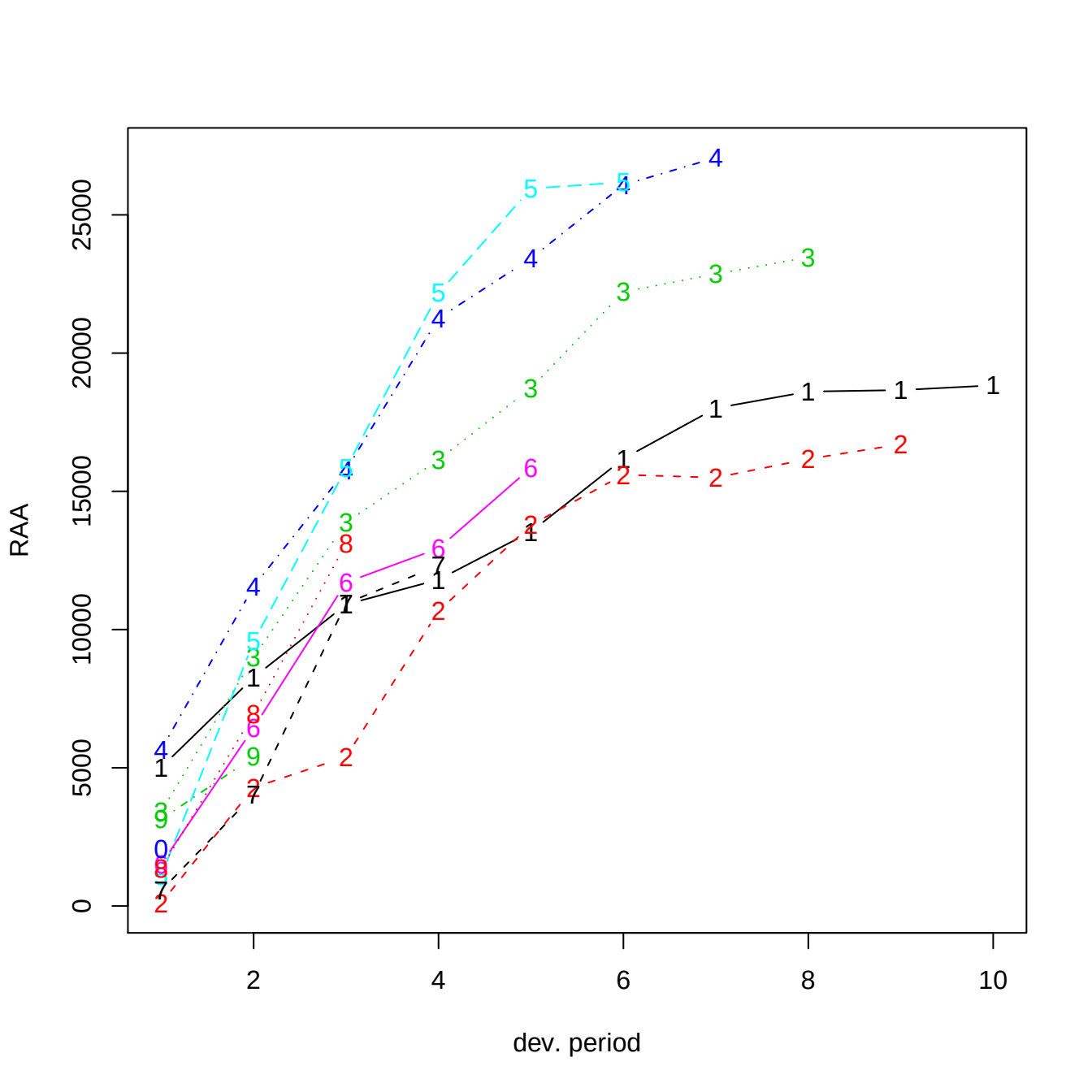
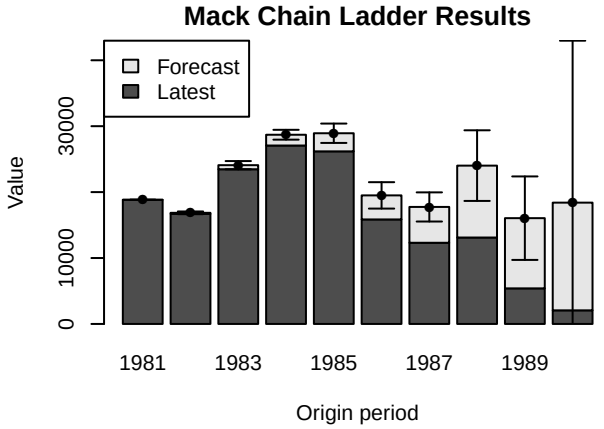
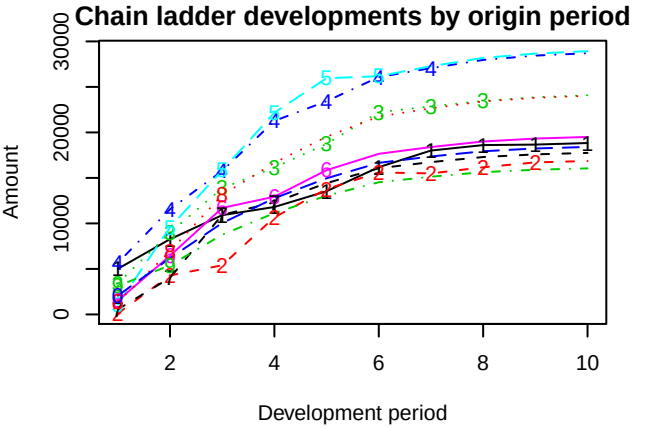
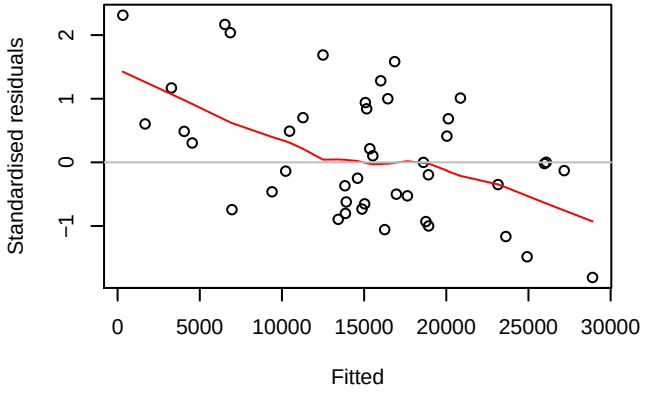
