betaMC: Internal Tests

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Tests

```
#> test-betaMC-beta-mc-methods
#> Call:
#> BetaMC(object = object, R = R)
#>
#> Standardized regression slopes
#> type = "hc3"
#>           est     se R  0.05%    0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC  0.4951 0.0913 5 0.3166 0.3193 0.3311 0.5358 0.5369 0.5372
#> PCTGRT  0.3915 0.1037 5 0.1801 0.1836 0.1988 0.4410 0.4441 0.4447
#> PCTSUPP 0.2632 0.0881 5 0.1532 0.1548 0.1621 0.3700 0.3716 0.3719
#> Call:
#> BetaMC(object = object, R = R)
#>
#> Standardized regression slopes
#> type = "hc3"
#> Call:
#> BetaMC(object = object, R = R)
#>
#> Standardized regression slopes
#> type = "hc3"
#>          est     se R 0.05%  0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC 0.7622 0.0676 5 0.686 0.686 0.6864 0.8364 0.8397 0.8405
#> Call:
#> BetaMC(object = object, R = R)
#>
#> Standardized regression slopes
#> type = "hc3"

#> test-betaMC-diff-beta-mc-methods

#> Difference between standardized regression coefficients
#> type = "mvn"
#>                   est     se R    0.05%    0.5%    2.5%  97.5%  99.5% 99.95%
#> NARTIC-PCTGRT  0.1037 0.1451 5 -0.0615 -0.0606 -0.0563 0.2544 0.2548 0.2548
#> NARTIC-PCTSUPP 0.2319 0.0941 5  0.1486  0.1486  0.1486 0.3522 0.3558 0.3566
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#> PCTGRT-PCTSUPP 0.1282 0.0568 5  0.0604  0.0612  0.0645 0.2053 0.2096 0.2106
#> Difference between standardized regression coefficients
#> type = "mvn"
#> Difference between standardized regression coefficients
#> type = "adf"
#>                    est     se R   0.05%    0.5%    2.5%  97.5%  99.5% 99.95%
#> NARTIC-PCTGRT   0.1037 0.1231 5 -0.0056 -0.0054 -0.0043 0.2564 0.2618 0.2630
#> NARTIC-PCTSUPP  0.2319 0.1153 5  0.0328  0.0337  0.0379 0.2918 0.2957 0.2965
#> PCTGRT-PCTSUPP  0.1282 0.0482 5 -0.0151 -0.0144 -0.0112 0.1000 0.1007 0.1008
#> Difference between standardized regression coefficients
#> type = "adf"
#> Difference between standardized regression coefficients
#> type = "hc0"
#>                    est     se R   0.05%    0.5%    2.5%  97.5%  99.5% 99.95%
#> NARTIC-PCTGRT   0.1037 0.0953 5  0.0239  0.0243  0.0259 0.2462 0.2526 0.2540
#> NARTIC-PCTSUPP  0.2319 0.1394 5  0.0305  0.0310  0.0330 0.3600 0.3724 0.3752
#> PCTGRT-PCTSUPP  0.1282 0.1137 5 -0.1190 -0.1168 -0.1067 0.1713 0.1757 0.1767
#> Difference between standardized regression coefficients
#> type = "hc0"
#> Difference between standardized regression coefficients
#> type = "hc1"
#>                    est     se R   0.05%    0.5%    2.5%  97.5%  99.5% 99.95%
#> NARTIC-PCTGRT   0.1037 0.1418 5  0.0980  0.0981  0.0987 0.4064 0.4269 0.4315
#> NARTIC-PCTSUPP  0.2319 0.0923 5  0.1592  0.1606  0.1672 0.4013 0.4111 0.4134
#> PCTGRT-PCTSUPP  0.1282 0.0775 5 -0.0183 -0.0171 -0.0118 0.1741 0.1775 0.1783
#> Difference between standardized regression coefficients
#> type = "hc1"
#> Difference between standardized regression coefficients
#> type = "hc2"
#>                    est     se R   0.05%    0.5%    2.5%  97.5%  99.5% 99.95%
