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library(knitr)
source("setup.R")

## -- Attaching core tidyverse packages ----- tidyverse 2.0.0 --
## v dplyr     1.1.4     v readr     2.1.5
## vforcats   1.0.0     v stringr   1.5.2
## v ggplot2   4.0.0     v tibble    3.3.0
## v lubridate 1.9.3     v tidyr    1.3.1
## v purrr    1.0.2
## -- Conflicts ----- tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()   masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
##
## Attaching package: 'zoo'
##
##
## The following objects are masked from 'package:base':
##
##      as.Date, as.Date.numeric

## iteration: 1 beta_I: 0.5 acceptance rate: 0
## iteration: 2 beta_I: 0.5 acceptance rate: 0
## iteration: 3 beta_I: 0.4985912 acceptance rate: 0.3333333
## iteration: 4 beta_I: 0.4985912 acceptance rate: 0.25
## iteration: 5 beta_I: 0.4936638 acceptance rate: 0.4
## iteration: 6 beta_I: 0.4936638 acceptance rate: 0.3333333
## iteration: 7 beta_I: 0.486335 acceptance rate: 0.4285714
## iteration: 8 beta_I: 0.486335 acceptance rate: 0.375
## iteration: 9 beta_I: 0.486335 acceptance rate: 0.3333333
## iteration: 10 beta_I: 0.4773954 acceptance rate: 0.4
## iteration: 11 beta_I: 0.4773954 acceptance rate: 0.3636364
## iteration: 12 beta_I: 0.473072 acceptance rate: 0.4166667
## iteration: 13 beta_I: 0.4695551 acceptance rate: 0.4615385
## iteration: 14 beta_I: 0.4695551 acceptance rate: 0.4285714
## iteration: 15 beta_I: 0.4695551 acceptance rate: 0.4
## iteration: 16 beta_I: 0.4653974 acceptance rate: 0.4375
## iteration: 17 beta_I: 0.4637651 acceptance rate: 0.4705882
## iteration: 18 beta_I: 0.4637651 acceptance rate: 0.4444444
## iteration: 19 beta_I: 0.4637651 acceptance rate: 0.4210526
## iteration: 20 beta_I: 0.4637651 acceptance rate: 0.4
## iteration: 21 beta_I: 0.4637651 acceptance rate: 0.3809524
## iteration: 22 beta_I: 0.4637651 acceptance rate: 0.3636364
## iteration: 23 beta_I: 0.4637651 acceptance rate: 0.3478261
## iteration: 24 beta_I: 0.4637651 acceptance rate: 0.3333333
## iteration: 25 beta_I: 0.4637651 acceptance rate: 0.32
## iteration: 26 beta_I: 0.4637651 acceptance rate: 0.3076923
## iteration: 27 beta_I: 0.4637651 acceptance rate: 0.2962963
## iteration: 28 beta_I: 0.4637651 acceptance rate: 0.2857143
## iteration: 29 beta_I: 0.46299916 acceptance rate: 0.3103448
## iteration: 30 beta_I: 0.4637512 acceptance rate: 0.3333333
## iteration: 31 beta_I: 0.4637512 acceptance rate: 0.3225806
## iteration: 32 beta_I: 0.4637512 acceptance rate: 0.3125
## iteration: 33 beta_I: 0.4637512 acceptance rate: 0.3030303

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## iteration: 34 beta_I: 0.4637512 acceptance rate: 0.2941176
## iteration: 35 beta_I: 0.4637512 acceptance rate: 0.2857143
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## iteration: 37 beta_I: 0.4623059 acceptance rate: 0.2972973
## iteration: 38 beta_I: 0.4646334 acceptance rate: 0.3157895
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## iteration: 40 beta_I: 0.4620574 acceptance rate: 0.325
## iteration: 41 beta_I: 0.4622493 acceptance rate: 0.3414634
## iteration: 42 beta_I: 0.4635622 acceptance rate: 0.3571429
## iteration: 43 beta_I: 0.4635622 acceptance rate: 0.3488372
## iteration: 44 beta_I: 0.4634568 acceptance rate: 0.3636364
## iteration: 45 beta_I: 0.4634568 acceptance rate: 0.3555556
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## iteration: 76 beta_I: 0.4637526 acceptance rate: 0.25
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## iteration: 346 beta_I: 0.4640779 acceptance rate: 0.2023121
## iteration: 347 beta_I: 0.4640779 acceptance rate: 0.2017291
## iteration: 348 beta_I: 0.4643893 acceptance rate: 0.204023
## iteration: 349 beta_I: 0.4643893 acceptance rate: 0.2034384
## iteration: 350 beta_I: 0.4643893 acceptance rate: 0.2028571
## iteration: 351 beta_I: 0.4643893 acceptance rate: 0.2022792
## iteration: 352 beta_I: 0.4643893 acceptance rate: 0.2017045
## iteration: 353 beta_I: 0.4643893 acceptance rate: 0.2011331
## iteration: 354 beta_I: 0.4643893 acceptance rate: 0.200565
## iteration: 355 beta_I: 0.4643893 acceptance rate: 0.2
## iteration: 356 beta_I: 0.4643893 acceptance rate: 0.1994382
## iteration: 357 beta_I: 0.4643893 acceptance rate: 0.1988796
```

```
## iteration: 358 beta_I: 0.4630592 acceptance rate: 0.2011173
## iteration: 359 beta_I: 0.4630592 acceptance rate: 0.2005571
## iteration: 360 beta_I: 0.4630592 acceptance rate: 0.2
## iteration: 361 beta_I: 0.4630592 acceptance rate: 0.199446
## iteration: 362 beta_I: 0.4630592 acceptance rate: 0.198895
## iteration: 363 beta_I: 0.4635571 acceptance rate: 0.2011019
## iteration: 364 beta_I: 0.4635571 acceptance rate: 0.2005495
## iteration: 365 beta_I: 0.4635571 acceptance rate: 0.2
## iteration: 366 beta_I: 0.4633163 acceptance rate: 0.2021858
## iteration: 367 beta_I: 0.4633163 acceptance rate: 0.2016349
## iteration: 368 beta_I: 0.4633163 acceptance rate: 0.201087
## iteration: 369 beta_I: 0.4633163 acceptance rate: 0.200542
## iteration: 370 beta_I: 0.4633163 acceptance rate: 0.2
## iteration: 371 beta_I: 0.4633163 acceptance rate: 0.1994609
## iteration: 372 beta_I: 0.4633163 acceptance rate: 0.1989247
## iteration: 373 beta_I: 0.4633163 acceptance rate: 0.1983914
## iteration: 374 beta_I: 0.4633163 acceptance rate: 0.197861
## iteration: 375 beta_I: 0.4633163 acceptance rate: 0.1973333
## iteration: 376 beta_I: 0.4634109 acceptance rate: 0.1994681
## iteration: 377 beta_I: 0.4634109 acceptance rate: 0.198939
## iteration: 378 beta_I: 0.4634109 acceptance rate: 0.1984127
## iteration: 379 beta_I: 0.4634109 acceptance rate: 0.1978892
## iteration: 380 beta_I: 0.4634109 acceptance rate: 0.1973684
## iteration: 381 beta_I: 0.4634109 acceptance rate: 0.1968504
## iteration: 382 beta_I: 0.4634109 acceptance rate: 0.1963351
## iteration: 383 beta_I: 0.4634109 acceptance rate: 0.1958225
## iteration: 384 beta_I: 0.4630932 acceptance rate: 0.1979167
## iteration: 385 beta_I: 0.4630932 acceptance rate: 0.1974026
## iteration: 386 beta_I: 0.4630932 acceptance rate: 0.1968912
## iteration: 387 beta_I: 0.4630932 acceptance rate: 0.1963824
## iteration: 388 beta_I: 0.4630932 acceptance rate: 0.1958763
## iteration: 389 beta_I: 0.4630932 acceptance rate: 0.1953728
## iteration: 390 beta_I: 0.4630932 acceptance rate: 0.1948718
## iteration: 391 beta_I: 0.4630932 acceptance rate: 0.1943734
## iteration: 392 beta_I: 0.4630932 acceptance rate: 0.1938776
## iteration: 393 beta_I: 0.4630932 acceptance rate: 0.1933842
## iteration: 394 beta_I: 0.4630932 acceptance rate: 0.1928934
## iteration: 395 beta_I: 0.4633295 acceptance rate: 0.1949367
## iteration: 396 beta_I: 0.4633295 acceptance rate: 0.1944444
## iteration: 397 beta_I: 0.4633295 acceptance rate: 0.1939547
## iteration: 398 beta_I: 0.4633295 acceptance rate: 0.1934673
## iteration: 399 beta_I: 0.4633295 acceptance rate: 0.1929825
## iteration: 400 beta_I: 0.4633295 acceptance rate: 0.1925
## iteration: 401 beta_I: 0.4633295 acceptance rate: 0.19202
## iteration: 402 beta_I: 0.4631991 acceptance rate: 0.1940299
## iteration: 403 beta_I: 0.4631991 acceptance rate: 0.1935484
## iteration: 404 beta_I: 0.4631991 acceptance rate: 0.1930693
## iteration: 405 beta_I: 0.4634775 acceptance rate: 0.1950617
## iteration: 406 beta_I: 0.4634775 acceptance rate: 0.1945813
## iteration: 407 beta_I: 0.4634775 acceptance rate: 0.1941032
## iteration: 408 beta_I: 0.4634775 acceptance rate: 0.1936275
## iteration: 409 beta_I: 0.4634775 acceptance rate: 0.193154
## iteration: 410 beta_I: 0.4634775 acceptance rate: 0.1926829
## iteration: 411 beta_I: 0.4634775 acceptance rate: 0.1922141
```

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## iteration: 412 beta_I: 0.4634775 acceptance rate: 0.1917476
## iteration: 413 beta_I: 0.4634775 acceptance rate: 0.1912833
## iteration: 414 beta_I: 0.4629016 acceptance rate: 0.1932367
## iteration: 415 beta_I: 0.4629016 acceptance rate: 0.1927711
## iteration: 416 beta_I: 0.4629016 acceptance rate: 0.1923077
## iteration: 417 beta_I: 0.4629016 acceptance rate: 0.1918465
## iteration: 418 beta_I: 0.4629016 acceptance rate: 0.1913876
## iteration: 419 beta_I: 0.4629016 acceptance rate: 0.1909308
## iteration: 420 beta_I: 0.4629016 acceptance rate: 0.1904762
## iteration: 421 beta_I: 0.4629016 acceptance rate: 0.1900238
## iteration: 422 beta_I: 0.4634976 acceptance rate: 0.1919431
## iteration: 423 beta_I: 0.4634976 acceptance rate: 0.1914894
## iteration: 424 beta_I: 0.4634976 acceptance rate: 0.1910377
## iteration: 425 beta_I: 0.4634976 acceptance rate: 0.1905882
## iteration: 426 beta_I: 0.4634976 acceptance rate: 0.1901408
## iteration: 427 beta_I: 0.4634976 acceptance rate: 0.1896956
## iteration: 428 beta_I: 0.4634976 acceptance rate: 0.1892523
## iteration: 429 beta_I: 0.4634976 acceptance rate: 0.1888112
## iteration: 430 beta_I: 0.4634976 acceptance rate: 0.1883721
## iteration: 431 beta_I: 0.4634976 acceptance rate: 0.187935
## iteration: 432 beta_I: 0.4632266 acceptance rate: 0.1898148
## iteration: 433 beta_I: 0.4632266 acceptance rate: 0.1893764
## iteration: 434 beta_I: 0.4632266 acceptance rate: 0.1889401
## iteration: 435 beta_I: 0.4632266 acceptance rate: 0.1885057
## iteration: 436 beta_I: 0.4632266 acceptance rate: 0.1880734
## iteration: 437 beta_I: 0.4632266 acceptance rate: 0.187643
## iteration: 438 beta_I: 0.4632266 acceptance rate: 0.1872146
## iteration: 439 beta_I: 0.4632266 acceptance rate: 0.1867882
## iteration: 440 beta_I: 0.4632266 acceptance rate: 0.1863636
## iteration: 441 beta_I: 0.4632266 acceptance rate: 0.185941
## iteration: 442 beta_I: 0.4632266 acceptance rate: 0.1855204
## iteration: 443 beta_I: 0.4632266 acceptance rate: 0.1851016
## iteration: 444 beta_I: 0.4632266 acceptance rate: 0.1846847
## iteration: 445 beta_I: 0.4632266 acceptance rate: 0.1842697
## iteration: 446 beta_I: 0.4632266 acceptance rate: 0.1838565
## iteration: 447 beta_I: 0.4627095 acceptance rate: 0.1856823
## iteration: 448 beta_I: 0.4627095 acceptance rate: 0.1852679
## iteration: 449 beta_I: 0.4627095 acceptance rate: 0.1848552
## iteration: 450 beta_I: 0.4627095 acceptance rate: 0.1844444
## iteration: 451 beta_I: 0.4627095 acceptance rate: 0.1840355
## iteration: 452 beta_I: 0.4627095 acceptance rate: 0.1836283
## iteration: 453 beta_I: 0.4627095 acceptance rate: 0.183223
## iteration: 454 beta_I: 0.4627095 acceptance rate: 0.1828194
## iteration: 455 beta_I: 0.4627095 acceptance rate: 0.1824176
## iteration: 456 beta_I: 0.4627095 acceptance rate: 0.1820175
## iteration: 457 beta_I: 0.4627095 acceptance rate: 0.1816193
## iteration: 458 beta_I: 0.4627095 acceptance rate: 0.1812227
## iteration: 459 beta_I: 0.4639834 acceptance rate: 0.1830065
## iteration: 460 beta_I: 0.4628905 acceptance rate: 0.1847826
## iteration: 461 beta_I: 0.4628905 acceptance rate: 0.1843818
## iteration: 462 beta_I: 0.4628905 acceptance rate: 0.1839827
## iteration: 463 beta_I: 0.4628905 acceptance rate: 0.1835853
## iteration: 464 beta_I: 0.4628905 acceptance rate: 0.1831897
## iteration: 465 beta_I: 0.4628905 acceptance rate: 0.1827957
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## iteration: 466 beta_I: 0.4628905 acceptance rate: 0.1824034
## iteration: 467 beta_I: 0.4628905 acceptance rate: 0.1820128
## iteration: 468 beta_I: 0.4628905 acceptance rate: 0.1816239
## iteration: 469 beta_I: 0.4628905 acceptance rate: 0.1812367
## iteration: 470 beta_I: 0.4628905 acceptance rate: 0.1808511
## iteration: 471 beta_I: 0.4628905 acceptance rate: 0.1804671
## iteration: 472 beta_I: 0.4628905 acceptance rate: 0.1800847
## iteration: 473 beta_I: 0.4628905 acceptance rate: 0.179704
## iteration: 474 beta_I: 0.4639809 acceptance rate: 0.1814346
## iteration: 475 beta_I: 0.4639809 acceptance rate: 0.1810526
## iteration: 476 beta_I: 0.4639809 acceptance rate: 0.1806723
## iteration: 477 beta_I: 0.4635821 acceptance rate: 0.1823899
## iteration: 478 beta_I: 0.4635821 acceptance rate: 0.1820084
## iteration: 479 beta_I: 0.4635821 acceptance rate: 0.1816284
## iteration: 480 beta_I: 0.4635821 acceptance rate: 0.18125
## iteration: 481 beta_I: 0.4635821 acceptance rate: 0.1808732
## iteration: 482 beta_I: 0.4635821 acceptance rate: 0.1804979
## iteration: 483 beta_I: 0.4635821 acceptance rate: 0.1801242
## iteration: 484 beta_I: 0.4635821 acceptance rate: 0.1797521
## iteration: 485 beta_I: 0.4635821 acceptance rate: 0.1793814
## iteration: 486 beta_I: 0.4633083 acceptance rate: 0.18107
## iteration: 487 beta_I: 0.4633083 acceptance rate: 0.1806982
## iteration: 488 beta_I: 0.4633083 acceptance rate: 0.1803279
## iteration: 489 beta_I: 0.4633083 acceptance rate: 0.1799591
## iteration: 490 beta_I: 0.4633083 acceptance rate: 0.1795918
## iteration: 491 beta_I: 0.4633083 acceptance rate: 0.1792261
## iteration: 492 beta_I: 0.4633083 acceptance rate: 0.1788618
## iteration: 493 beta_I: 0.4633083 acceptance rate: 0.178499
## iteration: 494 beta_I: 0.4634923 acceptance rate: 0.1801619
## iteration: 495 beta_I: 0.4634923 acceptance rate: 0.179798
## iteration: 496 beta_I: 0.4618284 acceptance rate: 0.1814516
## iteration: 497 beta_I: 0.4647549 acceptance rate: 0.1830986
## iteration: 498 beta_I: 0.4647549 acceptance rate: 0.1827309
## iteration: 499 beta_I: 0.4647549 acceptance rate: 0.1823647
## iteration: 500 beta_I: 0.4647549 acceptance rate: 0.182
## iteration: 501 beta_I: 0.4647549 acceptance rate: 0.1816367
## iteration: 502 beta_I: 0.4647549 acceptance rate: 0.1812749
## iteration: 503 beta_I: 0.4647549 acceptance rate: 0.1809145
## iteration: 504 beta_I: 0.4647549 acceptance rate: 0.1805556
## iteration: 505 beta_I: 0.4640058 acceptance rate: 0.1821782
## iteration: 506 beta_I: 0.4640058 acceptance rate: 0.1818182
## iteration: 507 beta_I: 0.4640058 acceptance rate: 0.1814596
## iteration: 508 beta_I: 0.4640058 acceptance rate: 0.1811024
## iteration: 509 beta_I: 0.4631685 acceptance rate: 0.1827112
## iteration: 510 beta_I: 0.4631685 acceptance rate: 0.1823529
## iteration: 511 beta_I: 0.4631685 acceptance rate: 0.1819961
## iteration: 512 beta_I: 0.4631685 acceptance rate: 0.1816406
## iteration: 513 beta_I: 0.4631685 acceptance rate: 0.1812865
## iteration: 514 beta_I: 0.4631685 acceptance rate: 0.1809339
## iteration: 515 beta_I: 0.4638792 acceptance rate: 0.1825243
## iteration: 516 beta_I: 0.4638792 acceptance rate: 0.1821705
## iteration: 517 beta_I: 0.4638792 acceptance rate: 0.1818182
## iteration: 518 beta_I: 0.4638792 acceptance rate: 0.1814672
## iteration: 519 beta_I: 0.4648215 acceptance rate: 0.1830443

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## iteration: 520 beta_I: 0.4648215 acceptance rate: 0.1826923
## iteration: 521 beta_I: 0.4648215 acceptance rate: 0.1823417
## iteration: 522 beta_I: 0.4648215 acceptance rate: 0.1819923
## iteration: 523 beta_I: 0.4648215 acceptance rate: 0.1816444
## iteration: 524 beta_I: 0.4651357 acceptance rate: 0.1832061
## iteration: 525 beta_I: 0.4651357 acceptance rate: 0.1828571
## iteration: 526 beta_I: 0.4620011 acceptance rate: 0.1844106
## iteration: 527 beta_I: 0.4632736 acceptance rate: 0.1859583
## iteration: 528 beta_I: 0.4632736 acceptance rate: 0.1856061
## iteration: 529 beta_I: 0.4633747 acceptance rate: 0.1871456
## iteration: 530 beta_I: 0.4633747 acceptance rate: 0.1867925
## iteration: 531 beta_I: 0.4633747 acceptance rate: 0.1864407
## iteration: 532 beta_I: 0.4633747 acceptance rate: 0.1860902
## iteration: 533 beta_I: 0.4641804 acceptance rate: 0.1876173
## iteration: 534 beta_I: 0.4641804 acceptance rate: 0.1872659
## iteration: 535 beta_I: 0.4641804 acceptance rate: 0.1869159
## iteration: 536 beta_I: 0.4641804 acceptance rate: 0.1865672
## iteration: 537 beta_I: 0.4635671 acceptance rate: 0.1880819
## iteration: 538 beta_I: 0.4635671 acceptance rate: 0.1877323
## iteration: 539 beta_I: 0.4635671 acceptance rate: 0.187384
## iteration: 540 beta_I: 0.4636681 acceptance rate: 0.1888889
## iteration: 541 beta_I: 0.4636681 acceptance rate: 0.1885397
## iteration: 542 beta_I: 0.4636681 acceptance rate: 0.1881919
## iteration: 543 beta_I: 0.4636681 acceptance rate: 0.1878453
## iteration: 544 beta_I: 0.4636681 acceptance rate: 0.1875
## iteration: 545 beta_I: 0.4636681 acceptance rate: 0.187156
## iteration: 546 beta_I: 0.4636681 acceptance rate: 0.1868132
## iteration: 547 beta_I: 0.4636681 acceptance rate: 0.1864717
## iteration: 548 beta_I: 0.4636681 acceptance rate: 0.1861314
## iteration: 549 beta_I: 0.4636681 acceptance rate: 0.1857923
## iteration: 550 beta_I: 0.4636681 acceptance rate: 0.1854545
## iteration: 551 beta_I: 0.4636681 acceptance rate: 0.185118
## iteration: 552 beta_I: 0.4636681 acceptance rate: 0.1847826
## iteration: 553 beta_I: 0.4636681 acceptance rate: 0.1844485
## iteration: 554 beta_I: 0.4636681 acceptance rate: 0.1841155
## iteration: 555 beta_I: 0.4639043 acceptance rate: 0.1855856
## iteration: 556 beta_I: 0.4639043 acceptance rate: 0.1852518
## iteration: 557 beta_I: 0.4639043 acceptance rate: 0.1849192
## iteration: 558 beta_I: 0.4639043 acceptance rate: 0.1845878
## iteration: 559 beta_I: 0.4639043 acceptance rate: 0.1842576
## iteration: 560 beta_I: 0.4639043 acceptance rate: 0.1839286
## iteration: 561 beta_I: 0.4638193 acceptance rate: 0.1853832
## iteration: 562 beta_I: 0.4634873 acceptance rate: 0.1868327
## iteration: 563 beta_I: 0.4634873 acceptance rate: 0.1865009
## iteration: 564 beta_I: 0.4642192 acceptance rate: 0.1879433
## iteration: 565 beta_I: 0.4642192 acceptance rate: 0.1876106
## iteration: 566 beta_I: 0.4642192 acceptance rate: 0.1872792
## iteration: 567 beta_I: 0.4642192 acceptance rate: 0.1869489
## iteration: 568 beta_I: 0.4642192 acceptance rate: 0.1866197
## iteration: 569 beta_I: 0.4642192 acceptance rate: 0.1862917
## iteration: 570 beta_I: 0.4642192 acceptance rate: 0.1859649
## iteration: 571 beta_I: 0.4642192 acceptance rate: 0.1856392
## iteration: 572 beta_I: 0.4633386 acceptance rate: 0.1870629
## iteration: 573 beta_I: 0.4638231 acceptance rate: 0.1884817

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## iteration: 574 beta_I: 0.4638231 acceptance rate: 0.1881533
## iteration: 575 beta_I: 0.4638231 acceptance rate: 0.1878261
## iteration: 576 beta_I: 0.4638231 acceptance rate: 0.1875
## iteration: 577 beta_I: 0.4638231 acceptance rate: 0.187175
## iteration: 578 beta_I: 0.4624867 acceptance rate: 0.1885813
## iteration: 579 beta_I: 0.4624867 acceptance rate: 0.1882556
## iteration: 580 beta_I: 0.4624867 acceptance rate: 0.187931
## iteration: 581 beta_I: 0.4622223 acceptance rate: 0.1893287
## iteration: 582 beta_I: 0.4622223 acceptance rate: 0.1890034
## iteration: 583 beta_I: 0.463171 acceptance rate: 0.1903945
## iteration: 584 beta_I: 0.463171 acceptance rate: 0.1900685
## iteration: 585 beta_I: 0.463171 acceptance rate: 0.1897436
## iteration: 586 beta_I: 0.463171 acceptance rate: 0.1894198
## iteration: 587 beta_I: 0.463171 acceptance rate: 0.1890971
## iteration: 588 beta_I: 0.463171 acceptance rate: 0.1887755
## iteration: 589 beta_I: 0.463171 acceptance rate: 0.188455
## iteration: 590 beta_I: 0.463171 acceptance rate: 0.1881356
## iteration: 591 beta_I: 0.463171 acceptance rate: 0.1878173
## iteration: 592 beta_I: 0.4632251 acceptance rate: 0.1891892
## iteration: 593 beta_I: 0.4632251 acceptance rate: 0.1888702
## iteration: 594 beta_I: 0.4632251 acceptance rate: 0.1885522
## iteration: 595 beta_I: 0.4632251 acceptance rate: 0.1882353
## iteration: 596 beta_I: 0.4632251 acceptance rate: 0.1879195
## iteration: 597 beta_I: 0.4632251 acceptance rate: 0.1876047
## iteration: 598 beta_I: 0.4632251 acceptance rate: 0.187291
## iteration: 599 beta_I: 0.4632251 acceptance rate: 0.1869783
## iteration: 600 beta_I: 0.4632251 acceptance rate: 0.1866667
## iteration: 601 beta_I: 0.4632251 acceptance rate: 0.1863561
## iteration: 602 beta_I: 0.4632251 acceptance rate: 0.1860465
## iteration: 603 beta_I: 0.4632251 acceptance rate: 0.185738
## iteration: 604 beta_I: 0.4632251 acceptance rate: 0.1854305
## iteration: 605 beta_I: 0.4632251 acceptance rate: 0.185124
## iteration: 606 beta_I: 0.4632251 acceptance rate: 0.1848185
## iteration: 607 beta_I: 0.4632251 acceptance rate: 0.184514
## iteration: 608 beta_I: 0.4632251 acceptance rate: 0.1842105
## iteration: 609 beta_I: 0.4632251 acceptance rate: 0.183908
## iteration: 610 beta_I: 0.4632251 acceptance rate: 0.1836066
## iteration: 611 beta_I: 0.4632251 acceptance rate: 0.1833061
## iteration: 612 beta_I: 0.4632251 acceptance rate: 0.1830065
## iteration: 613 beta_I: 0.4632251 acceptance rate: 0.182708
## iteration: 614 beta_I: 0.4632251 acceptance rate: 0.1824104
## iteration: 615 beta_I: 0.4632251 acceptance rate: 0.1821138
## iteration: 616 beta_I: 0.4632251 acceptance rate: 0.1818182
## iteration: 617 beta_I: 0.4632251 acceptance rate: 0.1815235
## iteration: 618 beta_I: 0.4632251 acceptance rate: 0.1812298
## iteration: 619 beta_I: 0.4632251 acceptance rate: 0.180937
## iteration: 620 beta_I: 0.4632251 acceptance rate: 0.1806452
## iteration: 621 beta_I: 0.4632251 acceptance rate: 0.1803543
## iteration: 622 beta_I: 0.4637048 acceptance rate: 0.181672
## iteration: 623 beta_I: 0.4637048 acceptance rate: 0.1813804
## iteration: 624 beta_I: 0.4637048 acceptance rate: 0.1810897
## iteration: 625 beta_I: 0.4637048 acceptance rate: 0.1808
## iteration: 626 beta_I: 0.4634951 acceptance rate: 0.1821086
## iteration: 627 beta_I: 0.4634951 acceptance rate: 0.1818182

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## iteration: 628 beta_I: 0.4634951 acceptance rate: 0.1815287
## iteration: 629 beta_I: 0.4634951 acceptance rate: 0.1812401
## iteration: 630 beta_I: 0.4634951 acceptance rate: 0.1809524
## iteration: 631 beta_I: 0.4634951 acceptance rate: 0.1806656
## iteration: 632 beta_I: 0.4629791 acceptance rate: 0.181962
## iteration: 633 beta_I: 0.4638024 acceptance rate: 0.1832543
## iteration: 634 beta_I: 0.4638024 acceptance rate: 0.1829653
## iteration: 635 beta_I: 0.463432 acceptance rate: 0.184252
## iteration: 636 beta_I: 0.463432 acceptance rate: 0.1839623
## iteration: 637 beta_I: 0.463432 acceptance rate: 0.1836735
## iteration: 638 beta_I: 0.463432 acceptance rate: 0.1833856
## iteration: 639 beta_I: 0.463432 acceptance rate: 0.1830986
## iteration: 640 beta_I: 0.463432 acceptance rate: 0.1828125
## iteration: 641 beta_I: 0.463432 acceptance rate: 0.1825273
## iteration: 642 beta_I: 0.4638715 acceptance rate: 0.1838006
## iteration: 643 beta_I: 0.4638715 acceptance rate: 0.1835148
## iteration: 644 beta_I: 0.4638715 acceptance rate: 0.1832298
## iteration: 645 beta_I: 0.4638715 acceptance rate: 0.1829457
## iteration: 646 beta_I: 0.4638715 acceptance rate: 0.1826625
## iteration: 647 beta_I: 0.4638715 acceptance rate: 0.1823802
## iteration: 648 beta_I: 0.4638715 acceptance rate: 0.1820988
## iteration: 649 beta_I: 0.4638715 acceptance rate: 0.1818182
## iteration: 650 beta_I: 0.4638715 acceptance rate: 0.1815385
## iteration: 651 beta_I: 0.4638715 acceptance rate: 0.1812596
## iteration: 652 beta_I: 0.4638715 acceptance rate: 0.1809816
## iteration: 653 beta_I: 0.4638715 acceptance rate: 0.1807044
## iteration: 654 beta_I: 0.4638715 acceptance rate: 0.1804281
## iteration: 655 beta_I: 0.4638715 acceptance rate: 0.1801527
## iteration: 656 beta_I: 0.4638715 acceptance rate: 0.179878
## iteration: 657 beta_I: 0.4638715 acceptance rate: 0.1796043
## iteration: 658 beta_I: 0.4622403 acceptance rate: 0.1808511
## iteration: 659 beta_I: 0.4620665 acceptance rate: 0.1820941
## iteration: 660 beta_I: 0.4629235 acceptance rate: 0.1833333
## iteration: 661 beta_I: 0.4633043 acceptance rate: 0.1845688
## iteration: 662 beta_I: 0.4633043 acceptance rate: 0.18429
## iteration: 663 beta_I: 0.4633043 acceptance rate: 0.1840121
## iteration: 664 beta_I: 0.4633043 acceptance rate: 0.1837349
## iteration: 665 beta_I: 0.4626864 acceptance rate: 0.1849624
## iteration: 666 beta_I: 0.4626864 acceptance rate: 0.1846847
## iteration: 667 beta_I: 0.4626864 acceptance rate: 0.1844078
## iteration: 668 beta_I: 0.4626864 acceptance rate: 0.1841317
## iteration: 669 beta_I: 0.4626864 acceptance rate: 0.1838565
## iteration: 670 beta_I: 0.4626864 acceptance rate: 0.1835821
## iteration: 671 beta_I: 0.4626864 acceptance rate: 0.1833085
## iteration: 672 beta_I: 0.4626864 acceptance rate: 0.1830357
## iteration: 673 beta_I: 0.4626864 acceptance rate: 0.1827637
## iteration: 674 beta_I: 0.4626864 acceptance rate: 0.1824926
## iteration: 675 beta_I: 0.4626864 acceptance rate: 0.1822222
## iteration: 676 beta_I: 0.4626864 acceptance rate: 0.1819527
## iteration: 677 beta_I: 0.4626864 acceptance rate: 0.1816839
## iteration: 678 beta_I: 0.4643782 acceptance rate: 0.1828909
## iteration: 679 beta_I: 0.4643782 acceptance rate: 0.1826215
## iteration: 680 beta_I: 0.4636283 acceptance rate: 0.1838235
## iteration: 681 beta_I: 0.4636283 acceptance rate: 0.1835536

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## iteration: 682 beta_I: 0.4636283 acceptance rate: 0.1832845
## iteration: 683 beta_I: 0.4636283 acceptance rate: 0.1830161
## iteration: 684 beta_I: 0.46319 acceptance rate: 0.1842105
## iteration: 685 beta_I: 0.46319 acceptance rate: 0.1839416
## iteration: 686 beta_I: 0.46319 acceptance rate: 0.1836735
## iteration: 687 beta_I: 0.46319 acceptance rate: 0.1834061
## iteration: 688 beta_I: 0.46319 acceptance rate: 0.1831395
## iteration: 689 beta_I: 0.4628444 acceptance rate: 0.1843251
## iteration: 690 beta_I: 0.4628444 acceptance rate: 0.184058
## iteration: 691 beta_I: 0.4628444 acceptance rate: 0.1837916
## iteration: 692 beta_I: 0.4646547 acceptance rate: 0.1849711
## iteration: 693 beta_I: 0.463939 acceptance rate: 0.1861472
## iteration: 694 beta_I: 0.4635251 acceptance rate: 0.1873199
## iteration: 695 beta_I: 0.462714 acceptance rate: 0.1884892
## iteration: 696 beta_I: 0.462714 acceptance rate: 0.1882184
## iteration: 697 beta_I: 0.462714 acceptance rate: 0.1879484
## iteration: 698 beta_I: 0.462714 acceptance rate: 0.1876791
## iteration: 699 beta_I: 0.462714 acceptance rate: 0.1874106
## iteration: 700 beta_I: 0.462714 acceptance rate: 0.1871429
## iteration: 701 beta_I: 0.462714 acceptance rate: 0.1868759
## iteration: 702 beta_I: 0.462714 acceptance rate: 0.1866097
## iteration: 703 beta_I: 0.462714 acceptance rate: 0.1863442
## iteration: 704 beta_I: 0.462714 acceptance rate: 0.1860795
## iteration: 705 beta_I: 0.4618562 acceptance rate: 0.187234
## iteration: 706 beta_I: 0.4618562 acceptance rate: 0.1869688
## iteration: 707 beta_I: 0.4618562 acceptance rate: 0.1867044
## iteration: 708 beta_I: 0.4618562 acceptance rate: 0.1864407
## iteration: 709 beta_I: 0.4618562 acceptance rate: 0.1861777
## iteration: 710 beta_I: 0.4618562 acceptance rate: 0.1859155
## iteration: 711 beta_I: 0.4618562 acceptance rate: 0.185654
## iteration: 712 beta_I: 0.4618562 acceptance rate: 0.1853933
## iteration: 713 beta_I: 0.4618562 acceptance rate: 0.1851332
## iteration: 714 beta_I: 0.4619901 acceptance rate: 0.1862745
## iteration: 715 beta_I: 0.4619901 acceptance rate: 0.186014
## iteration: 716 beta_I: 0.4629682 acceptance rate: 0.1871508
## iteration: 717 beta_I: 0.4630598 acceptance rate: 0.1882845
## iteration: 718 beta_I: 0.4630598 acceptance rate: 0.1880223
## iteration: 719 beta_I: 0.4630598 acceptance rate: 0.1877608
## iteration: 720 beta_I: 0.4630598 acceptance rate: 0.1875
## iteration: 721 beta_I: 0.4630598 acceptance rate: 0.1872399
## iteration: 722 beta_I: 0.4630598 acceptance rate: 0.1869806
## iteration: 723 beta_I: 0.4633991 acceptance rate: 0.1881051
## iteration: 724 beta_I: 0.4633991 acceptance rate: 0.1878453
## iteration: 725 beta_I: 0.4624704 acceptance rate: 0.1889655
## iteration: 726 beta_I: 0.4624704 acceptance rate: 0.1887052
## iteration: 727 beta_I: 0.4621513 acceptance rate: 0.1898212
## iteration: 728 beta_I: 0.4636611 acceptance rate: 0.1909341
## iteration: 729 beta_I: 0.4636611 acceptance rate: 0.1906722
## iteration: 730 beta_I: 0.4636611 acceptance rate: 0.190411
## iteration: 731 beta_I: 0.4636611 acceptance rate: 0.1901505
## iteration: 732 beta_I: 0.4636611 acceptance rate: 0.1898907
## iteration: 733 beta_I: 0.4636611 acceptance rate: 0.1896317
## iteration: 734 beta_I: 0.4636611 acceptance rate: 0.1893733
## iteration: 735 beta_I: 0.4636611 acceptance rate: 0.1891156

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## iteration: 736 beta_I: 0.4636611 acceptance rate: 0.1888587
## iteration: 737 beta_I: 0.4636611 acceptance rate: 0.1886024
## iteration: 738 beta_I: 0.4636611 acceptance rate: 0.1883469
## iteration: 739 beta_I: 0.4636611 acceptance rate: 0.188092
## iteration: 740 beta_I: 0.4636611 acceptance rate: 0.1878378
## iteration: 741 beta_I: 0.4636611 acceptance rate: 0.1875843
## iteration: 742 beta_I: 0.4636611 acceptance rate: 0.1873315
## iteration: 743 beta_I: 0.4639148 acceptance rate: 0.1884253
## iteration: 744 beta_I: 0.4639148 acceptance rate: 0.188172
## iteration: 745 beta_I: 0.4639148 acceptance rate: 0.1879195
## iteration: 746 beta_I: 0.4639148 acceptance rate: 0.1876676
## iteration: 747 beta_I: 0.4639148 acceptance rate: 0.1874163
## iteration: 748 beta_I: 0.4639148 acceptance rate: 0.1871658
## iteration: 749 beta_I: 0.4639148 acceptance rate: 0.1869159
## iteration: 750 beta_I: 0.4639148 acceptance rate: 0.1866667
## iteration: 751 beta_I: 0.4634258 acceptance rate: 0.1877497
## iteration: 752 beta_I: 0.4634258 acceptance rate: 0.1875
## iteration: 753 beta_I: 0.4634258 acceptance rate: 0.187251
## iteration: 754 beta_I: 0.4630576 acceptance rate: 0.1883289
## iteration: 755 beta_I: 0.4630576 acceptance rate: 0.1880795
## iteration: 756 beta_I: 0.4639821 acceptance rate: 0.1891534
## iteration: 757 beta_I: 0.4639821 acceptance rate: 0.1889036
## iteration: 758 beta_I: 0.4635214 acceptance rate: 0.1899736
## iteration: 759 beta_I: 0.4635214 acceptance rate: 0.1897233
## iteration: 760 beta_I: 0.4633393 acceptance rate: 0.1907895
## iteration: 761 beta_I: 0.4633393 acceptance rate: 0.1905388
## iteration: 762 beta_I: 0.4633393 acceptance rate: 0.1902887
## iteration: 763 beta_I: 0.4624553 acceptance rate: 0.1913499
## iteration: 764 beta_I: 0.4624553 acceptance rate: 0.1910995
## iteration: 765 beta_I: 0.4624553 acceptance rate: 0.1908497
## iteration: 766 beta_I: 0.4628717 acceptance rate: 0.191906
## iteration: 767 beta_I: 0.4628717 acceptance rate: 0.1916558
## iteration: 768 beta_I: 0.4628717 acceptance rate: 0.1914062
## iteration: 769 beta_I: 0.4628717 acceptance rate: 0.1911573
## iteration: 770 beta_I: 0.4628717 acceptance rate: 0.1909091
## iteration: 771 beta_I: 0.4628717 acceptance rate: 0.1906615
## iteration: 772 beta_I: 0.4628717 acceptance rate: 0.1904145
## iteration: 773 beta_I: 0.464552 acceptance rate: 0.1914618
## iteration: 774 beta_I: 0.464552 acceptance rate: 0.1912145
## iteration: 775 beta_I: 0.464552 acceptance rate: 0.1909677
## iteration: 776 beta_I: 0.464552 acceptance rate: 0.1907216
## iteration: 777 beta_I: 0.464552 acceptance rate: 0.1904762
## iteration: 778 beta_I: 0.464552 acceptance rate: 0.1902314
## iteration: 779 beta_I: 0.4634001 acceptance rate: 0.1912709
## iteration: 780 beta_I: 0.4634001 acceptance rate: 0.1910256
## iteration: 781 beta_I: 0.4634001 acceptance rate: 0.190781
## iteration: 782 beta_I: 0.4634001 acceptance rate: 0.1905371
## iteration: 783 beta_I: 0.4634001 acceptance rate: 0.1902937
## iteration: 784 beta_I: 0.4634001 acceptance rate: 0.190051
## iteration: 785 beta_I: 0.4634001 acceptance rate: 0.1898089
## iteration: 786 beta_I: 0.4634001 acceptance rate: 0.1895674
## iteration: 787 beta_I: 0.4634001 acceptance rate: 0.1893266
## iteration: 788 beta_I: 0.4634001 acceptance rate: 0.1890863
## iteration: 789 beta_I: 0.4634001 acceptance rate: 0.1888466

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## iteration: 790 beta_I: 0.4634001 acceptance rate: 0.1886076
## iteration: 791 beta_I: 0.4636181 acceptance rate: 0.1896334
## iteration: 792 beta_I: 0.4636181 acceptance rate: 0.1893939
## iteration: 793 beta_I: 0.4636181 acceptance rate: 0.1891551
## iteration: 794 beta_I: 0.4636181 acceptance rate: 0.1889169
## iteration: 795 beta_I: 0.4636181 acceptance rate: 0.1886792
## iteration: 796 beta_I: 0.4636181 acceptance rate: 0.1884422
## iteration: 797 beta_I: 0.4636181 acceptance rate: 0.1882058
## iteration: 798 beta_I: 0.4636181 acceptance rate: 0.1879699
## iteration: 799 beta_I: 0.4636181 acceptance rate: 0.1877347
## iteration: 800 beta_I: 0.4636181 acceptance rate: 0.1875
## iteration: 801 beta_I: 0.4636181 acceptance rate: 0.1872659
## iteration: 802 beta_I: 0.4636181 acceptance rate: 0.1870324
## iteration: 803 beta_I: 0.4636181 acceptance rate: 0.1867995
## iteration: 804 beta_I: 0.4635974 acceptance rate: 0.1878109
## iteration: 805 beta_I: 0.4635974 acceptance rate: 0.1875776
## iteration: 806 beta_I: 0.4635974 acceptance rate: 0.1873449
## iteration: 807 beta_I: 0.4635974 acceptance rate: 0.1871128
## iteration: 808 beta_I: 0.4635974 acceptance rate: 0.1868812
## iteration: 809 beta_I: 0.4635974 acceptance rate: 0.1866502
## iteration: 810 beta_I: 0.4635974 acceptance rate: 0.1864198
## iteration: 811 beta_I: 0.4635974 acceptance rate: 0.1861899
## iteration: 812 beta_I: 0.4635974 acceptance rate: 0.1859606
## iteration: 813 beta_I: 0.4635974 acceptance rate: 0.1857319
## iteration: 814 beta_I: 0.4635974 acceptance rate: 0.1855037
## iteration: 815 beta_I: 0.4635974 acceptance rate: 0.1852761
## iteration: 816 beta_I: 0.4635974 acceptance rate: 0.185049
## iteration: 817 beta_I: 0.4635974 acceptance rate: 0.1848225
## iteration: 818 beta_I: 0.4629717 acceptance rate: 0.1858191
## iteration: 819 beta_I: 0.4636921 acceptance rate: 0.1868132
## iteration: 820 beta_I: 0.4636921 acceptance rate: 0.1865854
## iteration: 821 beta_I: 0.4636921 acceptance rate: 0.1863581
## iteration: 822 beta_I: 0.4636921 acceptance rate: 0.1861314
## iteration: 823 beta_I: 0.4636921 acceptance rate: 0.1859052
## iteration: 824 beta_I: 0.4636921 acceptance rate: 0.1856796
## iteration: 825 beta_I: 0.4636921 acceptance rate: 0.1854545
## iteration: 826 beta_I: 0.4636921 acceptance rate: 0.18523
## iteration: 827 beta_I: 0.4636921 acceptance rate: 0.185006
## iteration: 828 beta_I: 0.4636921 acceptance rate: 0.1847826
## iteration: 829 beta_I: 0.4636921 acceptance rate: 0.1845597
## iteration: 830 beta_I: 0.4636921 acceptance rate: 0.1843373
## iteration: 831 beta_I: 0.4636921 acceptance rate: 0.1841155
## iteration: 832 beta_I: 0.4636921 acceptance rate: 0.1838942
## iteration: 833 beta_I: 0.4631512 acceptance rate: 0.1848739
## iteration: 834 beta_I: 0.4631512 acceptance rate: 0.1846523
## iteration: 835 beta_I: 0.4629492 acceptance rate: 0.1856287
## iteration: 836 beta_I: 0.4618681 acceptance rate: 0.1866029
## iteration: 837 beta_I: 0.4618681 acceptance rate: 0.1863799
## iteration: 838 beta_I: 0.4618681 acceptance rate: 0.1861575
## iteration: 839 beta_I: 0.4618681 acceptance rate: 0.1859356
## iteration: 840 beta_I: 0.4618681 acceptance rate: 0.1857143
## iteration: 841 beta_I: 0.4618681 acceptance rate: 0.1854935
## iteration: 842 beta_I: 0.4618681 acceptance rate: 0.1852732
## iteration: 843 beta_I: 0.4618681 acceptance rate: 0.1850534
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## iteration: 844 beta_I: 0.4619573 acceptance rate: 0.186019
## iteration: 845 beta_I: 0.4619573 acceptance rate: 0.1857988
## iteration: 846 beta_I: 0.4628677 acceptance rate: 0.1867612
## iteration: 847 beta_I: 0.462029 acceptance rate: 0.1877214
## iteration: 848 beta_I: 0.462029 acceptance rate: 0.1875
## iteration: 849 beta_I: 0.4630359 acceptance rate: 0.188457
## iteration: 850 beta_I: 0.4638352 acceptance rate: 0.1894118
## iteration: 851 beta_I: 0.4638352 acceptance rate: 0.1891892
## iteration: 852 beta_I: 0.464192 acceptance rate: 0.1901408
## iteration: 853 beta_I: 0.464192 acceptance rate: 0.1899179
## iteration: 854 beta_I: 0.464192 acceptance rate: 0.1896956
## iteration: 855 beta_I: 0.464192 acceptance rate: 0.1894737
## iteration: 856 beta_I: 0.464192 acceptance rate: 0.1892523
## iteration: 857 beta_I: 0.464192 acceptance rate: 0.1890315
## iteration: 858 beta_I: 0.464192 acceptance rate: 0.1888112
## iteration: 859 beta_I: 0.4635794 acceptance rate: 0.1897555
## iteration: 860 beta_I: 0.4635794 acceptance rate: 0.1895349
## iteration: 861 beta_I: 0.4635794 acceptance rate: 0.1893148
## iteration: 862 beta_I: 0.4635794 acceptance rate: 0.1890951
## iteration: 863 beta_I: 0.4635794 acceptance rate: 0.188876
## iteration: 864 beta_I: 0.4635794 acceptance rate: 0.1886574
## iteration: 865 beta_I: 0.4635794 acceptance rate: 0.1884393
## iteration: 866 beta_I: 0.4635794 acceptance rate: 0.1882217
## iteration: 867 beta_I: 0.4635794 acceptance rate: 0.1880046
## iteration: 868 beta_I: 0.4635794 acceptance rate: 0.187788
## iteration: 869 beta_I: 0.4635794 acceptance rate: 0.1875719
## iteration: 870 beta_I: 0.4635794 acceptance rate: 0.1873563
## iteration: 871 beta_I: 0.4646168 acceptance rate: 0.1882893
## iteration: 872 beta_I: 0.4633292 acceptance rate: 0.1892202
## iteration: 873 beta_I: 0.4633292 acceptance rate: 0.1890034
## iteration: 874 beta_I: 0.4633292 acceptance rate: 0.1887872
## iteration: 875 beta_I: 0.4633292 acceptance rate: 0.1885714
## iteration: 876 beta_I: 0.4633292 acceptance rate: 0.1883562
## iteration: 877 beta_I: 0.4633292 acceptance rate: 0.1881414
## iteration: 878 beta_I: 0.4633463 acceptance rate: 0.1890661
## iteration: 879 beta_I: 0.4633463 acceptance rate: 0.188851
## iteration: 880 beta_I: 0.4642092 acceptance rate: 0.1897727
## iteration: 881 beta_I: 0.4642092 acceptance rate: 0.1895573
## iteration: 882 beta_I: 0.4642092 acceptance rate: 0.1893424
## iteration: 883 beta_I: 0.4642092 acceptance rate: 0.189128
## iteration: 884 beta_I: 0.4642092 acceptance rate: 0.188914
## iteration: 885 beta_I: 0.4643284 acceptance rate: 0.1898305
## iteration: 886 beta_I: 0.4643284 acceptance rate: 0.1896163
## iteration: 887 beta_I: 0.4643284 acceptance rate: 0.1894025
## iteration: 888 beta_I: 0.4643283 acceptance rate: 0.1903153
## iteration: 889 beta_I: 0.4643283 acceptance rate: 0.1901012
## iteration: 890 beta_I: 0.4643283 acceptance rate: 0.1898876
## iteration: 891 beta_I: 0.4643283 acceptance rate: 0.1896745
## iteration: 892 beta_I: 0.4643283 acceptance rate: 0.1894619
## iteration: 893 beta_I: 0.4643283 acceptance rate: 0.1892497
## iteration: 894 beta_I: 0.462807 acceptance rate: 0.1901566
## iteration: 895 beta_I: 0.462807 acceptance rate: 0.1899441
## iteration: 896 beta_I: 0.462807 acceptance rate: 0.1897321
## iteration: 897 beta_I: 0.462807 acceptance rate: 0.1895206

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## iteration: 898 beta_I: 0.462807 acceptance rate: 0.1893096
## iteration: 899 beta_I: 0.462807 acceptance rate: 0.189099
## iteration: 900 beta_I: 0.462807 acceptance rate: 0.1888889
## iteration: 901 beta_I: 0.462807 acceptance rate: 0.1886792
## iteration: 902 beta_I: 0.463762 acceptance rate: 0.1895787
## iteration: 903 beta_I: 0.463762 acceptance rate: 0.1893688
## iteration: 904 beta_I: 0.463762 acceptance rate: 0.1891593
## iteration: 905 beta_I: 0.463762 acceptance rate: 0.1889503
## iteration: 906 beta_I: 0.463762 acceptance rate: 0.1887417
## iteration: 907 beta_I: 0.463762 acceptance rate: 0.1885336
## iteration: 908 beta_I: 0.463762 acceptance rate: 0.188326
## iteration: 909 beta_I: 0.463762 acceptance rate: 0.1881188
## iteration: 910 beta_I: 0.463762 acceptance rate: 0.1879121
## iteration: 911 beta_I: 0.463762 acceptance rate: 0.1877058
## iteration: 912 beta_I: 0.4633456 acceptance rate: 0.1885965
## iteration: 913 beta_I: 0.4633456 acceptance rate: 0.1883899
## iteration: 914 beta_I: 0.4633456 acceptance rate: 0.1881838
## iteration: 915 beta_I: 0.4633713 acceptance rate: 0.189071
## iteration: 916 beta_I: 0.4633713 acceptance rate: 0.1888646
## iteration: 917 beta_I: 0.4633713 acceptance rate: 0.1886587
## iteration: 918 beta_I: 0.4633713 acceptance rate: 0.1884532
## iteration: 919 beta_I: 0.4643492 acceptance rate: 0.1893362
## iteration: 920 beta_I: 0.4626066 acceptance rate: 0.1902174
## iteration: 921 beta_I: 0.4626066 acceptance rate: 0.1900109
## iteration: 922 beta_I: 0.4626066 acceptance rate: 0.1898048
## iteration: 923 beta_I: 0.4626066 acceptance rate: 0.1895991
## iteration: 924 beta_I: 0.4626066 acceptance rate: 0.1893939
## iteration: 925 beta_I: 0.4626066 acceptance rate: 0.1891892
## iteration: 926 beta_I: 0.463928 acceptance rate: 0.1900648
## iteration: 927 beta_I: 0.463928 acceptance rate: 0.1898598
## iteration: 928 beta_I: 0.4640954 acceptance rate: 0.1907328
## iteration: 929 beta_I: 0.4640954 acceptance rate: 0.1905274
## iteration: 930 beta_I: 0.4640954 acceptance rate: 0.1903226
## iteration: 931 beta_I: 0.4626728 acceptance rate: 0.1911923
## iteration: 932 beta_I: 0.4626728 acceptance rate: 0.1909871
## iteration: 933 beta_I: 0.4626728 acceptance rate: 0.1907824
## iteration: 934 beta_I: 0.4634338 acceptance rate: 0.1916488
## iteration: 935 beta_I: 0.4638542 acceptance rate: 0.1925134
## iteration: 936 beta_I: 0.4638542 acceptance rate: 0.1923077
## iteration: 937 beta_I: 0.4638542 acceptance rate: 0.1921025
## iteration: 938 beta_I: 0.4638542 acceptance rate: 0.1918977
## iteration: 939 beta_I: 0.4638542 acceptance rate: 0.1916933
## iteration: 940 beta_I: 0.4633276 acceptance rate: 0.1925532
## iteration: 941 beta_I: 0.4633276 acceptance rate: 0.1923486
## iteration: 942 beta_I: 0.4632609 acceptance rate: 0.1932059
## iteration: 943 beta_I: 0.4632609 acceptance rate: 0.1930011
## iteration: 944 beta_I: 0.4632609 acceptance rate: 0.1927966
## iteration: 945 beta_I: 0.4632609 acceptance rate: 0.1925926
## iteration: 946 beta_I: 0.4632609 acceptance rate: 0.192389
## iteration: 947 beta_I: 0.4632609 acceptance rate: 0.1921859
## iteration: 948 beta_I: 0.4632609 acceptance rate: 0.1919831
## iteration: 949 beta_I: 0.4627925 acceptance rate: 0.1928346
## iteration: 950 beta_I: 0.4627925 acceptance rate: 0.1926316
## iteration: 951 beta_I: 0.4627925 acceptance rate: 0.192429

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## iteration: 952 beta_I: 0.4627925 acceptance rate: 0.1922269
## iteration: 953 beta_I: 0.4627925 acceptance rate: 0.1920252
## iteration: 954 beta_I: 0.4627925 acceptance rate: 0.1918239
## iteration: 955 beta_I: 0.4627925 acceptance rate: 0.191623
## iteration: 956 beta_I: 0.4626824 acceptance rate: 0.1924686
## iteration: 957 beta_I: 0.4626824 acceptance rate: 0.1922675
## iteration: 958 beta_I: 0.4626824 acceptance rate: 0.1920668
## iteration: 959 beta_I: 0.4626417 acceptance rate: 0.1929093
## iteration: 960 beta_I: 0.4626417 acceptance rate: 0.1927083
## iteration: 961 beta_I: 0.4626417 acceptance rate: 0.1925078
## iteration: 962 beta_I: 0.4626417 acceptance rate: 0.1923077
## iteration: 963 beta_I: 0.4626417 acceptance rate: 0.192108
## iteration: 964 beta_I: 0.4626417 acceptance rate: 0.1919087
## iteration: 965 beta_I: 0.4626417 acceptance rate: 0.1917098
## iteration: 966 beta_I: 0.4626417 acceptance rate: 0.1915114
## iteration: 967 beta_I: 0.4626417 acceptance rate: 0.1913133
## iteration: 968 beta_I: 0.4626417 acceptance rate: 0.1911157
## iteration: 969 beta_I: 0.4631368 acceptance rate: 0.1919505
## iteration: 970 beta_I: 0.4631368 acceptance rate: 0.1917526
## iteration: 971 beta_I: 0.4631368 acceptance rate: 0.1915551
## iteration: 972 beta_I: 0.4631368 acceptance rate: 0.191358
## iteration: 973 beta_I: 0.4631368 acceptance rate: 0.1911614
## iteration: 974 beta_I: 0.4630261 acceptance rate: 0.1919918
## iteration: 975 beta_I: 0.4630261 acceptance rate: 0.1917949
## iteration: 976 beta_I: 0.4630261 acceptance rate: 0.1915984
## iteration: 977 beta_I: 0.464098 acceptance rate: 0.1924258
## iteration: 978 beta_I: 0.4628238 acceptance rate: 0.1932515
## iteration: 979 beta_I: 0.4628238 acceptance rate: 0.1930541
## iteration: 980 beta_I: 0.4628238 acceptance rate: 0.1928571
## iteration: 981 beta_I: 0.4628238 acceptance rate: 0.1926606
## iteration: 982 beta_I: 0.4628238 acceptance rate: 0.1924644
## iteration: 983 beta_I: 0.4628238 acceptance rate: 0.1922686
## iteration: 984 beta_I: 0.4628238 acceptance rate: 0.1920732
## iteration: 985 beta_I: 0.4628238 acceptance rate: 0.1918782
## iteration: 986 beta_I: 0.4628238 acceptance rate: 0.1916836
## iteration: 987 beta_I: 0.4628238 acceptance rate: 0.1914894
## iteration: 988 beta_I: 0.4628238 acceptance rate: 0.1912955
## iteration: 989 beta_I: 0.4628238 acceptance rate: 0.1911021
## iteration: 990 beta_I: 0.4628238 acceptance rate: 0.1909091
## iteration: 991 beta_I: 0.4628238 acceptance rate: 0.1907164
## iteration: 992 beta_I: 0.4628238 acceptance rate: 0.1905242
## iteration: 993 beta_I: 0.4628238 acceptance rate: 0.1903323
## iteration: 994 beta_I: 0.4628238 acceptance rate: 0.1901408
## iteration: 995 beta_I: 0.4638812 acceptance rate: 0.1909548
## iteration: 996 beta_I: 0.4638812 acceptance rate: 0.1907631
## iteration: 997 beta_I: 0.4638812 acceptance rate: 0.1905717
## iteration: 998 beta_I: 0.4638812 acceptance rate: 0.1903808
## iteration: 999 beta_I: 0.4638812 acceptance rate: 0.1901902
## iteration: 1000 beta_I: 0.4638812 acceptance rate: 0.19
## iteration: 1001 beta_I: 0.4638812 acceptance rate: 0.1898102
## iteration: 1002 beta_I: 0.4638812 acceptance rate: 0.1896208
## iteration: 1003 beta_I: 0.4623637 acceptance rate: 0.1904287
## iteration: 1004 beta_I: 0.4635202 acceptance rate: 0.1912351
## iteration: 1005 beta_I: 0.4635202 acceptance rate: 0.1910448

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## iteration: 1006 beta_I: 0.4635202 acceptance rate: 0.1908549
## iteration: 1007 beta_I: 0.4635202 acceptance rate: 0.1906653
## iteration: 1008 beta_I: 0.4635202 acceptance rate: 0.1904762
## iteration: 1009 beta_I: 0.4635202 acceptance rate: 0.1902874
## iteration: 1010 beta_I: 0.4635202 acceptance rate: 0.190099
## iteration: 1011 beta_I: 0.4635202 acceptance rate: 0.189911
## iteration: 1012 beta_I: 0.4635202 acceptance rate: 0.1897233
## iteration: 1013 beta_I: 0.4635202 acceptance rate: 0.189536
## iteration: 1014 beta_I: 0.4638508 acceptance rate: 0.1903353
## iteration: 1015 beta_I: 0.4638508 acceptance rate: 0.1901478
## iteration: 1016 beta_I: 0.4638508 acceptance rate: 0.1899606
## iteration: 1017 beta_I: 0.4638508 acceptance rate: 0.1897738
## iteration: 1018 beta_I: 0.4638508 acceptance rate: 0.1895874
## iteration: 1019 beta_I: 0.4638508 acceptance rate: 0.1894014
## iteration: 1020 beta_I: 0.4638508 acceptance rate: 0.1892157
## iteration: 1021 beta_I: 0.4638508 acceptance rate: 0.1890304
## iteration: 1022 beta_I: 0.4638508 acceptance rate: 0.1888454
## iteration: 1023 beta_I: 0.4638508 acceptance rate: 0.1886608
## iteration: 1024 beta_I: 0.4638508 acceptance rate: 0.1884766
## iteration: 1025 beta_I: 0.4638508 acceptance rate: 0.1882927
## iteration: 1026 beta_I: 0.4638508 acceptance rate: 0.1881092
## iteration: 1027 beta_I: 0.4638508 acceptance rate: 0.187926
## iteration: 1028 beta_I: 0.4644294 acceptance rate: 0.188716
## iteration: 1029 beta_I: 0.4637839 acceptance rate: 0.1895044
## iteration: 1030 beta_I: 0.4637839 acceptance rate: 0.1893204
## iteration: 1031 beta_I: 0.4637839 acceptance rate: 0.1891368
## iteration: 1032 beta_I: 0.4637839 acceptance rate: 0.1889535
## iteration: 1033 beta_I: 0.4637839 acceptance rate: 0.1887706
## iteration: 1034 beta_I: 0.464217 acceptance rate: 0.1895551
## iteration: 1035 beta_I: 0.464217 acceptance rate: 0.189372
## iteration: 1036 beta_I: 0.464217 acceptance rate: 0.1891892
## iteration: 1037 beta_I: 0.464217 acceptance rate: 0.1890068
## iteration: 1038 beta_I: 0.464217 acceptance rate: 0.1888247
## iteration: 1039 beta_I: 0.464217 acceptance rate: 0.1886429
## iteration: 1040 beta_I: 0.464217 acceptance rate: 0.1884615
## iteration: 1041 beta_I: 0.464217 acceptance rate: 0.1882805
## iteration: 1042 beta_I: 0.4633759 acceptance rate: 0.1890595
## iteration: 1043 beta_I: 0.4633759 acceptance rate: 0.1888782
## iteration: 1044 beta_I: 0.4633759 acceptance rate: 0.1886973
## iteration: 1045 beta_I: 0.4633759 acceptance rate: 0.1885167
## iteration: 1046 beta_I: 0.4633759 acceptance rate: 0.1883365
## iteration: 1047 beta_I: 0.4633759 acceptance rate: 0.1881566
## iteration: 1048 beta_I: 0.4633759 acceptance rate: 0.1879771
## iteration: 1049 beta_I: 0.4633759 acceptance rate: 0.1877979
## iteration: 1050 beta_I: 0.4633759 acceptance rate: 0.187619
## iteration: 1051 beta_I: 0.4633759 acceptance rate: 0.1874405
## iteration: 1052 beta_I: 0.4633759 acceptance rate: 0.1872624
## iteration: 1053 beta_I: 0.4633759 acceptance rate: 0.1870845
## iteration: 1054 beta_I: 0.4633759 acceptance rate: 0.186907
## iteration: 1055 beta_I: 0.4633759 acceptance rate: 0.1867299
## iteration: 1056 beta_I: 0.4633759 acceptance rate: 0.186553
## iteration: 1057 beta_I: 0.4633759 acceptance rate: 0.1863765
## iteration: 1058 beta_I: 0.4633759 acceptance rate: 0.1862004
## iteration: 1059 beta_I: 0.4633759 acceptance rate: 0.1860246

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## iteration: 1060 beta_I: 0.4625421 acceptance rate: 0.1867925
## iteration: 1061 beta_I: 0.4625421 acceptance rate: 0.1866164
## iteration: 1062 beta_I: 0.4635734 acceptance rate: 0.1873823
## iteration: 1063 beta_I: 0.4635734 acceptance rate: 0.187206
## iteration: 1064 beta_I: 0.4635734 acceptance rate: 0.1870301
## iteration: 1065 beta_I: 0.4635734 acceptance rate: 0.1868545
## iteration: 1066 beta_I: 0.4635734 acceptance rate: 0.1866792
## iteration: 1067 beta_I: 0.4635734 acceptance rate: 0.1865042
## iteration: 1068 beta_I: 0.4635734 acceptance rate: 0.1863296
## iteration: 1069 beta_I: 0.4635734 acceptance rate: 0.1861553
## iteration: 1070 beta_I: 0.4635734 acceptance rate: 0.1859813
## iteration: 1071 beta_I: 0.4635734 acceptance rate: 0.1858077
## iteration: 1072 beta_I: 0.4635734 acceptance rate: 0.1856343
## iteration: 1073 beta_I: 0.4635734 acceptance rate: 0.1854613
## iteration: 1074 beta_I: 0.4635734 acceptance rate: 0.1852886
## iteration: 1075 beta_I: 0.4635734 acceptance rate: 0.1851163
## iteration: 1076 beta_I: 0.4635734 acceptance rate: 0.1849442
## iteration: 1077 beta_I: 0.4635734 acceptance rate: 0.1847725
## iteration: 1078 beta_I: 0.4635734 acceptance rate: 0.1846011
## iteration: 1079 beta_I: 0.4635734 acceptance rate: 0.18443
## iteration: 1080 beta_I: 0.4635734 acceptance rate: 0.1842593
## iteration: 1081 beta_I: 0.4639186 acceptance rate: 0.1850139
## iteration: 1082 beta_I: 0.4639186 acceptance rate: 0.1848429
## iteration: 1083 beta_I: 0.4639186 acceptance rate: 0.1846722
## iteration: 1084 beta_I: 0.4639186 acceptance rate: 0.1845018
## iteration: 1085 beta_I: 0.4639186 acceptance rate: 0.1843318
## iteration: 1086 beta_I: 0.4639186 acceptance rate: 0.1841621
## iteration: 1087 beta_I: 0.4639186 acceptance rate: 0.1839926
## iteration: 1088 beta_I: 0.4639186 acceptance rate: 0.1838235
## iteration: 1089 beta_I: 0.4639186 acceptance rate: 0.1836547
## iteration: 1090 beta_I: 0.4639186 acceptance rate: 0.1834862
## iteration: 1091 beta_I: 0.4639186 acceptance rate: 0.1833181
## iteration: 1092 beta_I: 0.4639186 acceptance rate: 0.1831502
## iteration: 1093 beta_I: 0.4639186 acceptance rate: 0.1829826
## iteration: 1094 beta_I: 0.4639186 acceptance rate: 0.1828154
## iteration: 1095 beta_I: 0.4639186 acceptance rate: 0.1826484
## iteration: 1096 beta_I: 0.4639186 acceptance rate: 0.1824818
## iteration: 1097 beta_I: 0.4639186 acceptance rate: 0.1823154
## iteration: 1098 beta_I: 0.4639186 acceptance rate: 0.1821494
## iteration: 1099 beta_I: 0.4639186 acceptance rate: 0.1819836
## iteration: 1100 beta_I: 0.4639186 acceptance rate: 0.1818182
## iteration: 1101 beta_I: 0.4639186 acceptance rate: 0.181653
## iteration: 1102 beta_I: 0.4639186 acceptance rate: 0.1814882
## iteration: 1103 beta_I: 0.4639186 acceptance rate: 0.1813237
## iteration: 1104 beta_I: 0.4631112 acceptance rate: 0.1820652
## iteration: 1105 beta_I: 0.4631112 acceptance rate: 0.1819005
## iteration: 1106 beta_I: 0.4628737 acceptance rate: 0.1826401
## iteration: 1107 beta_I: 0.4628737 acceptance rate: 0.1824752
## iteration: 1108 beta_I: 0.4627748 acceptance rate: 0.183213
## iteration: 1109 beta_I: 0.4627748 acceptance rate: 0.1830478
## iteration: 1110 beta_I: 0.4627748 acceptance rate: 0.1828829
## iteration: 1111 beta_I: 0.4627748 acceptance rate: 0.1827183
## iteration: 1112 beta_I: 0.4627748 acceptance rate: 0.182554
## iteration: 1113 beta_I: 0.4627748 acceptance rate: 0.1823899

