Package 'REQS'

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Type Package

Title R/EQS Interface

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Description Contains the function run.eqs() which calls an EQS script file, executes the EQS estimation, and, finally, imports the results as R objects. These two steps can be performed separately: call.eqs() calls and executes EQS, whereas read.eqs() imports existing EQS outputs as objects into R. It requires EQS 6.2 (build 98 or higher).

Imports gtools

Depends R (>= 3.5.0)

License GPL-3

LazyLoad yes

NeedsCompilation no

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call.eqs   *Call EQS from R*

Description

This function calls an EQS script file (.eqs) and executes it.

Usage

```
call.eqs(EQSpgm, EQSmodel, serial, Rmatrix = NA, datname = NA, LEN = 2000000)
```

Arguments

EQSpgm	String containing path including program name where EQS is located (see details)
EQSmodel	String containing path where .eqs script file is located (see details)
serial	EQS serial number as character
Rmatrix	Optional matrix argument if data or covariances are stored in R
datname	If data is specified, a filename (string) must be provided for saving the data in text format (blank separated; see details)
LEN	Integer containing number of working array units. By default, it is 2000000 8 bytes units

Details

If the path in EQSpgm and EQSmodel contains a blank, single quotes and double quotes are required in argument. See EQSpgm argument in examples. The last statement in the EQSpgm argument refers to the name of the executable program file. Under Windows it is ".../WINEQS" (referring to WINEQS.exe), under Mac ".../MACEQS" and under Linux ".../EQS". When specifying the path, use slash instead of backslash.

The .ETS, .CBK and .ETP files are written in the directory where the .eqs file is located. Unless another path is provided within in the .eqs script file.

The argument datname must match with the input data specified in the corresponding .eqs file.

Value

Returns TRUE is the estimation was succesfully and FALSE otherwise.

Author(s)

Patrick Mair, Eric Wu

References

Bentler, P. M. (1995). EQS Program Manual. Encino, CA: Multivariate Software Inc.

See Also

read.eqs, run.eqs

Examples

```
## Not run:
##not executable, valid serial number has to be provided
res <- call.eqs(EQSpgm = "C:/Program Files/EQS61/WINEQS.EXE",
                EQSmodel = "c:/eqs61/examples/manul7.eqs", serial = "1234")

## End(Not run)
```

---

read.eqs   *Import of EQS outputs into R*

Description

This function reads EQS output files (.ets, .CBK and .ETP) into R and stores the results as objects.

Usage

```
read.eqs(file)
```

Arguments

file   The name (string) of the .ets file or the full path which the data are to be read
                from. If it does not contain an absolute path, the file name is relative to the
                current working directory, 'getwd()'. A .CBK and .ETP file have to be of the
                same name and in the same directory.

Details

The value list below provides objects for the full EQS output. If in EQS some objects are not
computed, the corresponding values in R are NA.

Value

Returns a list with the following objects:

model.info	General model information
pval	p-values for various test statistics
fit.indices	Variuos fit indices
model.desc	Descriptive measures
Phi	Phi matrix
Gamma	Gamma matrix

`Beta`	Beta matrix
`par.table`	Parameter table (with standard errors)
`sample.cov`	Sample covariance matrix
`sigma.hat`	Model covariance matrix
`inv.infmat`	Inverse information matrix
`rinv.infmat`	Robust inverse information matrix
`cinv.infmat`	Corrected inverse information matrix
`derivatives`	First derivatives
`moment4`	Matrix with 4th moments
`ssolution`	Standardized elements
`Rsquared`	R-squared measures
`fac.means`	Factor means
`var.desc`	Descriptive measures for the variables (univariate statistics)
`indstd`	Independent variable standardization vector
`depstd`	Dependent variable standardization vector

Author(s)

Patrick Mair, Eric Wu

References

Bentler, P. M. (2008). EQS Program Manual. Encino, CA: Multivariate Software Inc.

