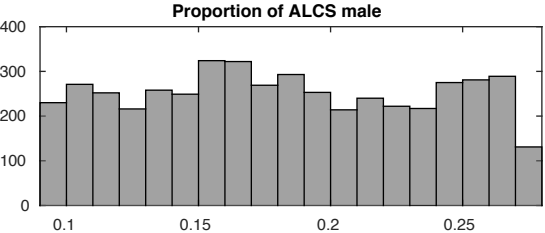
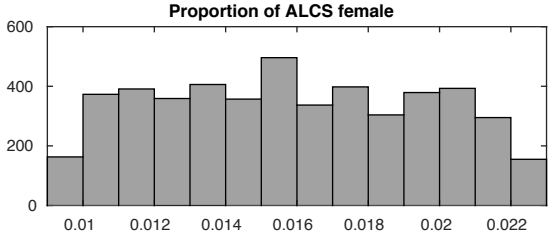
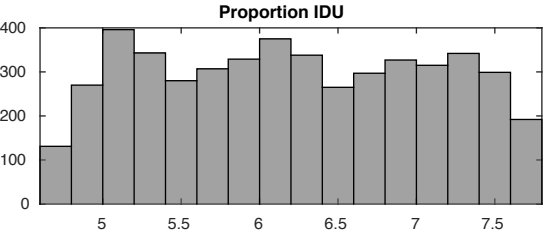
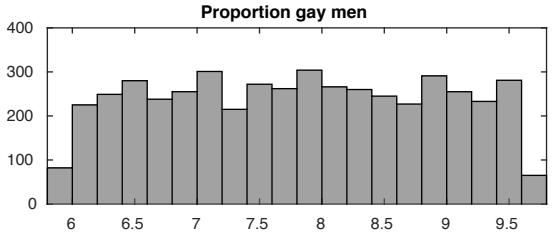
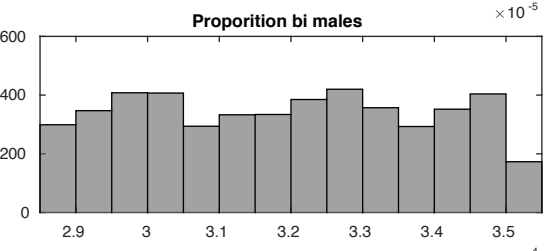
S5 Figure. Histograms of probabilistic analysis for key input variables

