Introducing a Package for Assessing Path Model Fit with R

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The pathmodelfit R Package

The R package provides researchers with computational tools for computing fit indices for path models.

pathmodelfit computes: RMSEA-P, a 90% confidence interval for RMSEA-P, and NSCI-P (O’Boyle & Williams, 2011; Williams & O’Boyle, 2011), and structural fit versions of SRMRs, RMSEAs, TLIs, and CFIs (Hancock & Mueller, 2011; McNeish & Hancock, 2018).

We next discuss how to: 1) install, 2) load, and 3) apply pathmodelfit.
Install pathmodelfit

Using Rstudio:

1. Click the “Packages” tab
2. From the “Install from” drop-down menu select “Repository (CRAN)”
3. Type “pathmodelfit” in the “Packages” box.
4. Click “Install”
Using R syntax:

```
install.packages("pathmodelfit")
```
library(pathmodelfit)

Loading required package: lavaan
This is lavaan 0.6-7
lavaan is BETA software! Please report any bugs.
Apply `pathmodelfit`

We demonstrate `pathmodelfit` using a mediation model with a dataset from Williams and Anderson (1994).

Note. Jobcom = Job complexity, Jobsat = Job satisfaction, Ldrrew = Leader-contingent reward behavior, Orgcom = Organizational committment.
Load the data and specify the lavaan code for the mediation model.

data(mediationVC)
model4 <- '  
Ldrrew =~ LdrrewI1 + LdrrewI2 + LdrrewI3  
Jobcom =~ JobcomI1 + JobcomI2 + JobcomI3  
Jobsat =~ JobsatI1 + JobsatI2 + JobsatI3  
Orgcom =~ OrgcomI1 + OrgcomI2 + OrgcomI3  
Jobsat  ~ Ldrrew + Jobcom  
Orgcom  ~ Jobsat  
'
Run the structural equation model and compute the path model fit indices with the `pathmodelfit` function.

```r
fit <- sem(model4, sample.cov = mediationVC, sample.nobs = 232)
pathmodelfit(fit)
```

<table>
<thead>
<tr>
<th>Est</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>RMSEA-P</td>
<td>0.14685</td>
</tr>
<tr>
<td>RMSEA-P 90% lower bound</td>
<td>0.04543</td>
</tr>
<tr>
<td>RMSEA-P 90% upper bound</td>
<td>0.21931</td>
</tr>
<tr>
<td>NSCI-P</td>
<td>0.95587</td>
</tr>
<tr>
<td>srmr.s</td>
<td>0.05526</td>
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<td>0.88764</td>
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<tr>
<td>cfi.s</td>
<td>0.95506</td>
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</tbody>
</table>
Next Steps

Compute significance level of the chi-square difference test from models used in computing RMSEA-P.