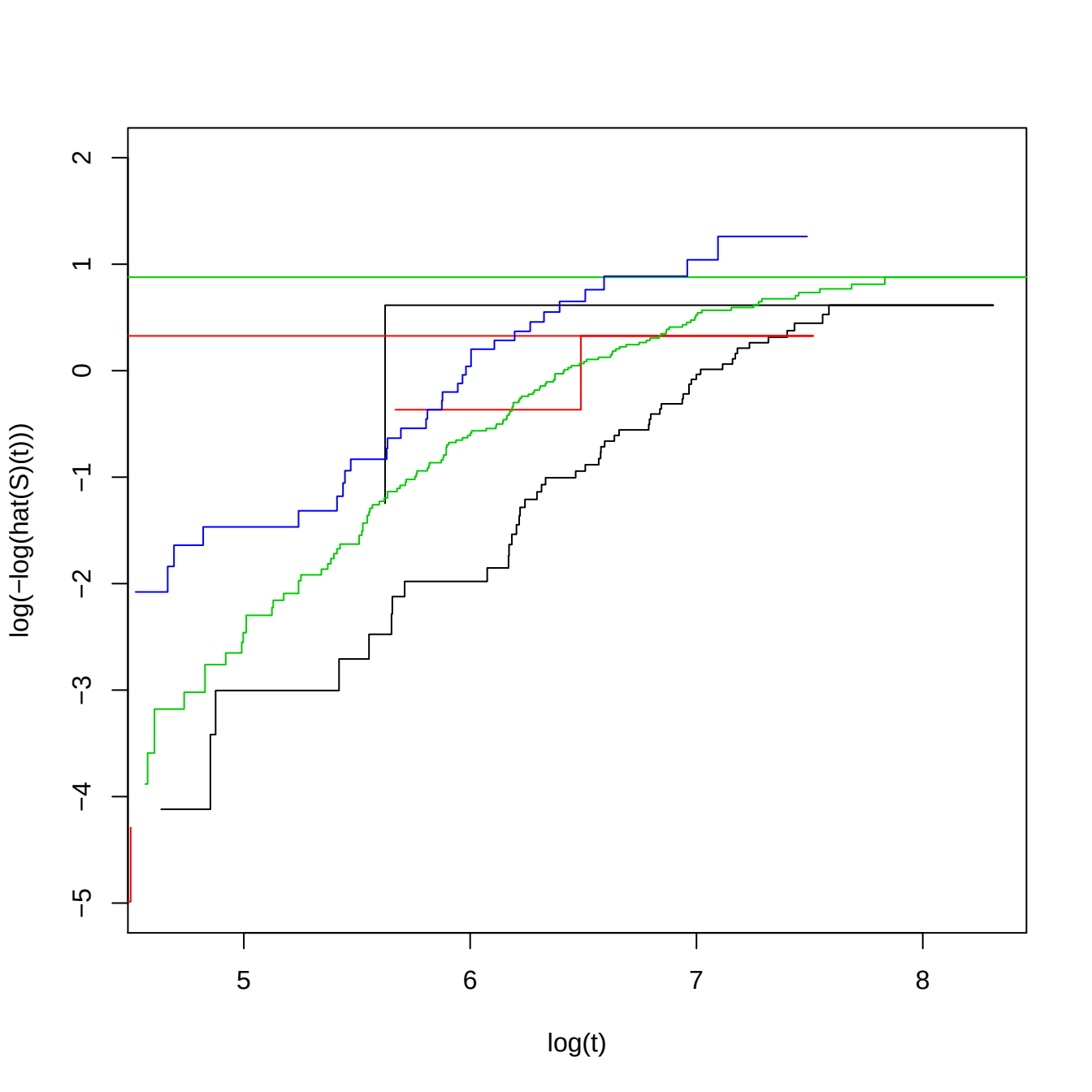
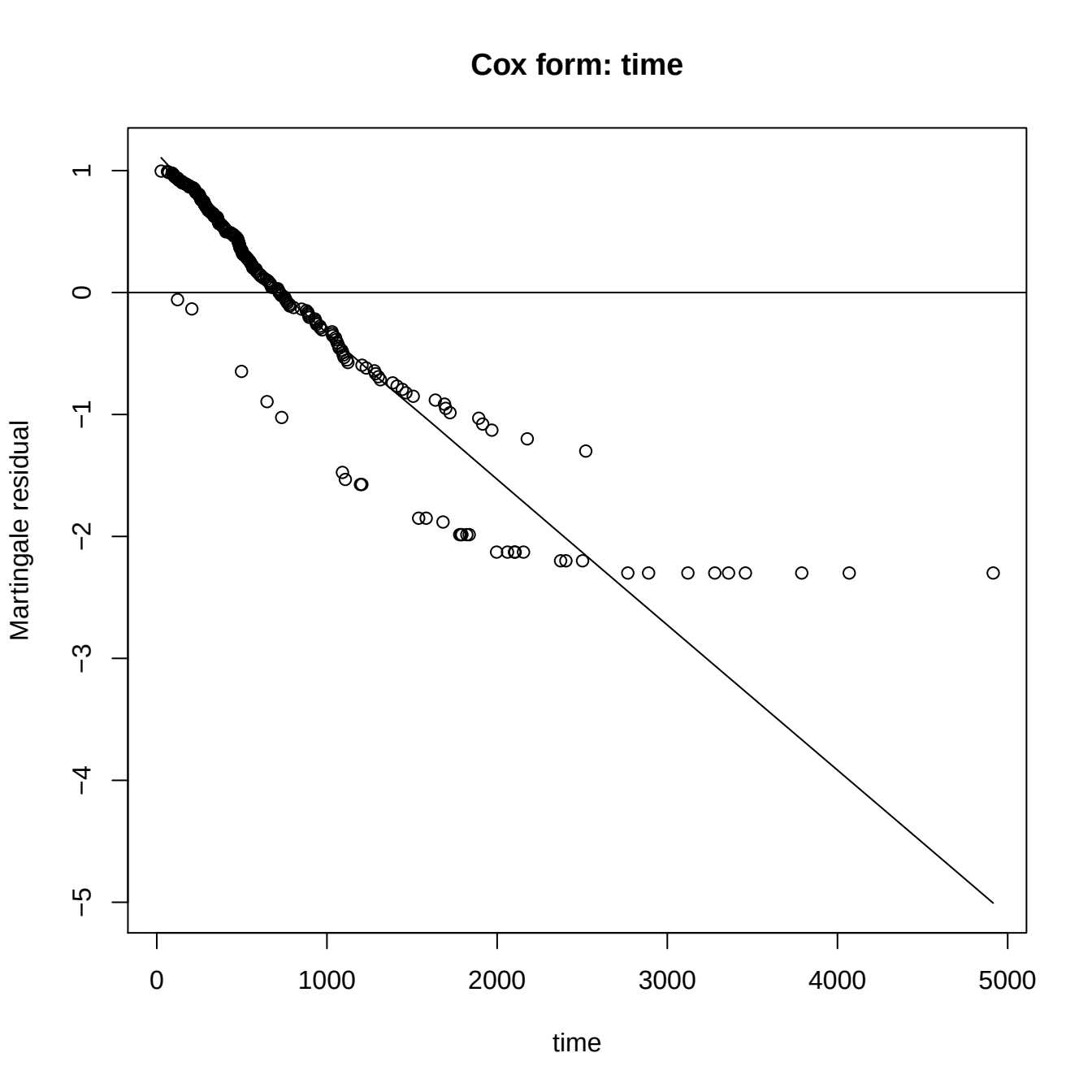
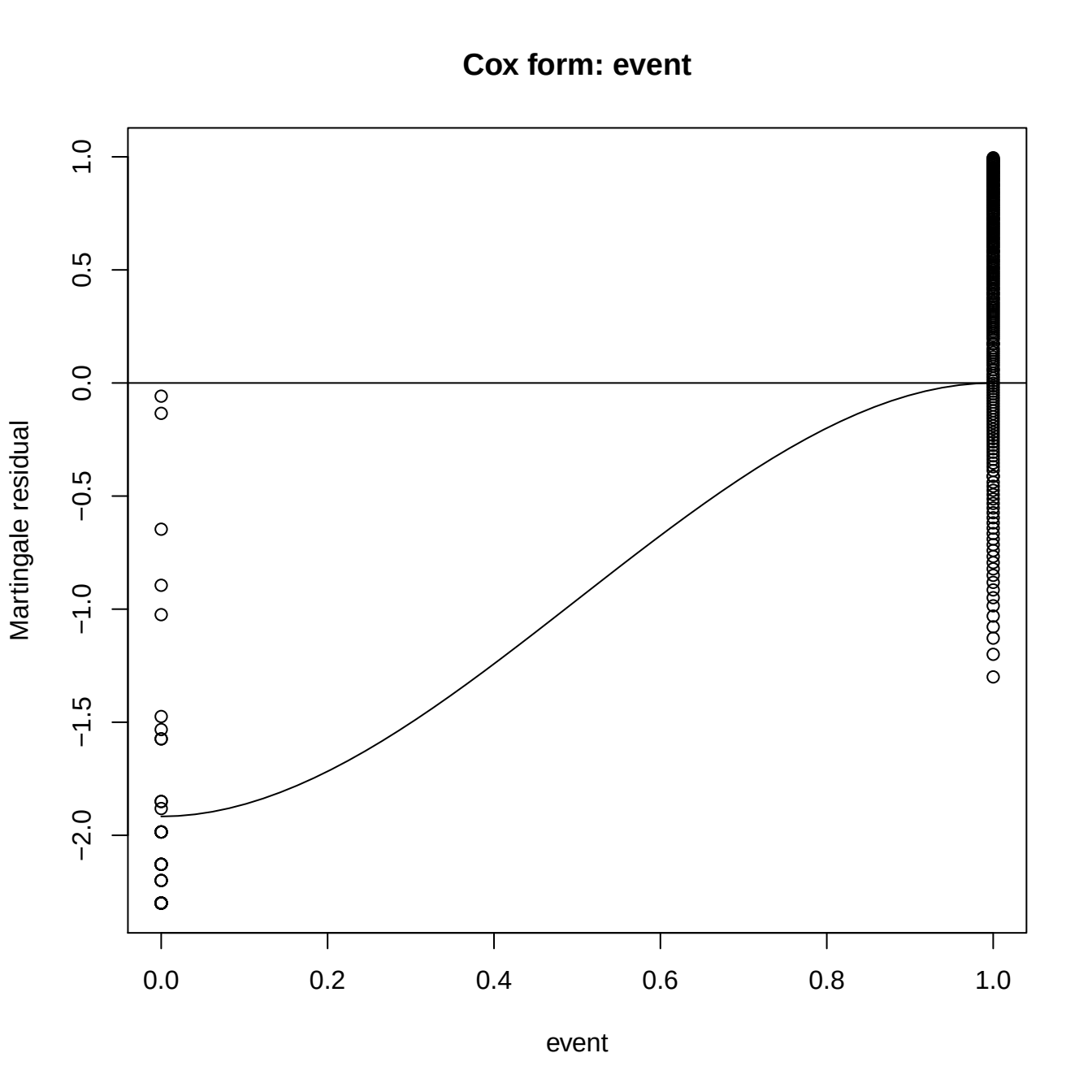
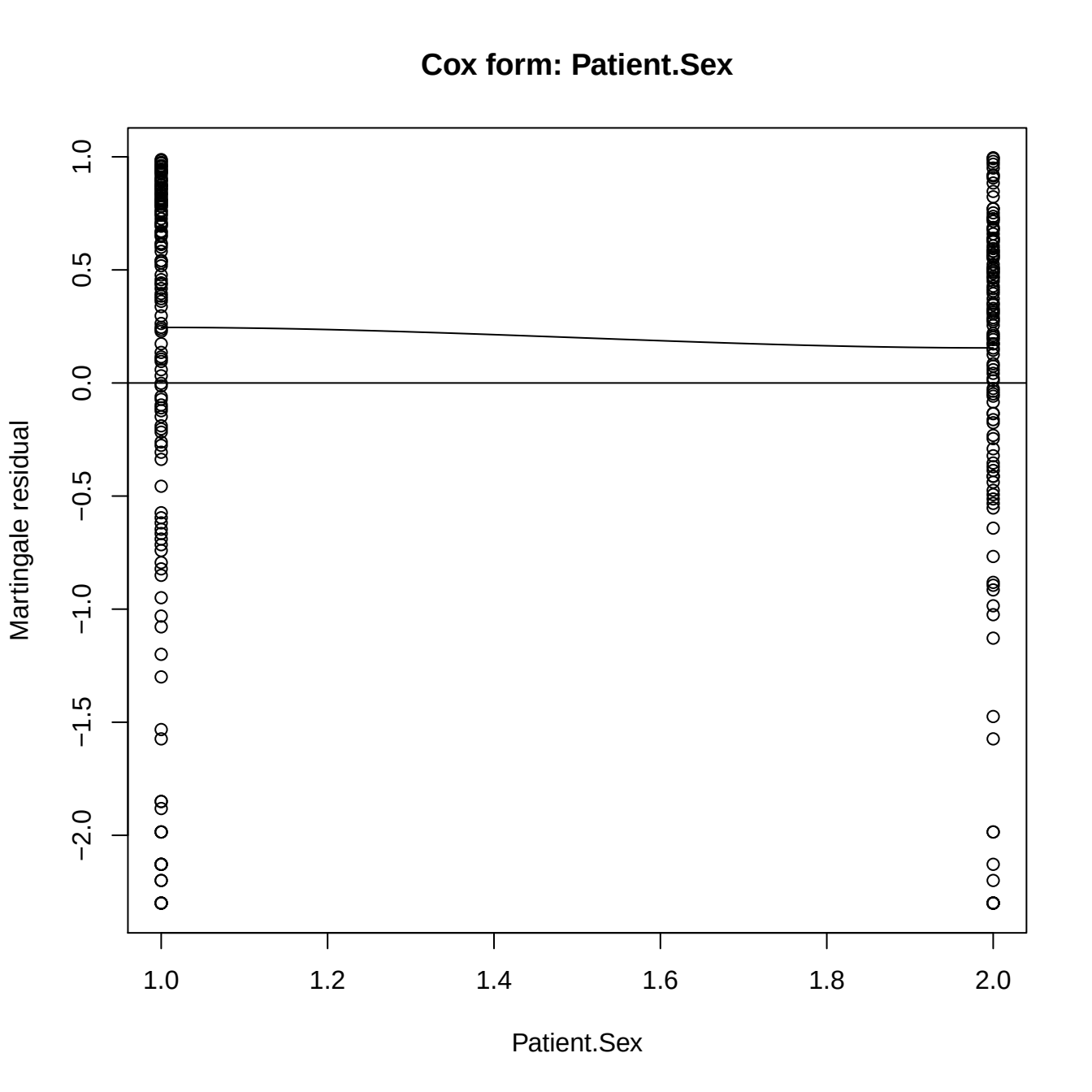
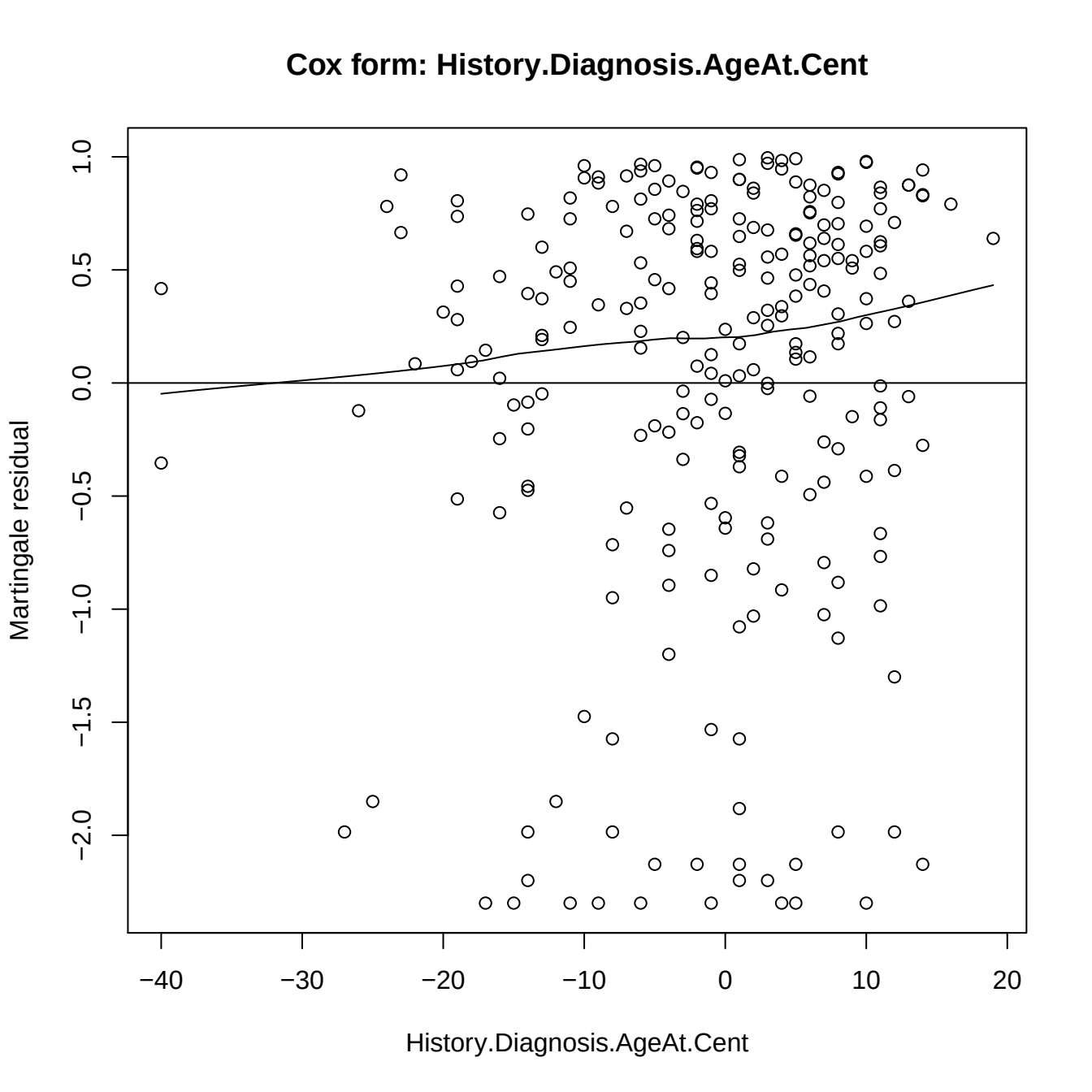
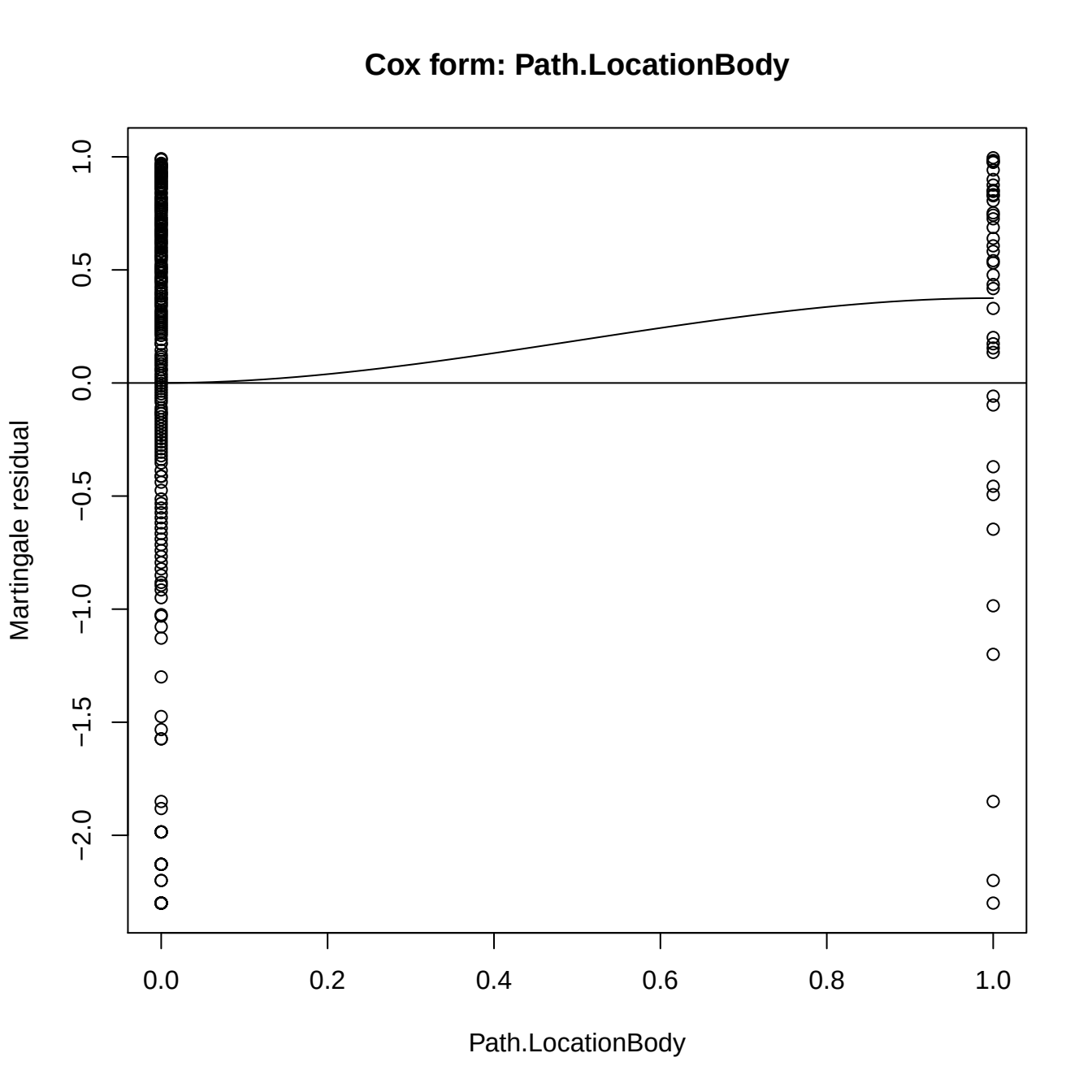

log(−log(hat(S)(t)))
2
1
0
−1
−2
−3
−4
−5
5
6
7
8
log(t)

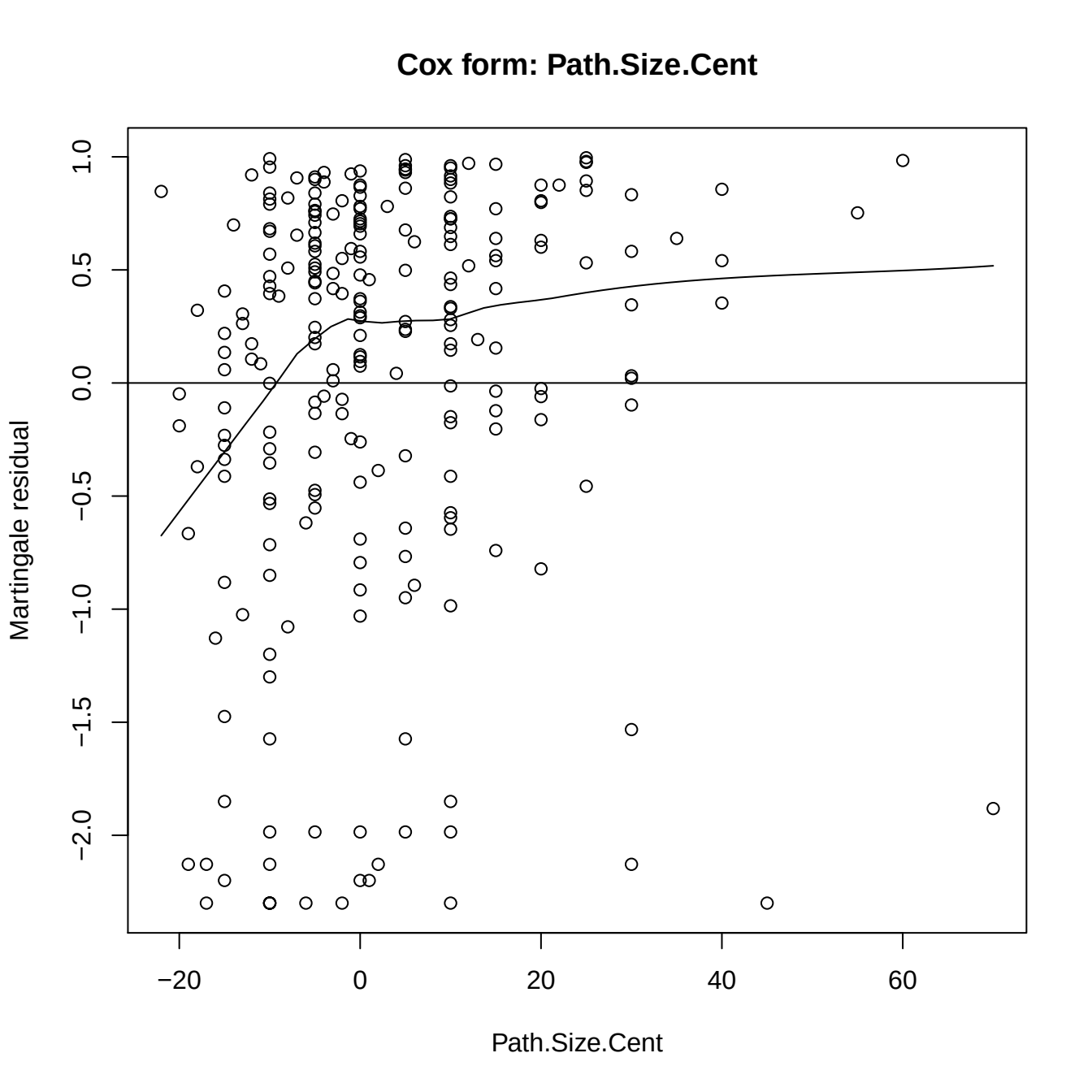

Cox form: time
Martingale residual
1
0
−1
−2
−3
−4
−5
0
1000
2000
3000
4000
5000
time

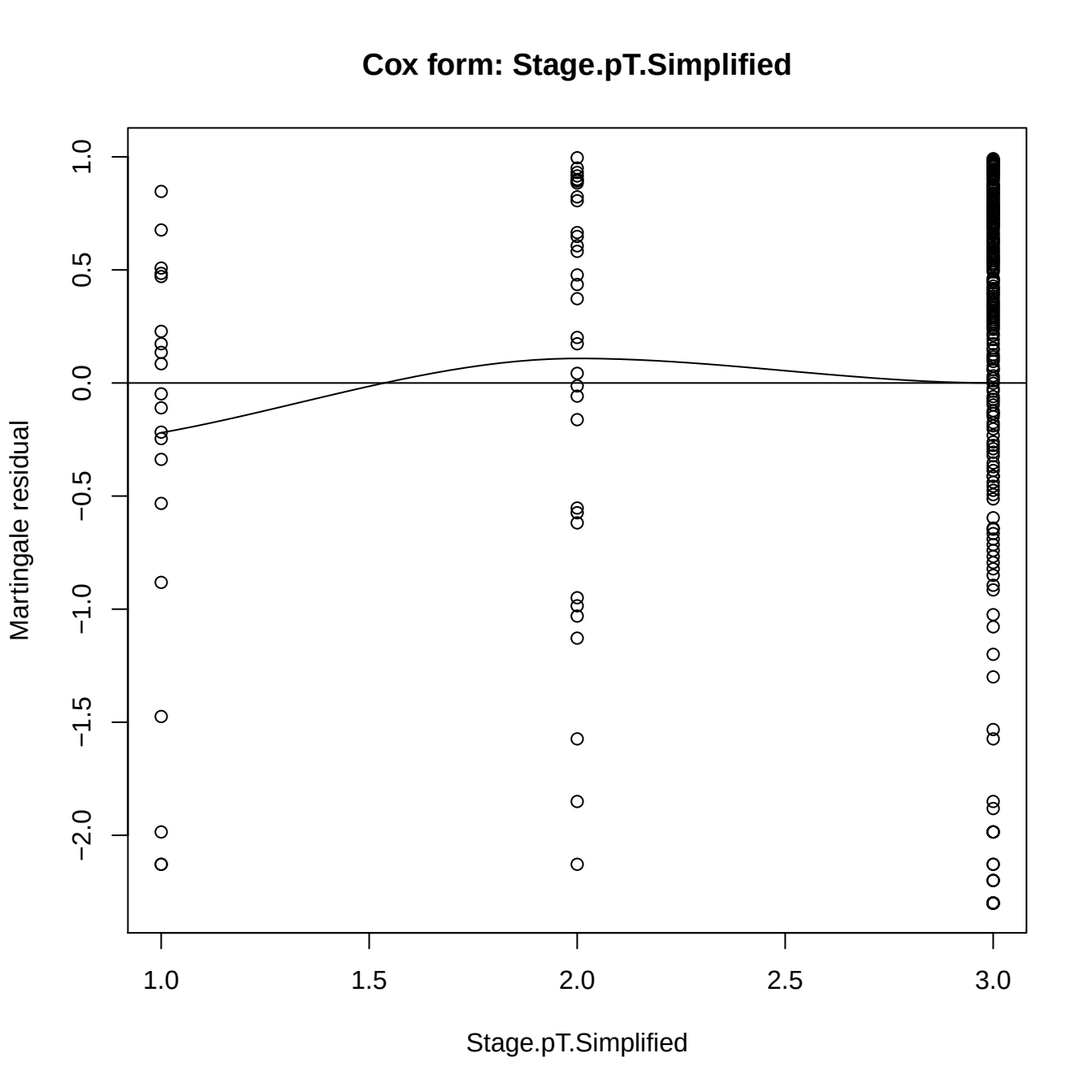

Cox form: event
Martingale residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
0.0
0.2
0.4
0.6
0.8
1.0
event

