NDK_SARIMA_FITTED

Last Modified on 07/08/2016 12:22 pm CDT

- C/C++
- .Net

```
int NDK_SARIMA_FITTED(double *       pData,
                      size_t         nSize,
                      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,
                      FIT_RETVAL_FUNC retType
                      )
```

Returns an array of cells for the fitted values (i.e. mean, volatility and residuals)

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]	**nSize**	is the number of observations in pData.
[in]	**mean**	is the model mean (i.e. mu).
[in]	**sigma**	is the standard deviation of the model's residuals/innovations.
[in]	**nIntegral**	is the non-seasonal difference order
[in]	**phis**	are the coefficients's values of the non-seasonal AR component
[in]	**p**	is the order of the non-seasonal AR component
[in]	**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]	**sPhis**	are the coefficients's values of the seasonal AR component
[in]	**sP**	is the order of the seasonal AR component
[in]	**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 a output type

Order	Description
1	Fitted mean (default)
2	Fitted standard deviation or volatility
3	Raw (non-standardized) residuals
4	Standardized residuals

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. The long-run mean argument (mean) can take any value or be omitted, in which case a zero value is assumed.
5. The residuals/innovations standard deviation (sigma) must be greater than zero.
6. 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).
7. 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).
8. 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.
   - One or more parameters may have missing values or error codes (i.e. #NUM!, #VALUE!, etc.).
   - 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).
9. 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.
   - One or more values in the input argument can be missing or an error code (i.e. #NUM!, #VALUE!, etc.).

- 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).
10. The non-seasonal integration order - d - is optional and can be omitted, in which case d is assumed to be zero.
11. The seasonal integration order - sD - is optional and can be omitted, in which case sD is assumed to be zero.
12. The season length - s - is optional and can be omitted, in which case s is assumed to be zero (i.e. plain ARIMA).
13. The function was added in version 1.63 SHAMROCK.

Requirements

Header	SFSDK.H
Library	SFSDK.LIB
DLL	SFSDK.DLL

Examples

---

int NDK_SARIMA_FITTED(double[] pData,
      UIntPtr nSize,
      double mean,
      double sigma,
      short nIntegral,
      double[] phis,
      UIntPtr p,
      double[] thetas,
      UIntPtr q,
      short nSIntegral,
      double[] sPhis,
      UIntPtr sP,
      double[] sThetas,
      UIntPtr sQ,
      FIT_RETVAL_FUNC retType
)

Namespace: NumXLAPI
Class: SFSDK
Scope: Public
Lifetime: Static

Returns an array of cells for the fitted values (i.e. mean, volatility and residuals)

Return Value

a value from **NDK_RETCODE** enumeration for the status of the call.

NDK_SUCCESS operation successful
Error   Error Code

Parameters

[in,out]	**pData**	is the univariate time series data (a one dimensional array).
[in]	**nSize**	is the number of observations in pData.
[in]	**mean**	is the model mean (i.e. mu).
[in]	**sigma**	is the standard deviation of the model's residuals/innovations.
[in]	**nIntegral**	is the non-seasonal difference order
[in]	**phis**	are the coefficients's values of the non-seasonal AR component
[in]	**p**	is the order of the non-seasonal AR component
[in]	**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]	**sPhis**	are the coefficients's values of the seasonal AR component
[in]	**sP**	is the order of the seasonal AR component
[in]	**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 a output type

Order	Description
1	Fitted mean (default)
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Remarks

1. The underlying model is described **here.**
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3. The time series may include missing values (e.g. NaN) at either end.
4. The long-run mean argument (mean) can take any value or be omitted, in which case a zero value is assumed.
5. The residuals/innovations standard deviation (sigma) must be greater than zero.
6. 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).

7. 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).

8. 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.
   - One or more parameters may have missing values or error codes (i.e. #NUM!, #VALUE!, etc.).
   - 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).

9. 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.
   - One or more values in the input argument can be missing or an error code (i.e. #NUM!, #VALUE!, etc.).
   - 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).

10. The non-seasonal integration order - d - is optional and can be omitted, in which case d is assumed to be zero.

11. The seasonal integration order - sD - is optional and can be omitted, in which case sD is assumed to be zero.

12. The season length - s - is optional and can be omitted, in which case s is assumed to be zero (i.e. plain ARIMA).

13. The function was added in version 1.63 SHAMROCK.

Exceptions

Exception Type	Condition
None	N/A

Requirements

Namespace	NumXLAPI
Class	SFSDK

Scope	Public
Lifetime	Static
Package	NumXLAPI.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")]