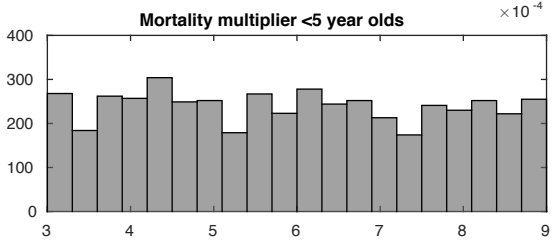

Proportion of ALCS male
400
300
200
100
0
0.1
0.15
0.2
0.25

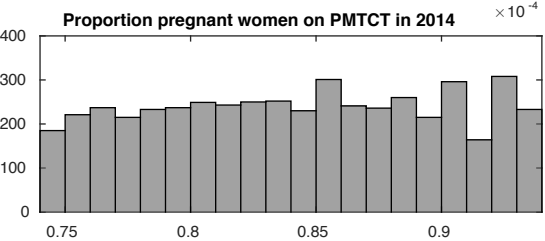

Proportion of ALCS female
600
400
200
0
0.01
0.012
0.014
0.016
0.018
0.02
0.022

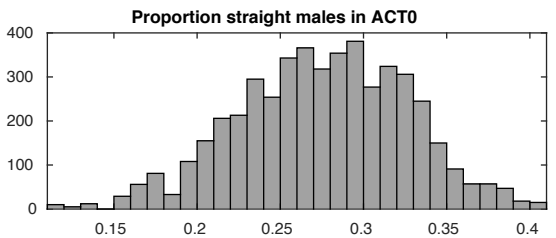

Proportion IDU
400
300
200
100
0
5
5.5
6
6.5
7
7.5
×10^-5

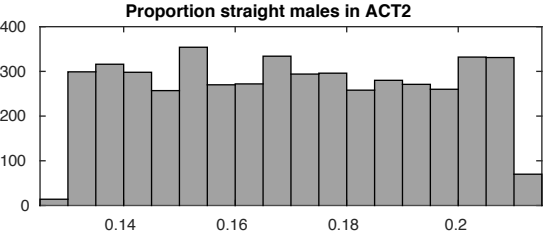

Proportion gay men
400
300
200
100
0
6
6.5
7
7.5
8
8.5
9
9.5
×10^-4

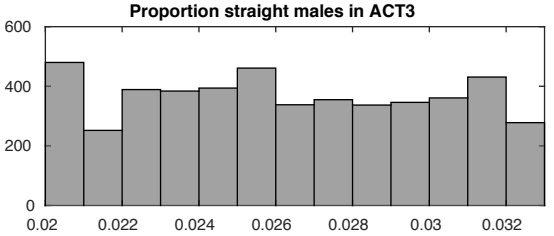

Proportion bi males
600
400
200
0
2.9
3
3.1
3.2
3.3
3.4
3.5
×10^-4

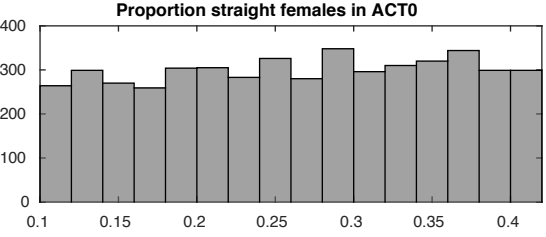

Mortality multiplier <5 year olds
400
300
200
100
0
3
4
5
6
7
8
9

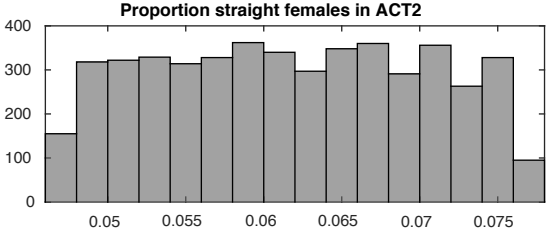

Proportion pregnant women on PMTCT in 2014
400
300
200
100
0
0.75
0.8
0.85
0.9

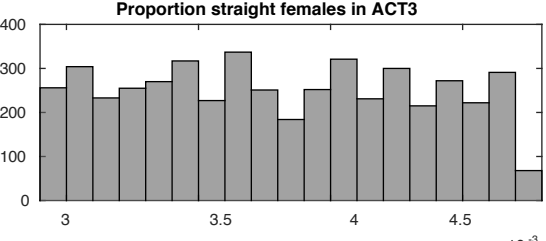

Proportion straight males in ACT0
400
300
200
100
0
0.15
0.2
0.25
0.3
0.35
0.4

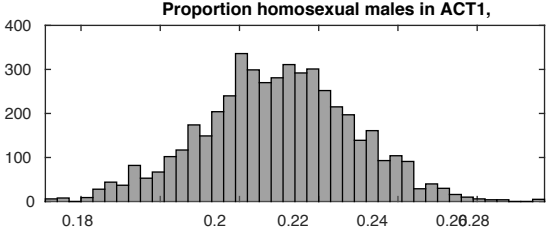

Proportion straight males in ACT2
400
300
200
100
0
0.14
0.16
0.18
0.2

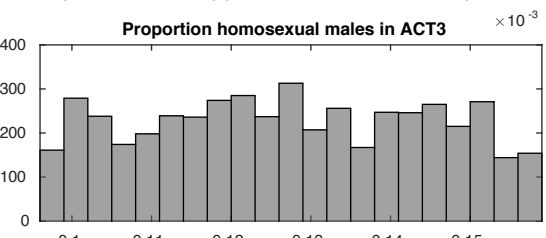

Proportion straight males in ACT3
600
400
200
0
0.02
0.022
0.024
0.026
0.028
0.03
0.032

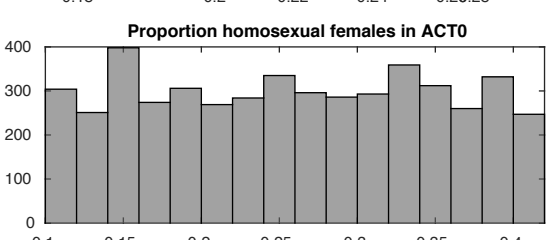

Proportion straight females in ACT0
400
300
200
100
0
0.1
0.15
0.2
0.25
0.3
0.35
0.4

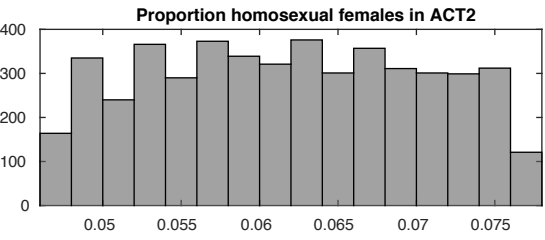

Proportion straight females in ACT2
400
300
200
100
0
0.05
0.055
0.06
0.065
0.07
0.075

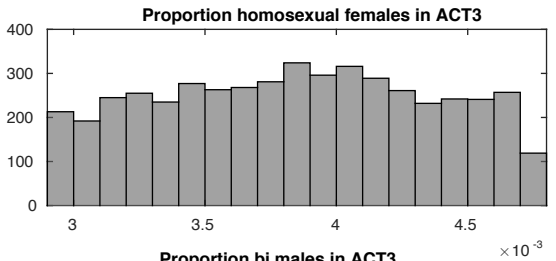

Proportion straight females in ACT3
400
300
200
100
0
3
3.5
4
4.5

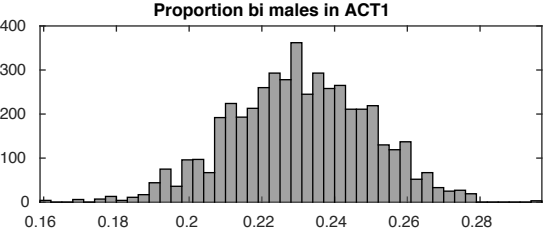

Proportion homosexual males in ACT1,
400
300
200
100
0
0.18
0.2
0.22
0.24
0.26
0.28

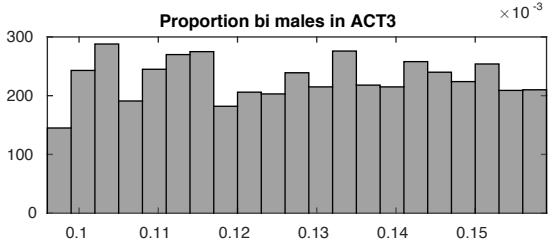

Proportion homosexual males in ACT3
×10 -3
400
300
200
100
0
0.1
0.11
0.12
0.13
0.14
0.15

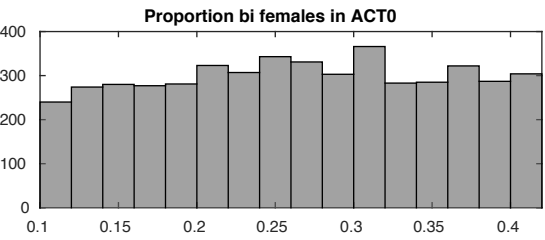

Proportion homosexual females in ACT0
400
300
200
100
0
0.1
0.15
0.2
0.25
0.3
0.35
0.4

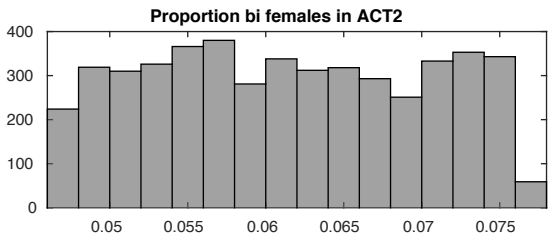

Proportion homosexual females in ACT2
400
300
200
100
0
0.05
0.055
0.06
0.065
0.07
0.075

