

Root Mean Square Error of Approximation

Standalone verified Python analysis

Test: Root Mean Square Error of Approximation

Design: Population discrepancy per degree of freedom for the two-factor CFA.

Variables: G1, G2, G3, famrel, freetime, goout

Null hypothesis: Population RMSEA is zero under exact approximate fit.

Formula: $RMSEA = \sqrt{\max[(\chi^2 - df) / (df(n-1)), 0]}$.

Source rows: 649

Calculated metrics:

rmsea: 0.03334482463134081

chi_square: 13.76397207713822

df: 8

n_cases: 649

noncentrality: 5.76397207713822

Independent reference values:

rmsea: 0.03334482463134081

chi_square: 13.76397207713822

df: 8

n_cases: 649

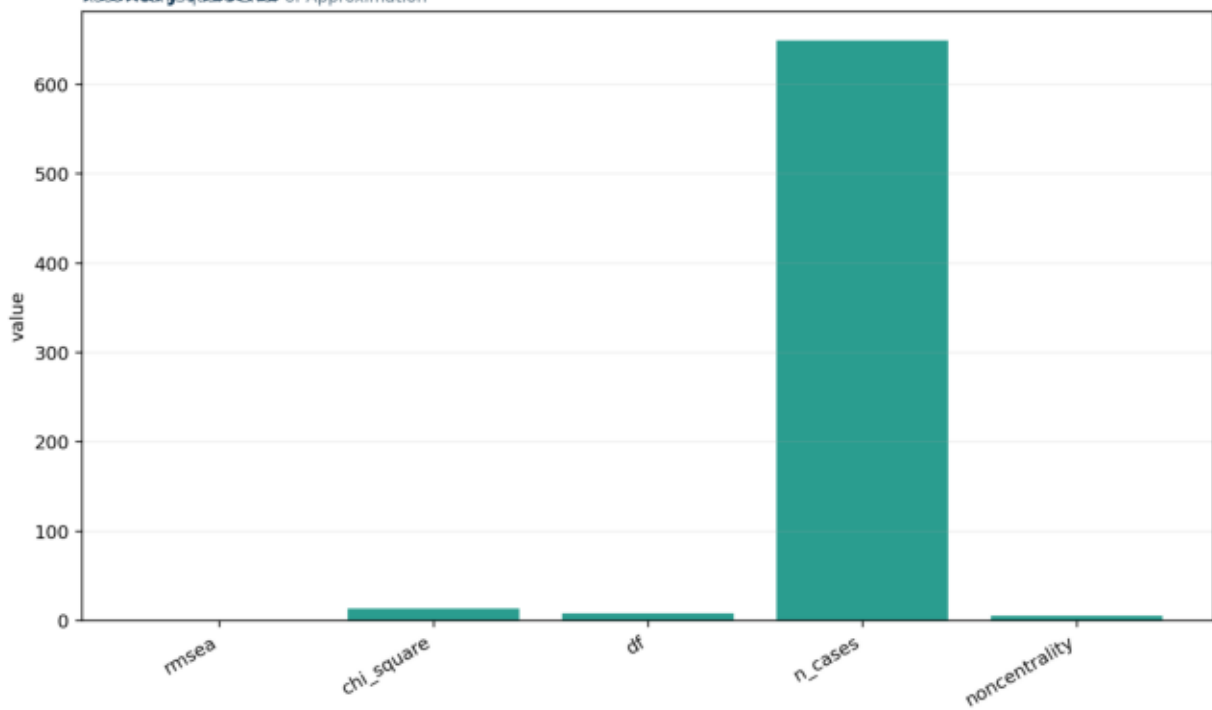
noncentrality: 5.76397207713822

Interpretation:

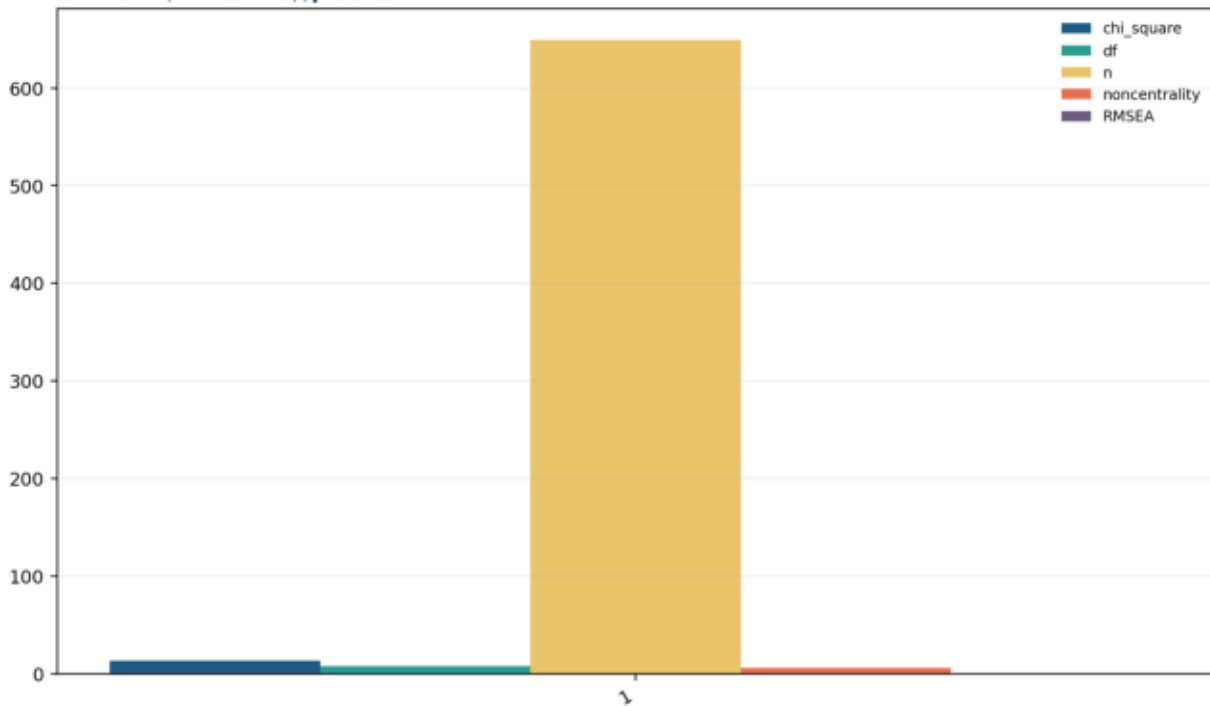
RMSEA scales noncentrality by degrees of freedom and sample size.

RMSEA=0.033345.

