

Package ‘semGOF’

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Title Goodness-of-fit indexes for structural equation models

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Depends R (>= 2.14.0), sem, stats, MASS, matrixcalc

Suggests boot, tcltk, polycor

Description This is an add-on package which provides fourteen goodness-of-fit indexes for structural equation models using 'sem' package.

License GPL (>= 2)

URL <http://www.r-project.org>,
<http://sites.google.com/site/bertossielena>

LazyLoad yes

Repository CRAN

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summaryGOF

*Goodness-of-Fit indexes in structural equation models for sem***Description**

summaryGOF computes fourteen Goodness-of-Fit indexes in addition to the output of **sem** (Fox, Byrnes, Culbertson, Friendly, Kramer & Monette; 2011).

Usage

```
summaryGOF(object, digits = 5, ...)
```

Arguments

object	an object of class <code>sem</code> returned by the <code>sem</code> function (see Examples below).
digits	number of digits for printed output.
...	additional arguments affecting the summary produced (see summary).

Details

The goodness of fit indexes calculated in **semGOF**:

ICOMP Information Complexity (Bozdogan, 1990)

Fml Fit Function of maximum likelihood (Long, 1986).

d Estimate of minimized population discrepancy function (McDonald, 1989).

Mc McDonald's Centrality Index (McDonald, 1989).

RNI Relative Noncentrality Index (Bentler, 1990).

IFI Incremental Fit Index (Bollen, 1989).

chisq.df Chi-square/df ratio (Marsh & al., 1988).

CAK Rescaled version of AIC (Cudeck and Browne, 1983).

CSK Information Criterion (Schwartz, 1978).

CN Critical N (Hoelter, 1983), (Hu & Bentler, 1999).

Gamma.hat Gamma hat (Steiger, 1989), (Hu & Bentler, 1999).

BL86 Bollen's Fit Index (Bollen, 1986).

W Wheaton Index (Wheaton et al., 1977).

ECVI Expected Cross Validation Index (Browne & Cudeck, 1992).

Warning

semGOF must be used with **sem**.

Author(s)

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See Also

[sem](#)

Examples

```
# The following model has been created with
# six observed endogenous variables,
# two unobserved endogenous variables and
# four unobserved exogenous variables.
```

```
S <- matrix(c(
1.0000, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000, 0,
0.6321, 1.0000, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000, 0,
0.5932, 0.5881, 1.0000, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000, 0,
0.0965, 0.0987, 0.1564, 1.0000, 0.0000, 0.0000, 0.0000, 0.0000, 0.0000, 0,
0.1785, 0.1256, 0.1124, 0.4567, 1.0000, 0.0000, 0.0000, 0.0000, 0.0000, 0,
0.2135, 0.2003, 0.0762, 0.5589, 0.6097, 1.0000, 0.0000, 0.0000, 0.0000, 0,
0.3875, 0.4011, 0.3211, 0.0134, 0.0189, 0.0556, 1.0000, 0.0000, 0.0000, 0,
0.3569, 0.3989, 0.3301, 0.1323, 0.1036, 0.1132, 0.3215, 1.0000, 0.0000, 0,
0.1034, 0.1201, 0.1010, 0.2981, 0.3265, 0.2920, 0.1092, 0.0981, 1.0000, 0,
0.1324, 0.0622, 0.0123, 0.3056, 0.3525, 0.2661, 0.1234, 0.1207, 0.2221, 1

), ncol=10, byrow=TRUE)

rownames(S) <- c("Y1", "Y2", "Y3", "Y4", "Y5", "Y6",
"CSI1", "CSI2", "CSI3", "CSI4")
colnames(S) <- c("Y1", "Y2", "Y3", "Y4", "Y5", "Y6",
"CSI1", "CSI2", "CSI3", "CSI4")
```

```
ram.I <- matrix(c(
#      heads  to    from  param  start
      1,     1,   11,    1,    NA, # lam1
      1,     2,   11,    0,    0.750,
      1,     3,   11,    2,    NA, # lam2
      1,     4,   12,    3,    NA, # lam3
      1,     5,   12,    4,    NA, # lam4
      1,     6,   12,    0,    0.800,
      1,    11,    7,    5,    NA, # gam1
      1,    11,    8,    6,    NA, # gam2
      1,    12,    9,    7,    NA, # gam3
      1,    12,   10,   8,    NA, # gam4
      2,     1,    1,    9,    NA, # theta1
      2,     2,    2,   10,   NA, # theta2
      2,     3,    3,   11,   NA, # theta3
      2,     4,    4,   12,   NA, # theta4
      2,     5,    5,   13,   NA, # theta5
      2,     6,    6,   14,   NA, # theta6
      2,    11,   11,   15,   NA, # psi1
      2,    12,   12,   16,   NA, # psi2

), ncol=5, byrow=TRUE)
```

```
params.I <- c('lam1', 'lam2', 'lam3', 'lam4', 'gam1', 'gam2',
```

```
'gam3', 'gam4', 'theta1', 'theta2', 'theta3',
'theta4', 'theta5', 'theta6', 'psi1', 'psi2')

vars.I <- c('Y1', 'Y2', 'Y3', 'Y4', 'Y5', 'Y6', 'CSI1',
           'CSI2', 'CSI3', 'CSI4', 'ETA1', 'ETA2')

sem.I <- sem(ram.I, S, 250, param.names=params.I,
            var.names=vars.I, fixed.x=7:10)

summaryGOF(sem.I)

# Goodness-of-Fit indexes of structural equation models for 'sem' package

# ICOMP = -14.964
# Fml = 0.19582
# RNI = 0.97065
# IFI = 0.97133
# chisq.df = 1.6814
# CN = 231.91
# Gamma.hat = 0.98438
# BL86 = 0.89465
# W = 1.6814
# d = 0.079042
# Mc = 0.96125
# CAK = 0.27582
# CSK = 0.41668
# ECVI = 0.40466
```

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