```

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## iteration: 1114 beta_I: 0.4627748 acceptance rate: 0.1822262
## iteration: 1115 beta_I: 0.4641789 acceptance rate: 0.1829596
## iteration: 1116 beta_I: 0.4641789 acceptance rate: 0.1827957
## iteration: 1117 beta_I: 0.4641789 acceptance rate: 0.1826321
## iteration: 1118 beta_I: 0.4641789 acceptance rate: 0.1824687
## iteration: 1119 beta_I: 0.4641789 acceptance rate: 0.1823056
## iteration: 1120 beta_I: 0.4641789 acceptance rate: 0.1821429
## iteration: 1121 beta_I: 0.4641789 acceptance rate: 0.1819804
## iteration: 1122 beta_I: 0.4641789 acceptance rate: 0.1818182
## iteration: 1123 beta_I: 0.4641789 acceptance rate: 0.1816563
## iteration: 1124 beta_I: 0.4641789 acceptance rate: 0.1814947
## iteration: 1125 beta_I: 0.4641789 acceptance rate: 0.1813333
## iteration: 1126 beta_I: 0.4641789 acceptance rate: 0.1811723
## iteration: 1127 beta_I: 0.4623587 acceptance rate: 0.1818988
## iteration: 1128 beta_I: 0.4623587 acceptance rate: 0.1817376
## iteration: 1129 beta_I: 0.4631177 acceptance rate: 0.1824624
## iteration: 1130 beta_I: 0.4631177 acceptance rate: 0.1823009
## iteration: 1131 beta_I: 0.4630651 acceptance rate: 0.1830239
## iteration: 1132 beta_I: 0.4630651 acceptance rate: 0.1828622
## iteration: 1133 beta_I: 0.4630651 acceptance rate: 0.1827008
## iteration: 1134 beta_I: 0.4630651 acceptance rate: 0.1825397
## iteration: 1135 beta_I: 0.4630651 acceptance rate: 0.1823789
## iteration: 1136 beta_I: 0.4630651 acceptance rate: 0.1822183
## iteration: 1137 beta_I: 0.4630651 acceptance rate: 0.182058
## iteration: 1138 beta_I: 0.4630651 acceptance rate: 0.1818981
## iteration: 1139 beta_I: 0.4630651 acceptance rate: 0.1817384
## iteration: 1140 beta_I: 0.4630651 acceptance rate: 0.1815789
## iteration: 1141 beta_I: 0.4630651 acceptance rate: 0.1814198
## iteration: 1142 beta_I: 0.4630651 acceptance rate: 0.1812609
## iteration: 1143 beta_I: 0.4630651 acceptance rate: 0.1811024
## iteration: 1144 beta_I: 0.4630651 acceptance rate: 0.1809441
## iteration: 1145 beta_I: 0.4630651 acceptance rate: 0.180786
## iteration: 1146 beta_I: 0.4630651 acceptance rate: 0.1806283
## iteration: 1147 beta_I: 0.4630651 acceptance rate: 0.1804708
## iteration: 1148 beta_I: 0.4630651 acceptance rate: 0.1803136
## iteration: 1149 beta_I: 0.4630651 acceptance rate: 0.1801567
## iteration: 1150 beta_I: 0.4630651 acceptance rate: 0.18
## iteration: 1151 beta_I: 0.4630651 acceptance rate: 0.1798436
## iteration: 1152 beta_I: 0.4630651 acceptance rate: 0.1796875
## iteration: 1153 beta_I: 0.4630651 acceptance rate: 0.1795317
## iteration: 1154 beta_I: 0.4630651 acceptance rate: 0.1793761
## iteration: 1155 beta_I: 0.4630651 acceptance rate: 0.1792208
## iteration: 1156 beta_I: 0.4630651 acceptance rate: 0.1790657
## iteration: 1157 beta_I: 0.4630651 acceptance rate: 0.178911
## iteration: 1158 beta_I: 0.4630651 acceptance rate: 0.1787565
## iteration: 1159 beta_I: 0.4630651 acceptance rate: 0.1786022
## iteration: 1160 beta_I: 0.4630651 acceptance rate: 0.1784483
## iteration: 1161 beta_I: 0.4630651 acceptance rate: 0.1782946
## iteration: 1162 beta_I: 0.4627906 acceptance rate: 0.1790017
## iteration: 1163 beta_I: 0.4627906 acceptance rate: 0.1788478
## iteration: 1164 beta_I: 0.4648056 acceptance rate: 0.1795533
## iteration: 1165 beta_I: 0.4648056 acceptance rate: 0.1793991
## iteration: 1166 beta_I: 0.4648056 acceptance rate: 0.1792453
## iteration: 1167 beta_I: 0.4617954 acceptance rate: 0.1799486

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## iteration: 1168 beta_I: 0.4639222 acceptance rate: 0.1806507
## iteration: 1169 beta_I: 0.4639222 acceptance rate: 0.1804962
## iteration: 1170 beta_I: 0.4639222 acceptance rate: 0.1803419
## iteration: 1171 beta_I: 0.4639222 acceptance rate: 0.1801879
## iteration: 1172 beta_I: 0.4639222 acceptance rate: 0.1800341
## iteration: 1173 beta_I: 0.4639222 acceptance rate: 0.1798806
## iteration: 1174 beta_I: 0.4646463 acceptance rate: 0.1805792
## iteration: 1175 beta_I: 0.4616671 acceptance rate: 0.1812766
## iteration: 1176 beta_I: 0.4616671 acceptance rate: 0.1811224
## iteration: 1177 beta_I: 0.4646977 acceptance rate: 0.1818182
## iteration: 1178 beta_I: 0.4646977 acceptance rate: 0.1816638
## iteration: 1179 beta_I: 0.4646977 acceptance rate: 0.1815098
## iteration: 1180 beta_I: 0.4646977 acceptance rate: 0.1813559
## iteration: 1181 beta_I: 0.4628424 acceptance rate: 0.1820491
## iteration: 1182 beta_I: 0.4628424 acceptance rate: 0.1818951
## iteration: 1183 beta_I: 0.4628424 acceptance rate: 0.1817413
## iteration: 1184 beta_I: 0.4628424 acceptance rate: 0.1815878
## iteration: 1185 beta_I: 0.4628424 acceptance rate: 0.1814346
## iteration: 1186 beta_I: 0.4635344 acceptance rate: 0.1821248
## iteration: 1187 beta_I: 0.4635344 acceptance rate: 0.1819714
## iteration: 1188 beta_I: 0.4635344 acceptance rate: 0.1818182
## iteration: 1189 beta_I: 0.4635344 acceptance rate: 0.1816653
## iteration: 1190 beta_I: 0.4635344 acceptance rate: 0.1815126
## iteration: 1191 beta_I: 0.4635344 acceptance rate: 0.1813602
## iteration: 1192 beta_I: 0.4635344 acceptance rate: 0.1812081
## iteration: 1193 beta_I: 0.4635344 acceptance rate: 0.1810562
## iteration: 1194 beta_I: 0.4635344 acceptance rate: 0.1809045
## iteration: 1195 beta_I: 0.4635344 acceptance rate: 0.1807531
## iteration: 1196 beta_I: 0.4635344 acceptance rate: 0.180602
## iteration: 1197 beta_I: 0.4635344 acceptance rate: 0.1804511
## iteration: 1198 beta_I: 0.4635344 acceptance rate: 0.1803005
## iteration: 1199 beta_I: 0.4635344 acceptance rate: 0.1801501
## iteration: 1200 beta_I: 0.4639894 acceptance rate: 0.1808333
## iteration: 1201 beta_I: 0.4639894 acceptance rate: 0.1806828
## iteration: 1202 beta_I: 0.4639894 acceptance rate: 0.1805324
## iteration: 1203 beta_I: 0.4639894 acceptance rate: 0.1803824
## iteration: 1204 beta_I: 0.4622039 acceptance rate: 0.1810631
## iteration: 1205 beta_I: 0.4622039 acceptance rate: 0.1809129
## iteration: 1206 beta_I: 0.4640007 acceptance rate: 0.181592
## iteration: 1207 beta_I: 0.4640007 acceptance rate: 0.1814416
## iteration: 1208 beta_I: 0.4640007 acceptance rate: 0.1812914
## iteration: 1209 beta_I: 0.4640007 acceptance rate: 0.1811414
## iteration: 1210 beta_I: 0.4640007 acceptance rate: 0.1809917
## iteration: 1211 beta_I: 0.465119 acceptance rate: 0.181668
## iteration: 1212 beta_I: 0.465119 acceptance rate: 0.1815182
## iteration: 1213 beta_I: 0.465119 acceptance rate: 0.1813685
## iteration: 1214 beta_I: 0.465119 acceptance rate: 0.1812191
## iteration: 1215 beta_I: 0.465119 acceptance rate: 0.18107
## iteration: 1216 beta_I: 0.465119 acceptance rate: 0.1809211
## iteration: 1217 beta_I: 0.465119 acceptance rate: 0.1807724
## iteration: 1218 beta_I: 0.465119 acceptance rate: 0.180624
## iteration: 1219 beta_I: 0.465119 acceptance rate: 0.1804758
## iteration: 1220 beta_I: 0.465119 acceptance rate: 0.1803279
## iteration: 1221 beta_I: 0.465119 acceptance rate: 0.1801802

```

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## iteration: 1222 beta_I: 0.465119 acceptance rate: 0.1800327
## iteration: 1223 beta_I: 0.465119 acceptance rate: 0.1798855
## iteration: 1224 beta_I: 0.465119 acceptance rate: 0.1797386
## iteration: 1225 beta_I: 0.465119 acceptance rate: 0.1795918
## iteration: 1226 beta_I: 0.465119 acceptance rate: 0.1794454
## iteration: 1227 beta_I: 0.465119 acceptance rate: 0.1792991
## iteration: 1228 beta_I: 0.465119 acceptance rate: 0.1791531
## iteration: 1229 beta_I: 0.465119 acceptance rate: 0.1790073
## iteration: 1230 beta_I: 0.465119 acceptance rate: 0.1788618
## iteration: 1231 beta_I: 0.4614827 acceptance rate: 0.1795288
## iteration: 1232 beta_I: 0.4641627 acceptance rate: 0.1801948
## iteration: 1233 beta_I: 0.4641627 acceptance rate: 0.1800487
## iteration: 1234 beta_I: 0.4641627 acceptance rate: 0.1799028
## iteration: 1235 beta_I: 0.4641627 acceptance rate: 0.1797571
## iteration: 1236 beta_I: 0.4641627 acceptance rate: 0.1796117
## iteration: 1237 beta_I: 0.4641627 acceptance rate: 0.1794665
## iteration: 1238 beta_I: 0.4641627 acceptance rate: 0.1793215
## iteration: 1239 beta_I: 0.4639525 acceptance rate: 0.1799839
## iteration: 1240 beta_I: 0.4634489 acceptance rate: 0.1806452
## iteration: 1241 beta_I: 0.4634489 acceptance rate: 0.1804996
## iteration: 1242 beta_I: 0.4634489 acceptance rate: 0.1803543
## iteration: 1243 beta_I: 0.4634489 acceptance rate: 0.1802092
## iteration: 1244 beta_I: 0.4637731 acceptance rate: 0.1808682
## iteration: 1245 beta_I: 0.4637731 acceptance rate: 0.1807229
## iteration: 1246 beta_I: 0.4637731 acceptance rate: 0.1805778
## iteration: 1247 beta_I: 0.4637731 acceptance rate: 0.180433
## iteration: 1248 beta_I: 0.4627504 acceptance rate: 0.1810897
## iteration: 1249 beta_I: 0.4631621 acceptance rate: 0.1817454
## iteration: 1250 beta_I: 0.4631621 acceptance rate: 0.1816
## iteration: 1251 beta_I: 0.4631621 acceptance rate: 0.1814548
## iteration: 1252 beta_I: 0.4631621 acceptance rate: 0.1813099
## iteration: 1253 beta_I: 0.4631621 acceptance rate: 0.1811652
## iteration: 1254 beta_I: 0.4631621 acceptance rate: 0.1810207
## iteration: 1255 beta_I: 0.4631621 acceptance rate: 0.1808765
## iteration: 1256 beta_I: 0.4631621 acceptance rate: 0.1807325
## iteration: 1257 beta_I: 0.4631621 acceptance rate: 0.1805887
## iteration: 1258 beta_I: 0.4631621 acceptance rate: 0.1804452
## iteration: 1259 beta_I: 0.4631621 acceptance rate: 0.1803018
## iteration: 1260 beta_I: 0.4631621 acceptance rate: 0.1801587
## iteration: 1261 beta_I: 0.4631621 acceptance rate: 0.1800159
## iteration: 1262 beta_I: 0.4637371 acceptance rate: 0.1806656
## iteration: 1263 beta_I: 0.4637371 acceptance rate: 0.1805226
## iteration: 1264 beta_I: 0.4626197 acceptance rate: 0.1811709
## iteration: 1265 beta_I: 0.4626197 acceptance rate: 0.1810277
## iteration: 1266 beta_I: 0.4626197 acceptance rate: 0.1808847
## iteration: 1267 beta_I: 0.4626197 acceptance rate: 0.1807419
## iteration: 1268 beta_I: 0.4626197 acceptance rate: 0.1805994
## iteration: 1269 beta_I: 0.4620089 acceptance rate: 0.1812451
## iteration: 1270 beta_I: 0.4620089 acceptance rate: 0.1811024
## iteration: 1271 beta_I: 0.4620089 acceptance rate: 0.1809599
## iteration: 1272 beta_I: 0.4622783 acceptance rate: 0.1816038
## iteration: 1273 beta_I: 0.4634847 acceptance rate: 0.1822467
## iteration: 1274 beta_I: 0.4634847 acceptance rate: 0.1821036
## iteration: 1275 beta_I: 0.4634847 acceptance rate: 0.1819608

```

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## iteration: 1276 beta_I: 0.4640312 acceptance rate: 0.1826019
## iteration: 1277 beta_I: 0.4640312 acceptance rate: 0.1824589
## iteration: 1278 beta_I: 0.4640312 acceptance rate: 0.1823161
## iteration: 1279 beta_I: 0.4640312 acceptance rate: 0.1821736
## iteration: 1280 beta_I: 0.4640312 acceptance rate: 0.1820313
## iteration: 1281 beta_I: 0.4640312 acceptance rate: 0.1818891
## iteration: 1282 beta_I: 0.4631608 acceptance rate: 0.1825273
## iteration: 1283 beta_I: 0.4631608 acceptance rate: 0.182385
## iteration: 1284 beta_I: 0.4627261 acceptance rate: 0.1830218
## iteration: 1285 beta_I: 0.4627261 acceptance rate: 0.1828794
## iteration: 1286 beta_I: 0.4627261 acceptance rate: 0.1827372
## iteration: 1287 beta_I: 0.4627261 acceptance rate: 0.1825952
## iteration: 1288 beta_I: 0.4627261 acceptance rate: 0.1824534
## iteration: 1289 beta_I: 0.4627261 acceptance rate: 0.1823119
## iteration: 1290 beta_I: 0.4627261 acceptance rate: 0.1821705
## iteration: 1291 beta_I: 0.4627261 acceptance rate: 0.1820294
## iteration: 1292 beta_I: 0.4627261 acceptance rate: 0.1818885
## iteration: 1293 beta_I: 0.4627261 acceptance rate: 0.1817479
## iteration: 1294 beta_I: 0.4627261 acceptance rate: 0.1816074
## iteration: 1295 beta_I: 0.4639925 acceptance rate: 0.1822394
## iteration: 1296 beta_I: 0.4639925 acceptance rate: 0.1820988
## iteration: 1297 beta_I: 0.4639925 acceptance rate: 0.1819584
## iteration: 1298 beta_I: 0.4639925 acceptance rate: 0.1818182
## iteration: 1299 beta_I: 0.4639925 acceptance rate: 0.1816782
## iteration: 1300 beta_I: 0.4639925 acceptance rate: 0.1815385
## iteration: 1301 beta_I: 0.4639925 acceptance rate: 0.1813989
## iteration: 1302 beta_I: 0.4639925 acceptance rate: 0.1812596
## iteration: 1303 beta_I: 0.4633315 acceptance rate: 0.181888
## iteration: 1304 beta_I: 0.4628069 acceptance rate: 0.1825153
## iteration: 1305 beta_I: 0.4628069 acceptance rate: 0.1823755
## iteration: 1306 beta_I: 0.4628069 acceptance rate: 0.1822358
## iteration: 1307 beta_I: 0.4628069 acceptance rate: 0.1820964
## iteration: 1308 beta_I: 0.4628069 acceptance rate: 0.1819572
## iteration: 1309 beta_I: 0.4628069 acceptance rate: 0.1818182
## iteration: 1310 beta_I: 0.4628069 acceptance rate: 0.1816794
## iteration: 1311 beta_I: 0.4628069 acceptance rate: 0.1815408
## iteration: 1312 beta_I: 0.4628069 acceptance rate: 0.1814024
## iteration: 1313 beta_I: 0.4628069 acceptance rate: 0.1812643
## iteration: 1314 beta_I: 0.463354 acceptance rate: 0.1818874
## iteration: 1315 beta_I: 0.463354 acceptance rate: 0.181749
## iteration: 1316 beta_I: 0.463354 acceptance rate: 0.1816109
## iteration: 1317 beta_I: 0.463354 acceptance rate: 0.181473
## iteration: 1318 beta_I: 0.463354 acceptance rate: 0.1813354
## iteration: 1319 beta_I: 0.463354 acceptance rate: 0.1811979
## iteration: 1320 beta_I: 0.463354 acceptance rate: 0.1810606
## iteration: 1321 beta_I: 0.463354 acceptance rate: 0.1809235
## iteration: 1322 beta_I: 0.463354 acceptance rate: 0.1807867
## iteration: 1323 beta_I: 0.463354 acceptance rate: 0.18065
## iteration: 1324 beta_I: 0.4633219 acceptance rate: 0.1812689
## iteration: 1325 beta_I: 0.4633219 acceptance rate: 0.1811321
## iteration: 1326 beta_I: 0.4633219 acceptance rate: 0.1809955
## iteration: 1327 beta_I: 0.4633219 acceptance rate: 0.1808591
## iteration: 1328 beta_I: 0.4633219 acceptance rate: 0.1807229
## iteration: 1329 beta_I: 0.4633219 acceptance rate: 0.1805869

```

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## iteration: 1330 beta_I: 0.4633219 acceptance rate: 0.1804511
## iteration: 1331 beta_I: 0.4633219 acceptance rate: 0.1803156
## iteration: 1332 beta_I: 0.4633219 acceptance rate: 0.1801802
## iteration: 1333 beta_I: 0.4632963 acceptance rate: 0.1807952
## iteration: 1334 beta_I: 0.4632963 acceptance rate: 0.1806597
## iteration: 1335 beta_I: 0.4632963 acceptance rate: 0.1805243
## iteration: 1336 beta_I: 0.4628781 acceptance rate: 0.1811377
## iteration: 1337 beta_I: 0.4628781 acceptance rate: 0.1810022
## iteration: 1338 beta_I: 0.4628781 acceptance rate: 0.180867
## iteration: 1339 beta_I: 0.4628781 acceptance rate: 0.1807319
## iteration: 1340 beta_I: 0.4628781 acceptance rate: 0.180597
## iteration: 1341 beta_I: 0.4628781 acceptance rate: 0.1804623
## iteration: 1342 beta_I: 0.4615039 acceptance rate: 0.181073
## iteration: 1343 beta_I: 0.4615039 acceptance rate: 0.1809382
## iteration: 1344 beta_I: 0.4653432 acceptance rate: 0.1815476
## iteration: 1345 beta_I: 0.4653048 acceptance rate: 0.1821561
## iteration: 1346 beta_I: 0.4653048 acceptance rate: 0.1820208
## iteration: 1347 beta_I: 0.4653048 acceptance rate: 0.1818857
## iteration: 1348 beta_I: 0.4653048 acceptance rate: 0.1817507
## iteration: 1349 beta_I: 0.4653048 acceptance rate: 0.181616
## iteration: 1350 beta_I: 0.4653048 acceptance rate: 0.1814815
## iteration: 1351 beta_I: 0.4653048 acceptance rate: 0.1813472
## iteration: 1352 beta_I: 0.4653048 acceptance rate: 0.181213
## iteration: 1353 beta_I: 0.4628676 acceptance rate: 0.1818182
## iteration: 1354 beta_I: 0.4628676 acceptance rate: 0.1816839
## iteration: 1355 beta_I: 0.4623773 acceptance rate: 0.1822878
## iteration: 1356 beta_I: 0.4623773 acceptance rate: 0.1821534
## iteration: 1357 beta_I: 0.4623773 acceptance rate: 0.1820192
## iteration: 1358 beta_I: 0.4623773 acceptance rate: 0.1818851
## iteration: 1359 beta_I: 0.4623773 acceptance rate: 0.1817513
## iteration: 1360 beta_I: 0.4623773 acceptance rate: 0.1816176
## iteration: 1361 beta_I: 0.4623773 acceptance rate: 0.1814842
## iteration: 1362 beta_I: 0.4634084 acceptance rate: 0.1820852
## iteration: 1363 beta_I: 0.4634084 acceptance rate: 0.1819516
## iteration: 1364 beta_I: 0.4634084 acceptance rate: 0.1818182
## iteration: 1365 beta_I: 0.4638894 acceptance rate: 0.1824176
## iteration: 1366 beta_I: 0.4638894 acceptance rate: 0.182284
## iteration: 1367 beta_I: 0.4638894 acceptance rate: 0.1821507
## iteration: 1368 beta_I: 0.4638894 acceptance rate: 0.1820175
## iteration: 1369 beta_I: 0.4629515 acceptance rate: 0.182615
## iteration: 1370 beta_I: 0.4629515 acceptance rate: 0.1824818
## iteration: 1371 beta_I: 0.4629515 acceptance rate: 0.1823487
## iteration: 1372 beta_I: 0.4629515 acceptance rate: 0.1822157
## iteration: 1373 beta_I: 0.4629515 acceptance rate: 0.182083
## iteration: 1374 beta_I: 0.4629515 acceptance rate: 0.1819505
## iteration: 1375 beta_I: 0.4629515 acceptance rate: 0.1818182
## iteration: 1376 beta_I: 0.4629515 acceptance rate: 0.181686
## iteration: 1377 beta_I: 0.4635067 acceptance rate: 0.1822803
## iteration: 1378 beta_I: 0.4635067 acceptance rate: 0.182148
## iteration: 1379 beta_I: 0.4635067 acceptance rate: 0.182016
## iteration: 1380 beta_I: 0.4635067 acceptance rate: 0.1818841
## iteration: 1381 beta_I: 0.4635067 acceptance rate: 0.1817524
## iteration: 1382 beta_I: 0.4635067 acceptance rate: 0.1816208
## iteration: 1383 beta_I: 0.4635067 acceptance rate: 0.1814895