#> NARTIC-PCTGRT   0.1037 0.1410 5 -0.0679 -0.0658 -0.0565 0.2980 0.3109 0.3138
#> NARTIC-PCTSUPP  0.2319 0.0755 5  0.1863  0.1867  0.1885 0.3504 0.3511 0.3512
#> PCTGRT-PCTSUPP  0.1282 0.1865 5 -0.1051 -0.1007 -0.0811 0.3964 0.4148 0.4189
#> Difference between standardized regression coefficients
#> type = "hc2"
#> Difference between standardized regression coefficients
#> type = "hc3"
#>                    est     se R   0.05%    0.5%    2.5%  97.5%  99.5% 99.95%
#> NARTIC-PCTGRT   0.1037 0.2010 5 -0.2190 -0.2118 -0.1797 0.2520 0.2521 0.2521
#> NARTIC-PCTSUPP  0.2319 0.1564 5  0.1277  0.1318  0.1501 0.5202 0.5234 0.5242
#> PCTGRT-PCTSUPP  0.1282 0.1065 5  0.1043  0.1055  0.1111 0.3466 0.3469 0.3470
#> Difference between standardized regression coefficients
#> type = "hc3"
#> Difference between standardized regression coefficients
#> type = "hc4"
#>                    est     se R   0.05%    0.5%    2.5%  97.5%  99.5% 99.95%
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#> NARTIC-PCTGRT  0.1037 0.1542 5 -0.1079 -0.1062 -0.0988 0.2607 0.2664 0.2676
#> NARTIC-PCTSUPP 0.2319 0.2102 5  0.0855  0.0865  0.0909 0.5902 0.6175 0.6237
#> PCTGRT-PCTSUPP 0.1282 0.1061 5  0.0857  0.0863  0.0886 0.3403 0.3533 0.3563
#> Difference between standardized regression coefficients
#> type = "hc4"
#> Difference between standardized regression coefficients
#> type = "hc4m"
#>                   est     se R   0.05%    0.5%    2.5% 97.5% 99.5% 99.95%
#> NARTIC-PCTGRT  0.1037 0.0963 5 -0.0965 -0.0962 -0.0951 0.1237 0.1289 0.1301
#> NARTIC-PCTSUPP 0.2319 0.0585 5  0.1296  0.1300  0.1316 0.2716 0.2763 0.2774
#> PCTGRT-PCTSUPP 0.1282 0.0480 5  0.1367  0.1369  0.1378 0.2441 0.2462 0.2466
#> Difference between standardized regression coefficients
#> type = "hc4m"
#> Difference between standardized regression coefficients
#> type = "hc5"
#>                   est     se R   0.05%    0.5%    2.5% 97.5% 99.5% 99.95%
#> NARTIC-PCTGRT  0.1037 0.1687 5 -0.2089 -0.2058 -0.1917 0.1949 0.1961 0.1964
#> NARTIC-PCTSUPP 0.2319 0.1247 5  0.0760  0.0777  0.0850 0.3746 0.3781 0.3788
#> PCTGRT-PCTSUPP 0.1282 0.1935 5 -0.1043 -0.0999 -0.0803 0.3704 0.3752 0.3763
#> Difference between standardized regression coefficients
#> type = "hc5"

#> test-betaMC-diff-beta-mc

#> Difference between standardized regression coefficients
#> type = "mvn"
#> Test passed
#> Difference between standardized regression coefficients
#> type = "adf"
#> Test passed
#> Difference between standardized regression coefficients
#> type = "hc0"
#> Test passed
#> Difference between standardized regression coefficients
#> type = "hc1"
#> Test passed
#> Difference between standardized regression coefficients
#> type = "hc2"
#> Test passed
#> Difference between standardized regression coefficients
#> type = "hc3"
#> Test passed
#> Difference between standardized regression coefficients
#> type = "hc4"
#> Test passed
#> Difference between standardized regression coefficients
#> type = "hc4m"
```

```
#> Test passed
#> Difference between standardized regression coefficients
#> type = "hc5"
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed

#> test-betaMC-p-cor-beta-mc-methods

#> Semipartial correlation (*)
#> Squared semipartial correlation (^)
#> Squared partial correlation (+)
#> type = "mvn"
#>             est     se R  0.05%    0.5%    2.5%  97.5%  99.5% 99.95%
#> NARTIC*  0.4312 0.0531 5 0.3197 0.3210 0.3268 0.4491 0.4492 0.4492
#> PCTGRT*  0.3430 0.0601 5 0.2428 0.2429 0.2430 0.3811 0.3875 0.3889
#> PCTSUPP* 0.2385 0.1154 5 0.1230 0.1236 0.1264 0.3944 0.4060 0.4086
#> NARTIC^  0.1859 0.0411 5 0.1022 0.1031 0.1073 0.2017 0.2018 0.2018
#> PCTGRT^  0.1177 0.0380 5 0.0590 0.0590 0.0590 0.1458 0.1503 0.1513
#> PCTSUPP^ 0.0569 0.0628 5 0.0151 0.0153 0.0161 0.1575 0.1652 0.1670
#> NARTIC+  0.4874 0.1452 5 0.2629 0.2643 0.2707 0.6040 0.6091 0.6103
#> PCTGRT+  0.3757 0.1187 5 0.1725 0.1732 0.1765 0.4310 0.4315 0.4316
#> PCTSUPP+ 0.2254 0.1191 5 0.0488 0.0509 0.0599 0.3576 0.3662 0.3682
#> Semipartial correlation (*)
#> Squared semipartial correlation (^)
#> Squared partial correlation (+)
#> type = "mvn"
#> Semipartial correlation (*)
#> Squared semipartial correlation (^)
#> Squared partial correlation (+)
#> type = "adf"
#>             est     se R  0.05%    0.5%    2.5%  97.5%  99.5% 99.95%
#> NARTIC*  0.4312 0.0880 5 0.4003 0.4004 0.4010 0.6029 0.6132 0.6155
#> PCTGRT*  0.3430 0.0933 5 0.1627 0.1642 0.1706 0.4049 0.4134 0.4153
#> PCTSUPP* 0.2385 0.0871 5 0.1876 0.1879 0.1888 0.3708 0.3717 0.3719
#> NARTIC^  0.1859 0.0899 5 0.1602 0.1603 0.1608 0.3650 0.3763 0.3789
#> PCTGRT^  0.1177 0.0545 5 0.0265 0.0271 0.0297 0.1650 0.1711 0.1725
#> PCTSUPP^ 0.0569 0.0493 5 0.0352 0.0353 0.0357 0.1375 0.1382 0.1383
#> NARTIC+  0.4874 0.0793 5 0.4318 0.4322 0.4340 0.6227 0.6298 0.6313
#> PCTGRT+  0.3757 0.1301 5 0.1070 0.1093 0.1196 0.4483 0.4598 0.4624
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#> PCTSUPP+ 0.2254 0.1155 5 0.1499 0.1503 0.1521 0.3921 0.3928 0.3929
#> Semipartial correlation (*)
#> Squared semipartial correlation (^)
#> Squared partial correlation (+)
#> type = "adf"
#> Semipartial correlation (*)
#> Squared semipartial correlation (^)
#> Squared partial correlation (+)
#> type = "hc0"
#>             est     se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC*  0.4312 0.0650 5 0.3270 0.3278 0.3314 0.4829 0.4851 0.4856
#> PCTGRT*  0.3430 0.0763 5 0.2290 0.2297 0.2331 0.4185 0.4242 0.4255
#> PCTSUPP* 0.2385 0.0880 5 0.1200 0.1220 0.1310 0.3560 0.3642 0.3660
#> NARTIC^  0.1859 0.0528 5 0.1069 0.1075 0.1100 0.2332 0.2353 0.2358
#> PCTGRT^  0.1177 0.0499 5 0.0524 0.0528 0.0545 0.1756 0.1801 0.1810
#> PCTSUPP^ 0.0569 0.0435 5 0.0144 0.0151 0.0183 0.1277 0.1328 0.1340
#> NARTIC+  0.4874 0.1046 5 0.3508 0.3523 0.3591 0.6152 0.6217 0.6232
#> PCTGRT+  0.3757 0.1158 5 0.2148 0.2162 0.2224 0.4769 0.4776 0.4778
#> PCTSUPP+ 0.2254 0.1238 5 0.0825 0.0851 0.0967 0.4136 0.4261 0.4289
#> Semipartial correlation (*)
#> Squared semipartial correlation (^)
#> Squared partial correlation (+)
#> type = "hc0"
#> Semipartial correlation (*)
#> Squared semipartial correlation (^)
#> Squared partial correlation (+)
#> type = "hc1"
