# Aggregated sampling output

November 20, 2020

## Dataset: simulated_data_dataset1_no_error, model type: ODE

### Trajectories without pathologies

e.g. no divergent transitions, no max_treedepth exceeded, no Rhat > 1.1, no n_eff < 100

```
number of trajectories without pathologies (out of 100):

[1] 2


indices of trajectories without pathologies:

[1] 31 80
```

#### no pathologies for a subset of the parameters

```
parameters considered:

[1] "t0"                  "sigma"               "scale"
[4] "offset"              "prod_theta2_m0_scale"

number of trajectories without pathologies (out of 100):

[1] 82


indices of trajectories without pathologies:

 [1]   1   2   3   4   5   6   7   8   9  12  13  14  15  16  17  18  19  20  21
[20]  24  25  27  29  30  31  32  33  35  36  37  38  39  40  42  44  45  46  47
[39]  48  49  51  52  53  54  55  56  57  58  59  60  61  62  63  64  66  67  68
[58]  69  70  71  72  73  75  77  78  79  80  81  82  83  86  88  89  90  91  92
[77]  93  96  97  98  99 100
```

### Divergent transitions

| num..of.div..transitions | Freq |
|---|---|
| 0 | 100 |

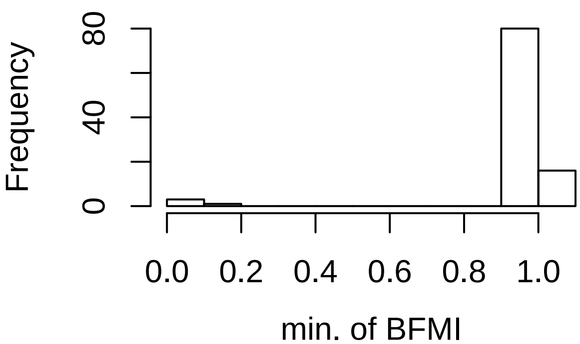
### Maximum tree depth exceeded

| num..of.max.t.d..exceeded | Freq |
|---|---|
| 0 | 91 |
| 1 | 2 |
| 2 | 2 |
| 3 | 1 |
| 4 | 1 |
| 2500 | 3 |

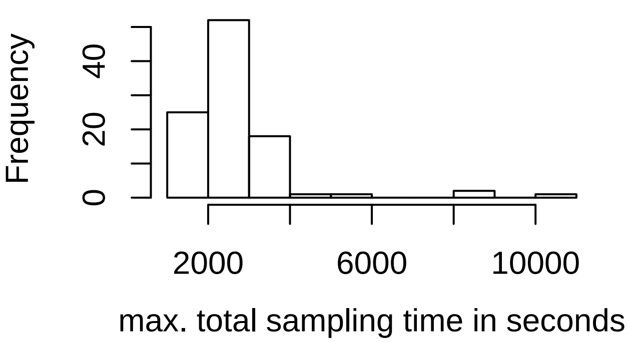
```
total number of trajectories were max. tree depth was exceeded: 9
indices of trajectories were max. tree depth was exceeded:
10 28 41 43 76 84 87 94 95
```

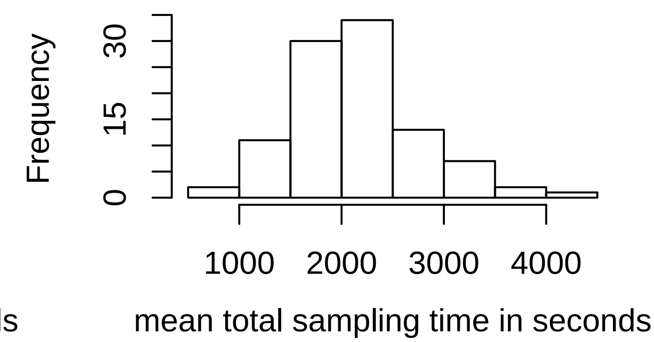
## Bayesian fraction of missing information (BFMI)

| num..of.low.BFMI | Freq |
|---|---|
| 0 | 96 |
| 1 | 2 |
| 2 | 1 |
| 4 | 1 |




## Total sampling time




## R-hat

### total number of trajectories with very high Rhat (> 1.1) (out of 100)

```
[1] 98
```

### number of trajectories with high Rhat per parameter (out of 100)

| | Rhat > 1.02 | Rhat > 1.1 |
|---|---|---|
| theta[1] | 99 | 98 |
| theta[2] | 3 | 0 |
| theta[3] | 99 | 98 |
| m0 | 2 | 1 |
| sigma | 11 | 11 |
| scale | 2 | 0 |
| offset | 12 | 12 |
| t0 | 12 | 12 |
| prod_theta2_m0 | 0 | 0 |

| | Rhat > 1.02 | Rhat > 1.1 |
|---|---|---|
| prod_theta2_scale | 0 | 0 |
| prod_m0_scale | 0 | 0 |
| prod_theta2_m0_scale | 12 | 12 |
| x2_sim[180] | 2 | 1 |

**number of parameters with high Rhat per trajectory (out of 13)**

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rhat > 1.02 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 9 | 6 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Rhat > 1.1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 7 | 6 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

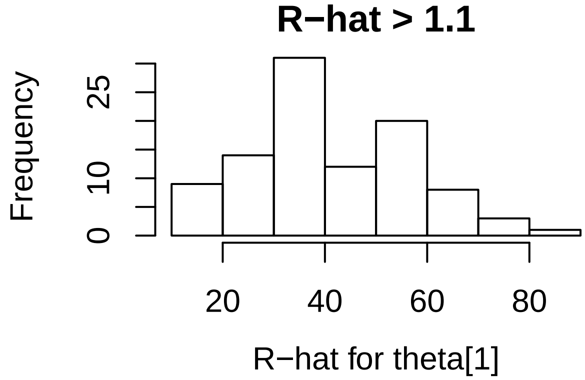
| | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rhat > 1.02 | 2 | 6 | 6 | 2 | 2 | 6 | 2 | 8 | 2 | 2 | 2 | 2 | 6 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Rhat > 1.1 | 2 | 6 | 6 | 2 | 2 | 6 | 2 | 6 | 2 | 2 | 2 | 2 | 6 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

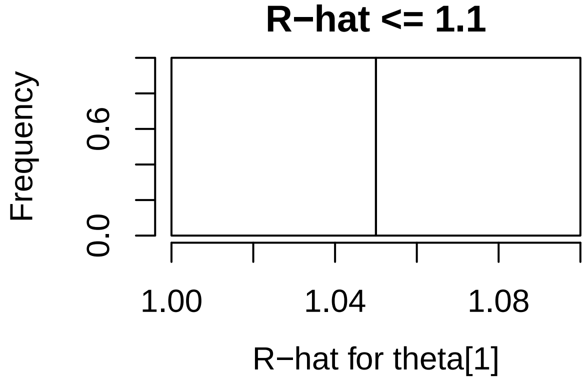
| | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rhat > 1.02 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 6 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Rhat > 1.1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 6 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

| | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | 81 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Rhat > 1.02 | 2 | 2 | 2 | 6 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 6 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Rhat > 1.1 | 2 | 2 | 2 | 6 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 6 | 2 | 2 | 2 | 2 | 2 | 0 | 2 |

**theta[1]**

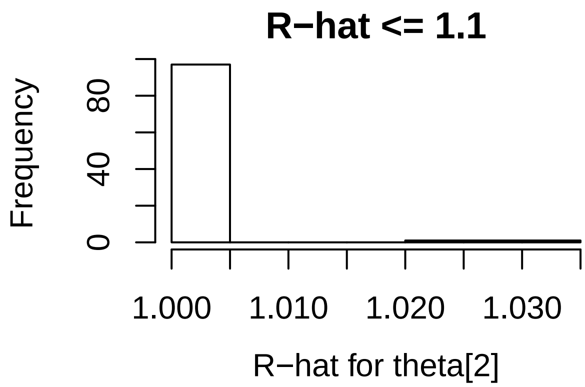
```
number of trajectories with Rhat > 1.02:    99

indizes of trajectories with Rhat > 1.02:
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 32 33 34 35 36 37 38 39

number of trajectories with Rhat > 1.1: 98

indices of trajectories with Rhat > 1.1:
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 32 33 34 35 36 37 38 39
```



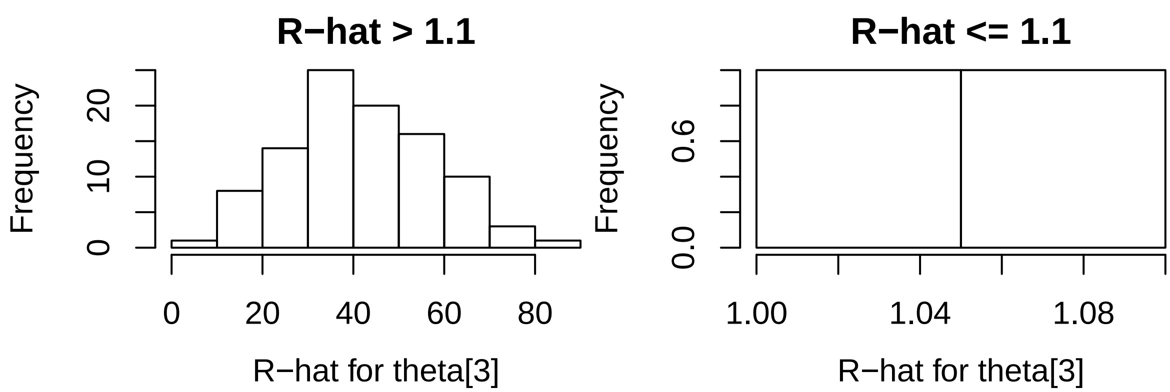
**theta[2]**

```
number of trajectories with Rhat > 1.02:    3

indizes of trajectories with Rhat > 1.02:
10 28 87
```



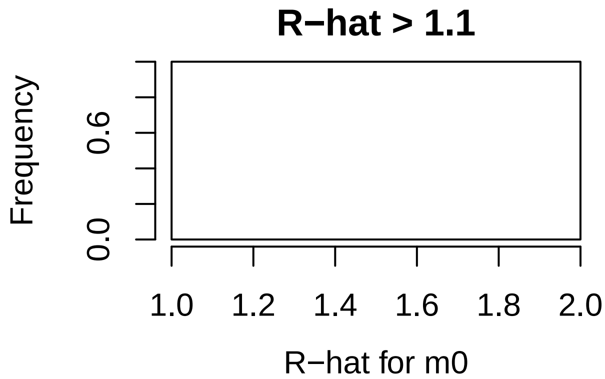

**theta[3]**

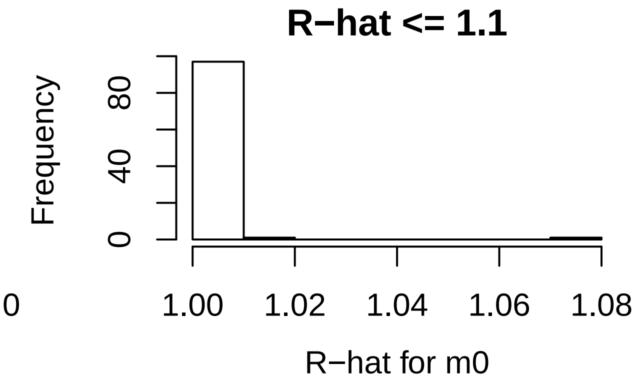
```
number of trajectories with Rhat > 1.02:    99

indizes of trajectories with Rhat > 1.02:
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 32 33 34 35 36 37 38 39

number of trajectories with Rhat > 1.1: 98

indices of trajectories with Rhat > 1.1:
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 32 33 34 35 36 37 38 39
```




