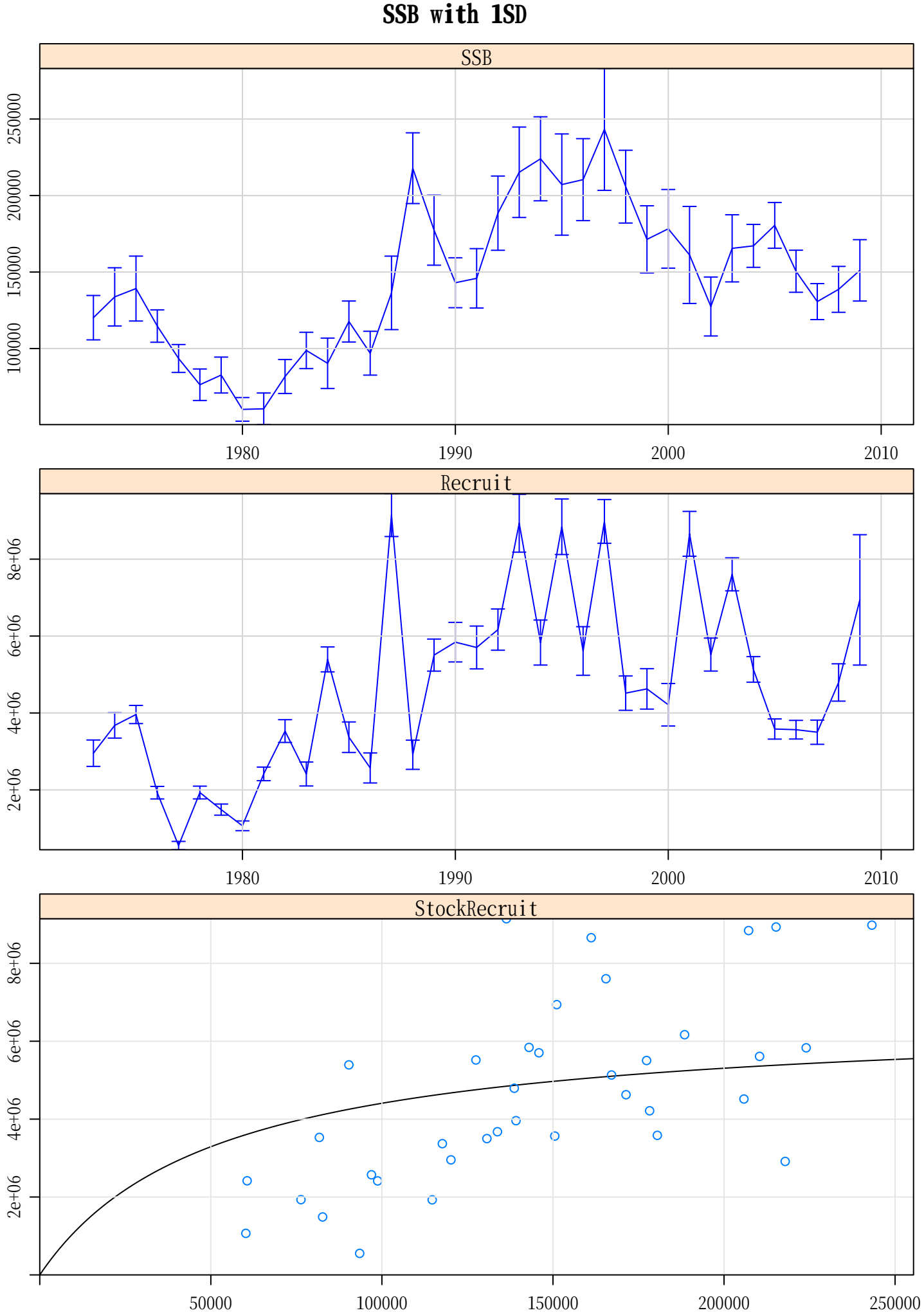
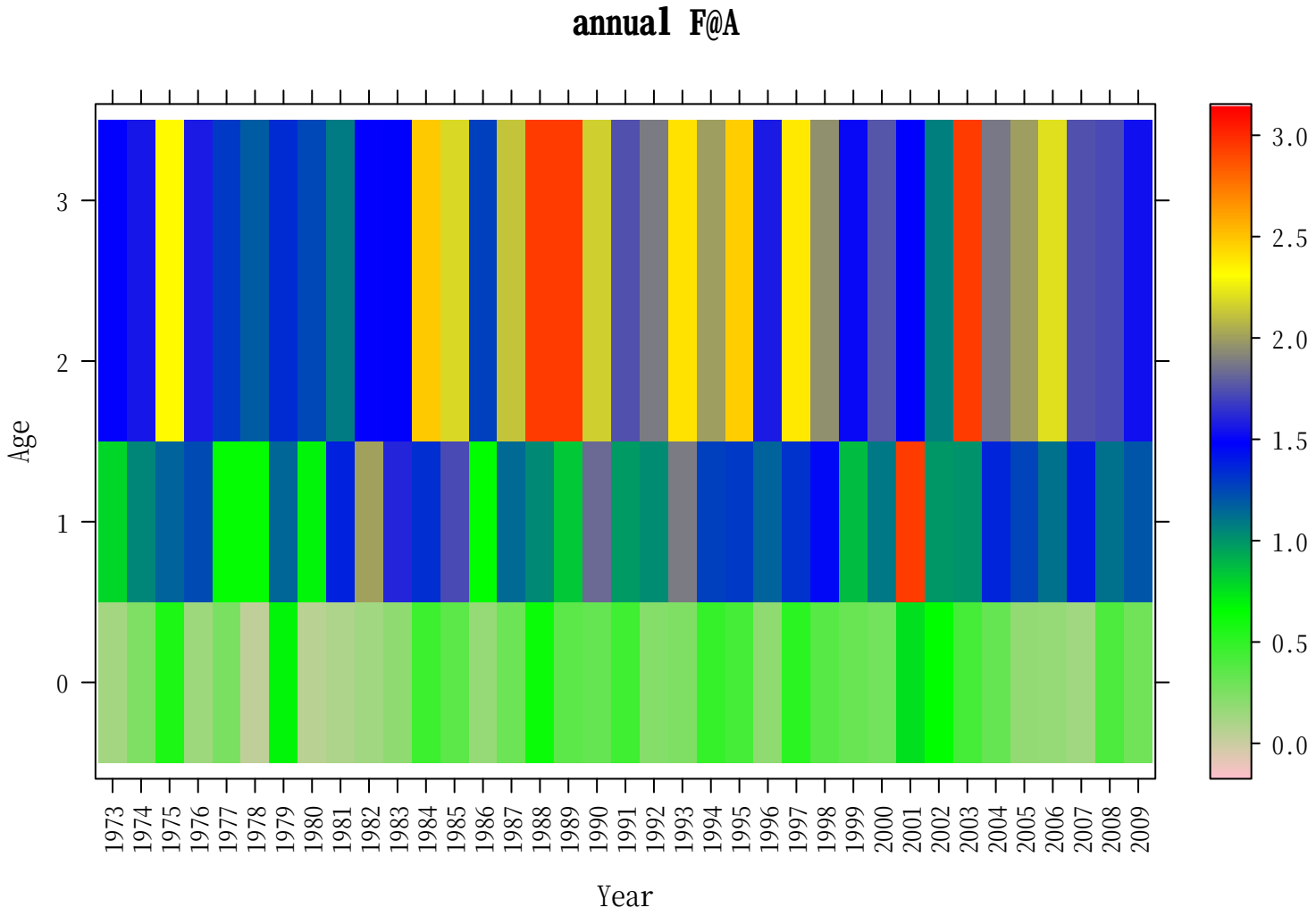
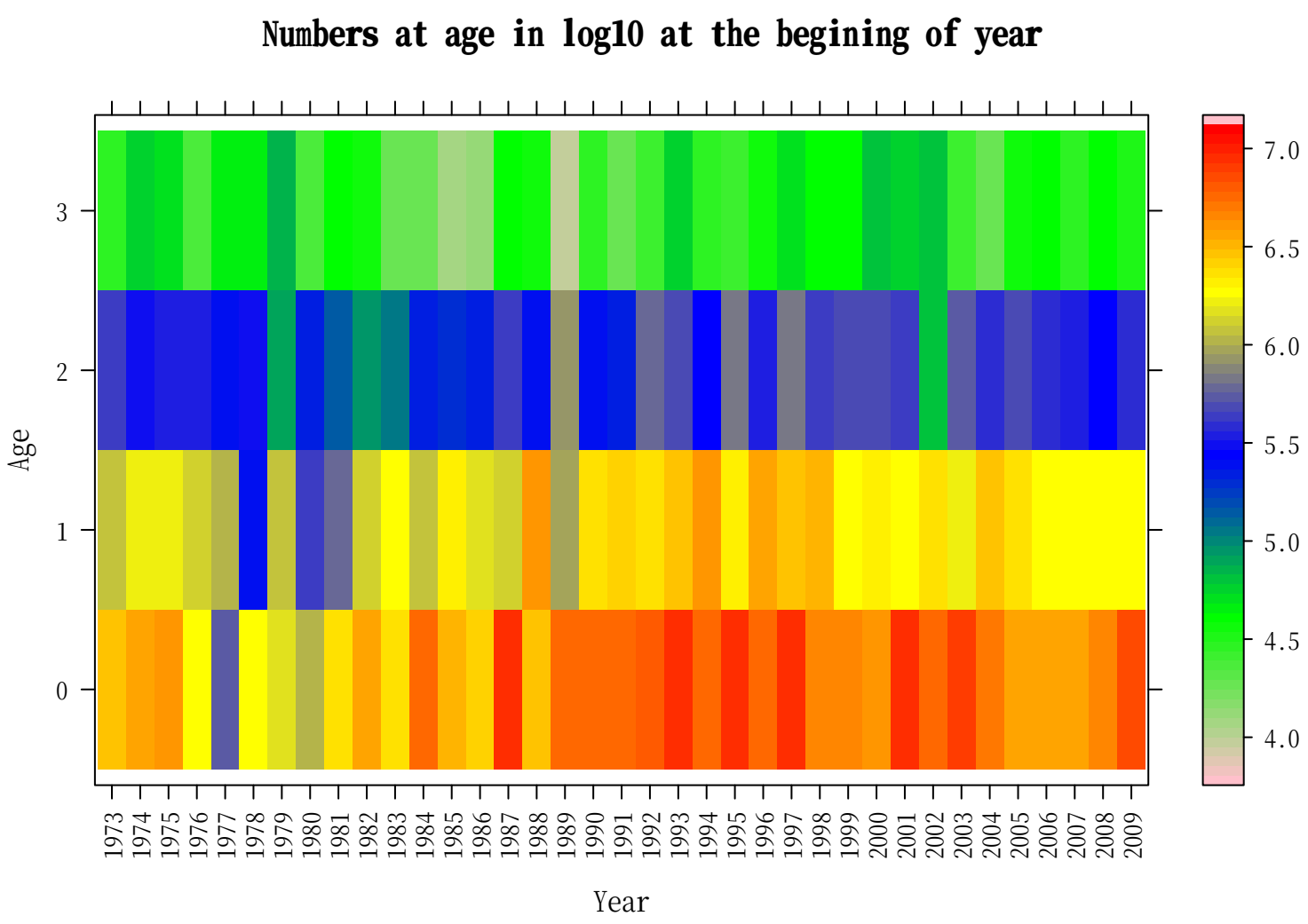