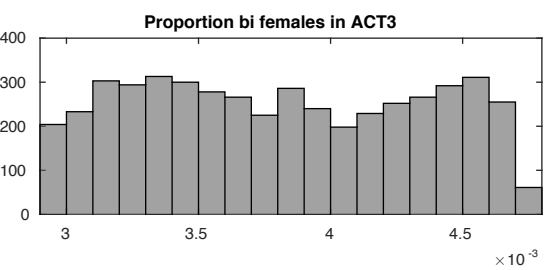

Proportion homosexual females in ACT3
400
300
200
100
0
3
3.5
4
4.5
×10 -3

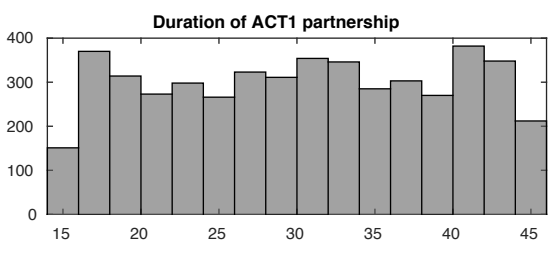

Proportion bi males in ACT1
400
300
200
100
0
0.16
0.18
0.2
0.22
0.24
0.26
0.28

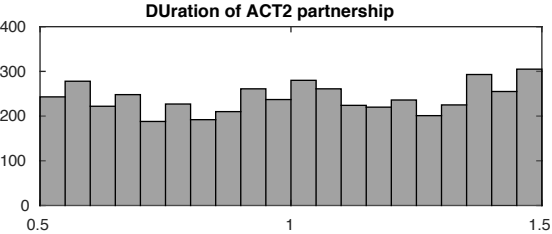

Proportion bi males in ACT3
300
200
100
0
0.1
0.11
0.12
0.13
0.14
0.15

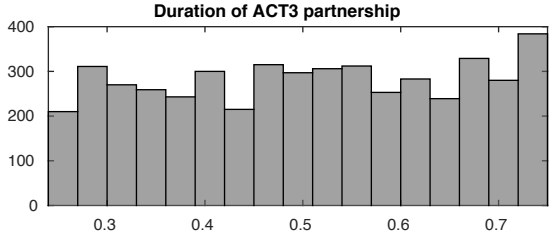

Proportion bi females in ACT0
400
300
200
100
0
0.1
0.15
0.2
0.25
0.3
0.35
0.4

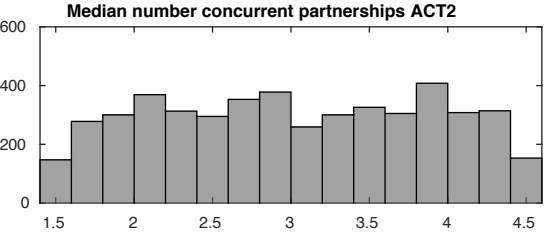

Proportion bi females in ACT2
400
300
200
100
0
0.05
0.055
0.06
0.065
0.07
0.075

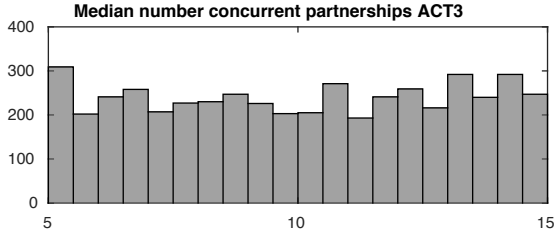

Proportion bi females in ACT3
400
300
200
100
0
3
3.5
4
4.5
×10 -3

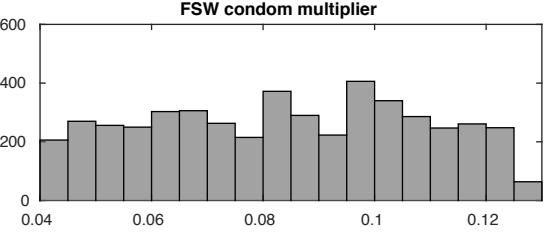

Duration of ACT1 partnership
400
300
200
100
0
15
20
25
30
35
40
45

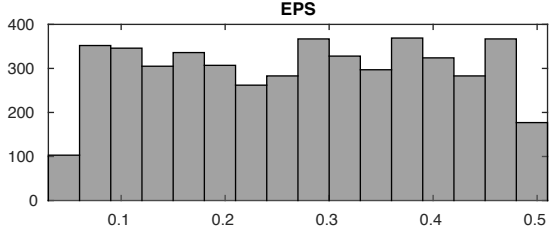

DUration of ACT2 partnership
400
300
200
100
0
0.5
1
1.5

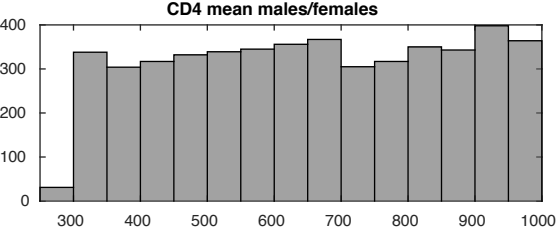

Duration of ACT3 partnership
400
300
200
100
0
0.3
0.4
0.5
0.6
0.7

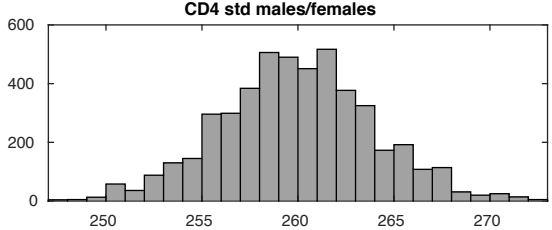

Median number concurrent partnerships ACT2
600
400
200
0
1.5
2
2.5
3
3.5
4
4.5

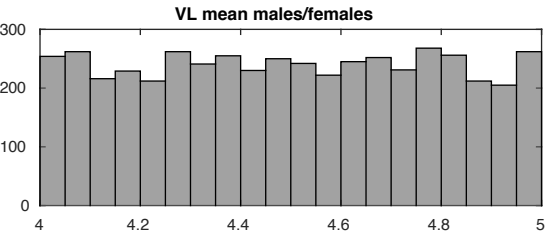

Median number concurrent partnerships ACT3
400
300
200
100
0
5
10
15

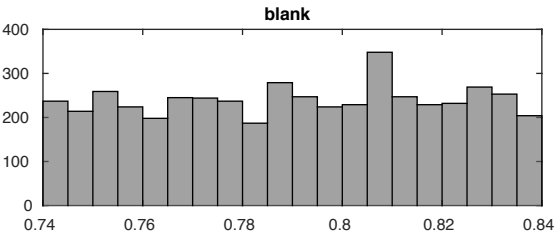

FSW condom multiplier
600
400
200
0
0.04
0.06
0.08
0.1
0.12

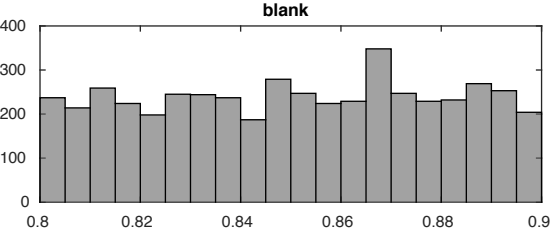

EPS
400
300
200
100
0
0.1
0.2
0.3
0.4
0.5

