
```

estimate an equation object called `EQ01` and generate cross-validation results using the add-in defaults. The workfile will contain a table object and vector object containing out-of-sample forecast error results for `ip` (the difference operator will be unwound in forecasting).

You may wish to customize the results more. For example, the commands:

```
equation eq01.ls d(ip) c d(gdp)
eq01.tscval(SAMPLE="2006m01 2015m12", H=0.4,
```

ERR = "MAE MSE MAPE")

estimate an equation object called EQ01 and perform time-series cross-validation. Given the settings from SAMPLE and H, the first equation in the cross-validation exercise will be trained on the sample "2006m01 2011m12" (60% of the argument passed to SAMPLE) and tested over the sample "2012m01 2015m12" (the holdout sample, the remaining 40% of the argument passed to SAMPLE). Three table objects and three vector objects will be created, one for each error measure.

The commands

```
var var01.LS 1 2 LOG(X) LOG(Y) @ C @LAG(LOG(Z),1) @TREND
var01.tscval
```

will produce a similar output with a table for each error type selected in the program command. Each table will contain error estimates for every endogenous variable in the VAR object.

## Contact Information

Please send any questions, comments, criticisms, or complaints to [jaylamb20@gmail.com](mailto:jaylamb20@gmail.com). If you'd like to contribute to the project, please feel free to send a pull request to <https://github.com/jameslamb/ML4EVIEWS/tree/master/tscval>.

## References

- [1] Hyndman, Rob J. "Why every statistician should know about cross-validation". *Hyndsight blog*, October 2010. Retrieved from: <http://robjhyndman.com/hyndsight/crossvalidation/>
- [2] Hyndman, Rob J. "Time series cross-validation: and R example". *Hyndsight blog*, August 2011. Retrieved from: <http://robjhyndman.com/hyndsight/tscvexample/>
- [3] Fomby, Tom. "Scoring Measures for Prediction Problems". Retrieved from: [http://faculty.smu.edu/efomby/eco5385\\_eco6380/lecture/Scoring%20Measures%20for%20Prediction%20Problems.pdf](http://faculty.smu.edu/efomby/eco5385_eco6380/lecture/Scoring%20Measures%20for%20Prediction%20Problems.pdf)
- [4] Hyndman, Rob J. "Errors on percentage errors". *Hyndsight blog*, April 2014. Retrieved from: <http://robjhyndman.com/hyndsight/smape/>
- [5] Hyndman, Rob J. "Another Look at Forecast Accuracy Metrics for Intermittent Demand". *Foresight: The International Journal of Applied Forecasting* 4.4 (2006): 43-46. Retrieved from: <http://robjhyndman.com/papers/foresight.pdf>
- [6] Z. Chen and Y. Yang, 2004, Assessing forecast accuracy measures, Preprint Series, n. 2004-2010, p. 2004-10. Retrieved from: [https://www.researchgate.net/profile/Zhuo\\_Chen5/publication/228774888\\_Assessing\\_forecast\\_accuracy\\_measures/links/02bfe50da5f6e9d263000000.pdf](https://www.researchgate.net/profile/Zhuo_Chen5/publication/228774888_Assessing_forecast_accuracy_measures/links/02bfe50da5f6e9d263000000.pdf)