

NDK_PCA_COMP

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- C/C++
- .Net

```
int __stdcall NDK_PCA_COMP(double ** X,  
                           size_t   nXSize,  
                           size_t   nXVars,  
                           LPBYTE   mask,  
                           size_t   nMaskLen,  
                           WORD     standardize,  
                           WORD     nComplIndex,  
                           WORD     retType,  
                           double *  retVal,  
                           size_t   nOutSize  
                           )
```

Returns an array of cells for the i-th principal component (or residuals).

Returns

status code of the operation

Return values

NDK_SUCCESS Operation successful

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

Parameters

- [in] **X** is the independent variables data matrix, such that each column represents one variable
- [in] **nXSize** is the number of observations (i.e. rows) in X
- [in] **nXVars** is the number of variables (i.e. columns) in X
- [in] **mask** is the boolean array to select a subset of the input variables in X. If missing (i.e. NULL), all variables in X are included.
- [in] **nMaskLen** is the number of elements in
- [in] **standardize** is a flag or switch to standardize the input variables prior to the analysis:
1. standardize ((subtract mean and divide by standard deviation)
 2. subtract mean.
- [in] **nComplIndex** is the component number to return.
- [in] **retType** is a switch to select the return output
1. proportion of variance,
 2. variance,
 3. eigenvalue,
 4. loadings,

5. Principal Component (PC) data.

[out] **retVal** is the calculated value or data

[in] **nOutSize** is the size of retVal

Remarks

1. The PCA_COMP function must be entered as an array formula (for return-types greater than 3) in a range that has the rows as the number of variables (return-type = 4) or the number of observations (return-type = 5).
2. The sample data may include missing values.
3. Each column in the input matrix corresponds to a separate variable.
4. Each row in the input matrix corresponds to an observation.
5. Observations (i.e. row) with missing values are removed.
6. The PC_COMP function is available starting with version 1.60 APACHE.

Requirements

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

```
int NDK_PCA_COMP(double[] pXData,  
                UIntPtr nXSize,  
                UIntPtr nXVars,  
                byte[] mask,  
                UIntPtr nMaskLen,  
                short standardize,  
                short nCompIndex,  
                short retType,  
                double[] retVal,  
                UIntPtr nOutSize  
                )
```

Namespace: NumXLAPI

Class: SFSDK

Scope: Public

Lifetime: Static

Returns an array of cells for the i-th principal component (or residuals).

Return Value

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

NDK_SUCCESS operation successful

Error Error Code

Parameters

- [in] **pXData** is the independent variables data matrix, such that each column represents one variable
- [in] **nXSize** is the number of observations (i.e. rows) in pXData
- [in] **nXVars** is the number of variables (i.e. columns) in pXData
- [in] **mask** is the boolean array to select a subset of the input variables in pXData. If missing (i.e. NULL), all variables in pXData are included.
- [in] **nMaskLen** is the number of elements in
- [in] **standardize** is a flag or switch to standardize the input variables prior to the analysis:
1. standardize ((subtract mean and divide by standard deviation)
 2. subtract mean.
- [in] **nCompIndex** is the component number to return.
- [in] **retType** is a switch to select the return output
1. proportion of variance,
 2. variance,
 3. eigenvalue,
 4. loadings,
 5. Principal Component (PC) data.
- [out] **retVal** is the calculated value or data
- [in] **nOutSize** is the size of retVal

Remarks

1. The PCA_COMP function must be entered as an array formula (for return-types greater than 3) in a range that has the rows as the number of variables (return-type = 4) or the number of observations (return-type = 5).
2. The sample data may include missing values.
3. Each column in the input matrix corresponds to a separate variable.
4. Each row in the input matrix corresponds to an observation.
5. Observations (i.e. row) with missing values are removed.
6. The PC_COMP function is available starting with version 1.60 APACHE.

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\("related"\)](#)]