**m0**

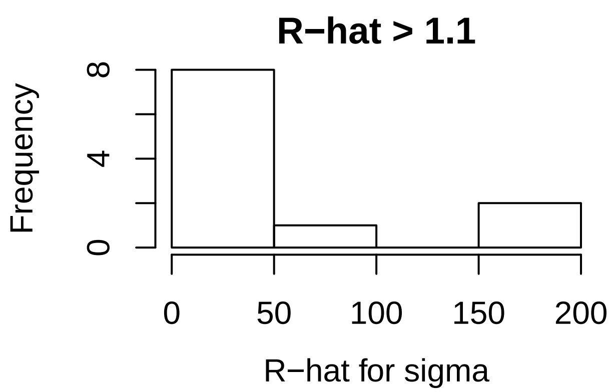
```
number of trajectories with Rhat > 1.02:    2

indizes of trajectories with Rhat > 1.02:
28 87

number of trajectories with Rhat > 1.1: 1

indices of trajectories with Rhat > 1.1:
87
```

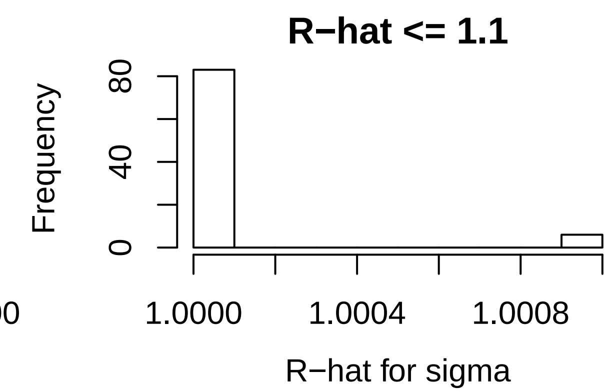



**sigma**

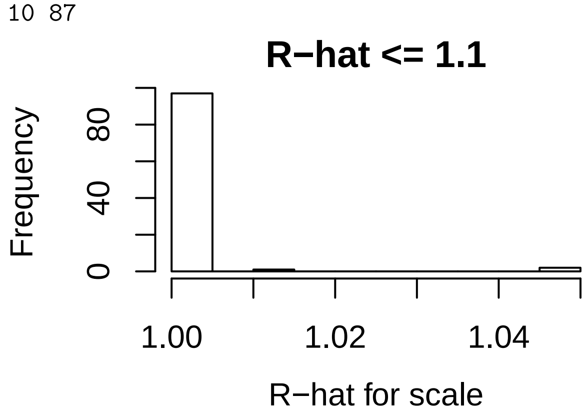
```
number of trajectories with Rhat > 1.02:    11

indizes of trajectories with Rhat > 1.02:
10 11 22 23 26 28 34 50 65 74 87

number of trajectories with Rhat > 1.1: 11

indices of trajectories with Rhat > 1.1:
10 11 22 23 26 28 34 50 65 74 87
```



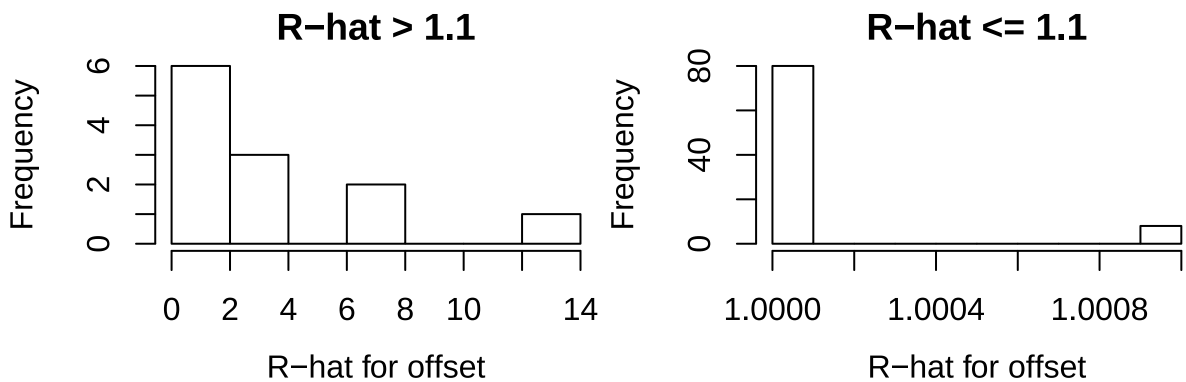

**scale**

```
number of trajectories with Rhat > 1.02:    2

indizes of trajectories with Rhat > 1.02:
10 87
```



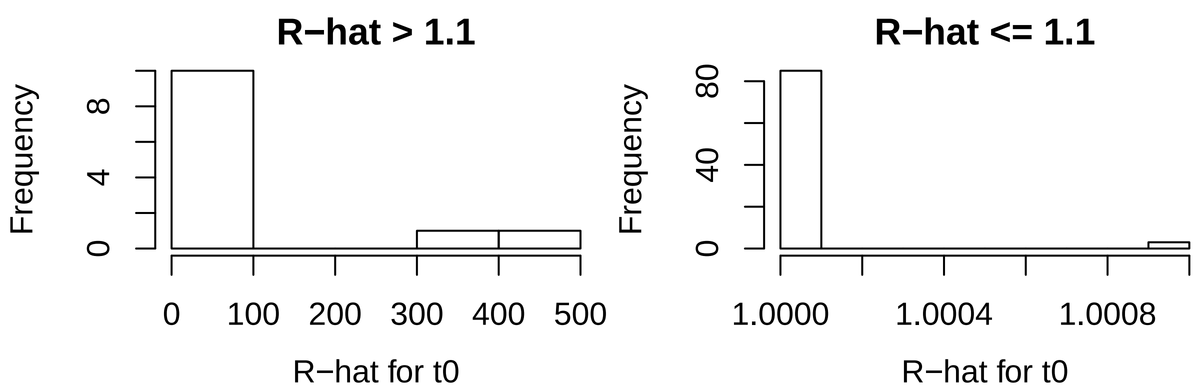
**offset**

```
number of trajectories with Rhat > 1.02:    12

indizes of trajectories with Rhat > 1.02:
10 11 22 23 26 28 34 50 65 74 85 87

number of trajectories with Rhat > 1.1: 12

indices of trajectories with Rhat > 1.1:
10 11 22 23 26 28 34 50 65 74 85 87
```



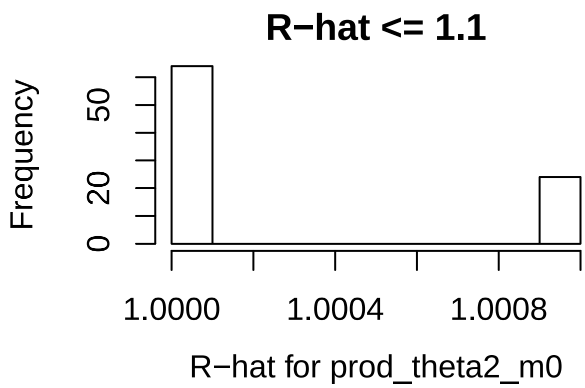

**t0**

```
number of trajectories with Rhat > 1.02:    12

indizes of trajectories with Rhat > 1.02:
10 11 22 23 26 28 34 50 65 74 85 87

number of trajectories with Rhat > 1.1: 12

indices of trajectories with Rhat > 1.1:
10 11 22 23 26 28 34 50 65 74 85 87
```



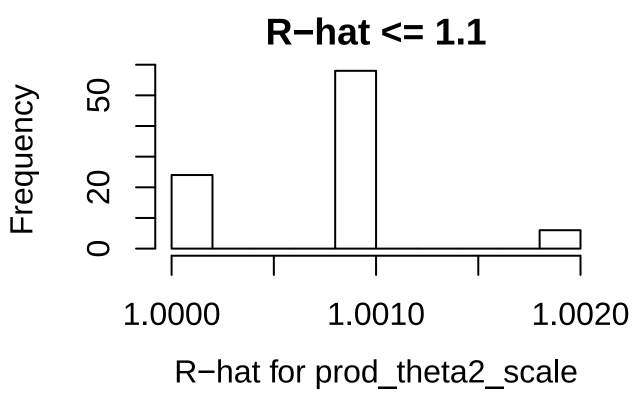

**prod_theta2_m0**

```
no Rhat > 1.02
```



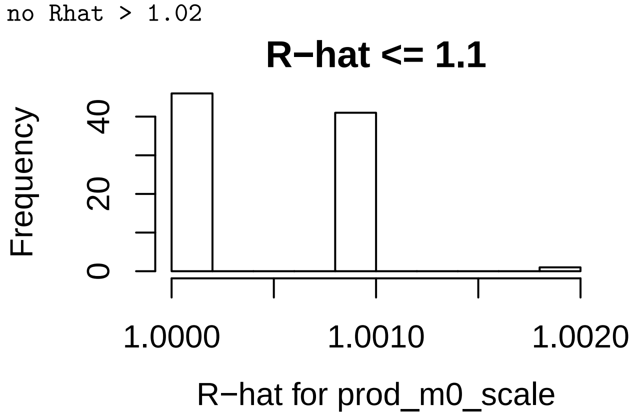

**prod_theta2_scale**

```
no Rhat > 1.02
```




**prod_m0_scale**

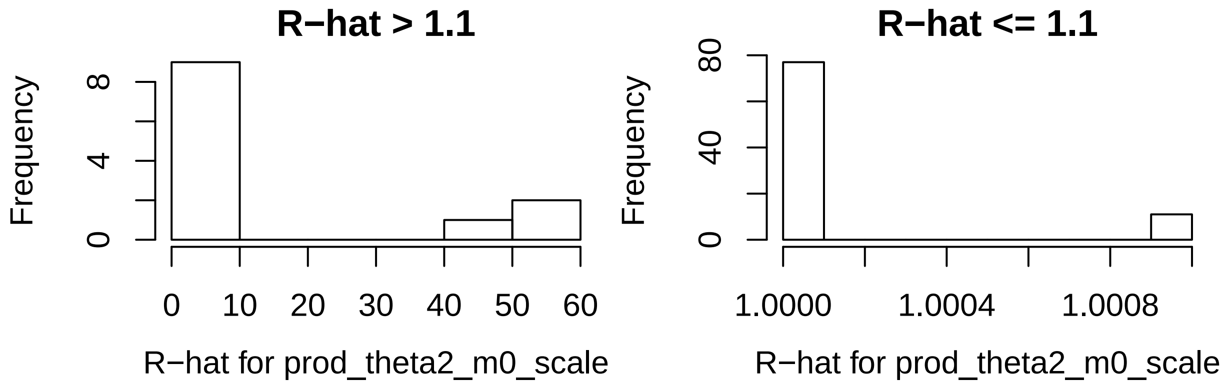
```
no Rhat > 1.02
```




**prod_theta2_m0_scale**

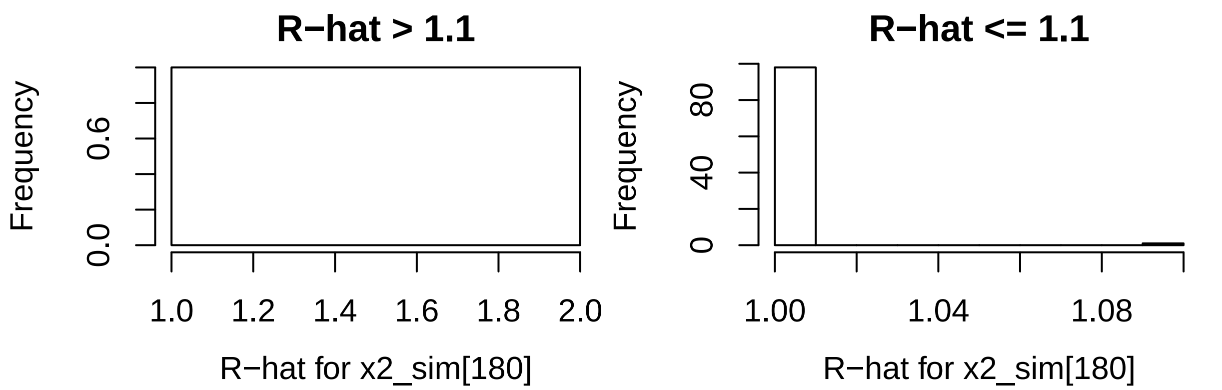
```
number of trajectories with Rhat > 1.02:    12

indizes of trajectories with Rhat > 1.02:
10 11 22 23 26 28 34 50 65 74 85 87

number of trajectories with Rhat > 1.1: 12
```

```
indices of trajectories with Rhat > 1.1:
10 11 22 23 26 28 34 50 65 74 85 87
```