```

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## iteration: 1384 beta_I: 0.4635067 acceptance rate: 0.1813584
## iteration: 1385 beta_I: 0.4635067 acceptance rate: 0.1812274
## iteration: 1386 beta_I: 0.4644785 acceptance rate: 0.1818182
## iteration: 1387 beta_I: 0.4644785 acceptance rate: 0.1816871
## iteration: 1388 beta_I: 0.4644785 acceptance rate: 0.1815562
## iteration: 1389 beta_I: 0.4644785 acceptance rate: 0.1814255
## iteration: 1390 beta_I: 0.4640682 acceptance rate: 0.1820144
## iteration: 1391 beta_I: 0.4640682 acceptance rate: 0.1818835
## iteration: 1392 beta_I: 0.4644677 acceptance rate: 0.1824713
## iteration: 1393 beta_I: 0.4644677 acceptance rate: 0.1823403
## iteration: 1394 beta_I: 0.4644677 acceptance rate: 0.1822095
## iteration: 1395 beta_I: 0.4644677 acceptance rate: 0.1820789
## iteration: 1396 beta_I: 0.4644677 acceptance rate: 0.1819484
## iteration: 1397 beta_I: 0.4644677 acceptance rate: 0.1818182
## iteration: 1398 beta_I: 0.4644677 acceptance rate: 0.1816881
## iteration: 1399 beta_I: 0.4644677 acceptance rate: 0.1815583
## iteration: 1400 beta_I: 0.4644677 acceptance rate: 0.1814286
## iteration: 1401 beta_I: 0.4644677 acceptance rate: 0.1812991
## iteration: 1402 beta_I: 0.4644677 acceptance rate: 0.1811698
## iteration: 1403 beta_I: 0.4637877 acceptance rate: 0.1817534
## iteration: 1404 beta_I: 0.4637877 acceptance rate: 0.1816239
## iteration: 1405 beta_I: 0.4637877 acceptance rate: 0.1814947
## iteration: 1406 beta_I: 0.4637877 acceptance rate: 0.1813656
## iteration: 1407 beta_I: 0.4637877 acceptance rate: 0.1812367
## iteration: 1408 beta_I: 0.4637877 acceptance rate: 0.181108
## iteration: 1409 beta_I: 0.4637877 acceptance rate: 0.1809794
## iteration: 1410 beta_I: 0.4637877 acceptance rate: 0.1808511
## iteration: 1411 beta_I: 0.4637877 acceptance rate: 0.1807229
## iteration: 1412 beta_I: 0.4637877 acceptance rate: 0.1805949
## iteration: 1413 beta_I: 0.4637877 acceptance rate: 0.1804671
## iteration: 1414 beta_I: 0.4637877 acceptance rate: 0.1803395
## iteration: 1415 beta_I: 0.4637877 acceptance rate: 0.180212
## iteration: 1416 beta_I: 0.4646674 acceptance rate: 0.180791
## iteration: 1417 beta_I: 0.4646674 acceptance rate: 0.1806634
## iteration: 1418 beta_I: 0.4646674 acceptance rate: 0.180536
## iteration: 1419 beta_I: 0.4646674 acceptance rate: 0.1804087
## iteration: 1420 beta_I: 0.4646674 acceptance rate: 0.1802817
## iteration: 1421 beta_I: 0.4646674 acceptance rate: 0.1801548
## iteration: 1422 beta_I: 0.4618534 acceptance rate: 0.1807314
## iteration: 1423 beta_I: 0.4618534 acceptance rate: 0.1806044
## iteration: 1424 beta_I: 0.4618534 acceptance rate: 0.1804775
## iteration: 1425 beta_I: 0.4618534 acceptance rate: 0.1803509
## iteration: 1426 beta_I: 0.4618534 acceptance rate: 0.1802244
## iteration: 1427 beta_I: 0.4618534 acceptance rate: 0.1800981
## iteration: 1428 beta_I: 0.4618534 acceptance rate: 0.179972
## iteration: 1429 beta_I: 0.4618534 acceptance rate: 0.179846
## iteration: 1430 beta_I: 0.4618534 acceptance rate: 0.1797203
## iteration: 1431 beta_I: 0.4618534 acceptance rate: 0.1795947
## iteration: 1432 beta_I: 0.4618534 acceptance rate: 0.1794693
## iteration: 1433 beta_I: 0.4618534 acceptance rate: 0.179344
## iteration: 1434 beta_I: 0.4618659 acceptance rate: 0.1799163
## iteration: 1435 beta_I: 0.4651083 acceptance rate: 0.1804878
## iteration: 1436 beta_I: 0.4651083 acceptance rate: 0.1803621
## iteration: 1437 beta_I: 0.4623769 acceptance rate: 0.1809325

```

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## iteration: 1438 beta_I: 0.4623769 acceptance rate: 0.1808067
## iteration: 1439 beta_I: 0.4623769 acceptance rate: 0.180681
## iteration: 1440 beta_I: 0.4623769 acceptance rate: 0.1805556
## iteration: 1441 beta_I: 0.4623769 acceptance rate: 0.1804303
## iteration: 1442 beta_I: 0.4623769 acceptance rate: 0.1803051
## iteration: 1443 beta_I: 0.4623769 acceptance rate: 0.1801802
## iteration: 1444 beta_I: 0.4623769 acceptance rate: 0.1800554
## iteration: 1445 beta_I: 0.4635249 acceptance rate: 0.1806228
## iteration: 1446 beta_I: 0.4635249 acceptance rate: 0.1804979
## iteration: 1447 beta_I: 0.4635249 acceptance rate: 0.1803732
## iteration: 1448 beta_I: 0.4625477 acceptance rate: 0.1809392
## iteration: 1449 beta_I: 0.4625477 acceptance rate: 0.1808144
## iteration: 1450 beta_I: 0.4625477 acceptance rate: 0.1806897
## iteration: 1451 beta_I: 0.4625477 acceptance rate: 0.1805651
## iteration: 1452 beta_I: 0.4625477 acceptance rate: 0.1804408
## iteration: 1453 beta_I: 0.4625477 acceptance rate: 0.1803166
## iteration: 1454 beta_I: 0.4624976 acceptance rate: 0.1808803
## iteration: 1455 beta_I: 0.4624976 acceptance rate: 0.180756
## iteration: 1456 beta_I: 0.4638626 acceptance rate: 0.1813187
## iteration: 1457 beta_I: 0.4638626 acceptance rate: 0.1811942
## iteration: 1458 beta_I: 0.4638626 acceptance rate: 0.18107
## iteration: 1459 beta_I: 0.4638626 acceptance rate: 0.1809459
## iteration: 1460 beta_I: 0.4638626 acceptance rate: 0.1808219
## iteration: 1461 beta_I: 0.4638626 acceptance rate: 0.1806982
## iteration: 1462 beta_I: 0.4638626 acceptance rate: 0.1805746
## iteration: 1463 beta_I: 0.4638626 acceptance rate: 0.1804511
## iteration: 1464 beta_I: 0.4638626 acceptance rate: 0.1803279
## iteration: 1465 beta_I: 0.4638626 acceptance rate: 0.1802048
## iteration: 1466 beta_I: 0.4638626 acceptance rate: 0.1800819
## iteration: 1467 beta_I: 0.4638626 acceptance rate: 0.1799591
## iteration: 1468 beta_I: 0.4638626 acceptance rate: 0.1798365
## iteration: 1469 beta_I: 0.4638626 acceptance rate: 0.1797141
## iteration: 1470 beta_I: 0.4638626 acceptance rate: 0.1795918
## iteration: 1471 beta_I: 0.4638626 acceptance rate: 0.1794697
## iteration: 1472 beta_I: 0.4638626 acceptance rate: 0.1793478
## iteration: 1473 beta_I: 0.4645049 acceptance rate: 0.179905
## iteration: 1474 beta_I: 0.4645049 acceptance rate: 0.1797829
## iteration: 1475 beta_I: 0.4645049 acceptance rate: 0.179661
## iteration: 1476 beta_I: 0.4629379 acceptance rate: 0.1802168
## iteration: 1477 beta_I: 0.4629379 acceptance rate: 0.1800948
## iteration: 1478 beta_I: 0.4629379 acceptance rate: 0.1799729
## iteration: 1479 beta_I: 0.4629379 acceptance rate: 0.1798513
## iteration: 1480 beta_I: 0.4629379 acceptance rate: 0.1797297
## iteration: 1481 beta_I: 0.4629379 acceptance rate: 0.1796084
## iteration: 1482 beta_I: 0.4629379 acceptance rate: 0.1794872
## iteration: 1483 beta_I: 0.4629379 acceptance rate: 0.1793661
## iteration: 1484 beta_I: 0.4629379 acceptance rate: 0.1792453
## iteration: 1485 beta_I: 0.4629379 acceptance rate: 0.1791246
## iteration: 1486 beta_I: 0.4629379 acceptance rate: 0.179004
## iteration: 1487 beta_I: 0.4628075 acceptance rate: 0.1795562
## iteration: 1488 beta_I: 0.4628075 acceptance rate: 0.1794355
## iteration: 1489 beta_I: 0.4628075 acceptance rate: 0.179315
## iteration: 1490 beta_I: 0.4628075 acceptance rate: 0.1791946
## iteration: 1491 beta_I: 0.4643155 acceptance rate: 0.1797451

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## iteration: 1492 beta_I: 0.4643155 acceptance rate: 0.1796247
## iteration: 1493 beta_I: 0.4643155 acceptance rate: 0.1795044
## iteration: 1494 beta_I: 0.4629767 acceptance rate: 0.1800535
## iteration: 1495 beta_I: 0.4629767 acceptance rate: 0.1799331
## iteration: 1496 beta_I: 0.4629767 acceptance rate: 0.1798128
## iteration: 1497 beta_I: 0.4629767 acceptance rate: 0.1796927
## iteration: 1498 beta_I: 0.4629767 acceptance rate: 0.1795728
## iteration: 1499 beta_I: 0.4629767 acceptance rate: 0.179453
## iteration: 1500 beta_I: 0.4629767 acceptance rate: 0.1793333
## iteration: 1501 beta_I: 0.4629767 acceptance rate: 0.1792139
## iteration: 1502 beta_I: 0.4629767 acceptance rate: 0.1790945
## iteration: 1503 beta_I: 0.4629767 acceptance rate: 0.1789754
## iteration: 1504 beta_I: 0.4627621 acceptance rate: 0.1795213
## iteration: 1505 beta_I: 0.4627621 acceptance rate: 0.179402
## iteration: 1506 beta_I: 0.4627621 acceptance rate: 0.1792829
## iteration: 1507 beta_I: 0.4627621 acceptance rate: 0.1791639
## iteration: 1508 beta_I: 0.4627621 acceptance rate: 0.1790451
## iteration: 1509 beta_I: 0.4627621 acceptance rate: 0.1789264
## iteration: 1510 beta_I: 0.462674 acceptance rate: 0.1794702
## iteration: 1511 beta_I: 0.462674 acceptance rate: 0.1793514
## iteration: 1512 beta_I: 0.462674 acceptance rate: 0.1792328
## iteration: 1513 beta_I: 0.4635544 acceptance rate: 0.1797753
## iteration: 1514 beta_I: 0.4635544 acceptance rate: 0.1796565
## iteration: 1515 beta_I: 0.4635544 acceptance rate: 0.179538
## iteration: 1516 beta_I: 0.4635544 acceptance rate: 0.1794195
## iteration: 1517 beta_I: 0.4638452 acceptance rate: 0.1799604
## iteration: 1518 beta_I: 0.4638452 acceptance rate: 0.1798419
## iteration: 1519 beta_I: 0.4632622 acceptance rate: 0.1803818
## iteration: 1520 beta_I: 0.4632622 acceptance rate: 0.1802632
## iteration: 1521 beta_I: 0.4632622 acceptance rate: 0.1801446
## iteration: 1522 beta_I: 0.4632622 acceptance rate: 0.1800263
## iteration: 1523 beta_I: 0.4632622 acceptance rate: 0.1799081
## iteration: 1524 beta_I: 0.4632622 acceptance rate: 0.17979
## iteration: 1525 beta_I: 0.4632622 acceptance rate: 0.1796721
## iteration: 1526 beta_I: 0.4638149 acceptance rate: 0.1802097
## iteration: 1527 beta_I: 0.4638149 acceptance rate: 0.1800917
## iteration: 1528 beta_I: 0.4628991 acceptance rate: 0.1806283
## iteration: 1529 beta_I: 0.4628991 acceptance rate: 0.1805101
## iteration: 1530 beta_I: 0.4628991 acceptance rate: 0.1803922
## iteration: 1531 beta_I: 0.4637875 acceptance rate: 0.1809275
## iteration: 1532 beta_I: 0.4637875 acceptance rate: 0.1808094
## iteration: 1533 beta_I: 0.4637875 acceptance rate: 0.1806915
## iteration: 1534 beta_I: 0.4636237 acceptance rate: 0.1812256
## iteration: 1535 beta_I: 0.4636237 acceptance rate: 0.1811075
## iteration: 1536 beta_I: 0.4636237 acceptance rate: 0.1809896
## iteration: 1537 beta_I: 0.4636237 acceptance rate: 0.1808718
## iteration: 1538 beta_I: 0.4636237 acceptance rate: 0.1807542
## iteration: 1539 beta_I: 0.4636237 acceptance rate: 0.1806368
## iteration: 1540 beta_I: 0.4626926 acceptance rate: 0.1811688
## iteration: 1541 beta_I: 0.4626926 acceptance rate: 0.1810513
## iteration: 1542 beta_I: 0.4626926 acceptance rate: 0.1809339
## iteration: 1543 beta_I: 0.4626926 acceptance rate: 0.1808166
## iteration: 1544 beta_I: 0.4626926 acceptance rate: 0.1806995
## iteration: 1545 beta_I: 0.4639026 acceptance rate: 0.1812298

```

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## iteration: 1546 beta_I: 0.4639026 acceptance rate: 0.1811125
## iteration: 1547 beta_I: 0.4639026 acceptance rate: 0.1809955
## iteration: 1548 beta_I: 0.4639026 acceptance rate: 0.1808786
## iteration: 1549 beta_I: 0.4648186 acceptance rate: 0.1814074
## iteration: 1550 beta_I: 0.4648186 acceptance rate: 0.1812903
## iteration: 1551 beta_I: 0.4648186 acceptance rate: 0.1811734
## iteration: 1552 beta_I: 0.4648186 acceptance rate: 0.1810567
## iteration: 1553 beta_I: 0.4648186 acceptance rate: 0.1809401
## iteration: 1554 beta_I: 0.4648186 acceptance rate: 0.1808237
## iteration: 1555 beta_I: 0.4645611 acceptance rate: 0.1813505
## iteration: 1556 beta_I: 0.4645611 acceptance rate: 0.1812339
## iteration: 1557 beta_I: 0.4641482 acceptance rate: 0.1817598
## iteration: 1558 beta_I: 0.4641482 acceptance rate: 0.1816431
## iteration: 1559 beta_I: 0.4641482 acceptance rate: 0.1815266
## iteration: 1560 beta_I: 0.4641482 acceptance rate: 0.1814103
## iteration: 1561 beta_I: 0.4641482 acceptance rate: 0.181294
## iteration: 1562 beta_I: 0.4631418 acceptance rate: 0.1818182
## iteration: 1563 beta_I: 0.4631418 acceptance rate: 0.1817019
## iteration: 1564 beta_I: 0.4631418 acceptance rate: 0.1815857
## iteration: 1565 beta_I: 0.4631418 acceptance rate: 0.1814696
## iteration: 1566 beta_I: 0.4631418 acceptance rate: 0.1813538
## iteration: 1567 beta_I: 0.4631418 acceptance rate: 0.181238
## iteration: 1568 beta_I: 0.4631418 acceptance rate: 0.1811224
## iteration: 1569 beta_I: 0.4628821 acceptance rate: 0.1816444
## iteration: 1570 beta_I: 0.4628821 acceptance rate: 0.1815287
## iteration: 1571 beta_I: 0.4628821 acceptance rate: 0.1814131
## iteration: 1572 beta_I: 0.4628821 acceptance rate: 0.1812977
## iteration: 1573 beta_I: 0.4628821 acceptance rate: 0.1811825
## iteration: 1574 beta_I: 0.4633342 acceptance rate: 0.1817027
## iteration: 1575 beta_I: 0.4633342 acceptance rate: 0.1815873
## iteration: 1576 beta_I: 0.4633342 acceptance rate: 0.1814721
## iteration: 1577 beta_I: 0.4633342 acceptance rate: 0.181357
## iteration: 1578 beta_I: 0.4631807 acceptance rate: 0.1818758
## iteration: 1579 beta_I: 0.4631807 acceptance rate: 0.1817606
## iteration: 1580 beta_I: 0.4631807 acceptance rate: 0.1816456
## iteration: 1581 beta_I: 0.4631807 acceptance rate: 0.1815307
## iteration: 1582 beta_I: 0.4631807 acceptance rate: 0.1814159
## iteration: 1583 beta_I: 0.4631807 acceptance rate: 0.1813013
## iteration: 1584 beta_I: 0.4631807 acceptance rate: 0.1811869
## iteration: 1585 beta_I: 0.4631807 acceptance rate: 0.1810726
## iteration: 1586 beta_I: 0.4624233 acceptance rate: 0.1815889
## iteration: 1587 beta_I: 0.4624233 acceptance rate: 0.1814745
## iteration: 1588 beta_I: 0.4624233 acceptance rate: 0.1813602
## iteration: 1589 beta_I: 0.4624233 acceptance rate: 0.1812461
## iteration: 1590 beta_I: 0.4624233 acceptance rate: 0.1811321
## iteration: 1591 beta_I: 0.4624233 acceptance rate: 0.1810182
## iteration: 1592 beta_I: 0.4624233 acceptance rate: 0.1809045
## iteration: 1593 beta_I: 0.4624233 acceptance rate: 0.180791
## iteration: 1594 beta_I: 0.4624233 acceptance rate: 0.1806775
## iteration: 1595 beta_I: 0.4624233 acceptance rate: 0.1805643
## iteration: 1596 beta_I: 0.4624233 acceptance rate: 0.1804511
## iteration: 1597 beta_I: 0.4624233 acceptance rate: 0.1803381
## iteration: 1598 beta_I: 0.4624233 acceptance rate: 0.1802253
## iteration: 1599 beta_I: 0.4624233 acceptance rate: 0.1801126

```

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## iteration: 1600 beta_I: 0.4624233 acceptance rate: 0.18
## iteration: 1601 beta_I: 0.4624233 acceptance rate: 0.1798876
## iteration: 1602 beta_I: 0.4634797 acceptance rate: 0.1803995
## iteration: 1603 beta_I: 0.4634797 acceptance rate: 0.180287
## iteration: 1604 beta_I: 0.4634797 acceptance rate: 0.1801746
## iteration: 1605 beta_I: 0.4634797 acceptance rate: 0.1800623
## iteration: 1606 beta_I: 0.4634797 acceptance rate: 0.1799502
## iteration: 1607 beta_I: 0.4634797 acceptance rate: 0.1798382
## iteration: 1608 beta_I: 0.4634797 acceptance rate: 0.1797264
## iteration: 1609 beta_I: 0.4634797 acceptance rate: 0.1796147
## iteration: 1610 beta_I: 0.4634797 acceptance rate: 0.1795031
## iteration: 1611 beta_I: 0.4634797 acceptance rate: 0.1793917
## iteration: 1612 beta_I: 0.4634797 acceptance rate: 0.1792804
## iteration: 1613 beta_I: 0.4634797 acceptance rate: 0.1791692
## iteration: 1614 beta_I: 0.4634797 acceptance rate: 0.1790582
## iteration: 1615 beta_I: 0.4634797 acceptance rate: 0.1789474
## iteration: 1616 beta_I: 0.4634797 acceptance rate: 0.1788366
## iteration: 1617 beta_I: 0.4634797 acceptance rate: 0.178726
## iteration: 1618 beta_I: 0.4634797 acceptance rate: 0.1786156
## iteration: 1619 beta_I: 0.4634797 acceptance rate: 0.1785053
## iteration: 1620 beta_I: 0.4634797 acceptance rate: 0.1783951
## iteration: 1621 beta_I: 0.4634797 acceptance rate: 0.178285
## iteration: 1622 beta_I: 0.4641674 acceptance rate: 0.1787916
## iteration: 1623 beta_I: 0.4643729 acceptance rate: 0.1792976
## iteration: 1624 beta_I: 0.4640547 acceptance rate: 0.179803
## iteration: 1625 beta_I: 0.4640547 acceptance rate: 0.1796923
## iteration: 1626 beta_I: 0.4631912 acceptance rate: 0.1801968
## iteration: 1627 beta_I: 0.4631912 acceptance rate: 0.180086
## iteration: 1628 beta_I: 0.4631912 acceptance rate: 0.1799754
## iteration: 1629 beta_I: 0.4631912 acceptance rate: 0.1798649
## iteration: 1630 beta_I: 0.4631912 acceptance rate: 0.1797546
## iteration: 1631 beta_I: 0.4631912 acceptance rate: 0.1796444
## iteration: 1632 beta_I: 0.4625334 acceptance rate: 0.1801471
## iteration: 1633 beta_I: 0.4625334 acceptance rate: 0.1800367
## iteration: 1634 beta_I: 0.4625334 acceptance rate: 0.1799266
## iteration: 1635 beta_I: 0.4625663 acceptance rate: 0.1804281
## iteration: 1636 beta_I: 0.4625663 acceptance rate: 0.1803178
## iteration: 1637 beta_I: 0.4625663 acceptance rate: 0.1802077
## iteration: 1638 beta_I: 0.4625663 acceptance rate: 0.1800977
## iteration: 1639 beta_I: 0.4625663 acceptance rate: 0.1799878
## iteration: 1640 beta_I: 0.4625663 acceptance rate: 0.179878
## iteration: 1641 beta_I: 0.4626196 acceptance rate: 0.1803778
## iteration: 1642 beta_I: 0.4626196 acceptance rate: 0.180268
## iteration: 1643 beta_I: 0.4626196 acceptance rate: 0.1801582
## iteration: 1644 beta_I: 0.4626196 acceptance rate: 0.1800487
## iteration: 1645 beta_I: 0.4626196 acceptance rate: 0.1799392
## iteration: 1646 beta_I: 0.4626196 acceptance rate: 0.1798299
## iteration: 1647 beta_I: 0.4626196 acceptance rate: 0.1797207
## iteration: 1648 beta_I: 0.4626196 acceptance rate: 0.1796117
## iteration: 1649 beta_I: 0.4626196 acceptance rate: 0.1795027
## iteration: 1650 beta_I: 0.4626196 acceptance rate: 0.1793939
## iteration: 1651 beta_I: 0.4637071 acceptance rate: 0.179891
## iteration: 1652 beta_I: 0.4637071 acceptance rate: 0.1797821
## iteration: 1653 beta_I: 0.4637071 acceptance rate: 0.1796733

```

```

## iteration: 1654 beta_I: 0.4637071 acceptance rate: 0.1795647
## iteration: 1655 beta_I: 0.4628198 acceptance rate: 0.1800604
## iteration: 1656 beta_I: 0.4628198 acceptance rate: 0.1799517
## iteration: 1657 beta_I: 0.4628198 acceptance rate: 0.1798431
## iteration: 1658 beta_I: 0.4635622 acceptance rate: 0.1803378
## iteration: 1659 beta_I: 0.4635622 acceptance rate: 0.1802291
## iteration: 1660 beta_I: 0.4635622 acceptance rate: 0.1801205
## iteration: 1661 beta_I: 0.4635622 acceptance rate: 0.180012
## iteration: 1662 beta_I: 0.4635622 acceptance rate: 0.1799037
## iteration: 1663 beta_I: 0.4635622 acceptance rate: 0.1797956
## iteration: 1664 beta_I: 0.4635622 acceptance rate: 0.1796875
## iteration: 1665 beta_I: 0.4635622 acceptance rate: 0.1795796
## iteration: 1666 beta_I: 0.4635622 acceptance rate: 0.1794718
## iteration: 1667 beta_I: 0.4620204 acceptance rate: 0.179964
## iteration: 1668 beta_I: 0.4620204 acceptance rate: 0.1798561
## iteration: 1669 beta_I: 0.4620204 acceptance rate: 0.1797484
## iteration: 1670 beta_I: 0.4620204 acceptance rate: 0.1796407
## iteration: 1671 beta_I: 0.4620204 acceptance rate: 0.1795332
## iteration: 1672 beta_I: 0.4625645 acceptance rate: 0.1800239
## iteration: 1673 beta_I: 0.4625645 acceptance rate: 0.1799163
## iteration: 1674 beta_I: 0.4625645 acceptance rate: 0.1798088
## iteration: 1675 beta_I: 0.4625645 acceptance rate: 0.1797015
## iteration: 1676 beta_I: 0.4625645 acceptance rate: 0.1795943
## iteration: 1677 beta_I: 0.4625645 acceptance rate: 0.1794872
## iteration: 1678 beta_I: 0.4625645 acceptance rate: 0.1793802
## iteration: 1679 beta_I: 0.4625645 acceptance rate: 0.1792734
## iteration: 1680 beta_I: 0.4625645 acceptance rate: 0.1791667
## iteration: 1681 beta_I: 0.4625645 acceptance rate: 0.1790601
## iteration: 1682 beta_I: 0.4625645 acceptance rate: 0.1789536
## iteration: 1683 beta_I: 0.4625645 acceptance rate: 0.1788473
## iteration: 1684 beta_I: 0.4625645 acceptance rate: 0.1787411
## iteration: 1685 beta_I: 0.4643318 acceptance rate: 0.1792285
## iteration: 1686 beta_I: 0.4643318 acceptance rate: 0.1791222
## iteration: 1687 beta_I: 0.4643318 acceptance rate: 0.179016
## iteration: 1688 beta_I: 0.4643318 acceptance rate: 0.17891
## iteration: 1689 beta_I: 0.4643318 acceptance rate: 0.178804
## iteration: 1690 beta_I: 0.4643318 acceptance rate: 0.1786982
## iteration: 1691 beta_I: 0.4643318 acceptance rate: 0.1785925
## iteration: 1692 beta_I: 0.463215 acceptance rate: 0.179078
## iteration: 1693 beta_I: 0.4646664 acceptance rate: 0.1795629
## iteration: 1694 beta_I: 0.4619669 acceptance rate: 0.1800472
## iteration: 1695 beta_I: 0.4619669 acceptance rate: 0.179941
## iteration: 1696 beta_I: 0.4619669 acceptance rate: 0.1798349
## iteration: 1697 beta_I: 0.4619669 acceptance rate: 0.1797289
## iteration: 1698 beta_I: 0.4619669 acceptance rate: 0.1796231
## iteration: 1699 beta_I: 0.462712 acceptance rate: 0.1801059
## iteration: 1700 beta_I: 0.462712 acceptance rate: 0.18
## iteration: 1701 beta_I: 0.462712 acceptance rate: 0.1798942
## iteration: 1702 beta_I: 0.462712 acceptance rate: 0.1797885
## iteration: 1703 beta_I: 0.462712 acceptance rate: 0.1796829
## iteration: 1704 beta_I: 0.462712 acceptance rate: 0.1795775
## iteration: 1705 beta_I: 0.462712 acceptance rate: 0.1794721
## iteration: 1706 beta_I: 0.462712 acceptance rate: 0.1793669
## iteration: 1707 beta_I: 0.462712 acceptance rate: 0.1792619

```

```

## iteration: 1708 beta_I: 0.462712 acceptance rate: 0.1791569
## iteration: 1709 beta_I: 0.462712 acceptance rate: 0.1790521
## iteration: 1710 beta_I: 0.462712 acceptance rate: 0.1789474
## iteration: 1711 beta_I: 0.462712 acceptance rate: 0.1788428
## iteration: 1712 beta_I: 0.462712 acceptance rate: 0.1787383
## iteration: 1713 beta_I: 0.462712 acceptance rate: 0.178634
## iteration: 1714 beta_I: 0.462712 acceptance rate: 0.1785298
## iteration: 1715 beta_I: 0.462712 acceptance rate: 0.1784257
## iteration: 1716 beta_I: 0.462712 acceptance rate: 0.1783217
## iteration: 1717 beta_I: 0.462712 acceptance rate: 0.1782178
## iteration: 1718 beta_I: 0.4627563 acceptance rate: 0.1786962
## iteration: 1719 beta_I: 0.4627563 acceptance rate: 0.1785922
## iteration: 1720 beta_I: 0.4627563 acceptance rate: 0.1784884
## iteration: 1721 beta_I: 0.4627563 acceptance rate: 0.1783847
## iteration: 1722 beta_I: 0.4623406 acceptance rate: 0.1788618
## iteration: 1723 beta_I: 0.4623406 acceptance rate: 0.178758
## iteration: 1724 beta_I: 0.4623406 acceptance rate: 0.1786543
## iteration: 1725 beta_I: 0.4623406 acceptance rate: 0.1785507
## iteration: 1726 beta_I: 0.4646555 acceptance rate: 0.1790267
## iteration: 1727 beta_I: 0.4646555 acceptance rate: 0.178923
## iteration: 1728 beta_I: 0.4646555 acceptance rate: 0.1788194
## iteration: 1729 beta_I: 0.4646555 acceptance rate: 0.178716
## iteration: 1730 beta_I: 0.4646555 acceptance rate: 0.1786127
## iteration: 1731 beta_I: 0.4646555 acceptance rate: 0.1785095
## iteration: 1732 beta_I: 0.4627764 acceptance rate: 0.1789838
## iteration: 1733 beta_I: 0.4627764 acceptance rate: 0.1788806
## iteration: 1734 beta_I: 0.4627764 acceptance rate: 0.1787774
## iteration: 1735 beta_I: 0.4627764 acceptance rate: 0.1786744
## iteration: 1736 beta_I: 0.4627764 acceptance rate: 0.1785714
## iteration: 1737 beta_I: 0.4627764 acceptance rate: 0.1784686
## iteration: 1738 beta_I: 0.4627764 acceptance rate: 0.1783659
## iteration: 1739 beta_I: 0.4627764 acceptance rate: 0.1782634
## iteration: 1740 beta_I: 0.4627764 acceptance rate: 0.1781609
## iteration: 1741 beta_I: 0.4627764 acceptance rate: 0.1780586
## iteration: 1742 beta_I: 0.4627764 acceptance rate: 0.1779564
## iteration: 1743 beta_I: 0.4627764 acceptance rate: 0.1778543
## iteration: 1744 beta_I: 0.4641855 acceptance rate: 0.1783257
## iteration: 1745 beta_I: 0.4634353 acceptance rate: 0.1787966
## iteration: 1746 beta_I: 0.4634353 acceptance rate: 0.1786942
## iteration: 1747 beta_I: 0.4634353 acceptance rate: 0.1785919
## iteration: 1748 beta_I: 0.4634353 acceptance rate: 0.1784897
## iteration: 1749 beta_I: 0.4634353 acceptance rate: 0.1783877
## iteration: 1750 beta_I: 0.4623816 acceptance rate: 0.1788571
## iteration: 1751 beta_I: 0.4623816 acceptance rate: 0.178755
## iteration: 1752 beta_I: 0.4623816 acceptance rate: 0.178653
## iteration: 1753 beta_I: 0.4623816 acceptance rate: 0.1785511
## iteration: 1754 beta_I: 0.4623816 acceptance rate: 0.1784493
## iteration: 1755 beta_I: 0.4623816 acceptance rate: 0.1783476
## iteration: 1756 beta_I: 0.4623816 acceptance rate: 0.178246
## iteration: 1757 beta_I: 0.4623816 acceptance rate: 0.1781446
## iteration: 1758 beta_I: 0.4623816 acceptance rate: 0.1780432
## iteration: 1759 beta_I: 0.4641164 acceptance rate: 0.1785105
## iteration: 1760 beta_I: 0.4641164 acceptance rate: 0.1784091
## iteration: 1761 beta_I: 0.4641358 acceptance rate: 0.1788756

```

```

## iteration: 1762 beta_I: 0.462713 acceptance rate: 0.1793417
## iteration: 1763 beta_I: 0.462713 acceptance rate: 0.1792399
## iteration: 1764 beta_I: 0.462713 acceptance rate: 0.1791383
## iteration: 1765 beta_I: 0.4630325 acceptance rate: 0.1796034
## iteration: 1766 beta_I: 0.4630325 acceptance rate: 0.1795017
## iteration: 1767 beta_I: 0.4632769 acceptance rate: 0.179966
## iteration: 1768 beta_I: 0.4632769 acceptance rate: 0.1798643
## iteration: 1769 beta_I: 0.4632769 acceptance rate: 0.1797626
## iteration: 1770 beta_I: 0.4632769 acceptance rate: 0.179661
## iteration: 1771 beta_I: 0.4632769 acceptance rate: 0.1795596
## iteration: 1772 beta_I: 0.4632769 acceptance rate: 0.1794582
## iteration: 1773 beta_I: 0.4632769 acceptance rate: 0.179357
## iteration: 1774 beta_I: 0.4632769 acceptance rate: 0.1792559
## iteration: 1775 beta_I: 0.4637635 acceptance rate: 0.1797183
## iteration: 1776 beta_I: 0.4637635 acceptance rate: 0.1796171
## iteration: 1777 beta_I: 0.4637635 acceptance rate: 0.179516
## iteration: 1778 beta_I: 0.4637635 acceptance rate: 0.1794151
## iteration: 1779 beta_I: 0.4637635 acceptance rate: 0.1793142
## iteration: 1780 beta_I: 0.4637635 acceptance rate: 0.1792135
## iteration: 1781 beta_I: 0.4637635 acceptance rate: 0.1791129
## iteration: 1782 beta_I: 0.4637635 acceptance rate: 0.1790123
## iteration: 1783 beta_I: 0.4637635 acceptance rate: 0.1789119
## iteration: 1784 beta_I: 0.4637635 acceptance rate: 0.1788117
## iteration: 1785 beta_I: 0.4637635 acceptance rate: 0.1787115
## iteration: 1786 beta_I: 0.4637635 acceptance rate: 0.1786114
## iteration: 1787 beta_I: 0.4637635 acceptance rate: 0.1785115
## iteration: 1788 beta_I: 0.4637635 acceptance rate: 0.1784116
## iteration: 1789 beta_I: 0.4637635 acceptance rate: 0.1783119
## iteration: 1790 beta_I: 0.4637635 acceptance rate: 0.1782123
## iteration: 1791 beta_I: 0.4637635 acceptance rate: 0.1781128
## iteration: 1792 beta_I: 0.4637635 acceptance rate: 0.1780134
## iteration: 1793 beta_I: 0.4637635 acceptance rate: 0.1779141
## iteration: 1794 beta_I: 0.4637635 acceptance rate: 0.1778149
## iteration: 1795 beta_I: 0.4637635 acceptance rate: 0.1777159
## iteration: 1796 beta_I: 0.4637635 acceptance rate: 0.1776169
## iteration: 1797 beta_I: 0.4637635 acceptance rate: 0.1775181
## iteration: 1798 beta_I: 0.4637635 acceptance rate: 0.1774194
## iteration: 1799 beta_I: 0.4637635 acceptance rate: 0.1773207
## iteration: 1800 beta_I: 0.4637635 acceptance rate: 0.1772222
## iteration: 1801 beta_I: 0.4637635 acceptance rate: 0.1771238
## iteration: 1802 beta_I: 0.4637635 acceptance rate: 0.1770255
## iteration: 1803 beta_I: 0.4637635 acceptance rate: 0.1769273
## iteration: 1804 beta_I: 0.4637635 acceptance rate: 0.1768293
## iteration: 1805 beta_I: 0.4637635 acceptance rate: 0.1767313
## iteration: 1806 beta_I: 0.4646265 acceptance rate: 0.1771872
## iteration: 1807 beta_I: 0.4646265 acceptance rate: 0.1770891
## iteration: 1808 beta_I: 0.4646265 acceptance rate: 0.1769912
## iteration: 1809 beta_I: 0.4644469 acceptance rate: 0.1774461
## iteration: 1810 beta_I: 0.4627468 acceptance rate: 0.1779006
## iteration: 1811 beta_I: 0.4627468 acceptance rate: 0.1778023
## iteration: 1812 beta_I: 0.4627468 acceptance rate: 0.1777042
## iteration: 1813 beta_I: 0.4627468 acceptance rate: 0.1776062
## iteration: 1814 beta_I: 0.4634102 acceptance rate: 0.1780595
## iteration: 1815 beta_I: 0.4634102 acceptance rate: 0.1779614

```

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## iteration: 1816 beta_I: 0.4634102 acceptance rate: 0.1778634
## iteration: 1817 beta_I: 0.4632839 acceptance rate: 0.1783159
## iteration: 1818 beta_I: 0.4632839 acceptance rate: 0.1782178
## iteration: 1819 beta_I: 0.4632839 acceptance rate: 0.1781198
## iteration: 1820 beta_I: 0.4632839 acceptance rate: 0.178022
## iteration: 1821 beta_I: 0.4632839 acceptance rate: 0.1779242
## iteration: 1822 beta_I: 0.4632839 acceptance rate: 0.1778266
## iteration: 1823 beta_I: 0.4632839 acceptance rate: 0.177729
## iteration: 1824 beta_I: 0.4632839 acceptance rate: 0.1776316
## iteration: 1825 beta_I: 0.4632839 acceptance rate: 0.1775342
## iteration: 1826 beta_I: 0.4632839 acceptance rate: 0.177437
## iteration: 1827 beta_I: 0.4632839 acceptance rate: 0.1773399
## iteration: 1828 beta_I: 0.4632839 acceptance rate: 0.1772429
## iteration: 1829 beta_I: 0.4632839 acceptance rate: 0.177146
## iteration: 1830 beta_I: 0.4632839 acceptance rate: 0.1770492
## iteration: 1831 beta_I: 0.4632839 acceptance rate: 0.1769525
## iteration: 1832 beta_I: 0.4632839 acceptance rate: 0.1768559
## iteration: 1833 beta_I: 0.4633413 acceptance rate: 0.177305
## iteration: 1834 beta_I: 0.4633413 acceptance rate: 0.1772083
## iteration: 1835 beta_I: 0.4643035 acceptance rate: 0.1776567
## iteration: 1836 beta_I: 0.4643035 acceptance rate: 0.1775599
## iteration: 1837 beta_I: 0.4643035 acceptance rate: 0.1774633
## iteration: 1838 beta_I: 0.4643035 acceptance rate: 0.1773667
## iteration: 1839 beta_I: 0.4643035 acceptance rate: 0.1772703
## iteration: 1840 beta_I: 0.4643035 acceptance rate: 0.1771739
## iteration: 1841 beta_I: 0.4632613 acceptance rate: 0.1776209
## iteration: 1842 beta_I: 0.4632613 acceptance rate: 0.1775244
## iteration: 1843 beta_I: 0.4635613 acceptance rate: 0.1779707
## iteration: 1844 beta_I: 0.4635613 acceptance rate: 0.1778742
## iteration: 1845 beta_I: 0.4635613 acceptance rate: 0.1777778
## iteration: 1846 beta_I: 0.4635613 acceptance rate: 0.1776815
## iteration: 1847 beta_I: 0.4635613 acceptance rate: 0.1775853
## iteration: 1848 beta_I: 0.4635613 acceptance rate: 0.1774892
## iteration: 1849 beta_I: 0.4635613 acceptance rate: 0.1773932
## iteration: 1850 beta_I: 0.4635613 acceptance rate: 0.1772973
## iteration: 1851 beta_I: 0.4635613 acceptance rate: 0.1772015
## iteration: 1852 beta_I: 0.4635613 acceptance rate: 0.1771058
## iteration: 1853 beta_I: 0.4635613 acceptance rate: 0.1770103
## iteration: 1854 beta_I: 0.4635613 acceptance rate: 0.1769148
## iteration: 1855 beta_I: 0.4635613 acceptance rate: 0.1768194
## iteration: 1856 beta_I: 0.4629535 acceptance rate: 0.1772629
## iteration: 1857 beta_I: 0.4629535 acceptance rate: 0.1771675
## iteration: 1858 beta_I: 0.4629535 acceptance rate: 0.1770721
## iteration: 1859 beta_I: 0.4629535 acceptance rate: 0.1769769
## iteration: 1860 beta_I: 0.4629535 acceptance rate: 0.1768817
## iteration: 1861 beta_I: 0.4629535 acceptance rate: 0.1767867
## iteration: 1862 beta_I: 0.4629535 acceptance rate: 0.1766917
## iteration: 1863 beta_I: 0.4629535 acceptance rate: 0.1765969
## iteration: 1864 beta_I: 0.4629535 acceptance rate: 0.1765021
## iteration: 1865 beta_I: 0.4629535 acceptance rate: 0.1764075
## iteration: 1866 beta_I: 0.4629535 acceptance rate: 0.176313
## iteration: 1867 beta_I: 0.4629535 acceptance rate: 0.1762185
## iteration: 1868 beta_I: 0.4623468 acceptance rate: 0.1766595
## iteration: 1869 beta_I: 0.4623468 acceptance rate: 0.176565

```

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## iteration: 1870 beta_I: 0.4623468 acceptance rate: 0.1764706
## iteration: 1871 beta_I: 0.4624353 acceptance rate: 0.1769107
## iteration: 1872 beta_I: 0.4624353 acceptance rate: 0.1768162
## iteration: 1873 beta_I: 0.4624353 acceptance rate: 0.1767218
## iteration: 1874 beta_I: 0.4624353 acceptance rate: 0.1766275
## iteration: 1875 beta_I: 0.4624353 acceptance rate: 0.1765333
## iteration: 1876 beta_I: 0.4624353 acceptance rate: 0.1764392
## iteration: 1877 beta_I: 0.4629397 acceptance rate: 0.176878
## iteration: 1878 beta_I: 0.4629397 acceptance rate: 0.1767838
## iteration: 1879 beta_I: 0.4629397 acceptance rate: 0.1766897
## iteration: 1880 beta_I: 0.4629397 acceptance rate: 0.1765957
## iteration: 1881 beta_I: 0.4629397 acceptance rate: 0.1765019
## iteration: 1882 beta_I: 0.4633236 acceptance rate: 0.1769394
## iteration: 1883 beta_I: 0.4633236 acceptance rate: 0.1768455
## iteration: 1884 beta_I: 0.4633236 acceptance rate: 0.1767516
## iteration: 1885 beta_I: 0.4633236 acceptance rate: 0.1766578
## iteration: 1886 beta_I: 0.4633236 acceptance rate: 0.1765642
## iteration: 1887 beta_I: 0.4633236 acceptance rate: 0.1764706
## iteration: 1888 beta_I: 0.4616385 acceptance rate: 0.1769068
## iteration: 1889 beta_I: 0.4616385 acceptance rate: 0.1768131
## iteration: 1890 beta_I: 0.4616385 acceptance rate: 0.1767196
## iteration: 1891 beta_I: 0.4616385 acceptance rate: 0.1766261
## iteration: 1892 beta_I: 0.4616385 acceptance rate: 0.1765328
## iteration: 1893 beta_I: 0.4631486 acceptance rate: 0.1769678
## iteration: 1894 beta_I: 0.4631486 acceptance rate: 0.1768743
## iteration: 1895 beta_I: 0.4631486 acceptance rate: 0.176781
## iteration: 1896 beta_I: 0.4631486 acceptance rate: 0.1766878
## iteration: 1897 beta_I: 0.4631486 acceptance rate: 0.1765946
## iteration: 1898 beta_I: 0.4631486 acceptance rate: 0.1765016
## iteration: 1899 beta_I: 0.4631486 acceptance rate: 0.1764086
## iteration: 1900 beta_I: 0.4631486 acceptance rate: 0.1763158
## iteration: 1901 beta_I: 0.4631486 acceptance rate: 0.176223
## iteration: 1902 beta_I: 0.4631486 acceptance rate: 0.1761304
## iteration: 1903 beta_I: 0.4631486 acceptance rate: 0.1760378
## iteration: 1904 beta_I: 0.4631486 acceptance rate: 0.1759454
## iteration: 1905 beta_I: 0.4631486 acceptance rate: 0.175853
## iteration: 1906 beta_I: 0.4631486 acceptance rate: 0.1757608
## iteration: 1907 beta_I: 0.4631486 acceptance rate: 0.1756686
## iteration: 1908 beta_I: 0.4631486 acceptance rate: 0.1755765
## iteration: 1909 beta_I: 0.4631486 acceptance rate: 0.1754845
## iteration: 1910 beta_I: 0.4631486 acceptance rate: 0.1753927
## iteration: 1911 beta_I: 0.4631486 acceptance rate: 0.1753009
## iteration: 1912 beta_I: 0.4631486 acceptance rate: 0.1752092
## iteration: 1913 beta_I: 0.4631486 acceptance rate: 0.1751176
## iteration: 1914 beta_I: 0.4631486 acceptance rate: 0.1750261
## iteration: 1915 beta_I: 0.4631486 acceptance rate: 0.1749347
## iteration: 1916 beta_I: 0.4631486 acceptance rate: 0.1748434
## iteration: 1917 beta_I: 0.4631486 acceptance rate: 0.1747522
## iteration: 1918 beta_I: 0.4631486 acceptance rate: 0.1746611
## iteration: 1919 beta_I: 0.4631486 acceptance rate: 0.1745701
## iteration: 1920 beta_I: 0.4631486 acceptance rate: 0.1744792
## iteration: 1921 beta_I: 0.463343 acceptance rate: 0.1749089
## iteration: 1922 beta_I: 0.463343 acceptance rate: 0.1748179
## iteration: 1923 beta_I: 0.463343 acceptance rate: 0.174727