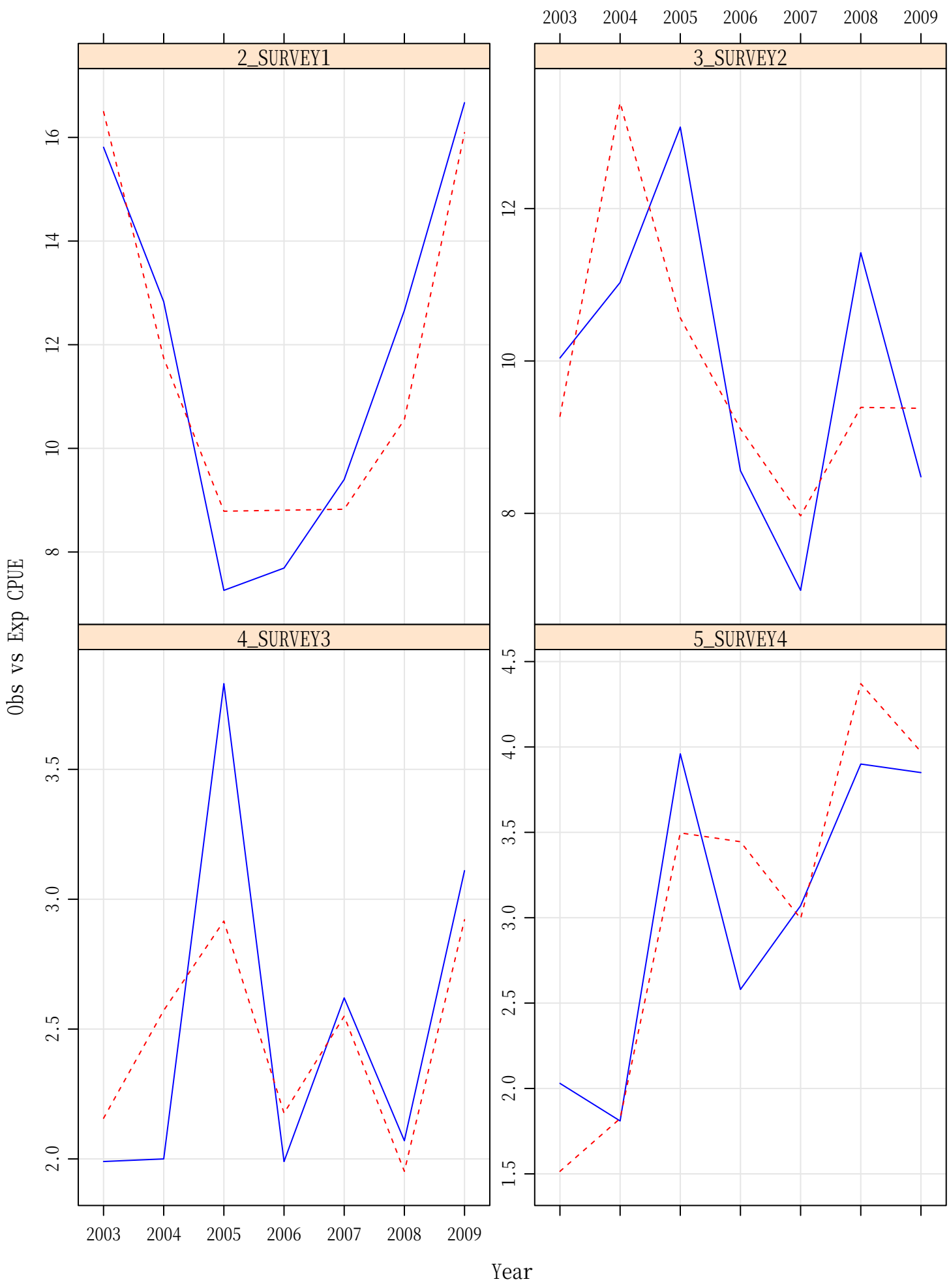
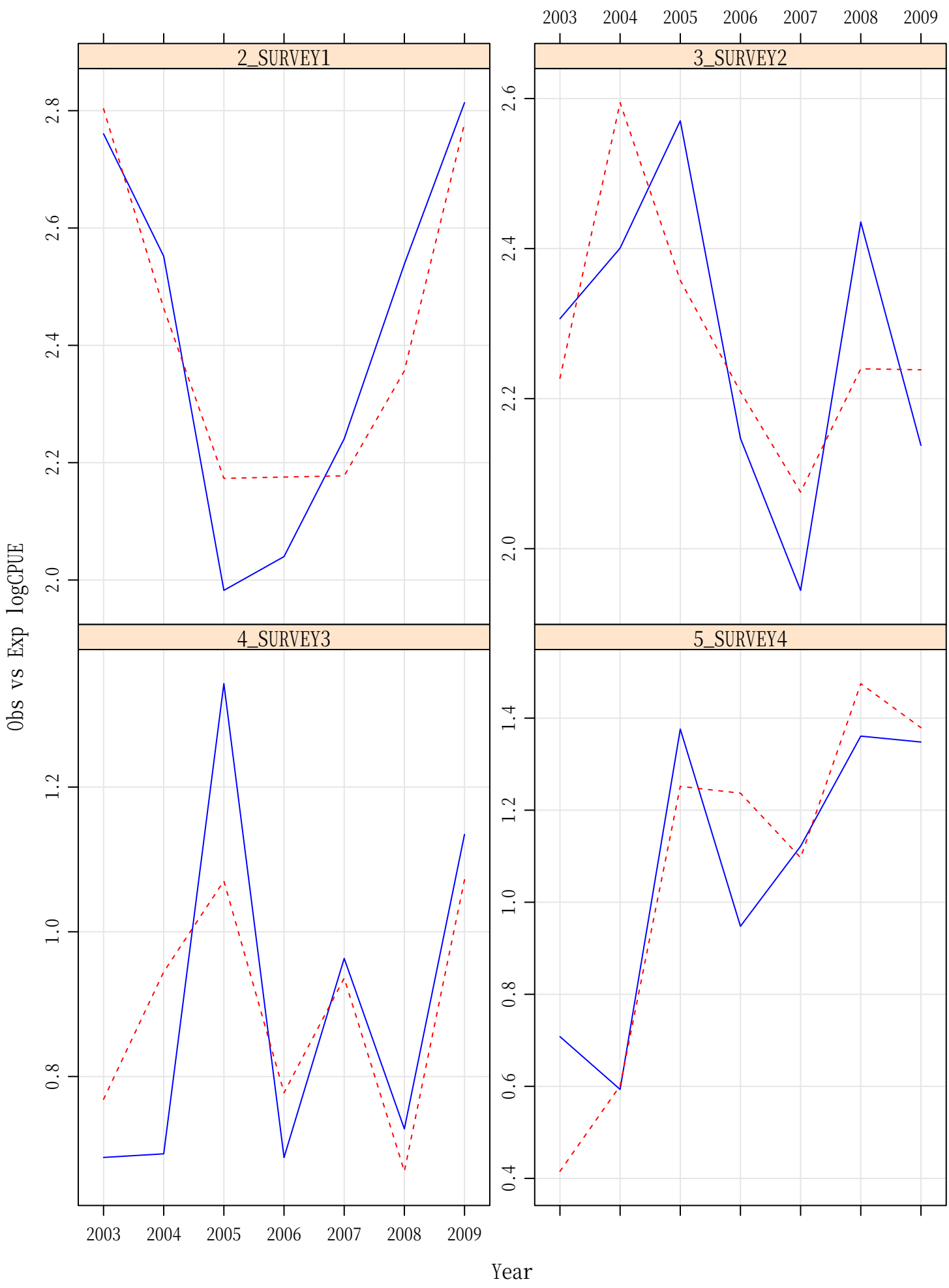
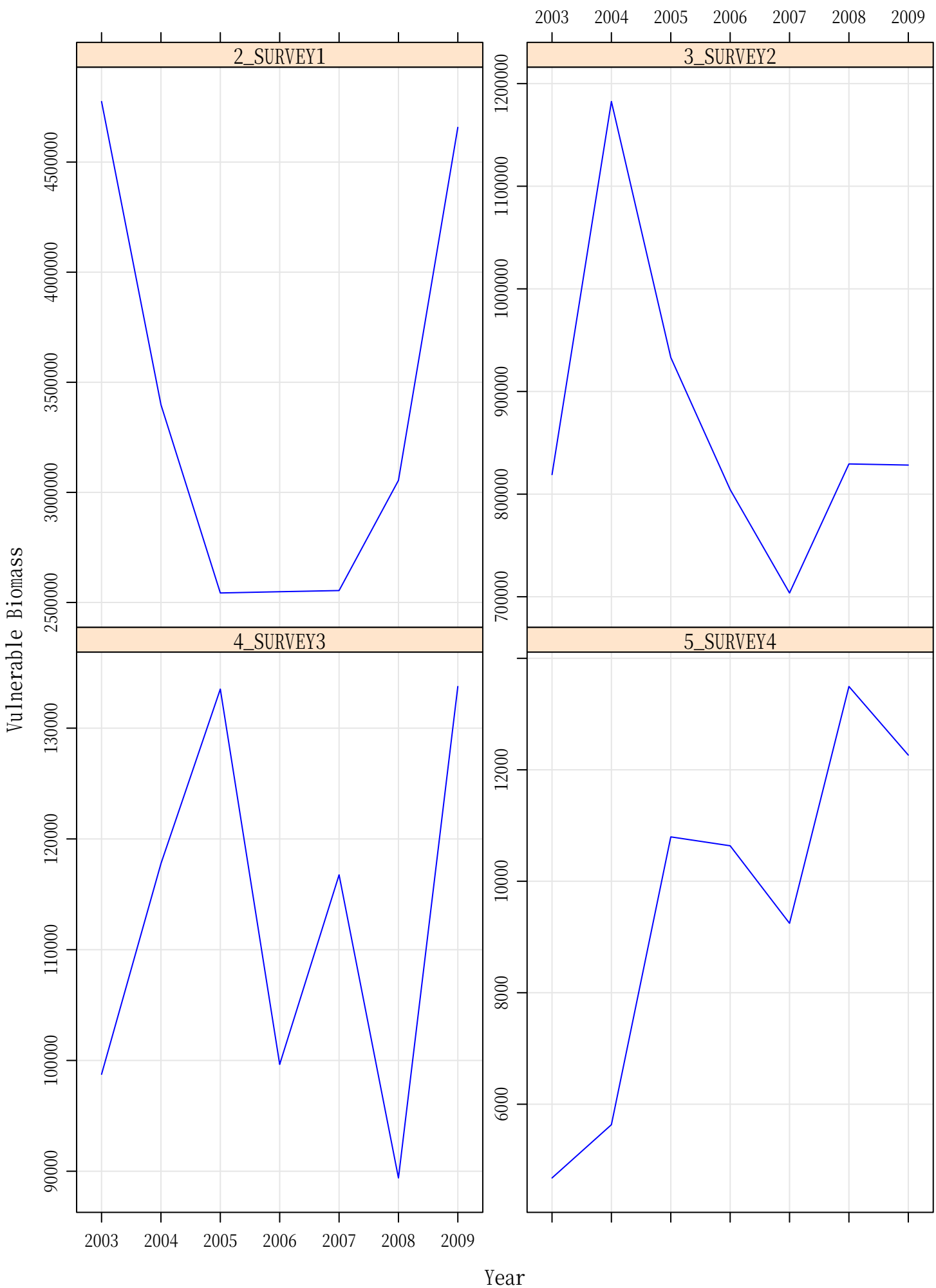