**x2_sim[180]**

```
number of trajectories with Rhat > 1.02:    2

indizes of trajectories with Rhat > 1.02:
10 87

number of trajectories with Rhat > 1.1: 1

indices of trajectories with Rhat > 1.1:
10
```




## Effective sample size (ESS)

**total number of trajectories with low ESS (< 100) (out of 100)**

```
[1] 98
```

**number of trajectories with low ESS (< 100) per parameter (out of 100)**

| | n_eff < 100 |
|---|---|
| theta[1] | 98 |
| theta[2] | 1 |
| theta[3] | 98 |
| m0 | 2 |
| sigma | 11 |
| scale | 2 |
| offset | 12 |

| | n_eff < 100 |
|---|---|
| t0 | 12 |
| prod_theta2_m0 | 0 |
| prod_theta2_scale | 0 |
| prod_m0_scale | 0 |
| prod_theta2_m0_scale | 12 |
| x2_sim[180] | 2 |

**number of parameters with low ESS (< 300) per trajectory (out of 13)**

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| n_eff < 100 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 8 | 6 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

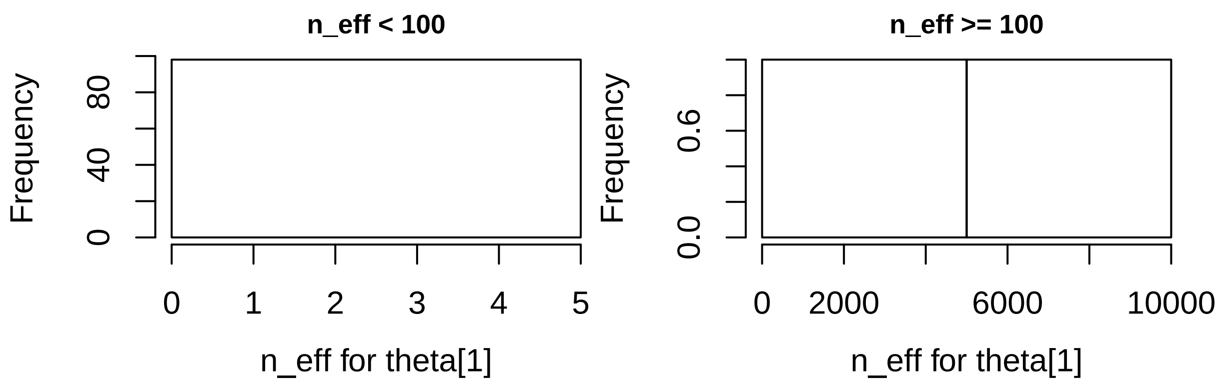
| | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| n_eff < 100 | 2 | 6 | 6 | 2 | 2 | 6 | 2 | 8 | 2 | 2 | 2 | 2 | 6 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

| | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| n_eff < 100 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 6 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

| | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 81 | 82 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| n_eff < 100 | 2 | 2 | 2 | 6 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 6 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

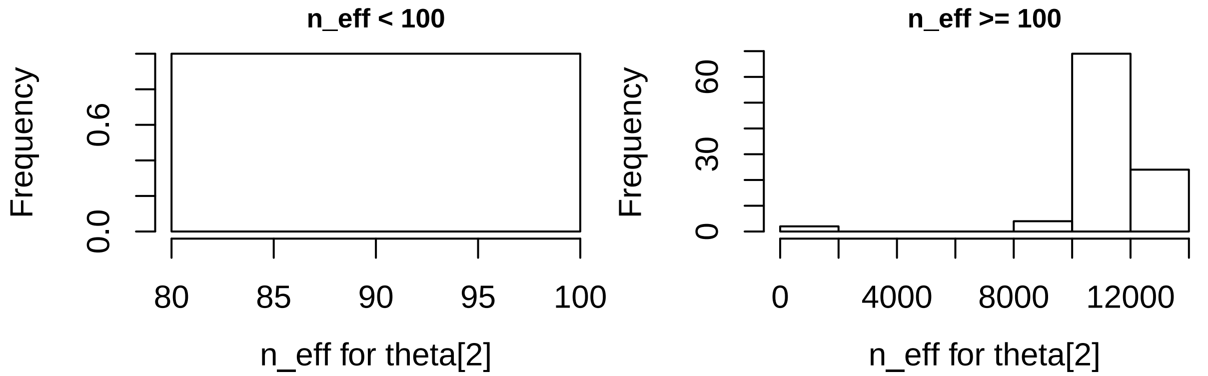
**theta[1]**

```
number of trajectories with n_eff < 100:    98

indices of trajectories with n_eff < 100:
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 32 33 34 35 36 37 38 3
```




**theta[2]**

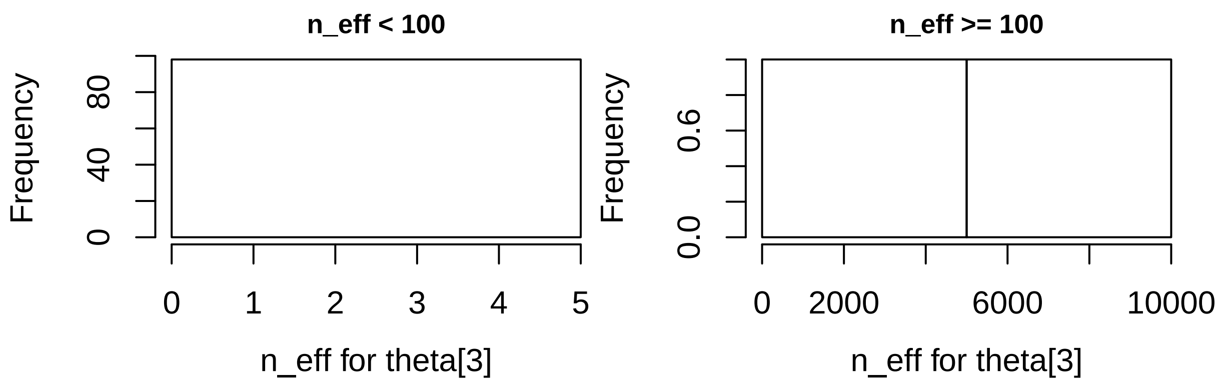
```
number of trajectories with n_eff < 100:    1

indices of trajectories with n_eff < 100:
28
```




**theta[3]**

number of trajectories with n_eff < 100:    98

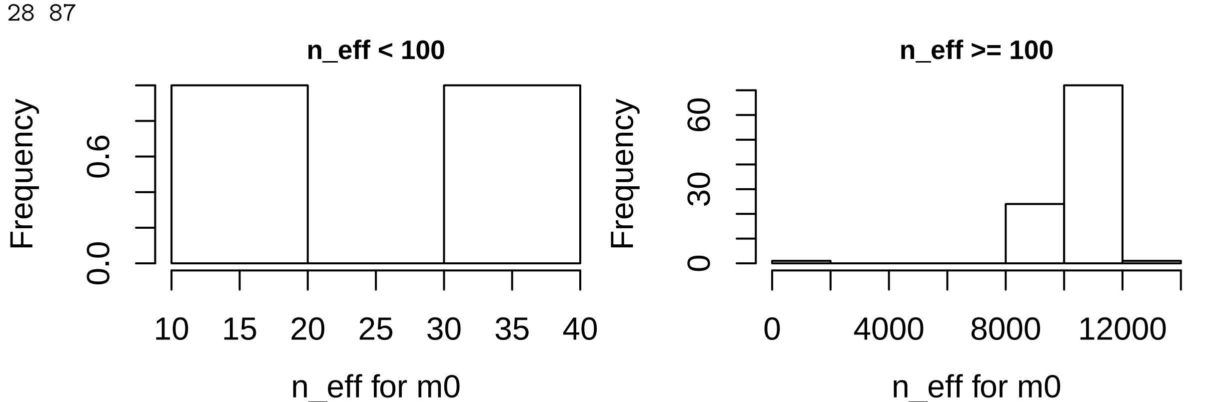
indices of trajectories with n_eff < 100:
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 32 33 34 35 36 37 38 39




**m0**

number of trajectories with n_eff < 100:    2

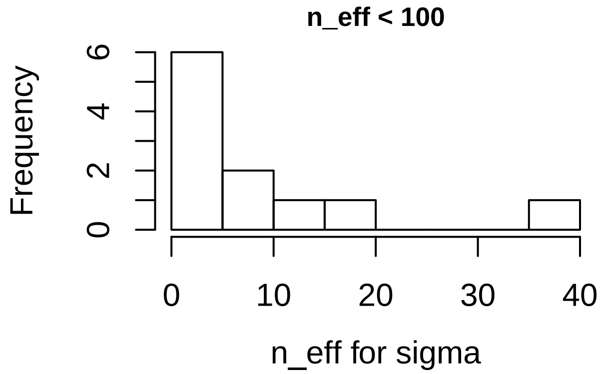
indices of trajectories with n_eff < 100:
28 87

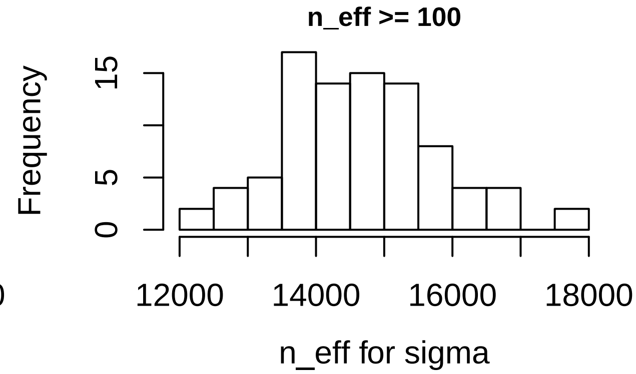



**sigma**

number of trajectories with n_eff < 100:    11

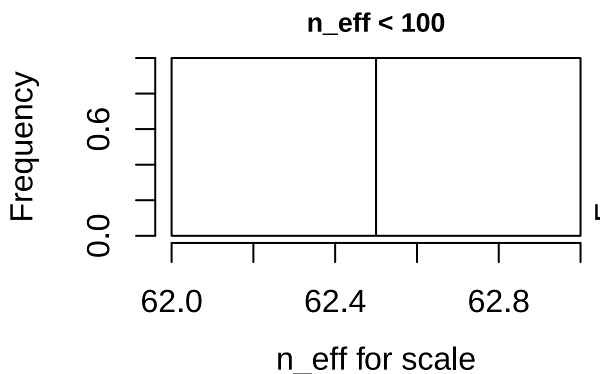
```
indices of trajectories with n_eff < 100:
10 11 22 23 26 28 34 50 65 74 87
```