```

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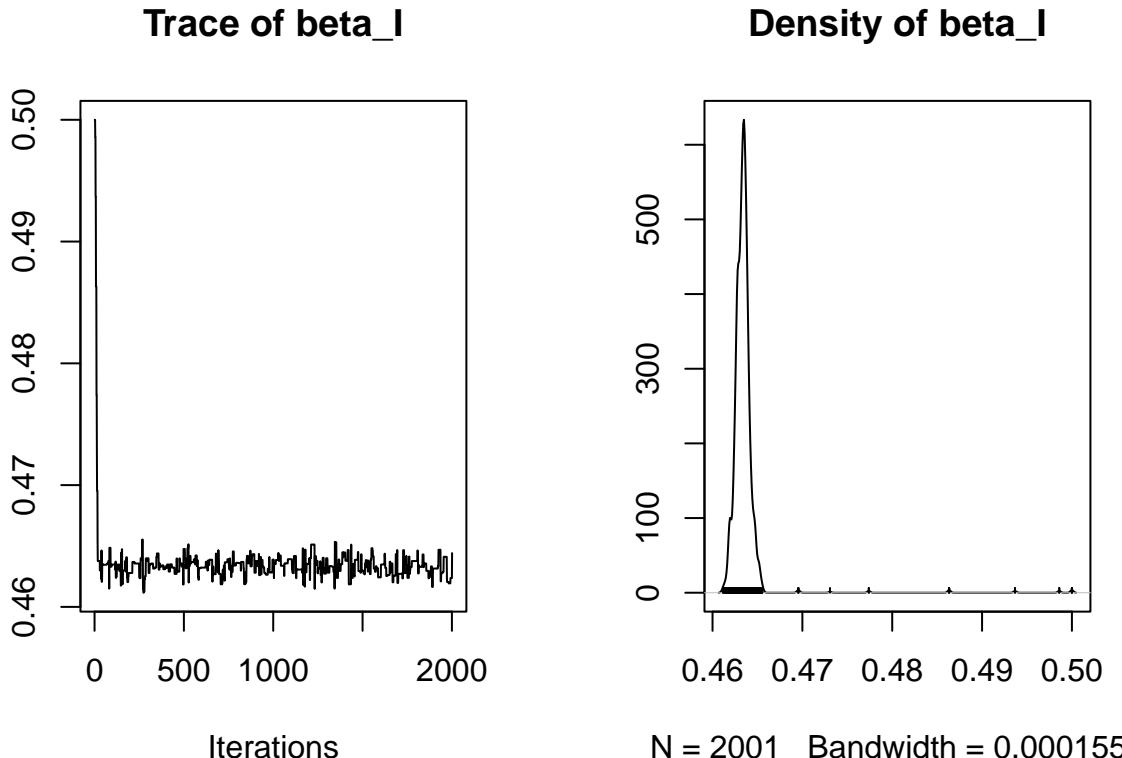
## iteration: 1924 beta_I: 0.4646901 acceptance rate: 0.1751559
## iteration: 1925 beta_I: 0.4646901 acceptance rate: 0.1750649
## iteration: 1926 beta_I: 0.4646901 acceptance rate: 0.174974
## iteration: 1927 beta_I: 0.4646901 acceptance rate: 0.1748832
## iteration: 1928 beta_I: 0.4646901 acceptance rate: 0.1747925
## iteration: 1929 beta_I: 0.4646901 acceptance rate: 0.1747019
## iteration: 1930 beta_I: 0.4646901 acceptance rate: 0.1746114
## iteration: 1931 beta_I: 0.4646901 acceptance rate: 0.174521
## iteration: 1932 beta_I: 0.4646901 acceptance rate: 0.1744306
## iteration: 1933 beta_I: 0.4646901 acceptance rate: 0.1743404
## iteration: 1934 beta_I: 0.4646901 acceptance rate: 0.1742503
## iteration: 1935 beta_I: 0.4646901 acceptance rate: 0.1741602
## iteration: 1936 beta_I: 0.4620967 acceptance rate: 0.1745868
## iteration: 1937 beta_I: 0.4620967 acceptance rate: 0.1744966
## iteration: 1938 beta_I: 0.4620967 acceptance rate: 0.1744066
## iteration: 1939 beta_I: 0.4627617 acceptance rate: 0.1748324
## iteration: 1940 beta_I: 0.4627617 acceptance rate: 0.1747423
## iteration: 1941 beta_I: 0.4627617 acceptance rate: 0.1746522
## iteration: 1942 beta_I: 0.4627617 acceptance rate: 0.1745623
## iteration: 1943 beta_I: 0.4627617 acceptance rate: 0.1744725
## iteration: 1944 beta_I: 0.4627617 acceptance rate: 0.1743827
## iteration: 1945 beta_I: 0.4627617 acceptance rate: 0.1742931
## iteration: 1946 beta_I: 0.4627617 acceptance rate: 0.1742035
## iteration: 1947 beta_I: 0.4628685 acceptance rate: 0.1746276
## iteration: 1948 beta_I: 0.4628685 acceptance rate: 0.174538
## iteration: 1949 beta_I: 0.4628685 acceptance rate: 0.1744484
## iteration: 1950 beta_I: 0.4628685 acceptance rate: 0.174359
## iteration: 1951 beta_I: 0.4628685 acceptance rate: 0.1742696
## iteration: 1952 beta_I: 0.4628685 acceptance rate: 0.1741803
## iteration: 1953 beta_I: 0.4641126 acceptance rate: 0.1746032
## iteration: 1954 beta_I: 0.4641126 acceptance rate: 0.1745138
## iteration: 1955 beta_I: 0.4641126 acceptance rate: 0.1744246
## iteration: 1956 beta_I: 0.4641126 acceptance rate: 0.1743354
## iteration: 1957 beta_I: 0.4641126 acceptance rate: 0.1742463
## iteration: 1958 beta_I: 0.4641126 acceptance rate: 0.1741573
## iteration: 1959 beta_I: 0.4641126 acceptance rate: 0.1740684
## iteration: 1960 beta_I: 0.4641126 acceptance rate: 0.1739796
## iteration: 1961 beta_I: 0.4641126 acceptance rate: 0.1738909
## iteration: 1962 beta_I: 0.4641126 acceptance rate: 0.1738022
## iteration: 1963 beta_I: 0.4641126 acceptance rate: 0.1737137
## iteration: 1964 beta_I: 0.4641126 acceptance rate: 0.1736253
## iteration: 1965 beta_I: 0.4641126 acceptance rate: 0.1735369
## iteration: 1966 beta_I: 0.4641126 acceptance rate: 0.1734486
## iteration: 1967 beta_I: 0.4641126 acceptance rate: 0.1733604
## iteration: 1968 beta_I: 0.4641126 acceptance rate: 0.1732724
## iteration: 1969 beta_I: 0.4641126 acceptance rate: 0.1731844
## iteration: 1970 beta_I: 0.4641126 acceptance rate: 0.1730964
## iteration: 1971 beta_I: 0.4623818 acceptance rate: 0.173516
## iteration: 1972 beta_I: 0.4620425 acceptance rate: 0.1739351
## iteration: 1973 beta_I: 0.4620425 acceptance rate: 0.1738469
## iteration: 1974 beta_I: 0.4620425 acceptance rate: 0.1737589
## iteration: 1975 beta_I: 0.4620425 acceptance rate: 0.1736709
## iteration: 1976 beta_I: 0.4620425 acceptance rate: 0.173583
## iteration: 1977 beta_I: 0.4620425 acceptance rate: 0.1734952

```

```

## iteration: 1978 beta_I: 0.4620425 acceptance rate: 0.1734075
## iteration: 1979 beta_I: 0.4620425 acceptance rate: 0.1733199
## iteration: 1980 beta_I: 0.4620425 acceptance rate: 0.1732323
## iteration: 1981 beta_I: 0.4619304 acceptance rate: 0.1736497
## iteration: 1982 beta_I: 0.4619304 acceptance rate: 0.1735621
## iteration: 1983 beta_I: 0.4619304 acceptance rate: 0.1734745
## iteration: 1984 beta_I: 0.4619304 acceptance rate: 0.1733871
## iteration: 1985 beta_I: 0.4619304 acceptance rate: 0.1732997
## iteration: 1986 beta_I: 0.4619304 acceptance rate: 0.1732125
## iteration: 1987 beta_I: 0.4619304 acceptance rate: 0.1731253
## iteration: 1988 beta_I: 0.4619304 acceptance rate: 0.1730382
## iteration: 1989 beta_I: 0.4619304 acceptance rate: 0.1729512
## iteration: 1990 beta_I: 0.4619304 acceptance rate: 0.1728643
## iteration: 1991 beta_I: 0.462366 acceptance rate: 0.1732798
## iteration: 1992 beta_I: 0.462366 acceptance rate: 0.1731928
## iteration: 1993 beta_I: 0.462366 acceptance rate: 0.1731059
## iteration: 1994 beta_I: 0.462366 acceptance rate: 0.1730191
## iteration: 1995 beta_I: 0.462366 acceptance rate: 0.1729323
## iteration: 1996 beta_I: 0.462366 acceptance rate: 0.1728457
## iteration: 1997 beta_I: 0.462366 acceptance rate: 0.1727591
## iteration: 1998 beta_I: 0.462366 acceptance rate: 0.1726727
## iteration: 1999 beta_I: 0.462366 acceptance rate: 0.1725863
## iteration: 2000 beta_I: 0.4644146 acceptance rate: 0.173

```



```

## iteration: 1 beta_I: 0.5099735 acceptance rate: 1
## iteration: 2 beta_I: 0.514598 acceptance rate: 1
## iteration: 3 beta_I: 0.514598 acceptance rate: 0.6666667
## iteration: 4 beta_I: 0.5217918 acceptance rate: 0.75
## iteration: 5 beta_I: 0.5217918 acceptance rate: 0.6
## iteration: 6 beta_I: 0.5282562 acceptance rate: 0.6666667

```

```

## iteration: 7 beta_I: 0.5282562 acceptance rate: 0.5714286
## iteration: 8 beta_I: 0.5289705 acceptance rate: 0.625
## iteration: 9 beta_I: 0.5314396 acceptance rate: 0.6666667
## iteration: 10 beta_I: 0.5314396 acceptance rate: 0.6
## iteration: 11 beta_I: 0.5347935 acceptance rate: 0.6363636
## iteration: 12 beta_I: 0.5347935 acceptance rate: 0.5833333
## iteration: 13 beta_I: 0.5347935 acceptance rate: 0.5384615
## iteration: 14 beta_I: 0.537186 acceptance rate: 0.5714286
## iteration: 15 beta_I: 0.5384317 acceptance rate: 0.6
## iteration: 16 beta_I: 0.5384317 acceptance rate: 0.5625
## iteration: 17 beta_I: 0.5384317 acceptance rate: 0.5294118
## iteration: 18 beta_I: 0.5421855 acceptance rate: 0.5555556
## iteration: 19 beta_I: 0.5421855 acceptance rate: 0.5263158
## iteration: 20 beta_I: 0.5421855 acceptance rate: 0.5
## iteration: 21 beta_I: 0.5446035 acceptance rate: 0.5238095
## iteration: 22 beta_I: 0.5446035 acceptance rate: 0.5
## iteration: 23 beta_I: 0.5490297 acceptance rate: 0.5217391
## iteration: 24 beta_I: 0.5490297 acceptance rate: 0.5
## iteration: 25 beta_I: 0.5490297 acceptance rate: 0.48
## iteration: 26 beta_I: 0.5490297 acceptance rate: 0.4615385
## iteration: 27 beta_I: 0.5518512 acceptance rate: 0.4814815
## iteration: 28 beta_I: 0.5530888 acceptance rate: 0.5
## iteration: 29 beta_I: 0.5530888 acceptance rate: 0.4827586
## iteration: 30 beta_I: 0.5538484 acceptance rate: 0.5
## iteration: 31 beta_I: 0.5538484 acceptance rate: 0.483871
## iteration: 32 beta_I: 0.5538484 acceptance rate: 0.46875
## iteration: 33 beta_I: 0.5590079 acceptance rate: 0.4848485
## iteration: 34 beta_I: 0.5590079 acceptance rate: 0.4705882
## iteration: 35 beta_I: 0.5590079 acceptance rate: 0.4571429
## iteration: 36 beta_I: 0.5590079 acceptance rate: 0.4444444
## iteration: 37 beta_I: 0.5590079 acceptance rate: 0.4324324
## iteration: 38 beta_I: 0.5613355 acceptance rate: 0.4473684
## iteration: 39 beta_I: 0.5613355 acceptance rate: 0.4358974
## iteration: 40 beta_I: 0.5613355 acceptance rate: 0.425
## iteration: 41 beta_I: 0.5615274 acceptance rate: 0.4390244
## iteration: 42 beta_I: 0.5628403 acceptance rate: 0.452381
## iteration: 43 beta_I: 0.5628403 acceptance rate: 0.4418605
## iteration: 44 beta_I: 0.5627348 acceptance rate: 0.4545455
## iteration: 45 beta_I: 0.5627348 acceptance rate: 0.4444444
## iteration: 46 beta_I: 0.5644518 acceptance rate: 0.4565217
## iteration: 47 beta_I: 0.5644518 acceptance rate: 0.4468085
## iteration: 48 beta_I: 0.5644518 acceptance rate: 0.4375
## iteration: 49 beta_I: 0.5644518 acceptance rate: 0.4285714
## iteration: 50 beta_I: 0.5668964 acceptance rate: 0.44
## iteration: 51 beta_I: 0.5622013 acceptance rate: 0.4509804
## iteration: 52 beta_I: 0.5622013 acceptance rate: 0.4423077
## iteration: 53 beta_I: 0.5622013 acceptance rate: 0.4339623
## iteration: 54 beta_I: 0.5578961 acceptance rate: 0.4444444
## iteration: 55 beta_I: 0.5588216 acceptance rate: 0.4545455
## iteration: 56 beta_I: 0.5648399 acceptance rate: 0.4642857
## iteration: 57 beta_I: 0.5696143 acceptance rate: 0.4736842
## iteration: 58 beta_I: 0.5696143 acceptance rate: 0.4655172
## iteration: 59 beta_I: 0.5650416 acceptance rate: 0.4745763
## iteration: 60 beta_I: 0.5627372 acceptance rate: 0.4833333

```

```

## iteration: 61 beta_I: 0.5627372 acceptance rate: 0.4754098
## iteration: 62 beta_I: 0.5627372 acceptance rate: 0.4677419
## iteration: 63 beta_I: 0.5627372 acceptance rate: 0.4603175
## iteration: 64 beta_I: 0.567049 acceptance rate: 0.46875
## iteration: 65 beta_I: 0.5627481 acceptance rate: 0.4769231
## iteration: 66 beta_I: 0.5627481 acceptance rate: 0.469697
## iteration: 67 beta_I: 0.5627678 acceptance rate: 0.4776119
## iteration: 68 beta_I: 0.5628438 acceptance rate: 0.4852941
## iteration: 69 beta_I: 0.5628438 acceptance rate: 0.4782609
## iteration: 70 beta_I: 0.5628438 acceptance rate: 0.4714286
## iteration: 71 beta_I: 0.563838 acceptance rate: 0.4788732
## iteration: 72 beta_I: 0.563838 acceptance rate: 0.4722222
## iteration: 73 beta_I: 0.563838 acceptance rate: 0.4657534
## iteration: 74 beta_I: 0.5653547 acceptance rate: 0.472973
## iteration: 75 beta_I: 0.5653547 acceptance rate: 0.4666667
## iteration: 76 beta_I: 0.5655547 acceptance rate: 0.4736842
## iteration: 77 beta_I: 0.5655547 acceptance rate: 0.4675325
## iteration: 78 beta_I: 0.5655547 acceptance rate: 0.4615385
## iteration: 79 beta_I: 0.5615536 acceptance rate: 0.4683544
## iteration: 80 beta_I: 0.5681656 acceptance rate: 0.475
## iteration: 81 beta_I: 0.5659094 acceptance rate: 0.4814815
## iteration: 82 beta_I: 0.5659094 acceptance rate: 0.4756098
## iteration: 83 beta_I: 0.567516 acceptance rate: 0.4819277
## iteration: 84 beta_I: 0.567516 acceptance rate: 0.4761905
## iteration: 85 beta_I: 0.567516 acceptance rate: 0.4705882
## iteration: 86 beta_I: 0.567516 acceptance rate: 0.4651163
## iteration: 87 beta_I: 0.5622385 acceptance rate: 0.4712644
## iteration: 88 beta_I: 0.5664909 acceptance rate: 0.4772727
## iteration: 89 beta_I: 0.5649447 acceptance rate: 0.4831461
## iteration: 90 beta_I: 0.5662464 acceptance rate: 0.4888889
## iteration: 91 beta_I: 0.5637611 acceptance rate: 0.4945055
## iteration: 92 beta_I: 0.5637611 acceptance rate: 0.4891304
## iteration: 93 beta_I: 0.5637611 acceptance rate: 0.483871
## iteration: 94 beta_I: 0.5637611 acceptance rate: 0.4787234
## iteration: 95 beta_I: 0.5639357 acceptance rate: 0.4842105
## iteration: 96 beta_I: 0.5639357 acceptance rate: 0.4791667
## iteration: 97 beta_I: 0.5647894 acceptance rate: 0.4845361
## iteration: 98 beta_I: 0.5637232 acceptance rate: 0.4897959
## iteration: 99 beta_I: 0.5637232 acceptance rate: 0.4848485
## iteration: 100 beta_I: 0.5647961 acceptance rate: 0.49
## iteration: 101 beta_I: 0.5647961 acceptance rate: 0.4851485
## iteration: 102 beta_I: 0.5617755 acceptance rate: 0.4901961
## iteration: 103 beta_I: 0.5617755 acceptance rate: 0.4854369
## iteration: 104 beta_I: 0.5617755 acceptance rate: 0.4807692
## iteration: 105 beta_I: 0.5617755 acceptance rate: 0.4761905
## iteration: 106 beta_I: 0.5617755 acceptance rate: 0.4716981
## iteration: 107 beta_I: 0.5647065 acceptance rate: 0.4766355
## iteration: 108 beta_I: 0.5613374 acceptance rate: 0.4814815
## iteration: 109 beta_I: 0.5613374 acceptance rate: 0.4770642
## iteration: 110 beta_I: 0.5613374 acceptance rate: 0.4727273
## iteration: 111 beta_I: 0.5613374 acceptance rate: 0.4684685
## iteration: 112 beta_I: 0.5613374 acceptance rate: 0.4642857
## iteration: 113 beta_I: 0.5639548 acceptance rate: 0.4690265
## iteration: 114 beta_I: 0.5653725 acceptance rate: 0.4736842

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## iteration: 115 beta_I: 0.5653725 acceptance rate: 0.4695652
## iteration: 116 beta_I: 0.5649384 acceptance rate: 0.4741379
## iteration: 117 beta_I: 0.5656135 acceptance rate: 0.4786325
## iteration: 118 beta_I: 0.56428 acceptance rate: 0.4830508
## iteration: 119 beta_I: 0.56428 acceptance rate: 0.4789916
## iteration: 120 beta_I: 0.56428 acceptance rate: 0.475
## iteration: 121 beta_I: 0.5643935 acceptance rate: 0.4793388
## iteration: 122 beta_I: 0.561339 acceptance rate: 0.4836066
## iteration: 123 beta_I: 0.561339 acceptance rate: 0.4796748
## iteration: 124 beta_I: 0.5620854 acceptance rate: 0.483871
## iteration: 125 beta_I: 0.5619652 acceptance rate: 0.488
## iteration: 126 beta_I: 0.5619652 acceptance rate: 0.484127
## iteration: 127 beta_I: 0.5662912 acceptance rate: 0.488189
## iteration: 128 beta_I: 0.5662912 acceptance rate: 0.484375
## iteration: 129 beta_I: 0.5662912 acceptance rate: 0.4806202
## iteration: 130 beta_I: 0.5662912 acceptance rate: 0.4769231
## iteration: 131 beta_I: 0.5617841 acceptance rate: 0.480916
## iteration: 132 beta_I: 0.564724 acceptance rate: 0.4848485
## iteration: 133 beta_I: 0.5678781 acceptance rate: 0.4887218
## iteration: 134 beta_I: 0.562812 acceptance rate: 0.4925373
## iteration: 135 beta_I: 0.562812 acceptance rate: 0.4888889
## iteration: 136 beta_I: 0.562812 acceptance rate: 0.4852941
## iteration: 137 beta_I: 0.562812 acceptance rate: 0.4817518
## iteration: 138 beta_I: 0.5622939 acceptance rate: 0.4855072
## iteration: 139 beta_I: 0.5635697 acceptance rate: 0.4892086
## iteration: 140 beta_I: 0.5635697 acceptance rate: 0.4857143
## iteration: 141 beta_I: 0.5635697 acceptance rate: 0.4822695
## iteration: 142 beta_I: 0.5635697 acceptance rate: 0.4788732
## iteration: 143 beta_I: 0.5618428 acceptance rate: 0.4825175
## iteration: 144 beta_I: 0.5618428 acceptance rate: 0.4791667
## iteration: 145 beta_I: 0.562021 acceptance rate: 0.4827586
## iteration: 146 beta_I: 0.5603944 acceptance rate: 0.4863014
## iteration: 147 beta_I: 0.5596811 acceptance rate: 0.4897959
## iteration: 148 beta_I: 0.5623793 acceptance rate: 0.4932432
## iteration: 149 beta_I: 0.5623793 acceptance rate: 0.4899329
## iteration: 150 beta_I: 0.5611506 acceptance rate: 0.4933333
## iteration: 151 beta_I: 0.5611506 acceptance rate: 0.4900662
## iteration: 152 beta_I: 0.5626693 acceptance rate: 0.4934211
## iteration: 153 beta_I: 0.5644897 acceptance rate: 0.496732
## iteration: 154 beta_I: 0.5616354 acceptance rate: 0.5
## iteration: 155 beta_I: 0.5616354 acceptance rate: 0.4967742
## iteration: 156 beta_I: 0.5616 acceptance rate: 0.5
## iteration: 157 beta_I: 0.562741 acceptance rate: 0.5031847
## iteration: 158 beta_I: 0.562741 acceptance rate: 0.5
## iteration: 159 beta_I: 0.562741 acceptance rate: 0.4968553
## iteration: 160 beta_I: 0.562741 acceptance rate: 0.49375
## iteration: 161 beta_I: 0.5643508 acceptance rate: 0.4968944
## iteration: 162 beta_I: 0.5643508 acceptance rate: 0.4938272
## iteration: 163 beta_I: 0.5643508 acceptance rate: 0.4907975
## iteration: 164 beta_I: 0.5627062 acceptance rate: 0.4939024
## iteration: 165 beta_I: 0.5627062 acceptance rate: 0.4909091
## iteration: 166 beta_I: 0.5627062 acceptance rate: 0.4879518
## iteration: 167 beta_I: 0.5627062 acceptance rate: 0.4850299
## iteration: 168 beta_I: 0.5627062 acceptance rate: 0.4821429

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## iteration: 169 beta_I: 0.5627062 acceptance rate: 0.4792899
## iteration: 170 beta_I: 0.5627062 acceptance rate: 0.4764706
## iteration: 171 beta_I: 0.5634994 acceptance rate: 0.4795322
## iteration: 172 beta_I: 0.5634994 acceptance rate: 0.4767442
## iteration: 173 beta_I: 0.5634994 acceptance rate: 0.4739884
## iteration: 174 beta_I: 0.5626189 acceptance rate: 0.4770115
## iteration: 175 beta_I: 0.5626189 acceptance rate: 0.4742857
## iteration: 176 beta_I: 0.5626189 acceptance rate: 0.4715909
## iteration: 177 beta_I: 0.5637986 acceptance rate: 0.4745763
## iteration: 178 beta_I: 0.5637986 acceptance rate: 0.4719101
## iteration: 179 beta_I: 0.5637986 acceptance rate: 0.4692737
## iteration: 180 beta_I: 0.562668 acceptance rate: 0.4722222
## iteration: 181 beta_I: 0.5621453 acceptance rate: 0.4751381
## iteration: 182 beta_I: 0.5621453 acceptance rate: 0.4725275
## iteration: 183 beta_I: 0.5617564 acceptance rate: 0.4754098
## iteration: 184 beta_I: 0.5617564 acceptance rate: 0.4728261
## iteration: 185 beta_I: 0.5617564 acceptance rate: 0.4702703
## iteration: 186 beta_I: 0.5617564 acceptance rate: 0.4677419
## iteration: 187 beta_I: 0.5617564 acceptance rate: 0.4652406
## iteration: 188 beta_I: 0.5622683 acceptance rate: 0.4680851
## iteration: 189 beta_I: 0.5602563 acceptance rate: 0.4708995
## iteration: 190 beta_I: 0.5604914 acceptance rate: 0.4736842
## iteration: 191 beta_I: 0.5604914 acceptance rate: 0.4712042
## iteration: 192 beta_I: 0.5604914 acceptance rate: 0.46875
## iteration: 193 beta_I: 0.5581779 acceptance rate: 0.4715026
## iteration: 194 beta_I: 0.5581779 acceptance rate: 0.4690722
## iteration: 195 beta_I: 0.564427 acceptance rate: 0.4717949
## iteration: 196 beta_I: 0.564427 acceptance rate: 0.4693878
## iteration: 197 beta_I: 0.564427 acceptance rate: 0.4670051
## iteration: 198 beta_I: 0.5588527 acceptance rate: 0.469697
## iteration: 199 beta_I: 0.5655711 acceptance rate: 0.4723618
## iteration: 200 beta_I: 0.5680508 acceptance rate: 0.475
## iteration: 201 beta_I: 0.5680508 acceptance rate: 0.4726368
## iteration: 202 beta_I: 0.5680508 acceptance rate: 0.470297
## iteration: 203 beta_I: 0.5669239 acceptance rate: 0.4729064
## iteration: 204 beta_I: 0.561075 acceptance rate: 0.4754902
## iteration: 205 beta_I: 0.5671023 acceptance rate: 0.4780488
## iteration: 206 beta_I: 0.5671023 acceptance rate: 0.4757282
## iteration: 207 beta_I: 0.5639631 acceptance rate: 0.4782609
## iteration: 208 beta_I: 0.5639631 acceptance rate: 0.4759615
## iteration: 209 beta_I: 0.5623205 acceptance rate: 0.4784689
## iteration: 210 beta_I: 0.5615587 acceptance rate: 0.4809524
## iteration: 211 beta_I: 0.5624638 acceptance rate: 0.4834123
## iteration: 212 beta_I: 0.5624638 acceptance rate: 0.4811321
## iteration: 213 beta_I: 0.5578629 acceptance rate: 0.4835681
## iteration: 214 beta_I: 0.5578629 acceptance rate: 0.4813084
## iteration: 215 beta_I: 0.5584532 acceptance rate: 0.4837209
## iteration: 216 beta_I: 0.5597666 acceptance rate: 0.4861111
## iteration: 217 beta_I: 0.5618745 acceptance rate: 0.4884793
## iteration: 218 beta_I: 0.5634323 acceptance rate: 0.4908257
## iteration: 219 beta_I: 0.5634323 acceptance rate: 0.4885845
## iteration: 220 beta_I: 0.5599097 acceptance rate: 0.4909091
## iteration: 221 beta_I: 0.5624135 acceptance rate: 0.4932127
## iteration: 222 beta_I: 0.5624135 acceptance rate: 0.490991

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## iteration: 223 beta_I: 0.5622853 acceptance rate: 0.4932735
## iteration: 224 beta_I: 0.5593677 acceptance rate: 0.4955357
## iteration: 225 beta_I: 0.559618 acceptance rate: 0.4977778
## iteration: 226 beta_I: 0.559618 acceptance rate: 0.4955752
## iteration: 227 beta_I: 0.559618 acceptance rate: 0.4933921
## iteration: 228 beta_I: 0.5621536 acceptance rate: 0.495614
## iteration: 229 beta_I: 0.5621536 acceptance rate: 0.4934498
## iteration: 230 beta_I: 0.5621536 acceptance rate: 0.4913043
## iteration: 231 beta_I: 0.5593003 acceptance rate: 0.4935065
## iteration: 232 beta_I: 0.5593003 acceptance rate: 0.4913793
## iteration: 233 beta_I: 0.5593003 acceptance rate: 0.4892704
## iteration: 234 beta_I: 0.5593003 acceptance rate: 0.4871795
## iteration: 235 beta_I: 0.5593003 acceptance rate: 0.4851064
## iteration: 236 beta_I: 0.5633751 acceptance rate: 0.4872881
## iteration: 237 beta_I: 0.5633751 acceptance rate: 0.4852321
## iteration: 238 beta_I: 0.5633751 acceptance rate: 0.4831933
## iteration: 239 beta_I: 0.5633751 acceptance rate: 0.4811715
## iteration: 240 beta_I: 0.5633751 acceptance rate: 0.4791667
## iteration: 241 beta_I: 0.5633751 acceptance rate: 0.4771784
## iteration: 242 beta_I: 0.5633751 acceptance rate: 0.4752066
## iteration: 243 beta_I: 0.5633751 acceptance rate: 0.473251
## iteration: 244 beta_I: 0.5633751 acceptance rate: 0.4713115
## iteration: 245 beta_I: 0.5612005 acceptance rate: 0.4734694
## iteration: 246 beta_I: 0.5612005 acceptance rate: 0.4715447
## iteration: 247 beta_I: 0.5612005 acceptance rate: 0.4696356
## iteration: 248 beta_I: 0.5633579 acceptance rate: 0.4717742
## iteration: 249 beta_I: 0.5622874 acceptance rate: 0.4738956
## iteration: 250 beta_I: 0.5622874 acceptance rate: 0.472
## iteration: 251 beta_I: 0.5621579 acceptance rate: 0.4741036
## iteration: 252 beta_I: 0.5621579 acceptance rate: 0.4722222
## iteration: 253 beta_I: 0.5621579 acceptance rate: 0.4703557
## iteration: 254 beta_I: 0.5607738 acceptance rate: 0.4724409
## iteration: 255 beta_I: 0.5583798 acceptance rate: 0.4745098
## iteration: 256 beta_I: 0.5612192 acceptance rate: 0.4765625
## iteration: 257 beta_I: 0.5628457 acceptance rate: 0.4785992
## iteration: 258 beta_I: 0.5596909 acceptance rate: 0.4806202
## iteration: 259 beta_I: 0.5596909 acceptance rate: 0.4787645
## iteration: 260 beta_I: 0.5595861 acceptance rate: 0.4807692
## iteration: 261 beta_I: 0.5605919 acceptance rate: 0.4827586
## iteration: 262 beta_I: 0.5605919 acceptance rate: 0.480916
## iteration: 263 beta_I: 0.5605919 acceptance rate: 0.4790875
## iteration: 264 beta_I: 0.5605919 acceptance rate: 0.4772727
## iteration: 265 beta_I: 0.5622315 acceptance rate: 0.4792453
## iteration: 266 beta_I: 0.5622315 acceptance rate: 0.4774436
## iteration: 267 beta_I: 0.5622315 acceptance rate: 0.4756554
## iteration: 268 beta_I: 0.5622315 acceptance rate: 0.4738806
## iteration: 269 beta_I: 0.5622315 acceptance rate: 0.472119
## iteration: 270 beta_I: 0.5622315 acceptance rate: 0.4703704
## iteration: 271 beta_I: 0.5622315 acceptance rate: 0.4686347
## iteration: 272 beta_I: 0.5622315 acceptance rate: 0.4669118
## iteration: 273 beta_I: 0.5619472 acceptance rate: 0.4688645
## iteration: 274 beta_I: 0.5619472 acceptance rate: 0.4671533
## iteration: 275 beta_I: 0.5620496 acceptance rate: 0.4690909
## iteration: 276 beta_I: 0.5620496 acceptance rate: 0.4673913

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## iteration: 277 beta_I: 0.5620496 acceptance rate: 0.465704
## iteration: 278 beta_I: 0.5620496 acceptance rate: 0.4640288
## iteration: 279 beta_I: 0.5630854 acceptance rate: 0.4659498
## iteration: 280 beta_I: 0.5617851 acceptance rate: 0.4678571
## iteration: 281 beta_I: 0.5617851 acceptance rate: 0.4661922
## iteration: 282 beta_I: 0.5619996 acceptance rate: 0.4680851
## iteration: 283 beta_I: 0.5619996 acceptance rate: 0.4664311
## iteration: 284 beta_I: 0.5644809 acceptance rate: 0.4683099
## iteration: 285 beta_I: 0.5636316 acceptance rate: 0.4701754
## iteration: 286 beta_I: 0.5650988 acceptance rate: 0.472028
## iteration: 287 beta_I: 0.5650988 acceptance rate: 0.4703833
## iteration: 288 beta_I: 0.5678086 acceptance rate: 0.4722222
## iteration: 289 beta_I: 0.5628942 acceptance rate: 0.4740484
## iteration: 290 beta_I: 0.5629017 acceptance rate: 0.4758621
## iteration: 291 beta_I: 0.5627087 acceptance rate: 0.4776632
## iteration: 292 beta_I: 0.5612061 acceptance rate: 0.4794521
## iteration: 293 beta_I: 0.5612061 acceptance rate: 0.4778157
## iteration: 294 beta_I: 0.5656206 acceptance rate: 0.4795918
## iteration: 295 beta_I: 0.5669492 acceptance rate: 0.4813559
## iteration: 296 beta_I: 0.5671402 acceptance rate: 0.4831081
## iteration: 297 beta_I: 0.5671402 acceptance rate: 0.4814815
## iteration: 298 beta_I: 0.5681169 acceptance rate: 0.4832215
## iteration: 299 beta_I: 0.5681169 acceptance rate: 0.4816054
## iteration: 300 beta_I: 0.5623166 acceptance rate: 0.4833333
## iteration: 301 beta_I: 0.5623166 acceptance rate: 0.4817276
## iteration: 302 beta_I: 0.5611095 acceptance rate: 0.4834437
## iteration: 303 beta_I: 0.5611095 acceptance rate: 0.4818482
## iteration: 304 beta_I: 0.5611095 acceptance rate: 0.4802632
## iteration: 305 beta_I: 0.5611095 acceptance rate: 0.4786885
## iteration: 306 beta_I: 0.5611095 acceptance rate: 0.4771242
## iteration: 307 beta_I: 0.5618142 acceptance rate: 0.4788274
## iteration: 308 beta_I: 0.5585842 acceptance rate: 0.4805195
## iteration: 309 beta_I: 0.5585842 acceptance rate: 0.4789644
## iteration: 310 beta_I: 0.5614551 acceptance rate: 0.4806452
## iteration: 311 beta_I: 0.5614551 acceptance rate: 0.4790997
## iteration: 312 beta_I: 0.5614551 acceptance rate: 0.4775641
## iteration: 313 beta_I: 0.5683314 acceptance rate: 0.4792332
## iteration: 314 beta_I: 0.5695456 acceptance rate: 0.4808917
## iteration: 315 beta_I: 0.5696181 acceptance rate: 0.4825397
## iteration: 316 beta_I: 0.5696181 acceptance rate: 0.4810127
## iteration: 317 beta_I: 0.5696181 acceptance rate: 0.4794953
## iteration: 318 beta_I: 0.5672912 acceptance rate: 0.4811321
## iteration: 319 beta_I: 0.5672912 acceptance rate: 0.4796238
## iteration: 320 beta_I: 0.5672912 acceptance rate: 0.478125
## iteration: 321 beta_I: 0.5657664 acceptance rate: 0.4797508
## iteration: 322 beta_I: 0.5668648 acceptance rate: 0.4813665
## iteration: 323 beta_I: 0.5668648 acceptance rate: 0.4798762
## iteration: 324 beta_I: 0.5608639 acceptance rate: 0.4814815
## iteration: 325 beta_I: 0.5608639 acceptance rate: 0.48
## iteration: 326 beta_I: 0.5608639 acceptance rate: 0.4785276
## iteration: 327 beta_I: 0.5604507 acceptance rate: 0.4801223
## iteration: 328 beta_I: 0.559947 acceptance rate: 0.4817073
## iteration: 329 beta_I: 0.5620911 acceptance rate: 0.4832827
## iteration: 330 beta_I: 0.5620911 acceptance rate: 0.4818182

```

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## iteration: 331 beta_I: 0.5620911 acceptance rate: 0.4803625
## iteration: 332 beta_I: 0.5620911 acceptance rate: 0.4789157
## iteration: 333 beta_I: 0.5620911 acceptance rate: 0.4774775
## iteration: 334 beta_I: 0.5620911 acceptance rate: 0.4760479
## iteration: 335 beta_I: 0.565759 acceptance rate: 0.4776119
## iteration: 336 beta_I: 0.5658435 acceptance rate: 0.4791667
## iteration: 337 beta_I: 0.5658435 acceptance rate: 0.4777448
## iteration: 338 beta_I: 0.5638819 acceptance rate: 0.4792899
## iteration: 339 beta_I: 0.5638819 acceptance rate: 0.4778761
## iteration: 340 beta_I: 0.5659822 acceptance rate: 0.4794118
## iteration: 341 beta_I: 0.562995 acceptance rate: 0.4809384
## iteration: 342 beta_I: 0.562995 acceptance rate: 0.4795322
## iteration: 343 beta_I: 0.562995 acceptance rate: 0.4781341
## iteration: 344 beta_I: 0.5623919 acceptance rate: 0.4796512
## iteration: 345 beta_I: 0.5632396 acceptance rate: 0.4811594
## iteration: 346 beta_I: 0.5647013 acceptance rate: 0.482659
## iteration: 347 beta_I: 0.5647013 acceptance rate: 0.481268
## iteration: 348 beta_I: 0.5650127 acceptance rate: 0.4827586
## iteration: 349 beta_I: 0.5650127 acceptance rate: 0.4813754
## iteration: 350 beta_I: 0.5650127 acceptance rate: 0.48
## iteration: 351 beta_I: 0.5650127 acceptance rate: 0.4786325
## iteration: 352 beta_I: 0.5679097 acceptance rate: 0.4801136
## iteration: 353 beta_I: 0.5640367 acceptance rate: 0.4815864
## iteration: 354 beta_I: 0.5593771 acceptance rate: 0.4830508
## iteration: 355 beta_I: 0.567045 acceptance rate: 0.484507
## iteration: 356 beta_I: 0.567045 acceptance rate: 0.4831461
## iteration: 357 beta_I: 0.5623497 acceptance rate: 0.4845938
## iteration: 358 beta_I: 0.5610196 acceptance rate: 0.4860335
## iteration: 359 beta_I: 0.5610196 acceptance rate: 0.4846797
## iteration: 360 beta_I: 0.5610196 acceptance rate: 0.4833333
## iteration: 361 beta_I: 0.5610196 acceptance rate: 0.4819945
## iteration: 362 beta_I: 0.5642549 acceptance rate: 0.4834254
## iteration: 363 beta_I: 0.5647529 acceptance rate: 0.4848485
## iteration: 364 beta_I: 0.563308 acceptance rate: 0.4862637
## iteration: 365 beta_I: 0.5622132 acceptance rate: 0.4876712
## iteration: 366 beta_I: 0.5619723 acceptance rate: 0.489071
## iteration: 367 beta_I: 0.5619723 acceptance rate: 0.4877384
## iteration: 368 beta_I: 0.5661672 acceptance rate: 0.4891304
## iteration: 369 beta_I: 0.5661672 acceptance rate: 0.4878049
## iteration: 370 beta_I: 0.5620492 acceptance rate: 0.4891892
## iteration: 371 beta_I: 0.5620492 acceptance rate: 0.4878706
## iteration: 372 beta_I: 0.5620492 acceptance rate: 0.4865591
## iteration: 373 beta_I: 0.5620492 acceptance rate: 0.4852547
## iteration: 374 beta_I: 0.5630428 acceptance rate: 0.486631
## iteration: 375 beta_I: 0.5630428 acceptance rate: 0.4853333
## iteration: 376 beta_I: 0.5631374 acceptance rate: 0.4867021
## iteration: 377 beta_I: 0.5631374 acceptance rate: 0.4854111
## iteration: 378 beta_I: 0.5614839 acceptance rate: 0.4867725
## iteration: 379 beta_I: 0.5614839 acceptance rate: 0.4854881
## iteration: 380 beta_I: 0.5630862 acceptance rate: 0.4868421
## iteration: 381 beta_I: 0.564995 acceptance rate: 0.488189
## iteration: 382 beta_I: 0.564995 acceptance rate: 0.486911
## iteration: 383 beta_I: 0.564995 acceptance rate: 0.4856397
## iteration: 384 beta_I: 0.5646773 acceptance rate: 0.4869792

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## iteration: 385 beta_I: 0.5646773 acceptance rate: 0.4857143
## iteration: 386 beta_I: 0.5646773 acceptance rate: 0.484456
## iteration: 387 beta_I: 0.5593387 acceptance rate: 0.4857881
## iteration: 388 beta_I: 0.5593387 acceptance rate: 0.4845361
## iteration: 389 beta_I: 0.5615714 acceptance rate: 0.4858612
## iteration: 390 beta_I: 0.5632502 acceptance rate: 0.4871795
## iteration: 391 beta_I: 0.566136 acceptance rate: 0.488491
## iteration: 392 beta_I: 0.5619547 acceptance rate: 0.4897959
## iteration: 393 beta_I: 0.5619547 acceptance rate: 0.4885496
## iteration: 394 beta_I: 0.5619547 acceptance rate: 0.4873096
## iteration: 395 beta_I: 0.5621909 acceptance rate: 0.4886076
## iteration: 396 beta_I: 0.5621909 acceptance rate: 0.4873737
## iteration: 397 beta_I: 0.5621909 acceptance rate: 0.4861461
## iteration: 398 beta_I: 0.5637076 acceptance rate: 0.4874372
## iteration: 399 beta_I: 0.5645895 acceptance rate: 0.4887218
## iteration: 400 beta_I: 0.560367 acceptance rate: 0.49
## iteration: 401 beta_I: 0.560367 acceptance rate: 0.4887781
## iteration: 402 beta_I: 0.5602366 acceptance rate: 0.4900498
## iteration: 403 beta_I: 0.5631401 acceptance rate: 0.4913151
## iteration: 404 beta_I: 0.5613185 acceptance rate: 0.4925743
## iteration: 405 beta_I: 0.5615969 acceptance rate: 0.4938272
## iteration: 406 beta_I: 0.5633221 acceptance rate: 0.4950739
## iteration: 407 beta_I: 0.5641276 acceptance rate: 0.4963145
## iteration: 408 beta_I: 0.5619612 acceptance rate: 0.497549
## iteration: 409 beta_I: 0.5619612 acceptance rate: 0.4963325
## iteration: 410 beta_I: 0.5619612 acceptance rate: 0.495122
## iteration: 411 beta_I: 0.5619612 acceptance rate: 0.4939173
## iteration: 412 beta_I: 0.5619612 acceptance rate: 0.4927184
## iteration: 413 beta_I: 0.5652611 acceptance rate: 0.4939467
## iteration: 414 beta_I: 0.5646851 acceptance rate: 0.4951691
## iteration: 415 beta_I: 0.5646851 acceptance rate: 0.4939759
## iteration: 416 beta_I: 0.5646851 acceptance rate: 0.4927885
## iteration: 417 beta_I: 0.5635221 acceptance rate: 0.4940048
## iteration: 418 beta_I: 0.5604254 acceptance rate: 0.4952153
## iteration: 419 beta_I: 0.5604254 acceptance rate: 0.4940334
## iteration: 420 beta_I: 0.5641486 acceptance rate: 0.4952381
## iteration: 421 beta_I: 0.5641486 acceptance rate: 0.4940618
## iteration: 422 beta_I: 0.5647446 acceptance rate: 0.4952607
## iteration: 423 beta_I: 0.5616321 acceptance rate: 0.4964539
## iteration: 424 beta_I: 0.5616321 acceptance rate: 0.495283
## iteration: 425 beta_I: 0.5598646 acceptance rate: 0.4964706
## iteration: 426 beta_I: 0.5598646 acceptance rate: 0.4953052
## iteration: 427 beta_I: 0.5588117 acceptance rate: 0.4964871
## iteration: 428 beta_I: 0.5599242 acceptance rate: 0.4976636
## iteration: 429 beta_I: 0.5616363 acceptance rate: 0.4988345
## iteration: 430 beta_I: 0.5616363 acceptance rate: 0.4976744
## iteration: 431 beta_I: 0.5616363 acceptance rate: 0.4965197
## iteration: 432 beta_I: 0.5613653 acceptance rate: 0.4976852
## iteration: 433 beta_I: 0.5613653 acceptance rate: 0.4965358
## iteration: 434 beta_I: 0.5613653 acceptance rate: 0.4953917
## iteration: 435 beta_I: 0.5613653 acceptance rate: 0.4942529
## iteration: 436 beta_I: 0.5613653 acceptance rate: 0.4931193
## iteration: 437 beta_I: 0.5650782 acceptance rate: 0.4942792
## iteration: 438 beta_I: 0.5692862 acceptance rate: 0.4954338

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## iteration: 439 beta_I: 0.5626509 acceptance rate: 0.4965831
## iteration: 440 beta_I: 0.5599815 acceptance rate: 0.4977273
## iteration: 441 beta_I: 0.5599815 acceptance rate: 0.4965986
## iteration: 442 beta_I: 0.5615126 acceptance rate: 0.4977376
## iteration: 443 beta_I: 0.5644166 acceptance rate: 0.4988713
## iteration: 444 beta_I: 0.5665704 acceptance rate: 0.5
## iteration: 445 beta_I: 0.5598958 acceptance rate: 0.5011236
## iteration: 446 beta_I: 0.5621186 acceptance rate: 0.5022422
## iteration: 447 beta_I: 0.5616015 acceptance rate: 0.5033557
## iteration: 448 beta_I: 0.5616015 acceptance rate: 0.5022321
## iteration: 449 beta_I: 0.5616015 acceptance rate: 0.5011136
## iteration: 450 beta_I: 0.5616015 acceptance rate: 0.5
## iteration: 451 beta_I: 0.5616015 acceptance rate: 0.4988914
## iteration: 452 beta_I: 0.5649827 acceptance rate: 0.5
## iteration: 453 beta_I: 0.5649827 acceptance rate: 0.4988962
## iteration: 454 beta_I: 0.5640235 acceptance rate: 0.5
## iteration: 455 beta_I: 0.5640235 acceptance rate: 0.4989011
## iteration: 456 beta_I: 0.5640235 acceptance rate: 0.497807
## iteration: 457 beta_I: 0.5640235 acceptance rate: 0.4967177
## iteration: 458 beta_I: 0.5640235 acceptance rate: 0.4956332
## iteration: 459 beta_I: 0.5652974 acceptance rate: 0.496732
## iteration: 460 beta_I: 0.5642044 acceptance rate: 0.4978261
## iteration: 461 beta_I: 0.5612833 acceptance rate: 0.4989154
## iteration: 462 beta_I: 0.5612833 acceptance rate: 0.4978355
## iteration: 463 beta_I: 0.5640035 acceptance rate: 0.4989201
## iteration: 464 beta_I: 0.5592644 acceptance rate: 0.5
## iteration: 465 beta_I: 0.5630731 acceptance rate: 0.5010753
## iteration: 466 beta_I: 0.5630731 acceptance rate: 0.5
## iteration: 467 beta_I: 0.5630731 acceptance rate: 0.4989293
## iteration: 468 beta_I: 0.5614187 acceptance rate: 0.5
## iteration: 469 beta_I: 0.5614187 acceptance rate: 0.4989339
## iteration: 470 beta_I: 0.5614187 acceptance rate: 0.4978723
## iteration: 471 beta_I: 0.5614187 acceptance rate: 0.4968153
## iteration: 472 beta_I: 0.5614187 acceptance rate: 0.4957627
## iteration: 473 beta_I: 0.5614187 acceptance rate: 0.4947146
## iteration: 474 beta_I: 0.5625091 acceptance rate: 0.4957806
## iteration: 475 beta_I: 0.5625091 acceptance rate: 0.4947368
## iteration: 476 beta_I: 0.5625091 acceptance rate: 0.4936975
## iteration: 477 beta_I: 0.5621102 acceptance rate: 0.4947589
## iteration: 478 beta_I: 0.5621102 acceptance rate: 0.4937238
## iteration: 479 beta_I: 0.5636941 acceptance rate: 0.4947808
## iteration: 480 beta_I: 0.5636941 acceptance rate: 0.49375
## iteration: 481 beta_I: 0.5636941 acceptance rate: 0.4927235
## iteration: 482 beta_I: 0.5636941 acceptance rate: 0.4917012
## iteration: 483 beta_I: 0.5606726 acceptance rate: 0.4927536
## iteration: 484 beta_I: 0.5606726 acceptance rate: 0.4917355
## iteration: 485 beta_I: 0.5606726 acceptance rate: 0.4907216
## iteration: 486 beta_I: 0.5603989 acceptance rate: 0.4917695
## iteration: 487 beta_I: 0.5603989 acceptance rate: 0.4907598
## iteration: 488 beta_I: 0.5603989 acceptance rate: 0.4897541
## iteration: 489 beta_I: 0.5603989 acceptance rate: 0.4887526
## iteration: 490 beta_I: 0.5654527 acceptance rate: 0.4897959
## iteration: 491 beta_I: 0.5610538 acceptance rate: 0.490835
## iteration: 492 beta_I: 0.562754 acceptance rate: 0.4918699

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## iteration: 493 beta_I: 0.562754 acceptance rate: 0.4908722
## iteration: 494 beta_I: 0.5629381 acceptance rate: 0.4919028
## iteration: 495 beta_I: 0.5629381 acceptance rate: 0.4909091
## iteration: 496 beta_I: 0.5612741 acceptance rate: 0.4919355
## iteration: 497 beta_I: 0.5642007 acceptance rate: 0.4929577
## iteration: 498 beta_I: 0.5642007 acceptance rate: 0.4919679
## iteration: 499 beta_I: 0.5642007 acceptance rate: 0.490982
## iteration: 500 beta_I: 0.5642007 acceptance rate: 0.49
## iteration: 501 beta_I: 0.5642007 acceptance rate: 0.489022
## iteration: 502 beta_I: 0.5642007 acceptance rate: 0.4880478
## iteration: 503 beta_I: 0.5642007 acceptance rate: 0.4870775
## iteration: 504 beta_I: 0.5642007 acceptance rate: 0.4861111
## iteration: 505 beta_I: 0.5634516 acceptance rate: 0.4871287
## iteration: 506 beta_I: 0.5643059 acceptance rate: 0.4881423
## iteration: 507 beta_I: 0.5596538 acceptance rate: 0.4891519
## iteration: 508 beta_I: 0.5596538 acceptance rate: 0.488189
## iteration: 509 beta_I: 0.5588164 acceptance rate: 0.4891945
## iteration: 510 beta_I: 0.5588164 acceptance rate: 0.4882353
## iteration: 511 beta_I: 0.5588164 acceptance rate: 0.4872798
## iteration: 512 beta_I: 0.5588164 acceptance rate: 0.4863281
## iteration: 513 beta_I: 0.5588164 acceptance rate: 0.4853801
## iteration: 514 beta_I: 0.557055 acceptance rate: 0.4863813
## iteration: 515 beta_I: 0.5577658 acceptance rate: 0.4873786
## iteration: 516 beta_I: 0.5590981 acceptance rate: 0.4883721
## iteration: 517 beta_I: 0.5590981 acceptance rate: 0.4874275
## iteration: 518 beta_I: 0.5590981 acceptance rate: 0.4864865
## iteration: 519 beta_I: 0.5600404 acceptance rate: 0.4874759
## iteration: 520 beta_I: 0.5600404 acceptance rate: 0.4865385
## iteration: 521 beta_I: 0.560508 acceptance rate: 0.487524
## iteration: 522 beta_I: 0.560508 acceptance rate: 0.48659
## iteration: 523 beta_I: 0.560508 acceptance rate: 0.4856597
## iteration: 524 beta_I: 0.5608222 acceptance rate: 0.4866412
## iteration: 525 beta_I: 0.5614311 acceptance rate: 0.487619
## iteration: 526 beta_I: 0.5614311 acceptance rate: 0.486692
## iteration: 527 beta_I: 0.5627035 acceptance rate: 0.487666
## iteration: 528 beta_I: 0.5615144 acceptance rate: 0.4886364
## iteration: 529 beta_I: 0.5616155 acceptance rate: 0.489603
## iteration: 530 beta_I: 0.5604301 acceptance rate: 0.490566
## iteration: 531 beta_I: 0.5604301 acceptance rate: 0.4896422
## iteration: 532 beta_I: 0.5604301 acceptance rate: 0.4887218
## iteration: 533 beta_I: 0.5612358 acceptance rate: 0.4896811
## iteration: 534 beta_I: 0.5627086 acceptance rate: 0.4906367
## iteration: 535 beta_I: 0.5600875 acceptance rate: 0.4915888
## iteration: 536 beta_I: 0.5600875 acceptance rate: 0.4906716
## iteration: 537 beta_I: 0.5594743 acceptance rate: 0.4916201
## iteration: 538 beta_I: 0.5608796 acceptance rate: 0.4925651
## iteration: 539 beta_I: 0.5608796 acceptance rate: 0.4916512
## iteration: 540 beta_I: 0.5609806 acceptance rate: 0.4925926
## iteration: 541 beta_I: 0.5629158 acceptance rate: 0.4935305
## iteration: 542 beta_I: 0.5629158 acceptance rate: 0.4926199
## iteration: 543 beta_I: 0.5629158 acceptance rate: 0.4917127
## iteration: 544 beta_I: 0.5629158 acceptance rate: 0.4908088
## iteration: 545 beta_I: 0.5654795 acceptance rate: 0.4917431
## iteration: 546 beta_I: 0.5654795 acceptance rate: 0.4908425

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## iteration: 547 beta_I: 0.5609789 acceptance rate: 0.4917733
## iteration: 548 beta_I: 0.5623387 acceptance rate: 0.4927007
## iteration: 549 beta_I: 0.564931 acceptance rate: 0.4936248
## iteration: 550 beta_I: 0.564931 acceptance rate: 0.4927273
## iteration: 551 beta_I: 0.564931 acceptance rate: 0.491833
## iteration: 552 beta_I: 0.5601759 acceptance rate: 0.4927536
## iteration: 553 beta_I: 0.5601759 acceptance rate: 0.4918626
## iteration: 554 beta_I: 0.5601759 acceptance rate: 0.4909747
## iteration: 555 beta_I: 0.5604121 acceptance rate: 0.4918919
## iteration: 556 beta_I: 0.5612714 acceptance rate: 0.4928058
## iteration: 557 beta_I: 0.5588435 acceptance rate: 0.4937163
## iteration: 558 beta_I: 0.5588435 acceptance rate: 0.4928315
## iteration: 559 beta_I: 0.5588435 acceptance rate: 0.4919499
## iteration: 560 beta_I: 0.5630978 acceptance rate: 0.4928571
## iteration: 561 beta_I: 0.5630127 acceptance rate: 0.4937611
## iteration: 562 beta_I: 0.5626808 acceptance rate: 0.4946619
## iteration: 563 beta_I: 0.5626808 acceptance rate: 0.4937833
## iteration: 564 beta_I: 0.5634127 acceptance rate: 0.4946809
## iteration: 565 beta_I: 0.5634127 acceptance rate: 0.4938053
## iteration: 566 beta_I: 0.5606791 acceptance rate: 0.4946996
## iteration: 567 beta_I: 0.5637493 acceptance rate: 0.4955908
## iteration: 568 beta_I: 0.5637493 acceptance rate: 0.4947183
## iteration: 569 beta_I: 0.5641051 acceptance rate: 0.4956063
## iteration: 570 beta_I: 0.5641051 acceptance rate: 0.4947368
## iteration: 571 beta_I: 0.5617061 acceptance rate: 0.4956217
## iteration: 572 beta_I: 0.5617061 acceptance rate: 0.4947552
## iteration: 573 beta_I: 0.5621906 acceptance rate: 0.495637
## iteration: 574 beta_I: 0.5621906 acceptance rate: 0.4947735
## iteration: 575 beta_I: 0.5621906 acceptance rate: 0.493913
## iteration: 576 beta_I: 0.5631109 acceptance rate: 0.4947917
## iteration: 577 beta_I: 0.5676387 acceptance rate: 0.4956672
## iteration: 578 beta_I: 0.5663023 acceptance rate: 0.4965398
## iteration: 579 beta_I: 0.5663023 acceptance rate: 0.4956822
## iteration: 580 beta_I: 0.5663023 acceptance rate: 0.4948276
## iteration: 581 beta_I: 0.5660379 acceptance rate: 0.4956971
## iteration: 582 beta_I: 0.5660379 acceptance rate: 0.4948454
## iteration: 583 beta_I: 0.5669866 acceptance rate: 0.4957118
## iteration: 584 beta_I: 0.5631803 acceptance rate: 0.4965753
## iteration: 585 beta_I: 0.5631803 acceptance rate: 0.4957265
## iteration: 586 beta_I: 0.5631803 acceptance rate: 0.4948805
## iteration: 587 beta_I: 0.5631803 acceptance rate: 0.4940375
## iteration: 588 beta_I: 0.5631803 acceptance rate: 0.4931973
## iteration: 589 beta_I: 0.5643842 acceptance rate: 0.4940577
## iteration: 590 beta_I: 0.5616336 acceptance rate: 0.4949153
## iteration: 591 beta_I: 0.5637509 acceptance rate: 0.4957699
## iteration: 592 beta_I: 0.563805 acceptance rate: 0.4966216
## iteration: 593 beta_I: 0.563805 acceptance rate: 0.4957841
## iteration: 594 beta_I: 0.5618409 acceptance rate: 0.496633
## iteration: 595 beta_I: 0.5605025 acceptance rate: 0.497479
## iteration: 596 beta_I: 0.5605025 acceptance rate: 0.4966443
## iteration: 597 beta_I: 0.5626472 acceptance rate: 0.4974874
## iteration: 598 beta_I: 0.5626472 acceptance rate: 0.4966555
## iteration: 599 beta_I: 0.5626472 acceptance rate: 0.4958264
## iteration: 600 beta_I: 0.5626472 acceptance rate: 0.495