#>             est     se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC*  0.4312 0.0330 5 0.3627 0.3631 0.3649 0.4426 0.4439 0.4443
#> PCTGRT*  0.3430 0.0469 5 0.2962 0.2964 0.2970 0.4015 0.4077 0.4091
#> PCTSUPP* 0.2385 0.0297 5 0.2130 0.2131 0.2135 0.2766 0.2772 0.2773
#> NARTIC^  0.1859 0.0266 5 0.1316 0.1319 0.1332 0.1959 0.1971 0.1974
#> PCTGRT^  0.1177 0.0333 5 0.0878 0.0878 0.0882 0.1618 0.1663 0.1674
#> PCTSUPP^ 0.0569 0.0146 5 0.0454 0.0454 0.0456 0.0765 0.0768 0.0769
#> NARTIC+  0.4874 0.0673 5 0.3232 0.3248 0.3320 0.4973 0.5008 0.5016
#> PCTGRT+  0.3757 0.0812 5 0.2318 0.2327 0.2370 0.4362 0.4419 0.4432
#> PCTSUPP+ 0.2254 0.0616 5 0.1740 0.1740 0.1743 0.3084 0.3165 0.3183
#> Semipartial correlation (*)
#> Squared semipartial correlation (^)
#> Squared partial correlation (+)
#> type = "hc1"
#> Semipartial correlation (*)
#> Squared semipartial correlation (^)
#> Squared partial correlation (+)
#> type = "hc2"
#>             est     se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
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#> NARTIC*   0.4312 0.0328 5 0.3585 0.3586 0.3589 0.4300 0.4311 0.4314
#> PCTGRT*   0.3430 0.0591 5 0.2570 0.2581 0.2631 0.4099 0.4137 0.4145
#> PCTSUPP*  0.2385 0.1240 5 0.0336 0.0367 0.0502 0.3357 0.3360 0.3361
#> NARTIC^   0.1859 0.0259 5 0.1285 0.1286 0.1288 0.1849 0.1859 0.1861
#> PCTGRT^   0.1177 0.0399 5 0.0660 0.0667 0.0696 0.1682 0.1712 0.1718
#> PCTSUPP^  0.0569 0.0488 5 0.0012 0.0019 0.0051 0.1127 0.1129 0.1129
#> NARTIC+   0.4874 0.0557 5 0.2880 0.2897 0.2972 0.4256 0.4260 0.4260
#> PCTGRT+   0.3757 0.0861 5 0.2196 0.2208 0.2261 0.4391 0.4510 0.4537
#> PCTSUPP+  0.2254 0.1219 5 0.0056 0.0080 0.0186 0.3142 0.3188 0.3199
#> Semipartial correlation (*)
#> Squared semipartial correlation (^)
#> Squared partial correlation (+)
#> type = "hc2"
#> Semipartial correlation (*)
#> Squared semipartial correlation (^)
#> Squared partial correlation (+)
#> type = "hc3"
#>              est     se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC*   0.4312 0.0602 5 0.3825 0.3833 0.3870 0.5244 0.5251 0.5252
#> PCTGRT*   0.3430 0.1127 5 0.2069 0.2081 0.2137 0.4931 0.5039 0.5063
#> PCTSUPP*  0.2385 0.0913 5 0.1576 0.1598 0.1695 0.3826 0.3833 0.3834
#> NARTIC^   0.1859 0.0550 5 0.1463 0.1470 0.1500 0.2750 0.2757 0.2759
#> PCTGRT^   0.1177 0.0822 5 0.0428 0.0434 0.0461 0.2448 0.2543 0.2564
#> PCTSUPP^  0.0569 0.0500 5 0.0249 0.0258 0.0301 0.1464 0.1469 0.1470
#> NARTIC+   0.4874 0.0881 5 0.3342 0.3352 0.3397 0.5527 0.5581 0.5594
#> PCTGRT+   0.3757 0.0984 5 0.1689 0.1699 0.1743 0.4154 0.4233 0.4251
#> PCTSUPP+  0.2254 0.1069 5 0.0670 0.0707 0.0870 0.3281 0.3294 0.3297
#> Semipartial correlation (*)
#> Squared semipartial correlation (^)
#> Squared partial correlation (+)
#> type = "hc3"
#> Semipartial correlation (*)
#> Squared semipartial correlation (^)
#> Squared partial correlation (+)
#> type = "hc4"
#>              est     se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC*   0.4312 0.1245 5 0.2050 0.2059 0.2102 0.5005 0.5064 0.5077
#> PCTGRT*   0.3430 0.1027 5 0.1424 0.1445 0.1542 0.4046 0.4087 0.4096