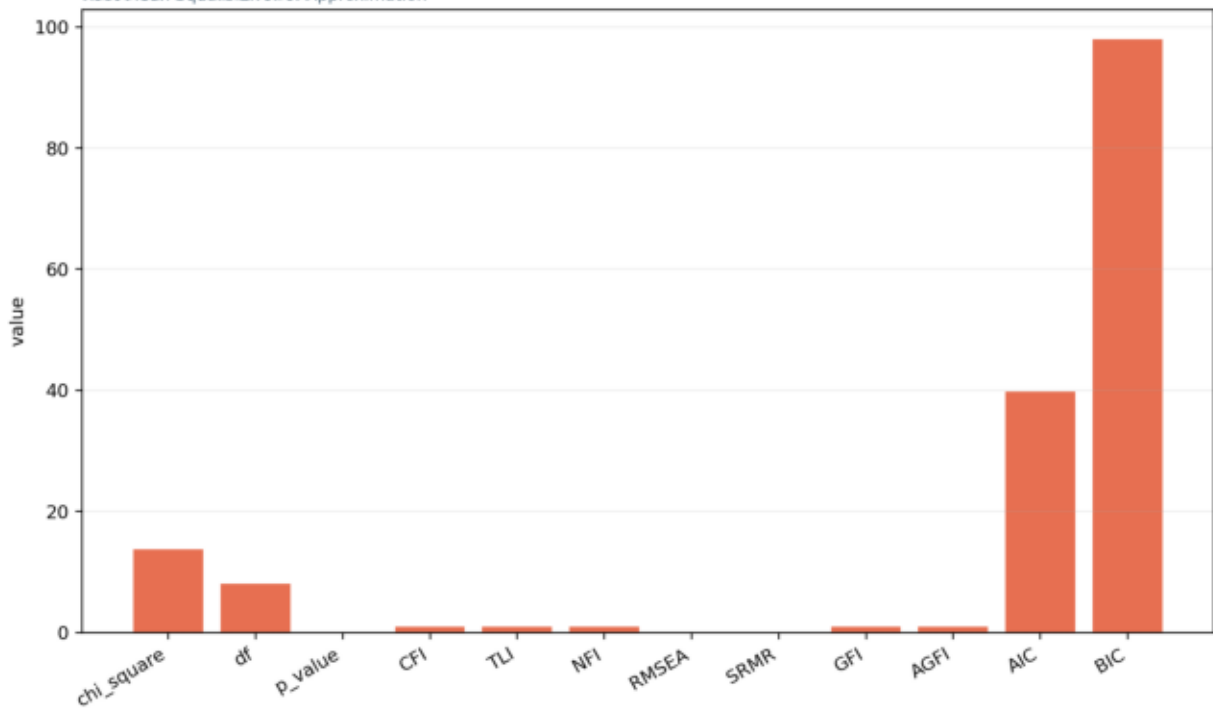
Primary Metrics of Approximation



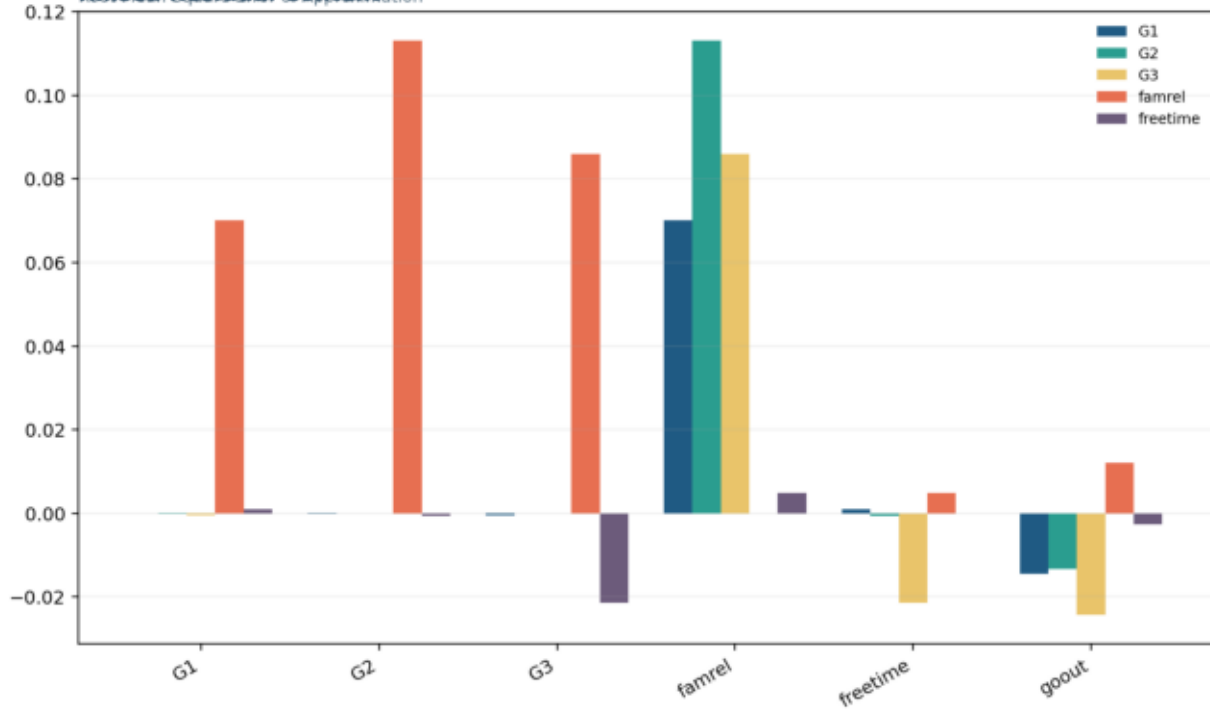
Rmse Formula Components



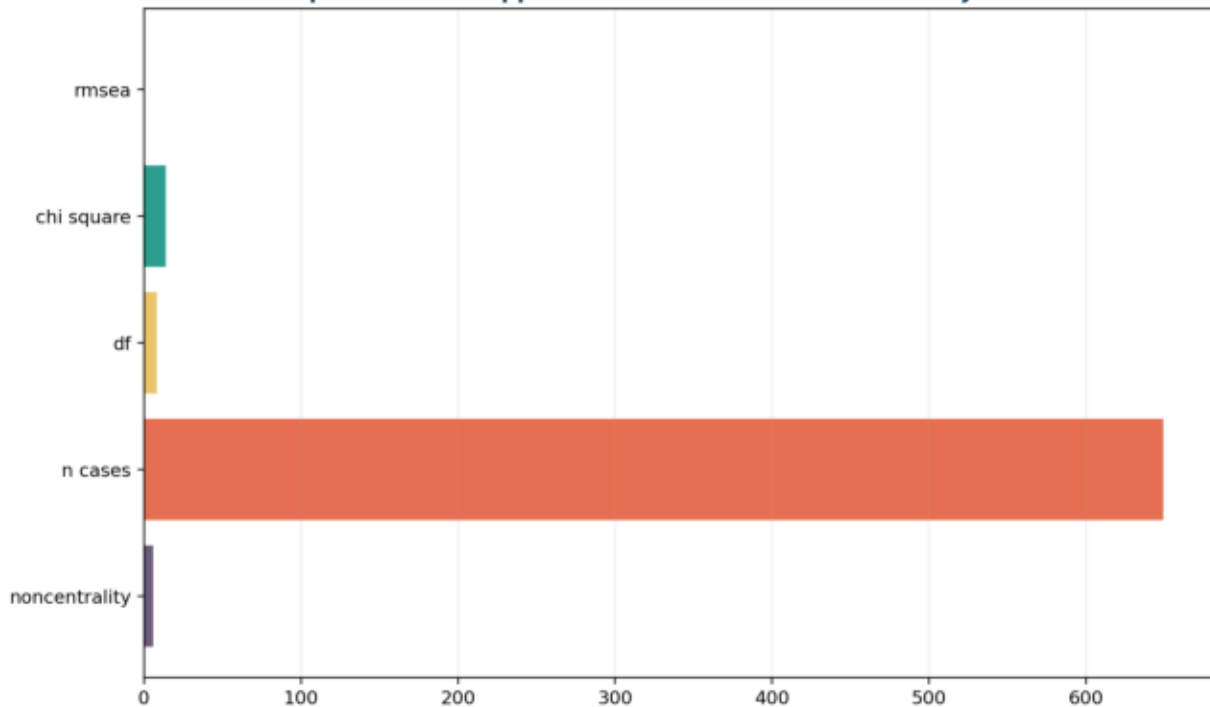
Rmse Fit Context



Rmse Residual Context



Root Mean Square Error of Approximation verified result summary



Primary Metrics

metric	value
rmsea	0.0333448
chi_square	13.764
df	8
n_cases	649
noncentrality	5.76397

Rmsea Formula Components

chi_square	df	n	noncentrality	RMSEA
13.764	8	649	5.76397	0.0333448

Rmsea Fit Context

index	value
chi_square	13.764
df	8
p_value	0.0881286
CFI	0.997398
TLI	0.995122
NFI	0.993829
RMSEA	0.0333448
SRMR	0.0356632
GFI	0.992635
AGFI	0.980667
AIC	39.764
BIC	97.9446

Rmse Residual Context

item	G1	G2	G3	famrel	freetime	goout
G1	9.82827e-09	0.000158759	-0.000478078	0.0700397	0.000923277	-0.0144466
G2	0.000158759	6.59088e-08	-5.69385e-06	0.113189	-0.000677231	-0.0132537
G3	-0.000478078	-5.69385e-06	1.85794e-07	0.0859262	-0.0213567	-0.0243314
famrel	0.0700397	0.113189	0.0859262	9.66359e-09	0.00483956	0.0120124
freetime	0.000923277	-0.000677231	-0.0213567	0.00483956	6.20226e-08	-0.00260153
goout	-0.0144466	-0.0132537	-0.0243314	0.0120124	-0.00260153	8.58988e-08