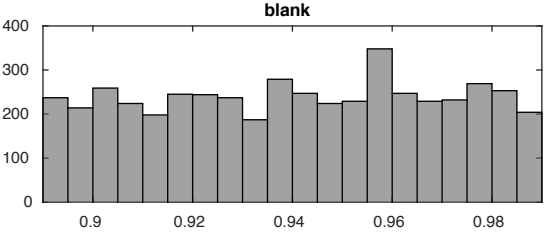

CD4 mean males/females
400
300
200
100
0
300
400
500
600
700
800
900
1000

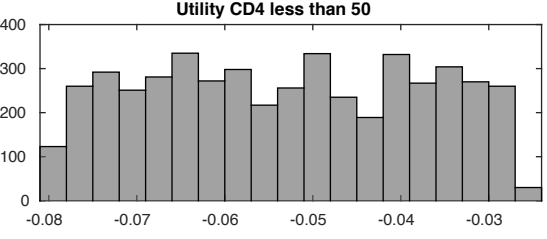

CD4 std males/females
600
400
200
0
250
255
260
265
270

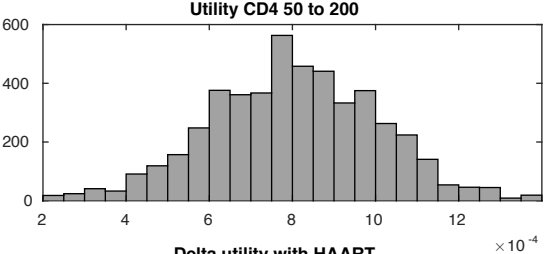

VL mean males/females
300
200
100
0
4
4.2
4.4
4.6
4.8
5

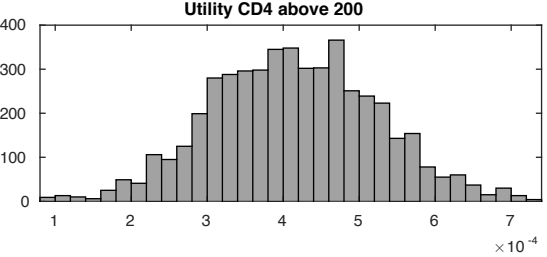

blank
400
300
200
100
0
0.74
0.76
0.78
0.8
0.82
0.84

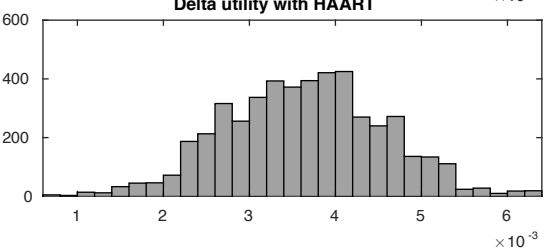

blank
400
300
200
100
0
0.8
0.82
0.84
0.86
0.88
0.9

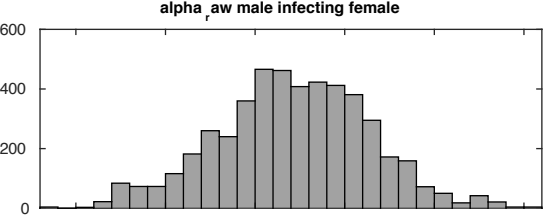

blank
400
300
200
100
0
0.9
0.92
0.94
0.96
0.98

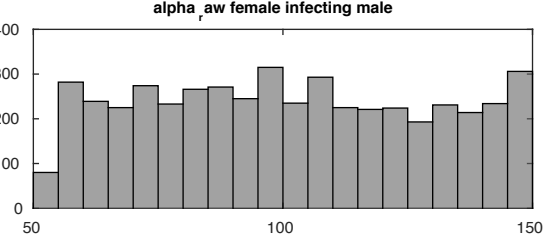

Utility CD4 less than 50
400
300
200
100
0
-0.08
-0.07
-0.06
-0.05
-0.04
-0.03

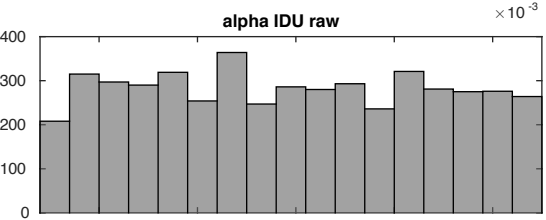

Utility CD4 50 to 200
600
400
200
0
2
4
6
8
10
12
×10 -4

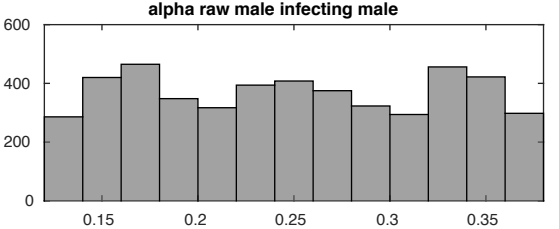

Utility CD4 above 200
400
300
200
100
0
1
2
3
4
5
6
7
×10 -4

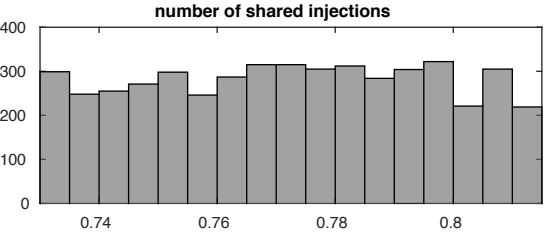

Delta utility with HAART
600
400
200
0
1
2
3
4
5
6
×10 -3

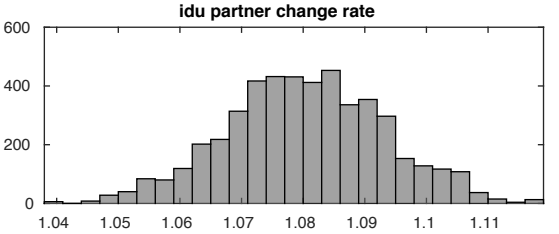

alpha_raw male infecting female
600
400
200
0
0.5
1
1.5
2
2.5
3

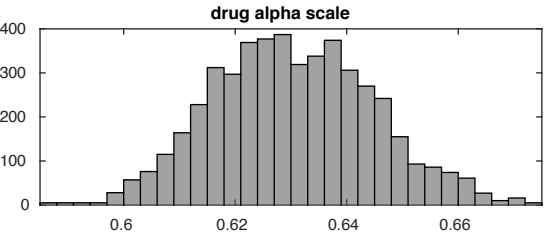

alpha_raw female infecting male
400
300
200
100
0
50
100
150

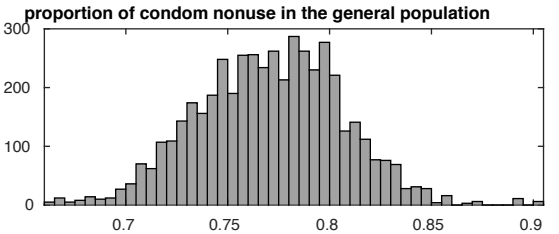

alpha IDU raw
×10^-3
400
300
200
100
0
3
4
5
6
7

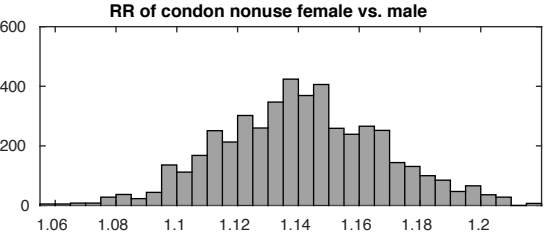

alpha raw male infecting male
600
400
200
0
0.15
0.2
0.25
0.3
0.35

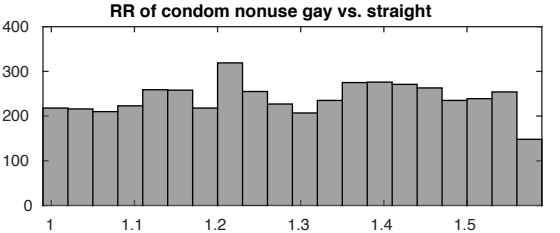