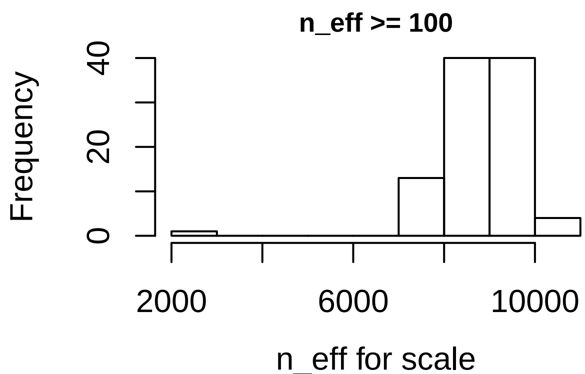



**scale**

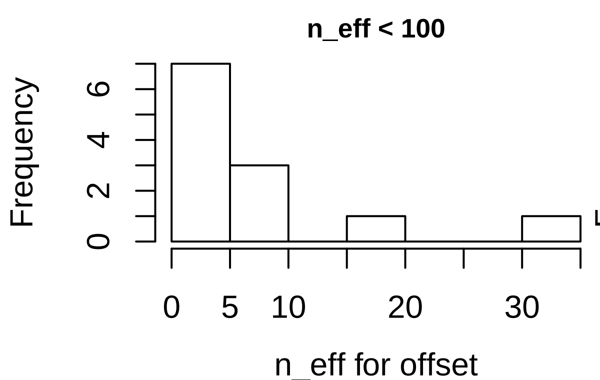
```
number of trajectories with n_eff < 100:    2

indices of trajectories with n_eff < 100:
10 87
```

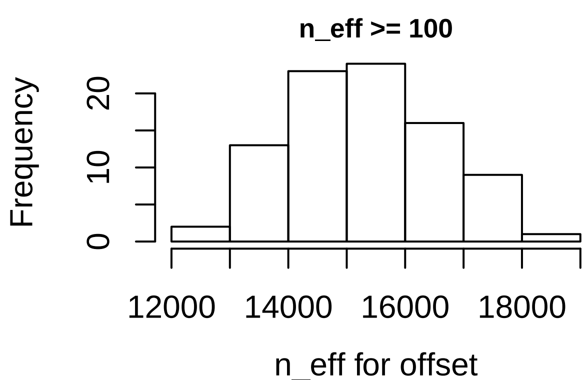



**offset**

```
number of trajectories with n_eff < 100:    12

indices of trajectories with n_eff < 100:
10 11 22 23 26 28 34 50 65 74 85 87
```

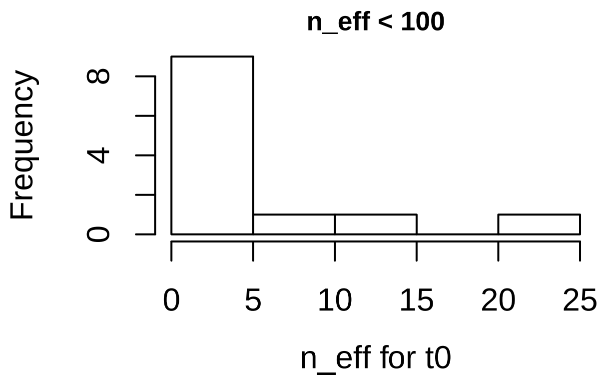


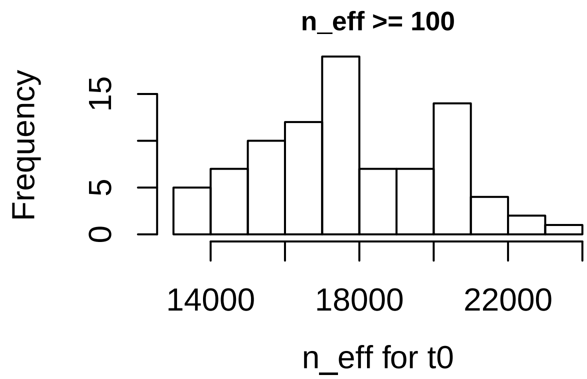



**t0**

number of trajectories with n_eff < 100: 12

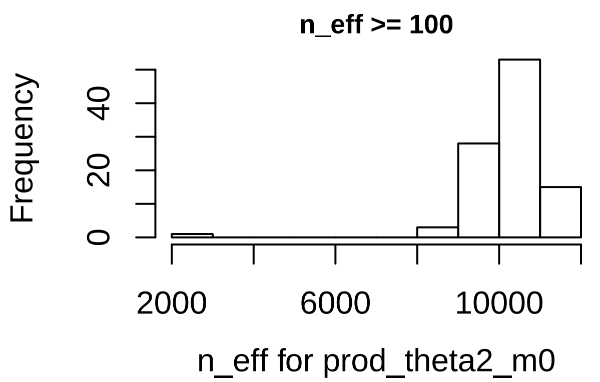
indices of trajectories with n_eff < 100:
10 11 22 23 26 28 34 50 65 74 85 87



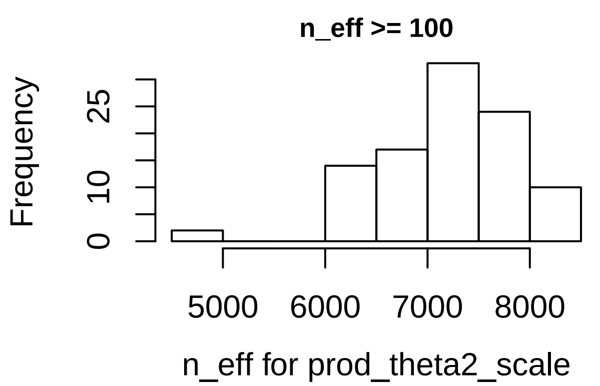

**prod_theta2_m0**

no n_eff < 100



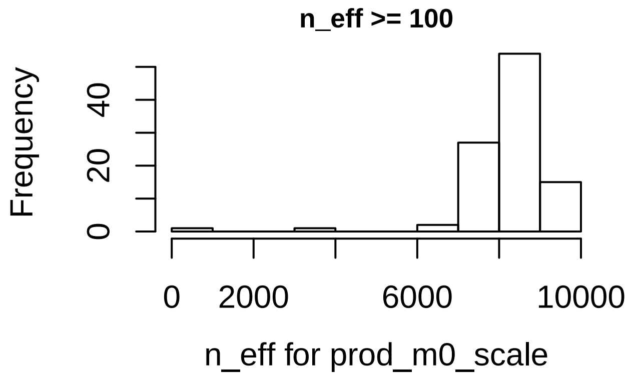

**prod_theta2_scale**

no n_eff < 100



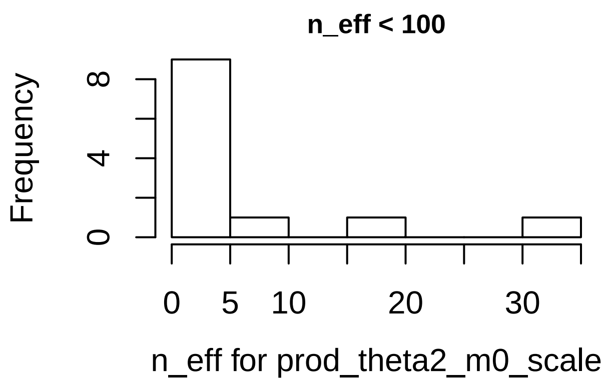

**prod_m0_scale**

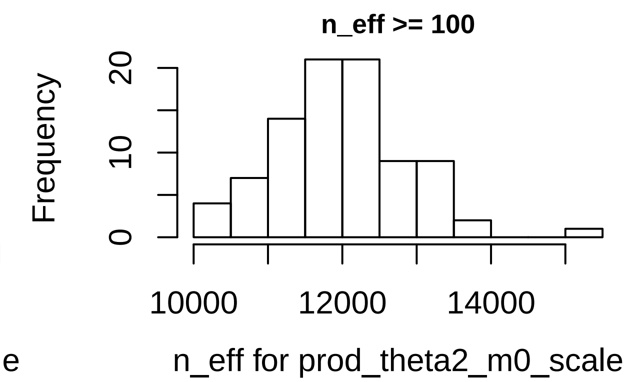
no n_eff < 100




**prod_theta2_m0_scale**

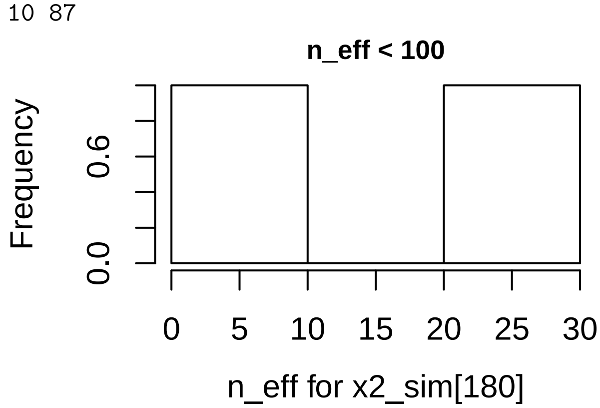
```
number of trajectories with n_eff < 100:    12

indices of trajectories with n_eff < 100:
10 11 22 23 26 28 34 50 65 74 85 87
```

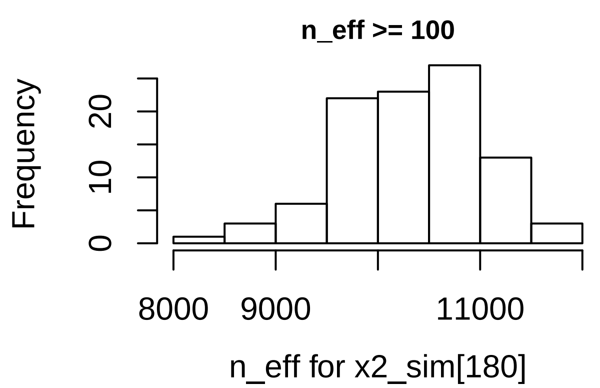



**x2_sim[180]**

```
number of trajectories with n_eff < 100:    2

indices of trajectories with n_eff < 100:
10 87
```



## Find problematic trajectories and parameters

**Are there any trajectories and parameters for which n_eff is below the threshold, but Rhat does not exceed the threshold?**

```
## [1] FALSE
```

