Package 'seminrExtras'

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Type Package

Title Conduct Additional Modeling and Analysis for 'seminr'

Version 0.1.0

Description Supplemental functions for estimating and analysing structural equation models including Cross Validated Prediction and Testing (CVPAT, Liengaard et al., 2021 <doi:10.1111/deci.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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Contents

`assess_cvpat` *SEMinR function to compare CV-PAT loss of two models*

Description

'assess_cvpat' conducts a single model CV-PAT assessment against item average and linear model 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 CV-PAT comparison.
`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`	Mumber 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(seminr)

# 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(seminr_model = corp_rep_pls_model_ext,
             testtype = "two.sided",
             nboot = 20,
             seed = 123,
             technique = predict_DA,
             noFolds = 5,
             reps = 1,
             cores = 1)
```

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assess_cvpat_compare *SEMinR function to compare CV-PAT loss of two models*

Description

'assess_cvpat_compare' conducts a CV-PAT 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

established_model	The base seminr model for CV-PAT comparison.
alternative_model	The alternate seminr model for CV-PAT comparison.
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	Mumber 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(seminr)
```

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