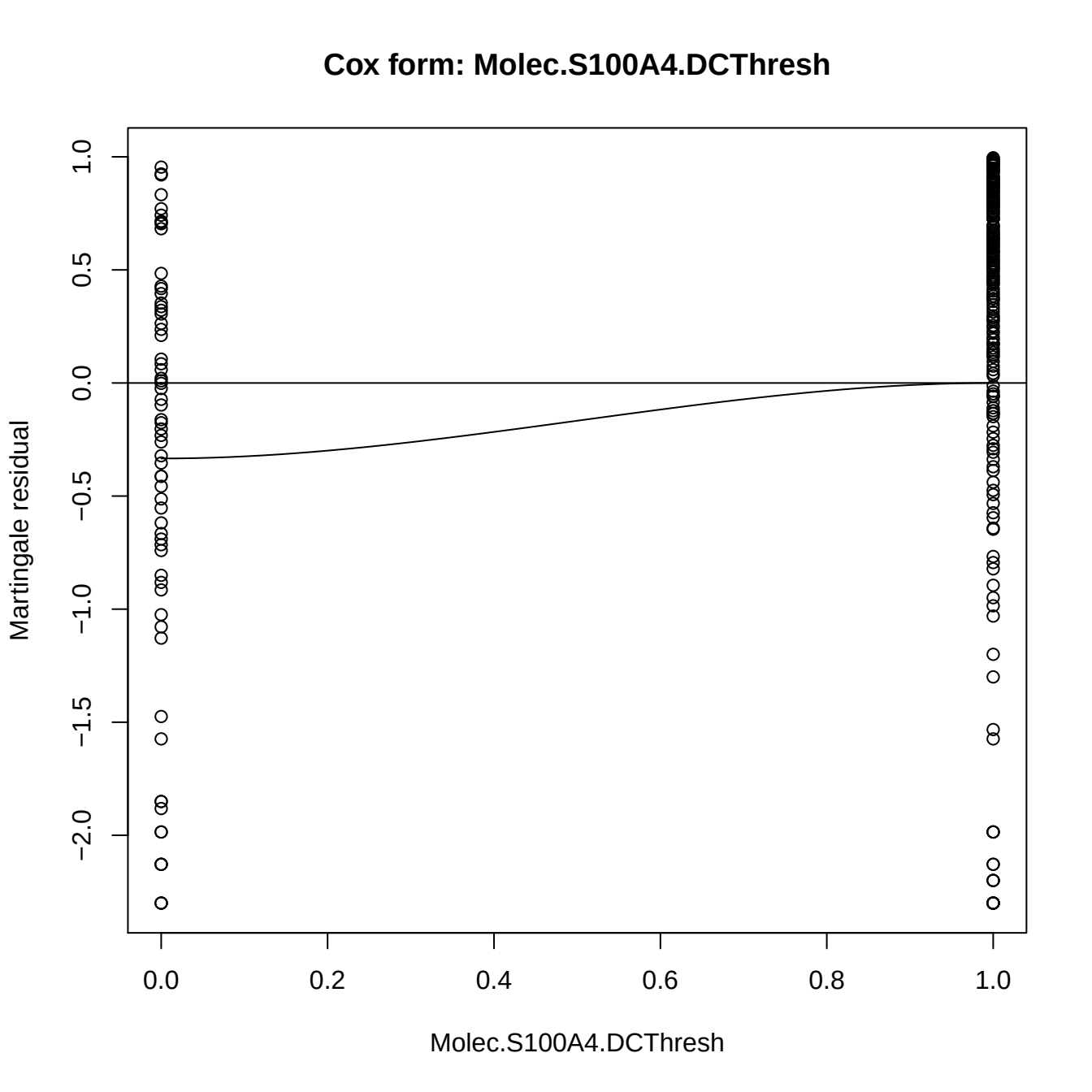

Cox form: Patient.Sex
Martingale residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
1.0
1.2
1.4
1.6
1.8
2.0
Patient.Sex

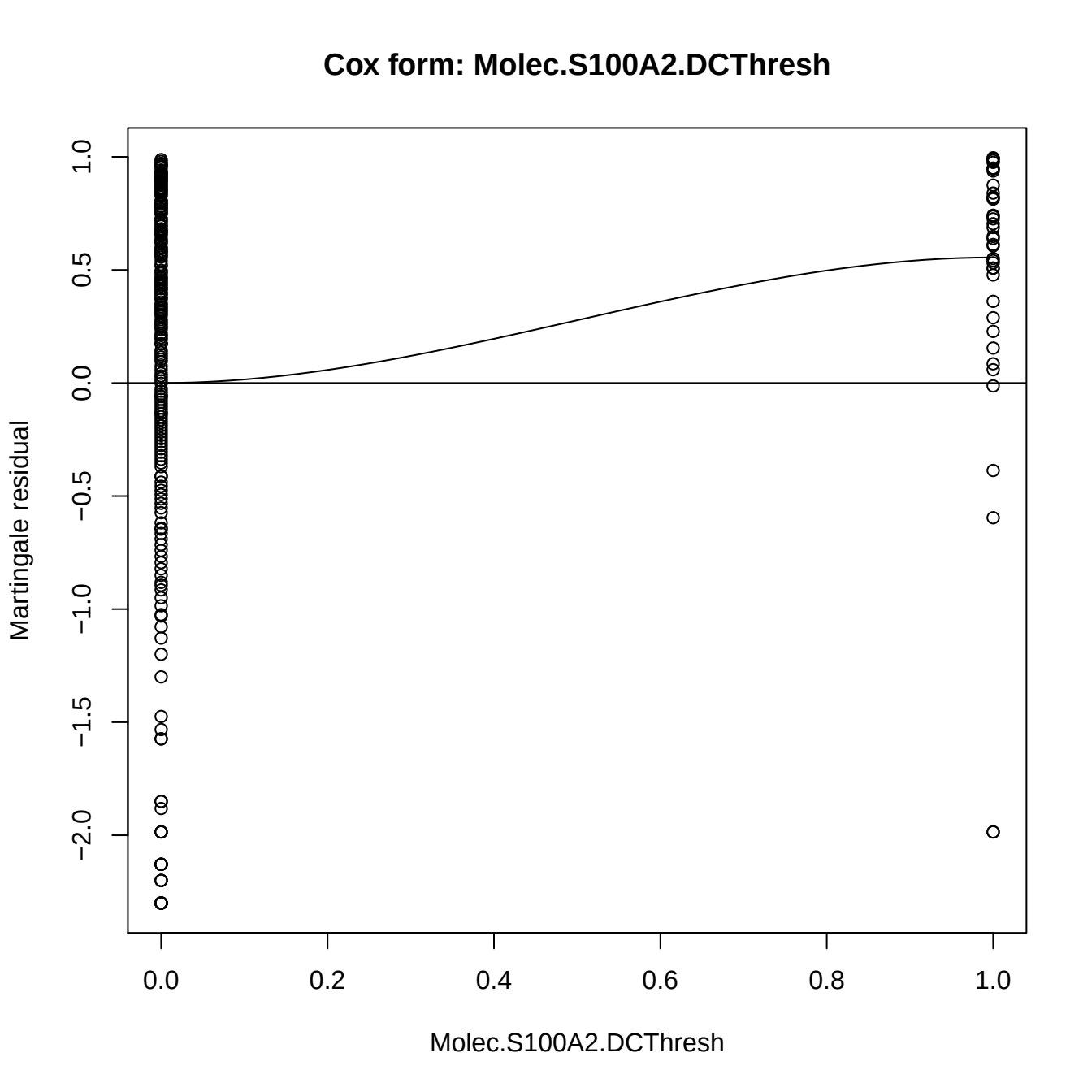

Cox form: History.Diagnosis.AgeAt.Cent
Martingale residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
−40
−30
−20
−10
0
10
20
History.Diagnosis.AgeAt.Cent

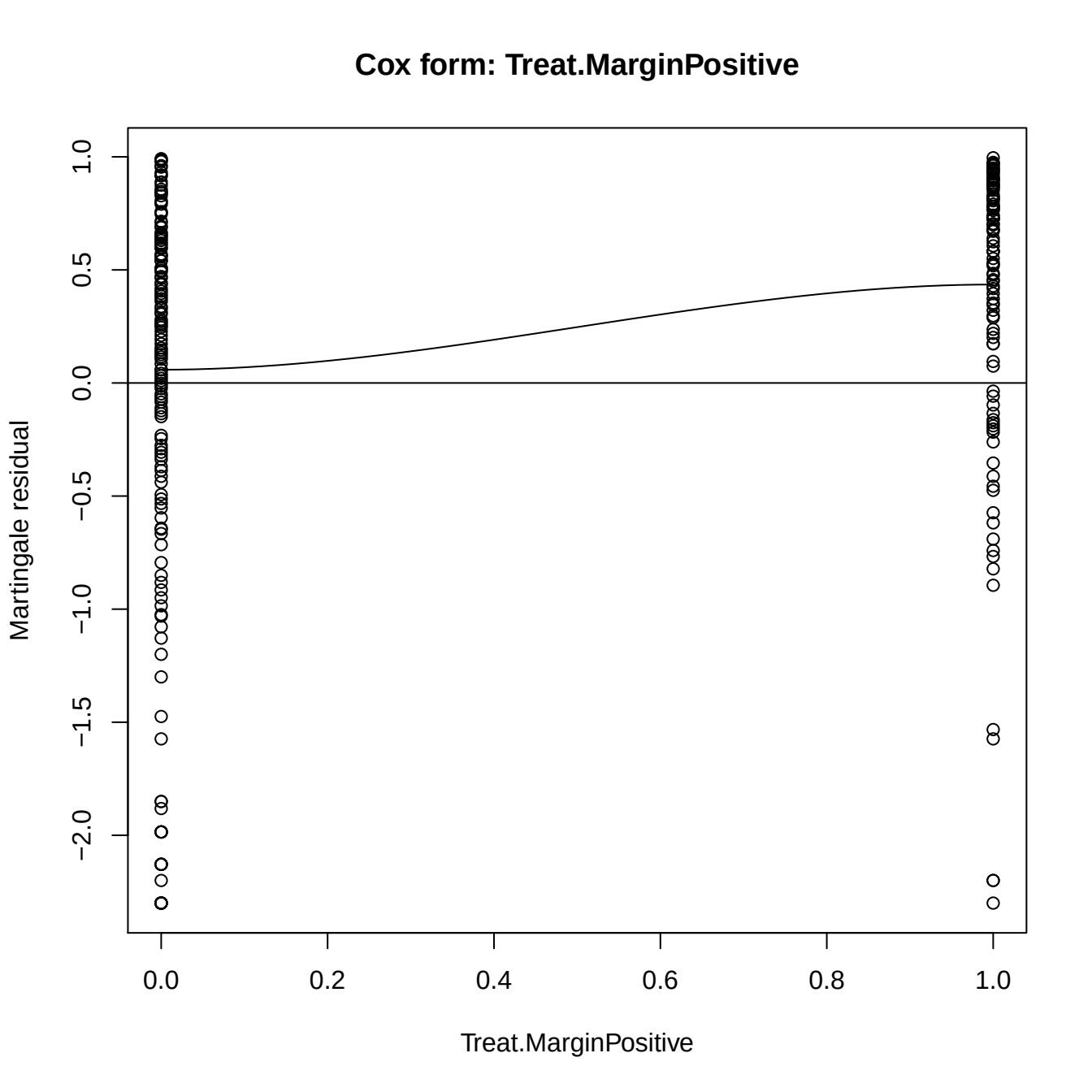

Cox form: Path.LocationBody
Martingale residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
0.0
0.2
0.4
0.6
0.8
1.0
Path.LocationBody

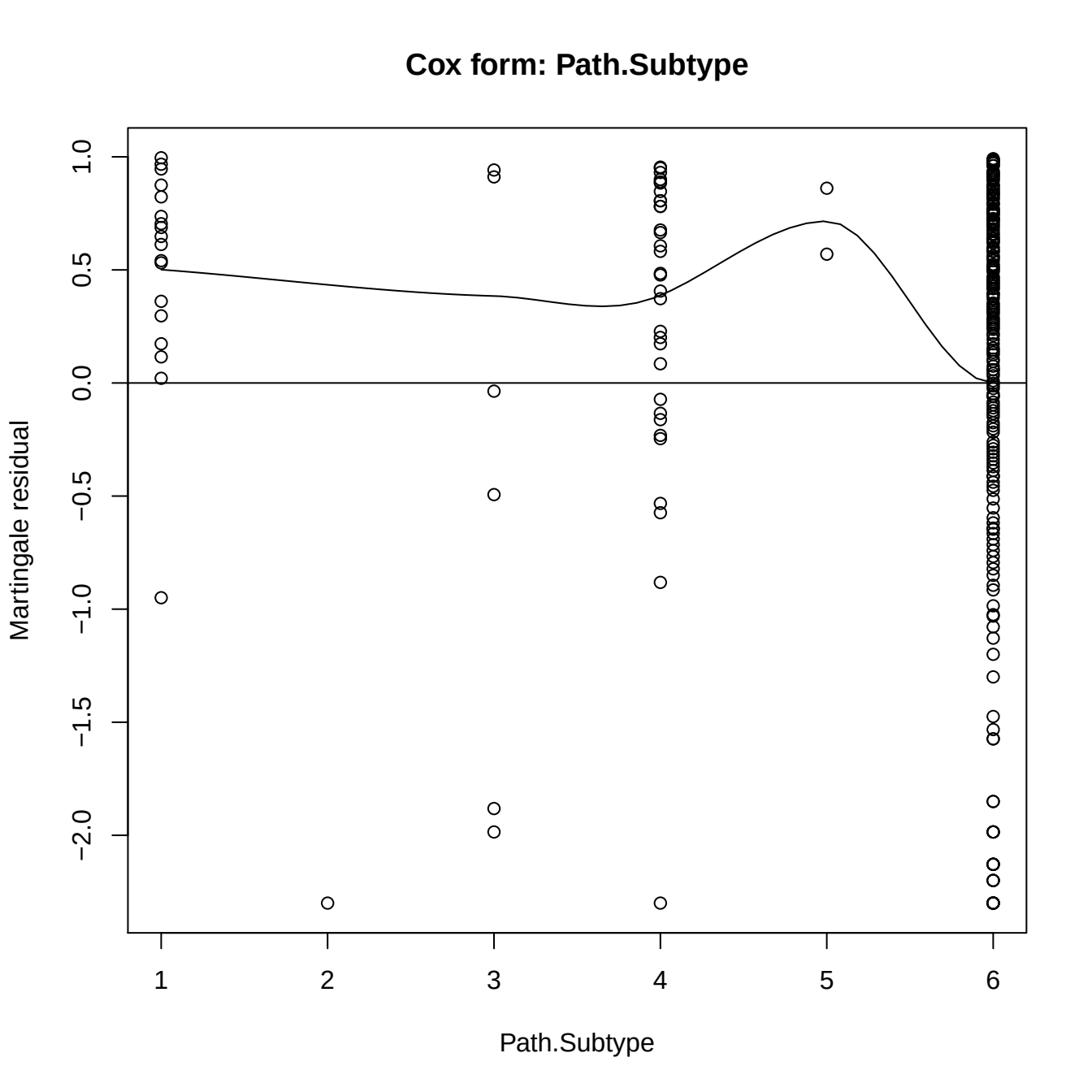

Cox form: Path.Size.Cent
Martingale residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
−20
0
20
40
60
Path.Size.Cent

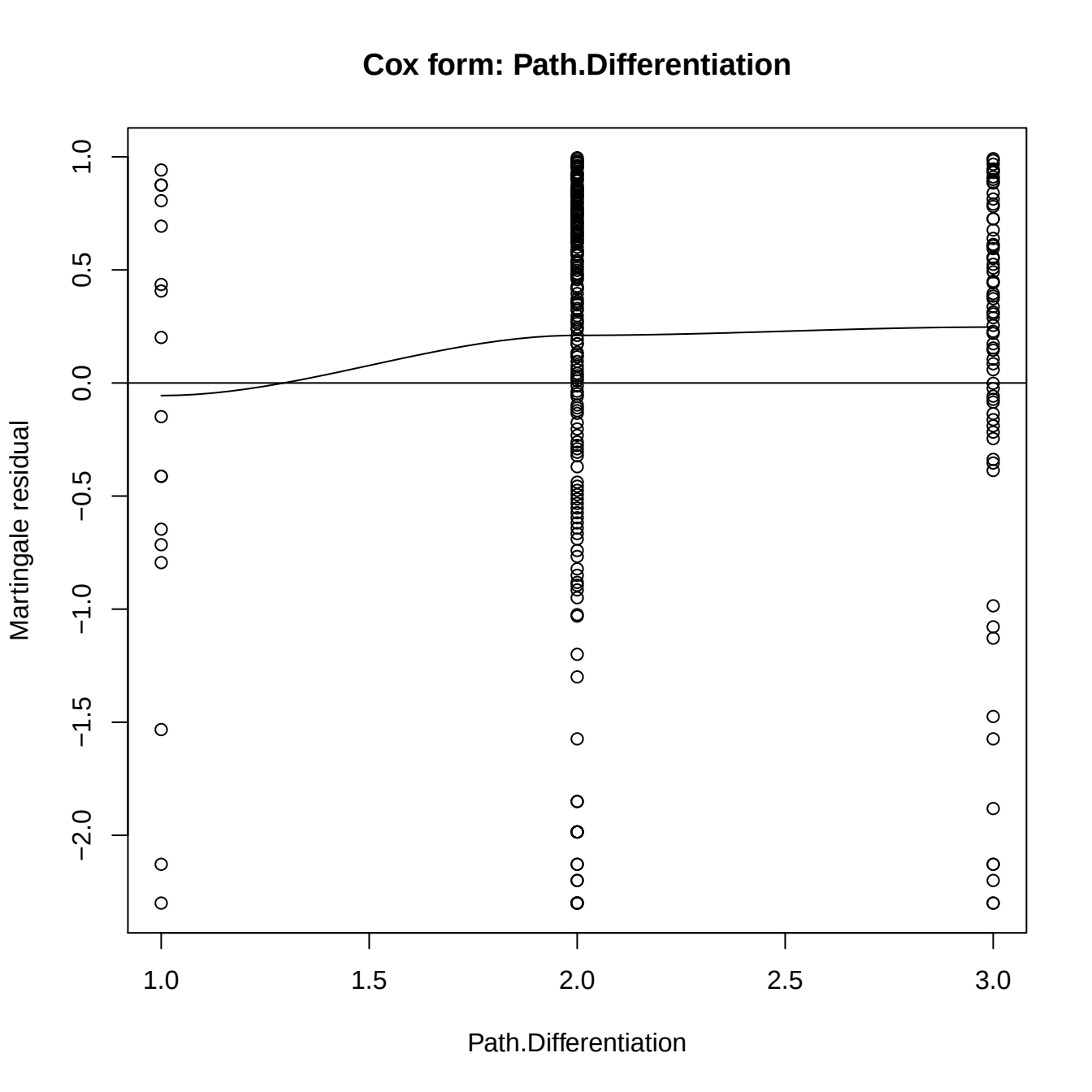

Cox form: Stage.pT.Simplified
Martingale residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
1.0
1.5
2.0
2.5
3.0
Stage.pT.Simplified

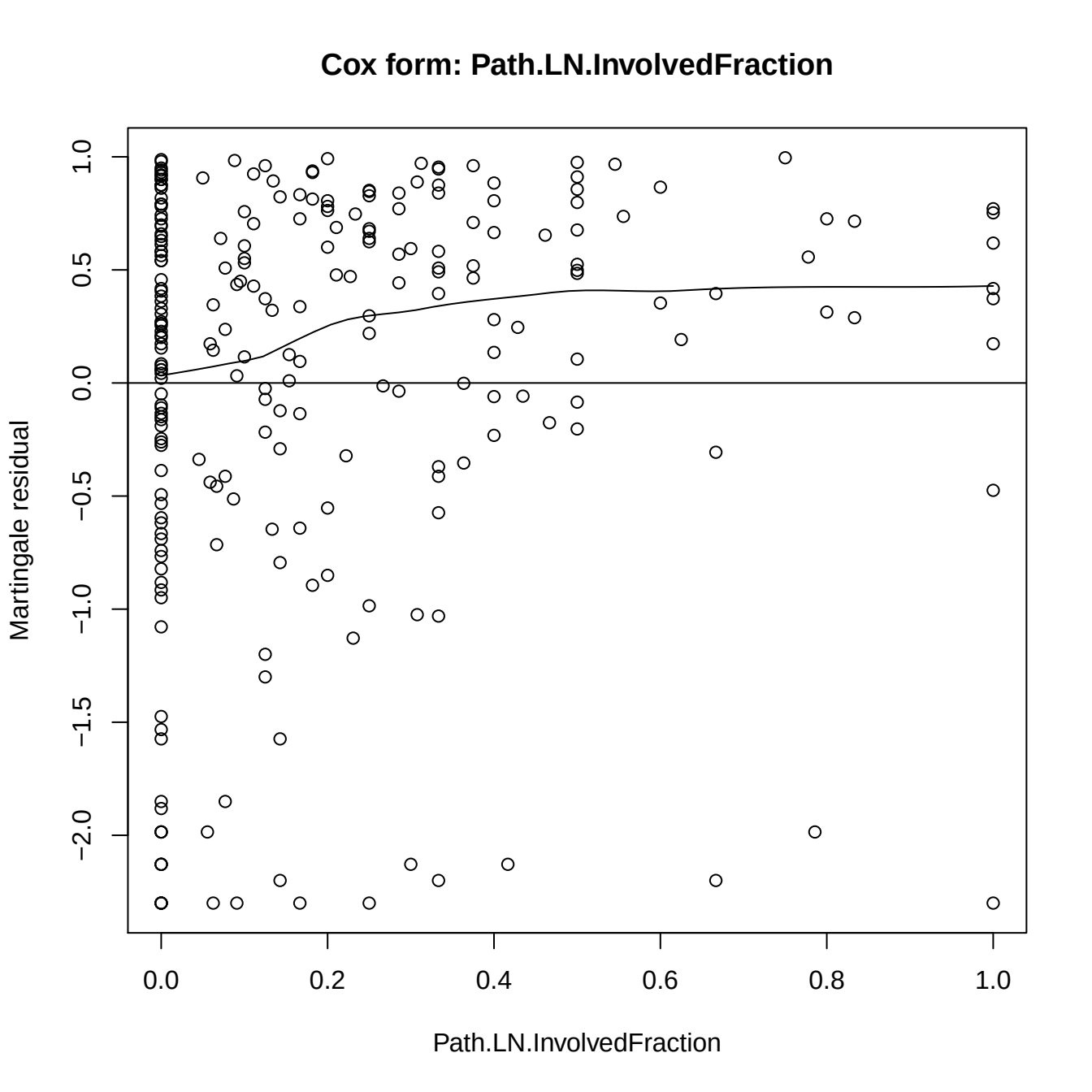

Cox form: Molec.S100A4.DCThresh
Martingale residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
0.0
0.2
0.4
0.6
0.8
1.0
Molec.S100A4.DCThresh

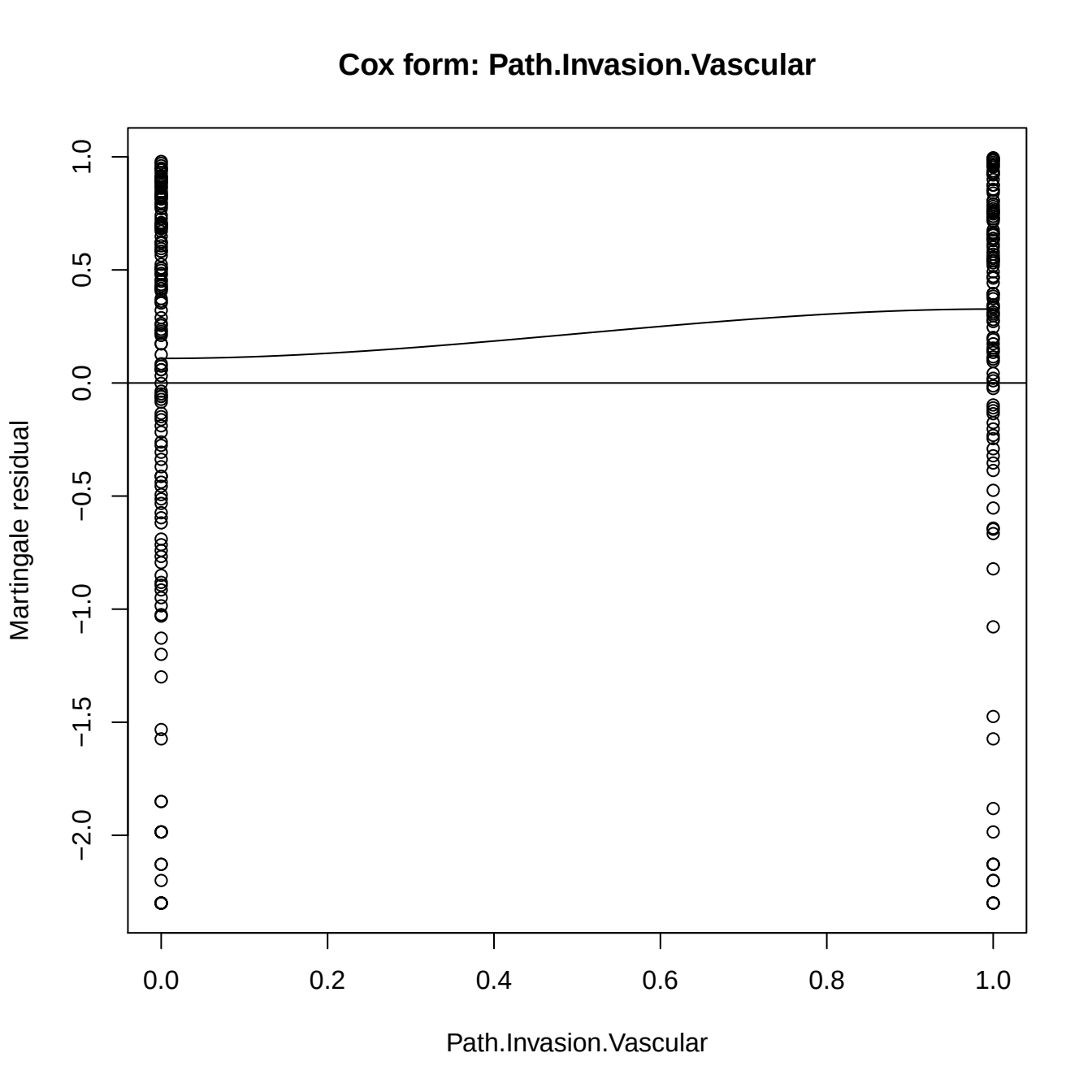

Cox form: Molec.S100A2.DCThresh
Martingale residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
0.0
0.2
0.4
0.6
0.8
1.0
Molec.S100A2.DCThresh