**parameters per trajectories with very high Rhat**

```
1:   theta[1]  theta[3]
2:   theta[1]  theta[3]
3:   theta[1]  theta[3]
4:   theta[1]  theta[3]
5:   theta[1]  theta[3]
6:   theta[1]  theta[3]
7:   theta[1]  theta[3]
8:   theta[1]  theta[3]
9:   theta[1]  theta[3]
10:   theta[1]  theta[3]  sigma  offset  t0  prod_theta2_m0_scale  x2_sim[180]
11:   theta[1]  theta[3]  sigma  offset  t0  prod_theta2_m0_scale
12:   theta[1]  theta[3]
13:   theta[1]  theta[3]
14:   theta[1]  theta[3]
15:   theta[1]  theta[3]
16:   theta[1]  theta[3]
17:   theta[1]  theta[3]
18:   theta[1]  theta[3]
19:   theta[1]  theta[3]
20:   theta[1]  theta[3]
21:   theta[1]  theta[3]
22:   theta[1]  theta[3]  sigma  offset  t0  prod_theta2_m0_scale
23:   theta[1]  theta[3]  sigma  offset  t0  prod_theta2_m0_scale
24:   theta[1]  theta[3]
25:   theta[1]  theta[3]
26:   theta[1]  theta[3]  sigma  offset  t0  prod_theta2_m0_scale
27:   theta[1]  theta[3]
28:   theta[1]  theta[3]  sigma  offset  t0  prod_theta2_m0_scale
29:   theta[1]  theta[3]
30:   theta[1]  theta[3]
32:   theta[1]  theta[3]
33:   theta[1]  theta[3]
34:   theta[1]  theta[3]  sigma  offset  t0  prod_theta2_m0_scale
35:   theta[1]  theta[3]
36:   theta[1]  theta[3]
37:   theta[1]  theta[3]
38:   theta[1]  theta[3]
39:   theta[1]  theta[3]
40:   theta[1]  theta[3]
41:   theta[1]  theta[3]
42:   theta[1]  theta[3]
43:   theta[1]  theta[3]
44:   theta[1]  theta[3]
45:   theta[1]  theta[3]
46:   theta[1]  theta[3]
47:   theta[1]  theta[3]
48:   theta[1]  theta[3]
49:   theta[1]  theta[3]
50:   theta[1]  theta[3]  sigma  offset  t0  prod_theta2_m0_scale
```

```
51:   theta[1]  theta[3]
52:   theta[1]  theta[3]
53:   theta[1]  theta[3]
54:   theta[1]  theta[3]
55:   theta[1]  theta[3]
56:   theta[1]  theta[3]
57:   theta[1]  theta[3]
58:   theta[1]  theta[3]
59:   theta[1]  theta[3]
60:   theta[1]  theta[3]
61:   theta[1]  theta[3]
62:   theta[1]  theta[3]
63:   theta[1]  theta[3]
64:   theta[1]  theta[3]
65:   theta[1]  theta[3]  sigma  offset  t0  prod_theta2_m0_scale
66:   theta[1]  theta[3]
67:   theta[1]  theta[3]
68:   theta[1]  theta[3]
69:   theta[1]  theta[3]
70:   theta[1]  theta[3]
71:   theta[1]  theta[3]
72:   theta[1]  theta[3]
73:   theta[1]  theta[3]
74:   theta[1]  theta[3]  sigma  offset  t0  prod_theta2_m0_scale
75:   theta[1]  theta[3]
76:   theta[1]  theta[3]
77:   theta[1]  theta[3]
78:   theta[1]  theta[3]
79:   theta[1]  theta[3]
81:   theta[1]  theta[3]
82:   theta[1]  theta[3]
83:   theta[1]  theta[3]
84:   theta[1]  theta[3]
85:   theta[1]  theta[3]  offset  t0  prod_theta2_m0_scale
86:   theta[1]  theta[3]
87:   theta[1]  theta[3]  m0  sigma  offset  t0  prod_theta2_m0_scale
88:   theta[1]  theta[3]
89:   theta[1]  theta[3]
90:   theta[1]  theta[3]
91:   theta[1]  theta[3]
92:   theta[1]  theta[3]
93:   theta[1]  theta[3]
94:   theta[1]  theta[3]
95:   theta[1]  theta[3]
96:   theta[1]  theta[3]
97:   theta[1]  theta[3]
98:   theta[1]  theta[3]
99:   theta[1]  theta[3]
100:   theta[1]  theta[3]
```

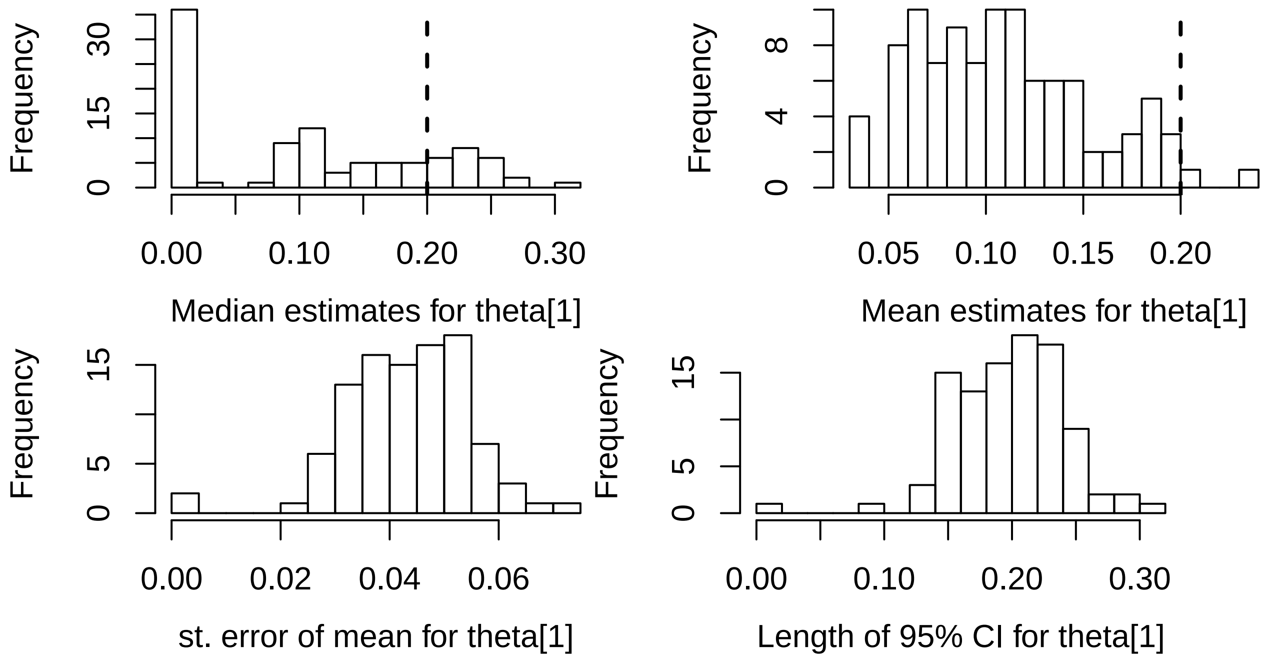
**unique combinations:**

```
number of unique combinations:  5

combinations and number of their occruence:

86  :  theta[1]  theta[3]
1  :  theta[1]  theta[3]  sigma  offset  t0  prod_theta2_m0_scale  x2_sim[180]
```

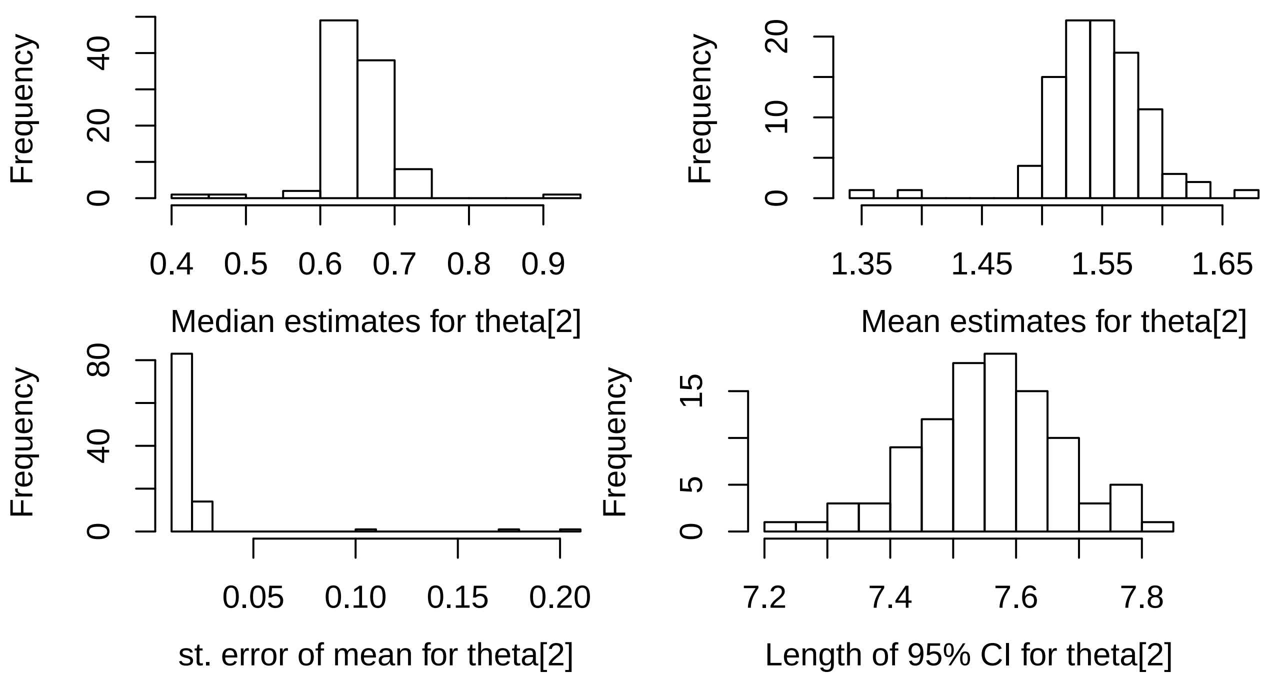
```
9  :  theta[1]  theta[3]  sigma  offset  t0  prod_theta2_m0_scale
1  :  theta[1]  theta[3]  offset  t0  prod_theta2_m0_scale
1  :  theta[1]  theta[3]  m0  sigma  offset  t0  prod_theta2_m0_scale
```

## Overview of estimates

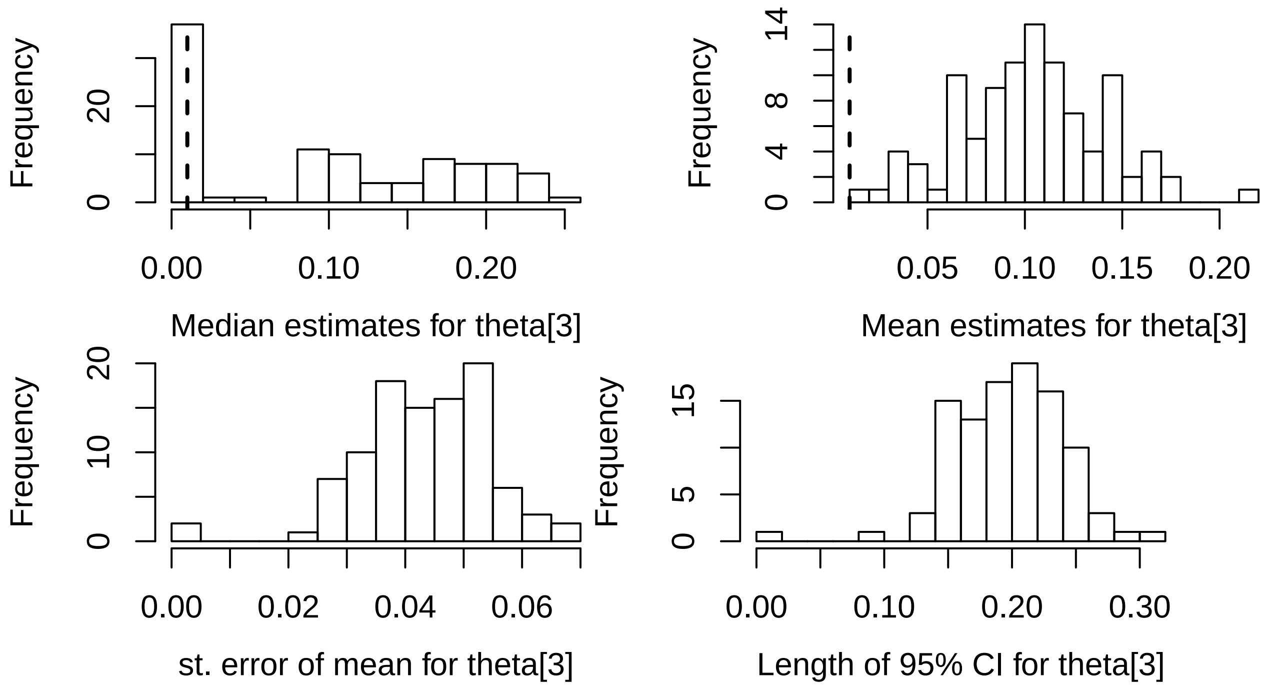
### theta[1]



