

NDK_PCR_PARAM

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- C/C++
- .Net

```
int __stdcall NDK_PCR_PARAM(double ** X,  
                             size_t   nXSize,  
                             size_t   nXVars,  
                             LPBYTE   mask,  
                             size_t   nMaskLen,  
                             double * Y,  
                             size_t   nYSize,  
                             double   intercept,  
                             double   alpha,  
                             WORD      nRetType,  
                             WORD      nParamIndex,  
                             double * retVal  
                             )
```

Calculates the regression coefficients values for a given input variable.

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 mask |
| [in] Y | is the response or the dependent variable data array (one dimensional array) |
| [in] nYSize | is the number of elements in Y |
| [in] intercept | is the constant or the intercept value to fix (e.g. zero). If missing (NaN), an intercept will not be fixed and is computed normally |
| [in] alpha | is the statistical significance of the test (i.e. alpha) |
| [in] nRetType | is a switch to select the return output: <ol style="list-style-type: none">1. Value (default),2. Std. Error |

3. t-stat
4. P-Value
5. Upper Limit (CI)
6. Lower Limit (CI)

[in] **nParamIndex** is a switch to designate the target parameter (0 = intercept (default), 1 = first variable, 2 = 2nd variable, etc.).

[out] **retVal** is the calculated parameter value or statistics.

Remarks

1. The underlying model is described [here](#).

$$\mathbf{y} = \mathbf{X}\boldsymbol{\beta} + \boldsymbol{\varepsilon}$$

$$\mathbf{X}^{\text{T}}\mathbf{X}^{-1}\mathbf{X}^{\text{T}}\mathbf{y} = \left(\sum_{i=1}^n \mathbf{x}_i \mathbf{x}_i^{\text{T}}\right)^{-1} \left(\sum_{i=1}^n \mathbf{x}_i y_i\right)$$

Where:

- $\hat{\boldsymbol{\beta}}$ is the estimated regression coefficients.
- The sample data may include missing values.
- Each column in the input matrix corresponds to a separate variable.
- Each row in the input matrix corresponds to an observation.
- Observations (i.e. row) with missing values in X or Y are removed.
- The number of rows of the response variable (Y) must be equal to the number of rows of the explanatory variables (X).
- The MLR_PARAM function is available starting with version 1.60 APACHE.

Requirements

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

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")]