```

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## iteration: 601 beta_I: 0.5626472 acceptance rate: 0.4941764
## iteration: 602 beta_I: 0.5626472 acceptance rate: 0.4933555
## iteration: 603 beta_I: 0.5626472 acceptance rate: 0.4925373
## iteration: 604 beta_I: 0.5626472 acceptance rate: 0.4917219
## iteration: 605 beta_I: 0.5626472 acceptance rate: 0.4909091
## iteration: 606 beta_I: 0.5626472 acceptance rate: 0.490099
## iteration: 607 beta_I: 0.5626472 acceptance rate: 0.4892916
## iteration: 608 beta_I: 0.5626472 acceptance rate: 0.4884868
## iteration: 609 beta_I: 0.5649401 acceptance rate: 0.4893268
## iteration: 610 beta_I: 0.5640821 acceptance rate: 0.4901639
## iteration: 611 beta_I: 0.5640821 acceptance rate: 0.4893617
## iteration: 612 beta_I: 0.5640821 acceptance rate: 0.4885621
## iteration: 613 beta_I: 0.5620467 acceptance rate: 0.4893964
## iteration: 614 beta_I: 0.5594687 acceptance rate: 0.490228
## iteration: 615 beta_I: 0.5594687 acceptance rate: 0.4894309
## iteration: 616 beta_I: 0.5594687 acceptance rate: 0.4886364
## iteration: 617 beta_I: 0.5594687 acceptance rate: 0.4878444
## iteration: 618 beta_I: 0.5674032 acceptance rate: 0.4886731
## iteration: 619 beta_I: 0.5655962 acceptance rate: 0.4894992
## iteration: 620 beta_I: 0.5624803 acceptance rate: 0.4903226
## iteration: 621 beta_I: 0.5624803 acceptance rate: 0.489533
## iteration: 622 beta_I: 0.56296 acceptance rate: 0.4903537
## iteration: 623 beta_I: 0.560326 acceptance rate: 0.4911717
## iteration: 624 beta_I: 0.560326 acceptance rate: 0.4903846
## iteration: 625 beta_I: 0.560326 acceptance rate: 0.4896
## iteration: 626 beta_I: 0.5601162 acceptance rate: 0.4904153
## iteration: 627 beta_I: 0.5605785 acceptance rate: 0.4912281
## iteration: 628 beta_I: 0.5605785 acceptance rate: 0.4904459
## iteration: 629 beta_I: 0.558362 acceptance rate: 0.491256
## iteration: 630 beta_I: 0.5629228 acceptance rate: 0.4920635
## iteration: 631 beta_I: 0.5629228 acceptance rate: 0.4912837
## iteration: 632 beta_I: 0.5624068 acceptance rate: 0.4920886
## iteration: 633 beta_I: 0.5632302 acceptance rate: 0.492891
## iteration: 634 beta_I: 0.5632302 acceptance rate: 0.4921136
## iteration: 635 beta_I: 0.5628598 acceptance rate: 0.4929134
## iteration: 636 beta_I: 0.5639583 acceptance rate: 0.4937107
## iteration: 637 beta_I: 0.5622487 acceptance rate: 0.4945055
## iteration: 638 beta_I: 0.5600935 acceptance rate: 0.4952978
## iteration: 639 beta_I: 0.5651431 acceptance rate: 0.4960876
## iteration: 640 beta_I: 0.5597317 acceptance rate: 0.496875
## iteration: 641 beta_I: 0.5597317 acceptance rate: 0.4960998
## iteration: 642 beta_I: 0.5601711 acceptance rate: 0.4968847
## iteration: 643 beta_I: 0.5645931 acceptance rate: 0.4976672
## iteration: 644 beta_I: 0.5645931 acceptance rate: 0.4968944
## iteration: 645 beta_I: 0.5645931 acceptance rate: 0.496124
## iteration: 646 beta_I: 0.5645931 acceptance rate: 0.495356
## iteration: 647 beta_I: 0.5645931 acceptance rate: 0.4945904
## iteration: 648 beta_I: 0.5645931 acceptance rate: 0.4938272
## iteration: 649 beta_I: 0.5645931 acceptance rate: 0.4930663
## iteration: 650 beta_I: 0.5645931 acceptance rate: 0.4923077
## iteration: 651 beta_I: 0.5645931 acceptance rate: 0.4915515
## iteration: 652 beta_I: 0.5645931 acceptance rate: 0.4907975
## iteration: 653 beta_I: 0.5605539 acceptance rate: 0.4915773
## iteration: 654 beta_I: 0.5577001 acceptance rate: 0.4923547

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```
## iteration: 655 beta_I: 0.5670481 acceptance rate: 0.4931298
## iteration: 656 beta_I: 0.5670481 acceptance rate: 0.492378
## iteration: 657 beta_I: 0.5606272 acceptance rate: 0.4931507
## iteration: 658 beta_I: 0.558996 acceptance rate: 0.493921
## iteration: 659 beta_I: 0.5588222 acceptance rate: 0.4946889
## iteration: 660 beta_I: 0.5596791 acceptance rate: 0.4954545
## iteration: 661 beta_I: 0.5600599 acceptance rate: 0.4962179
## iteration: 662 beta_I: 0.5600599 acceptance rate: 0.4954683
## iteration: 663 beta_I: 0.5667022 acceptance rate: 0.4962293
## iteration: 664 beta_I: 0.5667022 acceptance rate: 0.4954819
## iteration: 665 beta_I: 0.5660843 acceptance rate: 0.4962406
## iteration: 666 beta_I: 0.5636757 acceptance rate: 0.496997
## iteration: 667 beta_I: 0.5636757 acceptance rate: 0.4962519
## iteration: 668 beta_I: 0.5636757 acceptance rate: 0.495509
## iteration: 669 beta_I: 0.5636757 acceptance rate: 0.4947683
## iteration: 670 beta_I: 0.5636757 acceptance rate: 0.4940299
## iteration: 671 beta_I: 0.5636757 acceptance rate: 0.4932936
## iteration: 672 beta_I: 0.5636757 acceptance rate: 0.4925595
## iteration: 673 beta_I: 0.5636757 acceptance rate: 0.4918276
## iteration: 674 beta_I: 0.5636757 acceptance rate: 0.4910979
## iteration: 675 beta_I: 0.5636757 acceptance rate: 0.4903704
## iteration: 676 beta_I: 0.5636757 acceptance rate: 0.489645
## iteration: 677 beta_I: 0.5636757 acceptance rate: 0.4889217
## iteration: 678 beta_I: 0.5653675 acceptance rate: 0.4896755
## iteration: 679 beta_I: 0.5581306 acceptance rate: 0.4904271
## iteration: 680 beta_I: 0.5581306 acceptance rate: 0.4897059
## iteration: 681 beta_I: 0.5581306 acceptance rate: 0.4889868
## iteration: 682 beta_I: 0.5611824 acceptance rate: 0.4897361
## iteration: 683 beta_I: 0.5611824 acceptance rate: 0.489019
## iteration: 684 beta_I: 0.5607441 acceptance rate: 0.4897661
## iteration: 685 beta_I: 0.5607441 acceptance rate: 0.4890511
## iteration: 686 beta_I: 0.5669336 acceptance rate: 0.4897959
## iteration: 687 beta_I: 0.56641 acceptance rate: 0.4905386
## iteration: 688 beta_I: 0.5645806 acceptance rate: 0.4912791
## iteration: 689 beta_I: 0.5642351 acceptance rate: 0.4920174
## iteration: 690 beta_I: 0.5632389 acceptance rate: 0.4927536
## iteration: 691 beta_I: 0.5632389 acceptance rate: 0.4920405
## iteration: 692 beta_I: 0.5650491 acceptance rate: 0.4927746
## iteration: 693 beta_I: 0.5643334 acceptance rate: 0.4935065
## iteration: 694 beta_I: 0.5639195 acceptance rate: 0.4942363
## iteration: 695 beta_I: 0.5631084 acceptance rate: 0.494964
## iteration: 696 beta_I: 0.5631084 acceptance rate: 0.4942529
## iteration: 697 beta_I: 0.5631084 acceptance rate: 0.4935438
## iteration: 698 beta_I: 0.5631084 acceptance rate: 0.4928367
## iteration: 699 beta_I: 0.5631084 acceptance rate: 0.4921316
## iteration: 700 beta_I: 0.5631084 acceptance rate: 0.4914286
## iteration: 701 beta_I: 0.5631084 acceptance rate: 0.4907275
## iteration: 702 beta_I: 0.5631084 acceptance rate: 0.4900285
## iteration: 703 beta_I: 0.5631084 acceptance rate: 0.4893314
## iteration: 704 beta_I: 0.5631084 acceptance rate: 0.4886364
## iteration: 705 beta_I: 0.5622506 acceptance rate: 0.4893617
## iteration: 706 beta_I: 0.5622506 acceptance rate: 0.4886686
## iteration: 707 beta_I: 0.5622506 acceptance rate: 0.4879774
## iteration: 708 beta_I: 0.5622506 acceptance rate: 0.4872881
```

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## iteration: 709 beta_I: 0.5574948 acceptance rate: 0.4880113
## iteration: 710 beta_I: 0.5617663 acceptance rate: 0.4887324
## iteration: 711 beta_I: 0.5617663 acceptance rate: 0.488045
## iteration: 712 beta_I: 0.5600839 acceptance rate: 0.488764
## iteration: 713 beta_I: 0.5586392 acceptance rate: 0.4894811
## iteration: 714 beta_I: 0.5587731 acceptance rate: 0.4901961
## iteration: 715 beta_I: 0.5550776 acceptance rate: 0.4909091
## iteration: 716 beta_I: 0.5560557 acceptance rate: 0.4916201
## iteration: 717 beta_I: 0.5561474 acceptance rate: 0.4923291
## iteration: 718 beta_I: 0.5592984 acceptance rate: 0.4930362
## iteration: 719 beta_I: 0.5592984 acceptance rate: 0.4923505
## iteration: 720 beta_I: 0.5652884 acceptance rate: 0.4930556
## iteration: 721 beta_I: 0.5605928 acceptance rate: 0.4937587
## iteration: 722 beta_I: 0.5605928 acceptance rate: 0.4930748
## iteration: 723 beta_I: 0.5609321 acceptance rate: 0.4937759
## iteration: 724 beta_I: 0.5609321 acceptance rate: 0.4930939
## iteration: 725 beta_I: 0.5600033 acceptance rate: 0.4937931
## iteration: 726 beta_I: 0.5600033 acceptance rate: 0.4931129
## iteration: 727 beta_I: 0.5596842 acceptance rate: 0.4938102
## iteration: 728 beta_I: 0.5611941 acceptance rate: 0.4945055
## iteration: 729 beta_I: 0.5611941 acceptance rate: 0.4938272
## iteration: 730 beta_I: 0.5588028 acceptance rate: 0.4945205
## iteration: 731 beta_I: 0.5571339 acceptance rate: 0.495212
## iteration: 732 beta_I: 0.5645506 acceptance rate: 0.4959016
## iteration: 733 beta_I: 0.5661773 acceptance rate: 0.4965894
## iteration: 734 beta_I: 0.5661773 acceptance rate: 0.4959128
## iteration: 735 beta_I: 0.5576937 acceptance rate: 0.4965986
## iteration: 736 beta_I: 0.563593 acceptance rate: 0.4972826
## iteration: 737 beta_I: 0.563593 acceptance rate: 0.4966079
## iteration: 738 beta_I: 0.563593 acceptance rate: 0.495935
## iteration: 739 beta_I: 0.563593 acceptance rate: 0.4952639
## iteration: 740 beta_I: 0.5603758 acceptance rate: 0.4959459
## iteration: 741 beta_I: 0.5603758 acceptance rate: 0.4952767
## iteration: 742 beta_I: 0.5603758 acceptance rate: 0.4946092
## iteration: 743 beta_I: 0.5606296 acceptance rate: 0.4952894
## iteration: 744 beta_I: 0.5647201 acceptance rate: 0.4959677
## iteration: 745 beta_I: 0.5671874 acceptance rate: 0.4966443
## iteration: 746 beta_I: 0.5645408 acceptance rate: 0.497319
## iteration: 747 beta_I: 0.5657045 acceptance rate: 0.497992
## iteration: 748 beta_I: 0.5611128 acceptance rate: 0.4986631
## iteration: 749 beta_I: 0.5636367 acceptance rate: 0.4993324
## iteration: 750 beta_I: 0.5636367 acceptance rate: 0.4986667
## iteration: 751 beta_I: 0.5631476 acceptance rate: 0.4993342
## iteration: 752 beta_I: 0.5631476 acceptance rate: 0.4986702
## iteration: 753 beta_I: 0.5631476 acceptance rate: 0.498008
## iteration: 754 beta_I: 0.5627794 acceptance rate: 0.4986737
## iteration: 755 beta_I: 0.5627794 acceptance rate: 0.4980132
## iteration: 756 beta_I: 0.563704 acceptance rate: 0.4986772
## iteration: 757 beta_I: 0.563704 acceptance rate: 0.4980185
## iteration: 758 beta_I: 0.5632432 acceptance rate: 0.4986807
## iteration: 759 beta_I: 0.5632432 acceptance rate: 0.4980237
## iteration: 760 beta_I: 0.5630611 acceptance rate: 0.4986842
## iteration: 761 beta_I: 0.5630611 acceptance rate: 0.4980289
## iteration: 762 beta_I: 0.5583849 acceptance rate: 0.4986877

```

```

## iteration: 763 beta_I: 0.5575008 acceptance rate: 0.4993447
## iteration: 764 beta_I: 0.5575008 acceptance rate: 0.4986911
## iteration: 765 beta_I: 0.5575008 acceptance rate: 0.4980392
## iteration: 766 beta_I: 0.5579172 acceptance rate: 0.4986945
## iteration: 767 beta_I: 0.566914 acceptance rate: 0.4993481
## iteration: 768 beta_I: 0.5612464 acceptance rate: 0.5
## iteration: 769 beta_I: 0.5612464 acceptance rate: 0.4993498
## iteration: 770 beta_I: 0.5612464 acceptance rate: 0.4987013
## iteration: 771 beta_I: 0.5612464 acceptance rate: 0.4980545
## iteration: 772 beta_I: 0.5612464 acceptance rate: 0.4974093
## iteration: 773 beta_I: 0.5629268 acceptance rate: 0.4980595
## iteration: 774 beta_I: 0.5629268 acceptance rate: 0.497416
## iteration: 775 beta_I: 0.5649335 acceptance rate: 0.4980645
## iteration: 776 beta_I: 0.5649335 acceptance rate: 0.4974227
## iteration: 777 beta_I: 0.5613471 acceptance rate: 0.4980695
## iteration: 778 beta_I: 0.5613471 acceptance rate: 0.4974293
## iteration: 779 beta_I: 0.5601952 acceptance rate: 0.4980745
## iteration: 780 beta_I: 0.5601952 acceptance rate: 0.4974359
## iteration: 781 beta_I: 0.5648457 acceptance rate: 0.4980794
## iteration: 782 beta_I: 0.5664339 acceptance rate: 0.4987212
## iteration: 783 beta_I: 0.5664339 acceptance rate: 0.4980843
## iteration: 784 beta_I: 0.5664339 acceptance rate: 0.497449
## iteration: 785 beta_I: 0.5651405 acceptance rate: 0.4980892
## iteration: 786 beta_I: 0.5662396 acceptance rate: 0.4987277
## iteration: 787 beta_I: 0.560618 acceptance rate: 0.4993647
## iteration: 788 beta_I: 0.5624959 acceptance rate: 0.5
## iteration: 789 beta_I: 0.5624959 acceptance rate: 0.4993663
## iteration: 790 beta_I: 0.5624959 acceptance rate: 0.4987342
## iteration: 791 beta_I: 0.5627139 acceptance rate: 0.4993679
## iteration: 792 beta_I: 0.5627139 acceptance rate: 0.4987374
## iteration: 793 beta_I: 0.5627139 acceptance rate: 0.4981084
## iteration: 794 beta_I: 0.5627139 acceptance rate: 0.4974811
## iteration: 795 beta_I: 0.5627139 acceptance rate: 0.4968553
## iteration: 796 beta_I: 0.5592745 acceptance rate: 0.4974874
## iteration: 797 beta_I: 0.5608028 acceptance rate: 0.4981179
## iteration: 798 beta_I: 0.5608028 acceptance rate: 0.4974937
## iteration: 799 beta_I: 0.5583441 acceptance rate: 0.4981227
## iteration: 800 beta_I: 0.5595415 acceptance rate: 0.49875
## iteration: 801 beta_I: 0.5595415 acceptance rate: 0.4981273
## iteration: 802 beta_I: 0.5573243 acceptance rate: 0.4987531
## iteration: 803 beta_I: 0.5573243 acceptance rate: 0.498132
## iteration: 804 beta_I: 0.5573037 acceptance rate: 0.4987562
## iteration: 805 beta_I: 0.5573037 acceptance rate: 0.4981366
## iteration: 806 beta_I: 0.5573037 acceptance rate: 0.4975186
## iteration: 807 beta_I: 0.5573037 acceptance rate: 0.4969021
## iteration: 808 beta_I: 0.5573037 acceptance rate: 0.4962871
## iteration: 809 beta_I: 0.5553195 acceptance rate: 0.4969098
## iteration: 810 beta_I: 0.5553195 acceptance rate: 0.4962963
## iteration: 811 beta_I: 0.5691047 acceptance rate: 0.4969174
## iteration: 812 beta_I: 0.5659577 acceptance rate: 0.4975369
## iteration: 813 beta_I: 0.5659577 acceptance rate: 0.496925
## iteration: 814 beta_I: 0.5615245 acceptance rate: 0.497543
## iteration: 815 beta_I: 0.5615245 acceptance rate: 0.4969325
## iteration: 816 beta_I: 0.5641889 acceptance rate: 0.497549

```

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## iteration: 817 beta_I: 0.5641889 acceptance rate: 0.49694
## iteration: 818 beta_I: 0.5635631 acceptance rate: 0.497555
## iteration: 819 beta_I: 0.5635631 acceptance rate: 0.4969475
## iteration: 820 beta_I: 0.5610977 acceptance rate: 0.497561
## iteration: 821 beta_I: 0.5610977 acceptance rate: 0.4969549
## iteration: 822 beta_I: 0.5656861 acceptance rate: 0.4975669
## iteration: 823 beta_I: 0.5656861 acceptance rate: 0.4969623
## iteration: 824 beta_I: 0.5631597 acceptance rate: 0.4975728
## iteration: 825 beta_I: 0.5631597 acceptance rate: 0.4969697
## iteration: 826 beta_I: 0.5631597 acceptance rate: 0.496368
## iteration: 827 beta_I: 0.5637616 acceptance rate: 0.496977
## iteration: 828 beta_I: 0.5637616 acceptance rate: 0.4963768
## iteration: 829 beta_I: 0.5612945 acceptance rate: 0.4969843
## iteration: 830 beta_I: 0.5612945 acceptance rate: 0.4963855
## iteration: 831 beta_I: 0.5652044 acceptance rate: 0.4969916
## iteration: 832 beta_I: 0.5652044 acceptance rate: 0.4963942
## iteration: 833 beta_I: 0.5646635 acceptance rate: 0.4969988
## iteration: 834 beta_I: 0.5646635 acceptance rate: 0.4964029
## iteration: 835 beta_I: 0.5644615 acceptance rate: 0.497006
## iteration: 836 beta_I: 0.5633804 acceptance rate: 0.4976077
## iteration: 837 beta_I: 0.5720507 acceptance rate: 0.4982079
## iteration: 838 beta_I: 0.5624812 acceptance rate: 0.4988067
## iteration: 839 beta_I: 0.5624812 acceptance rate: 0.4982122
## iteration: 840 beta_I: 0.5624812 acceptance rate: 0.497619
## iteration: 841 beta_I: 0.5624812 acceptance rate: 0.4970273
## iteration: 842 beta_I: 0.5624812 acceptance rate: 0.4964371
## iteration: 843 beta_I: 0.5624812 acceptance rate: 0.4958482
## iteration: 844 beta_I: 0.5625703 acceptance rate: 0.4964455
## iteration: 845 beta_I: 0.5625703 acceptance rate: 0.495858
## iteration: 846 beta_I: 0.5634808 acceptance rate: 0.4964539
## iteration: 847 beta_I: 0.5626421 acceptance rate: 0.4970484
## iteration: 848 beta_I: 0.559632 acceptance rate: 0.4976415
## iteration: 849 beta_I: 0.560639 acceptance rate: 0.4982332
## iteration: 850 beta_I: 0.5614382 acceptance rate: 0.4988235
## iteration: 851 beta_I: 0.5633242 acceptance rate: 0.4994125
## iteration: 852 beta_I: 0.563681 acceptance rate: 0.5
## iteration: 853 beta_I: 0.5676601 acceptance rate: 0.5005862
## iteration: 854 beta_I: 0.5676601 acceptance rate: 0.5
## iteration: 855 beta_I: 0.5635809 acceptance rate: 0.5005848
## iteration: 856 beta_I: 0.5635809 acceptance rate: 0.5
## iteration: 857 beta_I: 0.5635809 acceptance rate: 0.4994166
## iteration: 858 beta_I: 0.5635809 acceptance rate: 0.4988345
## iteration: 859 beta_I: 0.5629682 acceptance rate: 0.4994179
## iteration: 860 beta_I: 0.5629682 acceptance rate: 0.4988372
## iteration: 861 beta_I: 0.5671124 acceptance rate: 0.4994193
## iteration: 862 beta_I: 0.5638296 acceptance rate: 0.5
## iteration: 863 beta_I: 0.5638296 acceptance rate: 0.4994206
## iteration: 864 beta_I: 0.5638296 acceptance rate: 0.4988426
## iteration: 865 beta_I: 0.5590897 acceptance rate: 0.499422
## iteration: 866 beta_I: 0.5590897 acceptance rate: 0.4988453
## iteration: 867 beta_I: 0.5566688 acceptance rate: 0.4994233
## iteration: 868 beta_I: 0.5566688 acceptance rate: 0.4988479
## iteration: 869 beta_I: 0.5610361 acceptance rate: 0.4994246
## iteration: 870 beta_I: 0.5599584 acceptance rate: 0.5

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## iteration: 871 beta_I: 0.5609959 acceptance rate: 0.5005741
## iteration: 872 beta_I: 0.5609959 acceptance rate: 0.5
## iteration: 873 beta_I: 0.5673673 acceptance rate: 0.5005727
## iteration: 874 beta_I: 0.5660036 acceptance rate: 0.5011442
## iteration: 875 beta_I: 0.5617504 acceptance rate: 0.5017143
## iteration: 876 beta_I: 0.5617504 acceptance rate: 0.5011416
## iteration: 877 beta_I: 0.5644341 acceptance rate: 0.5017104
## iteration: 878 beta_I: 0.5644513 acceptance rate: 0.5022779
## iteration: 879 beta_I: 0.5599364 acceptance rate: 0.5028441
## iteration: 880 beta_I: 0.5607993 acceptance rate: 0.5034091
## iteration: 881 beta_I: 0.5646793 acceptance rate: 0.5039728
## iteration: 882 beta_I: 0.5646793 acceptance rate: 0.5034014
## iteration: 883 beta_I: 0.5646793 acceptance rate: 0.5028313
## iteration: 884 beta_I: 0.5614604 acceptance rate: 0.5033937
## iteration: 885 beta_I: 0.5615796 acceptance rate: 0.5039548
## iteration: 886 beta_I: 0.5615796 acceptance rate: 0.503386
## iteration: 887 beta_I: 0.5618171 acceptance rate: 0.5039459
## iteration: 888 beta_I: 0.561817 acceptance rate: 0.5045045
## iteration: 889 beta_I: 0.561817 acceptance rate: 0.503937
## iteration: 890 beta_I: 0.561817 acceptance rate: 0.5033708
## iteration: 891 beta_I: 0.561817 acceptance rate: 0.5028058
## iteration: 892 beta_I: 0.561817 acceptance rate: 0.5022422
## iteration: 893 beta_I: 0.561817 acceptance rate: 0.5016797
## iteration: 894 beta_I: 0.5602957 acceptance rate: 0.5022371
## iteration: 895 beta_I: 0.5647129 acceptance rate: 0.5027933
## iteration: 896 beta_I: 0.5623894 acceptance rate: 0.5033482
## iteration: 897 beta_I: 0.5623894 acceptance rate: 0.5027871
## iteration: 898 beta_I: 0.5613883 acceptance rate: 0.5033408
## iteration: 899 beta_I: 0.5587645 acceptance rate: 0.5038932
## iteration: 900 beta_I: 0.5587645 acceptance rate: 0.5033333
## iteration: 901 beta_I: 0.5611719 acceptance rate: 0.5038846
## iteration: 902 beta_I: 0.5621269 acceptance rate: 0.5044346
## iteration: 903 beta_I: 0.5633255 acceptance rate: 0.5049834
## iteration: 904 beta_I: 0.5633255 acceptance rate: 0.5044248
## iteration: 905 beta_I: 0.5620279 acceptance rate: 0.5049724
## iteration: 906 beta_I: 0.556755 acceptance rate: 0.5055188
## iteration: 907 beta_I: 0.556755 acceptance rate: 0.5049614
## iteration: 908 beta_I: 0.556755 acceptance rate: 0.5044053
## iteration: 909 beta_I: 0.5611257 acceptance rate: 0.5049505
## iteration: 910 beta_I: 0.5583436 acceptance rate: 0.5054945
## iteration: 911 beta_I: 0.5618639 acceptance rate: 0.5060373
## iteration: 912 beta_I: 0.5614476 acceptance rate: 0.5065789
## iteration: 913 beta_I: 0.5614476 acceptance rate: 0.5060241
## iteration: 914 beta_I: 0.5614476 acceptance rate: 0.5054705
## iteration: 915 beta_I: 0.5614733 acceptance rate: 0.5060109
## iteration: 916 beta_I: 0.5597844 acceptance rate: 0.5065502
## iteration: 917 beta_I: 0.5597844 acceptance rate: 0.5059978
## iteration: 918 beta_I: 0.5576347 acceptance rate: 0.5065359
## iteration: 919 beta_I: 0.5586125 acceptance rate: 0.5070729
## iteration: 920 beta_I: 0.5586125 acceptance rate: 0.5065217
## iteration: 921 beta_I: 0.5586125 acceptance rate: 0.5059718
## iteration: 922 beta_I: 0.5654345 acceptance rate: 0.5065076
## iteration: 923 beta_I: 0.5619757 acceptance rate: 0.5070423
## iteration: 924 beta_I: 0.5619757 acceptance rate: 0.5064935

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## iteration: 925 beta_I: 0.5619757 acceptance rate: 0.5059459
## iteration: 926 beta_I: 0.5632971 acceptance rate: 0.5064795
## iteration: 927 beta_I: 0.5632971 acceptance rate: 0.5059331
## iteration: 928 beta_I: 0.5634645 acceptance rate: 0.5064655
## iteration: 929 beta_I: 0.5634645 acceptance rate: 0.5059203
## iteration: 930 beta_I: 0.5634645 acceptance rate: 0.5053763
## iteration: 931 beta_I: 0.5620419 acceptance rate: 0.5059076
## iteration: 932 beta_I: 0.5620419 acceptance rate: 0.5053648
## iteration: 933 beta_I: 0.5597869 acceptance rate: 0.505895
## iteration: 934 beta_I: 0.5605479 acceptance rate: 0.506424
## iteration: 935 beta_I: 0.5609683 acceptance rate: 0.5069519
## iteration: 936 beta_I: 0.562184 acceptance rate: 0.5074786
## iteration: 937 beta_I: 0.562184 acceptance rate: 0.506937
## iteration: 938 beta_I: 0.562184 acceptance rate: 0.5063966
## iteration: 939 beta_I: 0.562184 acceptance rate: 0.5058573
## iteration: 940 beta_I: 0.5616573 acceptance rate: 0.506383
## iteration: 941 beta_I: 0.5674274 acceptance rate: 0.5069075
## iteration: 942 beta_I: 0.5673607 acceptance rate: 0.507431
## iteration: 943 beta_I: 0.5673607 acceptance rate: 0.5068929
## iteration: 944 beta_I: 0.5673607 acceptance rate: 0.5063559
## iteration: 945 beta_I: 0.5673607 acceptance rate: 0.5058201
## iteration: 946 beta_I: 0.5655132 acceptance rate: 0.5063425
## iteration: 947 beta_I: 0.5624095 acceptance rate: 0.5068638
## iteration: 948 beta_I: 0.5624095 acceptance rate: 0.5063291
## iteration: 949 beta_I: 0.561941 acceptance rate: 0.5068493
## iteration: 950 beta_I: 0.5580345 acceptance rate: 0.5073684
## iteration: 951 beta_I: 0.5606483 acceptance rate: 0.5078864
## iteration: 952 beta_I: 0.5606483 acceptance rate: 0.5073529
## iteration: 953 beta_I: 0.5606483 acceptance rate: 0.5068206
## iteration: 954 beta_I: 0.5606483 acceptance rate: 0.5062893
## iteration: 955 beta_I: 0.5592554 acceptance rate: 0.5068063
## iteration: 956 beta_I: 0.5591453 acceptance rate: 0.5073222
## iteration: 957 beta_I: 0.5656653 acceptance rate: 0.507837
## iteration: 958 beta_I: 0.5656653 acceptance rate: 0.5073069
## iteration: 959 beta_I: 0.5656246 acceptance rate: 0.5078206
## iteration: 960 beta_I: 0.5623788 acceptance rate: 0.5083333
## iteration: 961 beta_I: 0.5623788 acceptance rate: 0.5078044
## iteration: 962 beta_I: 0.5608775 acceptance rate: 0.508316
## iteration: 963 beta_I: 0.5657556 acceptance rate: 0.5088266
## iteration: 964 beta_I: 0.5647963 acceptance rate: 0.5093361
## iteration: 965 beta_I: 0.5611693 acceptance rate: 0.5098446
## iteration: 966 beta_I: 0.5611693 acceptance rate: 0.5093168
## iteration: 967 beta_I: 0.5611693 acceptance rate: 0.5087901
## iteration: 968 beta_I: 0.5611693 acceptance rate: 0.5082645
## iteration: 969 beta_I: 0.5616644 acceptance rate: 0.5087719
## iteration: 970 beta_I: 0.5632049 acceptance rate: 0.5092784
## iteration: 971 beta_I: 0.5632049 acceptance rate: 0.5087539
## iteration: 972 beta_I: 0.5580196 acceptance rate: 0.5092593
## iteration: 973 beta_I: 0.5580196 acceptance rate: 0.5087359
## iteration: 974 beta_I: 0.5579089 acceptance rate: 0.5092402
## iteration: 975 beta_I: 0.5562429 acceptance rate: 0.5097436
## iteration: 976 beta_I: 0.5580061 acceptance rate: 0.5102459
## iteration: 977 beta_I: 0.5590781 acceptance rate: 0.5107472
## iteration: 978 beta_I: 0.5578038 acceptance rate: 0.5112474

```