number of shared injections
400
300
200
100
0
0.74
0.76
0.78
0.8

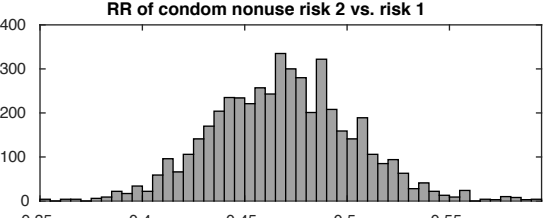

idu partner change rate
600
400
200
0
1.04
1.05
1.06
1.07
1.08
1.09
1.1
1.11

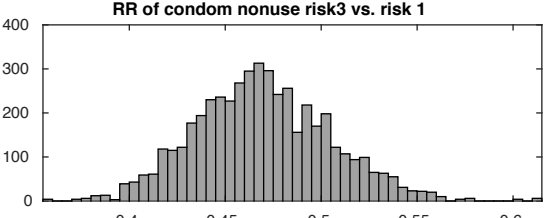

drug alpha scale
400
300
200
100
0
0.6
0.62
0.64
0.66

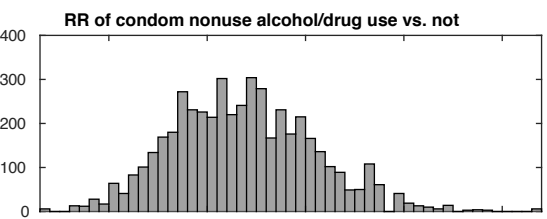

proportion of condom nonuse in the general population
300
200
100
0
0.7
0.75
0.8
0.85
0.9

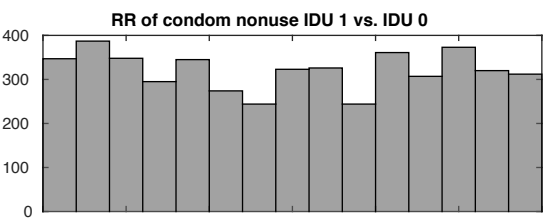

RR of condon nonuse female vs. male
600
400
200
0
1.06
1.08
1.1
1.12
1.14
1.16
1.18
1.2

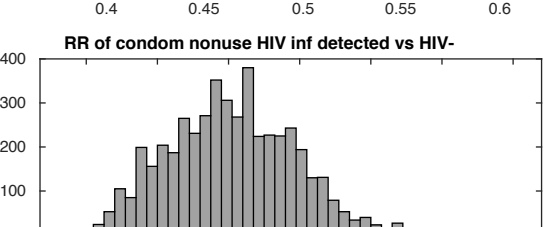

RR of condom nonuse gay vs. straight
400
300
200
100
0
1
1.1
1.2
1.3
1.4
1.5

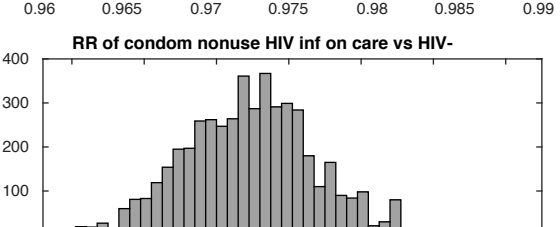

RR of condom nonuse risk 2 vs. risk 1
400
300
200
100
0
0.35
0.4
0.45
0.5
0.55

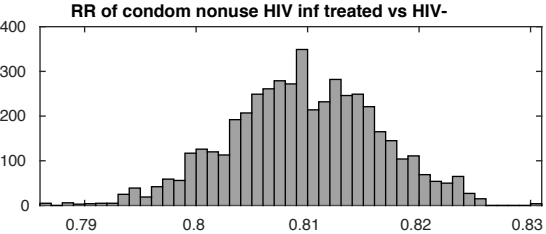

RR of condom nonuse risk3 vs. risk 1
400
300
200
100
0
0.4
0.45
0.5
0.55
0.6

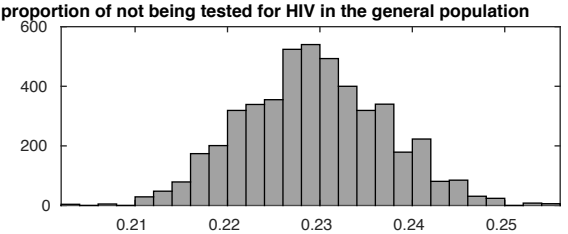

RR of condom nonuse alcohol/drug use vs. not
400
300
200
100
0
0.4
0.45
0.5
0.55
0.6

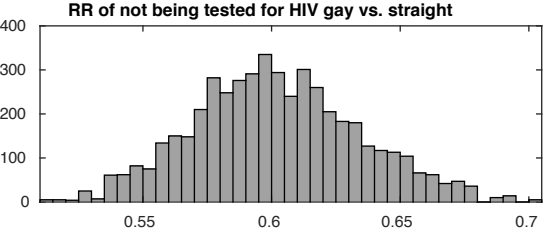

RR of condom nonuse IDU 1 vs. IDU 0
400
300
200
100
0
0.96
0.965
0.97
0.975
0.98
0.985
0.99

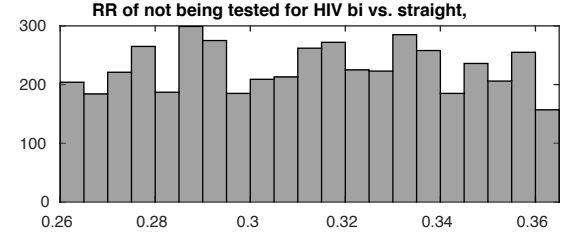

RR of condom nonuse HIV inf detected vs HIV-
400
300
200
100
0
0.28
0.3
0.32
0.34
0.36
0.38
0.4

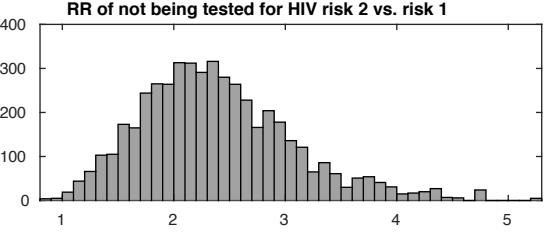

RR of condom nonuse HIV inf on care vs HIV-
400
300
200
100
0
0.26
0.28
0.3
0.32
0.34
0.36
0.38