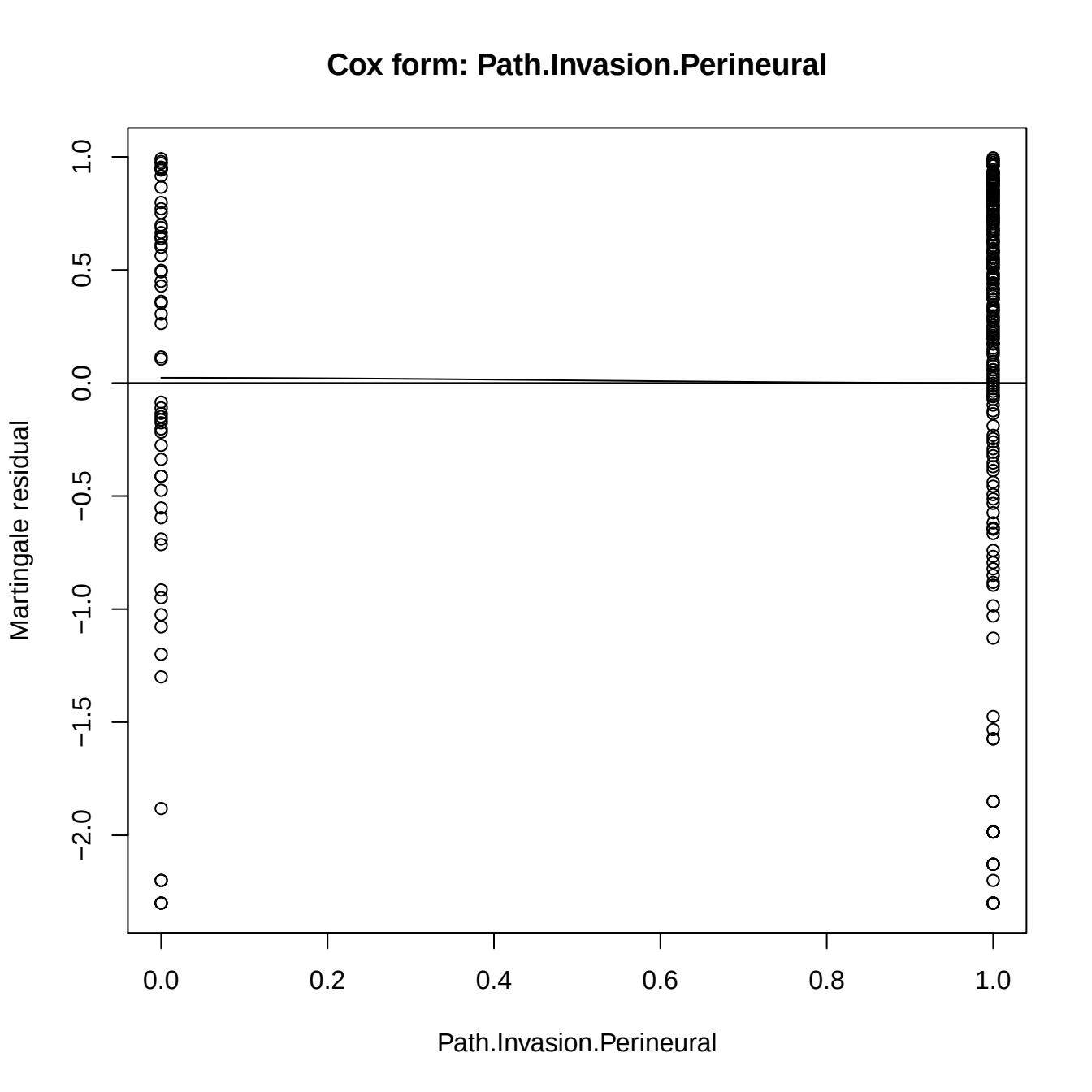

Cox form: Treat.MarginPositive
Martingale residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
0.0
0.2
0.4
0.6
0.8
1.0
Treat.MarginPositive

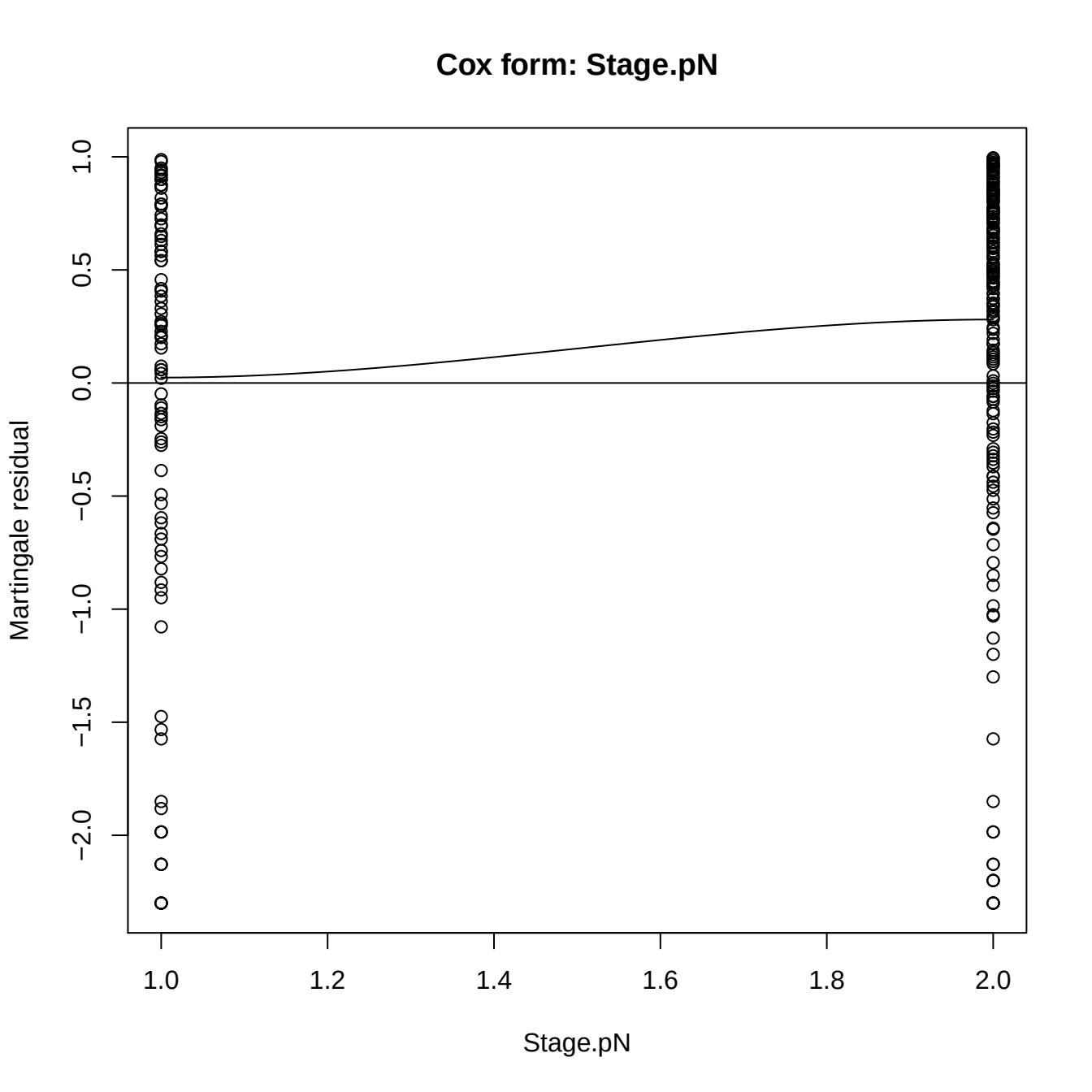

Cox form: Path.Subtype
Martingale residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
1
2
3
4
5
6
Path.Subtype

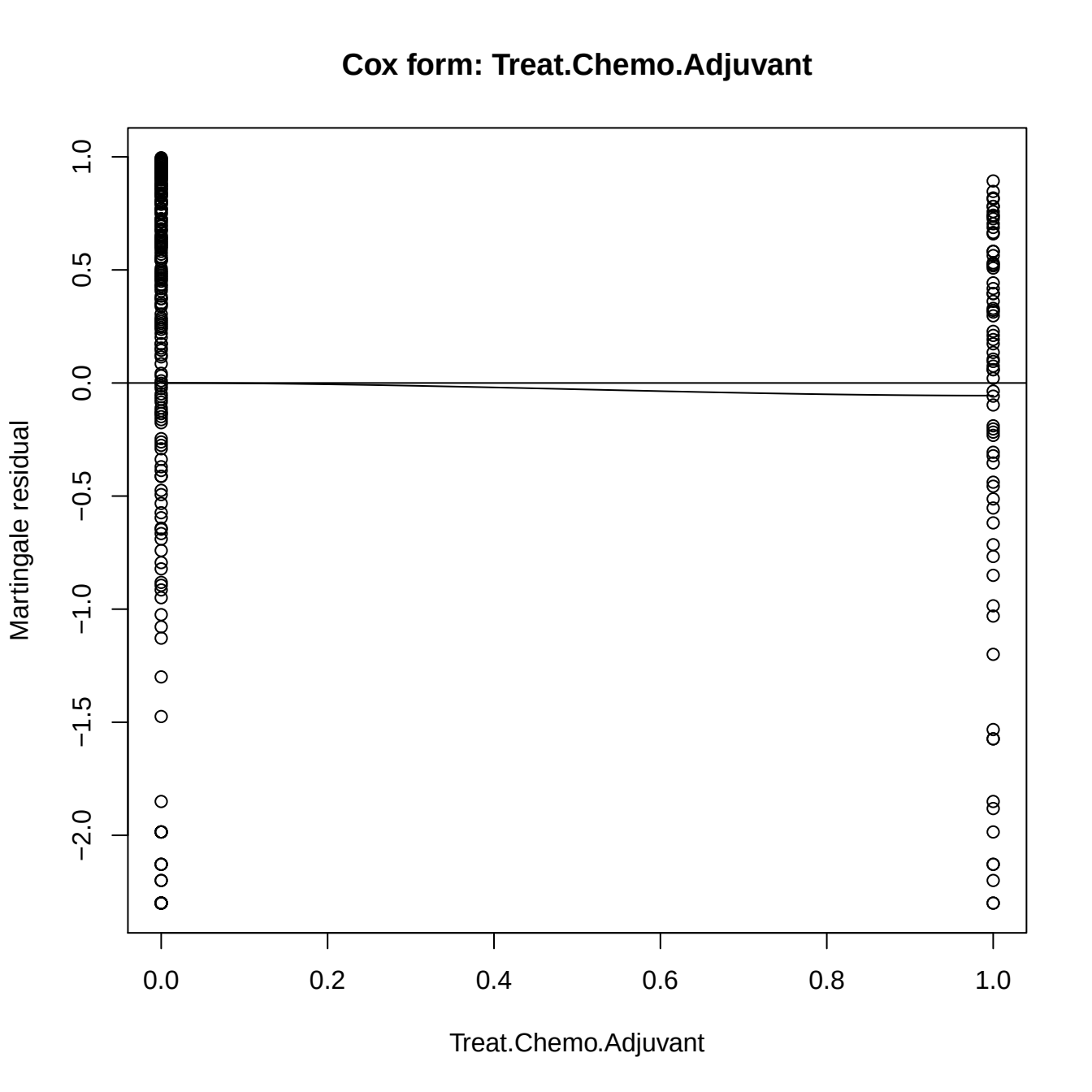

Cox form: Path.Differentiation
Martingale residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
1.0
1.5
2.0
2.5
3.0
Path.Differentiation

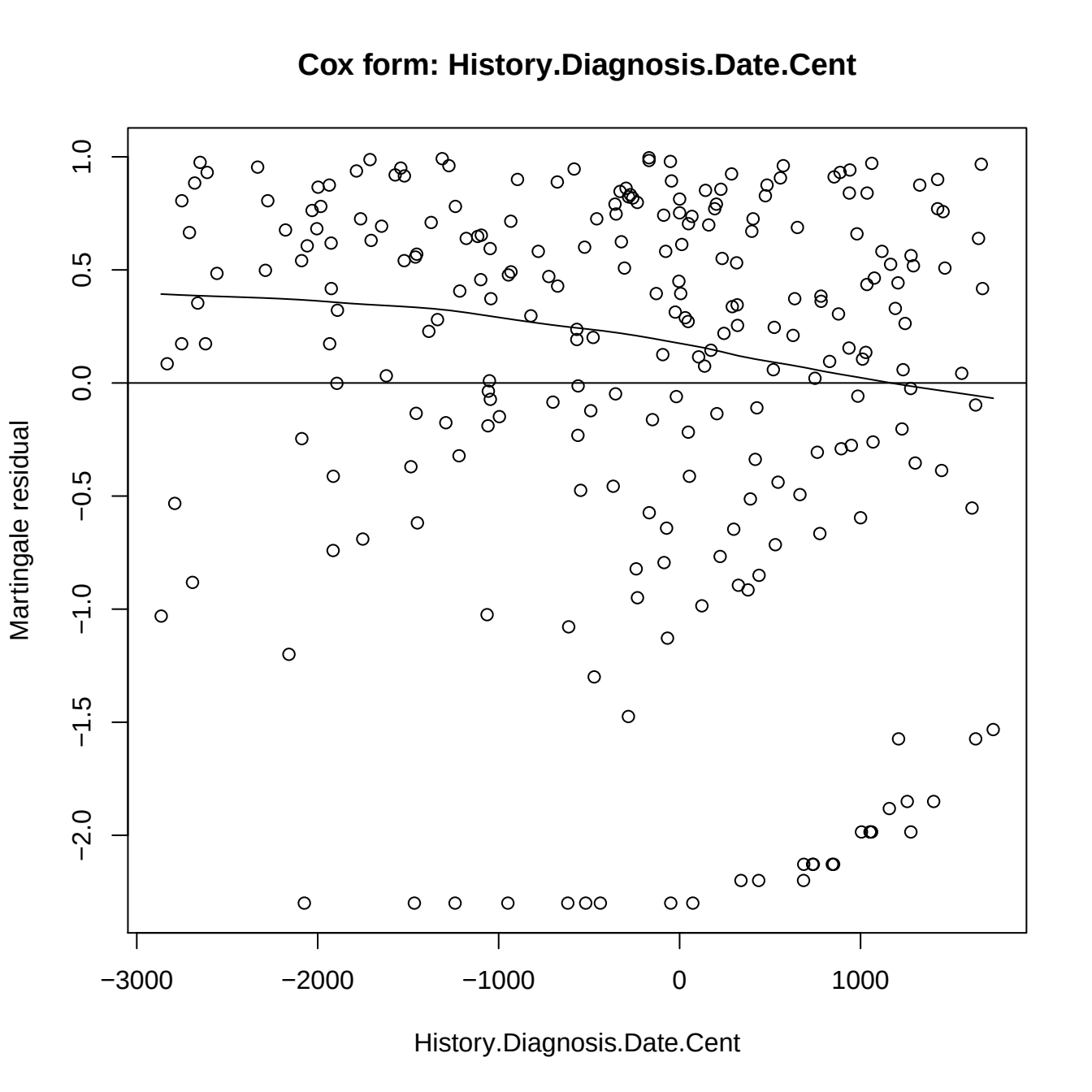

Cox form: Path.LN.InvolvedFraction
Martingale residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
0.0
0.2
0.4
0.6
0.8
1.0
Path.LN.InvolvedFraction

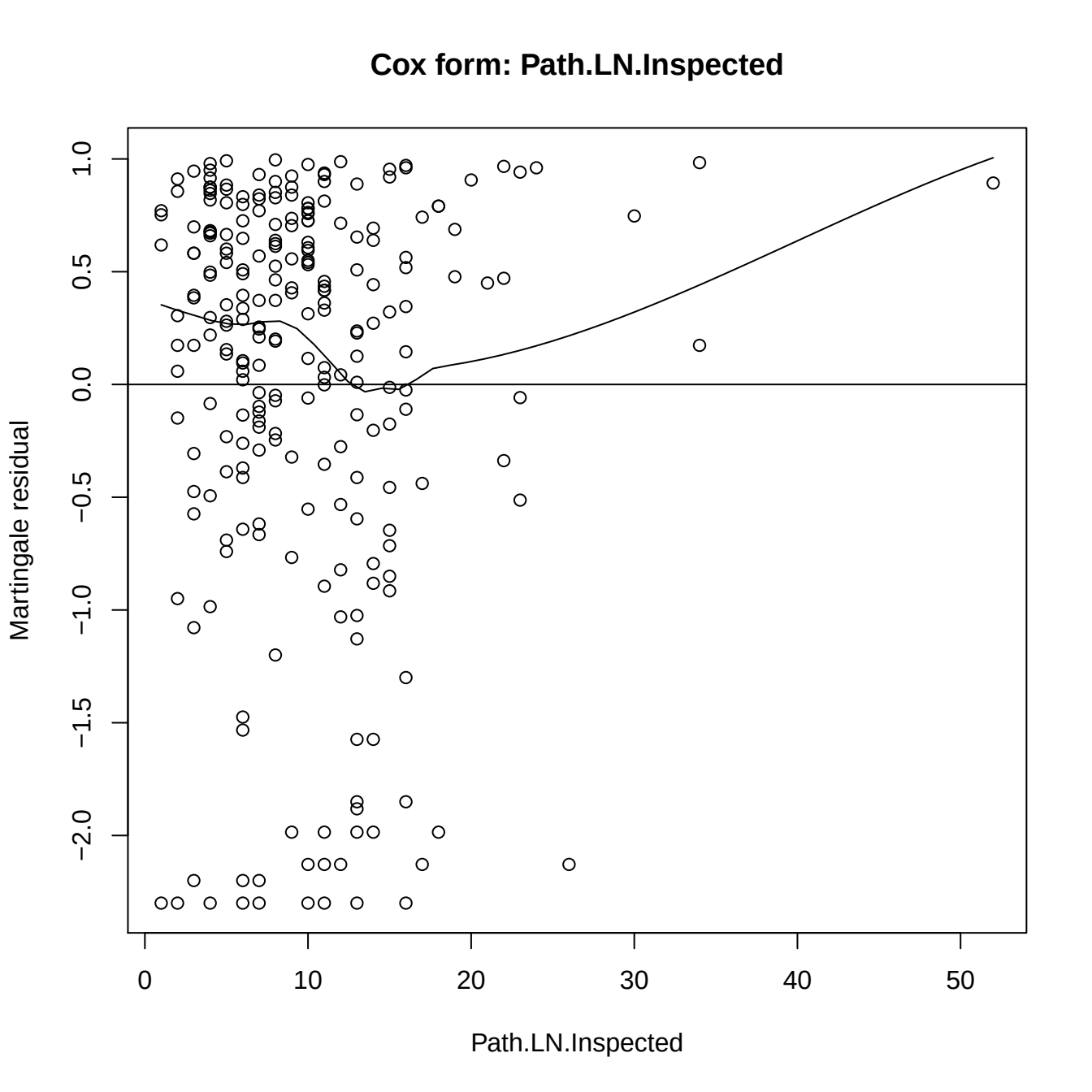

Cox form: Path.Invasion.Vascular
Martingale residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
0.0
0.2
0.4
0.6
0.8
1.0
Path.Invasion.Vascular

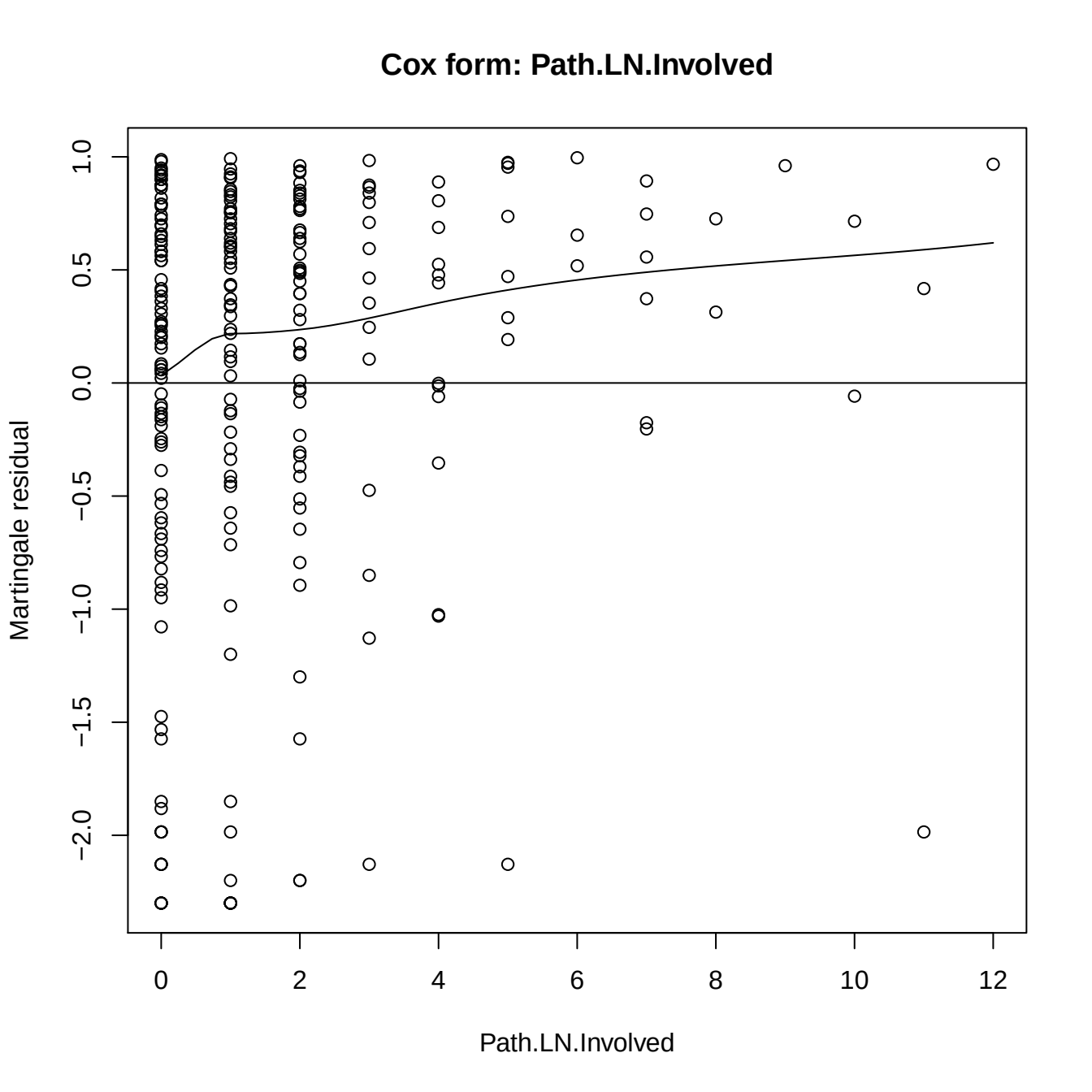

Cox form: Path.Invasion.Perineural
Martingale residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
0.0
0.2
0.4
0.6
0.8
1.0
Path.Invasion.Perineural

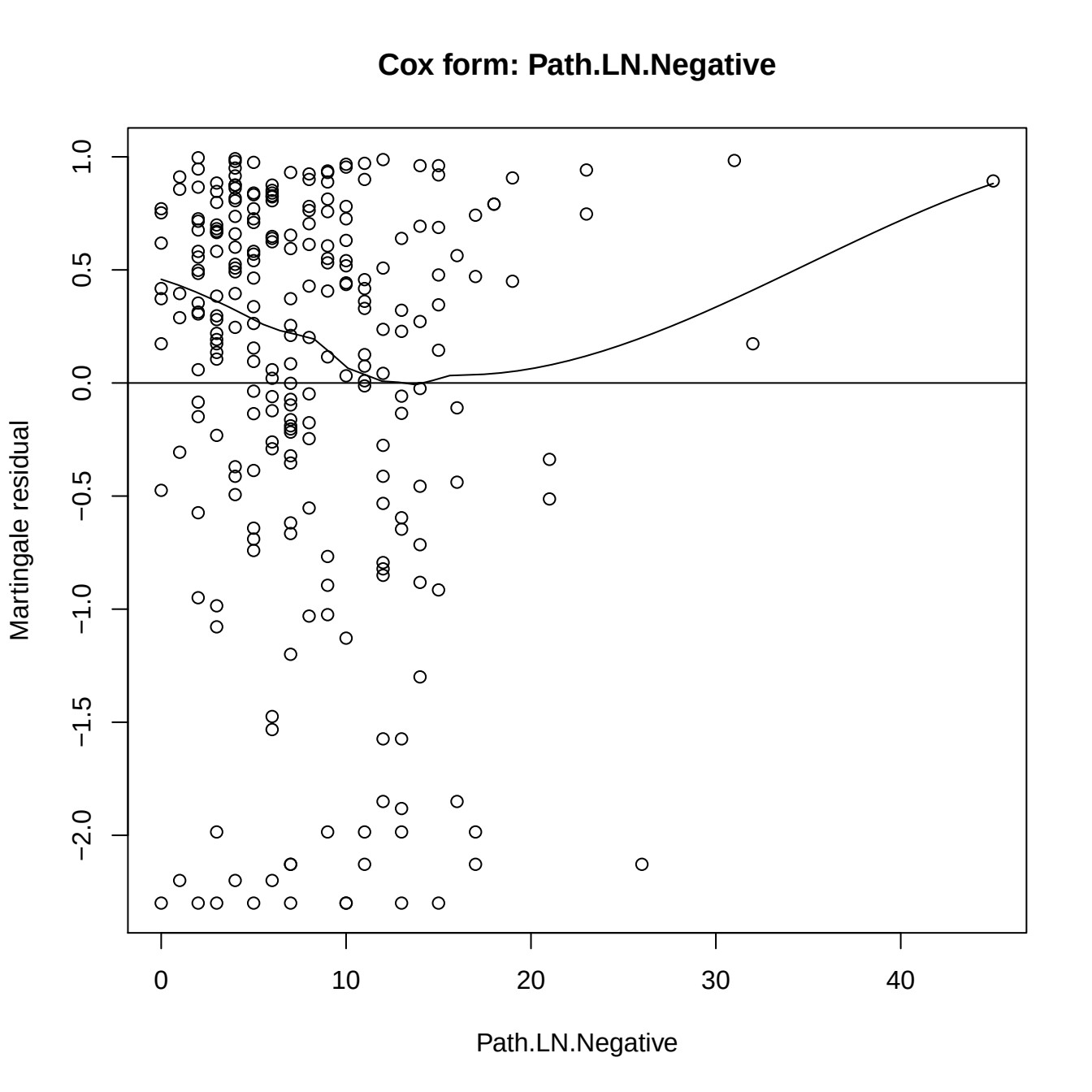

Cox form: Stage.pN
Martingale residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
1.0
1.2
1.4
1.6
1.8
2.0
Stage.pN