#> PCTSUPP*  0.2385 0.0360 5 0.2487 0.2489 0.2495 0.3281 0.3293 0.3296
#> NARTIC^   0.1859 0.0884 5 0.0420 0.0425 0.0444 0.2510 0.2566 0.2578
#> PCTGRT^   0.1177 0.0564 5 0.0203 0.0212 0.0251 0.1639 0.1671 0.1678
#> PCTSUPP^  0.0569 0.0207 5 0.0619 0.0619 0.0623 0.1077 0.1085 0.1086
#> NARTIC+   0.4874 0.1440 5 0.2679 0.2683 0.2701 0.5778 0.5803 0.5808
#> PCTGRT+   0.3757 0.1639 5 0.1500 0.1521 0.1618 0.5244 0.5260 0.5263
#> PCTSUPP+  0.2254 0.0416 5 0.2696 0.2710 0.2775 0.3681 0.3685 0.3686
#> Semipartial correlation (*)
```

```
#> Squared semipartial correlation (^)
#> Squared partial correlation (+)
#> type = "hc4"
#> Semipartial correlation (*)
#> Squared semipartial correlation (^)
#> Squared partial correlation (+)
#> type = "hc4m"
#>             est     se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC*   0.4312 0.0609 5 0.3336 0.3350 0.3409 0.4915 0.4943 0.4949
#> PCTGRT*   0.3430 0.0950 5 0.2088 0.2115 0.2235 0.4482 0.4499 0.4503
#> PCTSUPP*  0.2385 0.0405 5 0.1882 0.1882 0.1884 0.2758 0.2777 0.2781
#> NARTIC^   0.1859 0.0504 5 0.1113 0.1123 0.1167 0.2417 0.2443 0.2449
#> PCTGRT^   0.1177 0.0619 5 0.0436 0.0452 0.0520 0.2009 0.2024 0.2028
#> PCTSUPP^  0.0569 0.0186 5 0.0354 0.0354 0.0355 0.0761 0.0771 0.0773
#> NARTIC+   0.4874 0.1218 5 0.3350 0.3356 0.3384 0.6033 0.6052 0.6056
#> PCTGRT+   0.3757 0.1186 5 0.2228 0.2246 0.2326 0.5003 0.5022 0.5026
#> PCTSUPP+  0.2254 0.0830 5 0.1054 0.1065 0.1113 0.2980 0.2997 0.3000
#> Semipartial correlation (*)
#> Squared semipartial correlation (^)
#> Squared partial correlation (+)
#> type = "hc4m"
#> Semipartial correlation (*)
#> Squared semipartial correlation (^)
#> Squared partial correlation (+)
#> type = "hc5"
#>             est     se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> NARTIC*   0.4312 0.0411 5 0.3878 0.3882 0.3896 0.4872 0.4915 0.4924
#> PCTGRT*   0.3430 0.0486 5 0.3151 0.3156 0.3178 0.4306 0.4327 0.4331
#> PCTSUPP*  0.2385 0.0603 5 0.1355 0.1367 0.1418 0.2939 0.2982 0.2992
#> NARTIC^   0.1859 0.0364 5 0.1504 0.1507 0.1518 0.2376 0.2416 0.2425
#> PCTGRT^   0.1177 0.0362 5 0.0993 0.0996 0.1011 0.1855 0.1872 0.1876
#> PCTSUPP^  0.0569 0.0264 5 0.0184 0.0188 0.0205 0.0867 0.0890 0.0895
#> NARTIC+   0.4874 0.0784 5 0.4279 0.4281 0.4289 0.6040 0.6125 0.6144
#> PCTGRT+   0.3757 0.0467 5 0.3573 0.3583 0.3628 0.4795 0.4820 0.4826
#> PCTSUPP+  0.2254 0.0849 5 0.0725 0.0746 0.0836 0.2937 0.2979 0.2988
#> Semipartial correlation (*)
#> Squared semipartial correlation (^)
#> Squared partial correlation (+)
#> type = "hc5"

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

#> Semipartial correlation (*)
#> Squared semipartial correlation (^)
#> Squared partial correlation (+)
#> type = "mvn"
#> Test passed
```

```
#> Semipartial correlation (*)
#> Squared semipartial correlation (^)
#> Squared partial correlation (+)
#> type = "adf"
#> Test passed
#> Semipartial correlation (*)
#> Squared semipartial correlation (^)
#> Squared partial correlation (+)
#> type = "hc0"
#> Test passed
#> Semipartial correlation (*)
#> Squared semipartial correlation (^)
#> Squared partial correlation (+)
#> type = "hc1"
