

SmartPLS-Style PLS-SEM Bootstrap

Standalone verified Python analysis

Test: SmartPLS-Style PLS-SEM Bootstrap

Design: Component-based outer model with 1,000-case bootstrap for the social structural path.

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

Null hypothesis: The bootstrapped PLS social path includes zero.

Formula: Estimate PLS construct scores and OLS inner paths; bootstrap cases for percentile confidence limits.

Source rows: 649

Calculated metrics:

- social_path: -0.047089820120738896
- bootstrap_ci_low: -0.12464436882454996
- bootstrap_ci_high: 0.03331406326210776
- bootstrap_replications: 1000
- academic_r_squared: 0.20849058206409432
- minimum_outer_loading: 0.42366453121244135

Independent reference values:

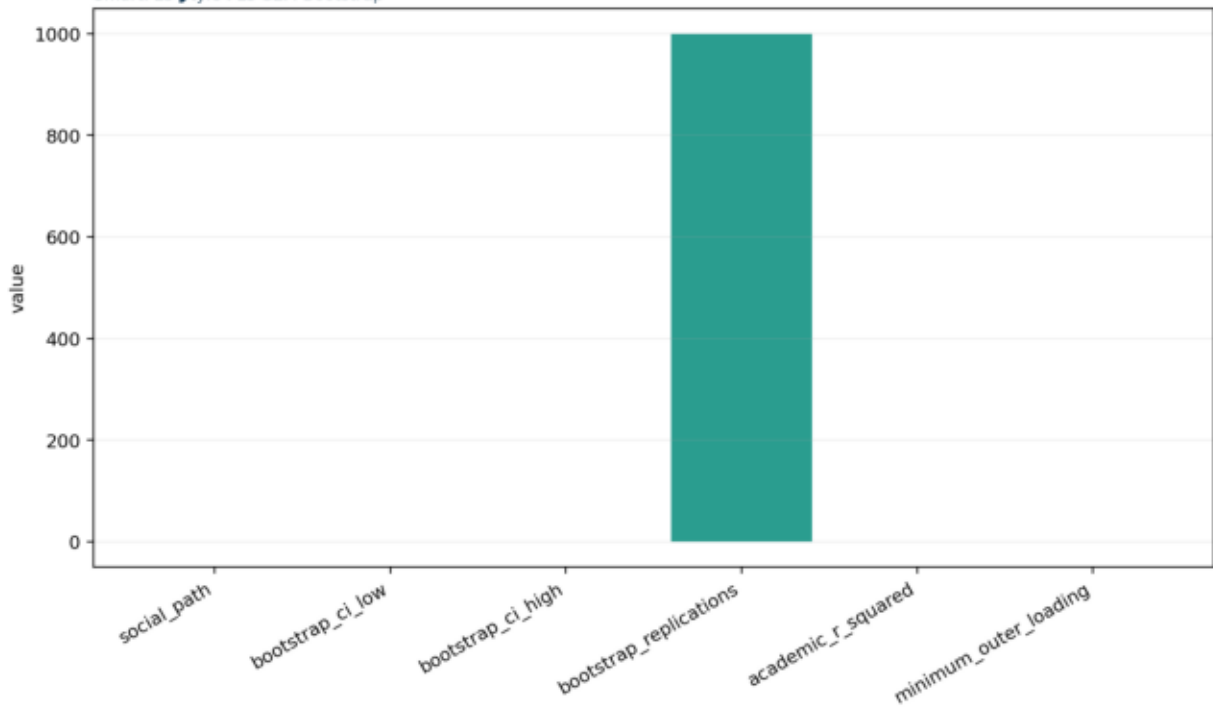
- social_path: -0.047089820120738896
- bootstrap_ci_low: -0.12464436882454996
- bootstrap_ci_high: 0.03331406326210776
- bootstrap_replications: 1000
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Interpretation:

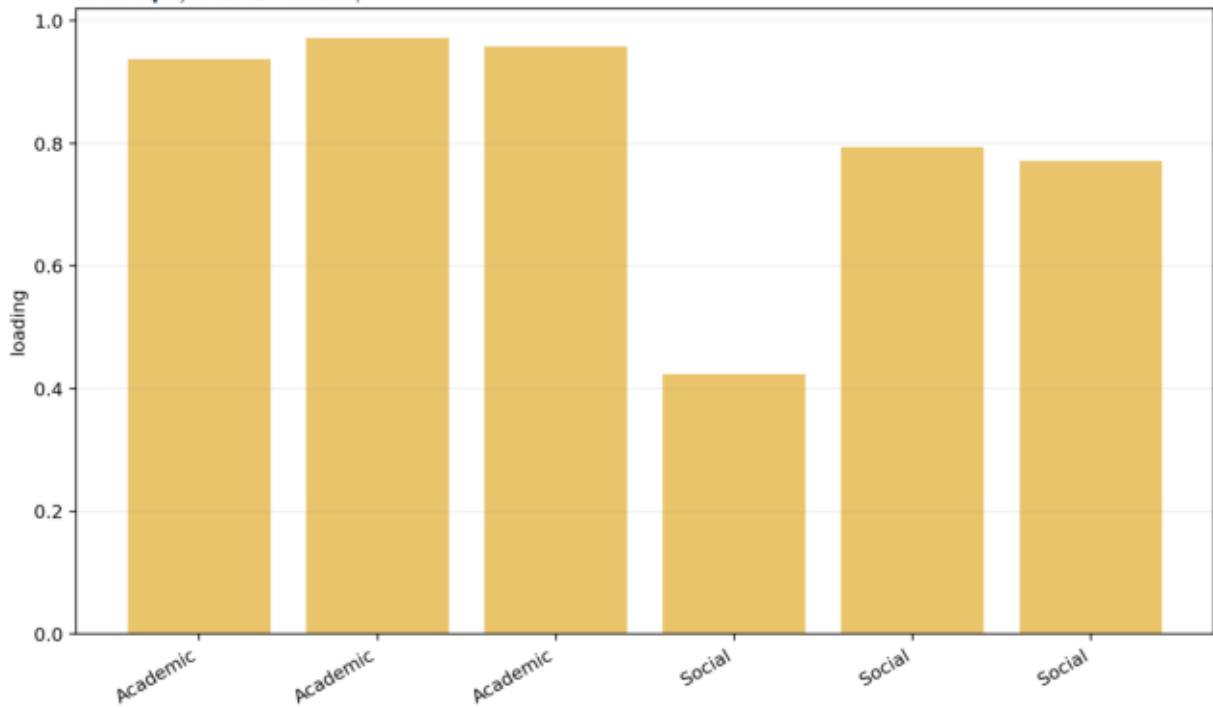
Each SmartPLS-style resample re-estimates outer weights and construct scores.

Re-estimated bootstrap interval=[-0.124644, 0.033314].