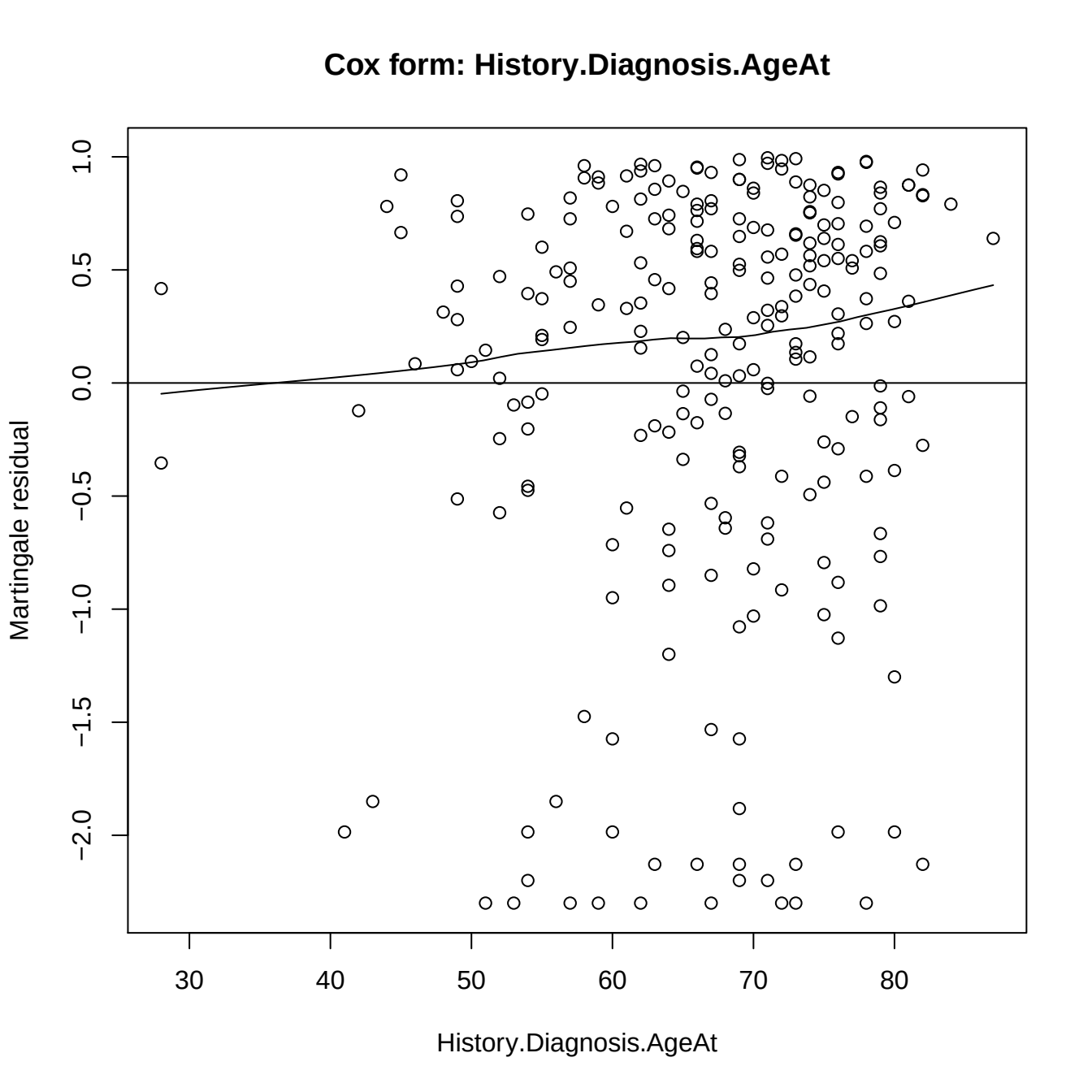

Cox form: Treat.Chemo.Adjuvant
Martingale residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
0.0
0.2
0.4
0.6
0.8
1.0
Treat.Chemo.Adjuvant

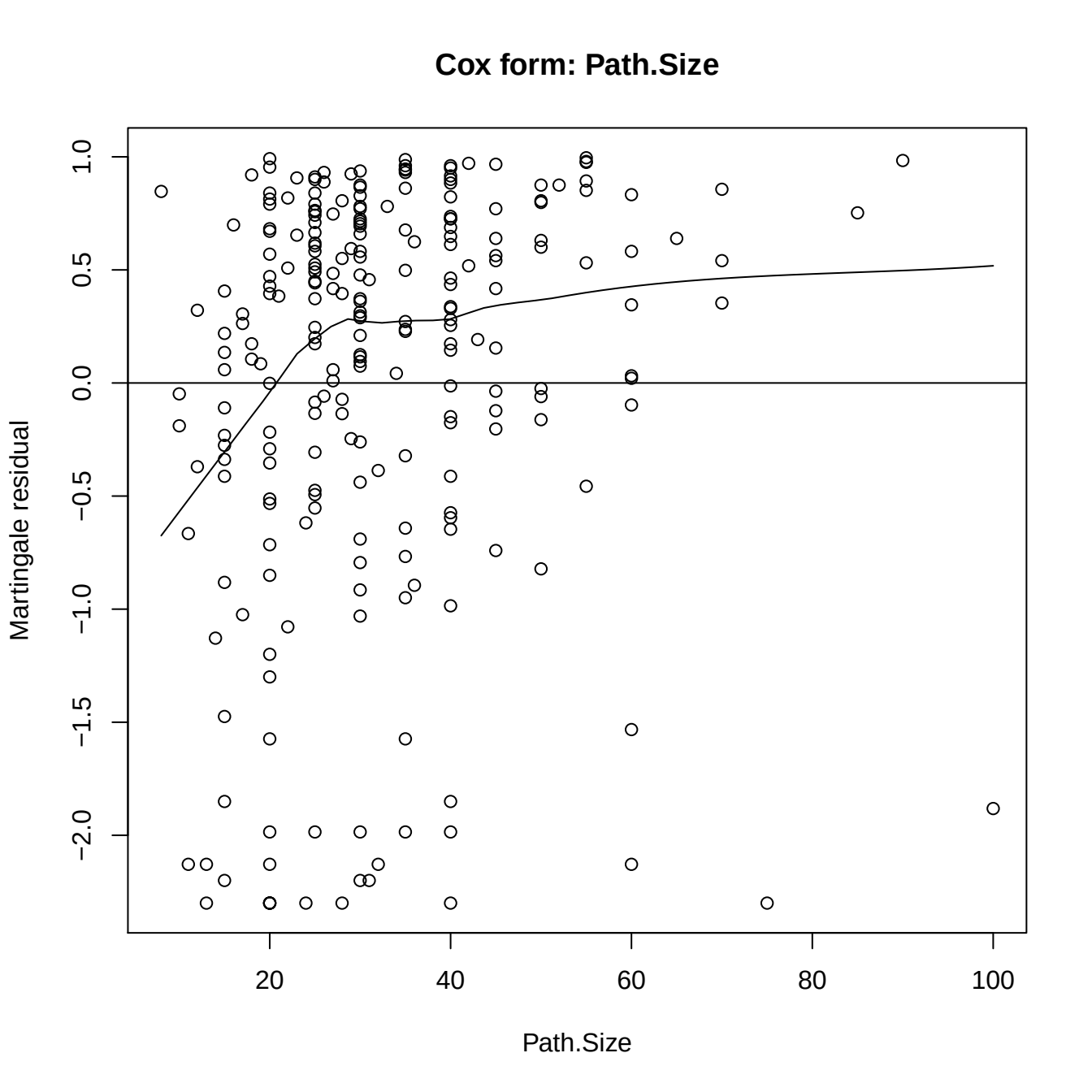

Cox form: History.Diagnosis.Date.Cent
Martingale residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
−3000
−2000
−1000
0
1000
History.Diagnosis.Date.Cent

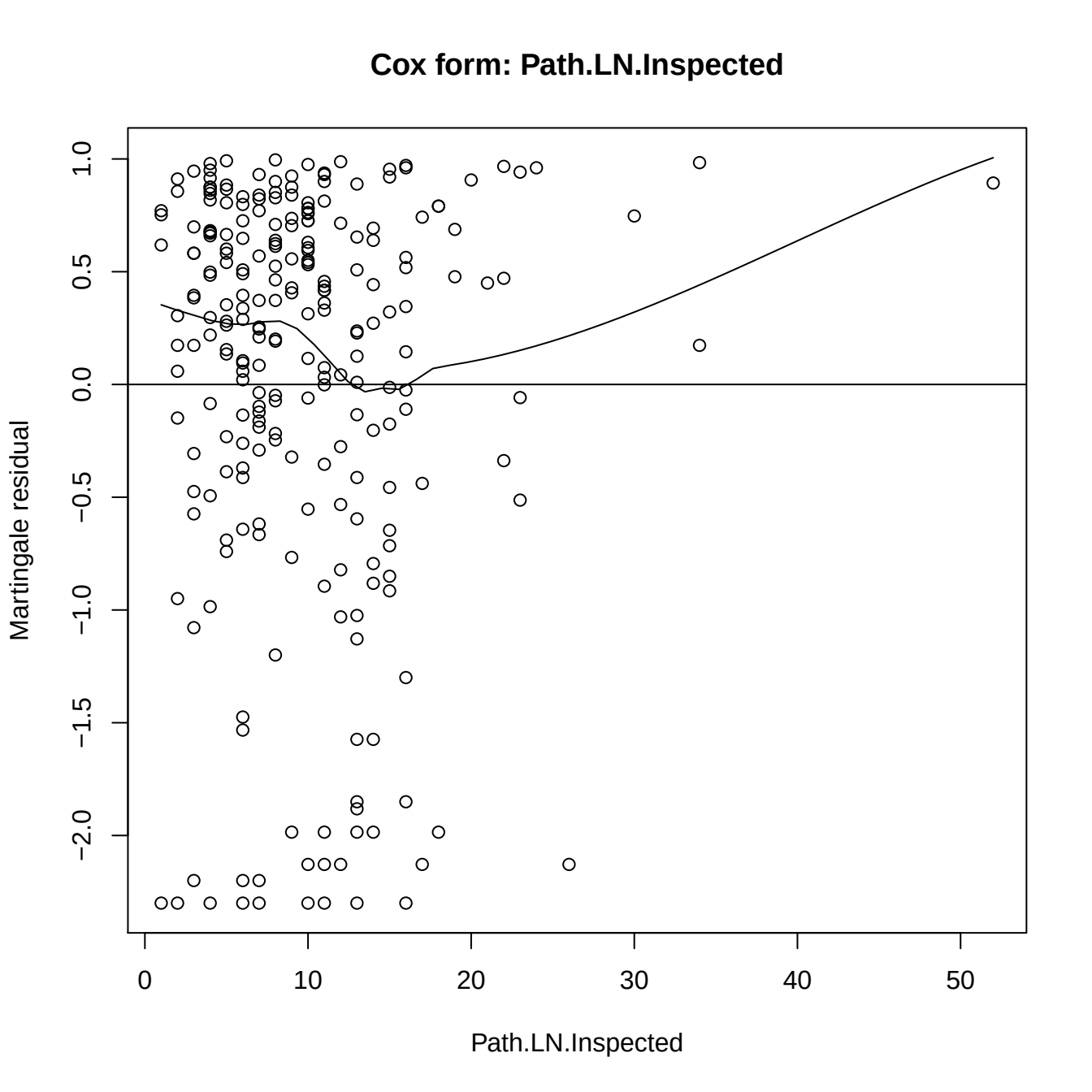

Cox form: Path.LN.Inspected
Martingale residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
0
10
20
30
40
50
Path.LN.Inspected

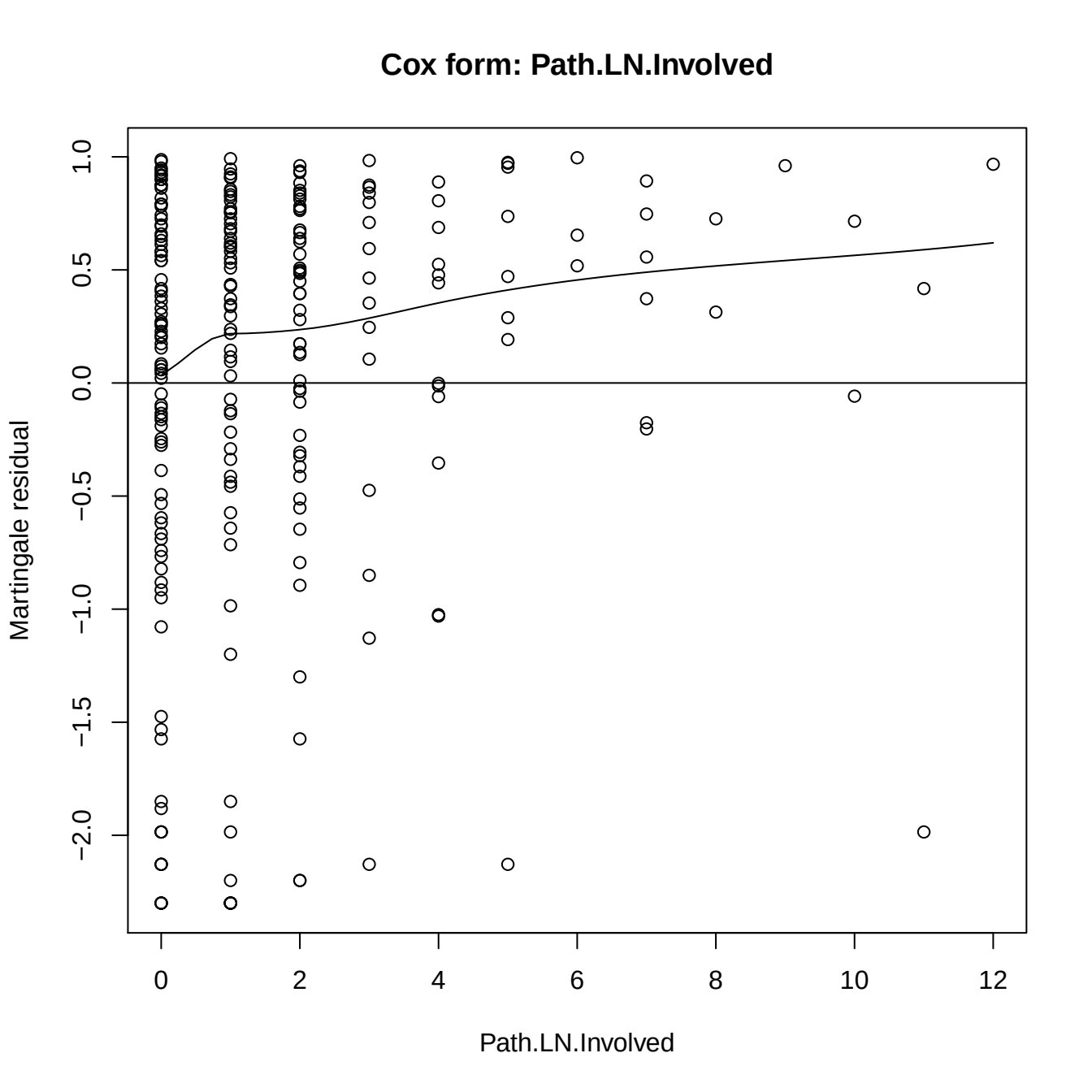

Cox form: Path.LN.Involved
Martingale residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
0
2
4
6
8
10
12
Path.LN.Involved

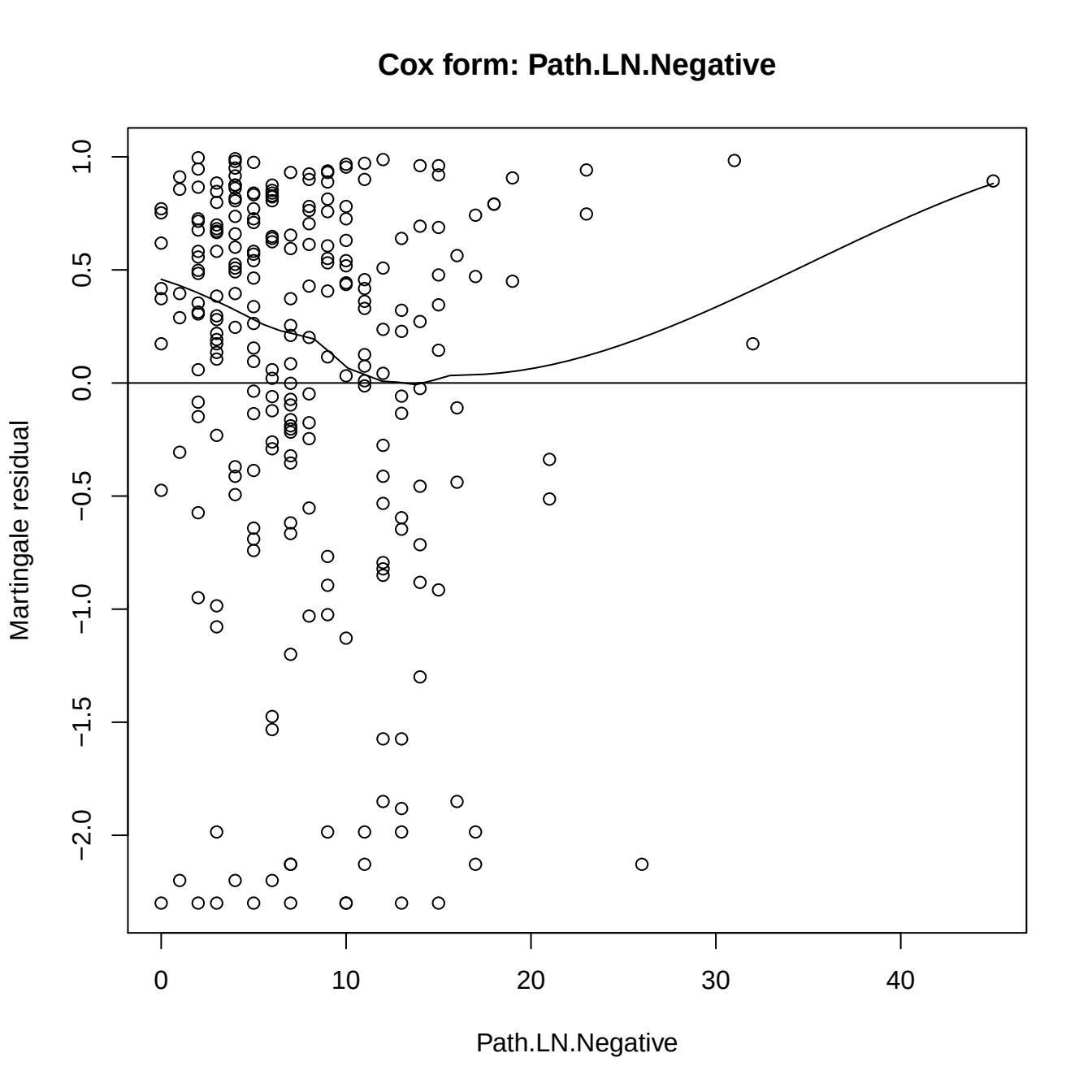

Cox form: Path.LN.Negative
Martingale residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
0
10
20
30
40
Path.LN.Negative

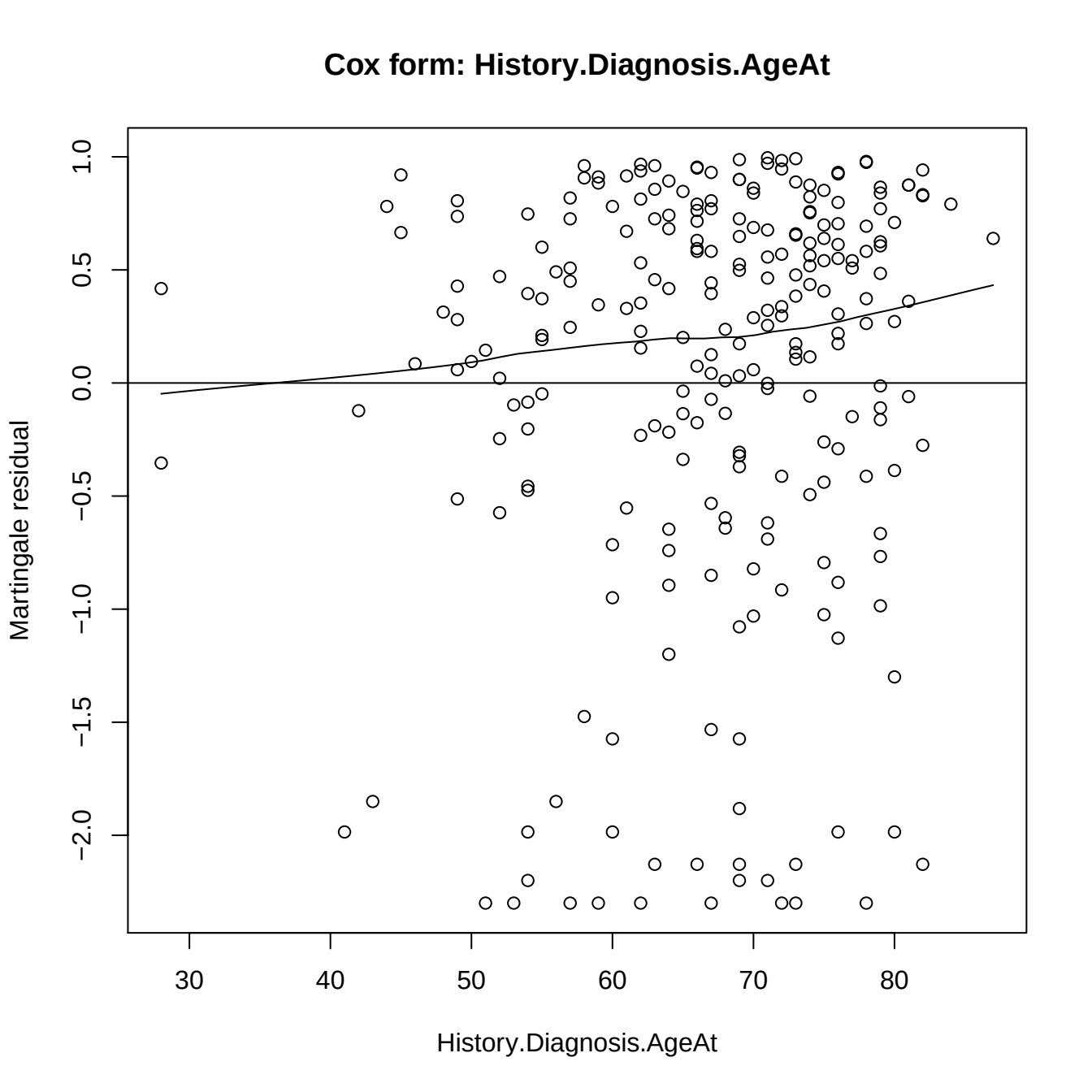

Cox form: History.Diagnosis.AgeAt
Martingale residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
30
40
50
60
70
80
History.Diagnosis.AgeAt

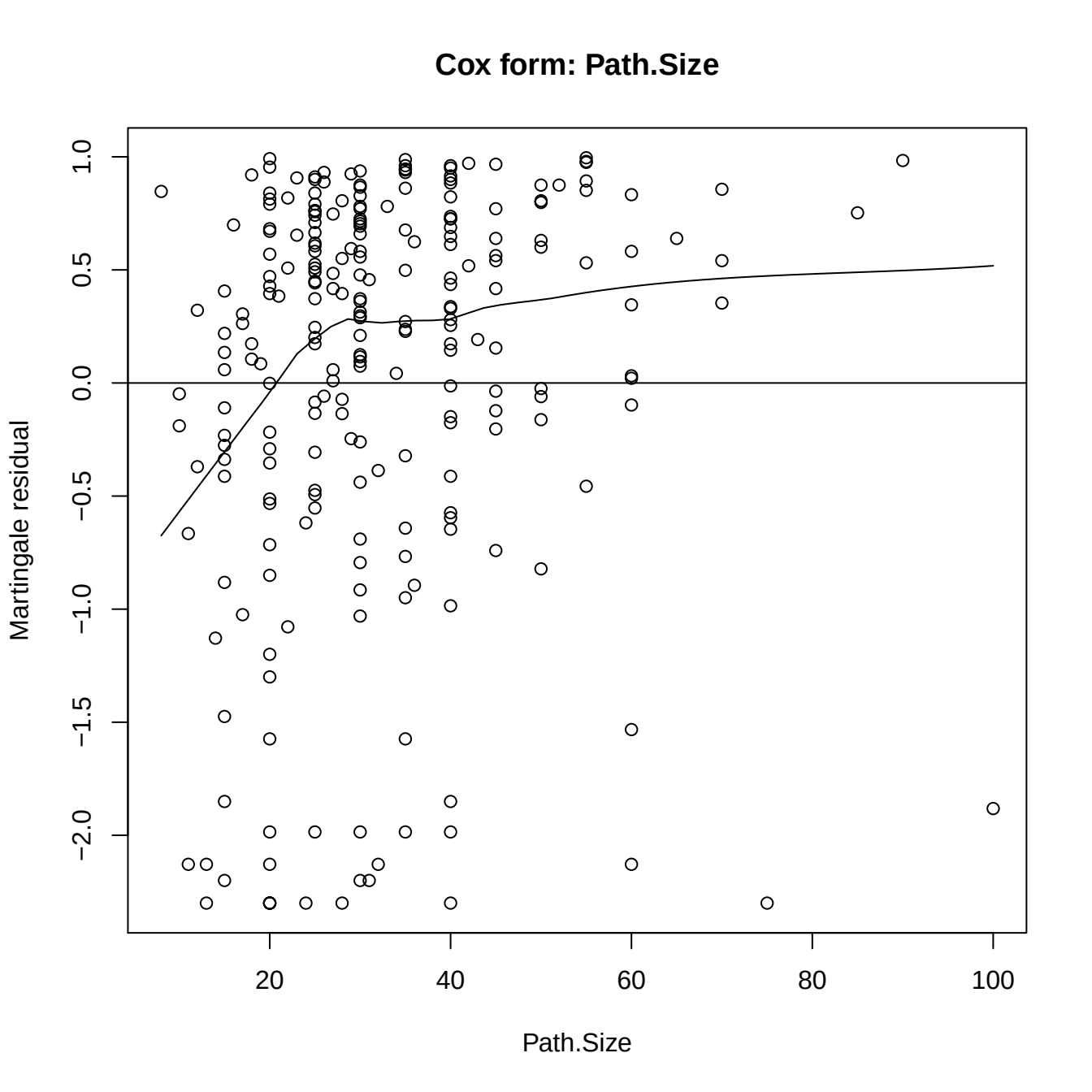

Cox form: Path.Size
Martingale residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
20
40
60
80
100
Path.Size

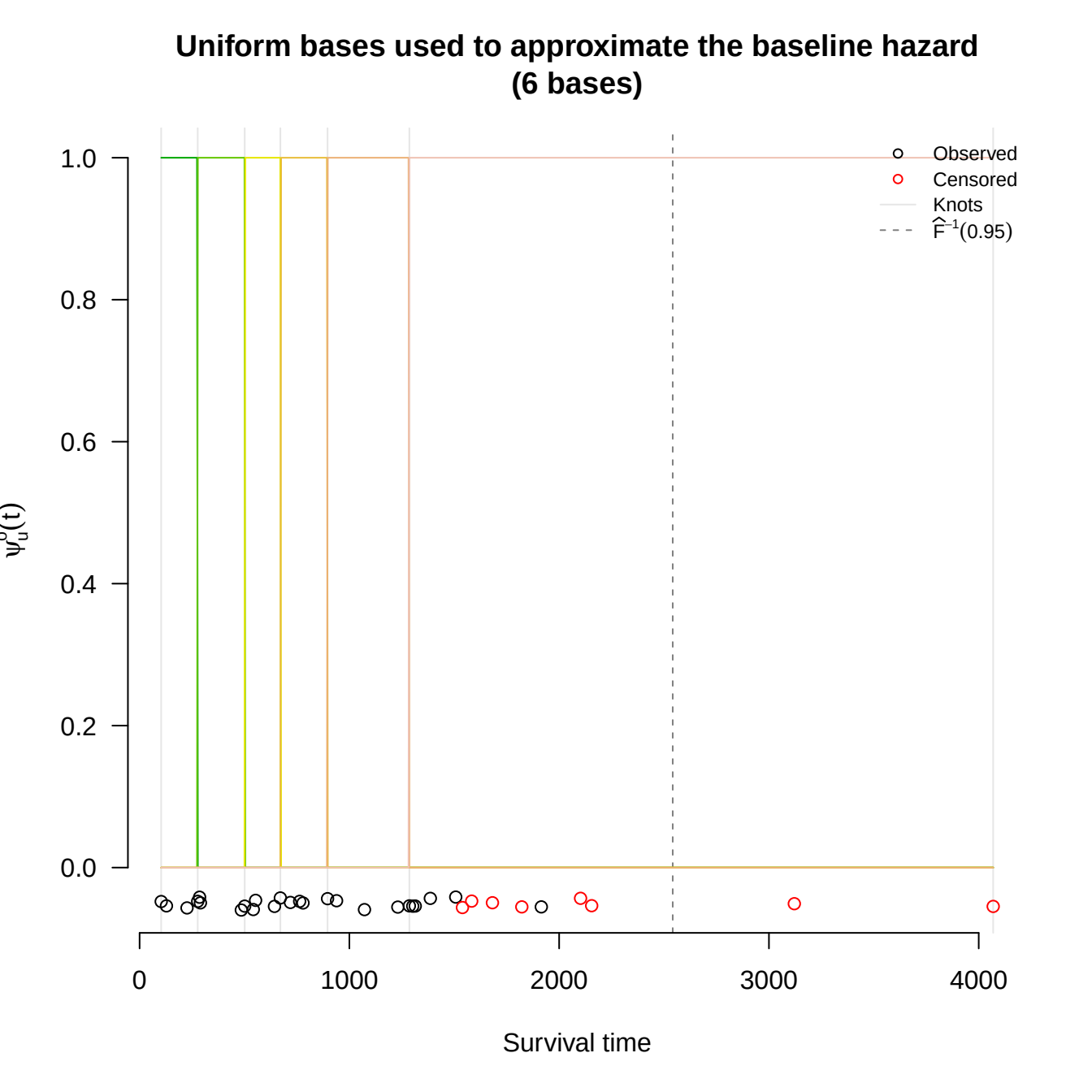

Cox form: Path.LN.Inspected
Martingale residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
0
10
20
30
40
50
Path.LN.Inspected