SSB with 1SD
SSB
100000
150000
200000
250000
1980
1990
2000
2010
Recruit
2e+06
4e+06
6e+06
8e+06
1980
1990
2000
2010
StockRecruit
2e+06
4e+06
6e+06
8e+06
50000
100000
150000
200000
250000

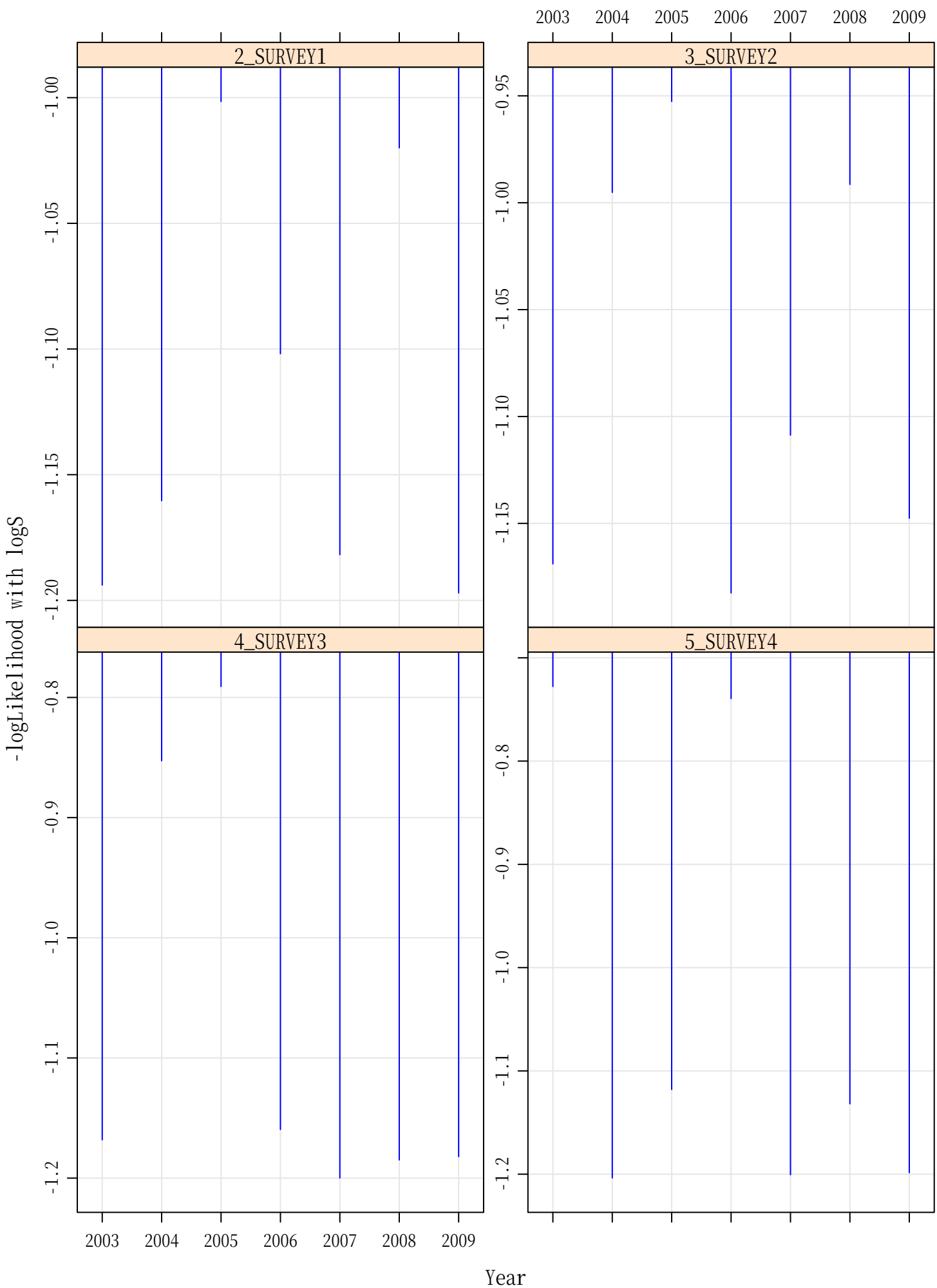

annual F@A
Age
0
1
2
3
1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009
Year
3.0
2.5
2.0
1.5
1.0
0.5
0.0