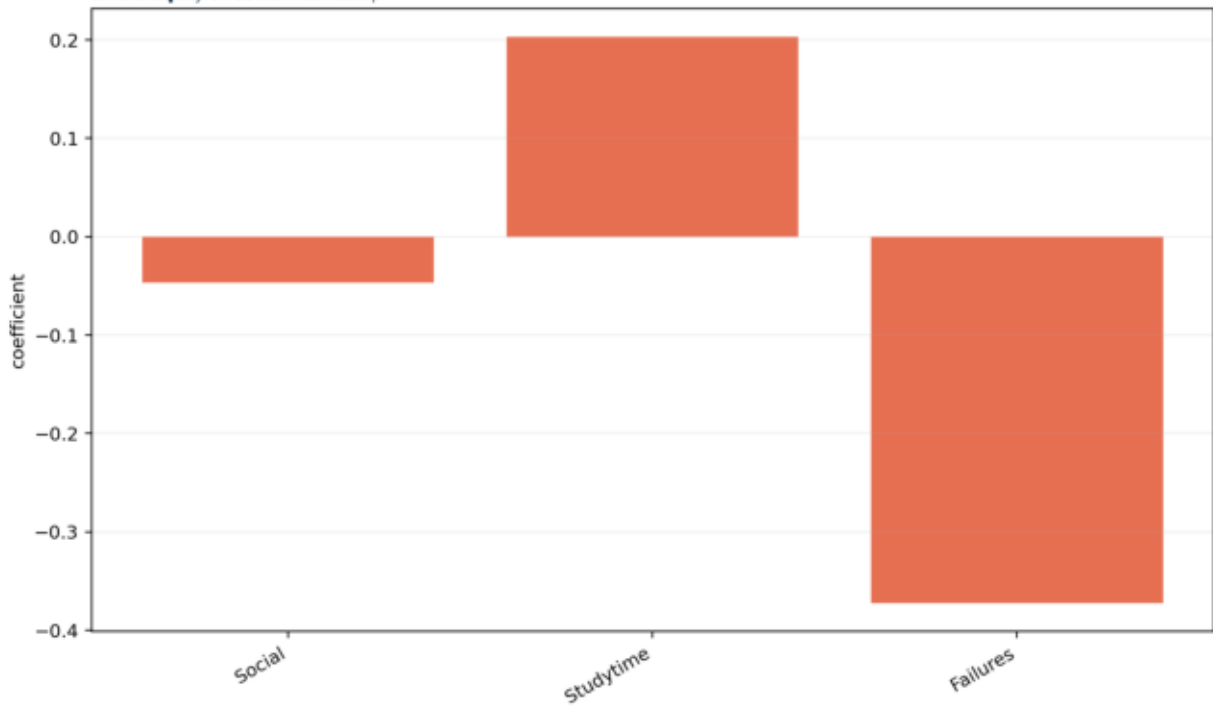
Primary Metrics



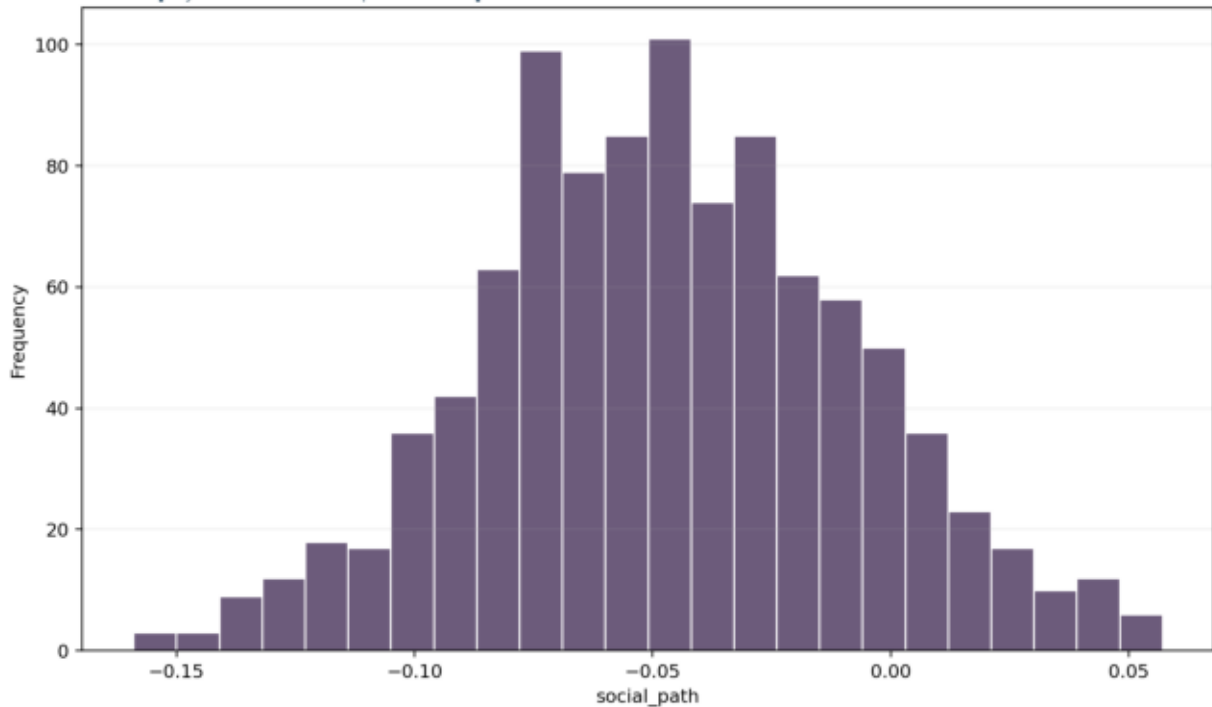
Smartpls Outer Model



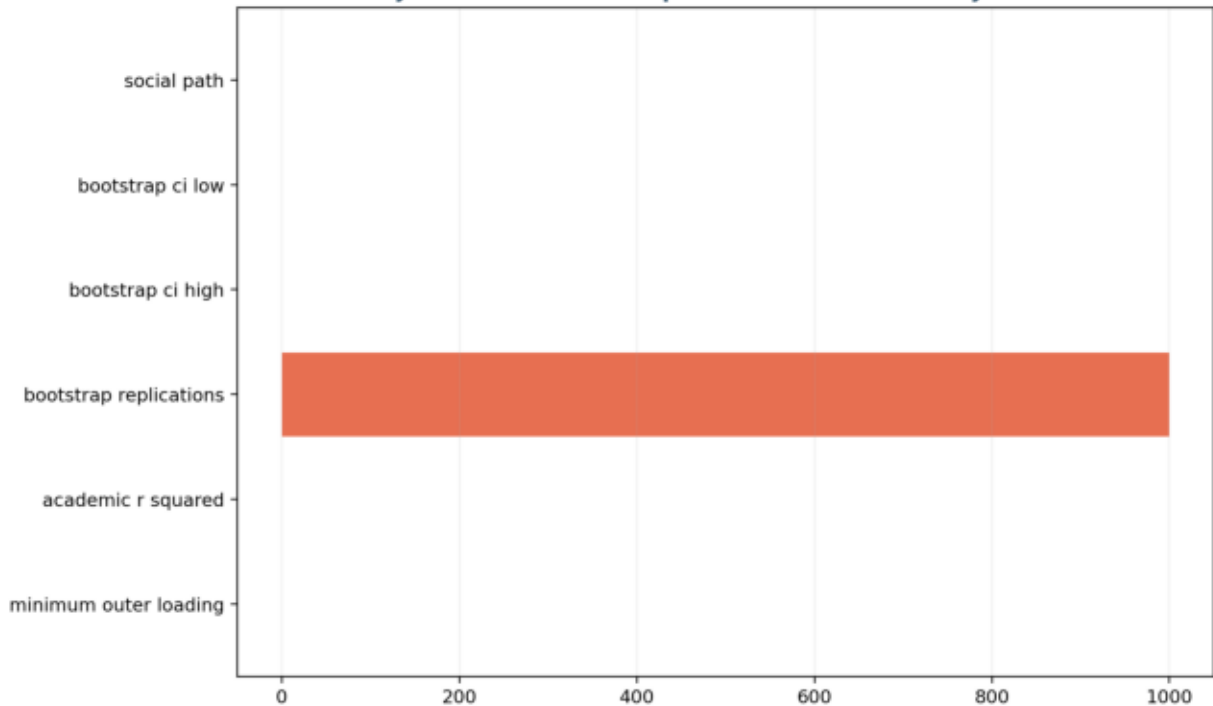
Smartpls Inner Model



Smartpls | Reestimated | Bootstrap



SmartPLS-Style PLS-SEM Bootstrap verified result summary



Primary Metrics

metric	value
social_path	-0.0470898
bootstrap_ci_low	-0.124644
bootstrap_ci_high	0.0333141
bootstrap_replications	1000
academic_r_squared	0.208491
minimum_outer_loading	0.423665

Smartpls Outer Model

construct	item	loading
Academic	G1	0.937618
Academic	G2	0.9715
Academic	G3	0.957891
Social	famrel	0.423665
Social	freetime	0.794025
Social	goout	0.771764

Smartpls Inner Model

path	coefficient
Social	-0.0470898
Studytime	0.203047
Failures	-0.372574

Smartpls Reestimated Bootstrap

social_path
-0.0685766
0.0128256
-0.0329191
-0.0774366
-0.0268934
-0.00535898
0.000192932
-0.0752434
-0.0633632
-0.0323194
-0.0360922
-0.110376
-0.0779603
-0.0625957
-0.0713483
-0.0499759
-0.099675
-0.0578709
0.000925783
-0.0482553
-0.0607189
-0.0714794
-0.0921911
-0.0605271
-0.0941021
-0.0613434