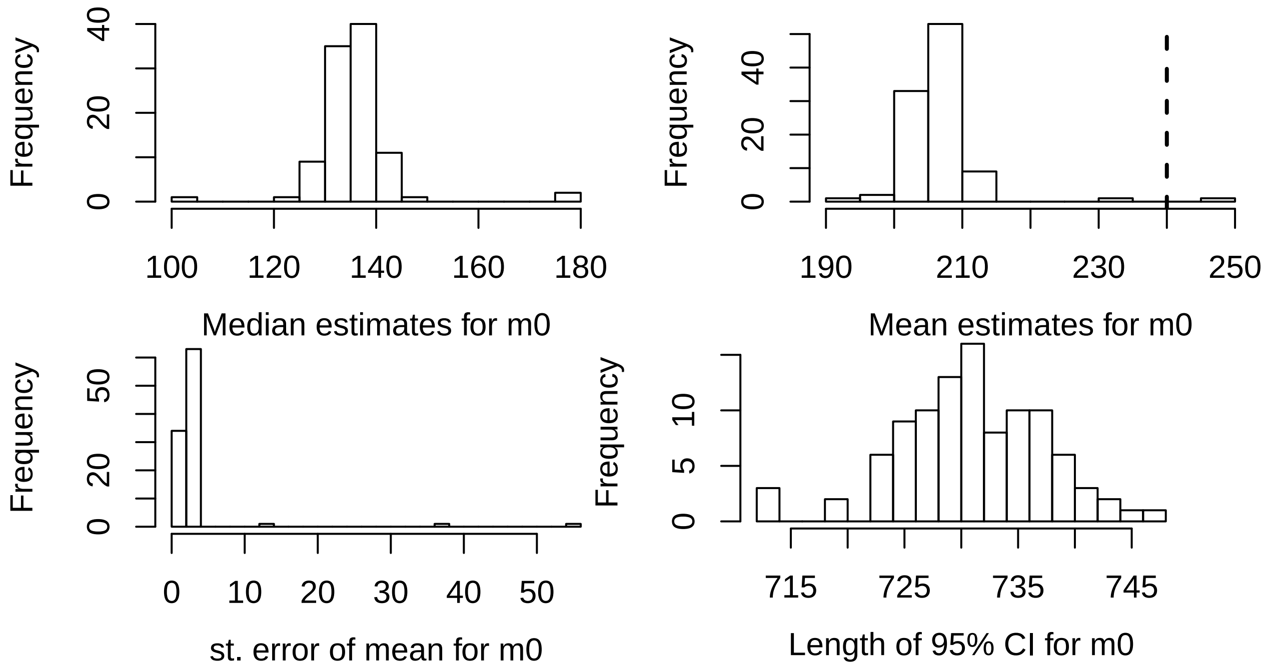

### theta[2]



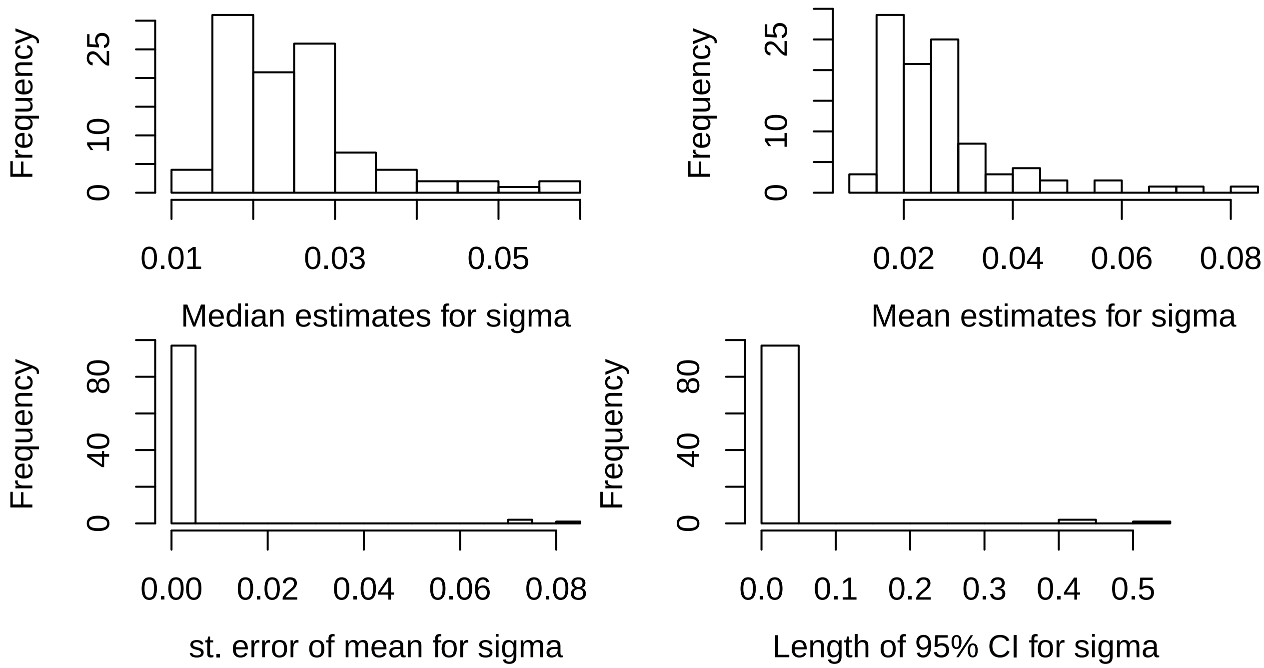
**theta[3]**


Frequency
Median estimates for theta[3]
0.00 0.10 0.20
0 20
Frequency
Mean estimates for theta[3]
0.05 0.10 0.15 0.20
0 4 8 14
Frequency
st. error of mean for theta[3]
0.00 0.02 0.04 0.06
0 10 20
Frequency
Length of 95% CI for theta[3]
0.00 0.10 0.20 0.30
0 5 15

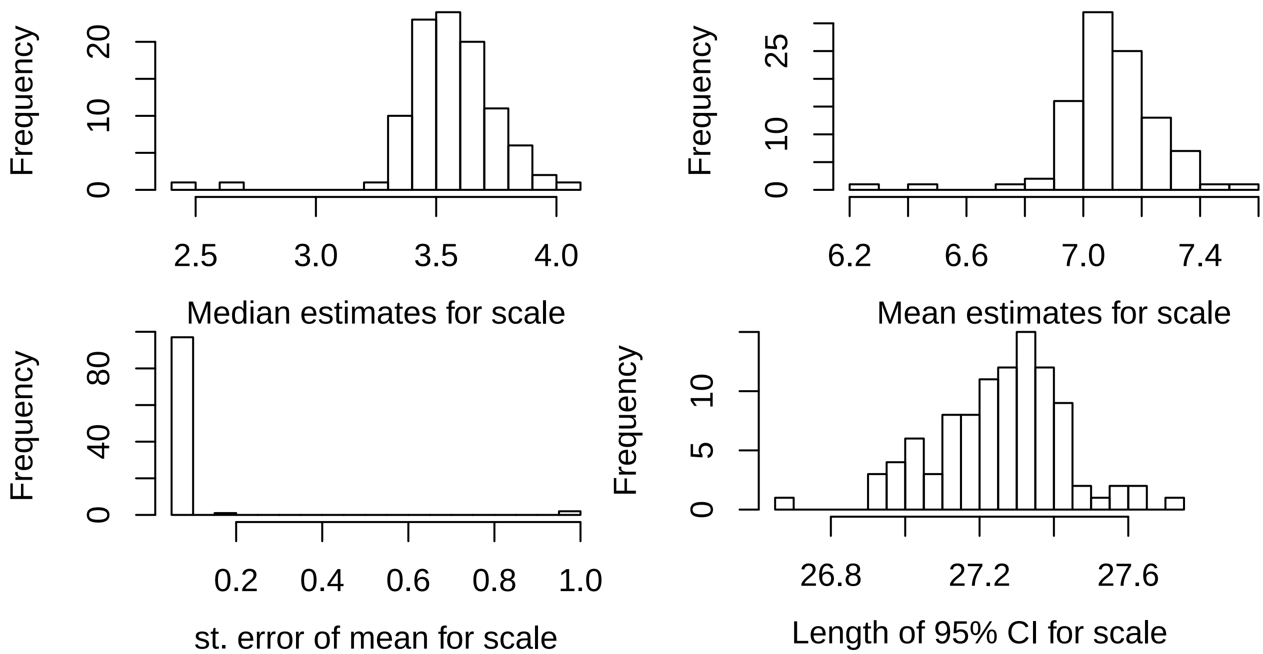
**m0**


Frequency
Median estimates for m0
100 120 140 160 180
0 20 40
Frequency
Mean estimates for m0
190 210 230 250
0 20 40
Frequency
st. error of mean for m0
0 10 20 30 40 50
0 20 50
Frequency
Length of 95% CI for m0
715 725 735 745
0 5 10

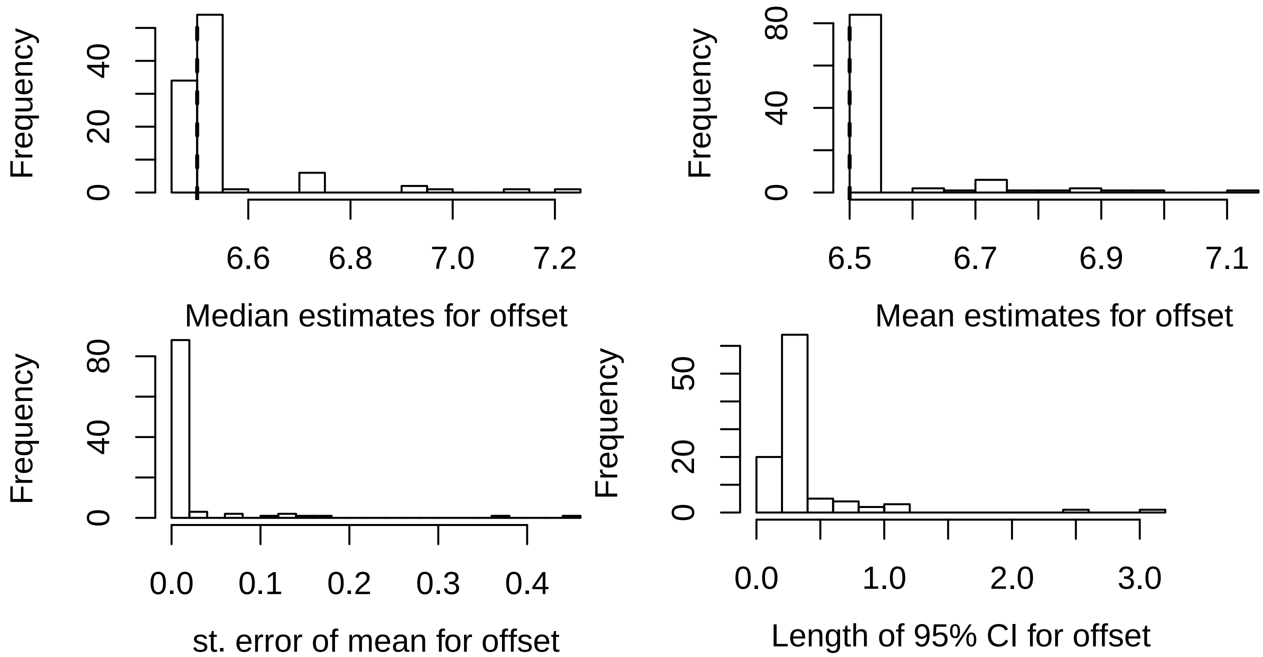
**sigma**


Frequency
Median estimates for sigma
Mean estimates for sigma
st. error of mean for sigma
Length of 95% CI for sigma

