NDK_SARIMAX_PARAM

Last Modified on 03/14/2016 1:28 pm CDT

- C/C++
- .Net

int __stdcall NDK_SARIMAX_PARAM (double *	pData,
double **	pFactors,
size_t	nSize,
size_t	nFactors,
double *	fBetas,
double *	mean,
double *	sigma,
WORD	nIntegral,
double *	phis,
size_t	p,
double *	thetas,
size_t	q,
WORD	nSIntegral,
WORD	nSPeriod,
double *	sPhis,
size_t	sP,
double *	sThetas,
size_t	sQ,
MODEL_RETVAL_FUNC	retType,
size_t	maxIter
)	

Returns an array of cells for the initial (non-optimal), optimal or standard errors of the model's parameters.

Returns

status code of the operation

Return values

NDK_SUCCESS Operation successful

NDK_FAILED   Operation unsuccessful. See **Macros** for full list.

Parameters

[in,out] **pData**   is the univariate time series data (a one dimensional array).
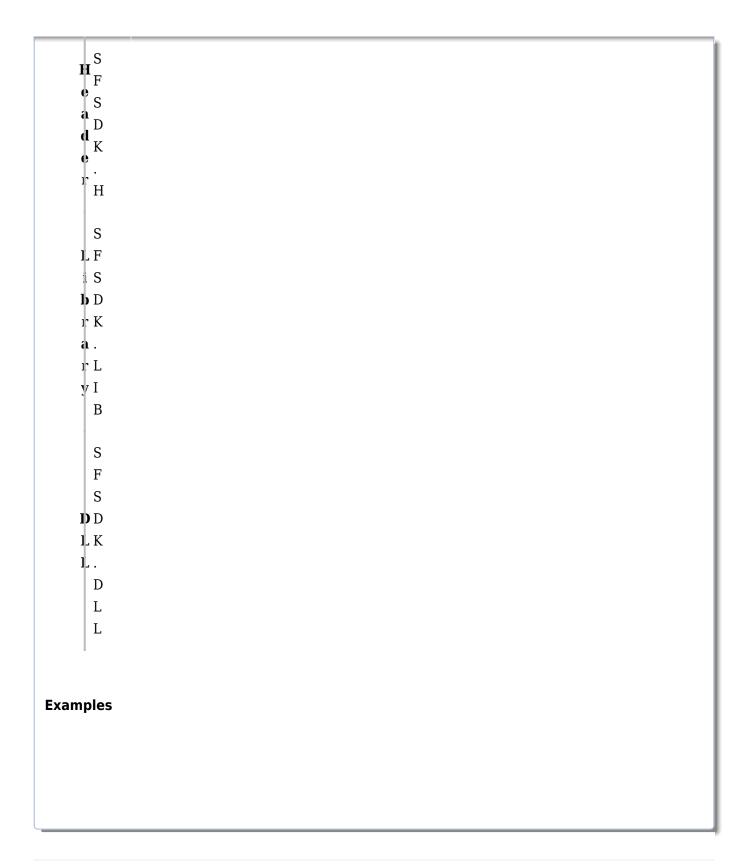
[in]	**pFactors**	is the exogneous factors time series data (each column is a separate factor, and each row is an observation).
[in]	**nSize**	is the number of observations.
[in]	**nFactors**	is the number of exognous factors
[in,out]	**fBetas**	is the weights or loading of the exogneous factors
[in,out]	**mean**	is the mean of the differenced time series process
[in,out]	**sigma**	is the standard deviation of the model's residuals/innovations.
[in]	**nIntegral**	is the non-seasonal difference order
[in,out]	**phis**	are the coefficients's values of the non-seasonal AR component
[in]	**p**	is the order of the non-seasonal AR component
[in,out]	**thetas**	are the coefficients's values of the non-seasonal MA component
[in]	**q**	is the order of the non-seasonal MA component
[in]	**nSIntegral**	is the seasonal difference
[in]	**nSPeriod**	is the number of observations per one period (e.g. 12=Annual, 4=Quarter)
[in,out]	**sPhis**	are the coefficients's values of the seasonal AR component
[in]	**sP**	is the order of the seasonal AR component
[in,out]	**sThetas**	are the coefficients's values of the seasonal MA component
[in]	**sQ**	is the order of the seasonal MA component
[in]	**retType**	is a switch to select the type of value returned: 1= Quick Guess, 2=Calibrated, 3= Std. Errors

