

NDK_MD

Last Modified on 04/14/2016 12:44 pm CDT

- C/C++
- .Net

```
int __stdcall NDK_MD(double * pData,  
                    size_t  nSize,  
                    WORD   reserved,  
                    double * retVal  
                    )
```

Returns the mean difference of the input data series.

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 input data series (one/two dimensional array).

[in] **nSize** is the number of observations in pData.

[in] **reserved** This parameter is reserved and must be 1.

[out] **retVal** is the computed value.

Remarks

1. The time series may include missing values (NaN), but they will not be included in the calculations.

2. The sample mean difference (MD) is computed as follows:

$$\Delta = \mathrm{MD} = \frac{\sum_{i=1}^n \sum_{j=1}^n |x_i - x_j|}{n \times (n-1)}$$

Where:

- (x_i) is the value of the i-th non-missing observation.
- (n) is the number of non-missing observations in the sample.

4. The mean difference is the product of the sample mean and the relative mean difference (RMD) and so can also be expressed in terms of the **NDK_GINI**:

$$\mathrm{MD} = 2 \times G \times \bar{x}$$

Where:

- (\bar{x}) is the arithmetic sample mean.
- (G) is the **NDK_GINI**.

6. Because of its ties to the Gini coefficient, the mean difference is also called the "Gini mean

difference." It is also known as the "absolute mean difference."

7. The sample mean difference is not dependent on a specific measure of central tendency like the standard deviation.

8. The mean difference of a sample is an unbiased and consistent estimator of the population mean difference.

Requirements

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

Examples

```
int NDK_MD(double[] pData,  
           UIntPtr nSize,  
           short argMenthod,  
           ref double retVal  
           )
```

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

Returns the mean difference of the input data series.

Return Value

a value from [NDK_RETCODE](#) enumeration for the status of the call.

NDK_SUCCESS operation successful

Error Error Code

Parameters

[in] **pData** is the input data series (one/two dimensional array).

[in] **nSize** is the number of observations in pData.

[in] **argMenthod** This parameter is reserved and must be 1.

[out] **retVal** is the computed value.

Remarks

1. The time series may include missing values (NaN), but they will not be included in the calculations.

2. The sample mean difference (MD) is computed as follows:

$$\Delta = \mathrm{MD} = \frac{\sum_{i=1}^n \sum_{j=1}^n |x_i - x_j|}{n \times (n-1)}$$

Where:

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Where:

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- G is the **NDK_GINI**.

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Exceptions

Exception Type	Condition
None	N/A

Requirements

Namespace	NumXLAPI
Class	SFSDK
Scope	Public
Lifetime	Static
Package	NumXLAPI.DLL

Examples

References

Hull, John C.; [Options, Futures and Other Derivatives](#) *Financial Times*/ Prentice Hall (2011), ISBN 978-0132777421

See Also

[template("related")]