**scale**

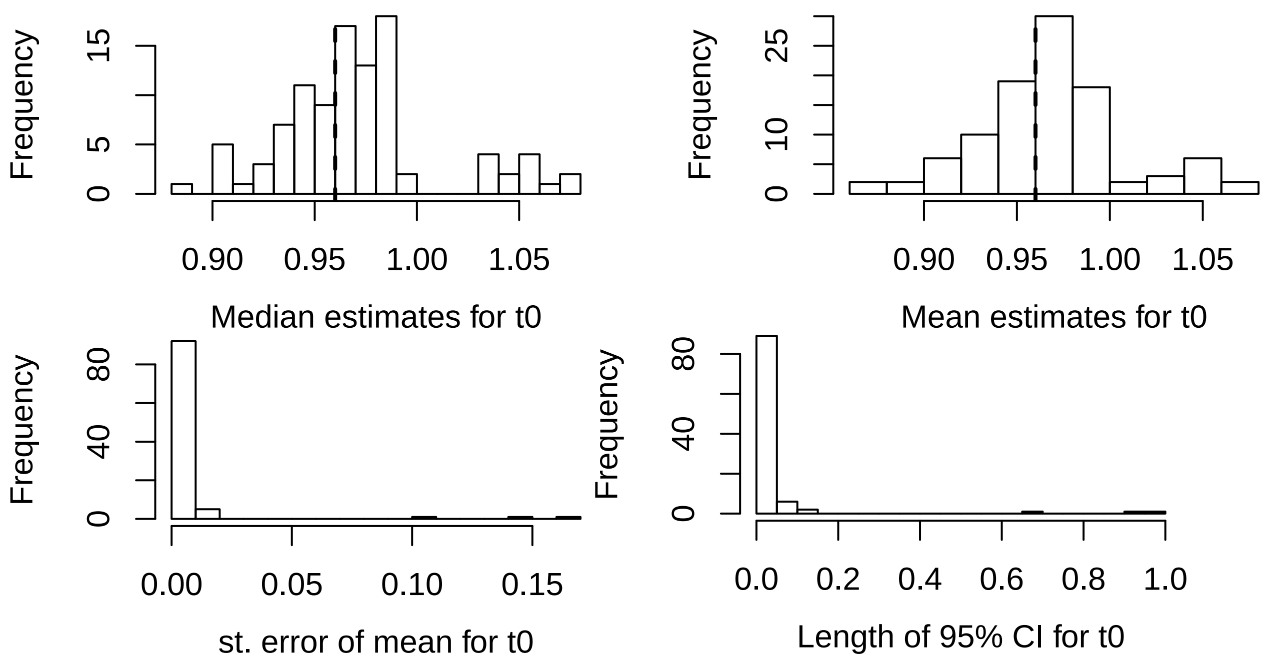

Frequency
Median estimates for scale
Mean estimates for scale
st. error of mean for scale
Length of 95% CI for scale

**offset**



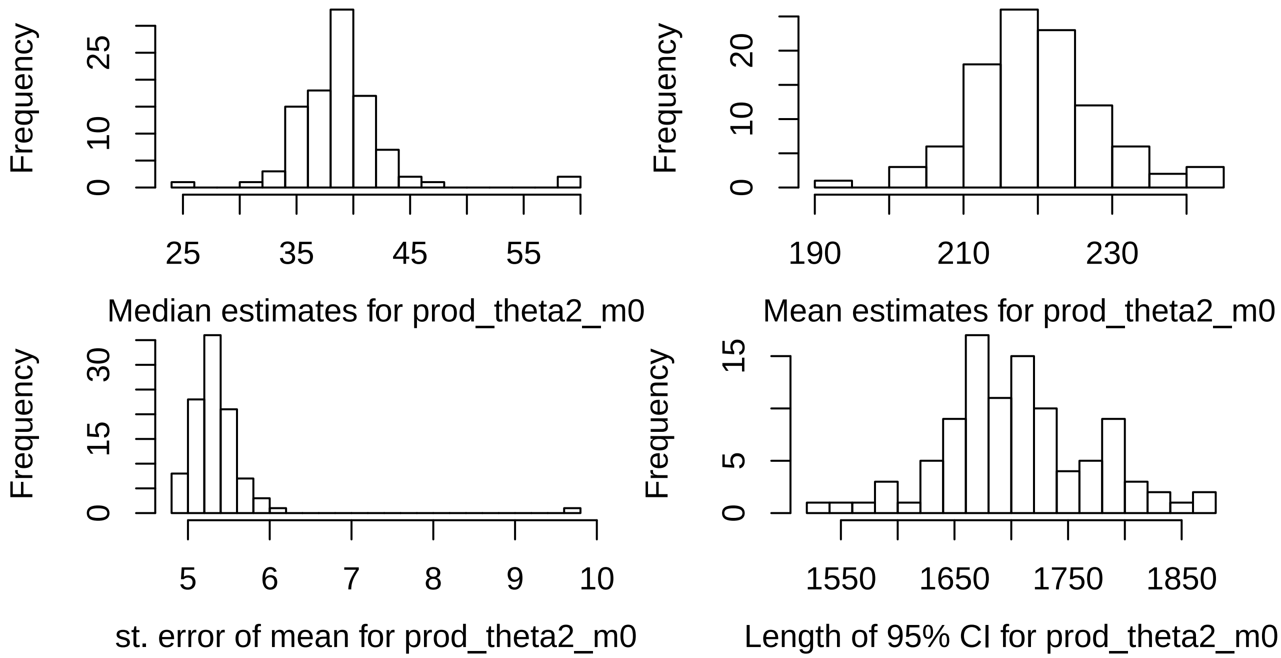
Frequency
0
20
40
6.6
6.8
7.0
7.2
Median estimates for offset
Frequency
0
40
80
6.5
6.7
6.9
7.1
Mean estimates for offset
Frequency
0
40
80
0.0
0.1
0.2
0.3
0.4
st. error of mean for offset
Frequency
0
20
50
0.0
1.0
2.0
3.0
Length of 95% CI for offset


**t0**

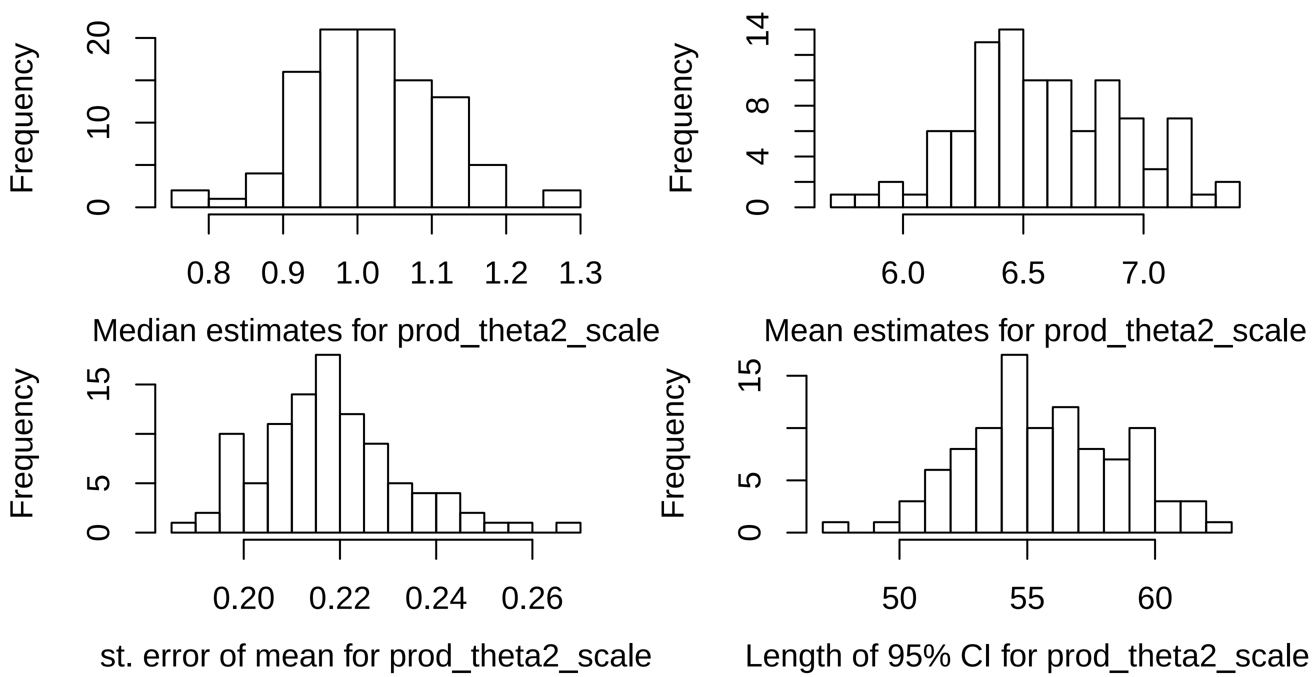


Frequency
0
5
15
0.90
0.95
1.00
1.05
Median estimates for t0
Frequency
0
10
25
0.90
0.95
1.00
1.05
Mean estimates for t0
Frequency
0
40
80
0.00
0.05
0.10
0.15
st. error of mean for t0
Frequency
0
40
80
0.0
0.2
0.4
0.6
0.8
1.0
Length of 95% CI for t0