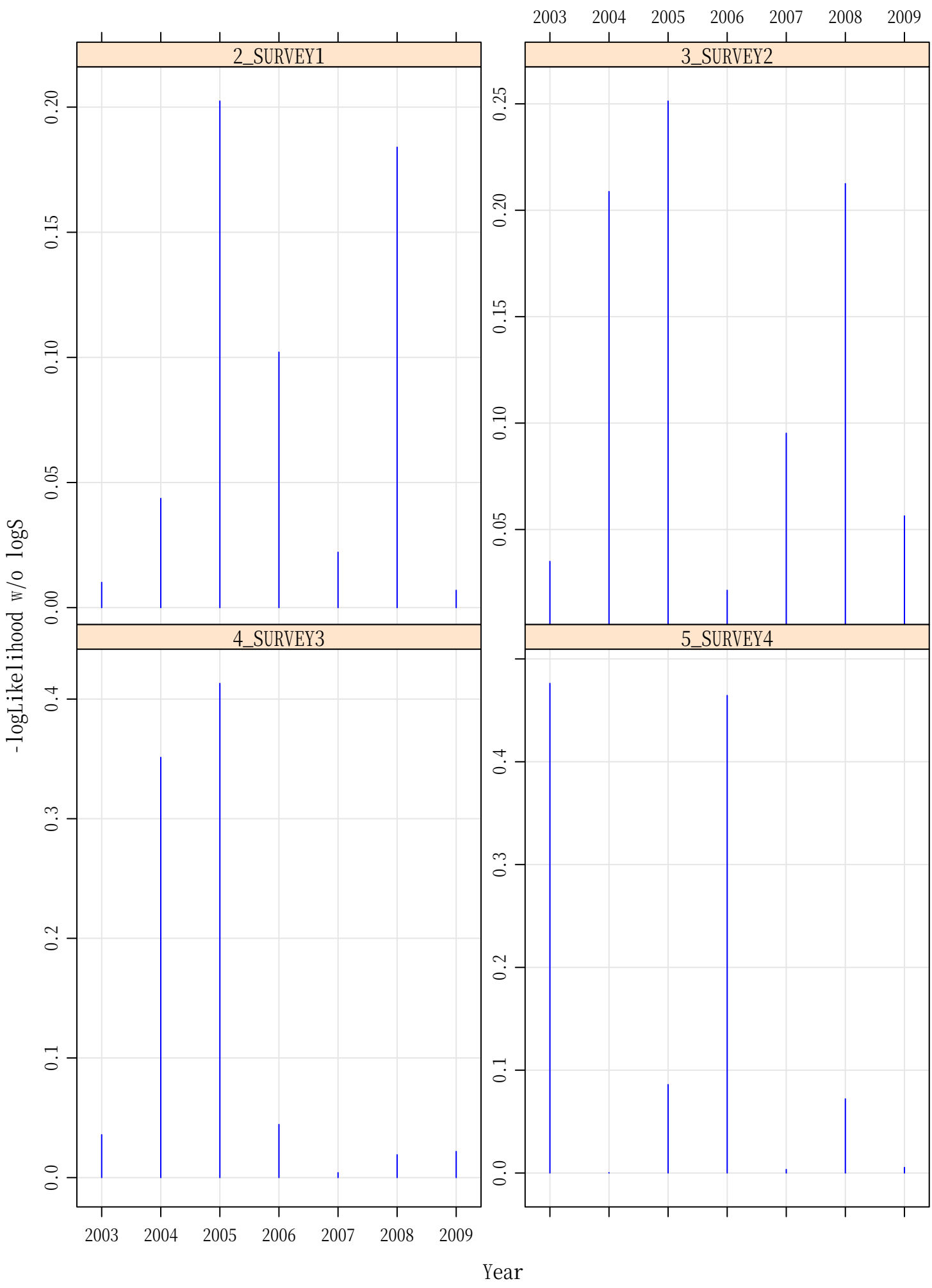

Numbers at age in log10 at the begining of year
Age
0
1
2
3
1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009
Year
7.0
6.5
6.0
5.5
5.0
4.5
4.0

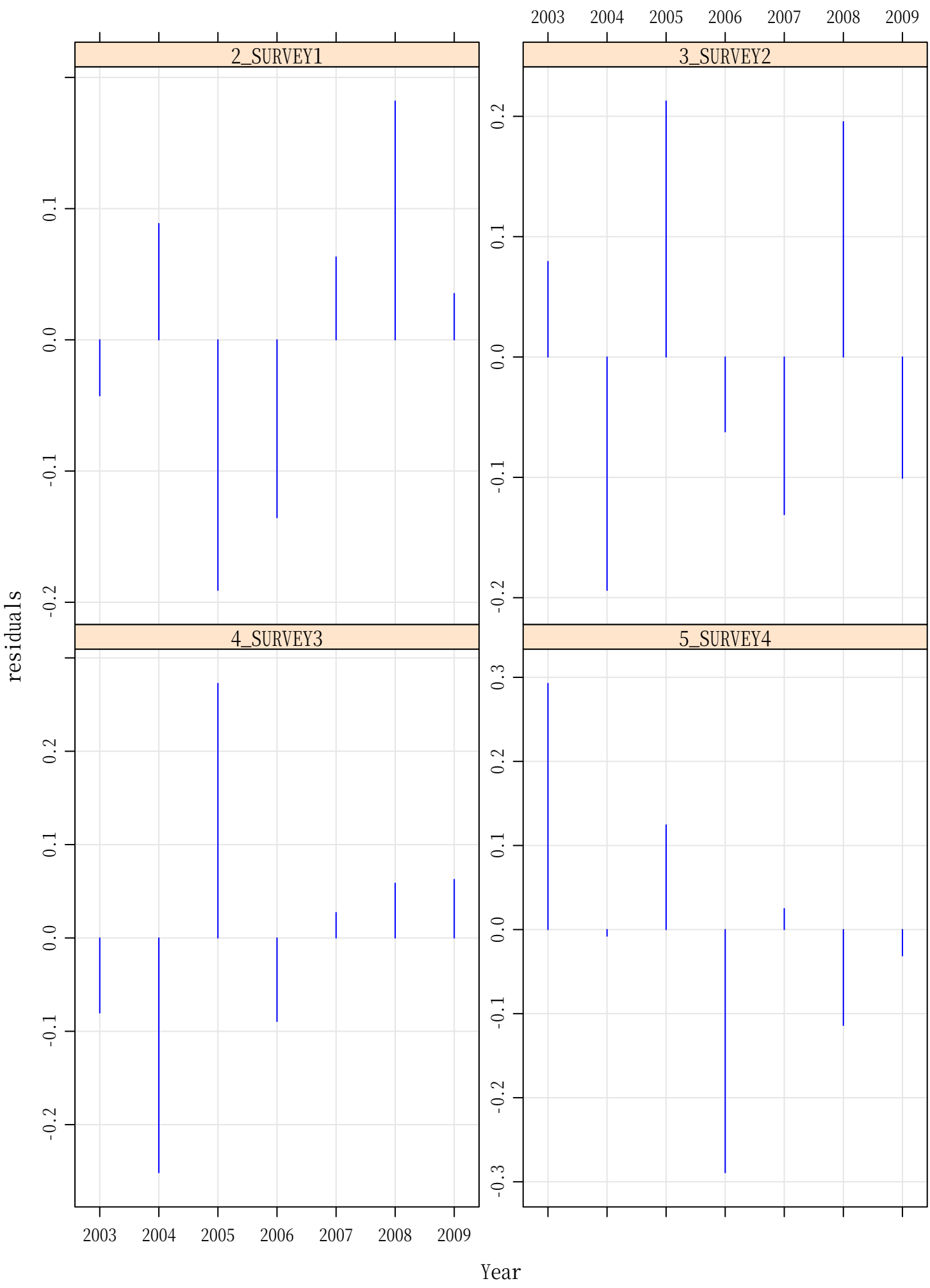

Expected vs Observed CPUEs
Obs
Exp
2_SURVEY1
3_SURVEY2
4_SURVEY3
5_SURVEY4
Obs vs Exp CPUE
Year
2003
2004
2005
2006
2007
2008
2009