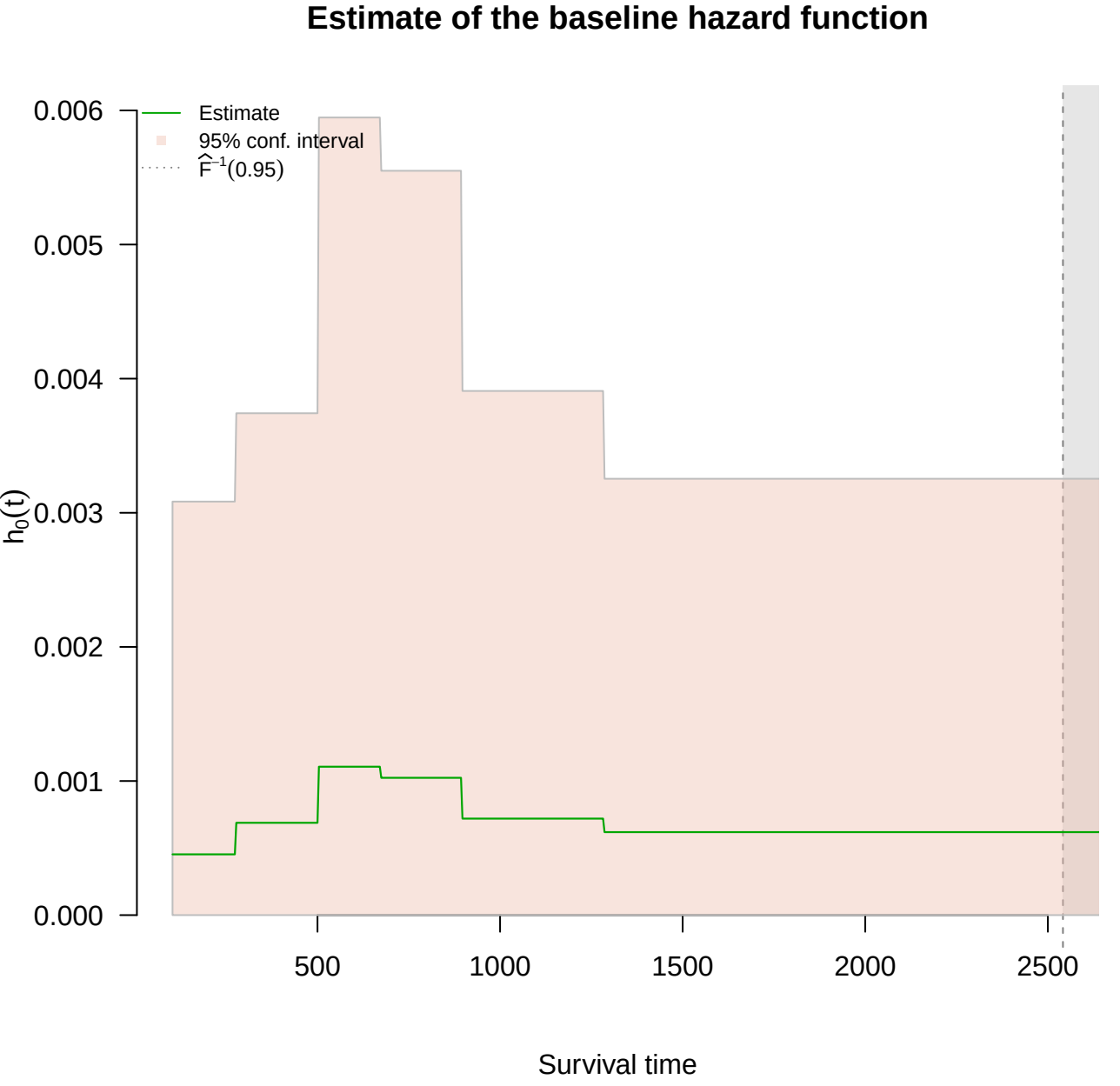

Cox form: Path.LN.Involved
Martingale residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
0
2
4
6
8
10
12
Path.LN.Involved

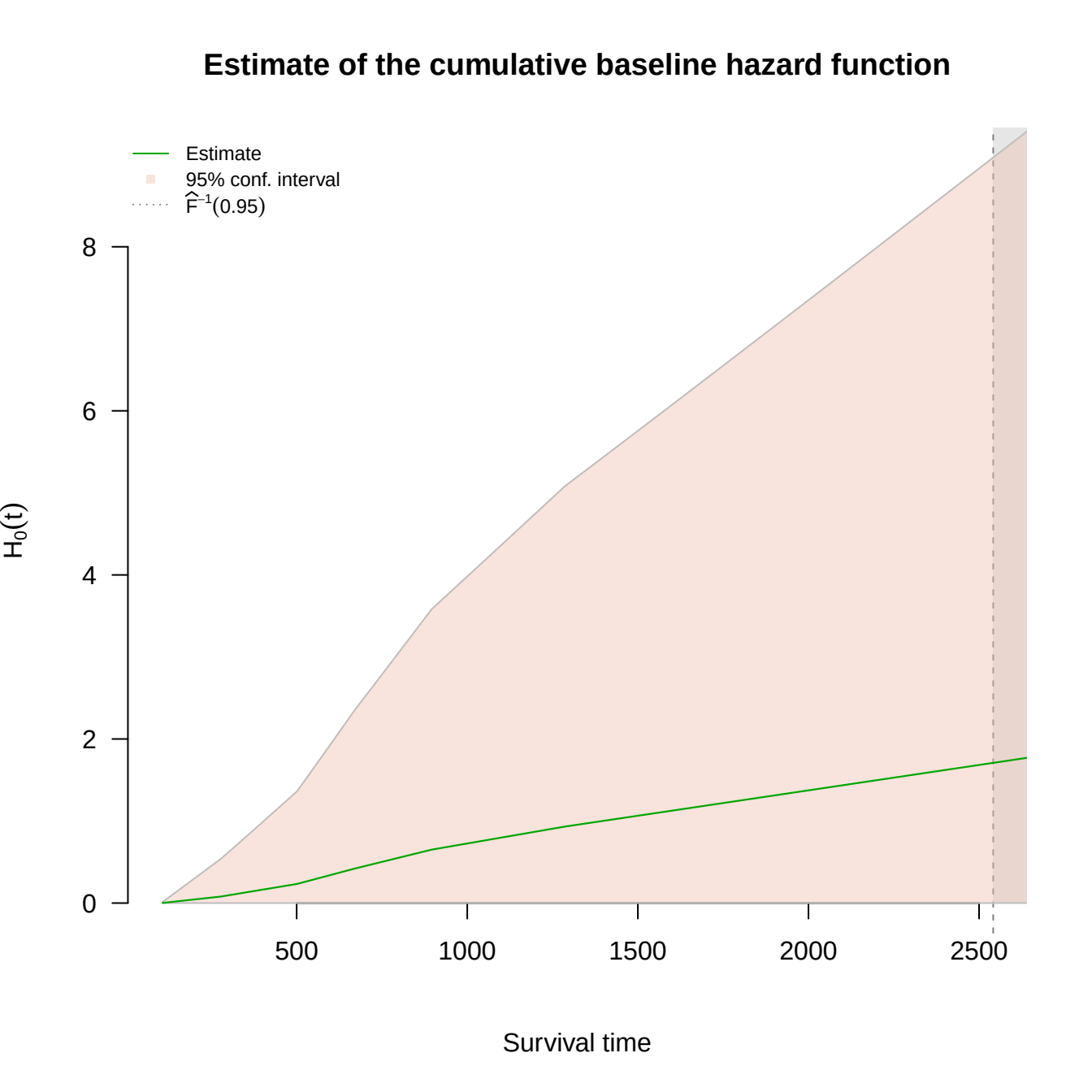

Cox form: Path.LN.Negative
Martingale residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
0
10
20
30
40
Path.LN.Negative

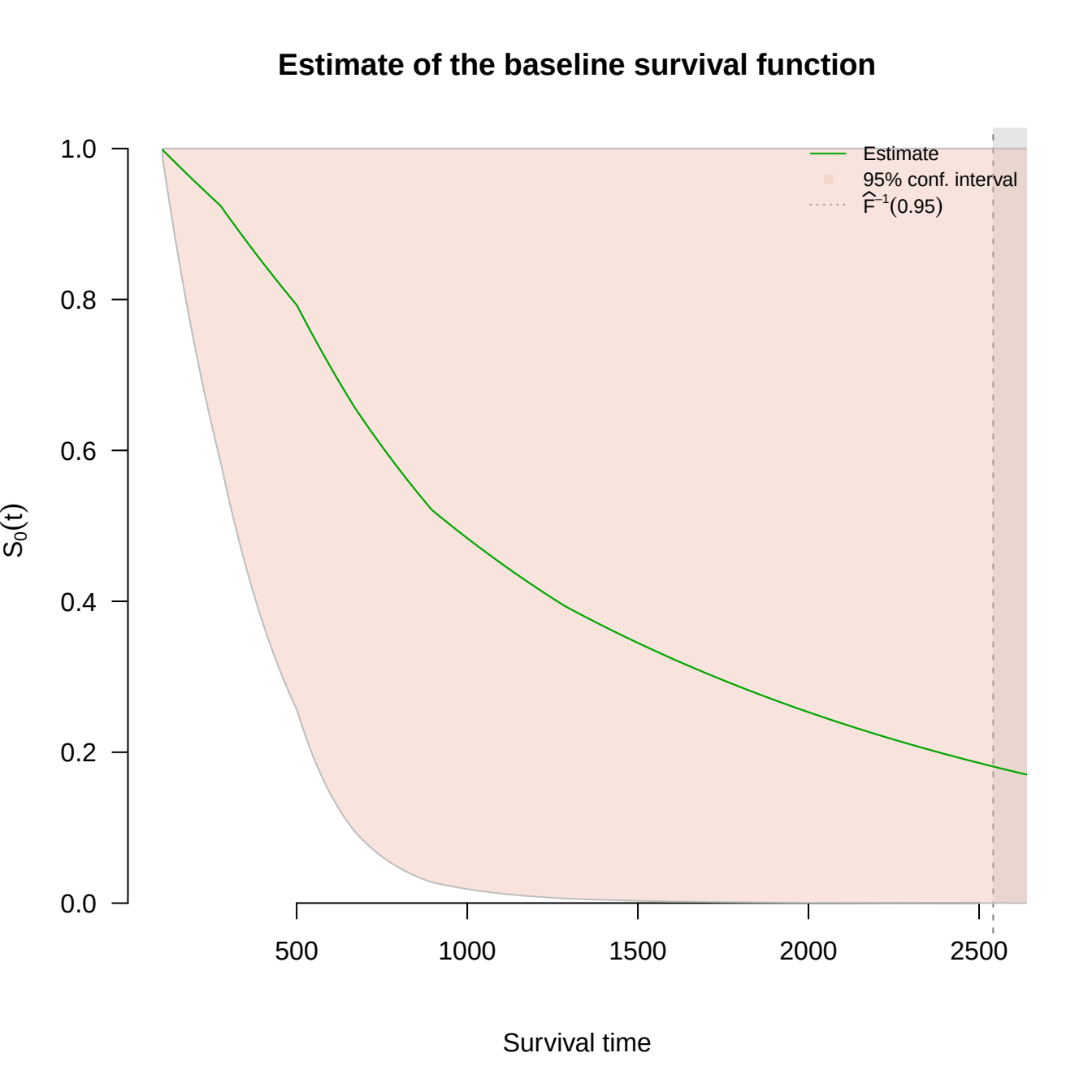

Cox form: History.Diagnosis.AgeAt
Martingale residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
30
40
50
60
70
80
History.Diagnosis.AgeAt

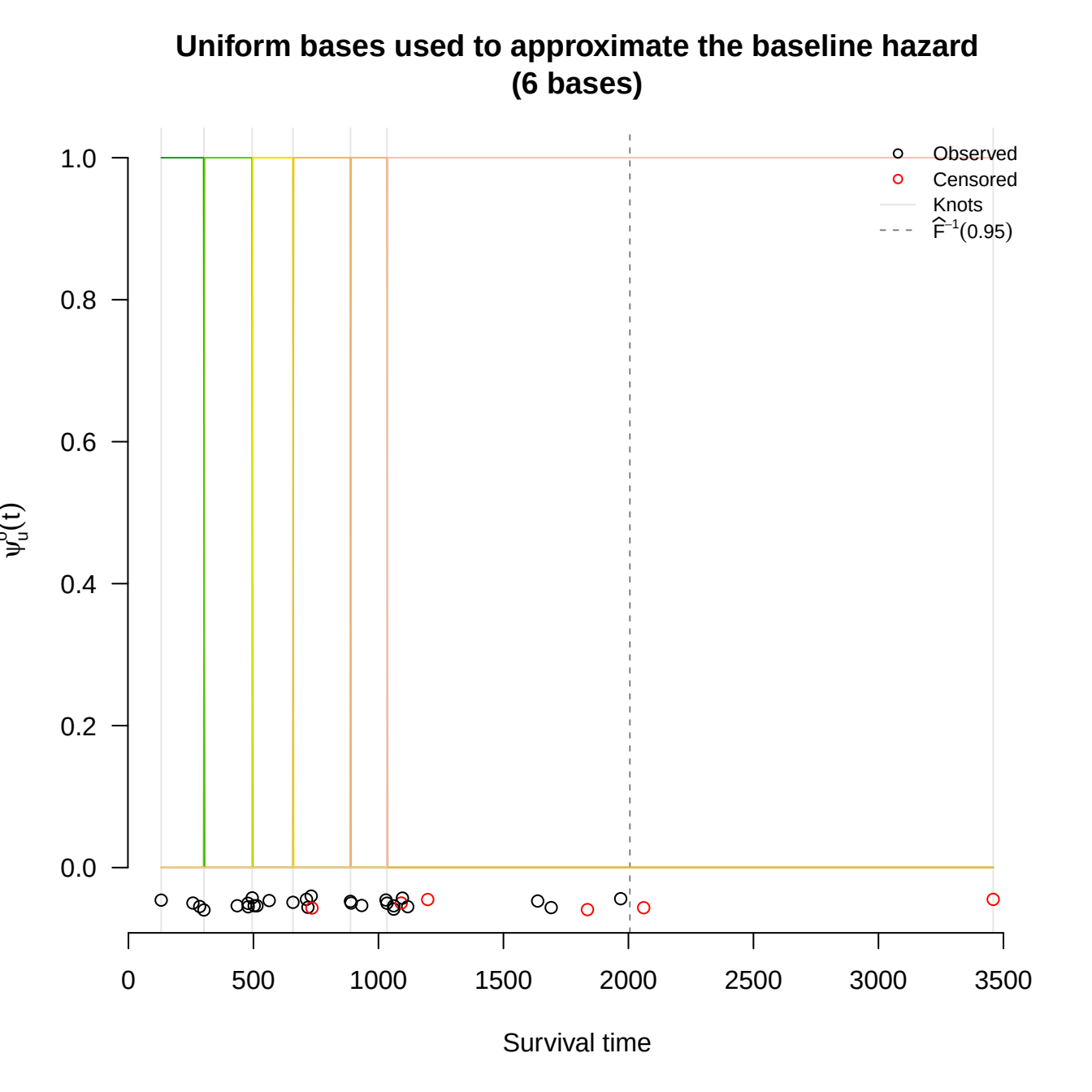

Cox form: Path.Size
Martingale residual
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
20
40
60
80
100
Path.Size

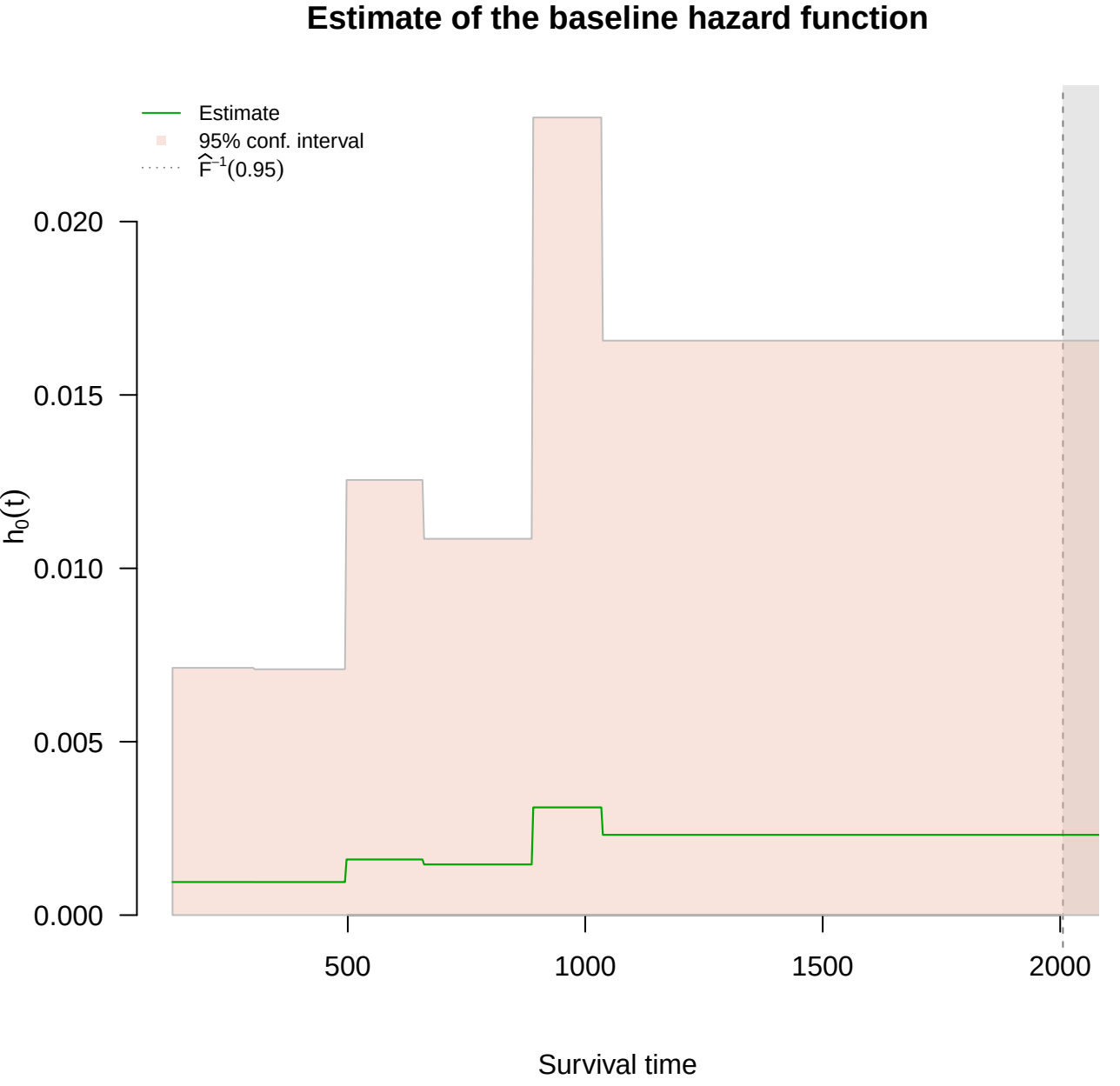

Uniform bases used to approximate the baseline hazard
(6 bases)
Observed
Censored
Knots
$\widehat{F}^{-1}(0.95)$
1.0
0.8
0.6
0.4
0.2
0.0
$\psi_u^o(t)$
0
1000
2000
3000
4000
Survival time

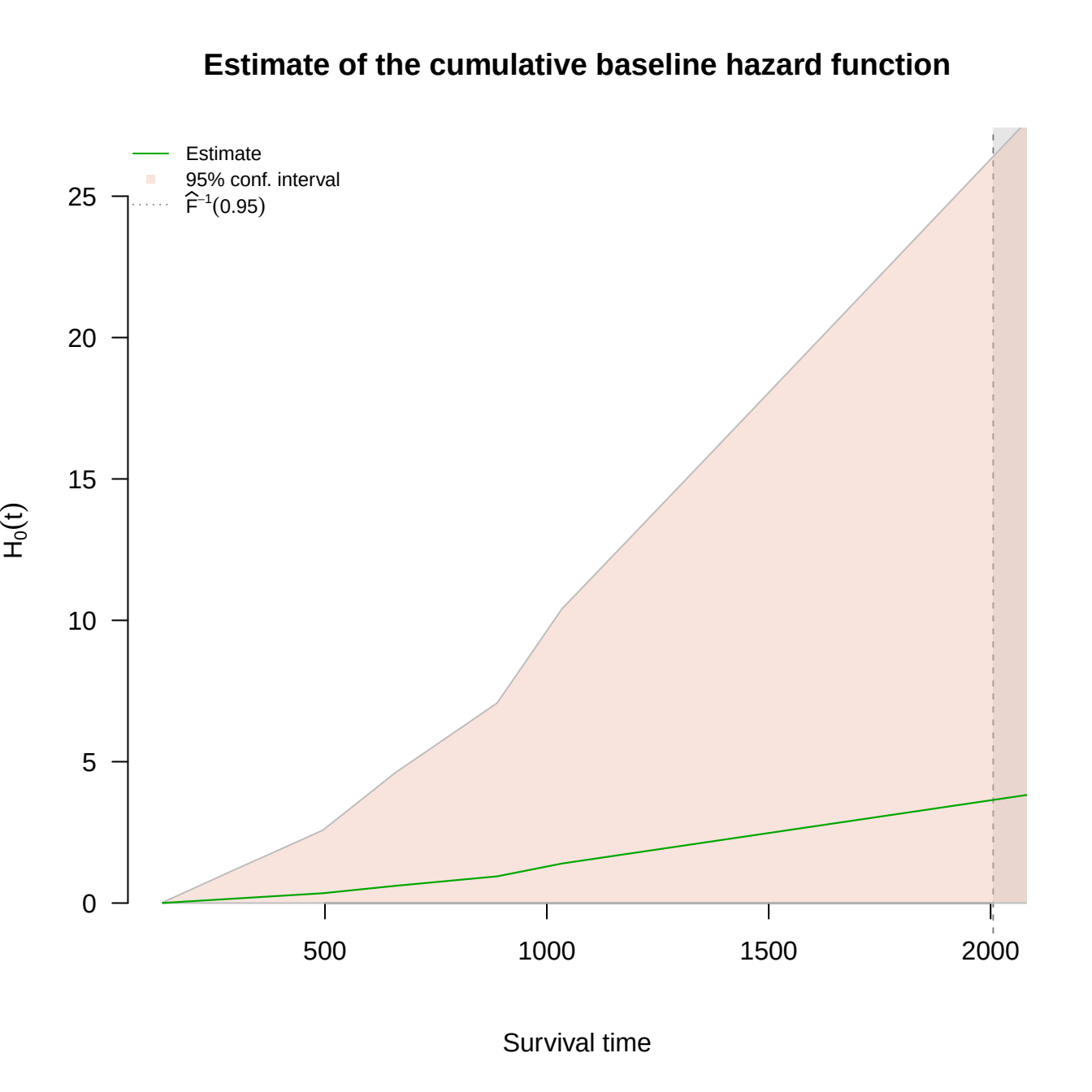

Estimate of the baseline hazard function
Estimate
95% conf. interval
$\widehat{F}^{-1}(0.95)$
0.006
0.005
0.004
0.003
0.002
0.001
0.000
$h_0(t)$
500
1000
1500
2000
2500
Survival time

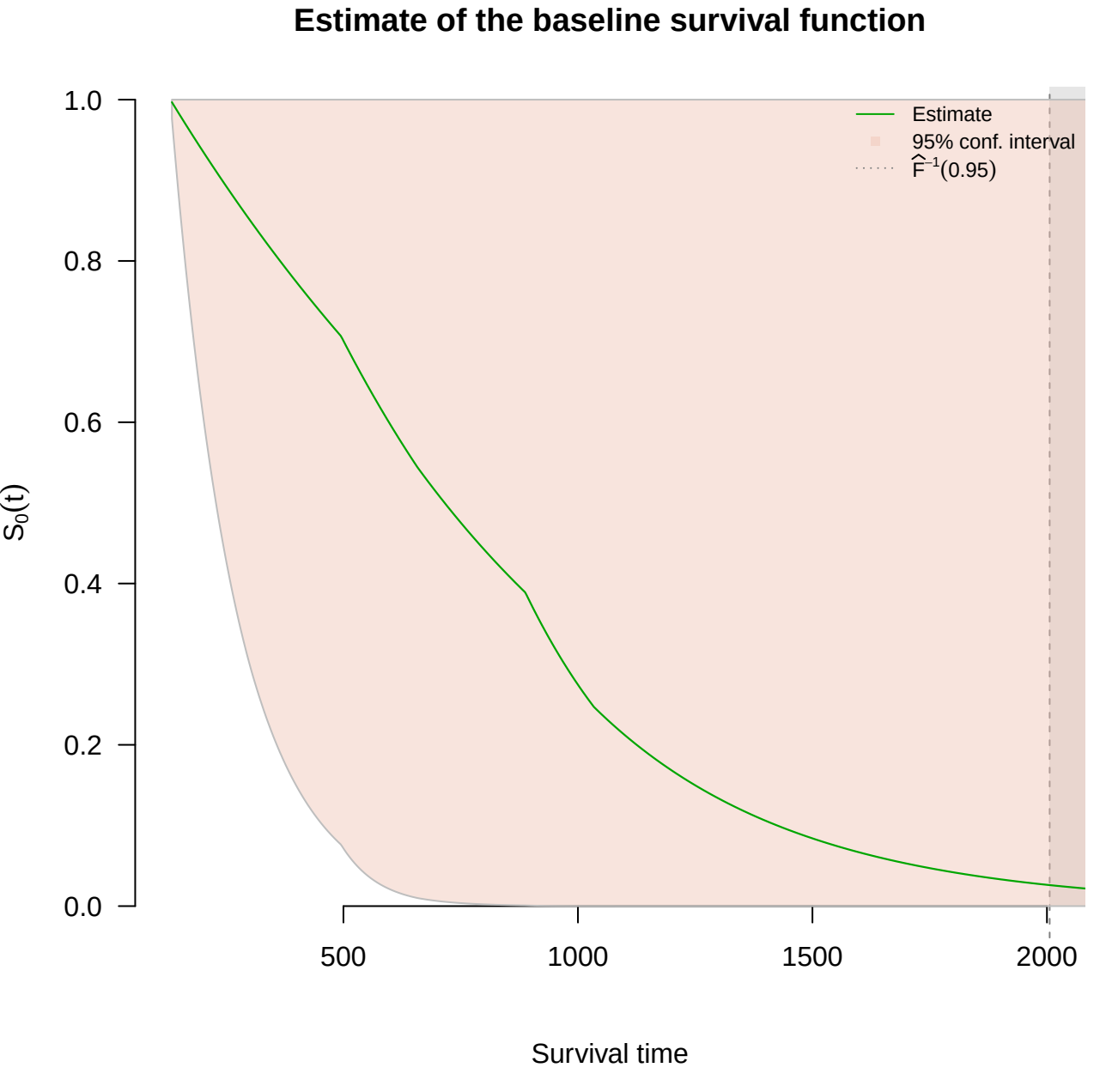

Estimate of the cumulative baseline hazard function
Estimate
95% conf. interval
$\widehat{F}^{-1}(0.95)$
8
6
4
2
0
$H_0(t)$
500
1000
1500
2000
2500
Survival time