```

## iteration: 979 beta_I: 0.5578038 acceptance rate: 0.5107252
## iteration: 980 beta_I: 0.5578038 acceptance rate: 0.5102041
## iteration: 981 beta_I: 0.5578038 acceptance rate: 0.509684
## iteration: 982 beta_I: 0.5578038 acceptance rate: 0.509165
## iteration: 983 beta_I: 0.5578038 acceptance rate: 0.508647
## iteration: 984 beta_I: 0.5578038 acceptance rate: 0.5081301
## iteration: 985 beta_I: 0.5578038 acceptance rate: 0.5076142
## iteration: 986 beta_I: 0.5573291 acceptance rate: 0.5081136
## iteration: 987 beta_I: 0.5573291 acceptance rate: 0.5075988
## iteration: 988 beta_I: 0.5573291 acceptance rate: 0.507085
## iteration: 989 beta_I: 0.559426 acceptance rate: 0.5075834
## iteration: 990 beta_I: 0.559426 acceptance rate: 0.5070707
## iteration: 991 beta_I: 0.559426 acceptance rate: 0.506559
## iteration: 992 beta_I: 0.559426 acceptance rate: 0.5060484
## iteration: 993 beta_I: 0.5620017 acceptance rate: 0.5065458
## iteration: 994 beta_I: 0.5620017 acceptance rate: 0.5060362
## iteration: 995 beta_I: 0.5630591 acceptance rate: 0.5065327
## iteration: 996 beta_I: 0.5583807 acceptance rate: 0.5070281
## iteration: 997 beta_I: 0.5600833 acceptance rate: 0.5075226
## iteration: 998 beta_I: 0.5577932 acceptance rate: 0.508016
## iteration: 999 beta_I: 0.5577932 acceptance rate: 0.5075075
## iteration: 1000 beta_I: 0.5589013 acceptance rate: 0.508
## iteration: 1001 beta_I: 0.5628086 acceptance rate: 0.5084915
## iteration: 1002 beta_I: 0.5628086 acceptance rate: 0.507984
## iteration: 1003 beta_I: 0.5612911 acceptance rate: 0.5084746
## iteration: 1004 beta_I: 0.5624476 acceptance rate: 0.5089641
## iteration: 1005 beta_I: 0.5630037 acceptance rate: 0.5094527
## iteration: 1006 beta_I: 0.5630037 acceptance rate: 0.5089463
## iteration: 1007 beta_I: 0.5648154 acceptance rate: 0.509434
## iteration: 1008 beta_I: 0.5602565 acceptance rate: 0.5099206
## iteration: 1009 beta_I: 0.5602565 acceptance rate: 0.5094153
## iteration: 1010 beta_I: 0.5602565 acceptance rate: 0.5089109
## iteration: 1011 beta_I: 0.5602565 acceptance rate: 0.5084075
## iteration: 1012 beta_I: 0.5602565 acceptance rate: 0.5079051
## iteration: 1013 beta_I: 0.5602565 acceptance rate: 0.5074038
## iteration: 1014 beta_I: 0.5605871 acceptance rate: 0.5078895
## iteration: 1015 beta_I: 0.5627899 acceptance rate: 0.5083744
## iteration: 1016 beta_I: 0.5627899 acceptance rate: 0.507874
## iteration: 1017 beta_I: 0.5648368 acceptance rate: 0.5083579
## iteration: 1018 beta_I: 0.5648368 acceptance rate: 0.5078585
## iteration: 1019 beta_I: 0.5648368 acceptance rate: 0.5073602
## iteration: 1020 beta_I: 0.5624024 acceptance rate: 0.5078431
## iteration: 1021 beta_I: 0.5624024 acceptance rate: 0.5073457
## iteration: 1022 beta_I: 0.5624024 acceptance rate: 0.5068493
## iteration: 1023 beta_I: 0.5624024 acceptance rate: 0.5063539
## iteration: 1024 beta_I: 0.5593089 acceptance rate: 0.5068359
## iteration: 1025 beta_I: 0.5593089 acceptance rate: 0.5063415
## iteration: 1026 beta_I: 0.5593089 acceptance rate: 0.505848
## iteration: 1027 beta_I: 0.5599505 acceptance rate: 0.5063291
## iteration: 1028 beta_I: 0.5605291 acceptance rate: 0.5068093
## iteration: 1029 beta_I: 0.5598836 acceptance rate: 0.5072886
## iteration: 1030 beta_I: 0.5598836 acceptance rate: 0.5067961
## iteration: 1031 beta_I: 0.5598836 acceptance rate: 0.5063046
## iteration: 1032 beta_I: 0.5598836 acceptance rate: 0.505814

```

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## iteration: 1033 beta_I: 0.5598836 acceptance rate: 0.5053243
## iteration: 1034 beta_I: 0.5603167 acceptance rate: 0.5058027
## iteration: 1035 beta_I: 0.5603167 acceptance rate: 0.505314
## iteration: 1036 beta_I: 0.5603167 acceptance rate: 0.5048263
## iteration: 1037 beta_I: 0.5654315 acceptance rate: 0.5053038
## iteration: 1038 beta_I: 0.5606468 acceptance rate: 0.5057803
## iteration: 1039 beta_I: 0.5622971 acceptance rate: 0.506256
## iteration: 1040 beta_I: 0.5593312 acceptance rate: 0.5067308
## iteration: 1041 beta_I: 0.5593312 acceptance rate: 0.506244
## iteration: 1042 beta_I: 0.5584901 acceptance rate: 0.5067179
## iteration: 1043 beta_I: 0.5617076 acceptance rate: 0.5071908
## iteration: 1044 beta_I: 0.5617076 acceptance rate: 0.506705
## iteration: 1045 beta_I: 0.5617076 acceptance rate: 0.5062201
## iteration: 1046 beta_I: 0.5617076 acceptance rate: 0.5057361
## iteration: 1047 beta_I: 0.5617076 acceptance rate: 0.5052531
## iteration: 1048 beta_I: 0.5617076 acceptance rate: 0.504771
## iteration: 1049 beta_I: 0.5640986 acceptance rate: 0.5052431
## iteration: 1050 beta_I: 0.5640986 acceptance rate: 0.5047619
## iteration: 1051 beta_I: 0.5640986 acceptance rate: 0.5042816
## iteration: 1052 beta_I: 0.565895 acceptance rate: 0.5047529
## iteration: 1053 beta_I: 0.565895 acceptance rate: 0.5042735
## iteration: 1054 beta_I: 0.5678002 acceptance rate: 0.5047438
## iteration: 1055 beta_I: 0.5615617 acceptance rate: 0.5052133
## iteration: 1056 beta_I: 0.5615617 acceptance rate: 0.5047348
## iteration: 1057 beta_I: 0.5615617 acceptance rate: 0.5042573
## iteration: 1058 beta_I: 0.5615617 acceptance rate: 0.5037807
## iteration: 1059 beta_I: 0.5648469 acceptance rate: 0.5042493
## iteration: 1060 beta_I: 0.5640132 acceptance rate: 0.504717
## iteration: 1061 beta_I: 0.5622407 acceptance rate: 0.5051838
## iteration: 1062 beta_I: 0.563272 acceptance rate: 0.5056497
## iteration: 1063 beta_I: 0.563272 acceptance rate: 0.505174
## iteration: 1064 beta_I: 0.563272 acceptance rate: 0.5046992
## iteration: 1065 beta_I: 0.563272 acceptance rate: 0.5042254
## iteration: 1066 beta_I: 0.563272 acceptance rate: 0.5037523
## iteration: 1067 beta_I: 0.5653359 acceptance rate: 0.5042174
## iteration: 1068 beta_I: 0.5653359 acceptance rate: 0.5037453
## iteration: 1069 beta_I: 0.5653359 acceptance rate: 0.5032741
## iteration: 1070 beta_I: 0.5645984 acceptance rate: 0.5037383
## iteration: 1071 beta_I: 0.5645984 acceptance rate: 0.503268
## iteration: 1072 beta_I: 0.5603786 acceptance rate: 0.5037313
## iteration: 1073 beta_I: 0.5664558 acceptance rate: 0.5041938
## iteration: 1074 beta_I: 0.5627825 acceptance rate: 0.5046555
## iteration: 1075 beta_I: 0.5645538 acceptance rate: 0.5051163
## iteration: 1076 beta_I: 0.5608115 acceptance rate: 0.5055762
## iteration: 1077 beta_I: 0.5629518 acceptance rate: 0.5060353
## iteration: 1078 beta_I: 0.5630295 acceptance rate: 0.5064935
## iteration: 1079 beta_I: 0.5630295 acceptance rate: 0.5060241
## iteration: 1080 beta_I: 0.5630295 acceptance rate: 0.5055556
## iteration: 1081 beta_I: 0.5633746 acceptance rate: 0.506013
## iteration: 1082 beta_I: 0.5633746 acceptance rate: 0.5055453
## iteration: 1083 beta_I: 0.5633746 acceptance rate: 0.5050785
## iteration: 1084 beta_I: 0.5633746 acceptance rate: 0.5046125
## iteration: 1085 beta_I: 0.5677992 acceptance rate: 0.5050691
## iteration: 1086 beta_I: 0.5633621 acceptance rate: 0.5055249

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## iteration: 1087 beta_I: 0.5664654 acceptance rate: 0.5059798
## iteration: 1088 beta_I: 0.560623 acceptance rate: 0.5064338
## iteration: 1089 beta_I: 0.5617872 acceptance rate: 0.5068871
## iteration: 1090 beta_I: 0.5617872 acceptance rate: 0.506422
## iteration: 1091 beta_I: 0.5617872 acceptance rate: 0.5059578
## iteration: 1092 beta_I: 0.5638596 acceptance rate: 0.5064103
## iteration: 1093 beta_I: 0.5638596 acceptance rate: 0.5059469
## iteration: 1094 beta_I: 0.5638596 acceptance rate: 0.5054845
## iteration: 1095 beta_I: 0.5658634 acceptance rate: 0.5059361
## iteration: 1096 beta_I: 0.5658634 acceptance rate: 0.5054745
## iteration: 1097 beta_I: 0.5658634 acceptance rate: 0.5050137
## iteration: 1098 beta_I: 0.5632425 acceptance rate: 0.5054645
## iteration: 1099 beta_I: 0.5640786 acceptance rate: 0.5059145
## iteration: 1100 beta_I: 0.5640786 acceptance rate: 0.5054545
## iteration: 1101 beta_I: 0.5640786 acceptance rate: 0.5049955
## iteration: 1102 beta_I: 0.5640786 acceptance rate: 0.5045372
## iteration: 1103 beta_I: 0.5640786 acceptance rate: 0.5040798
## iteration: 1104 beta_I: 0.5632712 acceptance rate: 0.504529
## iteration: 1105 beta_I: 0.5632712 acceptance rate: 0.5040724
## iteration: 1106 beta_I: 0.5630337 acceptance rate: 0.5045208
## iteration: 1107 beta_I: 0.564608 acceptance rate: 0.5049684
## iteration: 1108 beta_I: 0.564509 acceptance rate: 0.5054152
## iteration: 1109 beta_I: 0.5633721 acceptance rate: 0.5058611
## iteration: 1110 beta_I: 0.5616663 acceptance rate: 0.5063063
## iteration: 1111 beta_I: 0.5642342 acceptance rate: 0.5067507
## iteration: 1112 beta_I: 0.5622685 acceptance rate: 0.5071942
## iteration: 1113 beta_I: 0.5608828 acceptance rate: 0.507637
## iteration: 1114 beta_I: 0.5608828 acceptance rate: 0.5071813
## iteration: 1115 beta_I: 0.5622869 acceptance rate: 0.5076233
## iteration: 1116 beta_I: 0.5622869 acceptance rate: 0.5071685
## iteration: 1117 beta_I: 0.5622869 acceptance rate: 0.5067144
## iteration: 1118 beta_I: 0.5622869 acceptance rate: 0.5062612
## iteration: 1119 beta_I: 0.5622869 acceptance rate: 0.5058088
## iteration: 1120 beta_I: 0.5622869 acceptance rate: 0.5053571
## iteration: 1121 beta_I: 0.5622869 acceptance rate: 0.5049063
## iteration: 1122 beta_I: 0.5660317 acceptance rate: 0.5053476
## iteration: 1123 beta_I: 0.5610173 acceptance rate: 0.5057881
## iteration: 1124 beta_I: 0.567403 acceptance rate: 0.5062278
## iteration: 1125 beta_I: 0.567403 acceptance rate: 0.5057778
## iteration: 1126 beta_I: 0.5655965 acceptance rate: 0.5062167
## iteration: 1127 beta_I: 0.5637764 acceptance rate: 0.5066548
## iteration: 1128 beta_I: 0.5637764 acceptance rate: 0.5062057
## iteration: 1129 beta_I: 0.5637764 acceptance rate: 0.5057573
## iteration: 1130 beta_I: 0.5637764 acceptance rate: 0.5053097
## iteration: 1131 beta_I: 0.5637238 acceptance rate: 0.5057471
## iteration: 1132 beta_I: 0.5637238 acceptance rate: 0.5053004
## iteration: 1133 beta_I: 0.5637238 acceptance rate: 0.5048544
## iteration: 1134 beta_I: 0.5637238 acceptance rate: 0.5044092
## iteration: 1135 beta_I: 0.5678775 acceptance rate: 0.5048458
## iteration: 1136 beta_I: 0.5678775 acceptance rate: 0.5044014
## iteration: 1137 beta_I: 0.5653874 acceptance rate: 0.5048373
## iteration: 1138 beta_I: 0.5598545 acceptance rate: 0.5052724
## iteration: 1139 beta_I: 0.5625163 acceptance rate: 0.5057068
## iteration: 1140 beta_I: 0.5613106 acceptance rate: 0.5061404

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## iteration: 1141 beta_I: 0.5613106 acceptance rate: 0.5056968
## iteration: 1142 beta_I: 0.5629874 acceptance rate: 0.5061296
## iteration: 1143 beta_I: 0.5629874 acceptance rate: 0.5056868
## iteration: 1144 beta_I: 0.5589803 acceptance rate: 0.5061189
## iteration: 1145 beta_I: 0.5589803 acceptance rate: 0.5056769
## iteration: 1146 beta_I: 0.5589803 acceptance rate: 0.5052356
## iteration: 1147 beta_I: 0.5589803 acceptance rate: 0.5047951
## iteration: 1148 beta_I: 0.5611097 acceptance rate: 0.5052265
## iteration: 1149 beta_I: 0.5591969 acceptance rate: 0.5056571
## iteration: 1150 beta_I: 0.5591969 acceptance rate: 0.5052174
## iteration: 1151 beta_I: 0.5591969 acceptance rate: 0.5047785
## iteration: 1152 beta_I: 0.5619981 acceptance rate: 0.5052083
## iteration: 1153 beta_I: 0.5619981 acceptance rate: 0.5047702
## iteration: 1154 beta_I: 0.5619981 acceptance rate: 0.5043328
## iteration: 1155 beta_I: 0.5629832 acceptance rate: 0.5047619
## iteration: 1156 beta_I: 0.5629832 acceptance rate: 0.5043253
## iteration: 1157 beta_I: 0.5629832 acceptance rate: 0.5038894
## iteration: 1158 beta_I: 0.5629832 acceptance rate: 0.5034542
## iteration: 1159 beta_I: 0.5629832 acceptance rate: 0.5030198
## iteration: 1160 beta_I: 0.5629832 acceptance rate: 0.5025862
## iteration: 1161 beta_I: 0.5629832 acceptance rate: 0.5021533
## iteration: 1162 beta_I: 0.5627087 acceptance rate: 0.5025818
## iteration: 1163 beta_I: 0.5606733 acceptance rate: 0.5030095
## iteration: 1164 beta_I: 0.5626884 acceptance rate: 0.5034364
## iteration: 1165 beta_I: 0.5652809 acceptance rate: 0.5038627
## iteration: 1166 beta_I: 0.5652809 acceptance rate: 0.5034305
## iteration: 1167 beta_I: 0.5622708 acceptance rate: 0.503856
## iteration: 1168 beta_I: 0.5622708 acceptance rate: 0.5034247
## iteration: 1169 beta_I: 0.5622708 acceptance rate: 0.502994
## iteration: 1170 beta_I: 0.5622708 acceptance rate: 0.5025641
## iteration: 1171 beta_I: 0.5592196 acceptance rate: 0.5029889
## iteration: 1172 beta_I: 0.5595465 acceptance rate: 0.503413
## iteration: 1173 beta_I: 0.5609366 acceptance rate: 0.5038363
## iteration: 1174 beta_I: 0.5616607 acceptance rate: 0.5042589
## iteration: 1175 beta_I: 0.5586815 acceptance rate: 0.5046809
## iteration: 1176 beta_I: 0.5672584 acceptance rate: 0.505102
## iteration: 1177 beta_I: 0.5672584 acceptance rate: 0.5046729
## iteration: 1178 beta_I: 0.5672584 acceptance rate: 0.5042445
## iteration: 1179 beta_I: 0.5672584 acceptance rate: 0.5038168
## iteration: 1180 beta_I: 0.5672584 acceptance rate: 0.5033898
## iteration: 1181 beta_I: 0.5654031 acceptance rate: 0.5038103
## iteration: 1182 beta_I: 0.5654031 acceptance rate: 0.5033841
## iteration: 1183 beta_I: 0.5654031 acceptance rate: 0.5029586
## iteration: 1184 beta_I: 0.5634646 acceptance rate: 0.5033784
## iteration: 1185 beta_I: 0.5634646 acceptance rate: 0.5029536
## iteration: 1186 beta_I: 0.5641566 acceptance rate: 0.5033727
## iteration: 1187 beta_I: 0.5614235 acceptance rate: 0.5037911
## iteration: 1188 beta_I: 0.5614235 acceptance rate: 0.503367
## iteration: 1189 beta_I: 0.5660834 acceptance rate: 0.5037847
## iteration: 1190 beta_I: 0.5660834 acceptance rate: 0.5033613
## iteration: 1191 beta_I: 0.5660834 acceptance rate: 0.5029387
## iteration: 1192 beta_I: 0.5660834 acceptance rate: 0.5025168
## iteration: 1193 beta_I: 0.5660834 acceptance rate: 0.5020956
## iteration: 1194 beta_I: 0.56476 acceptance rate: 0.5025126

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## iteration: 1195 beta_I: 0.56476 acceptance rate: 0.5020921
## iteration: 1196 beta_I: 0.5677327 acceptance rate: 0.5025084
## iteration: 1197 beta_I: 0.5677327 acceptance rate: 0.5020886
## iteration: 1198 beta_I: 0.5677327 acceptance rate: 0.5016694
## iteration: 1199 beta_I: 0.559434 acceptance rate: 0.5020851
## iteration: 1200 beta_I: 0.5598891 acceptance rate: 0.5025
## iteration: 1201 beta_I: 0.5635286 acceptance rate: 0.5029142
## iteration: 1202 beta_I: 0.5658471 acceptance rate: 0.5033278
## iteration: 1203 beta_I: 0.5614341 acceptance rate: 0.5037406
## iteration: 1204 beta_I: 0.5596486 acceptance rate: 0.5041528
## iteration: 1205 beta_I: 0.5596486 acceptance rate: 0.5037344
## iteration: 1206 beta_I: 0.5614454 acceptance rate: 0.5041459
## iteration: 1207 beta_I: 0.5614454 acceptance rate: 0.5037283
## iteration: 1208 beta_I: 0.5614454 acceptance rate: 0.5033113
## iteration: 1209 beta_I: 0.5614454 acceptance rate: 0.502895
## iteration: 1210 beta_I: 0.5633719 acceptance rate: 0.5033058
## iteration: 1211 beta_I: 0.5644902 acceptance rate: 0.5037159
## iteration: 1212 beta_I: 0.567862 acceptance rate: 0.5041254
## iteration: 1213 beta_I: 0.567862 acceptance rate: 0.5037098
## iteration: 1214 beta_I: 0.567862 acceptance rate: 0.5032949
## iteration: 1215 beta_I: 0.5618702 acceptance rate: 0.5037037
## iteration: 1216 beta_I: 0.5618702 acceptance rate: 0.5032895
## iteration: 1217 beta_I: 0.5618702 acceptance rate: 0.5028759
## iteration: 1218 beta_I: 0.5628163 acceptance rate: 0.5032841
## iteration: 1219 beta_I: 0.5640461 acceptance rate: 0.5036916
## iteration: 1220 beta_I: 0.5640461 acceptance rate: 0.5032787
## iteration: 1221 beta_I: 0.5640461 acceptance rate: 0.5028665
## iteration: 1222 beta_I: 0.5640461 acceptance rate: 0.502455
## iteration: 1223 beta_I: 0.5640461 acceptance rate: 0.5020442
## iteration: 1224 beta_I: 0.5643959 acceptance rate: 0.502451
## iteration: 1225 beta_I: 0.5643959 acceptance rate: 0.5020408
## iteration: 1226 beta_I: 0.5643959 acceptance rate: 0.5016313
## iteration: 1227 beta_I: 0.5643959 acceptance rate: 0.5012225
## iteration: 1228 beta_I: 0.5643959 acceptance rate: 0.5008143
## iteration: 1229 beta_I: 0.5598527 acceptance rate: 0.5012205
## iteration: 1230 beta_I: 0.5602373 acceptance rate: 0.501626
## iteration: 1231 beta_I: 0.5602373 acceptance rate: 0.5012185
## iteration: 1232 beta_I: 0.5629173 acceptance rate: 0.5016234
## iteration: 1233 beta_I: 0.5629173 acceptance rate: 0.5012165
## iteration: 1234 beta_I: 0.559884 acceptance rate: 0.5016207
## iteration: 1235 beta_I: 0.559884 acceptance rate: 0.5012146
## iteration: 1236 beta_I: 0.559884 acceptance rate: 0.5008091
## iteration: 1237 beta_I: 0.5610983 acceptance rate: 0.5012126
## iteration: 1238 beta_I: 0.5610983 acceptance rate: 0.5008078
## iteration: 1239 beta_I: 0.5608881 acceptance rate: 0.5012107
## iteration: 1240 beta_I: 0.5608881 acceptance rate: 0.5008065
## iteration: 1241 beta_I: 0.5608881 acceptance rate: 0.5004029
## iteration: 1242 beta_I: 0.5625171 acceptance rate: 0.5008052
## iteration: 1243 beta_I: 0.5625171 acceptance rate: 0.5004023
## iteration: 1244 beta_I: 0.5628412 acceptance rate: 0.5008039
## iteration: 1245 beta_I: 0.5628412 acceptance rate: 0.5004016
## iteration: 1246 beta_I: 0.5628412 acceptance rate: 0.5
## iteration: 1247 beta_I: 0.5628412 acceptance rate: 0.499599
## iteration: 1248 beta_I: 0.5618186 acceptance rate: 0.5

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## iteration: 1249 beta_I: 0.5622302 acceptance rate: 0.5004003
## iteration: 1250 beta_I: 0.5622302 acceptance rate: 0.5
## iteration: 1251 beta_I: 0.5622302 acceptance rate: 0.4996003
## iteration: 1252 beta_I: 0.5622302 acceptance rate: 0.4992013
## iteration: 1253 beta_I: 0.5622302 acceptance rate: 0.4988029
## iteration: 1254 beta_I: 0.5593693 acceptance rate: 0.4992026
## iteration: 1255 beta_I: 0.5593693 acceptance rate: 0.4988048
## iteration: 1256 beta_I: 0.5593693 acceptance rate: 0.4984076
## iteration: 1257 beta_I: 0.5593693 acceptance rate: 0.4980111
## iteration: 1258 beta_I: 0.5593693 acceptance rate: 0.4976153
## iteration: 1259 beta_I: 0.5593693 acceptance rate: 0.49722
## iteration: 1260 beta_I: 0.5630551 acceptance rate: 0.497619
## iteration: 1261 beta_I: 0.5630551 acceptance rate: 0.4972244
## iteration: 1262 beta_I: 0.5636301 acceptance rate: 0.4976228
## iteration: 1263 beta_I: 0.5636301 acceptance rate: 0.4972288
## iteration: 1264 beta_I: 0.5625127 acceptance rate: 0.4976266
## iteration: 1265 beta_I: 0.5625127 acceptance rate: 0.4972332
## iteration: 1266 beta_I: 0.5625127 acceptance rate: 0.4968404
## iteration: 1267 beta_I: 0.5610324 acceptance rate: 0.4972376
## iteration: 1268 beta_I: 0.5610324 acceptance rate: 0.4968454
## iteration: 1269 beta_I: 0.5604216 acceptance rate: 0.4972419
## iteration: 1270 beta_I: 0.5646707 acceptance rate: 0.4976378
## iteration: 1271 beta_I: 0.5639037 acceptance rate: 0.498033
## iteration: 1272 beta_I: 0.564173 acceptance rate: 0.4984277
## iteration: 1273 beta_I: 0.5653795 acceptance rate: 0.4988217
## iteration: 1274 beta_I: 0.5653795 acceptance rate: 0.4984301
## iteration: 1275 beta_I: 0.5653795 acceptance rate: 0.4980392
## iteration: 1276 beta_I: 0.5659259 acceptance rate: 0.4984326
## iteration: 1277 beta_I: 0.5659259 acceptance rate: 0.4980423
## iteration: 1278 beta_I: 0.5659259 acceptance rate: 0.4976526
## iteration: 1279 beta_I: 0.5634596 acceptance rate: 0.4980453
## iteration: 1280 beta_I: 0.5634596 acceptance rate: 0.4976563
## iteration: 1281 beta_I: 0.5634596 acceptance rate: 0.4972678
## iteration: 1282 beta_I: 0.5625893 acceptance rate: 0.4976599
## iteration: 1283 beta_I: 0.5625893 acceptance rate: 0.497272
## iteration: 1284 beta_I: 0.5621546 acceptance rate: 0.4976636
## iteration: 1285 beta_I: 0.5648352 acceptance rate: 0.4980545
## iteration: 1286 beta_I: 0.5648352 acceptance rate: 0.4976672
## iteration: 1287 beta_I: 0.5648352 acceptance rate: 0.4972805
## iteration: 1288 beta_I: 0.5648352 acceptance rate: 0.4968944
## iteration: 1289 beta_I: 0.562892 acceptance rate: 0.4972847
## iteration: 1290 beta_I: 0.5680916 acceptance rate: 0.4976744
## iteration: 1291 beta_I: 0.5680916 acceptance rate: 0.4972889
## iteration: 1292 beta_I: 0.5603425 acceptance rate: 0.497678
## iteration: 1293 beta_I: 0.5577626 acceptance rate: 0.4980665
## iteration: 1294 beta_I: 0.5577626 acceptance rate: 0.4976816
## iteration: 1295 beta_I: 0.559029 acceptance rate: 0.4980695
## iteration: 1296 beta_I: 0.559029 acceptance rate: 0.4976852
## iteration: 1297 beta_I: 0.5633013 acceptance rate: 0.4980725
## iteration: 1298 beta_I: 0.5642897 acceptance rate: 0.4984592
## iteration: 1299 beta_I: 0.5642897 acceptance rate: 0.4980754
## iteration: 1300 beta_I: 0.5625576 acceptance rate: 0.4984615
## iteration: 1301 beta_I: 0.5625576 acceptance rate: 0.4980784
## iteration: 1302 beta_I: 0.5625576 acceptance rate: 0.4976959

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## iteration: 1303 beta_I: 0.5618966 acceptance rate: 0.4980814
## iteration: 1304 beta_I: 0.561372 acceptance rate: 0.4984663
## iteration: 1305 beta_I: 0.561372 acceptance rate: 0.4980843
## iteration: 1306 beta_I: 0.561372 acceptance rate: 0.4977029
## iteration: 1307 beta_I: 0.561372 acceptance rate: 0.4973221
## iteration: 1308 beta_I: 0.5640562 acceptance rate: 0.4977064
## iteration: 1309 beta_I: 0.5640562 acceptance rate: 0.4973262
## iteration: 1310 beta_I: 0.5640562 acceptance rate: 0.4969466
## iteration: 1311 beta_I: 0.5640562 acceptance rate: 0.4965675
## iteration: 1312 beta_I: 0.5631123 acceptance rate: 0.4969512
## iteration: 1313 beta_I: 0.5652744 acceptance rate: 0.4973343
## iteration: 1314 beta_I: 0.5658215 acceptance rate: 0.4977169
## iteration: 1315 beta_I: 0.5658215 acceptance rate: 0.4973384
## iteration: 1316 beta_I: 0.5658215 acceptance rate: 0.4969605
## iteration: 1317 beta_I: 0.5658215 acceptance rate: 0.4965831
## iteration: 1318 beta_I: 0.5602748 acceptance rate: 0.4969651
## iteration: 1319 beta_I: 0.5645961 acceptance rate: 0.4973465
## iteration: 1320 beta_I: 0.5659074 acceptance rate: 0.4977273
## iteration: 1321 beta_I: 0.5659074 acceptance rate: 0.4973505
## iteration: 1322 beta_I: 0.5659074 acceptance rate: 0.4969743
## iteration: 1323 beta_I: 0.5659074 acceptance rate: 0.4965986
## iteration: 1324 beta_I: 0.5658753 acceptance rate: 0.4969789
## iteration: 1325 beta_I: 0.5658753 acceptance rate: 0.4966038
## iteration: 1326 beta_I: 0.5658753 acceptance rate: 0.4962293
## iteration: 1327 beta_I: 0.5658753 acceptance rate: 0.4958553
## iteration: 1328 beta_I: 0.5658753 acceptance rate: 0.4954819
## iteration: 1329 beta_I: 0.5648542 acceptance rate: 0.4958616
## iteration: 1330 beta_I: 0.5648542 acceptance rate: 0.4954887
## iteration: 1331 beta_I: 0.5648542 acceptance rate: 0.4951165
## iteration: 1332 beta_I: 0.5648542 acceptance rate: 0.4947447
## iteration: 1333 beta_I: 0.5648286 acceptance rate: 0.4951238
## iteration: 1334 beta_I: 0.5574277 acceptance rate: 0.4955022
## iteration: 1335 beta_I: 0.5574277 acceptance rate: 0.4951311
## iteration: 1336 beta_I: 0.5574277 acceptance rate: 0.4947605
## iteration: 1337 beta_I: 0.5574277 acceptance rate: 0.4943904
## iteration: 1338 beta_I: 0.5574277 acceptance rate: 0.4940209
## iteration: 1339 beta_I: 0.5574277 acceptance rate: 0.493652
## iteration: 1340 beta_I: 0.5574277 acceptance rate: 0.4932836
## iteration: 1341 beta_I: 0.5598884 acceptance rate: 0.4936614
## iteration: 1342 beta_I: 0.5585142 acceptance rate: 0.4940387
## iteration: 1343 beta_I: 0.5623999 acceptance rate: 0.4944155
## iteration: 1344 beta_I: 0.5623999 acceptance rate: 0.4940476
## iteration: 1345 beta_I: 0.5623616 acceptance rate: 0.4944238
## iteration: 1346 beta_I: 0.5623616 acceptance rate: 0.4940565
## iteration: 1347 beta_I: 0.5626489 acceptance rate: 0.4944321
## iteration: 1348 beta_I: 0.5626489 acceptance rate: 0.4940653
## iteration: 1349 beta_I: 0.5626489 acceptance rate: 0.493699
## iteration: 1350 beta_I: 0.5626489 acceptance rate: 0.4933333
## iteration: 1351 beta_I: 0.5626489 acceptance rate: 0.4929682
## iteration: 1352 beta_I: 0.5626489 acceptance rate: 0.4926036
## iteration: 1353 beta_I: 0.5602117 acceptance rate: 0.4929786
## iteration: 1354 beta_I: 0.5640344 acceptance rate: 0.493353
## iteration: 1355 beta_I: 0.563544 acceptance rate: 0.4937269
## iteration: 1356 beta_I: 0.563544 acceptance rate: 0.4933628

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## iteration: 1357 beta_I: 0.563544 acceptance rate: 0.4929993
## iteration: 1358 beta_I: 0.561952 acceptance rate: 0.4933726
## iteration: 1359 beta_I: 0.561952 acceptance rate: 0.4930096
## iteration: 1360 beta_I: 0.5670432 acceptance rate: 0.4933824
## iteration: 1361 beta_I: 0.5602731 acceptance rate: 0.4937546
## iteration: 1362 beta_I: 0.5613042 acceptance rate: 0.4941263
## iteration: 1363 beta_I: 0.5641977 acceptance rate: 0.4944974
## iteration: 1364 beta_I: 0.5668404 acceptance rate: 0.494868
## iteration: 1365 beta_I: 0.5673214 acceptance rate: 0.4952381
## iteration: 1366 beta_I: 0.5673214 acceptance rate: 0.4948755
## iteration: 1367 beta_I: 0.5638734 acceptance rate: 0.4952451
## iteration: 1368 beta_I: 0.5638734 acceptance rate: 0.494883
## iteration: 1369 beta_I: 0.5629355 acceptance rate: 0.495252
## iteration: 1370 beta_I: 0.5629355 acceptance rate: 0.4948905
## iteration: 1371 beta_I: 0.5629355 acceptance rate: 0.4945295
## iteration: 1372 beta_I: 0.5629355 acceptance rate: 0.4941691
## iteration: 1373 beta_I: 0.5629355 acceptance rate: 0.4938092
## iteration: 1374 beta_I: 0.5629355 acceptance rate: 0.4934498
## iteration: 1375 beta_I: 0.5629355 acceptance rate: 0.4930909
## iteration: 1376 beta_I: 0.5665415 acceptance rate: 0.4934593
## iteration: 1377 beta_I: 0.5665415 acceptance rate: 0.4931009
## iteration: 1378 beta_I: 0.5665415 acceptance rate: 0.4927431
## iteration: 1379 beta_I: 0.5665415 acceptance rate: 0.4923858
## iteration: 1380 beta_I: 0.5665415 acceptance rate: 0.492029
## iteration: 1381 beta_I: 0.5665415 acceptance rate: 0.4916727
## iteration: 1382 beta_I: 0.5665415 acceptance rate: 0.4913169
## iteration: 1383 beta_I: 0.5665415 acceptance rate: 0.4909617
## iteration: 1384 beta_I: 0.5665415 acceptance rate: 0.4906069
## iteration: 1385 beta_I: 0.5665415 acceptance rate: 0.4902527
## iteration: 1386 beta_I: 0.5675133 acceptance rate: 0.4906205
## iteration: 1387 beta_I: 0.5693174 acceptance rate: 0.4909877
## iteration: 1388 beta_I: 0.5693174 acceptance rate: 0.490634
## iteration: 1389 beta_I: 0.5702153 acceptance rate: 0.4910007
## iteration: 1390 beta_I: 0.569805 acceptance rate: 0.4913669
## iteration: 1391 beta_I: 0.569805 acceptance rate: 0.4910137
## iteration: 1392 beta_I: 0.5702045 acceptance rate: 0.4913793
## iteration: 1393 beta_I: 0.5673657 acceptance rate: 0.4917444
## iteration: 1394 beta_I: 0.5673657 acceptance rate: 0.4913917
## iteration: 1395 beta_I: 0.5673913 acceptance rate: 0.4917563
## iteration: 1396 beta_I: 0.5622205 acceptance rate: 0.4921203
## iteration: 1397 beta_I: 0.5622205 acceptance rate: 0.4917681
## iteration: 1398 beta_I: 0.5622205 acceptance rate: 0.4914163
## iteration: 1399 beta_I: 0.562701 acceptance rate: 0.4917798
## iteration: 1400 beta_I: 0.562701 acceptance rate: 0.4914286
## iteration: 1401 beta_I: 0.562701 acceptance rate: 0.4910778
## iteration: 1402 beta_I: 0.562701 acceptance rate: 0.4907275
## iteration: 1403 beta_I: 0.562021 acceptance rate: 0.4910905
## iteration: 1404 beta_I: 0.562021 acceptance rate: 0.4907407
## iteration: 1405 beta_I: 0.5660249 acceptance rate: 0.4911032
## iteration: 1406 beta_I: 0.5626861 acceptance rate: 0.4914651
## iteration: 1407 beta_I: 0.5626861 acceptance rate: 0.4911158
## iteration: 1408 beta_I: 0.5590936 acceptance rate: 0.4914773
## iteration: 1409 beta_I: 0.560191 acceptance rate: 0.4918382
## iteration: 1410 beta_I: 0.560191 acceptance rate: 0.4914894

```

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## iteration: 1411 beta_I: 0.560191 acceptance rate: 0.491141
## iteration: 1412 beta_I: 0.5621765 acceptance rate: 0.4915014
## iteration: 1413 beta_I: 0.5621765 acceptance rate: 0.4911536
## iteration: 1414 beta_I: 0.5621765 acceptance rate: 0.4908062
## iteration: 1415 beta_I: 0.5630198 acceptance rate: 0.4911661
## iteration: 1416 beta_I: 0.5638995 acceptance rate: 0.4915254
## iteration: 1417 beta_I: 0.5605619 acceptance rate: 0.4918843
## iteration: 1418 beta_I: 0.5605619 acceptance rate: 0.4915374
## iteration: 1419 beta_I: 0.5685296 acceptance rate: 0.4918957
## iteration: 1420 beta_I: 0.5685296 acceptance rate: 0.4915493
## iteration: 1421 beta_I: 0.5685296 acceptance rate: 0.4912034
## iteration: 1422 beta_I: 0.5657156 acceptance rate: 0.4915612
## iteration: 1423 beta_I: 0.5657156 acceptance rate: 0.4912157
## iteration: 1424 beta_I: 0.5657156 acceptance rate: 0.4908708
## iteration: 1425 beta_I: 0.5657156 acceptance rate: 0.4905263
## iteration: 1426 beta_I: 0.5617727 acceptance rate: 0.4908836
## iteration: 1427 beta_I: 0.5617727 acceptance rate: 0.4905396
## iteration: 1428 beta_I: 0.5617727 acceptance rate: 0.4901961
## iteration: 1429 beta_I: 0.5617727 acceptance rate: 0.489853
## iteration: 1430 beta_I: 0.5617727 acceptance rate: 0.4895105
## iteration: 1431 beta_I: 0.5617727 acceptance rate: 0.4891684
## iteration: 1432 beta_I: 0.5610298 acceptance rate: 0.4895251
## iteration: 1433 beta_I: 0.5610298 acceptance rate: 0.4891835
## iteration: 1434 beta_I: 0.5610423 acceptance rate: 0.4895397
## iteration: 1435 beta_I: 0.5642847 acceptance rate: 0.4898955
## iteration: 1436 beta_I: 0.5642847 acceptance rate: 0.4895543
## iteration: 1437 beta_I: 0.5615533 acceptance rate: 0.4899095
## iteration: 1438 beta_I: 0.5615533 acceptance rate: 0.4895688
## iteration: 1439 beta_I: 0.5597743 acceptance rate: 0.4899236
## iteration: 1440 beta_I: 0.5597743 acceptance rate: 0.4895833
## iteration: 1441 beta_I: 0.5633552 acceptance rate: 0.4899375
## iteration: 1442 beta_I: 0.5599291 acceptance rate: 0.4902913
## iteration: 1443 beta_I: 0.5624774 acceptance rate: 0.4906445
## iteration: 1444 beta_I: 0.5624774 acceptance rate: 0.4903047
## iteration: 1445 beta_I: 0.5636254 acceptance rate: 0.4906574
## iteration: 1446 beta_I: 0.5636254 acceptance rate: 0.4903181
## iteration: 1447 beta_I: 0.5636254 acceptance rate: 0.4899793
## iteration: 1448 beta_I: 0.5626483 acceptance rate: 0.4903315
## iteration: 1449 beta_I: 0.5626483 acceptance rate: 0.4899931
## iteration: 1450 beta_I: 0.5626483 acceptance rate: 0.4896552
## iteration: 1451 beta_I: 0.5605622 acceptance rate: 0.4900069
## iteration: 1452 beta_I: 0.5605622 acceptance rate: 0.4896694
## iteration: 1453 beta_I: 0.5605622 acceptance rate: 0.4893324
## iteration: 1454 beta_I: 0.5605121 acceptance rate: 0.4896836
## iteration: 1455 beta_I: 0.5601096 acceptance rate: 0.4900344
## iteration: 1456 beta_I: 0.5614745 acceptance rate: 0.4903846
## iteration: 1457 beta_I: 0.5614745 acceptance rate: 0.490048
## iteration: 1458 beta_I: 0.5614745 acceptance rate: 0.4897119
## iteration: 1459 beta_I: 0.5639267 acceptance rate: 0.4900617
## iteration: 1460 beta_I: 0.5639267 acceptance rate: 0.489726
## iteration: 1461 beta_I: 0.5639267 acceptance rate: 0.4893908
## iteration: 1462 beta_I: 0.5639267 acceptance rate: 0.4890561
## iteration: 1463 beta_I: 0.5658423 acceptance rate: 0.4894053
## iteration: 1464 beta_I: 0.5637754 acceptance rate: 0.4897541

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## iteration: 1465 beta_I: 0.5637754 acceptance rate: 0.4894198
## iteration: 1466 beta_I: 0.5637754 acceptance rate: 0.4890859
## iteration: 1467 beta_I: 0.5637754 acceptance rate: 0.4887526
## iteration: 1468 beta_I: 0.5637754 acceptance rate: 0.4884196
## iteration: 1469 beta_I: 0.5611404 acceptance rate: 0.4887679
## iteration: 1470 beta_I: 0.5623418 acceptance rate: 0.4891156
## iteration: 1471 beta_I: 0.563643 acceptance rate: 0.489463
## iteration: 1472 beta_I: 0.563643 acceptance rate: 0.4891304
## iteration: 1473 beta_I: 0.5642854 acceptance rate: 0.4894773
## iteration: 1474 beta_I: 0.5570535 acceptance rate: 0.4898236
## iteration: 1475 beta_I: 0.5652187 acceptance rate: 0.4901695
## iteration: 1476 beta_I: 0.5636517 acceptance rate: 0.4905149
## iteration: 1477 beta_I: 0.5619038 acceptance rate: 0.4908599
## iteration: 1478 beta_I: 0.5619038 acceptance rate: 0.4905277
## iteration: 1479 beta_I: 0.5611789 acceptance rate: 0.4908722
## iteration: 1480 beta_I: 0.5586063 acceptance rate: 0.4912162
## iteration: 1481 beta_I: 0.5586063 acceptance rate: 0.4908845
## iteration: 1482 beta_I: 0.5586063 acceptance rate: 0.4905533
## iteration: 1483 beta_I: 0.5635913 acceptance rate: 0.4908968
## iteration: 1484 beta_I: 0.5601669 acceptance rate: 0.4912399
## iteration: 1485 beta_I: 0.5601669 acceptance rate: 0.4909091
## iteration: 1486 beta_I: 0.5601669 acceptance rate: 0.4905787
## iteration: 1487 beta_I: 0.5600365 acceptance rate: 0.4909213
## iteration: 1488 beta_I: 0.5585602 acceptance rate: 0.4912634
## iteration: 1489 beta_I: 0.5585602 acceptance rate: 0.4909335
## iteration: 1490 beta_I: 0.5585602 acceptance rate: 0.490604
## iteration: 1491 beta_I: 0.5600682 acceptance rate: 0.4909457
## iteration: 1492 beta_I: 0.5665442 acceptance rate: 0.4912869
## iteration: 1493 beta_I: 0.5665442 acceptance rate: 0.4909578
## iteration: 1494 beta_I: 0.5652054 acceptance rate: 0.4912985
## iteration: 1495 beta_I: 0.5652054 acceptance rate: 0.4909699
## iteration: 1496 beta_I: 0.5652054 acceptance rate: 0.4906417
## iteration: 1497 beta_I: 0.5652054 acceptance rate: 0.490314
## iteration: 1498 beta_I: 0.5652054 acceptance rate: 0.4899866
## iteration: 1499 beta_I: 0.5652054 acceptance rate: 0.4896598
## iteration: 1500 beta_I: 0.5652054 acceptance rate: 0.4893333
## iteration: 1501 beta_I: 0.5597494 acceptance rate: 0.4896736
## iteration: 1502 beta_I: 0.5597494 acceptance rate: 0.4893475
## iteration: 1503 beta_I: 0.5597494 acceptance rate: 0.489022
## iteration: 1504 beta_I: 0.5595348 acceptance rate: 0.4893617
## iteration: 1505 beta_I: 0.5595348 acceptance rate: 0.4890365
## iteration: 1506 beta_I: 0.5595348 acceptance rate: 0.4887118
## iteration: 1507 beta_I: 0.5631891 acceptance rate: 0.4890511
## iteration: 1508 beta_I: 0.5631891 acceptance rate: 0.4887268
## iteration: 1509 beta_I: 0.5631891 acceptance rate: 0.4884029
## iteration: 1510 beta_I: 0.5631011 acceptance rate: 0.4887417
## iteration: 1511 beta_I: 0.5631011 acceptance rate: 0.4884183
## iteration: 1512 beta_I: 0.5631011 acceptance rate: 0.4880952
## iteration: 1513 beta_I: 0.5639814 acceptance rate: 0.4884336
## iteration: 1514 beta_I: 0.5639814 acceptance rate: 0.488111
## iteration: 1515 beta_I: 0.5591241 acceptance rate: 0.4884488
## iteration: 1516 beta_I: 0.5631399 acceptance rate: 0.4887863
## iteration: 1517 beta_I: 0.5634307 acceptance rate: 0.4891233
## iteration: 1518 beta_I: 0.5634307 acceptance rate: 0.4888011

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## iteration: 1519 beta_I: 0.5628477 acceptance rate: 0.4891376
## iteration: 1520 beta_I: 0.5646425 acceptance rate: 0.4894737
## iteration: 1521 beta_I: 0.5646425 acceptance rate: 0.4891519
## iteration: 1522 beta_I: 0.5646425 acceptance rate: 0.4888305
## iteration: 1523 beta_I: 0.5623372 acceptance rate: 0.4891661
## iteration: 1524 beta_I: 0.5623372 acceptance rate: 0.4888451
## iteration: 1525 beta_I: 0.560773 acceptance rate: 0.4891803
## iteration: 1526 beta_I: 0.5613257 acceptance rate: 0.4895151
## iteration: 1527 beta_I: 0.5613257 acceptance rate: 0.4891945
## iteration: 1528 beta_I: 0.5604099 acceptance rate: 0.4895288
## iteration: 1529 beta_I: 0.5621076 acceptance rate: 0.4898627
## iteration: 1530 beta_I: 0.5621076 acceptance rate: 0.4895425
## iteration: 1531 beta_I: 0.562996 acceptance rate: 0.4898759
## iteration: 1532 beta_I: 0.562996 acceptance rate: 0.4895561
## iteration: 1533 beta_I: 0.562996 acceptance rate: 0.4892368
## iteration: 1534 beta_I: 0.5628322 acceptance rate: 0.4895698
## iteration: 1535 beta_I: 0.5628322 acceptance rate: 0.4892508
## iteration: 1536 beta_I: 0.5628322 acceptance rate: 0.4889323
## iteration: 1537 beta_I: 0.5628322 acceptance rate: 0.4886142
## iteration: 1538 beta_I: 0.5662545 acceptance rate: 0.4889467
## iteration: 1539 beta_I: 0.561235 acceptance rate: 0.4892788
## iteration: 1540 beta_I: 0.5603039 acceptance rate: 0.4896104
## iteration: 1541 beta_I: 0.5603039 acceptance rate: 0.4892927
## iteration: 1542 beta_I: 0.5603039 acceptance rate: 0.4889754
## iteration: 1543 beta_I: 0.5629879 acceptance rate: 0.4893065
## iteration: 1544 beta_I: 0.56142 acceptance rate: 0.4896373
## iteration: 1545 beta_I: 0.5626299 acceptance rate: 0.4899676
## iteration: 1546 beta_I: 0.5626299 acceptance rate: 0.4896507
## iteration: 1547 beta_I: 0.5626299 acceptance rate: 0.4893342
## iteration: 1548 beta_I: 0.5626299 acceptance rate: 0.4890181
## iteration: 1549 beta_I: 0.563546 acceptance rate: 0.489348
## iteration: 1550 beta_I: 0.563546 acceptance rate: 0.4890323
## iteration: 1551 beta_I: 0.5657034 acceptance rate: 0.4893617
## iteration: 1552 beta_I: 0.5657034 acceptance rate: 0.4890464
## iteration: 1553 beta_I: 0.5657034 acceptance rate: 0.4887315
## iteration: 1554 beta_I: 0.5657034 acceptance rate: 0.488417
## iteration: 1555 beta_I: 0.5654459 acceptance rate: 0.488746
## iteration: 1556 beta_I: 0.5654459 acceptance rate: 0.4884319
## iteration: 1557 beta_I: 0.565033 acceptance rate: 0.4887604
## iteration: 1558 beta_I: 0.561708 acceptance rate: 0.4890886
## iteration: 1559 beta_I: 0.561708 acceptance rate: 0.4887749
## iteration: 1560 beta_I: 0.561708 acceptance rate: 0.4884615
## iteration: 1561 beta_I: 0.5654502 acceptance rate: 0.4887892
## iteration: 1562 beta_I: 0.5644439 acceptance rate: 0.4891165
## iteration: 1563 beta_I: 0.5644439 acceptance rate: 0.4888036
## iteration: 1564 beta_I: 0.5644439 acceptance rate: 0.488491
## iteration: 1565 beta_I: 0.5644439 acceptance rate: 0.4881789
## iteration: 1566 beta_I: 0.5644439 acceptance rate: 0.4878672
## iteration: 1567 beta_I: 0.5644439 acceptance rate: 0.4875558
## iteration: 1568 beta_I: 0.5644439 acceptance rate: 0.4872449
## iteration: 1569 beta_I: 0.5641842 acceptance rate: 0.4875717
## iteration: 1570 beta_I: 0.5641842 acceptance rate: 0.4872611
## iteration: 1571 beta_I: 0.5641842 acceptance rate: 0.486951
## iteration: 1572 beta_I: 0.5641842 acceptance rate: 0.4866412