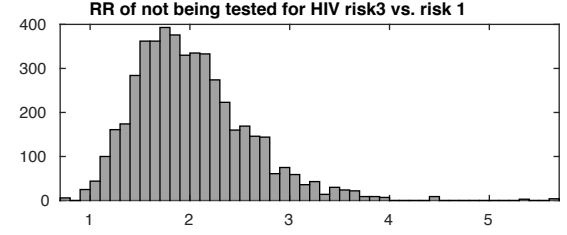

RR of condom nonuse HIV inf treated vs HIV-
400
300
200
100
0
0.79
0.8
0.81
0.82
0.83

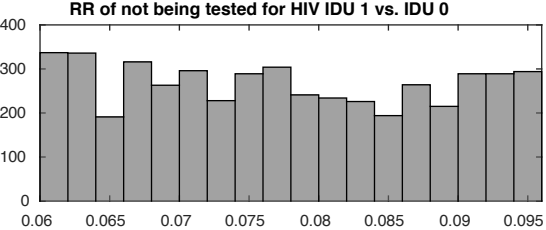

proportion of not being tested for HIV in the general population
600
400
200
0
0.21
0.22
0.23
0.24
0.25

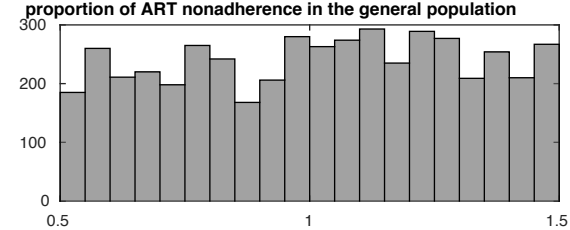

RR of not being tested for HIV gay vs. straight
400
300
200
100
0
0.55
0.6
0.65
0.7

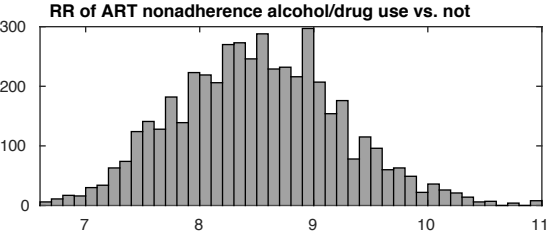

RR of not being tested for HIV bi vs. straight,
300
200
100
0
0.26
0.28
0.3
0.32
0.34
0.36

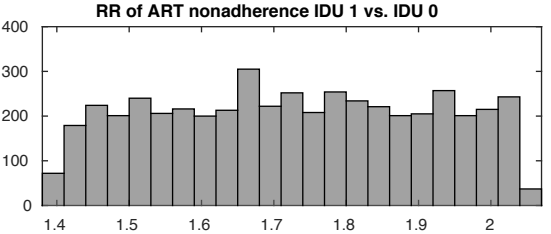

RR of not being tested for HIV risk 2 vs. risk 1
400
300
200
100
0
1
2
3
4
5

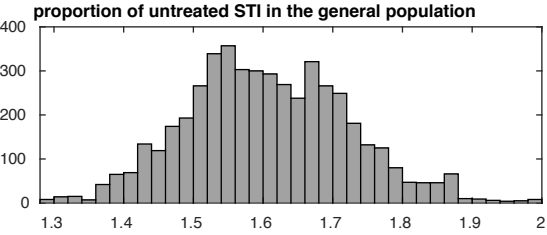

RR of not being tested for HIV risk3 vs. risk 1
400
300
200
100
0
1
2
3
4
5

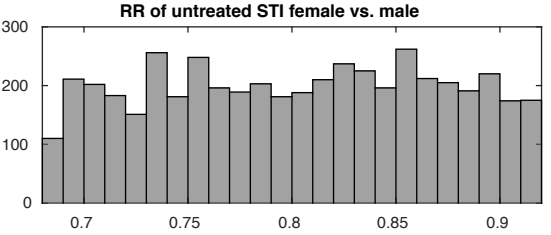

RR of not being tested for HIV IDU 1 vs. IDU 0
400
300
200
100
0
0.06
0.065
0.07
0.075
0.08
0.085
0.09
0.095

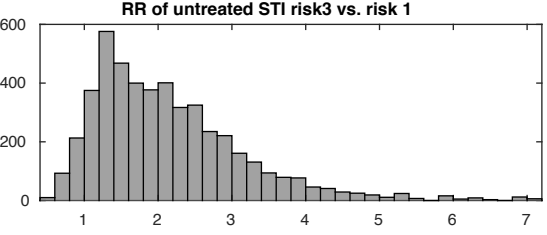

proportion of ART nonadherence in the general population
300
200
100
0
0.5
1
1.5

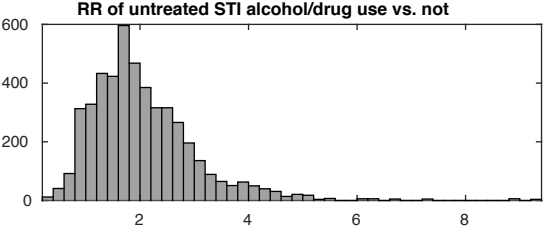

RR of ART nonadherence alcohol/drug use vs. not
300
200
100
0
7
8
9
10
11

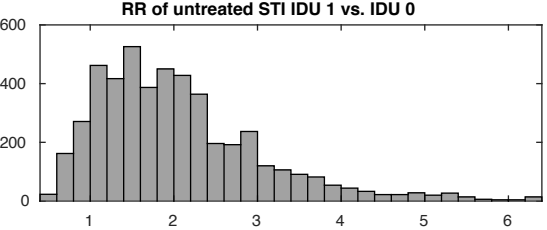

RR of ART nonadherence IDU 1 vs. IDU 0
400
300
200
100
0
1.4
1.5
1.6
1.7
1.8
1.9
2

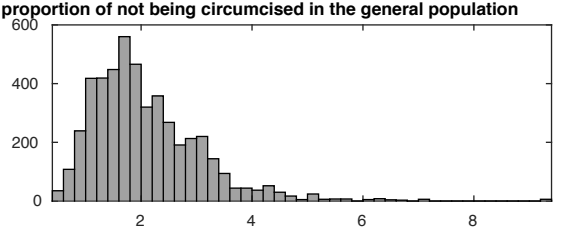

proportion of untreated STI in the general population
400
300
200
100
0
1.3
1.4
1.5
1.6
1.7
1.8
1.9
2