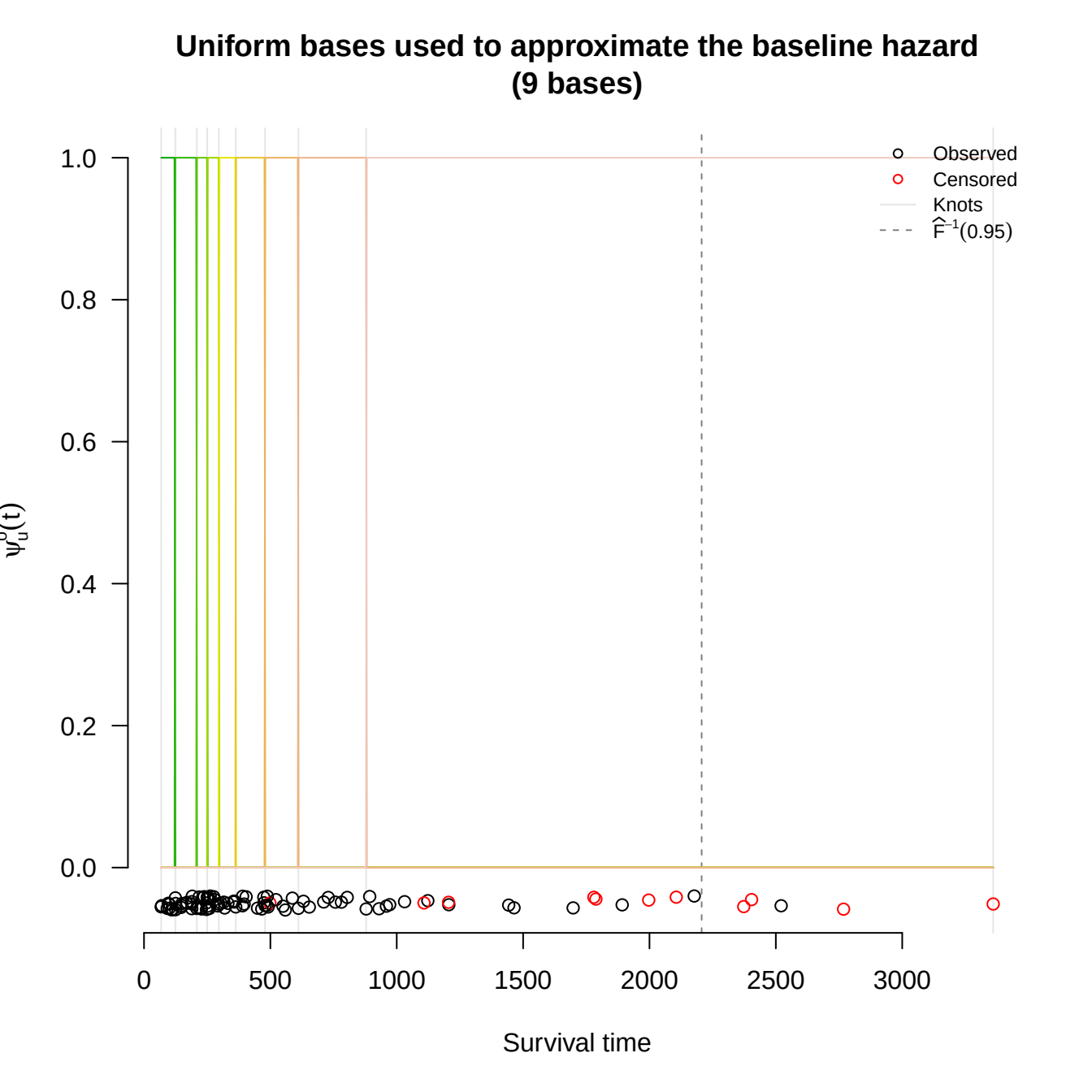

Estimate of the baseline survival function
Estimate
95% conf. interval
$\widehat{F}^{-1}(0.95)$
1.0
0.8
0.6
0.4
0.2
0.0
$S_0(t)$
500
1000
1500
2000
2500
Survival time

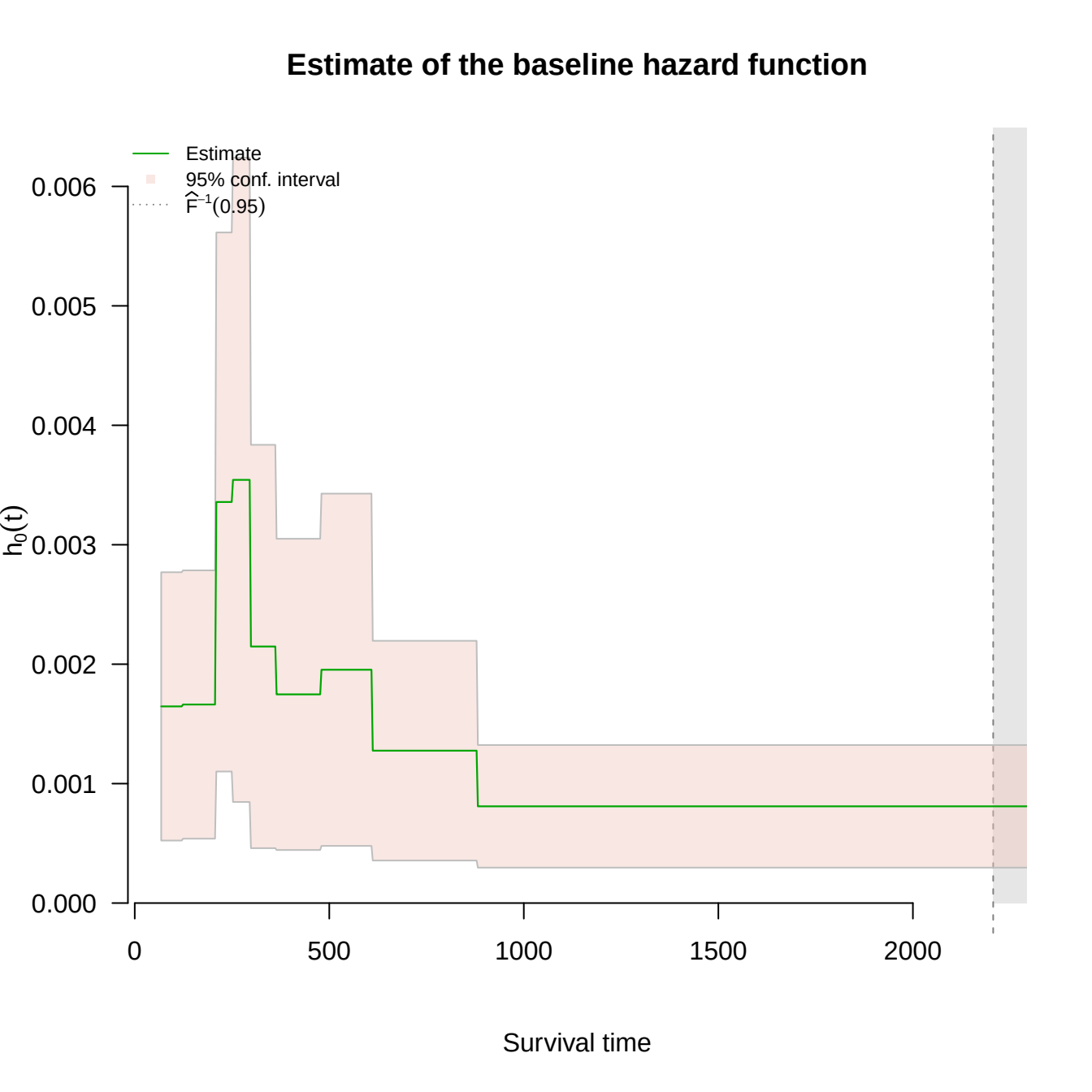

Uniform bases used to approximate the baseline hazard
(6 bases)
Observed
Censored
Knots
$\widehat{F}^{-1}(0.95)$
1.0
0.8
0.6
0.4
0.2
0.0
$\psi_u^o(t)$
0
500
1000
1500
2000
2500
3000
3500
Survival time

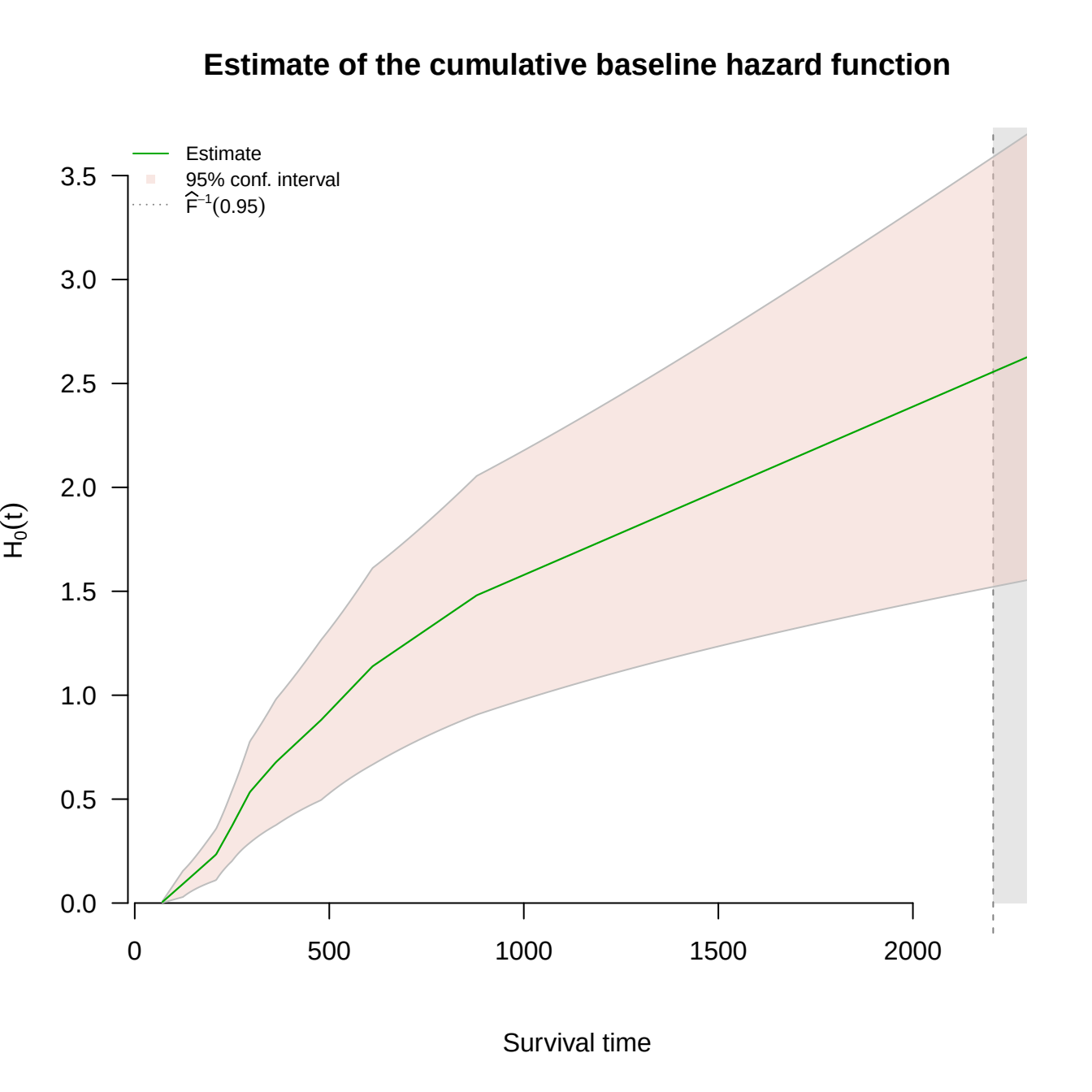

Estimate of the baseline hazard function
Estimate
95% conf. interval
$\widehat{F}^{-1}(0.95)$
0.020
0.015
0.010
0.005
0.000
$h_0(t)$
500
1000
1500
2000
Survival time

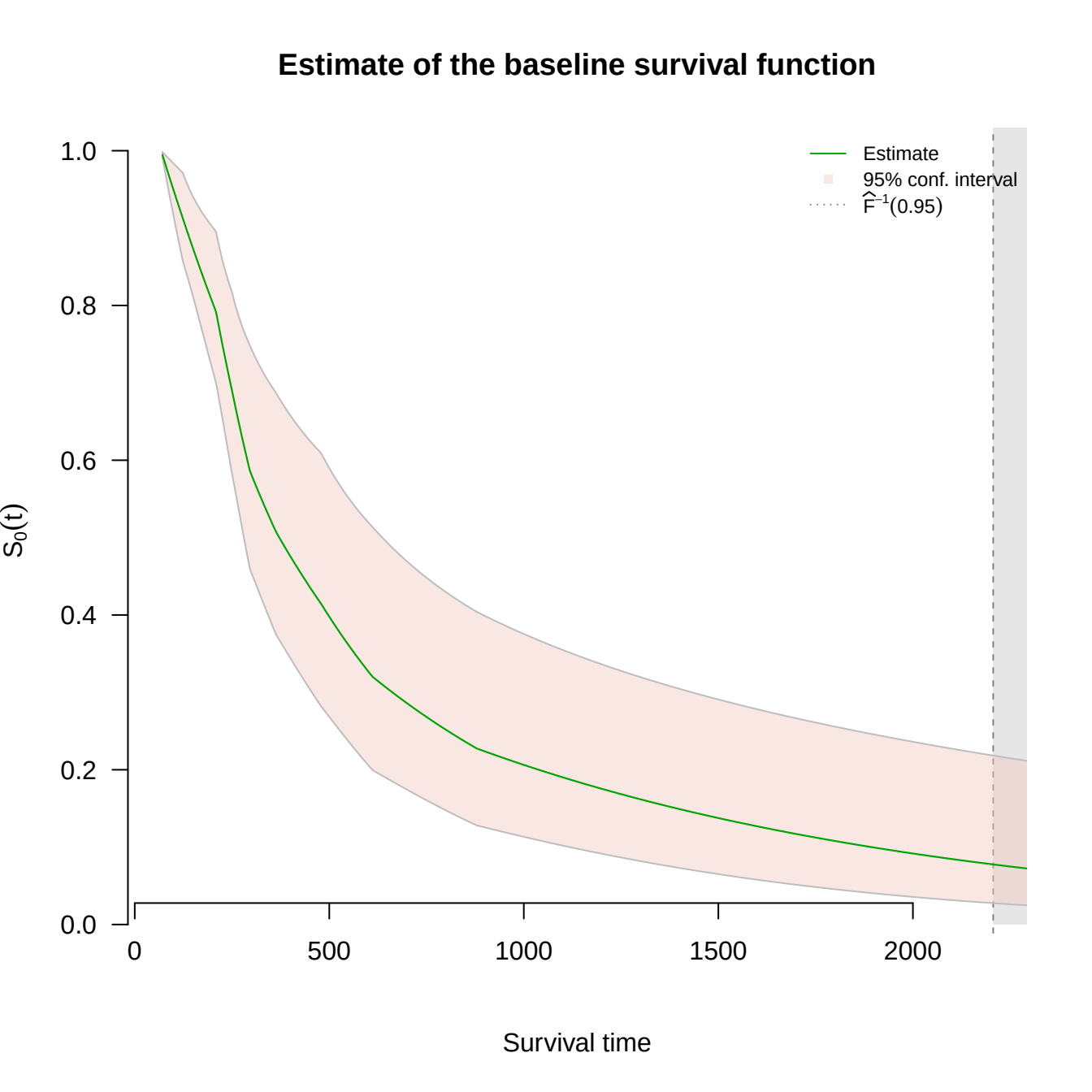

Estimate of the cumulative baseline hazard function
Estimate
95% conf. interval
$\widehat{F}^{-1}(0.95)$
25
20
15
10
5
0
$H_0(t)$
500
1000
1500
2000
Survival time

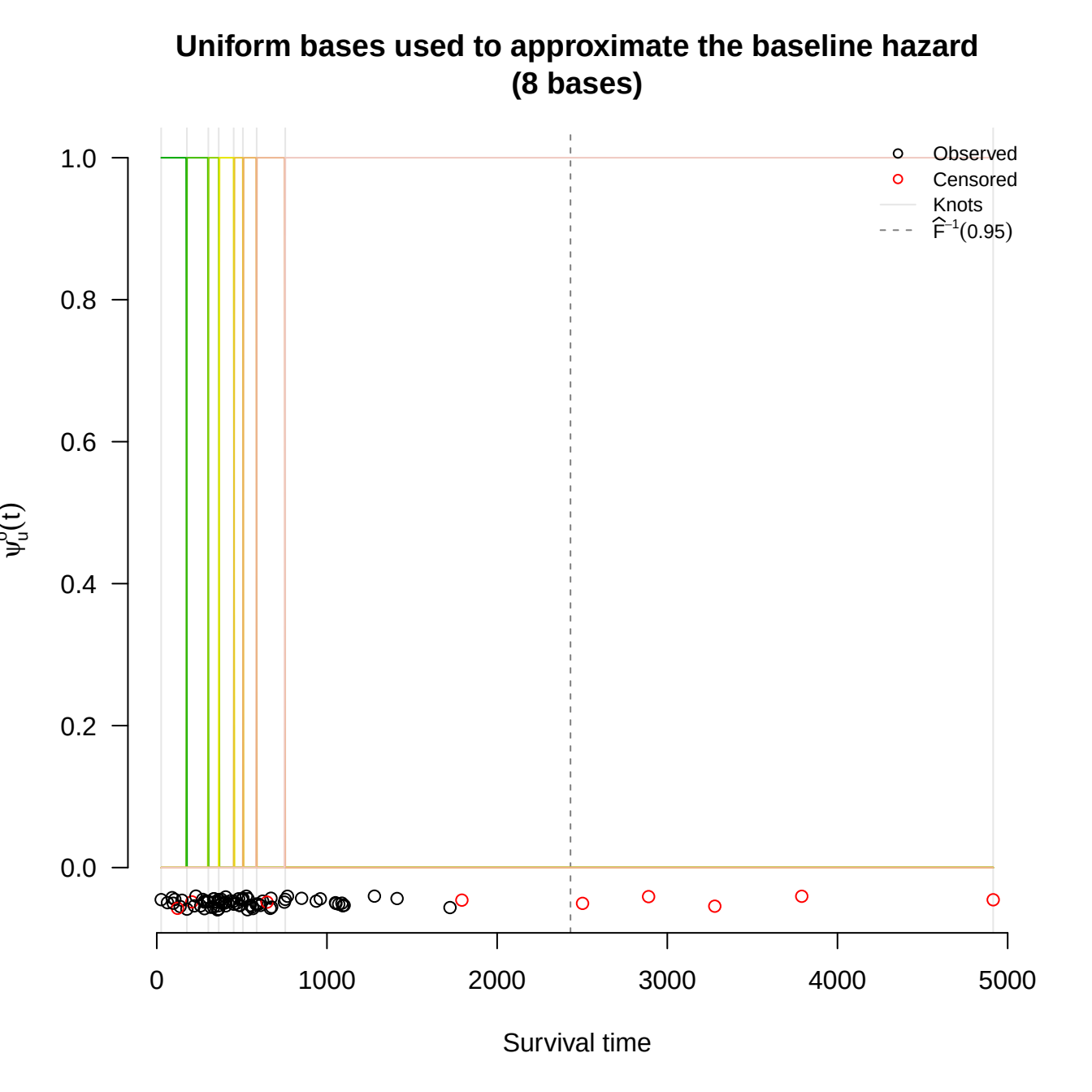

Estimate of the baseline survival function
Estimate
95% conf. interval
$\widehat{F}^{-1}(0.95)$
1.0
0.8
0.6
0.4
0.2
0.0
$S_0(t)$
500
1000
1500
2000
Survival time

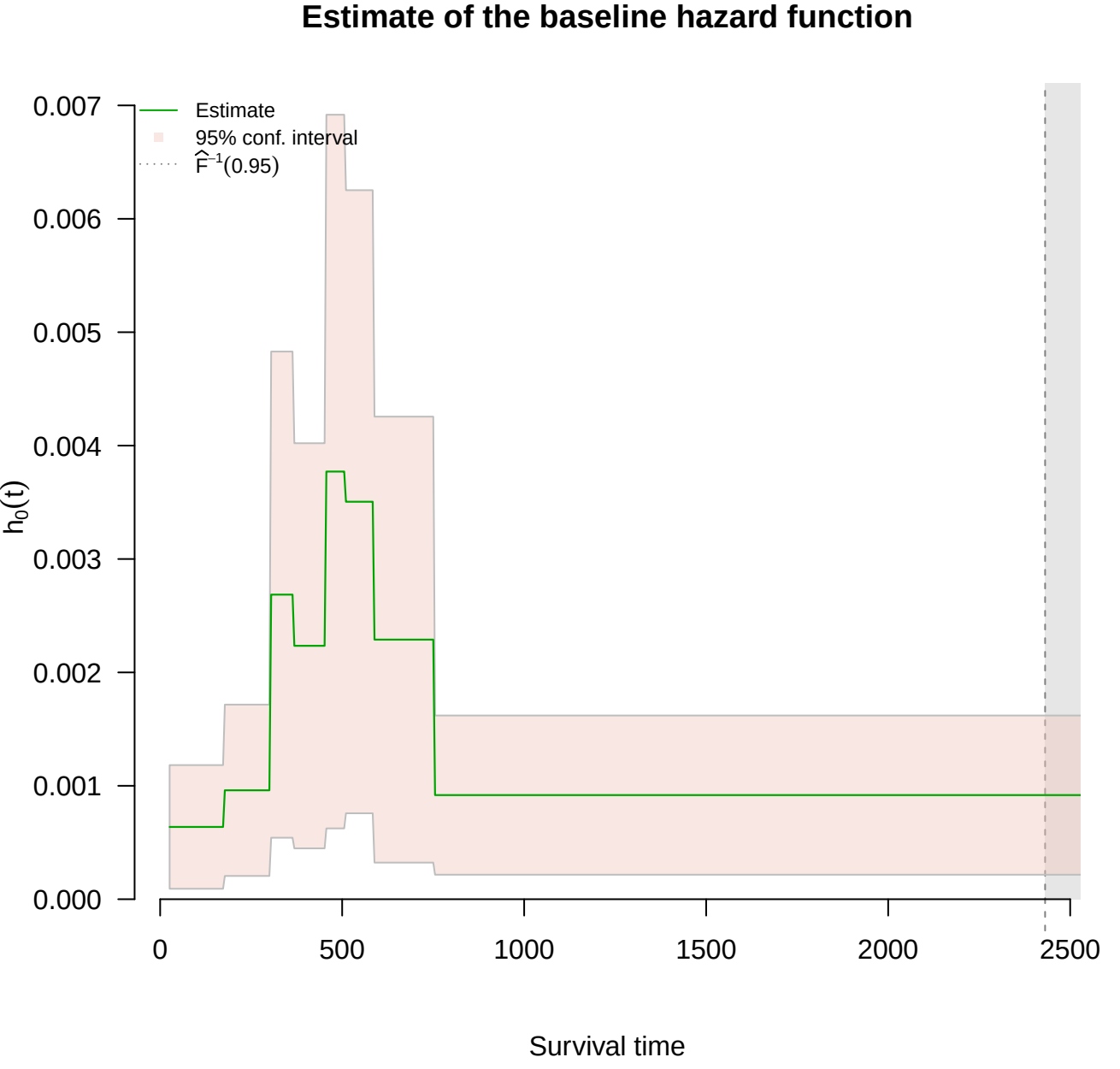

Uniform bases used to approximate the baseline hazard
(9 bases)
Observed
Censored
Knots
$\widehat{F}^{-1}(0.95)$
1.0
0.8
0.6
0.4
0.2
0.0
$\psi_u^o(t)$
0
500
1000
1500
2000
2500
3000
Survival time

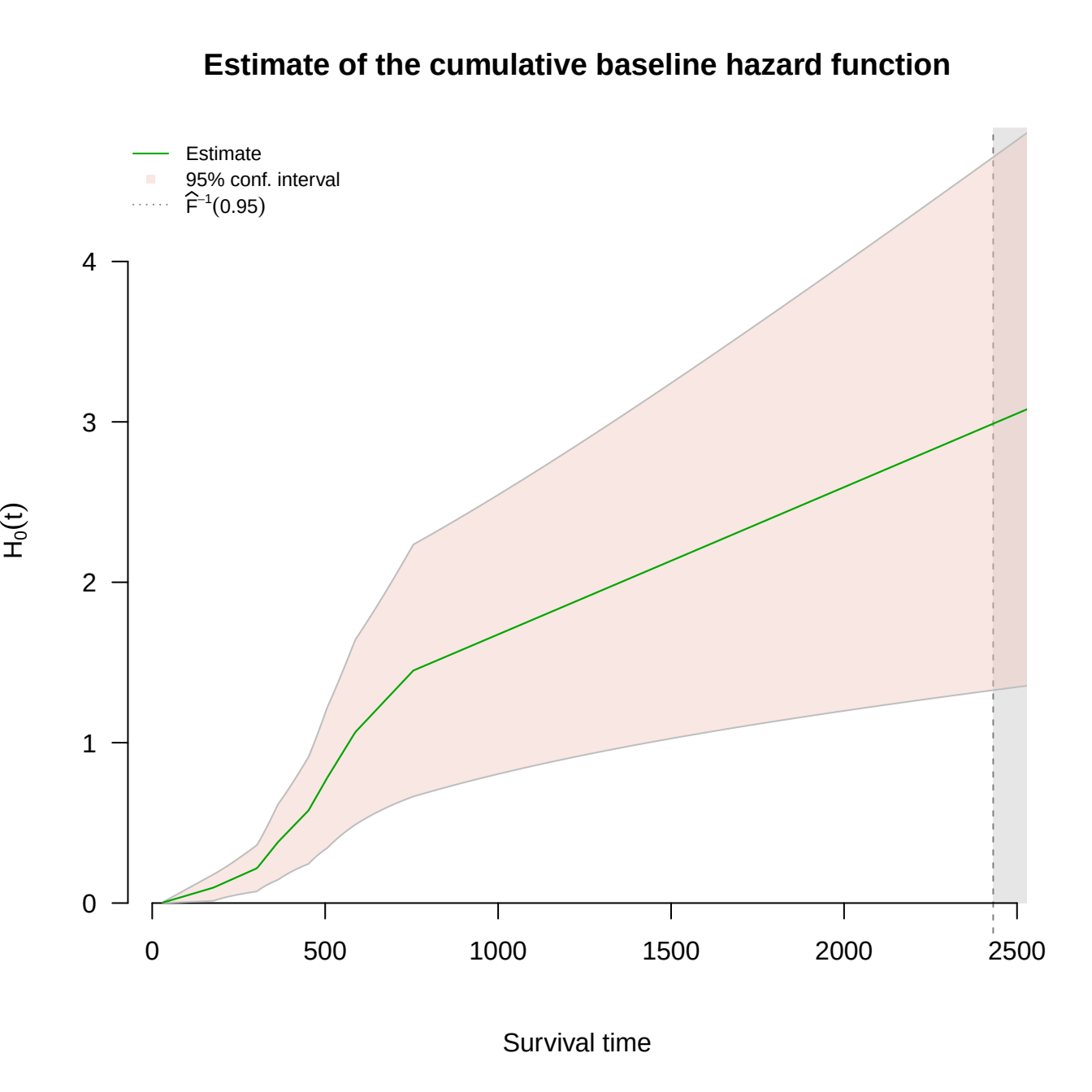

Estimate of the baseline hazard function
Estimate
95% conf. interval
$\widehat{F}^{-1}(0.95)$
$h_0(t)$
0.006
0.005
0.004
0.003
0.002
0.001
0.000
0
500
1000
1500
2000
Survival time

