

# Package ‘seminrExtras’

September 3, 2025

**Type** Package

**Title** Conduct Additional Modeling and Analysis for 'seminr'

**Version** 0.2.0

**Description** Supplemental functions for estimating and analysing structural equation models including Cross Validated Prediction and Testing (CVPAT, Lien-gaard et al., 2021 <[doi:10.1111/dec.12445](https://doi.org/10.1111/dec.12445)>).

**Imports** seminr (>= 2.3.0), stats

**License** GPL-3

**Encoding** UTF-8

**Suggests** testthat (>= 3.0.0), knitr, rmarkdown

**Config/testthat/edition** 3

**URL** <https://github.com/sem-in-r/seminr>

**BugReports** <https://github.com/sem-in-r/seminr/issues>

**RoxygenNote** 7.3.2

**VignetteBuilder** knitr

**NeedsCompilation** no

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**Repository** CRAN

**Date/Publication** 2025-09-03 14:00:02 UTC

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assess\_cvpat

*SEMinR function to compare CVPAT loss of two models***Description**

‘assess\_cvpat’ conducts a single model CVPAT assessment against item average and linear model prediction benchmarks.

**Usage**

```
assess_cvpat(
  seminr_model,
  testtype = "two.sided",
  nboot = 2000,
  seed = 123,
  technique = predict_DA,
  noFolds = NULL,
  reps = NULL,
  cores = NULL
)
```

**Arguments**

|              |                                                                   |
|--------------|-------------------------------------------------------------------|
| seminr_model | The SEMinR model for CVPAT analysis                               |
| testtype     | Either "two.sided" (default) or "greater".                        |
| nboot        | The number of bootstrap subsamples to execute (defaults to 2000). |
| seed         | The seed for reproducibility (defaults to 123).                   |
| technique    | predict_EA or predict_DA (default).                               |
| noFolds      | Number of folds for k-fold cross validation.                      |
| reps         | Number of repetitions for cross validation.                       |
| cores        | Number of cores for parallelization.                              |

**Value**

A matrix of the estimated loss and results of significance testing.

**References**

Sharma, P. N., Liengaard, B. D., Hair, J. F., Sarstedt, M., & Ringle, C. M. (2022). Predictive model assessment and selection in composite-based modeling using PLS-SEM: extensions and guidelines for using CVPAT. *European journal of marketing*, 57(6), 1662-1677.

Liengaard, B. D., Sharma, P. N., Hult, G. T. M., Jensen, M. B., Sarstedt, M., Hair, J. F., & Ringle, C. M. (2021). Prediction: coveted, yet forsaken? Introducing a cross-validated predictive ability test in partial least squares path modeling. *Decision Sciences*, 52(2), 362-392.

## Examples

```
# Load libraries
library(semnr)

# Create measurement model ----
corp_rep_mm_ext <- constructs(
  composite("QUAL", multi_items("qual_", 1:8), weights = mode_B),
  composite("PERF", multi_items("perf_", 1:5), weights = mode_B),
  composite("CSOR", multi_items("csor_", 1:5), weights = mode_B),
  composite("ATTR", multi_items("attr_", 1:3), weights = mode_B),
  composite("COMP", multi_items("comp_", 1:3)),
  composite("LIKE", multi_items("like_", 1:3))
)

# Create structural model ----
corp_rep_sm_ext <- relationships(
  paths(from = c("QUAL", "PERF", "CSOR", "ATTR"), to = c("COMP", "LIKE"))
)

# Estimate the model ----
corp_rep_pls_model_ext <- estimate_pls(
  data = corp_rep_data,
  measurement_model = corp_rep_mm_ext,
  structural_model = corp_rep_sm_ext,
  missing = mean_replacement,
  missing_value = "-99")

# Assess the base model ----
assess_cvpat(semnr_model = corp_rep_pls_model_ext,
             testtype = "two.sided",
             nboot = 20,
             seed = 123,
             technique = predict_DA,
             noFolds = 5,
             reps = 1)
```

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assess\_cvpat\_compare    *SEMinR function to compare CVPAT loss of two models*

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## Description

‘assess\_cvpat\_compare’ conducts a CVPAT significance test of loss between two models.

## Usage

```
assess_cvpat_compare(
  established_model,
  alternative_model,
```

```

testtype = "two.sided",
nboot = 2000,
seed = 123,
technique = predict_DA,
noFolds = NULL,
reps = NULL,
cores = NULL
)

```

### Arguments

|                                |                                                                   |
|--------------------------------|-------------------------------------------------------------------|
| <code>established_model</code> | The base seminr model for CVPAT comparison.                       |
| <code>alternative_model</code> | The alternate seminr model for CVPAT comparison.                  |
| <code>testtype</code>          | Either "two.sided" (default) or "greater".                        |
| <code>nboot</code>             | The number of bootstrap subsamples to execute (defaults to 2000). |
| <code>seed</code>              | The seed for reproducibility (defaults to 123).                   |
| <code>technique</code>         | predict_EA or predict_DA (default).                               |
| <code>noFolds</code>           | Number of folds for k-fold cross validation.                      |
| <code>reps</code>              | Number of repetitions for cross validation.                       |
| <code>cores</code>             | Number of cores for parallelization.                              |

### Value

A matrix of the estimated loss and results of significance testing.

### References

Sharma, P. N., Liengaard, B. D., Hair, J. F., Sarstedt, M., & Ringle, C. M. (2022). Predictive model assessment and selection in composite-based modeling using PLS-SEM: extensions and guidelines for using CVPAT. *European journal of marketing*, 57(6), 1662-1677.

Liengaard, B. D., Sharma, P. N., Hult, G. T. M., Jensen, M. B., Sarstedt, M., Hair, J. F., & Ringle, C. M. (2021). Prediction: coveted, yet forsaken? Introducing a cross-validated predictive ability test in partial least squares path modeling. *Decision Sciences*, 52(2), 362-392.

### Examples

```

# Load libraries
library(seminr)

```

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