betaMC: External Tests

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Tests

```
#> test-external-betaMC-beta-mc-adf
#> Standardized Monte Carlo Confidence Intervals
#> Test passed
#> Test passed
#> Test passed
#> Test passed

#> test-external-betaMC-beta-mc-mlm

#> Standardized Monte Carlo Confidence Intervals
#> Test passed
#> Test passed
#> Test passed
#> Test passed

#> test-external-betaMC-beta-mc-mvn

#> Standardized Monte Carlo Confidence Intervals
#> Test passed
#> Test passed
#> Test passed
#> Test passed

#> test-external-betaMC-beta-mc

#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed

#> test-external-betaMC-delta-r-sq-mc
```

```
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
```

```
#> test-external-betaMC-diff-adf
```

```
#> Standardized Monte Carlo Confidence Intervals
#> Test passed
#> Test passed
#> Test passed
#> Test passed
```

```
#> test-external-betaMC-diff-beta-mc
```

```
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
```

```
#> test-external-betaMC-diff-mlm
```

```
#> Standardized Monte Carlo Confidence Intervals
#> Test passed
#> Test passed
#> Test passed
#> Test passed
```

```
#> test-external-betaMC-diff-mvn
```

```
#> Standardized Monte Carlo Confidence Intervals
#> Test passed
#> Test passed
#> Test passed
#> Test passed
```

```
#> test-external-betaMC-mc
```

```
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Call:
#> MC(object = object, R = 5L, decomposition = "chol")
#> The first set of simulated parameter estimates
#> and model-implied covariance matrix.
#>
#> $coef
#> [1] 0.4990891 0.4980637
#>
#> $sigmasq
#> [1] 0.4978686
#>
#> $vechsigmacapx
#> [1] 0.9980201884 0.0006462136 0.9916709341
#>
#> $sigmacapx
#>              [,1]         [,2]
#> [1,] 0.9980201884 0.0006462136
#> [2,] 0.0006462136 0.9916709341
#>
#> $sigmaysq
#> [1] 0.992788
#>
#> $sigmayx
#> [1] 0.4984229 0.4942378
#>
#> $sigmacap
#>           [,1]         [,2]         [,3]
#> [1,] 0.9927880 0.4984228626 0.4942378200
#> [2,] 0.4984229 0.9980201884 0.0006462136
#> [3,] 0.4942378 0.0006462136 0.9916709341
#>
#> $pd
#> [1] TRUE
#>
#> Call:
#> MC(object = object, R = 5L, decomposition = "svd")
#> The first set of simulated parameter estimates
```

```
#> and model-implied covariance matrix.
#>
#> $coef
#> [1] 0.5006203 0.5017003
#>
#> $sigmasq
#> [1] 0.5026333
#>
#> $vechsigmacapx
#> [1]  1.000063377 -0.001765834  0.988013027
#>
#> $sigmacapx
#>              [,1]         [,2]
#> [1,]  1.000063377 -0.001765834
#> [2,] -0.001765834  0.988013027
#>
#> $sigmaysq
#> [1] 1.001069
#>
#> $sigmayx
#> [1] 0.4997661 0.4948024
#>
#> $sigmacap
#>           [,1]          [,2]         [,3]
#> [1,] 1.0010689  0.499766068  0.494802444
#> [2,] 0.4997661  1.000063377 -0.001765834
#> [3,] 0.4948024 -0.001765834  0.988013027
#>
#> $pd
#> [1] TRUE

#> test-external-betaMC-p-cor-mc

#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed

#> test-external-betaMC-r-sq-adf

#> Standardized Monte Carlo Confidence Intervals
#> Test passed
```

```
#> Test passed
#> Test passed
#> Test passed
```

```
#> test-external-betaMC-r-sq-mc
```

```
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
```

```
#> test-external-betaMC-r-sq-mlm
```

```
#> Standardized Monte Carlo Confidence Intervals
#> Test passed
#> Test passed
#> Test passed
#> Test passed
```

```
#> test-external-betaMC-r-sq-mvn
```

```
#> Standardized Monte Carlo Confidence Intervals
#> Test passed
#> Test passed
#> Test passed
#> Test passed
```

```
#> test-external-betaMC-s-cor-mc
```

```
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> [[1]]
#> [[1]][[1]]
#> [[1]][[1]]$value
#> [[1]][[1]]$value[[1]]
#> [1] TRUE
#>
```

```
#>
#> [[1]][[1]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[2]]
#> [[1]][[2]]$value
#> [[1]][[2]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[2]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[3]]
#> [[1]][[3]]$value
#> [[1]][[3]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[3]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[4]]
#> [[1]][[4]]$value
#> [[1]][[4]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[4]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[5]]
#> [[1]][[5]]$value
#> [[1]][[5]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[5]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[6]]
```

```
#> [[1]][[6]]$value
#> [[1]][[6]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[6]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[7]]
#> [[1]][[7]]$value
#> [[1]][[7]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[7]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[8]]
#> [[1]][[8]]$value
#> [[1]][[8]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[8]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[9]]
#> [[1]][[9]]$value
#> [[1]][[9]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[9]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[10]]
#> [[1]][[10]]$value
#> [[1]][[10]]$value[[1]]
#>           beta1 beta2 rsq sigmax1x1 sigmax2x1 sigmax2x2
#> sigmaysq      1     1  -2      0.25       0.5      0.25
#> sigmayx1      1     0   0      0.50       0.5      0.00
```

```
#> sigmayx2      0     1   0      0.00       0.5      0.50
#> sigmax1x1     0     0   0      1.00       0.0      0.00
#> sigmax2x1     0     0   0      0.00       1.0      0.00
#> sigmax2x2     0     0   0      0.00       0.0      1.00
#>
#>
#> [[1]][[10]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[11]]
#> [[1]][[11]]$value
#> [[1]][[11]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[11]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[12]]
#> [[1]][[12]]$value
#> [[1]][[12]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[12]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[13]]
#> [[1]][[13]]$value
#> [[1]][[13]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[13]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[14]]
#> [[1]][[14]]$value
#> [[1]][[14]]$value[[1]]
#> [1] TRUE
#>
#>
```

```
#> [[1]][[14]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[15]]
#> [[1]][[15]]$value
#> [[1]][[15]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[15]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[16]]
#> [[1]][[16]]$value
#> [[1]][[16]]$value[[1]]
#> [1] TRUE
#>
#>
#> [[1]][[16]]$visible
#> [1] TRUE
```

Environment

```
ls()

#> [1] "nas1982" "root"
```

Class

```
#> [[1]]
#> [1] "data.frame"
#>
#> [[2]]
#> [1] "root_criterion"
```

References

Pesigan, I. J. A., & Cheung, S. F. (2023). Monte Carlo confidence intervals for the indirect effect with missing data. *Behavior Research Methods*, *56*(3), 1678–1696. https://doi.org/10.3758/s13428-023-02114-4

R Core Team. (2024). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing. Vienna, Austria. https://www.R-project.org/