#> Test passed
#> Semipartial correlation (*)
#> Squared semipartial correlation (^)
#> Squared partial correlation (+)
#> type = "hc2"
#> Test passed
#> Semipartial correlation (*)
#> Squared semipartial correlation (^)
#> Squared partial correlation (+)
#> type = "hc3"
#> Test passed
#> Semipartial correlation (*)
#> Squared semipartial correlation (^)
#> Squared partial correlation (+)
#> type = "hc4"
#> Test passed
#> Semipartial correlation (*)
#> Squared semipartial correlation (^)
#> Squared partial correlation (+)
#> type = "hc4m"
#> Test passed
#> Semipartial correlation (*)
#> Squared semipartial correlation (^)
#> Squared partial correlation (+)
#> type = "hc5"
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
#> Test passed
```

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

#> test-betaMC-r-sq-beta-mc-methods

#> Multiple correlation
#> type = "mvn"
#>        est      se R  0.05%    0.5%    2.5%  97.5%  99.5% 99.95%
#> rsq 0.8045 0.0557 5 0.6983 0.6990 0.7020 0.8394 0.8439 0.8449
#> adj 0.7906 0.0596 5 0.6768 0.6775 0.6807 0.8280 0.8328 0.8338
#> Multiple correlation
#> type = "mvn"
#> Multiple correlation
#> type = "adf"
#>        est      se R  0.05%    0.5%    2.5%  97.5%  99.5% 99.95%
#> rsq 0.8045 0.0708 5 0.6787 0.6807 0.6895 0.8574 0.8592 0.8596
#> adj 0.7906 0.0758 5 0.6558 0.6579 0.6673 0.8472 0.8491 0.8495
#> Multiple correlation
#> type = "adf"
#> Multiple correlation
#> type = "hc0"
#>        est      se R  0.05%    0.5%    2.5%  97.5%  99.5% 99.95%
#> rsq 0.8045 0.0322 5 0.7314 0.7321 0.7351 0.8160 0.8182 0.8186
#> adj 0.7906 0.0345 5 0.7123 0.7130 0.7162 0.8028 0.8052 0.8057
#> Multiple correlation
#> type = "hc0"
#> Multiple correlation
#> type = "hc1"
#>        est      se R  0.05%    0.5%    2.5%  97.5%  99.5% 99.95%
#> rsq 0.8045 0.0456 5 0.7331 0.7342 0.7391 0.8484 0.8496 0.8499
#> adj 0.7906 0.0489 5 0.7140 0.7152 0.7204 0.8376 0.8389 0.8391
#> Multiple correlation
#> type = "hc1"
#> Multiple correlation
#> type = "hc2"
#>        est      se R  0.05%    0.5%    2.5%  97.5%  99.5% 99.95%
#> rsq 0.8045 0.0532 5 0.7208 0.7211 0.7222 0.8496 0.8555 0.8568
#> adj 0.7906 0.0570 5 0.7009 0.7012 0.7024 0.8389 0.8452 0.8466
#> Multiple correlation
#> type = "hc2"
#> Multiple correlation
#> type = "hc3"
#>        est      se R  0.05%    0.5%    2.5%  97.5%  99.5% 99.95%
#> rsq 0.8045 0.0474 5 0.7490 0.7503 0.7559 0.8670 0.8679 0.8681
#> adj 0.7906 0.0508 5 0.7311 0.7325 0.7384 0.8575 0.8584 0.8586
```

```
#> Multiple correlation
#> type = "hc3"
#> Multiple correlation
#> type = "hc4"
#>        est      se R  0.05%   0.5%    2.5%   97.5%  99.5% 99.95%
#> rsq 0.8045 0.0492 5 0.7497 0.7501 0.7517 0.8536 0.8543 0.8545
#> adj 0.7906 0.0527 5 0.7318 0.7322 0.7339 0.8431 0.8439 0.8441
#> Multiple correlation
#> type = "hc4"
#> Multiple correlation
#> type = "hc4m"
#>        est      se R  0.05%   0.5%    2.5%   97.5%  99.5% 99.95%
#> rsq 0.8045 0.0688 5 0.7181 0.7194 0.7249 0.8929 0.8970 0.8979
#> adj 0.7906 0.0737 5 0.6980 0.6993 0.7052 0.8852 0.8896 0.8906
#> Multiple correlation
#> type = "hc4m"