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## iteration: 1573 beta_I: 0.5621626 acceptance rate: 0.4869676
## iteration: 1574 beta_I: 0.5626148 acceptance rate: 0.4872935
## iteration: 1575 beta_I: 0.5606533 acceptance rate: 0.487619
## iteration: 1576 beta_I: 0.5619183 acceptance rate: 0.4879442
## iteration: 1577 beta_I: 0.5619183 acceptance rate: 0.4876347
## iteration: 1578 beta_I: 0.5617648 acceptance rate: 0.4879594
## iteration: 1579 beta_I: 0.5617648 acceptance rate: 0.4876504
## iteration: 1580 beta_I: 0.5617648 acceptance rate: 0.4873418
## iteration: 1581 beta_I: 0.5617648 acceptance rate: 0.4870335
## iteration: 1582 beta_I: 0.5617648 acceptance rate: 0.4867257
## iteration: 1583 beta_I: 0.5617648 acceptance rate: 0.4864182
## iteration: 1584 beta_I: 0.5617648 acceptance rate: 0.4861111
## iteration: 1585 beta_I: 0.5617648 acceptance rate: 0.4858044
## iteration: 1586 beta_I: 0.5610073 acceptance rate: 0.4861286
## iteration: 1587 beta_I: 0.5610073 acceptance rate: 0.4858223
## iteration: 1588 beta_I: 0.5610073 acceptance rate: 0.4855164
## iteration: 1589 beta_I: 0.5610073 acceptance rate: 0.4852108
## iteration: 1590 beta_I: 0.5633322 acceptance rate: 0.4855346
## iteration: 1591 beta_I: 0.5633322 acceptance rate: 0.4852294
## iteration: 1592 beta_I: 0.5633322 acceptance rate: 0.4849246
## iteration: 1593 beta_I: 0.5633322 acceptance rate: 0.4846202
## iteration: 1594 beta_I: 0.5633322 acceptance rate: 0.4843162
## iteration: 1595 beta_I: 0.5586518 acceptance rate: 0.4846395
## iteration: 1596 beta_I: 0.5586518 acceptance rate: 0.4843358
## iteration: 1597 beta_I: 0.5586518 acceptance rate: 0.4840326
## iteration: 1598 beta_I: 0.5586518 acceptance rate: 0.4837297
## iteration: 1599 beta_I: 0.5632735 acceptance rate: 0.4840525
## iteration: 1600 beta_I: 0.5632735 acceptance rate: 0.48375
## iteration: 1601 beta_I: 0.5632735 acceptance rate: 0.4834478
## iteration: 1602 beta_I: 0.5632735 acceptance rate: 0.4831461
## iteration: 1603 beta_I: 0.5632735 acceptance rate: 0.4828447
## iteration: 1604 beta_I: 0.5632735 acceptance rate: 0.4825436
## iteration: 1605 beta_I: 0.5632735 acceptance rate: 0.482243
## iteration: 1606 beta_I: 0.5632735 acceptance rate: 0.4819427
## iteration: 1607 beta_I: 0.5632735 acceptance rate: 0.4816428
## iteration: 1608 beta_I: 0.5632735 acceptance rate: 0.4813433
## iteration: 1609 beta_I: 0.564157 acceptance rate: 0.4816656
## iteration: 1610 beta_I: 0.5616107 acceptance rate: 0.4819876
## iteration: 1611 beta_I: 0.5616107 acceptance rate: 0.4816884
## iteration: 1612 beta_I: 0.5616107 acceptance rate: 0.4813896
## iteration: 1613 beta_I: 0.5572283 acceptance rate: 0.4817111
## iteration: 1614 beta_I: 0.5572283 acceptance rate: 0.4814126
## iteration: 1615 beta_I: 0.5572283 acceptance rate: 0.4811146
## iteration: 1616 beta_I: 0.5628783 acceptance rate: 0.4814356
## iteration: 1617 beta_I: 0.5621876 acceptance rate: 0.4817563
## iteration: 1618 beta_I: 0.5621876 acceptance rate: 0.4814586
## iteration: 1619 beta_I: 0.5621876 acceptance rate: 0.4811612
## iteration: 1620 beta_I: 0.5641716 acceptance rate: 0.4814815
## iteration: 1621 beta_I: 0.5641716 acceptance rate: 0.4811845
## iteration: 1622 beta_I: 0.5648593 acceptance rate: 0.4815043
## iteration: 1623 beta_I: 0.5650648 acceptance rate: 0.4818238
## iteration: 1624 beta_I: 0.5647466 acceptance rate: 0.4821429
## iteration: 1625 beta_I: 0.5672553 acceptance rate: 0.4824615
## iteration: 1626 beta_I: 0.5663919 acceptance rate: 0.4827798

```

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## iteration: 1627 beta_I: 0.5663919 acceptance rate: 0.4824831
## iteration: 1628 beta_I: 0.5663919 acceptance rate: 0.4821867
## iteration: 1629 beta_I: 0.5663919 acceptance rate: 0.4818907
## iteration: 1630 beta_I: 0.5663919 acceptance rate: 0.4815951
## iteration: 1631 beta_I: 0.5663919 acceptance rate: 0.4812998
## iteration: 1632 beta_I: 0.5657341 acceptance rate: 0.4816176
## iteration: 1633 beta_I: 0.5657341 acceptance rate: 0.4813227
## iteration: 1634 beta_I: 0.5657341 acceptance rate: 0.4810282
## iteration: 1635 beta_I: 0.5657669 acceptance rate: 0.4813456
## iteration: 1636 beta_I: 0.5657669 acceptance rate: 0.4810513
## iteration: 1637 beta_I: 0.5657669 acceptance rate: 0.4807575
## iteration: 1638 beta_I: 0.5657669 acceptance rate: 0.480464
## iteration: 1639 beta_I: 0.5640358 acceptance rate: 0.480781
## iteration: 1640 beta_I: 0.5640358 acceptance rate: 0.4804878
## iteration: 1641 beta_I: 0.5640891 acceptance rate: 0.4808044
## iteration: 1642 beta_I: 0.5630012 acceptance rate: 0.4811206
## iteration: 1643 beta_I: 0.5630012 acceptance rate: 0.4808278
## iteration: 1644 beta_I: 0.5630012 acceptance rate: 0.4805353
## iteration: 1645 beta_I: 0.5630012 acceptance rate: 0.4802432
## iteration: 1646 beta_I: 0.5630012 acceptance rate: 0.4799514
## iteration: 1647 beta_I: 0.5630012 acceptance rate: 0.47966
## iteration: 1648 beta_I: 0.5617584 acceptance rate: 0.4799757
## iteration: 1649 beta_I: 0.5617584 acceptance rate: 0.4796847
## iteration: 1650 beta_I: 0.5617584 acceptance rate: 0.4793939
## iteration: 1651 beta_I: 0.5628459 acceptance rate: 0.4797093
## iteration: 1652 beta_I: 0.5606572 acceptance rate: 0.4800242
## iteration: 1653 beta_I: 0.5624535 acceptance rate: 0.4803388
## iteration: 1654 beta_I: 0.5624535 acceptance rate: 0.4800484
## iteration: 1655 beta_I: 0.5615662 acceptance rate: 0.4803625
## iteration: 1656 beta_I: 0.5615662 acceptance rate: 0.4800725
## iteration: 1657 beta_I: 0.5615662 acceptance rate: 0.4797827
## iteration: 1658 beta_I: 0.5623086 acceptance rate: 0.4800965
## iteration: 1659 beta_I: 0.5599729 acceptance rate: 0.4804099
## iteration: 1660 beta_I: 0.5599729 acceptance rate: 0.4801205
## iteration: 1661 beta_I: 0.5627977 acceptance rate: 0.4804335
## iteration: 1662 beta_I: 0.5611903 acceptance rate: 0.4807461
## iteration: 1663 beta_I: 0.5611903 acceptance rate: 0.480457
## iteration: 1664 beta_I: 0.5611903 acceptance rate: 0.4801683
## iteration: 1665 beta_I: 0.5611903 acceptance rate: 0.4798799
## iteration: 1666 beta_I: 0.5611903 acceptance rate: 0.4795918
## iteration: 1667 beta_I: 0.5596485 acceptance rate: 0.479904
## iteration: 1668 beta_I: 0.5596485 acceptance rate: 0.4796163
## iteration: 1669 beta_I: 0.5596485 acceptance rate: 0.4793289
## iteration: 1670 beta_I: 0.5641931 acceptance rate: 0.4796407
## iteration: 1671 beta_I: 0.5613216 acceptance rate: 0.4799521
## iteration: 1672 beta_I: 0.5618657 acceptance rate: 0.4802632
## iteration: 1673 beta_I: 0.5587965 acceptance rate: 0.4805738
## iteration: 1674 beta_I: 0.5587965 acceptance rate: 0.4802867
## iteration: 1675 beta_I: 0.5587965 acceptance rate: 0.48
## iteration: 1676 beta_I: 0.5584124 acceptance rate: 0.4803103
## iteration: 1677 beta_I: 0.562758 acceptance rate: 0.4806202
## iteration: 1678 beta_I: 0.562758 acceptance rate: 0.4803337
## iteration: 1679 beta_I: 0.562758 acceptance rate: 0.4800476
## iteration: 1680 beta_I: 0.562758 acceptance rate: 0.4797619

```

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## iteration: 1681 beta_I: 0.562758 acceptance rate: 0.4794765
## iteration: 1682 beta_I: 0.562758 acceptance rate: 0.4791914
## iteration: 1683 beta_I: 0.5561888 acceptance rate: 0.4795009
## iteration: 1684 beta_I: 0.558665 acceptance rate: 0.47981
## iteration: 1685 beta_I: 0.5604324 acceptance rate: 0.4801187
## iteration: 1686 beta_I: 0.5604324 acceptance rate: 0.4798339
## iteration: 1687 beta_I: 0.5604324 acceptance rate: 0.4795495
## iteration: 1688 beta_I: 0.5604324 acceptance rate: 0.4792654
## iteration: 1689 beta_I: 0.5620721 acceptance rate: 0.4795737
## iteration: 1690 beta_I: 0.5631433 acceptance rate: 0.4798817
## iteration: 1691 beta_I: 0.5631433 acceptance rate: 0.4795979
## iteration: 1692 beta_I: 0.5620265 acceptance rate: 0.4799054
## iteration: 1693 beta_I: 0.5634779 acceptance rate: 0.4802126
## iteration: 1694 beta_I: 0.5607784 acceptance rate: 0.4805195
## iteration: 1695 beta_I: 0.5607784 acceptance rate: 0.480236
## iteration: 1696 beta_I: 0.5607784 acceptance rate: 0.4799528
## iteration: 1697 beta_I: 0.5607784 acceptance rate: 0.47967
## iteration: 1698 beta_I: 0.5607784 acceptance rate: 0.4793875
## iteration: 1699 beta_I: 0.5615235 acceptance rate: 0.4796939
## iteration: 1700 beta_I: 0.5642682 acceptance rate: 0.48
## iteration: 1701 beta_I: 0.5616085 acceptance rate: 0.4803057
## iteration: 1702 beta_I: 0.5608196 acceptance rate: 0.480611
## iteration: 1703 beta_I: 0.5608196 acceptance rate: 0.4803288
## iteration: 1704 beta_I: 0.5682723 acceptance rate: 0.4806338
## iteration: 1705 beta_I: 0.5653257 acceptance rate: 0.4809384
## iteration: 1706 beta_I: 0.5653257 acceptance rate: 0.4806565
## iteration: 1707 beta_I: 0.5619952 acceptance rate: 0.4809607
## iteration: 1708 beta_I: 0.5645194 acceptance rate: 0.4812646
## iteration: 1709 beta_I: 0.5595291 acceptance rate: 0.4815682
## iteration: 1710 beta_I: 0.558277 acceptance rate: 0.4818713
## iteration: 1711 beta_I: 0.558277 acceptance rate: 0.4815897
## iteration: 1712 beta_I: 0.558277 acceptance rate: 0.4813084
## iteration: 1713 beta_I: 0.558277 acceptance rate: 0.4810274
## iteration: 1714 beta_I: 0.5647624 acceptance rate: 0.4813302
## iteration: 1715 beta_I: 0.5647624 acceptance rate: 0.4810496
## iteration: 1716 beta_I: 0.5647624 acceptance rate: 0.4807692
## iteration: 1717 beta_I: 0.5647624 acceptance rate: 0.4804892
## iteration: 1718 beta_I: 0.5648067 acceptance rate: 0.4807916
## iteration: 1719 beta_I: 0.5639282 acceptance rate: 0.4810937
## iteration: 1720 beta_I: 0.5639282 acceptance rate: 0.480814
## iteration: 1721 beta_I: 0.5639282 acceptance rate: 0.4805346
## iteration: 1722 beta_I: 0.5635125 acceptance rate: 0.4808362
## iteration: 1723 beta_I: 0.5635125 acceptance rate: 0.4805572
## iteration: 1724 beta_I: 0.5635125 acceptance rate: 0.4802784
## iteration: 1725 beta_I: 0.5635125 acceptance rate: 0.48
## iteration: 1726 beta_I: 0.5658274 acceptance rate: 0.4803013
## iteration: 1727 beta_I: 0.5607171 acceptance rate: 0.4806022
## iteration: 1728 beta_I: 0.5607171 acceptance rate: 0.4803241
## iteration: 1729 beta_I: 0.5650475 acceptance rate: 0.4806246
## iteration: 1730 beta_I: 0.5650475 acceptance rate: 0.4803468
## iteration: 1731 beta_I: 0.5650475 acceptance rate: 0.4800693
## iteration: 1732 beta_I: 0.5631684 acceptance rate: 0.4803695
## iteration: 1733 beta_I: 0.5631684 acceptance rate: 0.4800923
## iteration: 1734 beta_I: 0.5631684 acceptance rate: 0.4798155

```

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## iteration: 1735 beta_I: 0.5651513 acceptance rate: 0.4801153
## iteration: 1736 beta_I: 0.5643236 acceptance rate: 0.4804147
## iteration: 1737 beta_I: 0.5643236 acceptance rate: 0.4801382
## iteration: 1738 beta_I: 0.5643236 acceptance rate: 0.4798619
## iteration: 1739 beta_I: 0.5643236 acceptance rate: 0.479586
## iteration: 1740 beta_I: 0.563382 acceptance rate: 0.4798851
## iteration: 1741 beta_I: 0.5627153 acceptance rate: 0.4801838
## iteration: 1742 beta_I: 0.5643874 acceptance rate: 0.4804822
## iteration: 1743 beta_I: 0.5643874 acceptance rate: 0.4802065
## iteration: 1744 beta_I: 0.5657965 acceptance rate: 0.4805046
## iteration: 1745 beta_I: 0.5650463 acceptance rate: 0.4808023
## iteration: 1746 beta_I: 0.5650463 acceptance rate: 0.4805269
## iteration: 1747 beta_I: 0.5650463 acceptance rate: 0.4802519
## iteration: 1748 beta_I: 0.5650463 acceptance rate: 0.4799771
## iteration: 1749 beta_I: 0.5599548 acceptance rate: 0.4802744
## iteration: 1750 beta_I: 0.558901 acceptance rate: 0.4805714
## iteration: 1751 beta_I: 0.5652224 acceptance rate: 0.4808681
## iteration: 1752 beta_I: 0.5652224 acceptance rate: 0.4805936
## iteration: 1753 beta_I: 0.5652224 acceptance rate: 0.4803195
## iteration: 1754 beta_I: 0.5652224 acceptance rate: 0.4800456
## iteration: 1755 beta_I: 0.5652224 acceptance rate: 0.4797721
## iteration: 1756 beta_I: 0.5652224 acceptance rate: 0.4794989
## iteration: 1757 beta_I: 0.5652224 acceptance rate: 0.479226
## iteration: 1758 beta_I: 0.5652224 acceptance rate: 0.4789534
## iteration: 1759 beta_I: 0.5652224 acceptance rate: 0.4786811
## iteration: 1760 beta_I: 0.5652224 acceptance rate: 0.4784091
## iteration: 1761 beta_I: 0.5652417 acceptance rate: 0.4787053
## iteration: 1762 beta_I: 0.563819 acceptance rate: 0.4790011
## iteration: 1763 beta_I: 0.563819 acceptance rate: 0.4787294
## iteration: 1764 beta_I: 0.5627729 acceptance rate: 0.4790249
## iteration: 1765 beta_I: 0.5630924 acceptance rate: 0.4793201
## iteration: 1766 beta_I: 0.5625536 acceptance rate: 0.4796149
## iteration: 1767 beta_I: 0.562798 acceptance rate: 0.4799095
## iteration: 1768 beta_I: 0.5588351 acceptance rate: 0.4802036
## iteration: 1769 beta_I: 0.5588351 acceptance rate: 0.4799322
## iteration: 1770 beta_I: 0.5599176 acceptance rate: 0.480226
## iteration: 1771 beta_I: 0.5599176 acceptance rate: 0.4799548
## iteration: 1772 beta_I: 0.5599176 acceptance rate: 0.479684
## iteration: 1773 beta_I: 0.5599176 acceptance rate: 0.4794134
## iteration: 1774 beta_I: 0.5599176 acceptance rate: 0.4791432
## iteration: 1775 beta_I: 0.5604041 acceptance rate: 0.4794366
## iteration: 1776 beta_I: 0.5604041 acceptance rate: 0.4791667
## iteration: 1777 beta_I: 0.5653499 acceptance rate: 0.4794598
## iteration: 1778 beta_I: 0.5605389 acceptance rate: 0.4797525
## iteration: 1779 beta_I: 0.5587052 acceptance rate: 0.480045
## iteration: 1780 beta_I: 0.5587052 acceptance rate: 0.4797753
## iteration: 1781 beta_I: 0.5587052 acceptance rate: 0.4795059
## iteration: 1782 beta_I: 0.5587052 acceptance rate: 0.4792368
## iteration: 1783 beta_I: 0.5587052 acceptance rate: 0.478968
## iteration: 1784 beta_I: 0.5607698 acceptance rate: 0.4792601
## iteration: 1785 beta_I: 0.5607698 acceptance rate: 0.4789916
## iteration: 1786 beta_I: 0.5607698 acceptance rate: 0.4787234
## iteration: 1787 beta_I: 0.5658281 acceptance rate: 0.4790151
## iteration: 1788 beta_I: 0.5658281 acceptance rate: 0.4787472

```

```

## iteration: 1789 beta_I: 0.564738 acceptance rate: 0.4790386
## iteration: 1790 beta_I: 0.564738 acceptance rate: 0.4787709
## iteration: 1791 beta_I: 0.564738 acceptance rate: 0.4785036
## iteration: 1792 beta_I: 0.566055 acceptance rate: 0.4787946
## iteration: 1793 beta_I: 0.5631442 acceptance rate: 0.4790853
## iteration: 1794 beta_I: 0.5631442 acceptance rate: 0.4788183
## iteration: 1795 beta_I: 0.5631442 acceptance rate: 0.4785515
## iteration: 1796 beta_I: 0.5657155 acceptance rate: 0.4788419
## iteration: 1797 beta_I: 0.5657155 acceptance rate: 0.4785754
## iteration: 1798 beta_I: 0.5657155 acceptance rate: 0.4783092
## iteration: 1799 beta_I: 0.5595582 acceptance rate: 0.4785992
## iteration: 1800 beta_I: 0.5665501 acceptance rate: 0.4788889
## iteration: 1801 beta_I: 0.5634456 acceptance rate: 0.4791782
## iteration: 1802 beta_I: 0.5634456 acceptance rate: 0.4789123
## iteration: 1803 beta_I: 0.5634456 acceptance rate: 0.4786467
## iteration: 1804 beta_I: 0.5642746 acceptance rate: 0.4789357
## iteration: 1805 beta_I: 0.5642746 acceptance rate: 0.4786704
## iteration: 1806 beta_I: 0.5651376 acceptance rate: 0.478959
## iteration: 1807 beta_I: 0.5651376 acceptance rate: 0.478694
## iteration: 1808 beta_I: 0.5651376 acceptance rate: 0.4784292
## iteration: 1809 beta_I: 0.564958 acceptance rate: 0.4787175
## iteration: 1810 beta_I: 0.5632579 acceptance rate: 0.4790055
## iteration: 1811 beta_I: 0.5632579 acceptance rate: 0.478741
## iteration: 1812 beta_I: 0.5632579 acceptance rate: 0.4784768
## iteration: 1813 beta_I: 0.5632579 acceptance rate: 0.4782129
## iteration: 1814 beta_I: 0.5639213 acceptance rate: 0.4785006
## iteration: 1815 beta_I: 0.5611099 acceptance rate: 0.4787879
## iteration: 1816 beta_I: 0.562848 acceptance rate: 0.4790749
## iteration: 1817 beta_I: 0.5627217 acceptance rate: 0.4793616
## iteration: 1818 beta_I: 0.5627217 acceptance rate: 0.4790979
## iteration: 1819 beta_I: 0.5627217 acceptance rate: 0.4788345
## iteration: 1820 beta_I: 0.5613841 acceptance rate: 0.4791209
## iteration: 1821 beta_I: 0.5597019 acceptance rate: 0.4794069
## iteration: 1822 beta_I: 0.5617348 acceptance rate: 0.4796926
## iteration: 1823 beta_I: 0.5617348 acceptance rate: 0.4794295
## iteration: 1824 beta_I: 0.5656976 acceptance rate: 0.4797149
## iteration: 1825 beta_I: 0.5656976 acceptance rate: 0.4794521
## iteration: 1826 beta_I: 0.5667199 acceptance rate: 0.4797371
## iteration: 1827 beta_I: 0.5667199 acceptance rate: 0.4794745
## iteration: 1828 beta_I: 0.5599162 acceptance rate: 0.4797593
## iteration: 1829 beta_I: 0.568979 acceptance rate: 0.4800437
## iteration: 1830 beta_I: 0.5647989 acceptance rate: 0.4803279
## iteration: 1831 beta_I: 0.5647989 acceptance rate: 0.4800655
## iteration: 1832 beta_I: 0.5613699 acceptance rate: 0.4803493
## iteration: 1833 beta_I: 0.5614273 acceptance rate: 0.4806328
## iteration: 1834 beta_I: 0.5614273 acceptance rate: 0.4803708
## iteration: 1835 beta_I: 0.5623895 acceptance rate: 0.480654
## iteration: 1836 beta_I: 0.5623895 acceptance rate: 0.4803922
## iteration: 1837 beta_I: 0.5623895 acceptance rate: 0.4801306
## iteration: 1838 beta_I: 0.5637896 acceptance rate: 0.4804135
## iteration: 1839 beta_I: 0.5671778 acceptance rate: 0.480696
## iteration: 1840 beta_I: 0.5592748 acceptance rate: 0.4809783
## iteration: 1841 beta_I: 0.5592748 acceptance rate: 0.480717
## iteration: 1842 beta_I: 0.5592748 acceptance rate: 0.480456

```

```

## iteration: 1843 beta_I: 0.5595748 acceptance rate: 0.4807379
## iteration: 1844 beta_I: 0.5607882 acceptance rate: 0.4810195
## iteration: 1845 beta_I: 0.5624314 acceptance rate: 0.4813008
## iteration: 1846 beta_I: 0.5624314 acceptance rate: 0.4810401
## iteration: 1847 beta_I: 0.5605886 acceptance rate: 0.4813211
## iteration: 1848 beta_I: 0.5635548 acceptance rate: 0.4816017
## iteration: 1849 beta_I: 0.5635548 acceptance rate: 0.4813413
## iteration: 1850 beta_I: 0.5635548 acceptance rate: 0.4810811
## iteration: 1851 beta_I: 0.5635548 acceptance rate: 0.4808212
## iteration: 1852 beta_I: 0.5635548 acceptance rate: 0.4805616
## iteration: 1853 beta_I: 0.5635548 acceptance rate: 0.4803022
## iteration: 1854 beta_I: 0.5635548 acceptance rate: 0.4800431
## iteration: 1855 beta_I: 0.5587883 acceptance rate: 0.4803235
## iteration: 1856 beta_I: 0.5587883 acceptance rate: 0.4800647
## iteration: 1857 beta_I: 0.5587883 acceptance rate: 0.4798061
## iteration: 1858 beta_I: 0.5587883 acceptance rate: 0.4795479
## iteration: 1859 beta_I: 0.5587883 acceptance rate: 0.4792899
## iteration: 1860 beta_I: 0.5618491 acceptance rate: 0.4795699
## iteration: 1861 beta_I: 0.5597199 acceptance rate: 0.4798495
## iteration: 1862 beta_I: 0.5658159 acceptance rate: 0.4801289
## iteration: 1863 beta_I: 0.5658159 acceptance rate: 0.4798712
## iteration: 1864 beta_I: 0.5612206 acceptance rate: 0.4801502
## iteration: 1865 beta_I: 0.5612206 acceptance rate: 0.4798928
## iteration: 1866 beta_I: 0.5612206 acceptance rate: 0.4796356
## iteration: 1867 beta_I: 0.5612206 acceptance rate: 0.4793787
## iteration: 1868 beta_I: 0.5606139 acceptance rate: 0.4796574
## iteration: 1869 beta_I: 0.5632173 acceptance rate: 0.4799358
## iteration: 1870 beta_I: 0.5632173 acceptance rate: 0.4796791
## iteration: 1871 beta_I: 0.5633058 acceptance rate: 0.4799572
## iteration: 1872 beta_I: 0.5633058 acceptance rate: 0.4797009
## iteration: 1873 beta_I: 0.5630801 acceptance rate: 0.4799786
## iteration: 1874 beta_I: 0.5622216 acceptance rate: 0.4802561
## iteration: 1875 beta_I: 0.5622216 acceptance rate: 0.48
## iteration: 1876 beta_I: 0.5622216 acceptance rate: 0.4797441
## iteration: 1877 beta_I: 0.562726 acceptance rate: 0.4800213
## iteration: 1878 beta_I: 0.562726 acceptance rate: 0.4797657
## iteration: 1879 beta_I: 0.562726 acceptance rate: 0.4795104
## iteration: 1880 beta_I: 0.563864 acceptance rate: 0.4797872
## iteration: 1881 beta_I: 0.5669124 acceptance rate: 0.4800638
## iteration: 1882 beta_I: 0.5672963 acceptance rate: 0.4803401
## iteration: 1883 beta_I: 0.5661511 acceptance rate: 0.480616
## iteration: 1884 beta_I: 0.5648811 acceptance rate: 0.4808917
## iteration: 1885 beta_I: 0.5648811 acceptance rate: 0.4806366
## iteration: 1886 beta_I: 0.5648811 acceptance rate: 0.4803818
## iteration: 1887 beta_I: 0.5648811 acceptance rate: 0.4801272
## iteration: 1888 beta_I: 0.563196 acceptance rate: 0.4804025
## iteration: 1889 beta_I: 0.5606889 acceptance rate: 0.4806776
## iteration: 1890 beta_I: 0.5585708 acceptance rate: 0.4809524
## iteration: 1891 beta_I: 0.558148 acceptance rate: 0.4812269
## iteration: 1892 beta_I: 0.5569085 acceptance rate: 0.4815011
## iteration: 1893 beta_I: 0.5584186 acceptance rate: 0.481775
## iteration: 1894 beta_I: 0.5584186 acceptance rate: 0.4815206
## iteration: 1895 beta_I: 0.5685657 acceptance rate: 0.4817942
## iteration: 1896 beta_I: 0.5685657 acceptance rate: 0.4815401

```

```

## iteration: 1897 beta_I: 0.5629013 acceptance rate: 0.4818134
## iteration: 1898 beta_I: 0.5629013 acceptance rate: 0.4815595
## iteration: 1899 beta_I: 0.5629013 acceptance rate: 0.481306
## iteration: 1900 beta_I: 0.5629013 acceptance rate: 0.4810526
## iteration: 1901 beta_I: 0.5629013 acceptance rate: 0.4807996
## iteration: 1902 beta_I: 0.5629013 acceptance rate: 0.4805468
## iteration: 1903 beta_I: 0.5629013 acceptance rate: 0.4802943
## iteration: 1904 beta_I: 0.561832 acceptance rate: 0.4805672
## iteration: 1905 beta_I: 0.561832 acceptance rate: 0.480315
## iteration: 1906 beta_I: 0.5605468 acceptance rate: 0.4805876
## iteration: 1907 beta_I: 0.5605468 acceptance rate: 0.4803356
## iteration: 1908 beta_I: 0.5592808 acceptance rate: 0.480608
## iteration: 1909 beta_I: 0.5614372 acceptance rate: 0.48088
## iteration: 1910 beta_I: 0.5614372 acceptance rate: 0.4806283
## iteration: 1911 beta_I: 0.563029 acceptance rate: 0.4809001
## iteration: 1912 beta_I: 0.5608508 acceptance rate: 0.4811715
## iteration: 1913 beta_I: 0.5608508 acceptance rate: 0.48092
## iteration: 1914 beta_I: 0.558489 acceptance rate: 0.4811912
## iteration: 1915 beta_I: 0.558489 acceptance rate: 0.4809399
## iteration: 1916 beta_I: 0.5613213 acceptance rate: 0.4812109
## iteration: 1917 beta_I: 0.5613213 acceptance rate: 0.4809598
## iteration: 1918 beta_I: 0.5613213 acceptance rate: 0.4807091
## iteration: 1919 beta_I: 0.5613213 acceptance rate: 0.4804586
## iteration: 1920 beta_I: 0.5613213 acceptance rate: 0.4802083
## iteration: 1921 beta_I: 0.5615158 acceptance rate: 0.4804789
## iteration: 1922 beta_I: 0.5615158 acceptance rate: 0.4802289
## iteration: 1923 beta_I: 0.5615158 acceptance rate: 0.4799792
## iteration: 1924 beta_I: 0.5628629 acceptance rate: 0.4802495
## iteration: 1925 beta_I: 0.5628629 acceptance rate: 0.48
## iteration: 1926 beta_I: 0.5628629 acceptance rate: 0.4797508
## iteration: 1927 beta_I: 0.5628629 acceptance rate: 0.4795018
## iteration: 1928 beta_I: 0.5628629 acceptance rate: 0.4792531
## iteration: 1929 beta_I: 0.5646277 acceptance rate: 0.4795231
## iteration: 1930 beta_I: 0.5646277 acceptance rate: 0.4792746
## iteration: 1931 beta_I: 0.5669111 acceptance rate: 0.4795443
## iteration: 1932 beta_I: 0.5669111 acceptance rate: 0.4792961
## iteration: 1933 beta_I: 0.5669111 acceptance rate: 0.4790481
## iteration: 1934 beta_I: 0.561681 acceptance rate: 0.4793175
## iteration: 1935 beta_I: 0.5624209 acceptance rate: 0.4795866
## iteration: 1936 beta_I: 0.5598275 acceptance rate: 0.4798554
## iteration: 1937 beta_I: 0.5598275 acceptance rate: 0.4796076
## iteration: 1938 beta_I: 0.5598275 acceptance rate: 0.4793602
## iteration: 1939 beta_I: 0.5604925 acceptance rate: 0.4796287
## iteration: 1940 beta_I: 0.5647434 acceptance rate: 0.4798969
## iteration: 1941 beta_I: 0.5605089 acceptance rate: 0.4801649
## iteration: 1942 beta_I: 0.5605089 acceptance rate: 0.4799176
## iteration: 1943 beta_I: 0.5605089 acceptance rate: 0.4796706
## iteration: 1944 beta_I: 0.5605089 acceptance rate: 0.4794239
## iteration: 1945 beta_I: 0.5620726 acceptance rate: 0.4796915
## iteration: 1946 beta_I: 0.5620726 acceptance rate: 0.479445
## iteration: 1947 beta_I: 0.5621794 acceptance rate: 0.4797124
## iteration: 1948 beta_I: 0.5638601 acceptance rate: 0.4799795
## iteration: 1949 beta_I: 0.5625694 acceptance rate: 0.4802463
## iteration: 1950 beta_I: 0.5651251 acceptance rate: 0.4805128

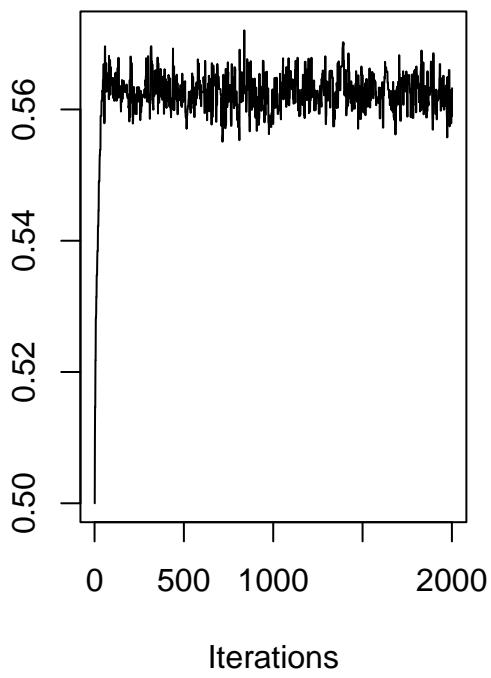
```

```

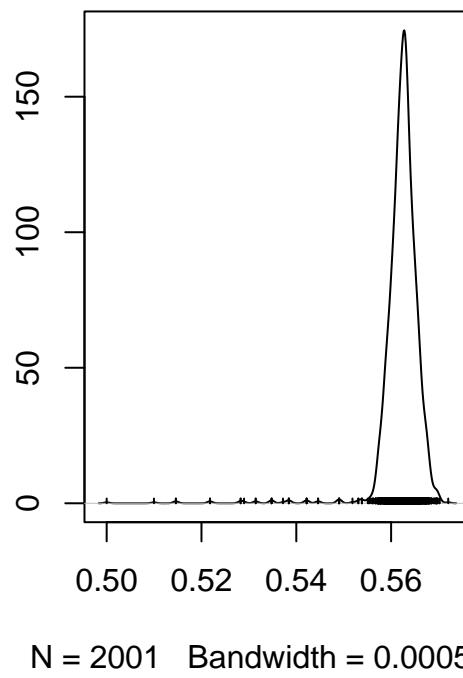
## iteration: 1951 beta_I: 0.5651251 acceptance rate: 0.4802665
## iteration: 1952 beta_I: 0.5651251 acceptance rate: 0.4800205
## iteration: 1953 beta_I: 0.5651251 acceptance rate: 0.4797747
## iteration: 1954 beta_I: 0.559972 acceptance rate: 0.4800409
## iteration: 1955 beta_I: 0.559972 acceptance rate: 0.4797954
## iteration: 1956 beta_I: 0.559972 acceptance rate: 0.4795501
## iteration: 1957 beta_I: 0.5605536 acceptance rate: 0.479816
## iteration: 1958 beta_I: 0.5605536 acceptance rate: 0.479571
## iteration: 1959 beta_I: 0.5605536 acceptance rate: 0.4793262
## iteration: 1960 beta_I: 0.5605536 acceptance rate: 0.4790816
## iteration: 1961 beta_I: 0.5607985 acceptance rate: 0.4793473
## iteration: 1962 beta_I: 0.5607985 acceptance rate: 0.479103
## iteration: 1963 beta_I: 0.5607985 acceptance rate: 0.4788589
## iteration: 1964 beta_I: 0.5607985 acceptance rate: 0.4786151
## iteration: 1965 beta_I: 0.5636404 acceptance rate: 0.4788804
## iteration: 1966 beta_I: 0.5636404 acceptance rate: 0.4786368
## iteration: 1967 beta_I: 0.5636404 acceptance rate: 0.4783935
## iteration: 1968 beta_I: 0.5636404 acceptance rate: 0.4781504
## iteration: 1969 beta_I: 0.560479 acceptance rate: 0.4784154
## iteration: 1970 beta_I: 0.560479 acceptance rate: 0.4781726
## iteration: 1971 beta_I: 0.5587482 acceptance rate: 0.4784373
## iteration: 1972 beta_I: 0.5584089 acceptance rate: 0.4787018
## iteration: 1973 beta_I: 0.5557424 acceptance rate: 0.478966
## iteration: 1974 beta_I: 0.5649518 acceptance rate: 0.47923
## iteration: 1975 beta_I: 0.5638954 acceptance rate: 0.4794937
## iteration: 1976 beta_I: 0.5638954 acceptance rate: 0.479251
## iteration: 1977 beta_I: 0.5627568 acceptance rate: 0.4795144
## iteration: 1978 beta_I: 0.5627568 acceptance rate: 0.479272
## iteration: 1979 beta_I: 0.5619948 acceptance rate: 0.4795351
## iteration: 1980 beta_I: 0.5595636 acceptance rate: 0.479798
## iteration: 1981 beta_I: 0.5594514 acceptance rate: 0.4800606
## iteration: 1982 beta_I: 0.5659988 acceptance rate: 0.4803229
## iteration: 1983 beta_I: 0.5659988 acceptance rate: 0.4800807
## iteration: 1984 beta_I: 0.5659988 acceptance rate: 0.4798387
## iteration: 1985 beta_I: 0.5659988 acceptance rate: 0.479597
## iteration: 1986 beta_I: 0.5574328 acceptance rate: 0.479859
## iteration: 1987 beta_I: 0.5574328 acceptance rate: 0.4796175
## iteration: 1988 beta_I: 0.5625006 acceptance rate: 0.4798793
## iteration: 1989 beta_I: 0.5625006 acceptance rate: 0.479638
## iteration: 1990 beta_I: 0.5625006 acceptance rate: 0.479397
## iteration: 1991 beta_I: 0.5629362 acceptance rate: 0.4796585
## iteration: 1992 beta_I: 0.5629362 acceptance rate: 0.4794177
## iteration: 1993 beta_I: 0.5629362 acceptance rate: 0.4791771
## iteration: 1994 beta_I: 0.5629362 acceptance rate: 0.4789368
## iteration: 1995 beta_I: 0.5578857 acceptance rate: 0.479198
## iteration: 1996 beta_I: 0.56094 acceptance rate: 0.4794589
## iteration: 1997 beta_I: 0.5589676 acceptance rate: 0.4797196
## iteration: 1998 beta_I: 0.5589676 acceptance rate: 0.4794795
## iteration: 1999 beta_I: 0.5611902 acceptance rate: 0.4797399
## iteration: 2000 beta_I: 0.5632388 acceptance rate: 0.48

```

**Trace of beta\_I**



**Density of beta\_I**



Iterations

N = 2001 Bandwidth = 0.0005553

In this document, we use our estimated values of p and R<sub>0</sub> to better understand how PrEP/ART uptake and adherence impact incidence over time.

## Generating Baseline Situation:

```
#comparing two parameter sets from pre and post covid
theta_final_pre

##      beta_T          c          a          p          b      gamma        mu
## 0.04635327 1.50000000 0.09800000 0.20720000 1.20000000 0.50000000 0.10000000
##      s          m      beta_I
## 0.25000000 0.02857143 0.46353265

theta_final_post

##      beta_T          c          a          p          b      gamma        mu
## 0.05621881 1.50000000 0.09800000 0.20720000 1.20000000 0.50000000 0.10000000
##      s          m      beta_I
## 0.25000000 0.02857143 0.56218808

#rudimentary: averaging the two to get overall values
sim_theta <- (theta_final_pre + theta_final_post) / 2

# calculating overall R0
gamma <- sim_theta["gamma"]; mu <- sim_theta["mu"]
s     <- sim_theta["s"];      m   <- sim_theta["m"]
c_c   <- sim_theta["c"]

overall_R0 <- (c_c * S0 / N0) * beta_I_hat * (
  1 / (gamma + mu + m) +
```

```

    rho * gamma / ((gamma + mu + m) * (s + m))
)

overall_R0
```

```

##           c
## 1.572625
```

Our R<sub>0</sub> is 1.57, which is pretty close to 1. Now we can simulate a baseline trajectory:

```

library(tidyverse)
library(deSolve)

#define function to run specific parameter scenario
run_scenario <- function(theta, initState, years = 10) {

  # 1. Time grid (monthly for 'years' years)
  times <- seq(0, years, by = 1/12)

  # 2. Solve ODE
  traj <- data.frame(ode(
    y      = initState,
    times = times,
    func   = HIV_ode,
    parms  = theta,
    method = "ode45"
  ))

  # 3. Compute total population
  N_traj <- traj$S + traj$P + traj$I + traj$T + traj$U

  # 4. Compute force of infection
  lambda_traj <- theta["c"] *
    (theta["beta_I"] * traj$I +
     theta["beta_T"] * traj$T) / N_traj

  # 5. Monthly incidence
  Inc_monthly <- lambda_traj * traj$S * (1/12)

  # 6. Return a tibble INCLUDING all SPITU states
  tibble(
    time_years = times,
    Month      = times * 12,
    S = traj$S,
    P = traj$P,
    I = traj$I,
    T = traj$T,
    U = traj$U,
    Incidence = Inc_monthly
  )
}

#defining initial state
NO <- 3e6
```

```

initState <- c(
  S = N0 - 40000,
  P = 0,
  I = 40000,
  T = 0,
  U = 0
)

theta_baseline <- sim_theta # to plot baseline
initState_baseline <- initState # Baseline initial state

sim_baseline <- run_scenario(theta_baseline, initState_baseline, years = 10) %>%
  mutate(scenario = "Baseline")

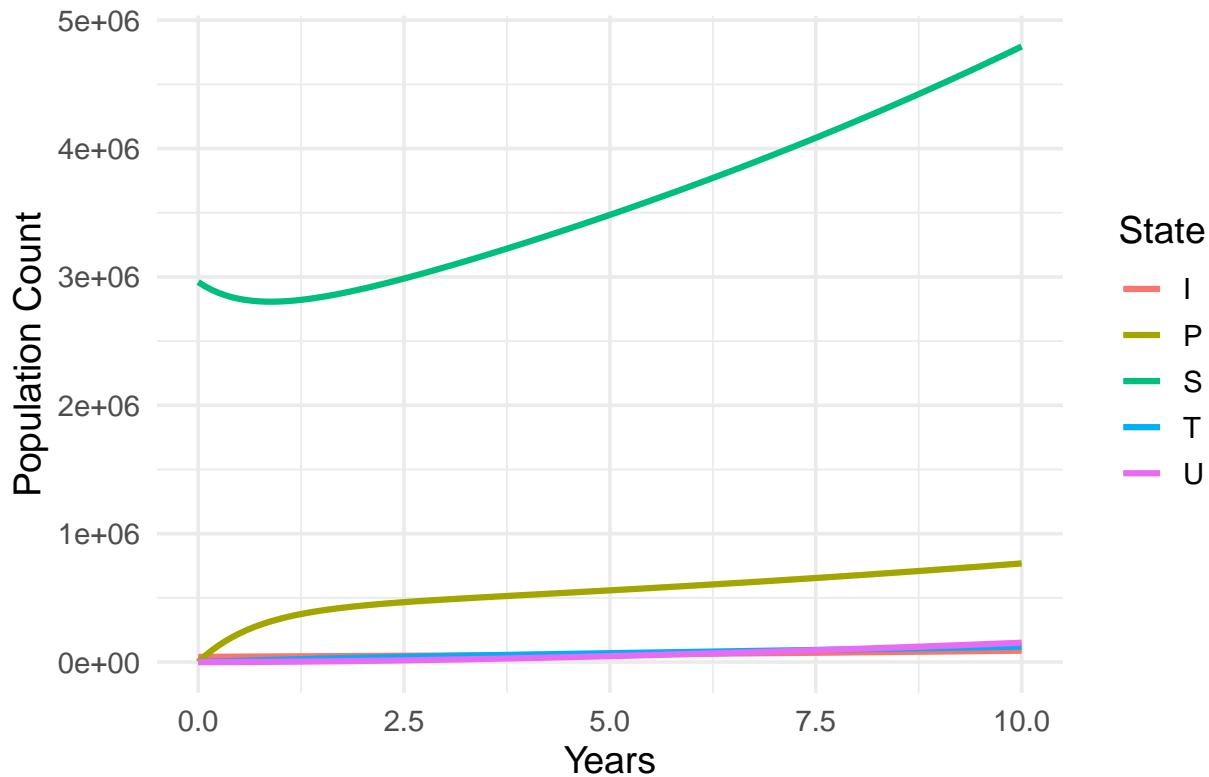
#plot all states, and plot incidence

sim_baseline_long <- sim_baseline %>%
  select(time_years, S, P, I, T, U) %>%
  pivot_longer(cols = c(S, P, I, T, U),
               names_to = "State",
               values_to = "Count")

ggplot(sim_baseline_long, aes(x = time_years, y = Count, color = State)) +
  geom_line(linewidth = 1.1) +
  labs(
    x = "Years",
    y = "Population Count",
    title = "SPITU State Trajectories Under Baseline Scenario"
  ) +
  theme_minimal(base_size = 14)

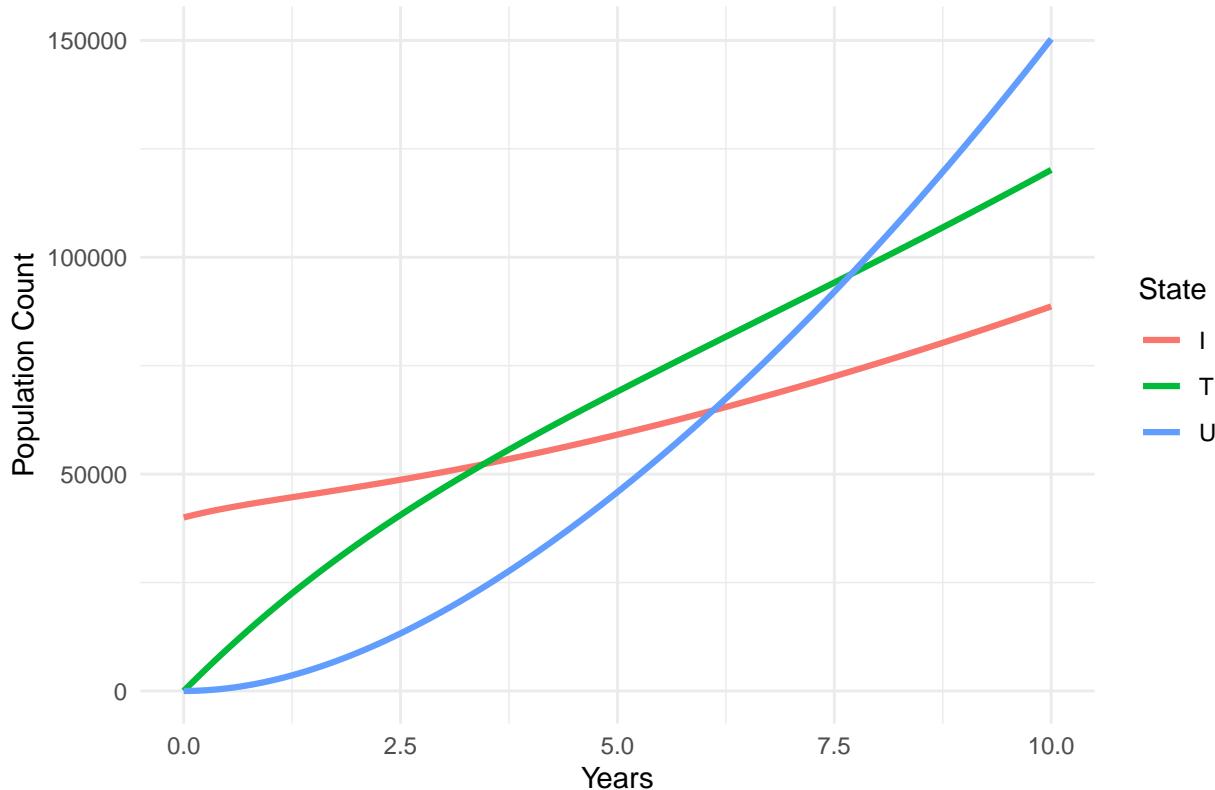
```

## SPITU State Trajectories Under Baseline Scenario



```
sim_baseline_long %>%
  filter(State %in% c("I", "T", "U")) %>%
  ggplot(aes(x = time_years, y = Count, color = State)) +
  geom_line(linewidth = 1.1) +
  labs(
    x = "Years",
    y = "Population Count",
    title = "ITU Model Trajectories Under Baseline Scenario"
  ) +
  theme_minimal()
```