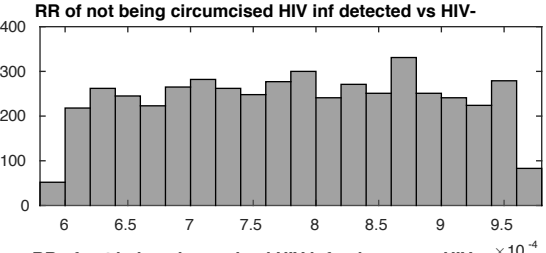

RR of untreated STI female vs. male
300
200
100
0
0.7
0.75
0.8
0.85
0.9

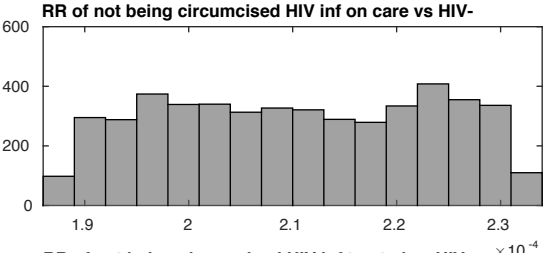

RR of untreated STI risk3 vs. risk 1
600
400
200
0
1
2
3
4
5
6
7

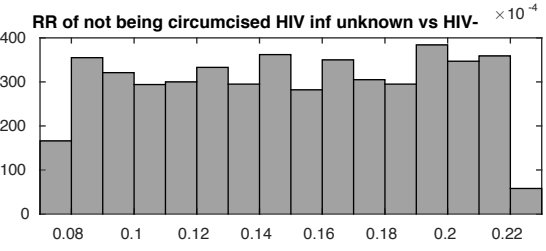

RR of untreated STI alcohol/drug use vs. not
600
400
200
0
2
4
6
8

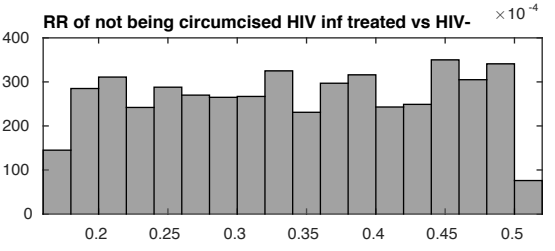

RR of untreated STI IDU 1 vs. IDU 0
600
400
200
0
1
2
3
4
5
6

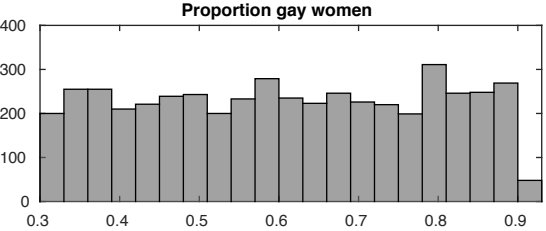

proportion of not being circumcised in the general population
600
400
200
0
2
4
6
8

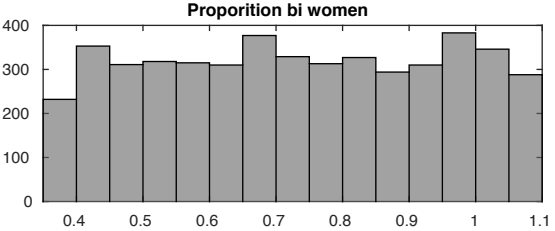

RR of not being circumcised HIV inf detected vs HIV-
400
300
200
100
0
6
6.5
7
7.5
8
8.5
9
9.5

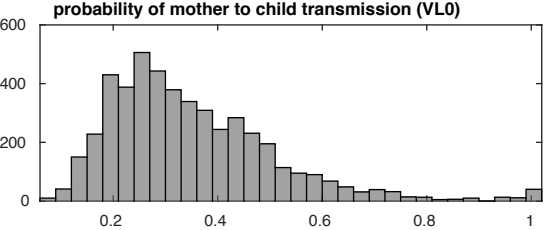

RR of not being circumcised HIV inf on care vs HIV-
600
400
200
0
1.9
2
2.1
2.2
2.3

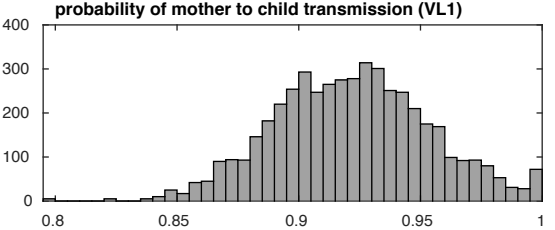

RR of not being circumcised HIV inf unknown vs HIV-
×10 -4
400
300
200
100
0
0.08
0.1
0.12
0.14
0.16
0.18
0.2
0.22

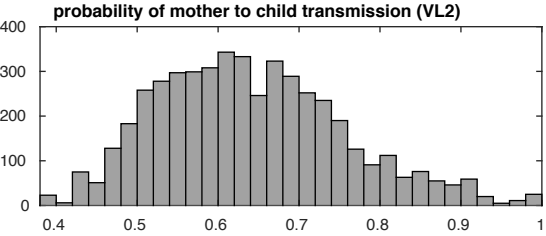

RR of not being circumcised HIV inf treated vs HIV-
×10 -4
400
300
200
100
0
0.2
0.25
0.3
0.35
0.4
0.45
0.5

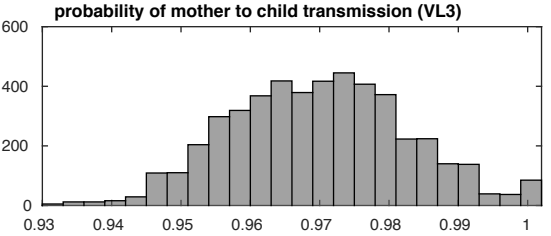

Proportion gay women
400
300
200
100
0
0.3
0.4
0.5
0.6
0.7
0.8
0.9

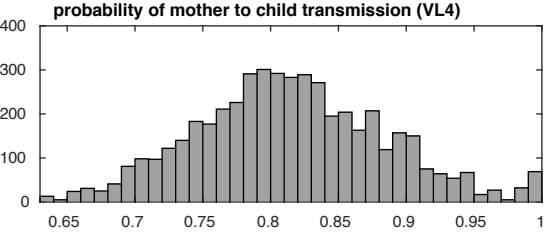

Proporition bi women
400
300
200
100
0
0.4
0.5
0.6
0.7
0.8
0.9
1
1.1

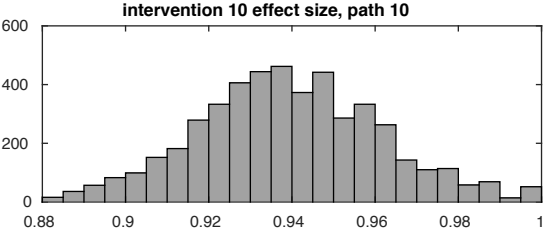

probability of mother to child transmission (VL0)
600
400
200
0
0.2
0.4
0.6
0.8
1

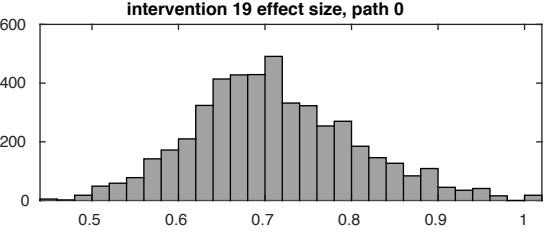

probability of mother to child transmission (VL1)
400
300
200
100
0
0.8
0.85
0.9
0.95
1