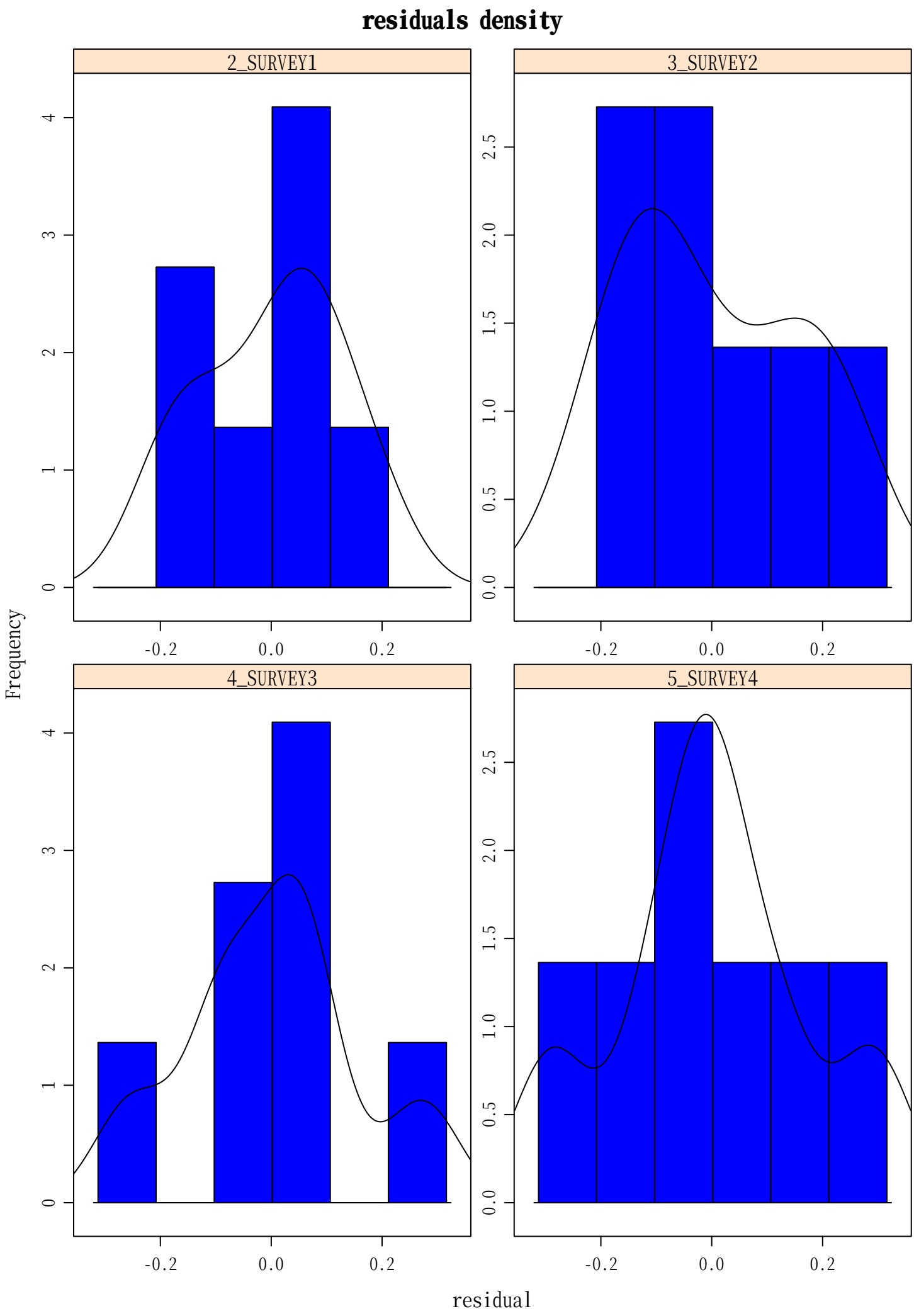

Obs vs Exp logCPUE
logObs
logExp
2_SURVEY1
3_SURVEY2
4_SURVEY3
5_SURVEY4
Obs vs Exp logCPUE
Year
2003
2004
2005
2006
2007
2008
2009

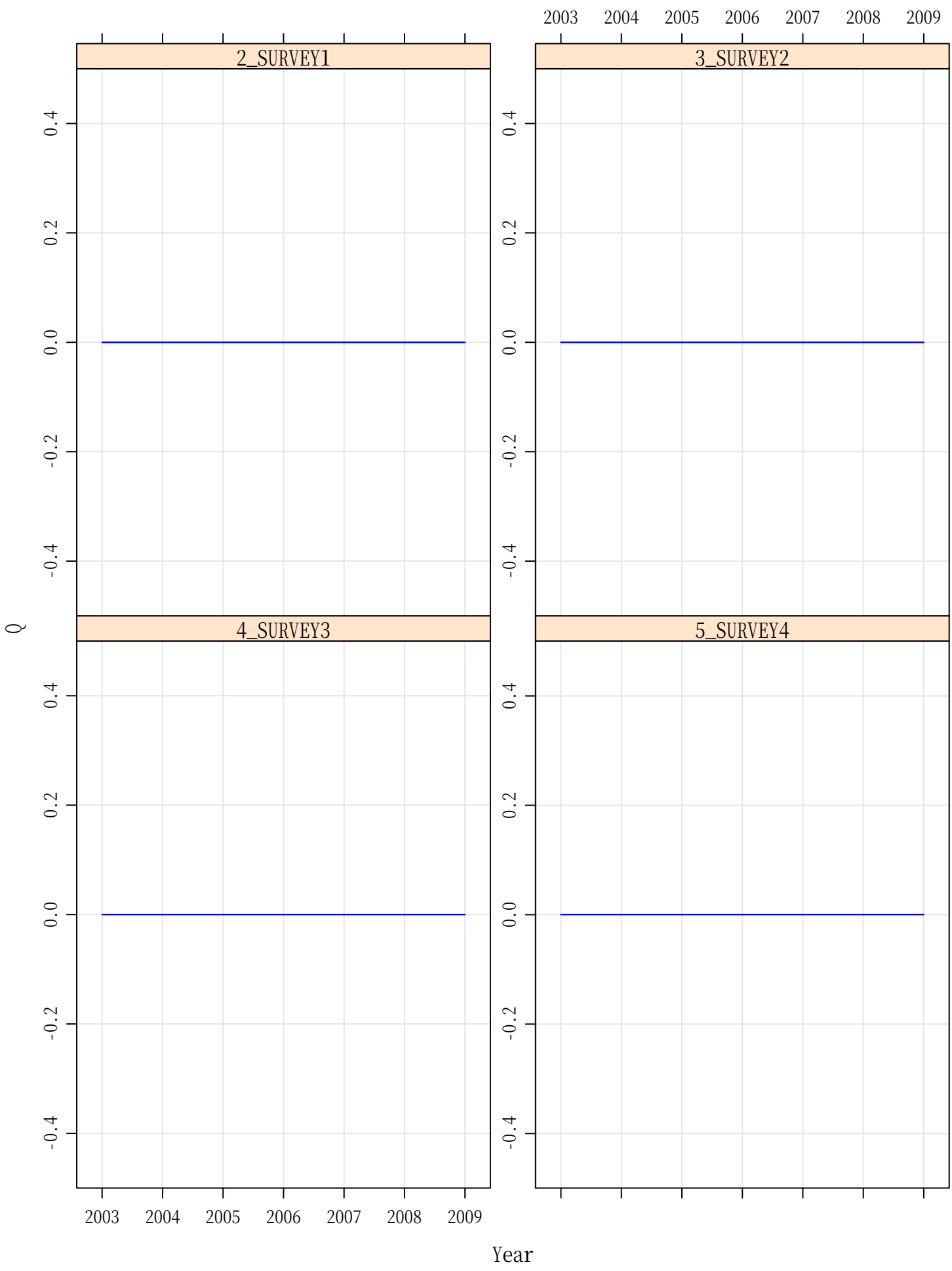

Vulnerable biomass
2_SURVEY1
3_SURVEY2
4_SURVEY3
5_SURVEY4
Vulnerable Biomass
Year
2003
2004
2005
2006
2007
2008
2009
2500000
3000000
3500000
4000000
4500000
700000
800000
900000
1000000
1100000
1200000
90000
100000
110000
120000
130000
6000
8000
10000
12000