#> Multiple correlation
#> type = "hc5"
#>        est      se R  0.05%   0.5%    2.5%   97.5%  99.5% 99.95%
#> rsq 0.8045 0.0624 5 0.6748 0.6752 0.6769 0.8137 0.8160 0.8165
#> adj 0.7906 0.0668 5 0.6516 0.6520 0.6539 0.8004 0.8028 0.8034
#> Multiple correlation
#> type = "hc5"
#> test-betaMC-r-sq-beta-mc

#> Multiple correlation
#> type = "mvn"
#> Test passed
#> Multiple correlation
#> type = "adf"
#> Test passed
#> Multiple correlation
#> type = "hc0"
#> Test passed
#> Multiple correlation
#> type = "hc1"
#> Test passed
#> Multiple correlation
#> type = "hc2"
#> Test passed
#> Multiple correlation
#> type = "hc3"
#> Test passed
#> Multiple correlation
#> type = "hc4"
#> Test passed
```

```
#> Multiple correlation
#> type = "hc4m"
#> Test passed
#> Multiple correlation
#> type = "hc5"
#> Test passed
#> Multiple correlation
#> type = "mvn"
#> Test passed
#> Multiple correlation
#> type = "adf"
#> Test passed
#> Multiple correlation
#> type = "hc0"
#> Test passed
#> Multiple correlation
#> type = "hc1"
#> Test passed
#> Multiple correlation
#> type = "hc2"
#> Test passed
#> Multiple correlation
#> type = "hc3"
#> Test passed
#> Multiple correlation
#> type = "hc4"
#> Test passed
#> Multiple correlation
#> type = "hc4m"
#> Test passed
#> Multiple correlation
#> type = "hc5"
#> Test passed

#> test-betaMC-vcov

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

```
#> [[1]][[1]]$value[[1]]
#>      2.5%     97.5%
#> 0.6863655 0.8364227
#>
#>
#> [[1]][[1]]$visible
#> [1] TRUE
#>
#>
#> [[1]][[2]]
#> [[1]][[2]]$value
#> [[1]][[2]]$value[[1]]
#>                        2.5%     97.5%
#> NARTIC-PCTGRT   -0.19174365 0.1948724
#> NARTIC-PCTSUPP   0.08498753 0.3746411
#> PCTGRT-PCTSUPP  -0.08032043 0.3704273
#>
#>
#> [[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]]
#>                2.5%      97.5%
#> NARTIC*   0.38963038 0.48720431
#> PCTGRT*   0.31780348 0.43060898
#> PCTSUPP*  0.14176365 0.29393790
#> NARTIC^   0.15184155 0.23762389
#> PCTGRT^   0.10106942 0.18548320
#> PCTSUPP^  0.02046334 0.08665967
#> NARTIC+   0.42885056 0.60396322
#> PCTGRT+   0.36282289 0.47947218
#> PCTSUPP+  0.08360943 0.29370330
```

```
#>
#>
#> [[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]]
#>           2.5%      97.5%
#> rsq 0.6769410 0.8137270
#> adj 0.6538654 0.8004217
#>
#>
#> [[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]]
#> Call:
#> BetaMC(object = object, R = 5L, decomposition = "svd")
#>
#> Standardized regression slopes
#> type = "hc3"
```

```
#>       est     se R  0.05%   0.5%   2.5%  97.5%  99.5% 99.95%
#> x1 0.4830 0.0163 5 0.4622 0.4623 0.4629 0.5021 0.5034 0.5037
#> x2 0.4857 0.0418 5 0.4440 0.4443 0.4458 0.5457 0.5516 0.5529
#>
#>
#> [[1]][[8]]$visible
#> [1] TRUE
```

Environment

```
ls()

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

Class

```
#> [[1]]
#> [1] "data.frame"
#>
#> [[2]]
#> [1] "root_criterion"
#>
#> [[3]]
#> [1] "character"
```

References

R Core Team. (2022). *R: A language and environment for statistical computing.* R Foundation for Statistical Computing. Vienna, Austria. https://www.R-project.org/