See Also

[call.eqs](), [run.eqs]()

Examples

```
## Not run:
##not executable
eqsout <- read.eqs("c:/home/user/eqs/eqsfile.ets")

## End(Not run)
```

---

run.eqs   *Run EQS from R*

Description

Calls an EQS script file from R, executes EQS, and imports the results into R. Basically it is a wrapper function of `call.eqs` and the subsequent `read.eqs`.

Usage

```
run.eqs(EQSpgm, EQSmodel, serial, Rmatrix = NA, datname = NA, LEN = 2000000)
```

Arguments

EQSpgm	String containing path where EQS is located (see details)
EQSmodel	String containing path where .eqs script file is located (see details)
serial	EQS serial number as integer value
Rmatrix	Optional matrix argument if data or covariances are stored in R
datname	If `data` is specified, a filename (string) must be provided for saving the data in text format (blank separated; see details)
LEN	Integer containing number of working array units. By default, it is 2000000 8 bytes units

Details

If the path in `EQSpgm` and `EQSmodel` contains a blank, single quotes and double quotes are required in argument. See `EQSpgm` argument in examples. The last statement in the `EQSpgm` argument refers to the name of the executable program file. Under Windows it is `".../WINEQS"` (referring to WINEQS.exe), under Mac `".../MACEQS"` and under Linux `".../EQS"`. When specifying the path, use slash instead of backslash.

The .ETS, .CBK and .ETP files are written in the directory where the .eqs file is located. Note that these 3 files must be in the same directory than the .eqs file.

The argument `datname` must match with the input data specified in the corresponding .eqs file. This option can be used for simulations: Generate data in R, `run.eqs()` on with the corresponding `data` argument, pick out the relevant return values.

The value list below provides objects for the full EQS output. If in EQS some objects are not computed, the corresponding values in R are `NA`.

Value

Returns a list with the following objects:

success	TRUE if estimation was successful, FALSE otherwise
model.info	General model information

`pval`	p-values for various test statistics
`fit.indices`	Variuos fit indices
`model.desc`	Descriptive measures
`Phi`	Phi matrix
`Gamma`	Gamma matrix
`Beta`	Beta matrix
`par.table`	Parameter table (with standard errors)
`sample.cov`	Sample covariance matrix
`sigma.hat`	Model covariance matrix
`inv.infmat`	Inverse information matrix
`rinv.infmat`	Robust inverse information matrix
`cinv.infmat`	Corrected inverse information matrix
`derivatives`	First derivatives
`moment4`	Matrix with 4th moments
`ssolution`	Standardized elements
`Rsquared`	R-squared measures
`fac.means`	Factor means
`var.desc`	Descriptive measures for the variables (univariate statistics)
`indstd`	Independent variable standardization vector
`depstd`	Dependent variable standardization vector

Author(s)

Patrick Mair, Eric Wu

References

Bentler, P. M. (1995). EQS Program Manual. Encino, CA: Multivariate Software Inc.

See Also

[read.eqs](), [call.eqs]()

Examples

```
## Not run:
##not executable, valid serial number has to be provided
res <- run.eqs(EQSpgm = "C:/Program Files/EQS61/WINEQS.EXE",
               EQSmodel = "c:/eqs61/examples/manul7.eqs", serial = "1234")

##For instance, to extract the parameter table you can do
res$par.table

##simulation example: not executable, provide serial number and proper eqs script file
```

```
##simulated 100 replications, extract CFI
cfivec <- NULL
for (i in 1:100) {
  X <- matrix(rnorm(1000), ncol = 10, nrow = 100)
  res <- run.eqs(EQSpgm = "C:/Program Files/EQS61/WINEQS.EXE",
                 EQSmodel = "c:/eqs61/examples/manul7.eqs", data = X,
                 datname = "manul7.dat", serial = "1234")
cfivec <- c(cfivec, res.run$fit.indices[9,])
}

## End(Not run)
```

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