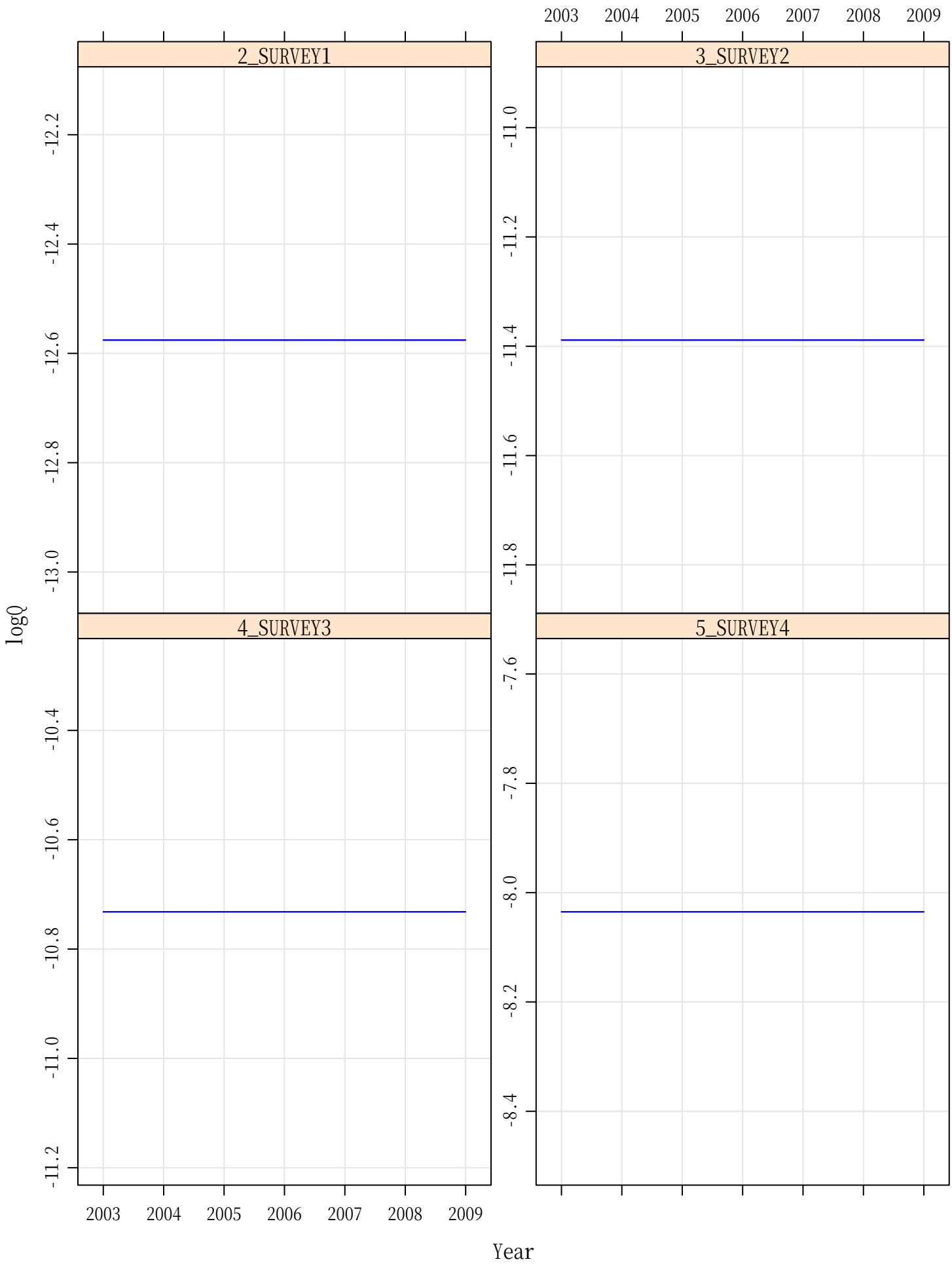

-logLikelihood with logS
2_SURVEY1
3_SURVEY2
4_SURVEY3
5_SURVEY4
-logLikelihood with logS
Year
2003
2004
2005
2006
2007
2008
2009
-1.00
-1.05
-1.10
-1.15
-1.20
-0.95
-0.8
-0.9
-1.0
-1.1
-1.2

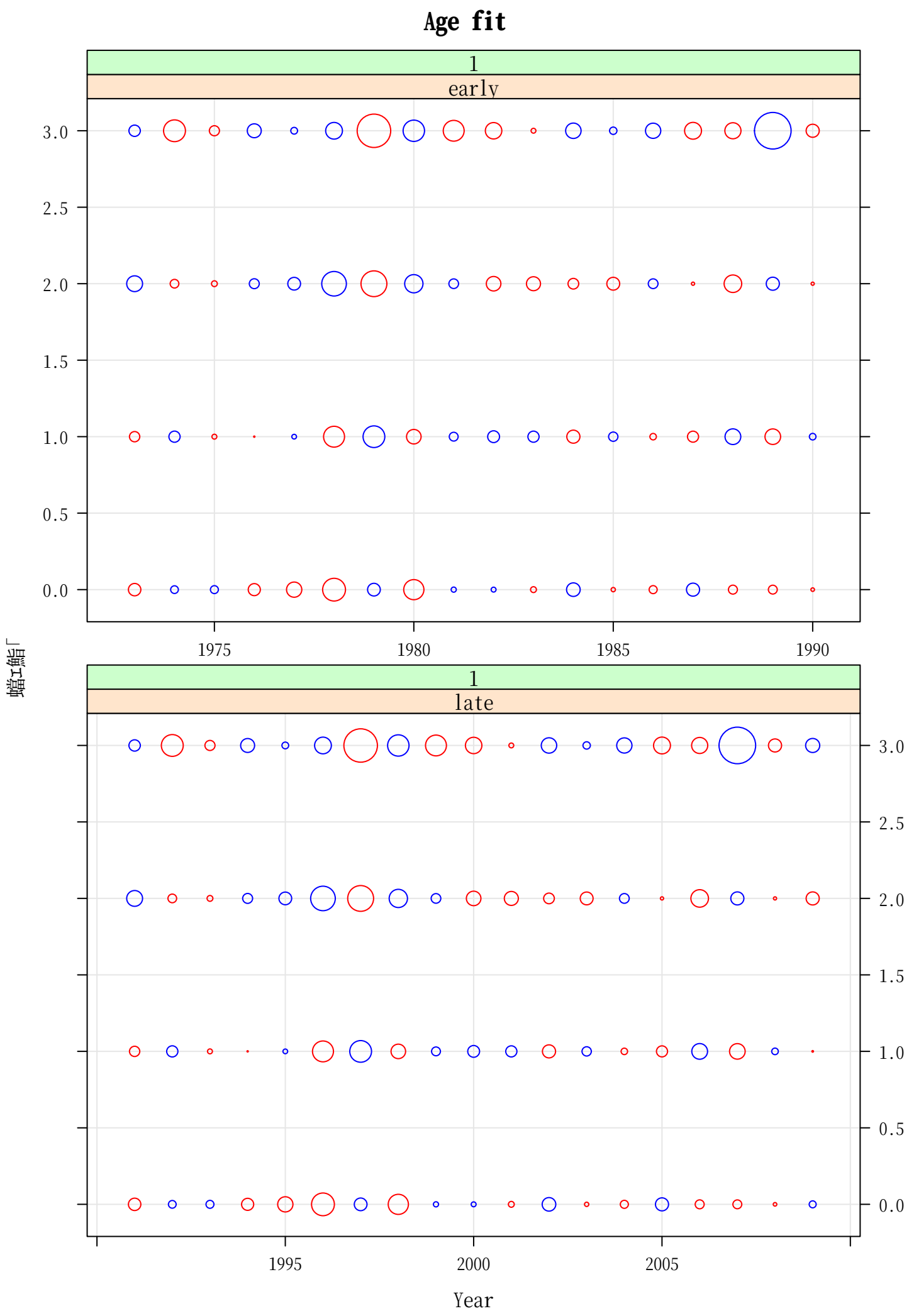

-logLikelihood without logS
2_SURVEY1
3_SURVEY2
4_SURVEY3
5_SURVEY4
-logLikelihood w/o logS
Year
2003
2004
2005
2006
2007
2008
2009
0.0
0.1
0.2
0.3
0.4
0.05
0.10
0.15
0.20
0.25