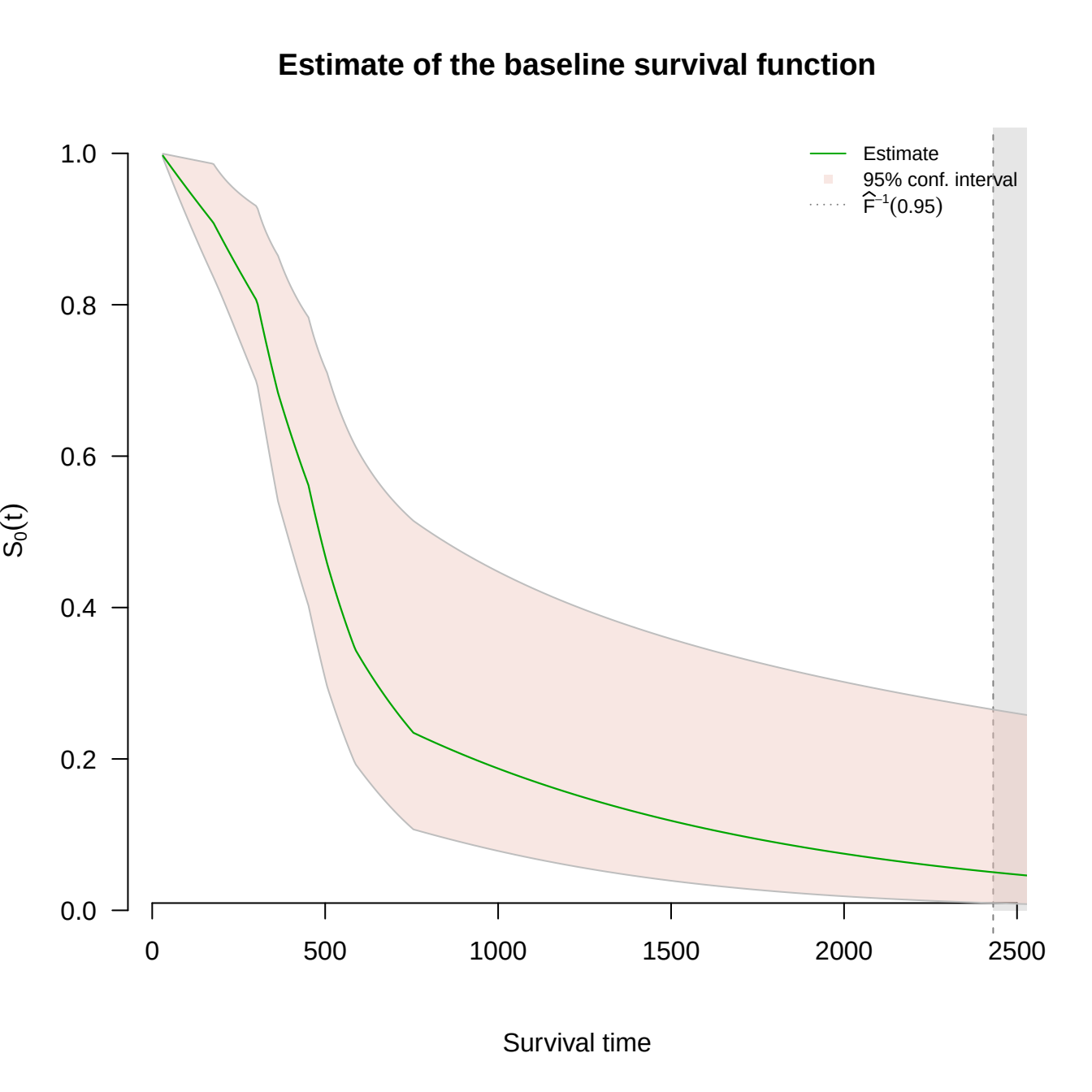

Estimate of the cumulative baseline hazard function
Estimate
95% conf. interval
$\widehat{F}^{-1}(0.95)$
$H_0(t)$
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
500
1000
1500
2000
Survival time

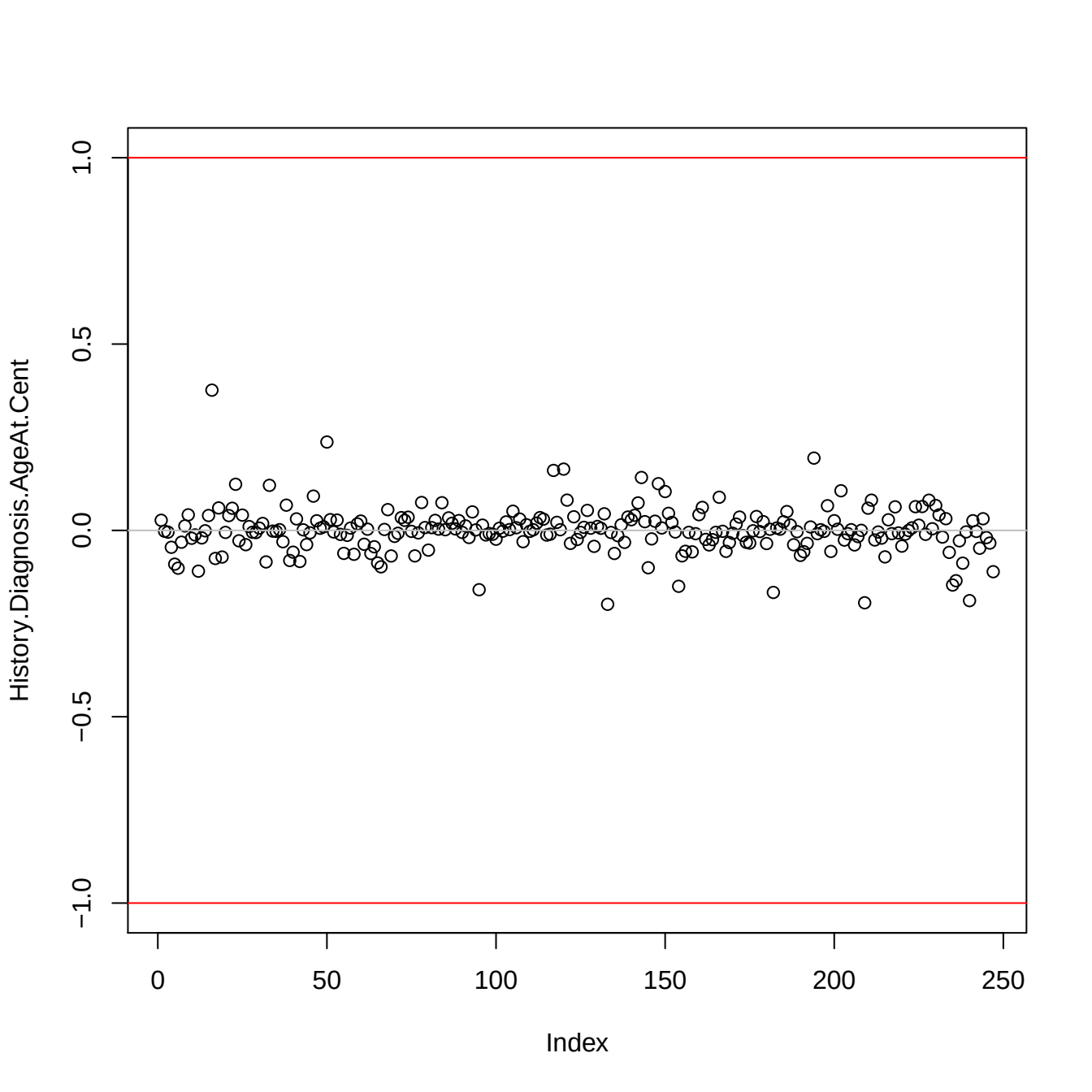

Estimate of the baseline survival function
Estimate
95% conf. interval
$\widehat{F}^{-1}(0.95)$
1.0
0.8
0.6
0.4
0.2
0.0
$S_0(t)$
0
500
1000
1500
2000
Survival time

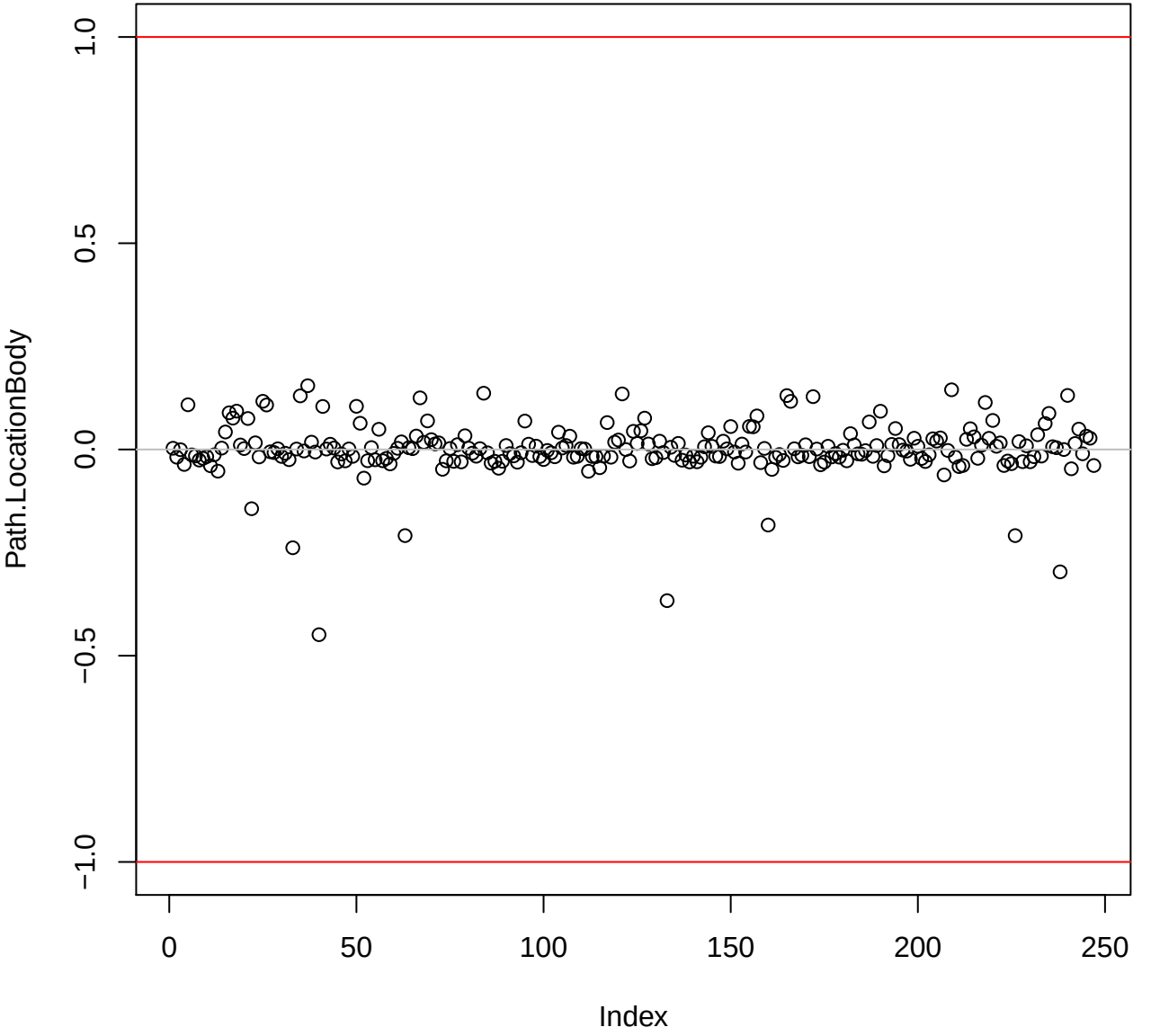

Uniform bases used to approximate the baseline hazard
(8 bases)
Observed
Censored
Knots
$\widehat{F}^{-1}(0.95)$
1.0
0.8
0.6
0.4
0.2
0.0
$\psi_u^o(t)$
0
1000
2000
3000
4000
5000
Survival time

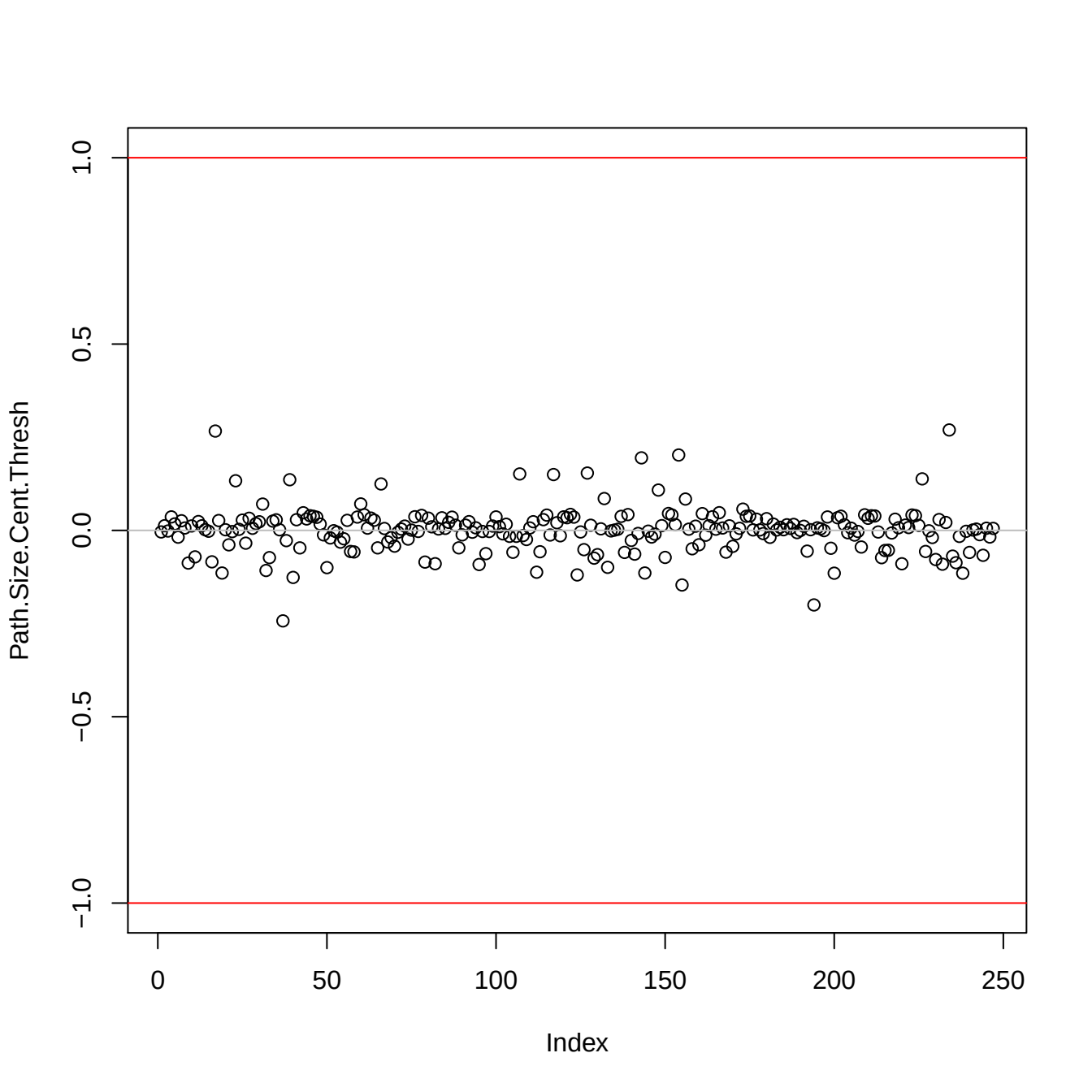

Estimate of the baseline hazard function
Estimate
95% conf. interval
$\widehat{F}^{-1}(0.95)$
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0.000
$h_0(t)$
0
500
1000
1500
2000
2500
Survival time

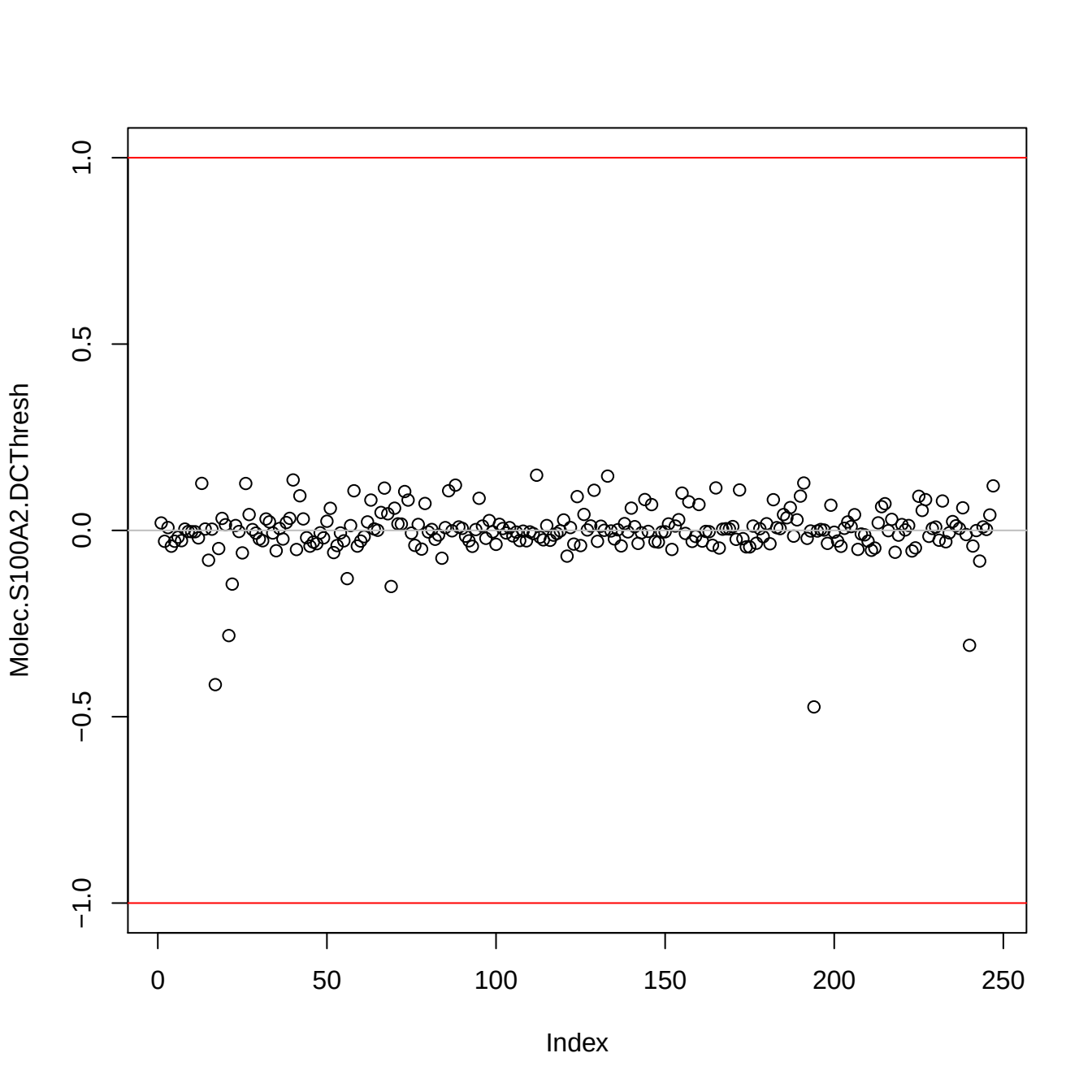

Estimate of the cumulative baseline hazard function
Estimate
95% conf. interval
$\widehat{F}^{-1}(0.95)$
$H_0(t)$
0
1
2
3
4
0
500
1000
1500
2000
2500
Survival time

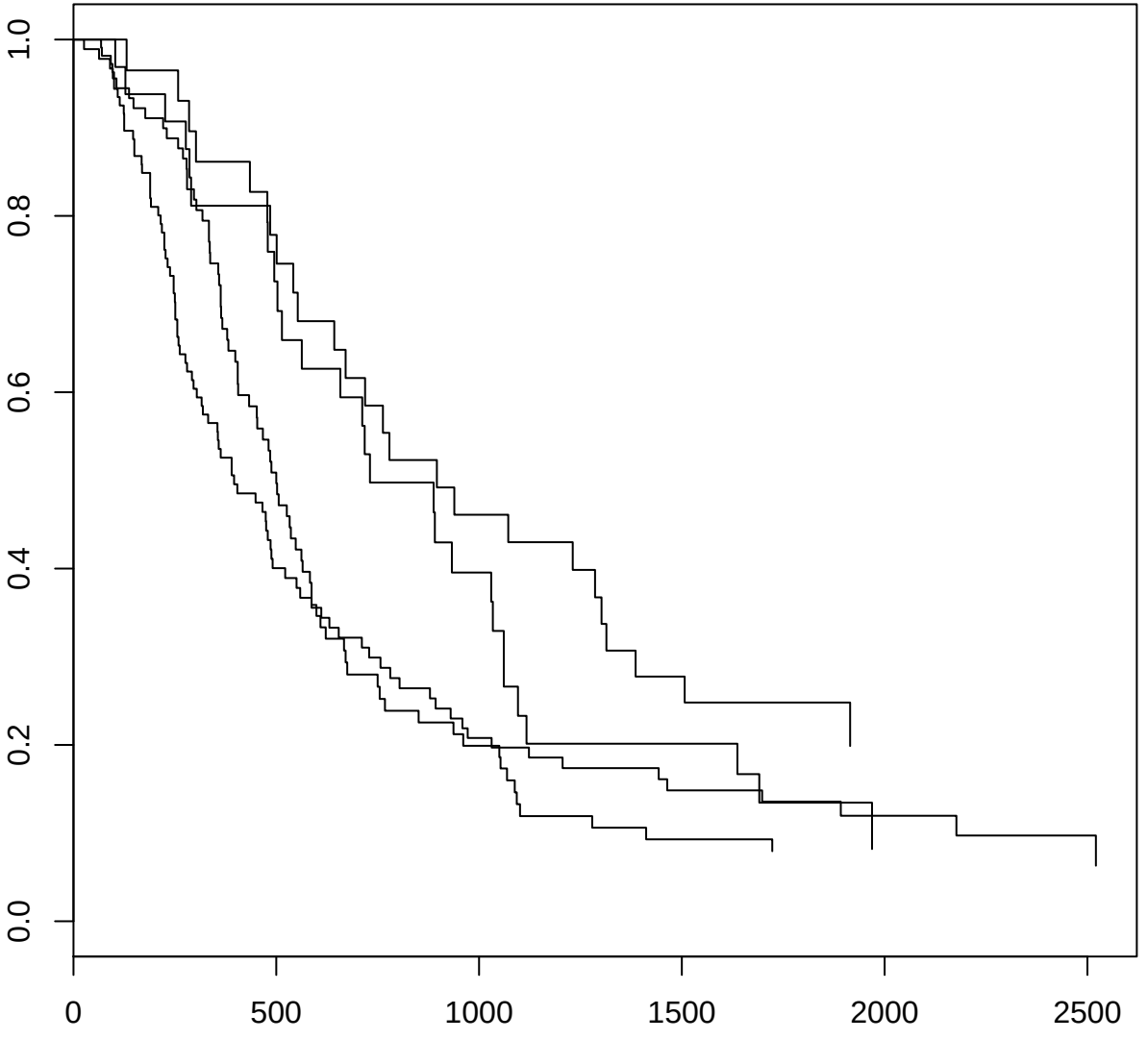

Estimate of the baseline survival function
Estimate
95% conf. interval
$\widehat{F}^{-1}(0.95)$
1.0
0.8
0.6
0.4
0.2
0.0
$S_0(t)$
0
500
1000
1500
2000
2500
Survival time

