

NDK_AIRLINE_GOF

Last Modified on 07/11/2016 11:25 am CDT

- C/C++
- .Net

```
int __stdcall NDK_AIRLINE_GOF(double *      pData,
                               size_t      nSize,
                               double      mean,
                               double      sigma,
                               WORD         S,
                               double      theta,
                               double      theta2,
                               GOODNESS_OF_FIT_FUNC retType,
                               double *    retVal
                               )
```

Computes the log-likelihood (LLF), Akaike Information Criterion (AIC) or other goodness of fit function of the AirLine model.

Returns

status code of the operation

Return values

NDK_SUCCESS Operation successful

NDK_FAILED Operation unsuccessful. See [Macros](#) for full list.

Parameters

[in] **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. μ).

[in] **sigma** is the standard deviation (σ) of the model's residuals/innovations.

[in] **S** is the length of seasonality (expressed in terms of lags, where $s > 1$).

[in] **theta** is the coefficient of first-lagged innovation (θ)(see model description).

[in] **theta2** is the coefficient of s-lagged innovation (Θ) (see model description).

[in] **retType** is a switch to select a fitness measure

Order	Description
-------	-------------

1	Log-Likelihood Function (LLF) (default)
---	---

2	Akaike Information Criterion (AIC)
---	------------------------------------

3	Schwarz/Bayesian Information Criterion (SIC/BIC)
---	--

4	Hannan-Quinn information criterion (HQC)
---	--

[out] **retVal** is the calculated value of the goodness of fit.

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 airline model with order (s) has 4 parameters: $(\mu, \sigma, \theta, \Theta)$
5. The Airline model is a special case of multiplicative seasonal ARIMA model, and it assumes independent and normally distributed residuals with constant variance.

Requirements

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

Examples

```
int NDK_AIRLINE_GOF(double[]
                    UIntPtr
                    double
                    double
                    short
                    double
                    double
                    GOODNESS_OF_FIT_FUNC
                    ref double
                    )
                    pData,
                    nSize,
                    mean,
                    sigma,
                    dSeason,
                    theta,
                    theta2,
                    retType,
                    retVal
```

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

Computes the log-likelihood ((LLF), Akaike Information Criterion (AIC) or other goodness of fit function of the AirLine model.

Returns

status code of the operation

Return values

NDK_SUCCESS Operation successful

NDK_FAILED Operation unsuccessful. See [Macros](#) for full list.

Parameters

- [in] **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. μ).
- [in] **sigma** is the standard deviation (σ) of the model's residuals/innovations.
- [in] **dSeason** is the length of seasonality (expressed in terms of lags, where $s > 1$).
- [in] **theta** is the coefficient of first-lagged innovation (θ)(see model description).
- [in] **theta2** is the coefficient of s-lagged innovation (Θ) (see model description).
- [in] **retType** is a switch to select a fitness measure

Order Description

1	Log-Likelihood Function (LLF) (default)
2	Akaike Information Criterion (AIC)
3	Schwarz/Bayesian Information Criterion (SIC/BIC)
4	Hannan-Quinn information criterion (HQC)

- [out] **retVal** is the calculated value of the goodness of fit.

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 airline model with order s has 4 parameters: $\mu, \sigma, \theta, \Theta$
5. The Airline model is a special case of multiplicative seasonal ARIMA model, and it assumes independent and normally distributed residuals with constant variance.

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")]