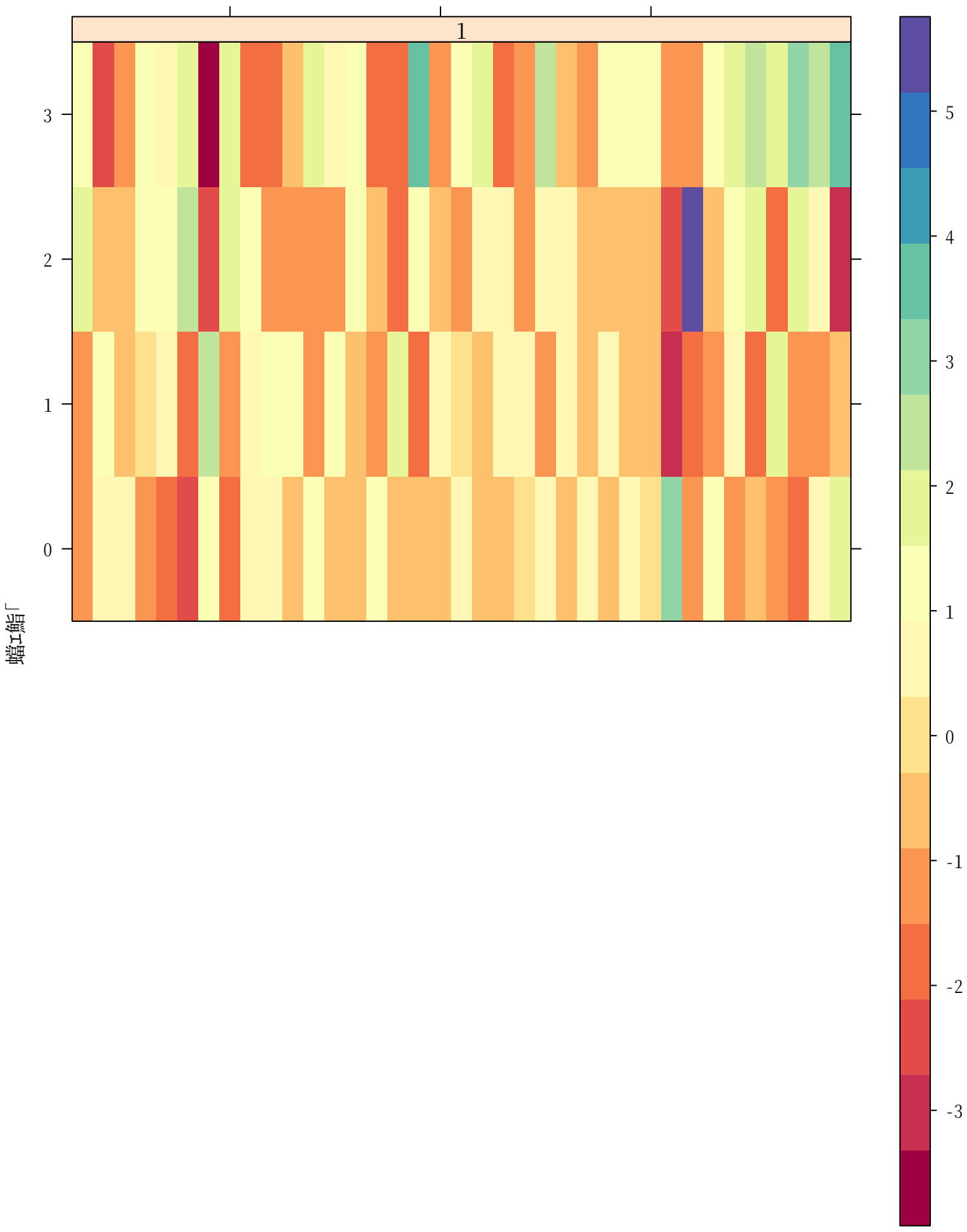

residuals by year
2_SURVEY1
3_SURVEY2
4_SURVEY3
5_SURVEY4
residuals
Year
2003
2004
2005
2006
2007
2008
2009
0.3
0.2
0.1
0.0
-0.1
-0.2
-0.3

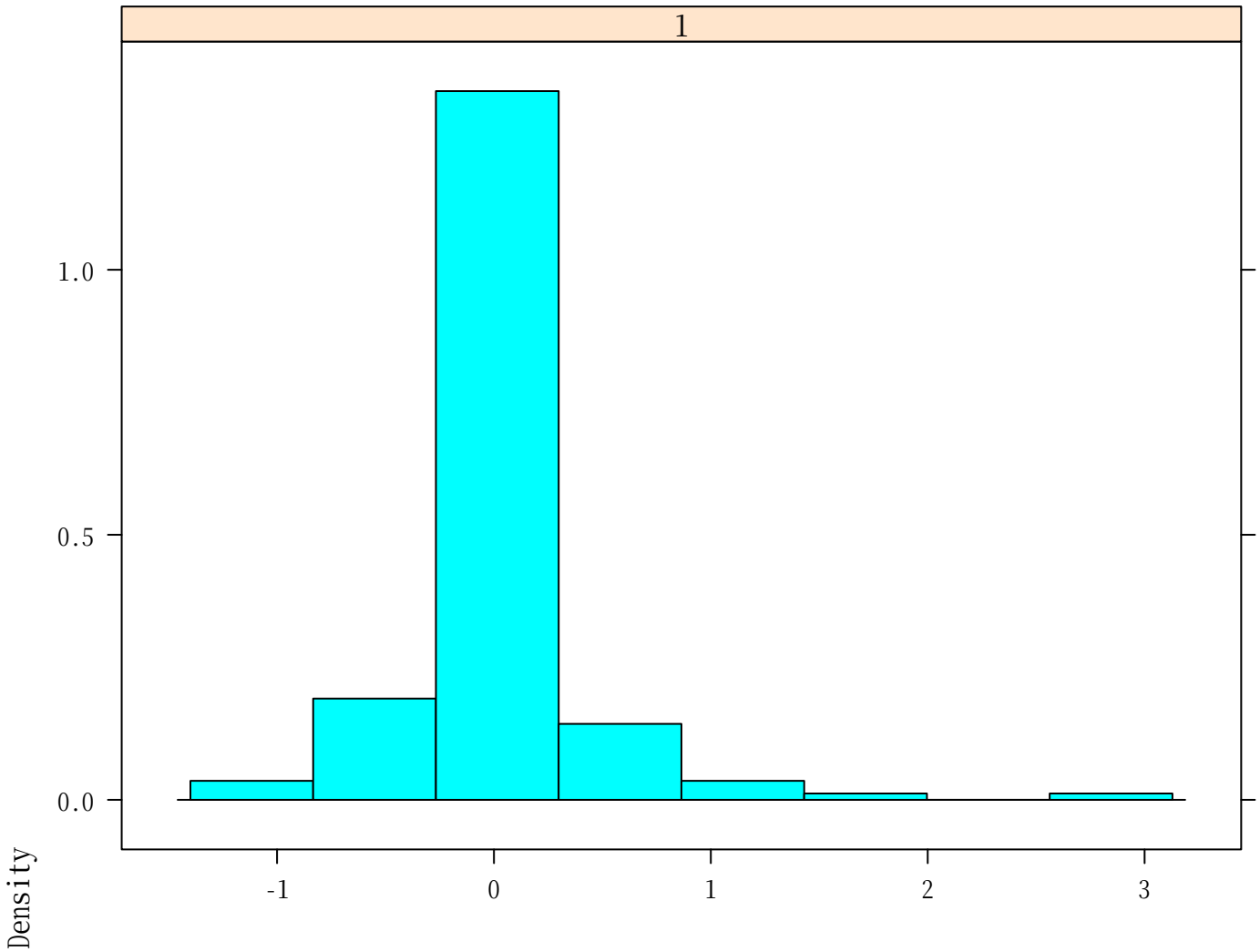

residuals density
2_SURVEY1
3_SURVEY2
4_SURVEY3
5_SURVEY4
Frequency
residual
-0.2
0.0
0.2
0
1
2
3
4
0.0
0.5
1.0
1.5
2.0
2.5

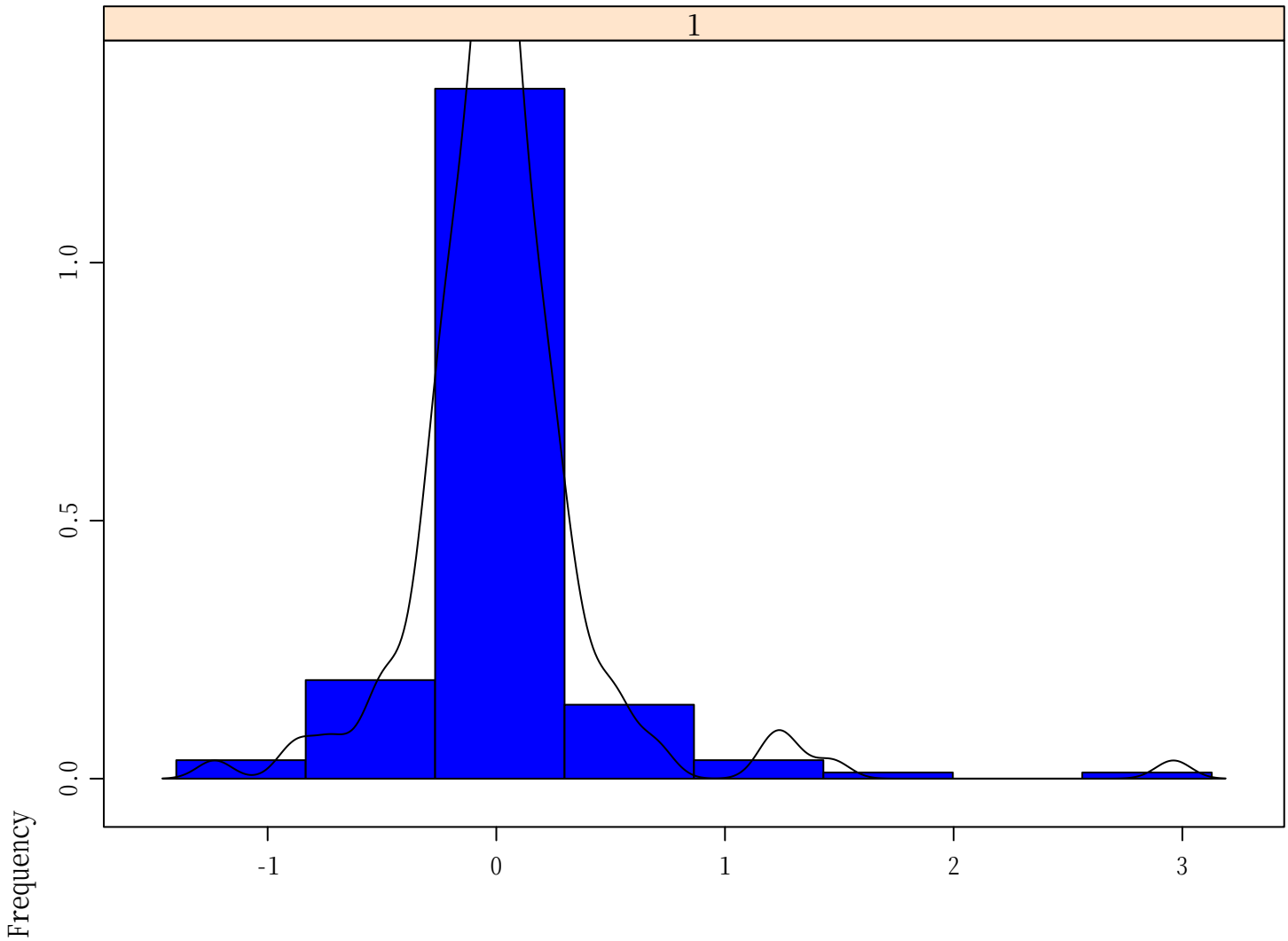

Calc_Q and Eff_Q by year
Calc_Q
Eff_Q
2_SURVEY1
3_SURVEY2
4_SURVEY3
5_SURVEY4
Q
Year
0.4
0.2
0.0
-0.2
-0.4
2003
2004
2005
2006
2007
2008
2009