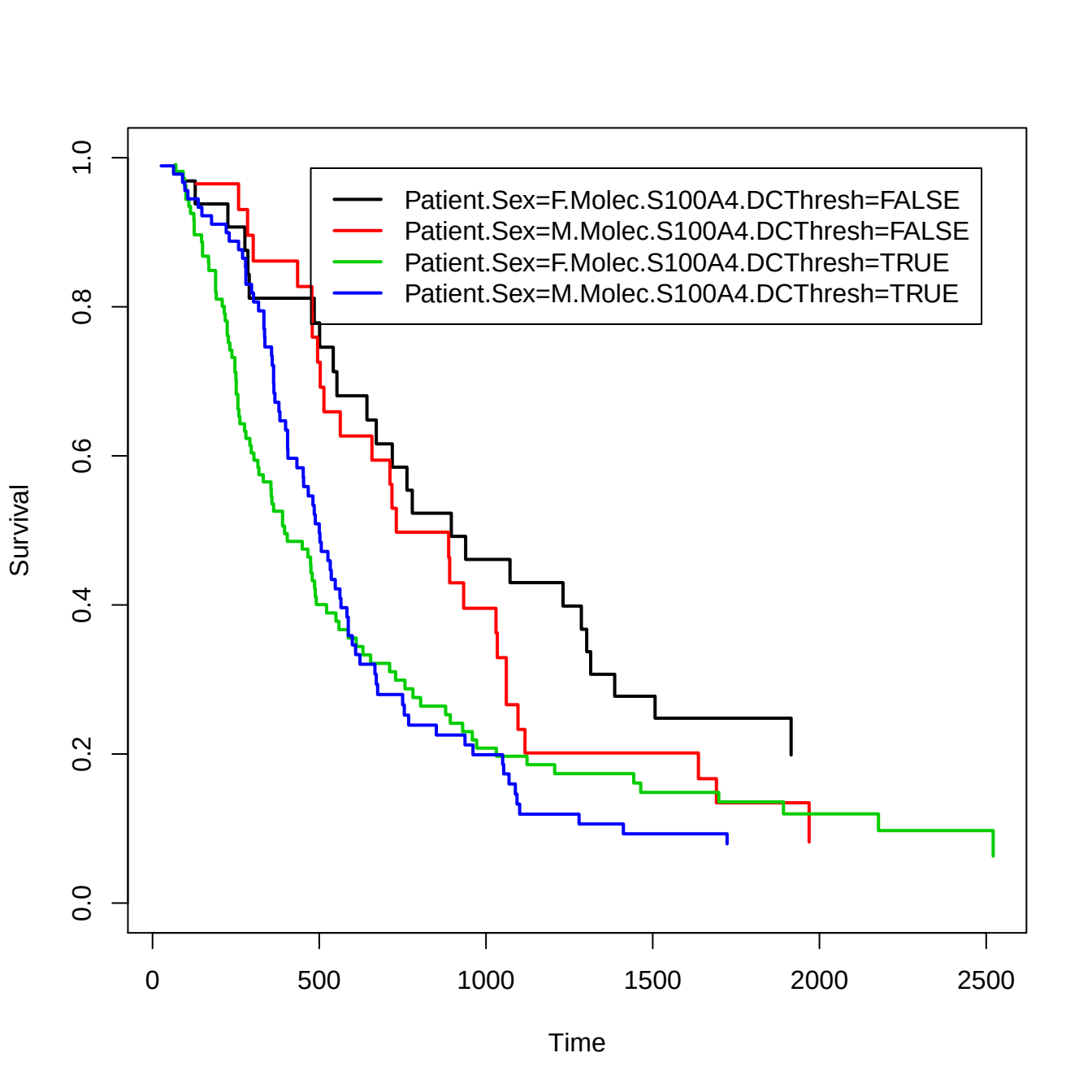

History.Diagnosis.AgeAt.Cent
1.0
0.5
0.0
−0.5
−1.0
0
50
100
150
200
250
Index

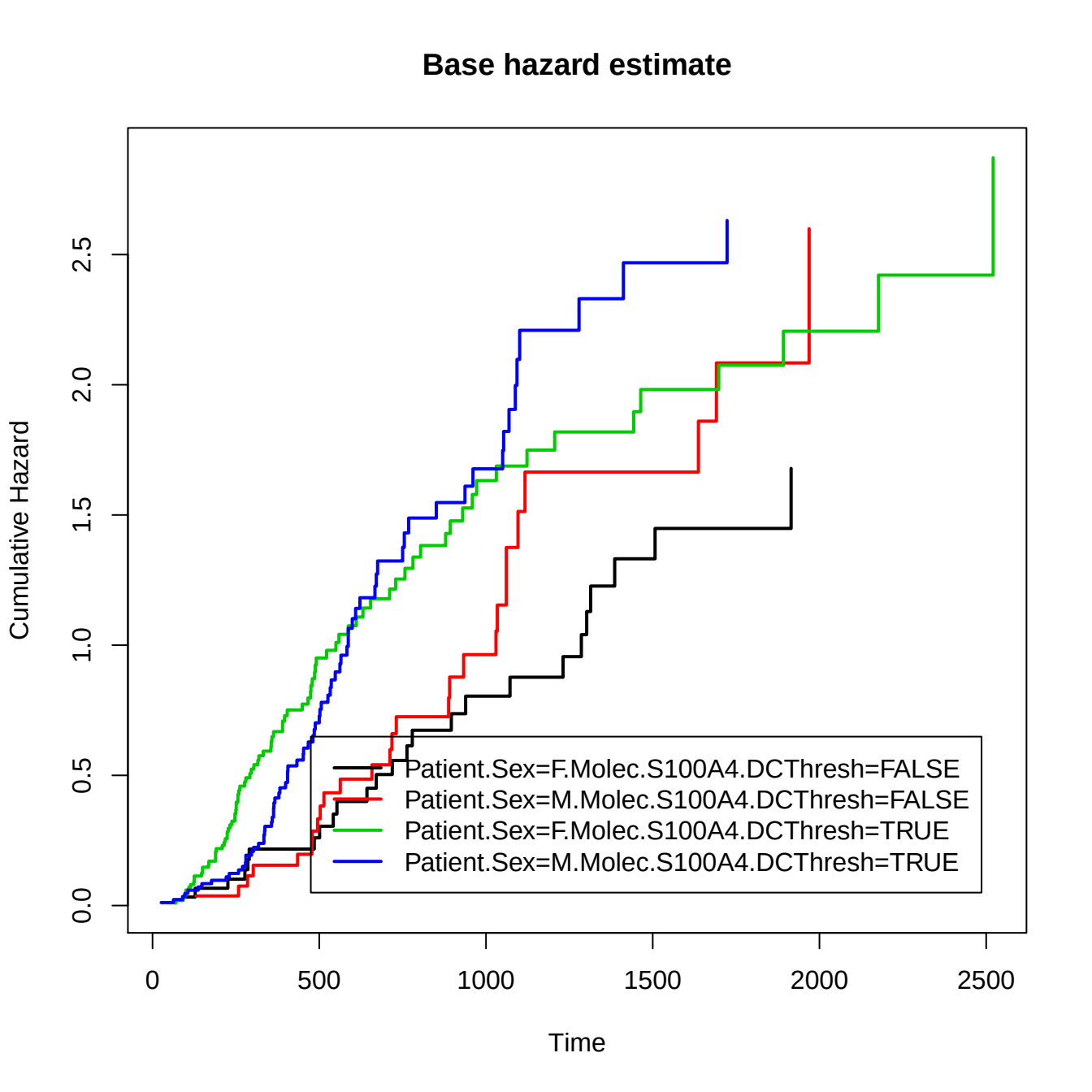

Path.LocationBody
1.0
0.5
0.0
−0.5
−1.0
0
50
100
150
200
250
Index

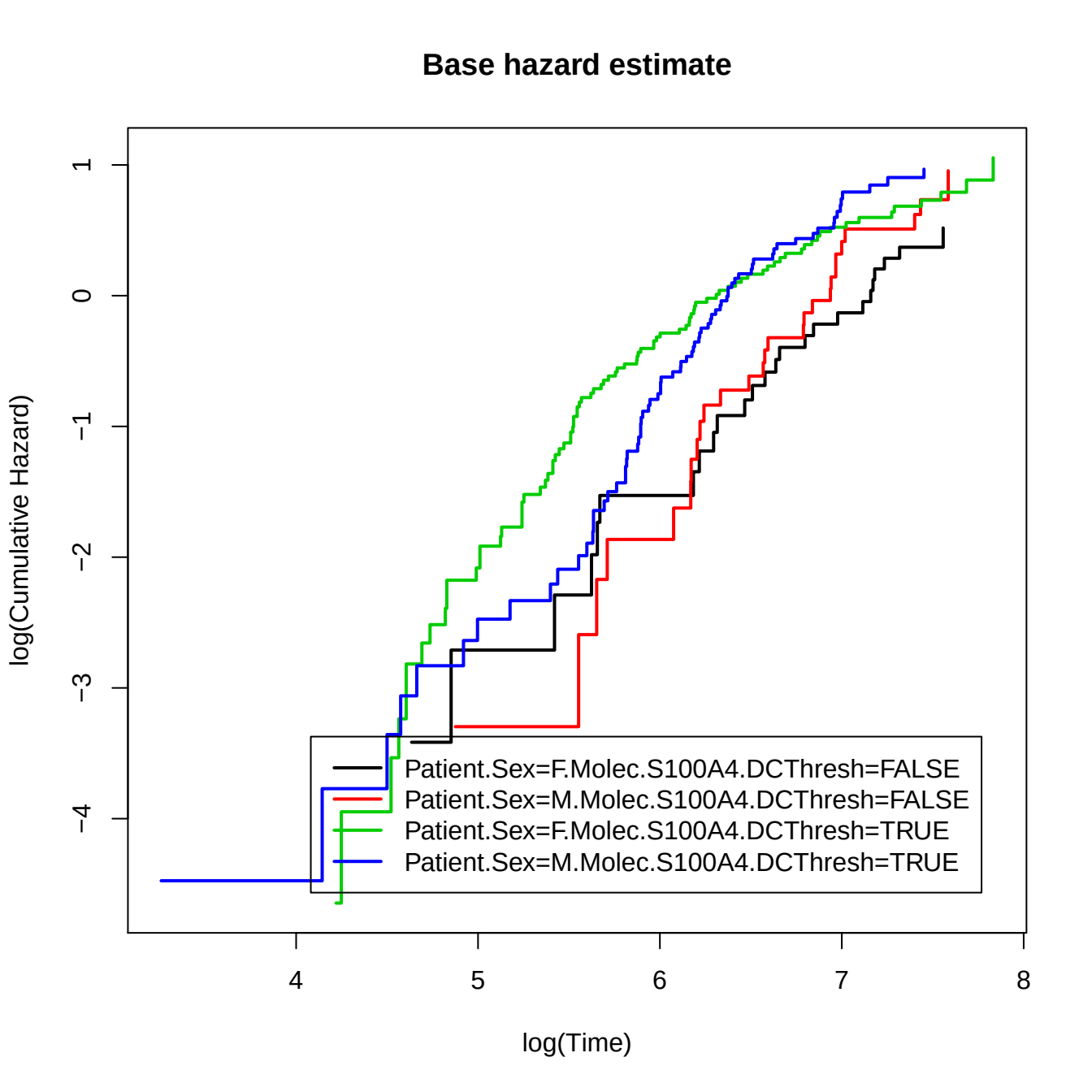

Path.Size.Cent.Thresh
1.0
0.5
0.0
−0.5
−1.0
0
50
100
150
200
250
Index

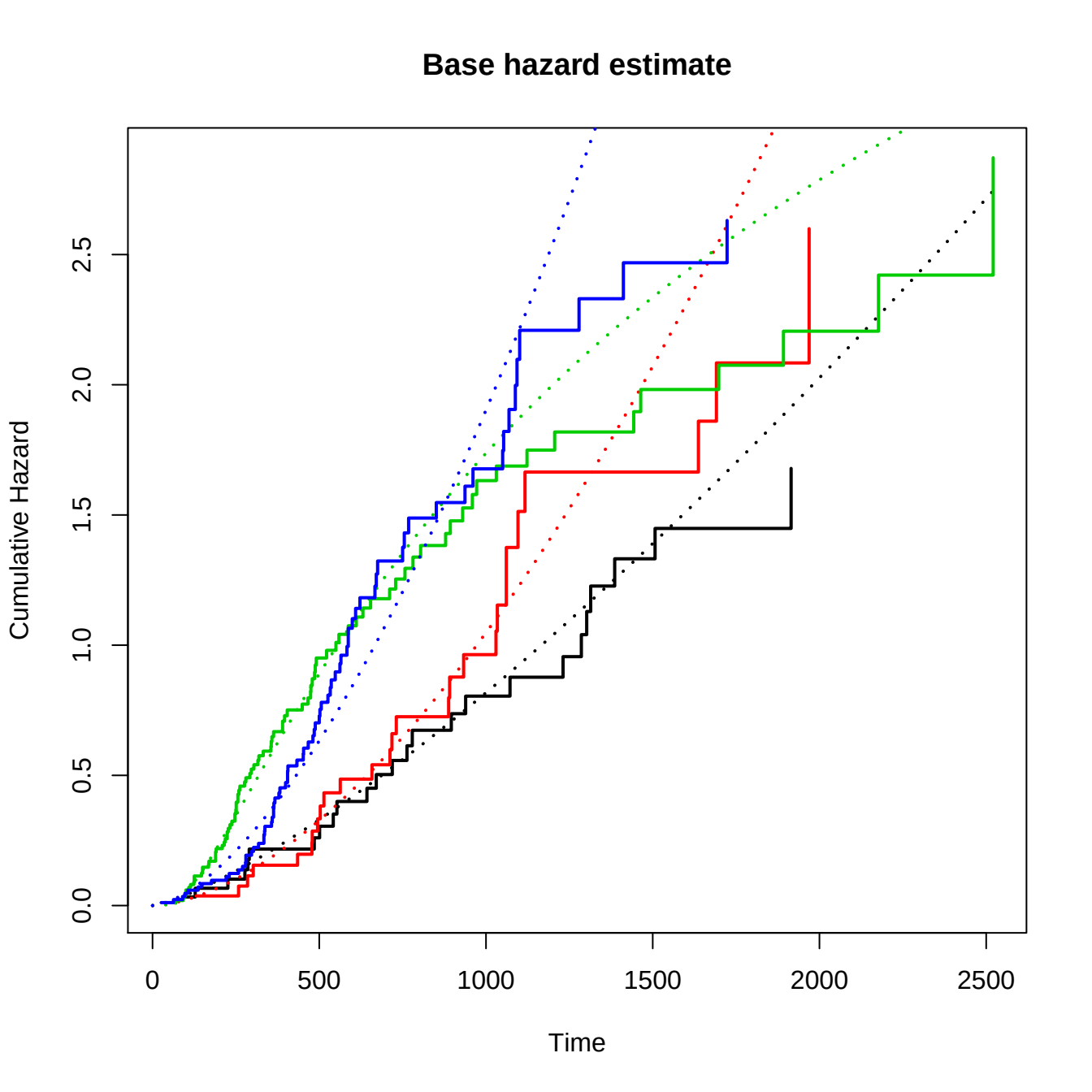

Molec.S100A2.DCThresh
1.0
0.5
0.0
−0.5
−1.0
0
50
100
150
200
250
Index

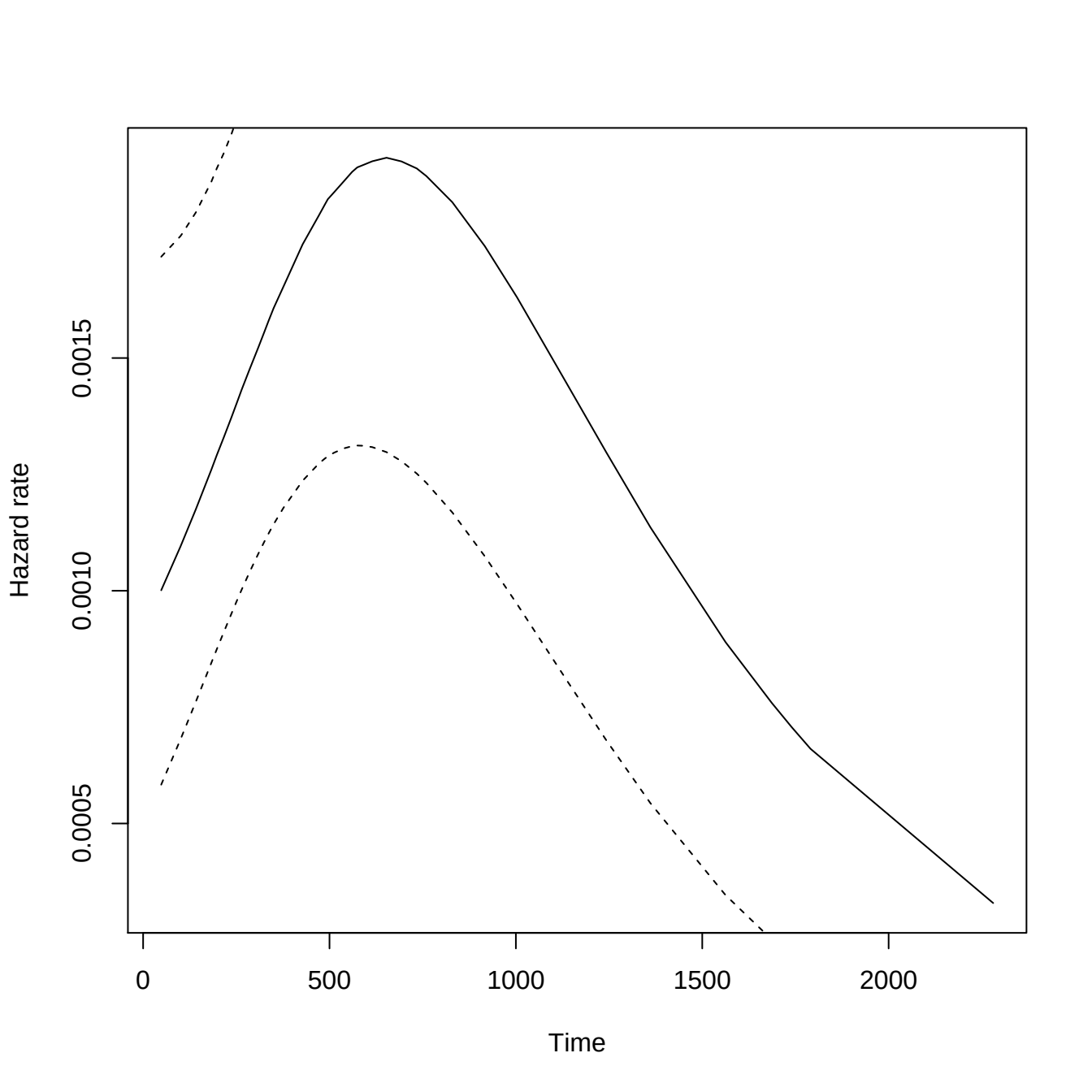

1.0
0.8
0.6
0.4
0.2
0.0
0
500
1000
1500
2000
2500

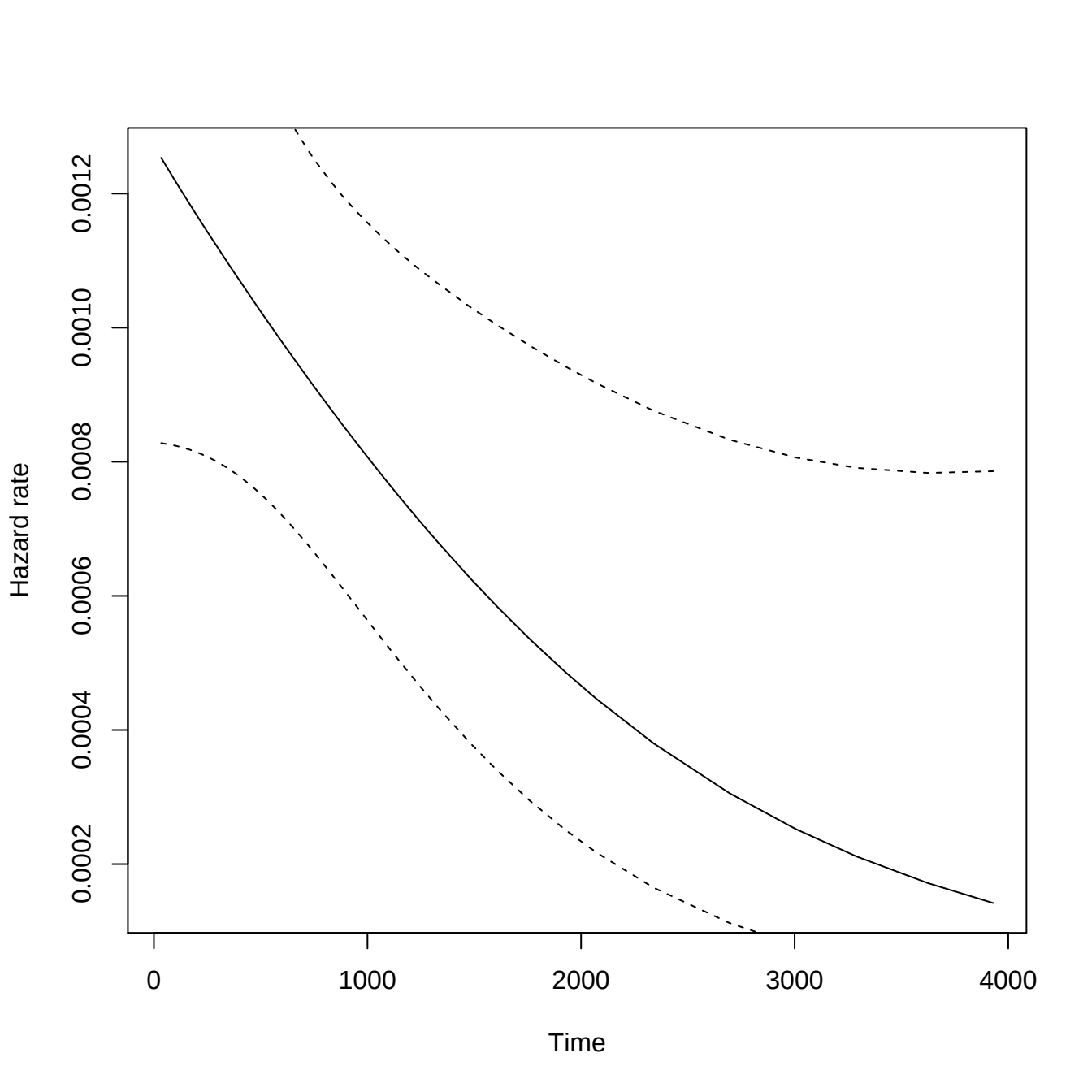

Patient.Sex=F.Molec.S100A4.DCThresh=FALSE
Patient.Sex=M.Molec.S100A4.DCThresh=FALSE
Patient.Sex=F.Molec.S100A4.DCThresh=TRUE
Patient.Sex=M.Molec.S100A4.DCThresh=TRUE
Survival
0.0
0.2
0.4
0.6
0.8
1.0
0
500
1000
1500
2000
2500
Time

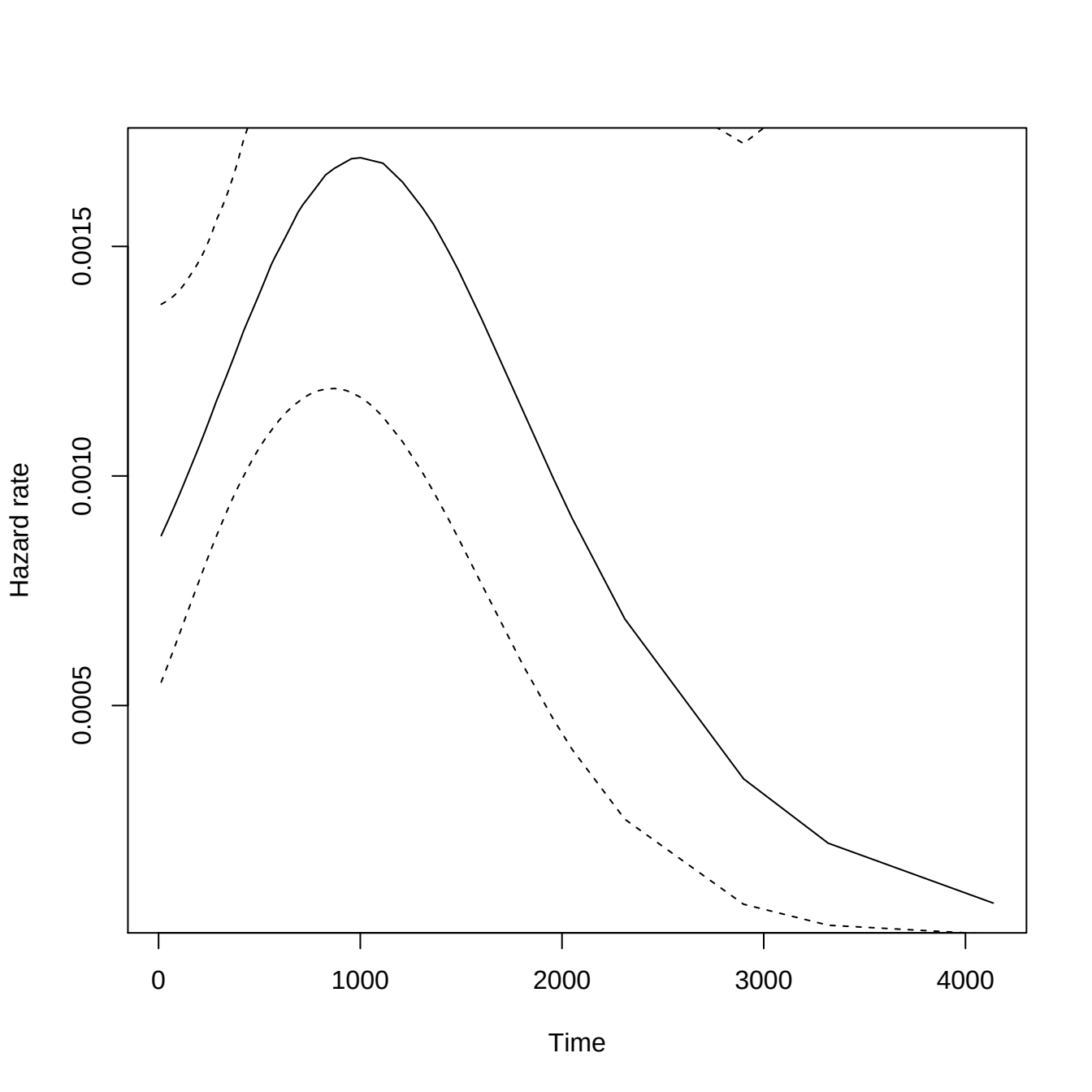

Base hazard estimate
Cumulative Hazard
0.0
0.5
1.0
1.5
2.0
2.5
0
500
1000
1500
2000
2500
Time
Patient.Sex=F.Molec.S100A4.DCThresh=FALSE
Patient.Sex=M.Molec.S100A4.DCThresh=FALSE
Patient.Sex=F.Molec.S100A4.DCThresh=TRUE
Patient.Sex=M.Molec.S100A4.DCThresh=TRUE

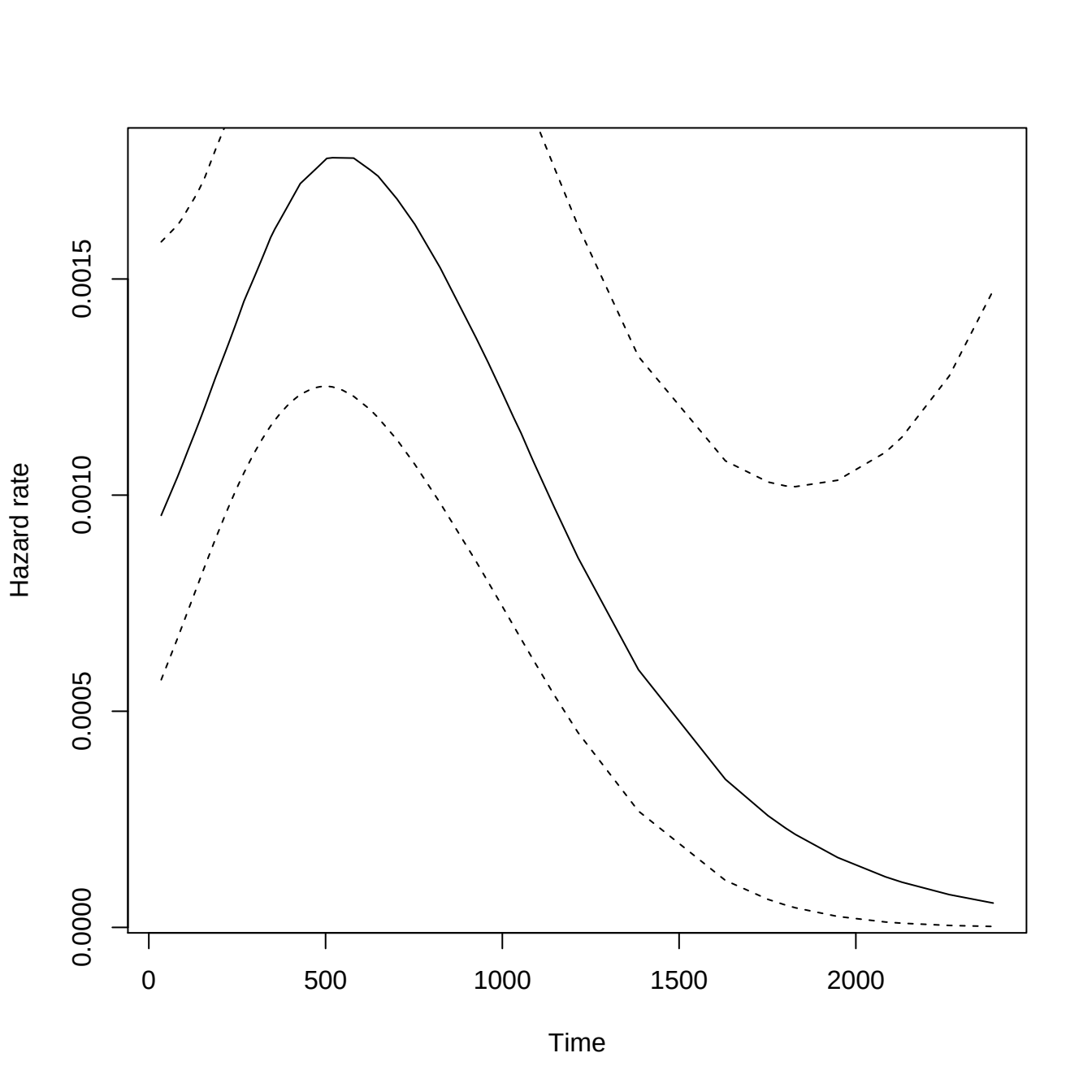

Base hazard estimate
log(Cumulative Hazard)
1
0
−1
−2
−3
−4
4
5
6
7
8
log(Time)
Patient.Sex=F.Molec.S100A4.DCThresh=FALSE
Patient.Sex=M.Molec.S100A4.DCThresh=FALSE
Patient.Sex=F.Molec.S100A4.DCThresh=TRUE
Patient.Sex=M.Molec.S100A4.DCThresh=TRUE


Base hazard estimate
Cumulative Hazard
0.0
0.5
1.0
1.5
2.0
2.5
0
500
1000
1500
2000
2500
Time


Hazard rate
0.0005
0.0010
0.0015
0
500
1000
1500
2000
Time


Hazard rate
0.0002
0.0004
0.0006
0.0008
0.0010
0.0012
0
1000
2000
3000
4000
Time


Hazard rate
0.0005
0.0010
0.0015
0
1000
2000
3000
4000
Time


Hazard rate
0.0000
0.0005
0.0010
0.0015
0
500
1000
1500
2000
Time