## ITU Model Trajectories Under Baseline Scenario



```
write_csv(sim_baseline, "sim_baseline.csv")
```

## Generating Increased PrEP Uptake Situation:

```
#doubling PrEP Uptake and halving PrEP discontinuation
theta_prep <- sim_theta
theta_prep["p"] <- sim_theta["p"] * 2      # double uptake (example)
theta_prep["b"] <- sim_theta["b"] * 0.5     # halve discontinuation

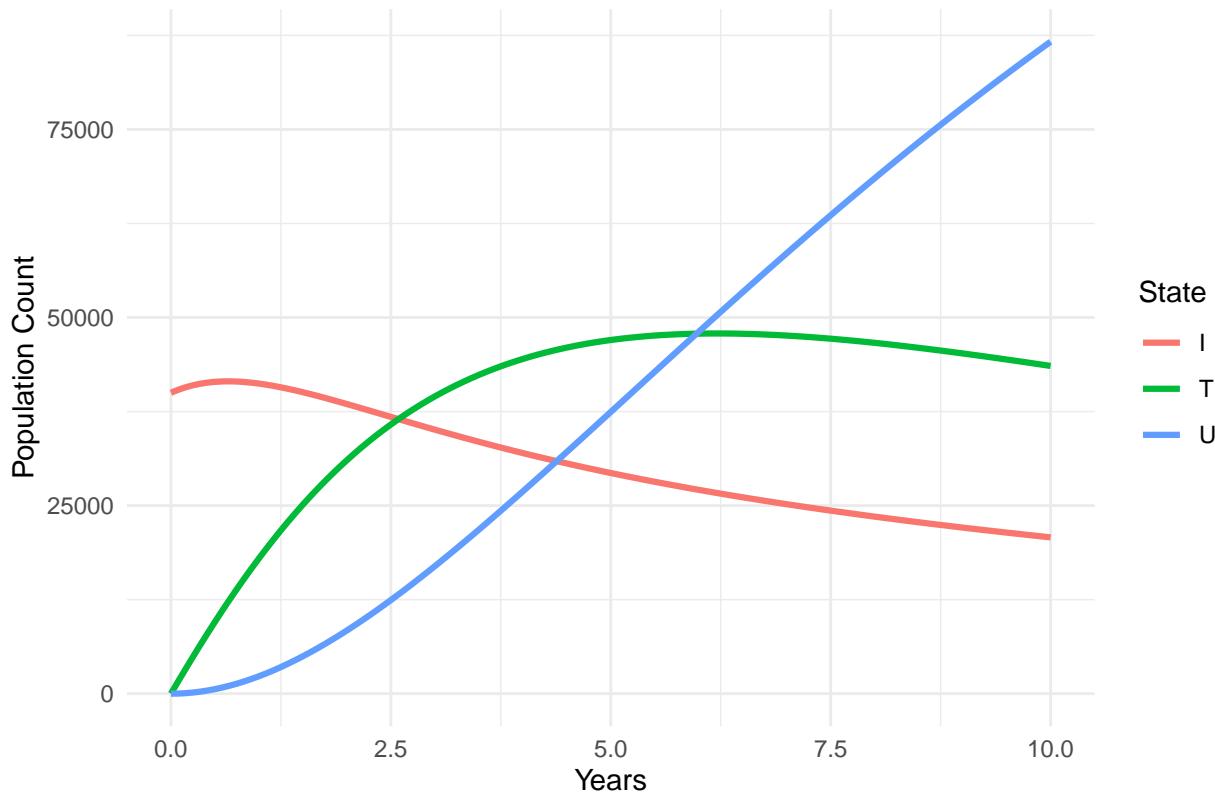
sim_prep <- run_scenario(theta_prep, initState_baseline, years = 10) %>%
  mutate(scenario = "Improved PrEP")

sim_prep_long <- sim_prep %>%
  select(time_years, S, P, I, T, U) %>%
  pivot_longer(cols = c(S, P, I, T, U),
                names_to = "State",
                values_to = "Count")

sim_prep_long %>%
  filter(State %in% c("I", "T", "U")) %>%
  ggplot(aes(x = time_years, y = Count, color = State)) +
  geom_line(lineWidth = 1.1) +
  labs(
    x = "Years",
    y = "Population Count",
    title = "ITU Model Trajectories Under PrEP Intervention"
```

```
) +
  theme_minimal()
```

### ITU Model Trajectories Under PrEP Intervention



### Generating Increased ART Situation

```
theta_art <- sim_theta

theta_art["gamma"] <- sim_theta["gamma"] * 1.5    # faster ART initiation

rho_art <- rho * 0.2                      # reduce infectiousness on ART by 20%
theta_art["beta_T"] <- rho_art * sim_theta["beta_I"]

sim_art <- run_scenario(theta_art, initState_baseline, years = 10) %>%
  mutate(scenario = "Improved ART")

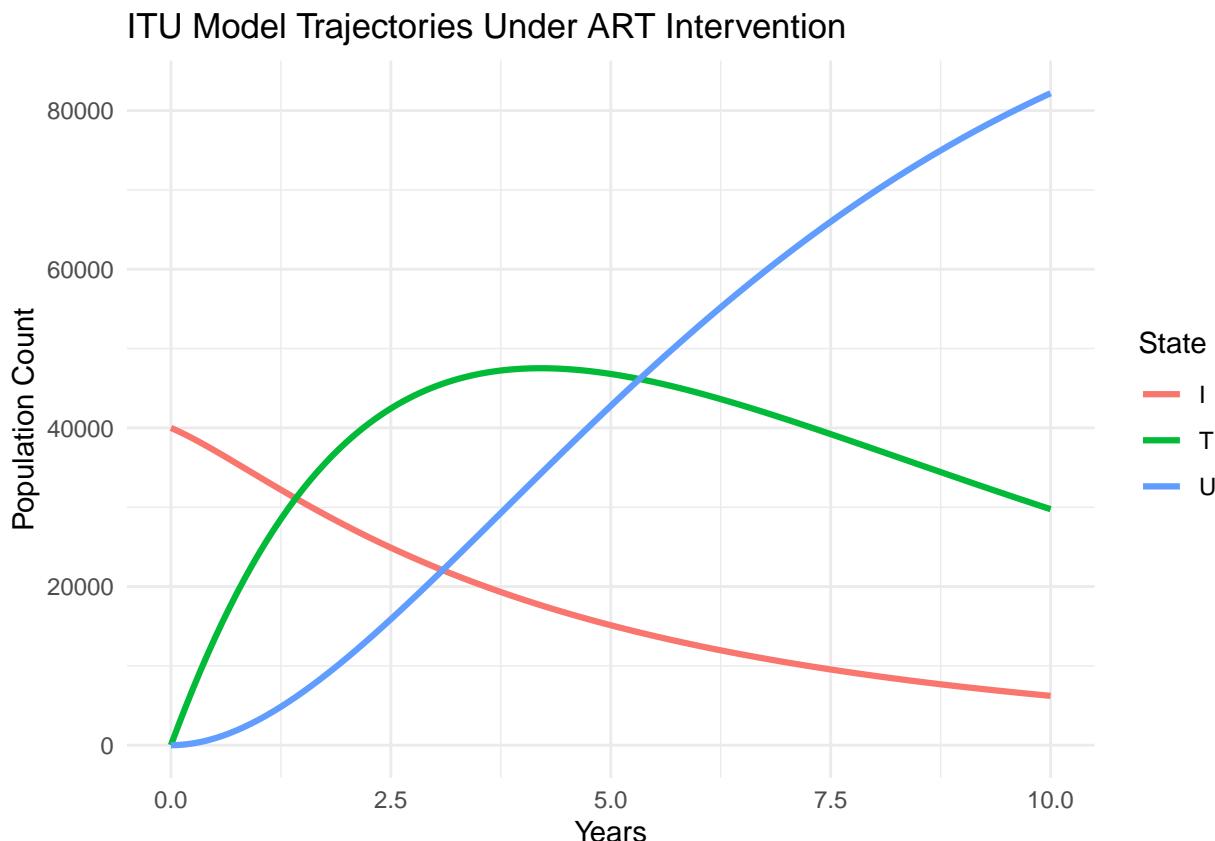
sim_art_long <- sim_art %>%
  select(time_years, S, P, I, T, U) %>%
  pivot_longer(cols = c(S, P, I, T, U),
               names_to = "State",
               values_to = "Count")

sim_art_long %>%
  filter(State %in% c("I", "T", "U")) %>%
  ggplot(aes(x = time_years, y = Count, color = State)) +
  geom_line(linewidth = 1.1) +
```

```

  labs(
    x = "Years",
    y = "Population Count",
    title = "ITU Model Trajectories Under ART Intervention"
  ) +
  theme_minimal()

```



## Combining Interventions

```

theta_combo <- theta_prep          # start from PrEP changes
theta_combo["gamma"]  <- theta_art["gamma"]
theta_combo["beta_T"] <- theta_art["beta_T"]

sim_combo <- run_scenario(theta_combo, initState_baseline, years = 10) %>%
  mutate(scenario = "PrEP + ART")

sim_combo_long <- sim_combo %>%
  select(time_years, S, P, I, T, U) %>%
  pivot_longer(cols = c(S, P, I, T, U),
               names_to = "State",
               values_to = "Count")

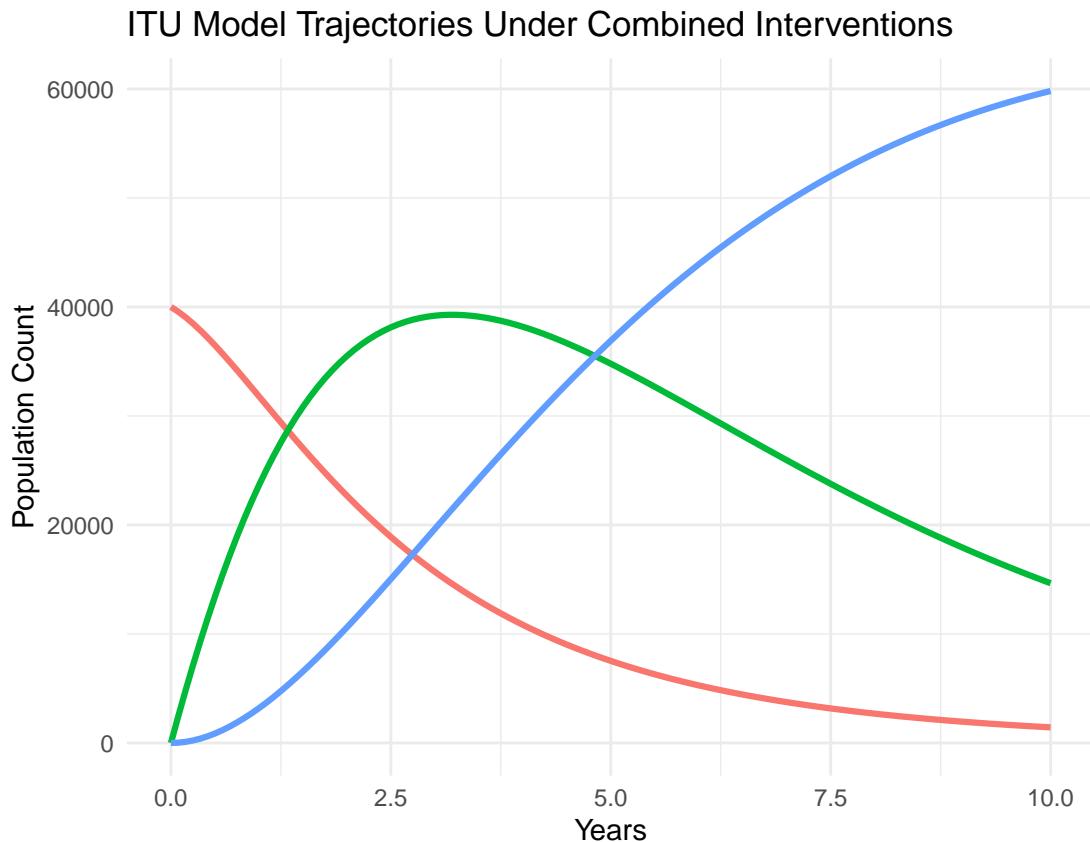
sim_combo_long %>%
  filter(State %in% c("I", "T", "U")) %>%

```

```

ggplot(aes(x = time_years, y = Count, color = State)) +
  geom_line(linewidth = 1.1) +
  labs(
    x = "Years",
    y = "Population Count",
    title = "ITU Model Trajectories Under Combined Interventions"
  ) +
  theme_minimal()

```



## Plot to Directly Compare Interventions to Baseline

```

# Combine all scenarios for plotting
sim_all <- bind_rows(sim_baseline, sim_prep, sim_art, sim_combo)
#
#
# ggplot(sim_all, aes(x = time_years, y = Incidence, color = scenario)) +
#   geom_line(linewidth = 1.2) +
#   labs(
#     x = "Years from Baseline",
#     y = "Monthly HIV Incidence",
#     title = "Projected HIV Incidence Under PrEP and ART Scenarios"
#   ) +
#   theme_minimal(base_size = 15)
#
#

```

```

# sim_baseline_short <- sim_baseline %>%
#   select(time_years, Inc_baseline = Incidence)
#
# sim_rel <- sim_all %>%
#   left_join(sim_baseline_short, by = "time_years") %>%
#   mutate(rel_change = Incidence / Inc_baseline)
#
# ggplot(sim_rel, aes(x = time_years, y = rel_change, color = scenario)) +
#   geom_hline(yintercept = 1, linetype = "dashed") +
#   geom_line(linewidth = 1.2) +
#   labs(
#     x = "Years from Baseline",
#     y = "Incidence Relative to Baseline",
#     title = "Relative Impact of PrEP/ART Improvements on HIV Incidence"
#   ) +
#   theme_minimal(base_size = 15)

```

## More Combination Plots

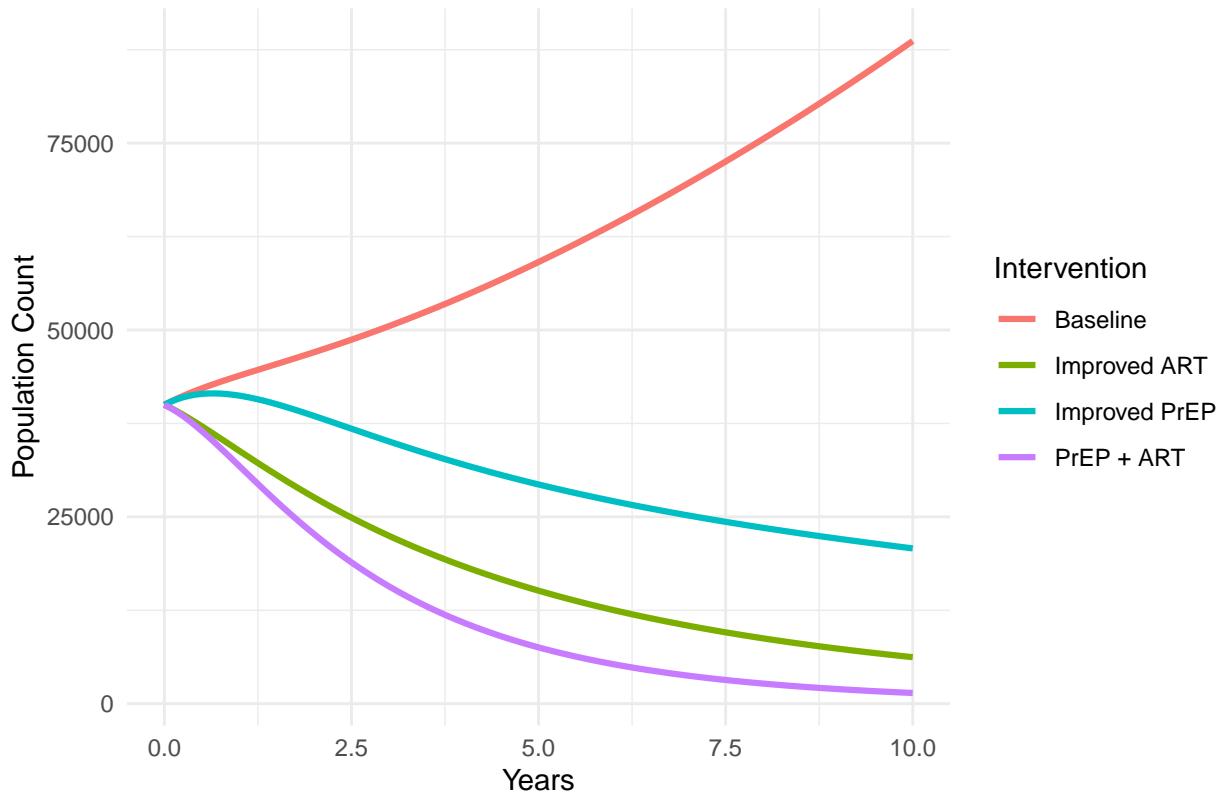
```

# plotting infections over time in all three intervention scenarios

sim_all %>%
  select(time_years, I, scenario) %>%
  ggplot(aes(x = time_years, y = I, color = scenario)) +
  geom_line(linewidth = 1.1) +
  theme_minimal() +
  labs(
    x = "Years",
    y = "Population Count",
    color = "Intervention"
  ) +
  ggtitle("Number of HIV Infections Over 10-Year Period Across 3 Interventions")

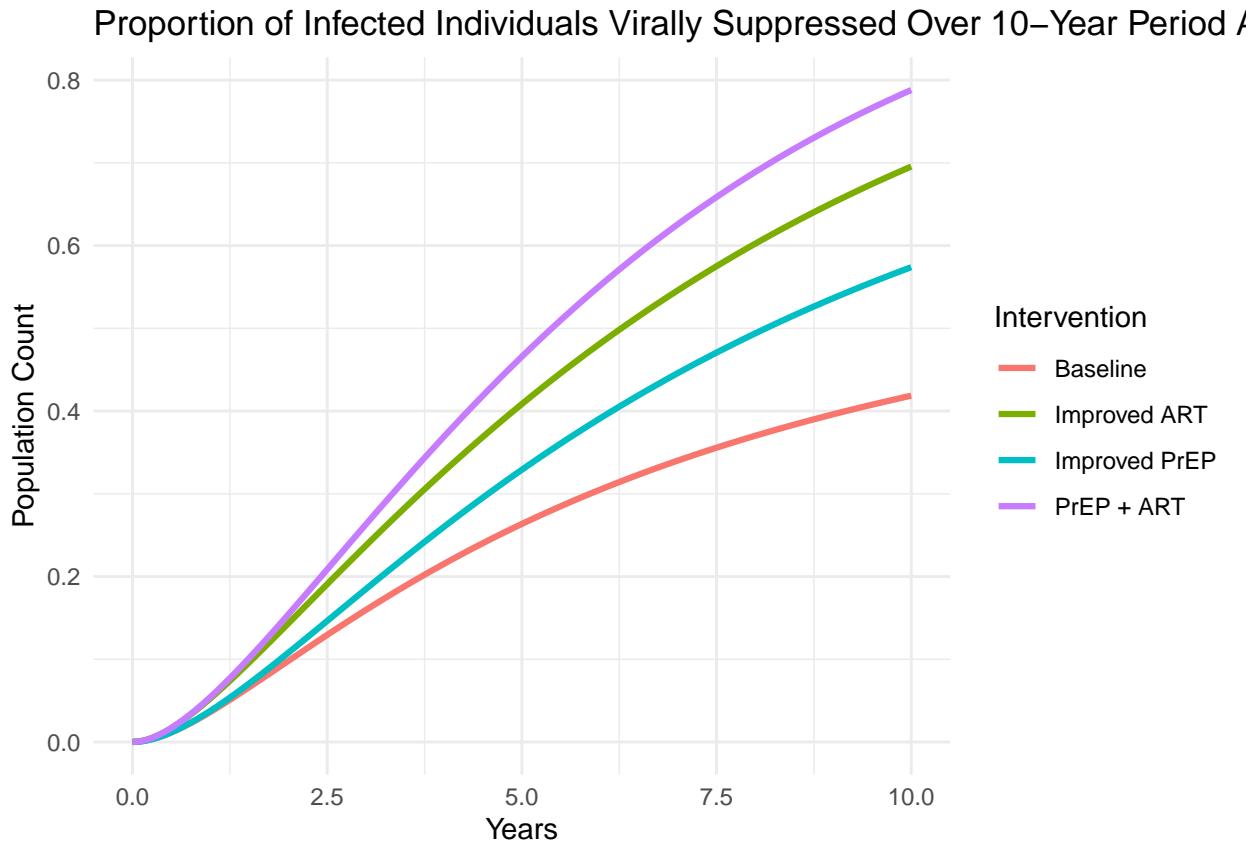
```

## Number of HIV Infections Over 10-Year Period Across 3 Interventions



```

sim_all %>%
  select(time_years, I, T, U, scenario) %>%
  mutate(per_U = U / (I + T + U)) %>%
  ggplot(aes(x = time_years, y = per_U, color = scenario)) +
  geom_line(linewidth = 1.1) +
  theme_minimal() +
  labs(
    x = "Years",
    y = "Population Count",
    color = "Intervention"
  ) +
  ggtitle("Proportion of Infected Individuals Virally Suppressed Over 10-Year Period Across 3 Interventions")
  
```



```
library(knitr)
sim_all %>%
  filter(time_years == 10) %>%
  mutate(Incidence = round(Incidence, 4)) %>%
  mutate(inc_red = (1 - (Incidence/6091.2076))*100) %>%
  select(scenario, Incidence, inc_red) %>%
  rename("% Reduction Compared to Baseline" = inc_red,
    "Scenario" = scenario,
    "Raw Incidence" = Incidence) %>%
  as_tibble() %>%
  kable(caption = "Ten Year HIV Incidence Under Three Interventions")
```

Table 1: Ten Year HIV Incidence Under Three Interventions

Scenario	Raw Incidence	% Reduction Compared to Baseline
Baseline	5225.8330	14.20695
Improved PrEP	985.6265	83.81887
Improved ART	369.4569	93.93459
PrEP + ART	68.5744	98.87421

## Focusing on Incidence Reduction

### PrEP Intervention

```
#Increasing uptake by 25%, reducing infectioness by 25%
theta_combo_1 <- sim_theta
```

```

theta_combo_1["p"] <- sim_theta["p"] * 1.25
theta_combo_1["b"] <- sim_theta["b"] * 0.75

theta_combo_2 <- sim_theta
theta_combo_2["p"] <- sim_theta["p"] * 1.5
theta_combo_2["b"] <- sim_theta["b"] * 0.5

theta_combo_3 <- sim_theta
theta_combo_3["p"] <- sim_theta["p"] * 1.75
theta_combo_3["b"] <- sim_theta["b"] * 0.25

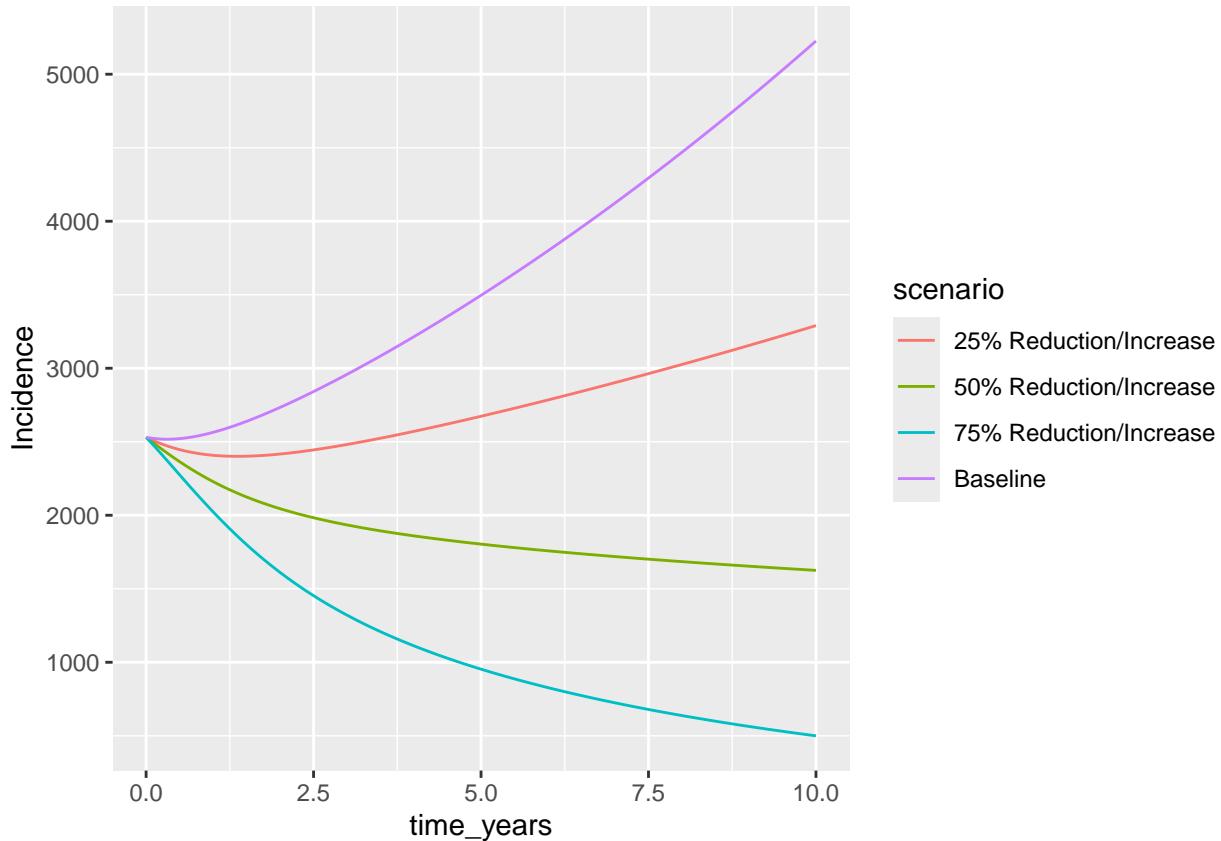
# theta_combo_1["gamma"] <- sim_theta["gamma"] * 1.5    # faster ART initiation
#
# rho_art <- rho * 0.2                      # reduce infectiousness on ART by 20%
# theta_art["beta_T"] <- rho_art * sim_theta["beta_I"]

sim_prep_1 <- run_scenario(theta_combo_1, initState_baseline, years = 10) %>%
  mutate(scenario = "25% Reduction/Increase")
sim_prep_2 <- run_scenario(theta_combo_2, initState_baseline, years = 10) %>%
  mutate(scenario = "50% Reduction/Increase")
sim_prep_3 <- run_scenario(theta_combo_3, initState_baseline, years = 10) %>%
  mutate(scenario = "75% Reduction/Increase")

sim_all_prep <- bind_rows(sim_baseline, sim_prep_1, sim_prep_2, sim_prep_3)

sim_all_prep %>%
  ggplot(aes(x = time_years, y = Incidence, color = scenario)) +
  geom_line()

```



```
library(knitr)
sim_all_prep %>%
  filter(time_years == 10) %>%
  mutate(Incidence = round(Incidence, 4)) %>%
  mutate(inc_red = (1 - (Incidence/6091.2076))*100) %>%
  select(scenario, Incidence, inc_red) %>%
  rename("% Reduction Compared to Baseline" = inc_red,
    "Scenario" = scenario,
    "Raw Incidence" = Incidence) %>%
  as_tibble() %>%
kable(caption = "Ten Year HIV Incidence Under Increased PrEP Uptake and Decreased PrEP Discontinuation")
```

Table 2: Ten Year HIV Incidence Under Increased PrEP Uptake and Decreased PrEP Discontinuation

Scenario	Raw Incidence	% Reduction Compared to Baseline
Baseline	5225.8330	14.20695
25% Reduction/Increase	3289.9959	45.98779
50% Reduction/Increase	1625.1974	73.31896
75% Reduction/Increase	499.7184	91.79607

## ART Intervention

```
theta_combo_1 <- sim_theta
theta_combo_1["gamma"] <- sim_theta["gamma"] * 1.25
```

```

theta_combo_2 <- sim_theta
theta_combo_2["gamma"] <- sim_theta["gamma"] * 1.5

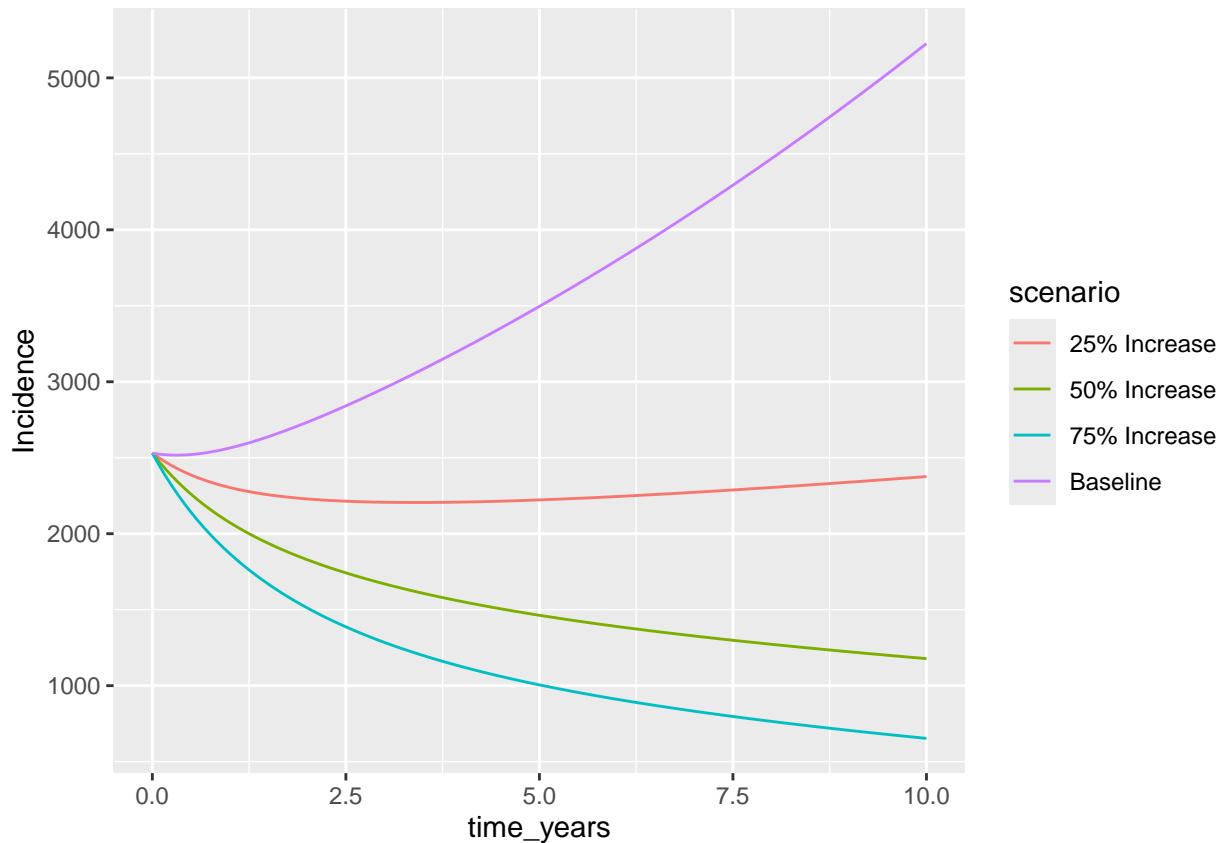
theta_combo_3 <- sim_theta
theta_combo_3["gamma"] <- sim_theta["gamma"] * 1.75

sim_ART_1 <- run_scenario(theta_combo_1, initState_baseline, years = 10) %>%
  mutate(scenario = "25% Increase")
sim_ART_2 <- run_scenario(theta_combo_2, initState_baseline, years = 10) %>%
  mutate(scenario = "50% Increase")
sim_ART_3 <- run_scenario(theta_combo_3, initState_baseline, years = 10) %>%
  mutate(scenario = "75% Increase")

sim_all_ART <- bind_rows(sim_baseline, sim_ART_1, sim_ART_2, sim_ART_3)

sim_all_ART %>%
  ggplot(aes(x = time_years, y = Incidence, color = scenario)) +
  geom_line()

```



```

sim_all_ART %>%
  filter(time_years == 10) %>%
  mutate(Incidence = round(Incidence, 4)) %>%
  mutate(inc_red = (1 - (Incidence/6091.2076))*100) %>%
  select(scenario, Incidence, inc_red) %>%
  rename("% Reduction Compared to Baseline" = inc_red,

```

```

"Scenario" = scenario,
"Raw Incidence" = Incidence) %>%
as_tibble() %>%
kable(caption = "Ten Year HIV Incidence Under Increased ART Uptake")

```

Table 3: Ten Year HIV Incidence Under Increased ART Uptake

Scenario	Raw Incidence	% Reduction Compared to Baseline
Baseline	5225.833	14.20695
25% Increase	2376.384	60.98665
50% Increase	1178.023	80.66027
75% Increase	653.036	89.27904

## Combo Intervention

```

theta_combo_1 <- sim_theta
theta_combo_1["gamma"] <- sim_theta["gamma"] * 1.25
theta_combo_1["p"] <- sim_theta["p"] * 1.25
theta_combo_1["b"] <- sim_theta["b"] * 0.75

theta_combo_2 <- sim_theta
theta_combo_2["gamma"] <- sim_theta["gamma"] * 1.5
theta_combo_2["p"] <- sim_theta["p"] * 1.5
theta_combo_2["b"] <- sim_theta["b"] * 0.5

theta_combo_3 <- sim_theta
theta_combo_3["gamma"] <- sim_theta["gamma"] * 1.75
theta_combo_3["p"] <- sim_theta["p"] * 1.75
theta_combo_3["b"] <- sim_theta["b"] * 0.25

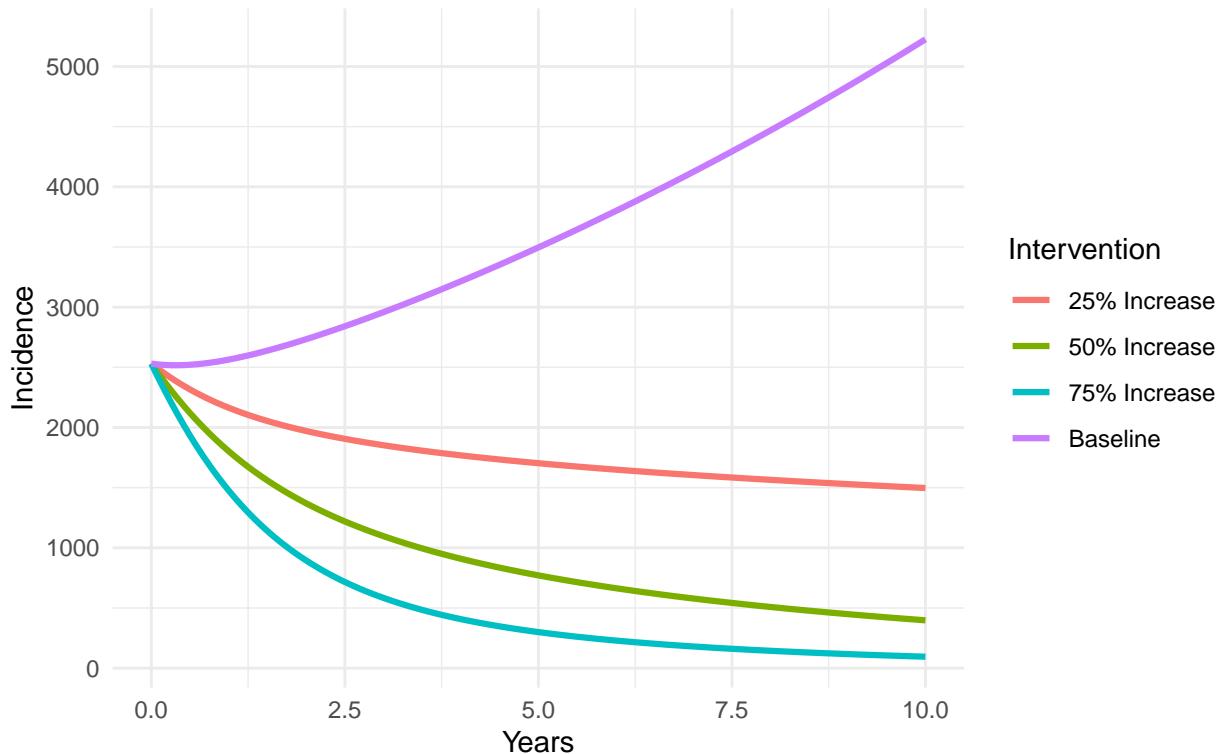
sim_combo_1 <- run_scenario(theta_combo_1, initState_baseline, years = 10) %>%
  mutate(scenario = "25% Increase")
sim_combo_2 <- run_scenario(theta_combo_2, initState_baseline, years = 10) %>%
  mutate(scenario = "50% Increase")
sim_combo_3 <- run_scenario(theta_combo_3, initState_baseline, years = 10) %>%
  mutate(scenario = "75% Increase")

sim_all_combo <- bind_rows(sim_baseline, sim_combo_1, sim_combo_2, sim_combo_3)

sim_all_combo %>%
  ggplot(aes(x = time_years, y = Incidence, color = scenario)) +
  geom_line(linewidth = 1.1) +
  theme_minimal() +
  labs(
    x = "Years",
    y = "Incidence",
    color = "Intervention"
  ) +
  ggtitle("Relative HIV Incidence to Baseline Over 10 \nYears After Implementing PrEP and ART Intervention")

```

## Relative HIV Incidence to Baseline Over 10 Years After Implementing PrEP and ART Interventions



```
sim_all_combo %>%
  filter(time_years == 10) %>%
  mutate(Incidence = round(Incidence, 4)) %>%
  mutate(inc_red = (1 - (Incidence/6091.2076))*100) %>%
  select(scenario, Incidence, inc_red) %>%
  rename("% Reduction Compared to Baseline" = inc_red,
         "Scenario" = scenario,
         "Raw Incidence" = Incidence) %>%
  as_tibble() %>%
  kable(caption = "Ten Year HIV Incidence Under Both PrEP and ART Interventions")
```

Table 4: Ten Year HIV Incidence Under Both PrEP and ART Interventions

Scenario	Raw Incidence	% Reduction Compared to Baseline
Baseline	5225.8330	14.20695
25% Increase	1496.9355	75.42465
50% Increase	397.6632	93.47152
75% Increase	95.2464	98.43633

Expanding this for write-up:

```
library(tidyverse)

# 10% to 80% in 5% steps
pct_increase_vec <- seq(0.10, 0.80, by = 0.05)
```

```

# Run all intervention scenarios
sim_combos <- pct_increase_vec %>%
  map_dfr(function(pct_inc) {
    theta_combo <- sim_theta
    theta_combo[["gamma"]] <- sim_theta[["gamma"]] * (1 + pct_inc) # increase ART initiation
    theta_combo[["p"]] <- sim_theta[["p"]] * (1 + pct_inc) # increase PrEP uptake
    theta_combo[["b"]] <- sim_theta[["b"]] * (1 - pct_inc) # decrease PrEP drop-out

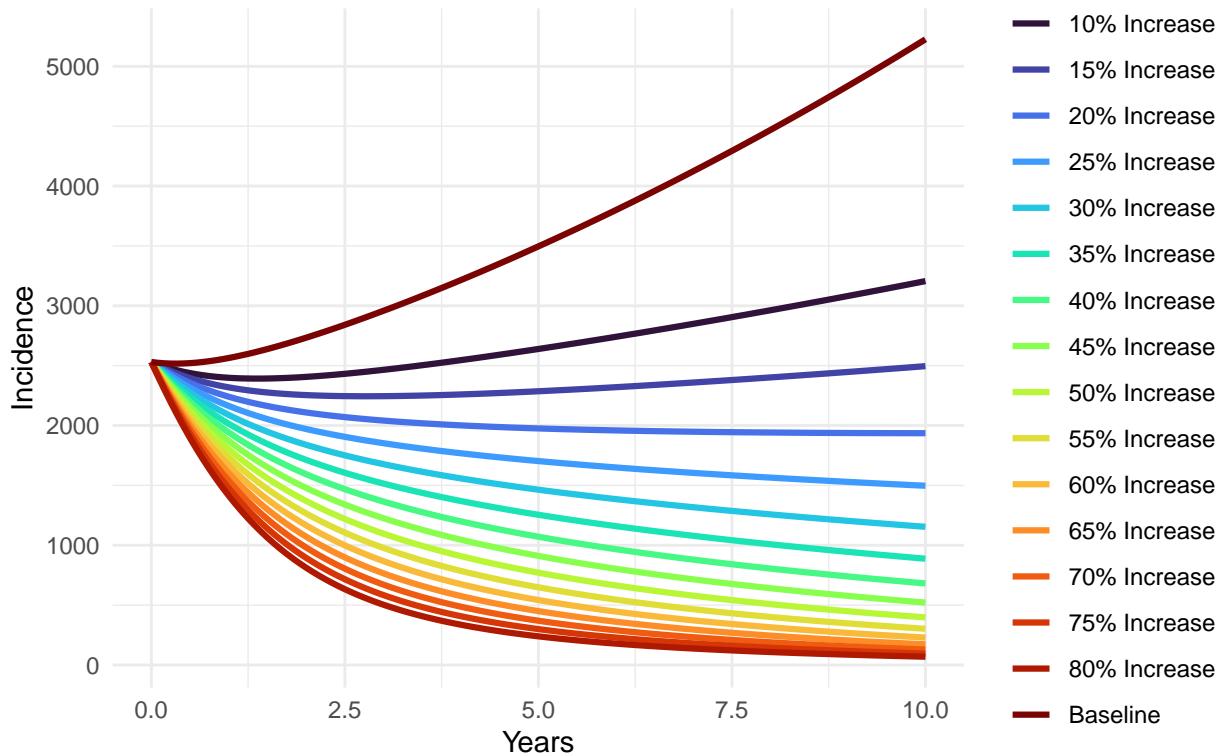
    run_scenario(theta_combo, initState_baseline, years = 10) %>%
      mutate(
        scenario = paste0(round(pct_inc * 100), "% Increase")
      )
  })

# Add baseline
sim_all_combo <- bind_rows(
  sim_baseline %>% mutate(scenario = "Baseline"),
  sim_combos
)

# Plot (unchanged, now with many more lines)
sim_all_combo %>%
  ggplot(aes(x = time_years, y = Incidence, color = scenario)) +
  geom_line(lineWidth = 1.1) +
  theme_minimal() +
  scale_color_viridis_d(option = "turbo") +
  labs(
    x = "Years",
    y = "Incidence",
    color = "Intervention"
  ) +
  ggtitle("Relative HIV Incidence to Baseline Over 10 \nYears After Implementing PrEP and ART Intervent")

```

## Relative HIV Incidence to Baseline Over 10 Years After Implementing PrEP and ART Interventions



```
# get baseline incidence at year 10 from the simulated data
baseline_inc <- sim_all_combo %>%
  filter(scenario == "Baseline", time_years == 10) %>%
  pull(Incidence)

sim_all_combo %>%
  filter(time_years == 10) %>%
  mutate(
    Incidence = round(Incidence, 2),
    `% Reduction Compared to Baseline` = round((1 - Incidence / baseline_inc) * 100, 2)
  ) %>%
  select(
    Scenario = scenario,
    `Raw Incidence` = Incidence,
    `% Reduction Compared to Baseline`
  ) %>%
  as_tibble() %>%
kable(caption = "Ten-Year HIV Incidence Under PrEP and ART Interventions")
```

Table 5: Ten-Year HIV Incidence Under PrEP and ART Interventions

Scenario	Raw Incidence	% Reduction Compared to Baseline
Baseline	5225.83	0.00
10% Increase	3206.29	38.65
15% Increase	2495.75	52.24
20% Increase	1935.87	62.96

Scenario	Raw Incidence	% Reduction Compared to Baseline
25% Increase	1496.94	71.35
30% Increase	1154.29	77.91
35% Increase	887.76	83.01
40% Increase	681.07	86.97
45% Increase	521.16	90.03
50% Increase	397.66	92.39
55% Increase	302.42	94.21
60% Increase	229.02	95.62
65% Increase	172.47	96.70
70% Increase	128.88	97.53
75% Increase	95.25	98.18
80% Increase	69.26	98.67

To determine % cut off point at which incidence is monotonically decreasing:

```
library(dplyr)

monotone_check <- sim_all_combo %>%
  group_by(scenario) %>%
  arrange(time_years, .by_group = TRUE) %>%
  mutate(
    dInc = Incidence - lag(Incidence) # change from previous timepoint
  ) %>%
  summarise(
    any_increase = any(dInc > 0, na.rm = TRUE),
    .groups = "drop"
  )

monotone_check

## # A tibble: 16 x 2
##   scenario      any_increase
##   <chr>        <lgl>
## 1 10% Increase TRUE
## 2 15% Increase TRUE
## 3 20% Increase FALSE
## 4 25% Increase FALSE
## 5 30% Increase FALSE
## 6 35% Increase FALSE
## 7 40% Increase FALSE
## 8 45% Increase FALSE
## 9 50% Increase FALSE
## 10 55% Increase FALSE
## 11 60% Increase FALSE
## 12 65% Increase FALSE
## 13 70% Increase FALSE
## 14 75% Increase FALSE
## 15 80% Increase FALSE
## 16 Baseline    TRUE

sim_all_combo %>%
  filter(time_years == 10) %>%
  mutate(
```

```

Incidence = round(Incidence, 2),
`% Reduction Compared to Baseline` = round((1 - Incidence / baseline_inc) * 100, 2)
) %>%
select(
  Scenario = scenario,
  `Raw Incidence` = Incidence,
  `% Reduction Compared to Baseline`
) %>%
as_tibble() %>%
kable(caption = "Ten-Year HIV Incidence Under PrEP and ART Interventions")

```

Table 6: Ten-Year HIV Incidence Under PrEP and ART Interventions

Scenario	Raw Incidence	% Reduction Compared to Baseline
Baseline	5225.83	0.00
10% Increase	3206.29	38.65
15% Increase	2495.75	52.24
20% Increase	1935.87	62.96
25% Increase	1496.94	71.35
30% Increase	1154.29	77.91
35% Increase	887.76	83.01
40% Increase	681.07	86.97
45% Increase	521.16	90.03
50% Increase	397.66	92.39
55% Increase	302.42	94.21
60% Increase	229.02	95.62
65% Increase	172.47	96.70
70% Increase	128.88	97.53
75% Increase	95.25	98.18
80% Increase	69.26	98.67

At some point between a 20-25% intervention, we get a monotonically decreasing curve, which means HIV incidence will strictly decrease over time.