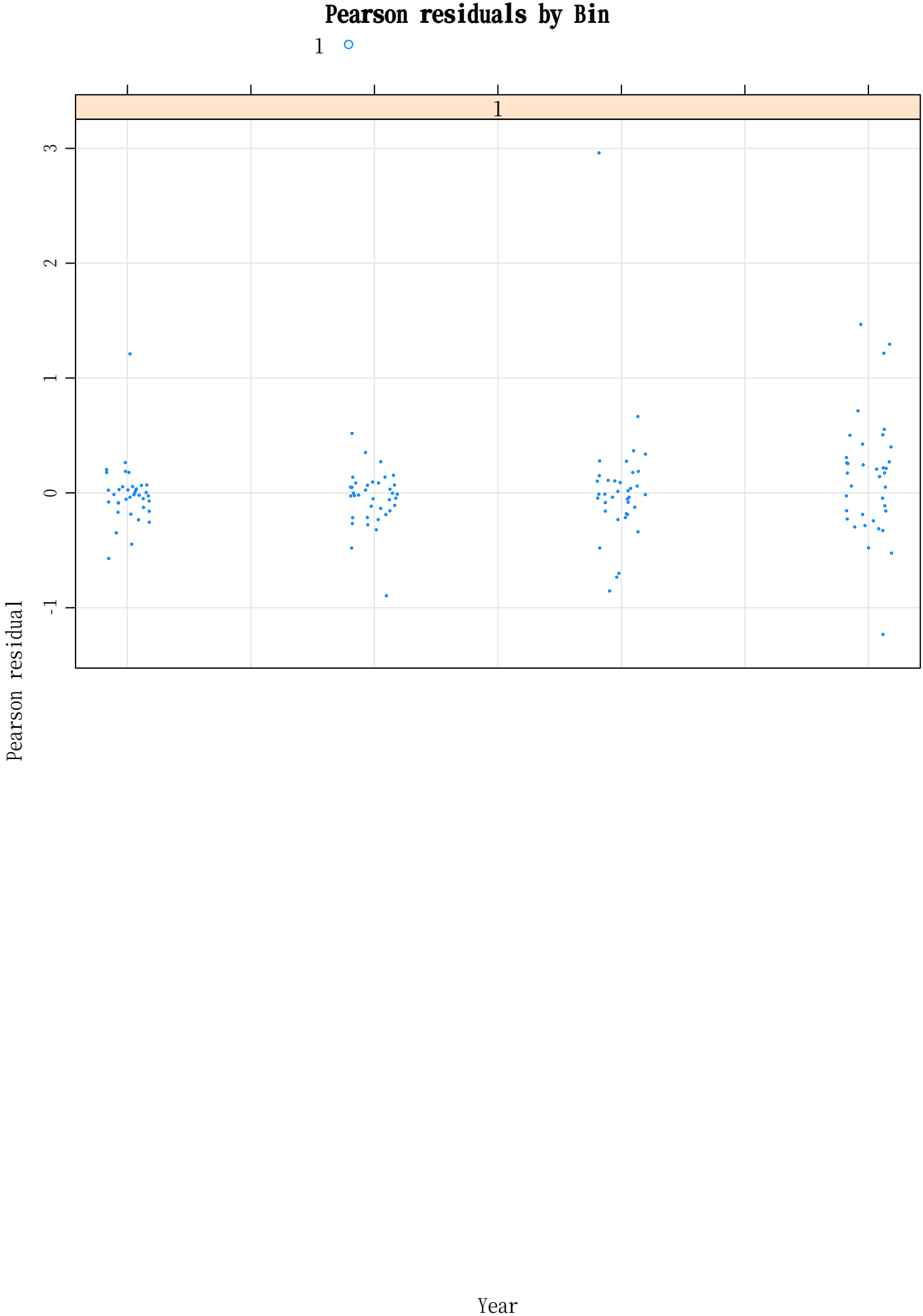

logCalc_Q and logEff_Q by year
logCalc_Q
logEff_Q
2_SURVEY1
3_SURVEY2
4_SURVEY3
5_SURVEY4
logQ
Year
2003
2004
2005
2006
2007
2008
2009
-12.2
-12.4
-12.6
-12.8
-13.0
-11.0
-11.2
-11.4
-11.6
-11.8
-10.4
-10.6
-10.8
-11.0
-11.2
-7.6
-7.8
-8.0
-8.2
-8.4

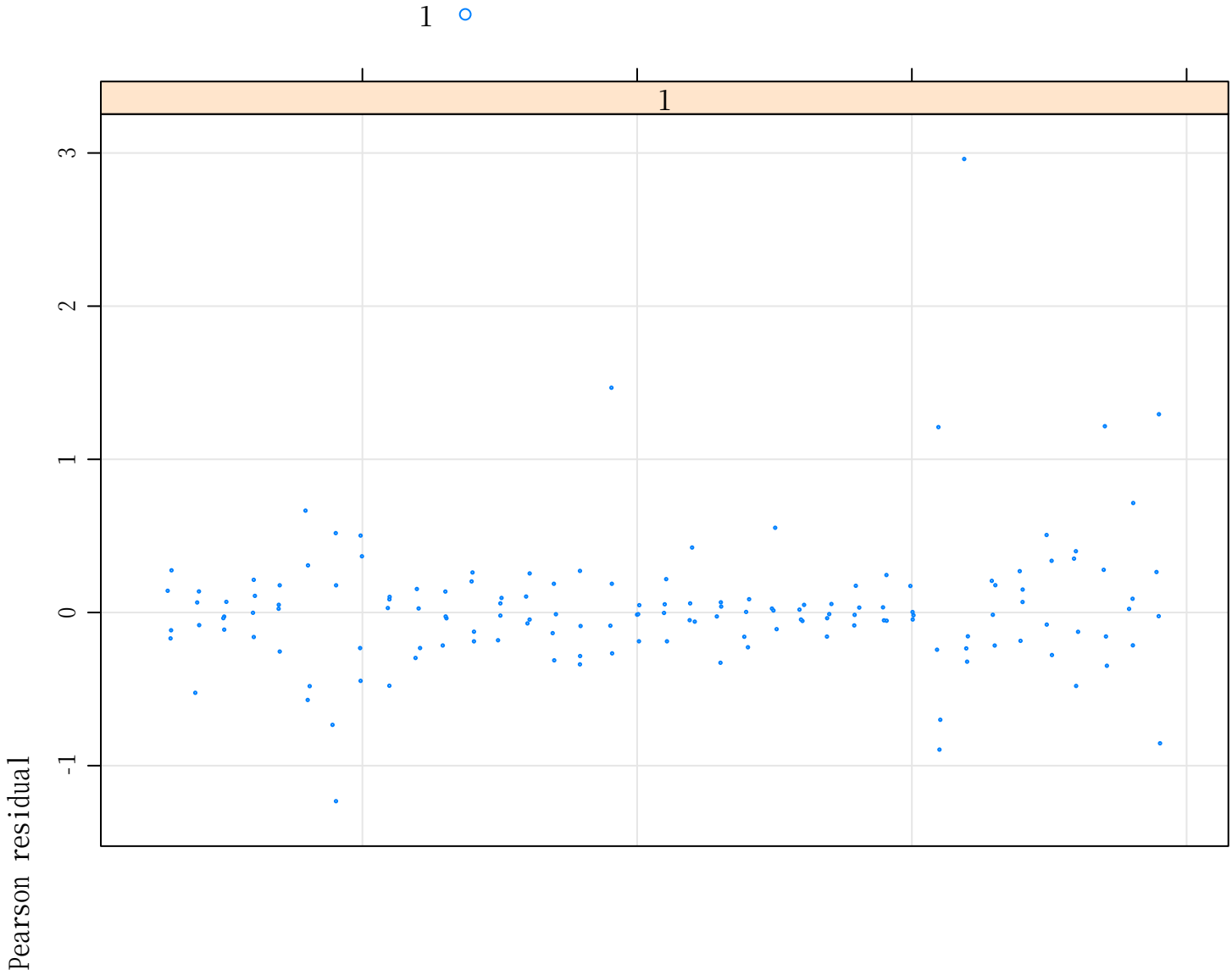

Age fit
1
early
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1975
1980
1985
1990
1
late
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1995
2000
2005
Year


Age fit
1
3
2
1
0
Year
5
4
3
2
1
0
-1
-2
-3


1
1.0
0.5
0.0
Density
-1
0
1
2
3
Pearson residuals


1
Frequency
0.0
0.5
1.0
-1
0
1
2
3
Pearson residual


Pearson residuals by Bin
1
1
3
2
1
0
-1
Pearson residual
Year


Pearson residuals by Year
1
1
3
2
1
0
-1
Pearson residual
Year