Order	Description
1	Quick guess (non-optimal) of parameters values (default)
2	Calibrated (optimal) values for the model's parameters
3	Standard error of the parameters' values

[in]	**maxIter**	is the maximum number of iterations used to calibrate the model. If missing or less than 100, the default maximum of 100 is assumed.

Remarks

1. The underlying model is described **here.**
2. The time series is homogeneous or equally spaced
3. The time series may include missing values (e.g. NaN) at either end.
4. Each column in the explanatory factors input matrix (i.e. X) corresponds to a separate variable.
5. Each row in the explanatory factors input matrix (i.e. X) corresponds to an observation.
6. Observations (i.e. rows) with missing values in X or Y are assumed missing.
7. The number of rows of the explanatory variable (X) must be at equal to the number of rows of the response variable (Y).
8. The intercept or the regression constant term input argument is optional. If omitted, a zero value is assumed.
9. For the input argument - Beta:

- The input argument is optional and can be omitted, in which case no regression component is included (i.e. plain SARIMA).
- The order of the parameters defines how the exogenous factor input arguments are passed.
- One or more parameters may have missing value or an error code(i.e. #NUM!, #VALUE!, etc.).

10. The long-run mean argument (mean) of the differenced regression residuals can take any value. If omitted, a zero value is assumed.
11. The residuals/innovations standard deviation (sigma) must greater than zero.
12. For the input argument - phi (parameters of the non-seasonal AR component):
    - The input argument is optional and can be omitted, in which case no non-seasonal AR component is included.
    - The order of the parameters starts with the lowest lag
    - The order of the non-seasonal AR component model is solely determined by the order of the last value in the array with a numeric value (vs. missing, or error).
13. For the input argument - theta (parameters of the non-seasonal MA component):
    - The input argument is optional and can be omitted, in which case no non-seasonal MA component is included.
    - The order of the parameters starts with the lowest lag
    - The order of the non-seasonal MA component model is solely determined by the order of the last value in the array with a numeric value (vs. missing, or error).
14. For the input argument - sPhi (parameters of the seasonal AR component):
    - The input argument is optional and can be omitted, in which case no seasonal AR component is included.
    - The order of the parameters starts with the lowest lag
    - The order of the seasonal AR component model is solely determined by the order of the last value in the array with a numeric value (vs. missing, or error).
15. For the input argument - sTheta (parameters of the seasonal MA component):
    - The input argument is optional and can be omitted, in which case no seasonal MA component is included.
    - The order of the parameters starts with the lowest lag
    - The order of the seasonal MA component model is solely determined by the order of the last value in the array with a numeric value (vs. missing, or error).
16. The non-seasonal integration order - d - is optional and can be omitted, in which case d is assumed zero.
17. The seasonal integration order - sD - is optional and can be omitted, in which case sD is assumed zero.
18. The season length - s - is optional and can be omitted, in which case s is assumed zero (i.e. Plain ARIMA).

Requirements

Header

SFSDK.H

Library

SFSDK.LIB

DLL

SFSDK.DLL

Examples

References

Hamilton, J .D.; [Time Series Analysis](), Princeton University Press (1994), ISBN 0-691-04289-6

Tsay, Ruey S.; [Analysis of Financial Time Series]() John Wiley & SONS. (2005), ISBN 0-471-690740

See Also

[template("related")]