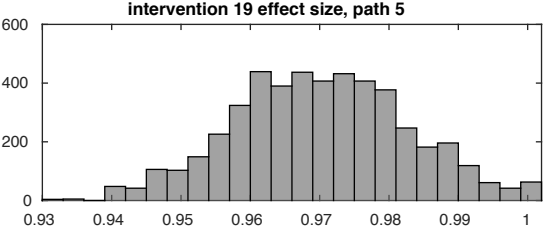

probability of mother to child transmission (VL2)
400
300
200
100
0
0.4
0.5
0.6
0.7
0.8
0.9
1

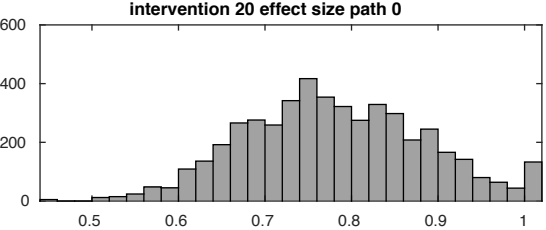

probability of mother to child transmission (VL3)
600
400
200
0
0.93
0.94
0.95
0.96
0.97
0.98
0.99
1

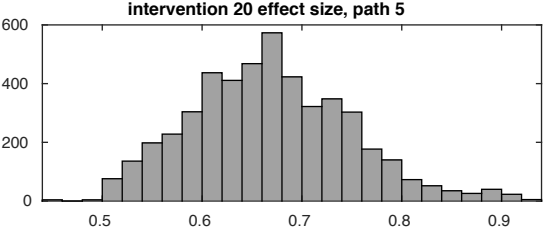

probability of mother to child transmission (VL4)
400
300
200
100
0
0.65
0.7
0.75
0.8
0.85
0.9
0.95
1

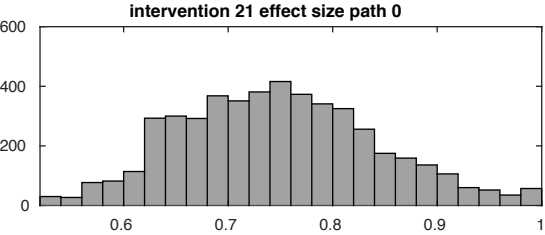

intervention 10 effect size, path 10
600
400
200
0
0.88
0.9
0.92
0.94
0.96
0.98
1

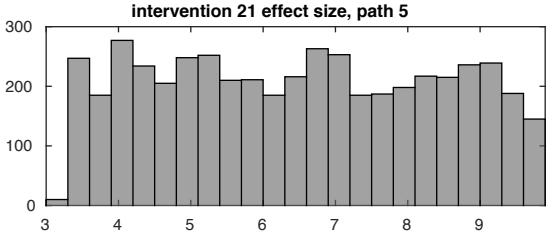

intervention 19 effect size, path 0
600
400
200
0
0.5
0.6
0.7
0.8
0.9
1

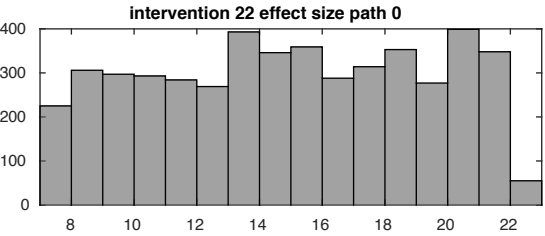

intervention 19 effect size, path 5
600
400
200
0
0.93
0.94
0.95
0.96
0.97
0.98
0.99
1

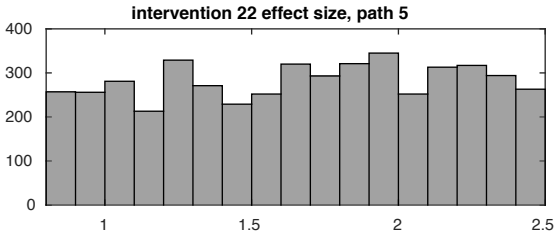

intervention 20 effect size path 0
600
400
200
0
0.5
0.6
0.7
0.8
0.9
1

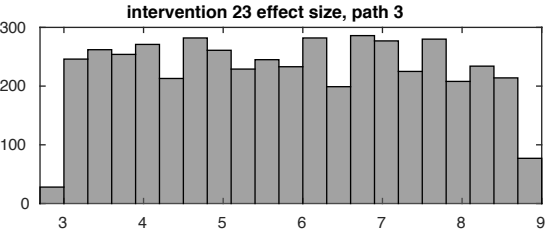

intervention 20 effect size, path 5
600
400
200
0
0.5
0.6
0.7
0.8
0.9

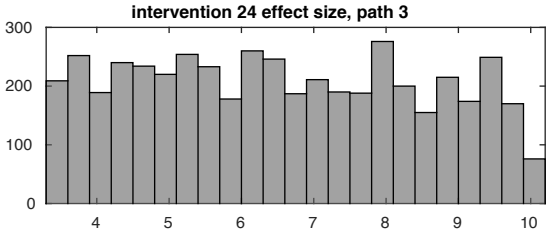

intervention 21 effect size path 0
600
400
200
0
0.6
0.7
0.8
0.9
1

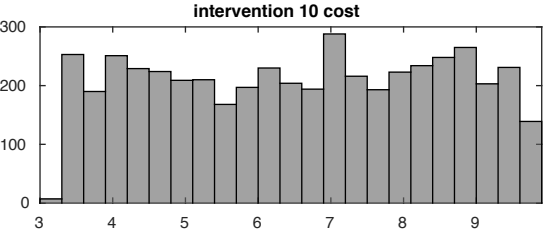

intervention 21 effect size, path 5
300
200
100
0
3
4
5
6
7
8
9

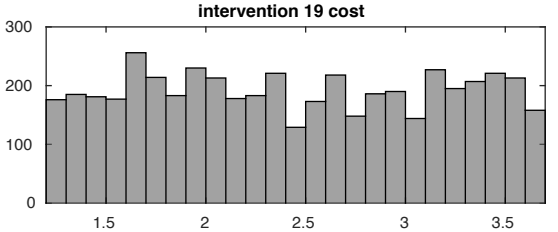

intervention 22 effect size path 0
400
300
200
100
0
8
10
12
14
16
18
20
22


intervention 22 effect size, path 5
400
300
200
100
0
1
1.5
2
2.5


intervention 23 effect size, path 3
300
200
100
0
3
4
5
6
7
8
9


intervention 24 effect size, path 3
300
200
100
0
4
5
6
7
8
9
10


intervention 10 cost
300
200
100
0
3
4
5
6
7
8
9


intervention 19 cost
300
200
100
0
1.5
2
2.5
3
3.5