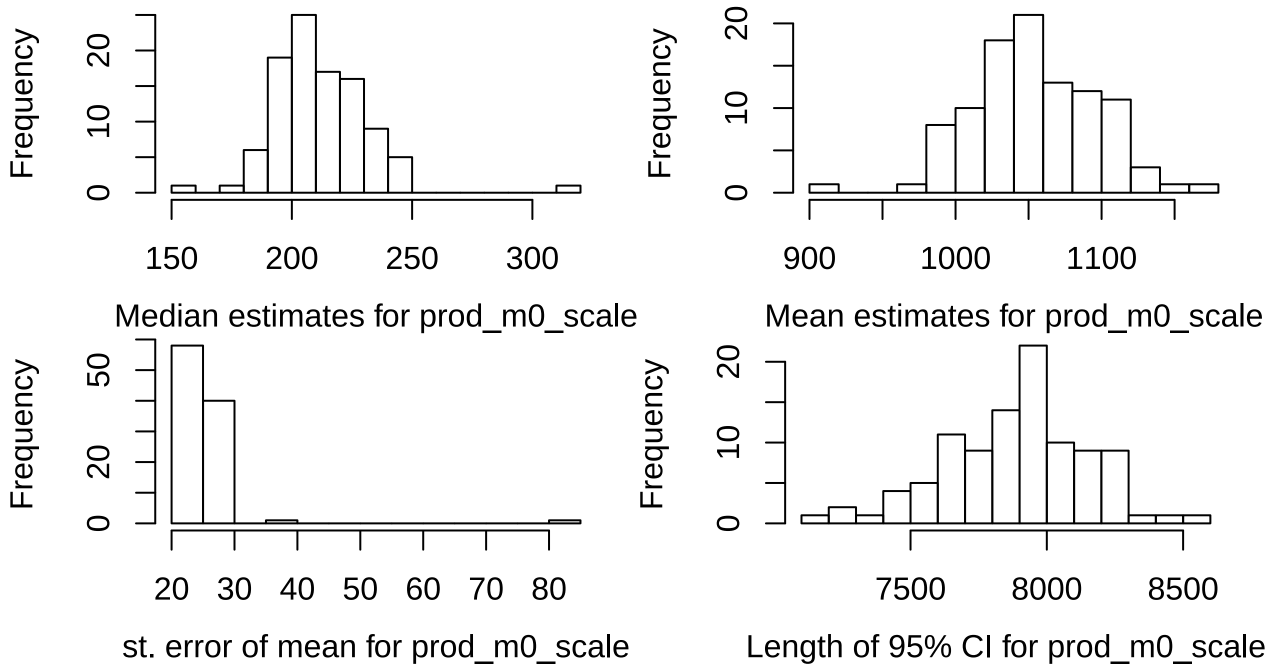
**prod_theta2_m0**



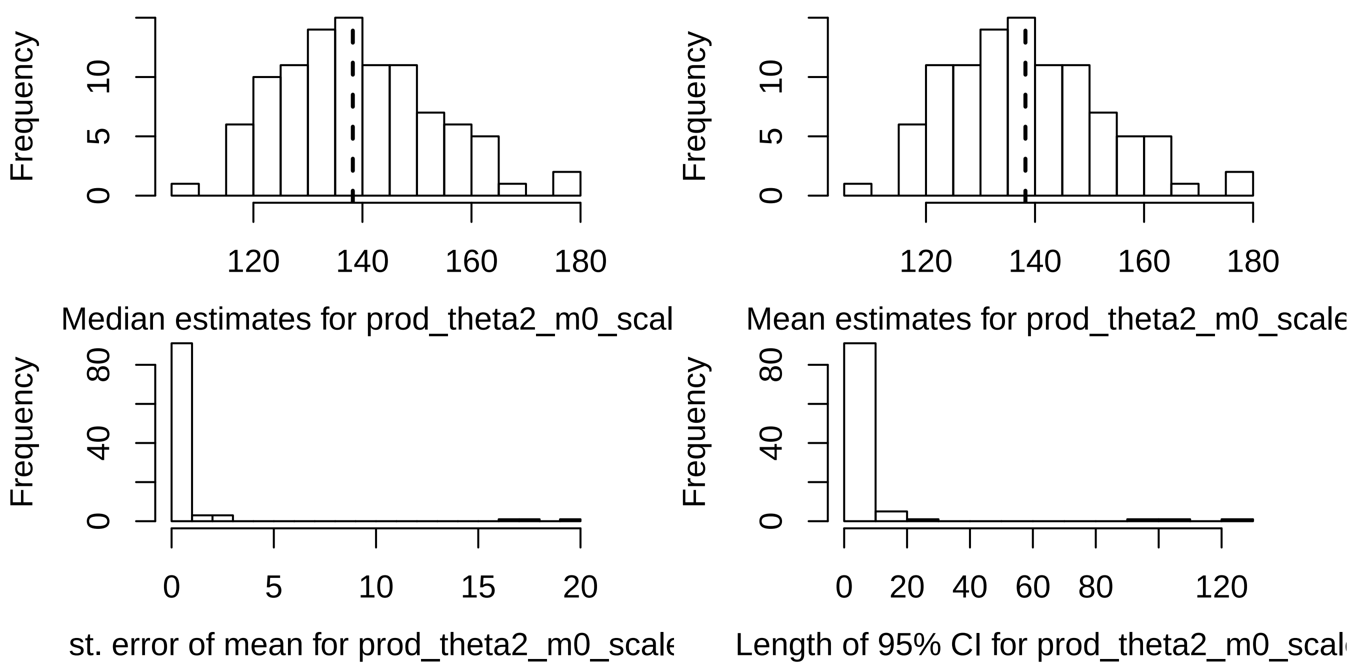

**prod_theta2_scale**



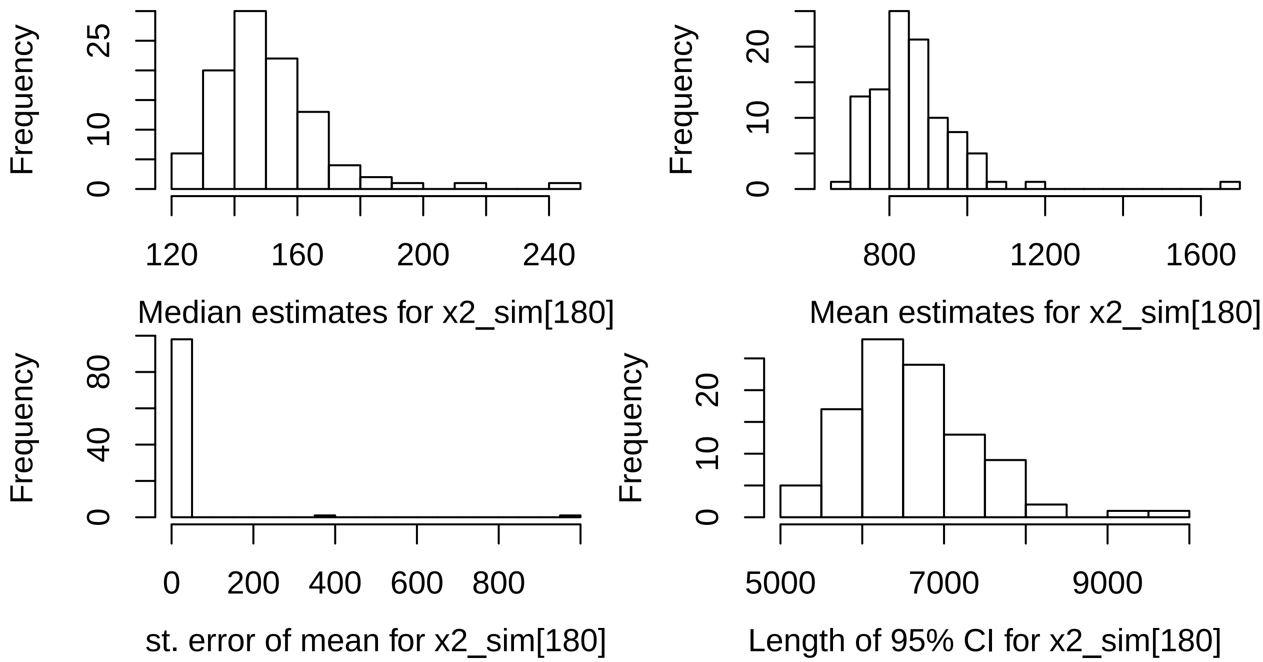
**prod_m0_scale**




**prod_theta2_m0_scale**



**x2_sim[180]**


Frequency
0
10
25
120
160
200
240
Median estimates for x2_sim[180]
Frequency
0
10
20
800
1200
1600
Mean estimates for x2_sim[180]
Frequency
0
40
80
0
200
400
600
800
st. error of mean for x2_sim[180]
Frequency
0
10
20
5000
7000
9000
Length of 95% CI for x2_sim[180]

### Summary of length of 95% credible intervals (CIs)

Here we give the median, standard deviation (sd), and coefficient of variation (cv) of the length of the 95% CIs.

For simulated data (where the true parameter values are known), we also give the number of times that the CI covers the true value and median, sd, and cv of the length of those 95% CIs that cover the true value.

| | median | sd | cv | num_cover | median_cover | sd_cover | cv_cover |
|---|---|---|---|---|---|---|---|
| theta[1] | 0.202 | 0.043 | 0.218 | 58 | 0.224 | 0.026 | 0.115 |
| theta[2] | 7.562 | 0.115 | 0.015 | 100 | 7.562 | 0.115 | 0.015 |
| theta[3] | 0.200 | 0.044 | 0.220 | 61 | 0.219 | 0.032 | 0.143 |
| m0 | 730.409 | 6.480 | 0.009 | 100 | 730.409 | 6.480 | 0.009 |
| sigma | 0.005 | 0.079 | 3.947 | 0 | NA | NA | NA |
| scale | 27.269 | 0.171 | 0.006 | 100 | 27.269 | 0.171 | 0.006 |
| offset | 0.261 | 0.408 | 1.121 | 94 | 0.261 | 0.419 | 1.139 |
| t0 | 0.009 | 0.148 | 3.599 | 17 | 0.009 | 0.310 | 2.363 |
| prod_theta2_m0 | 1701.924 | 65.632 | 0.038 | 100 | 1701.924 | 65.632 | 0.038 |
| prod_theta2_scale | 55.465 | 3.022 | 0.054 | 100 | 55.465 | 3.022 | 0.054 |
| prod_m0_scale | 7923.376 | 260.523 | 0.033 | 100 | 7923.376 | 260.523 | 0.033 |
| prod_theta2_m0_scale | 3.903 | 18.339 | 2.268 | 13 | 4.104 | 41.509 | 1.940 |
| x2_sim[180] | 6502.296 | 803.297 | 0.121 | NA | NA | NA | NA |

The following table shows the values of the median of *the length of the CIs divided by the median of each sample*

$$m_1 = \text{median}\left(\frac{q_i(0.975) - q_i(0.025)}{q_i(0.5)}\right),$$

the median of *the length of the CIs divided by the mean of each sample*

$$m_1 = \text{median}\left(\frac{q_i(0.975) - q_i(0.025)}{sample\_mean}\right),$$

as well as the median of the length of the CIs divided by *the median of the medians of the sample*

$$m_3 = \frac{\text{median}(q_i(0.975) - q_i(0.025))}{\text{median}(q_i(0.5))}.$$

and (if applicable) the median of *the length of the CIs divided by the true value*

$$m_4 = \frac{\text{median}(q_i(0.975) - q_i(0.025))}{\text{true value}}.$$

| | m_1 | m_2 | m_3 | m_4 | num_cover | m_1_cover | m_3_cover |
|---|---|---|---|---|---|---|---|
| theta[1] | 1.94 | 1.84 | 1.98 | 1.01 | 58 | 1.93 | 1.92 |
| theta[2] | 11.60 | 4.89 | 11.65 | 23.63 | 100 | 11.60 | 11.65 |
| theta[3] | 1.95 | 1.84 | 1.98 | 20.00 | 61 | 2.11 | 2.21 |
| m0 | 5.39 | 3.56 | 5.39 | 3.04 | 100 | 5.39 | 5.39 |
| sigma | 0.21 | 0.21 | 0.20 | Inf | 0 | NA | NA |
| scale | 7.64 | 3.84 | 7.64 | 15.15 | 100 | 7.64 | 7.64 |
| offset | 0.04 | 0.04 | 0.04 | 0.04 | 94 | 0.04 | 0.04 |
| t0 | 0.01 | 0.01 | 0.01 | 0.01 | 17 | 0.01 | 0.01 |
| prod_theta2_m0 | 43.86 | 7.75 | 43.73 | 22.16 | 100 | 43.86 | 43.73 |
| prod_theta2_scale | 54.89 | 8.42 | 54.81 | 96.29 | 100 | 54.89 | 54.81 |
| prod_m0_scale | 37.26 | 7.50 | 37.85 | 18.34 | 100 | 37.26 | 37.85 |
| prod_theta2_m0_scale | 0.03 | 0.03 | 0.03 | 0.03 | 13 | 0.03 | 0.03 |
| x2_sim[180] | 43.76 | 7.75 | 44.31 | NA | NA | NA | NA |