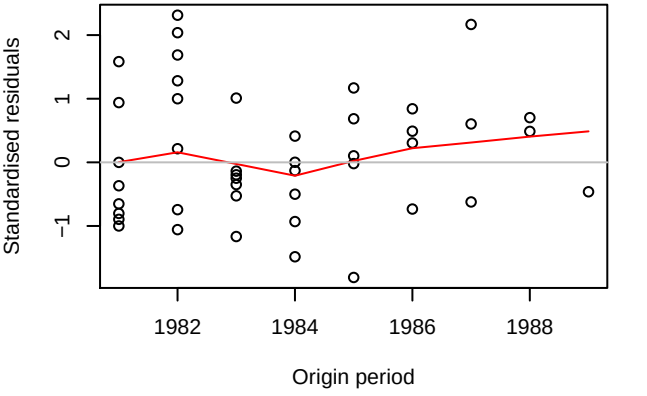
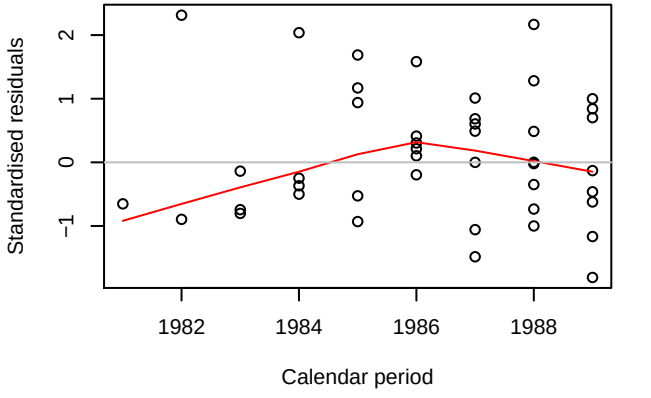

RAA
dev. period
0
5000
10000
15000
20000
25000
2
4
6
8
10

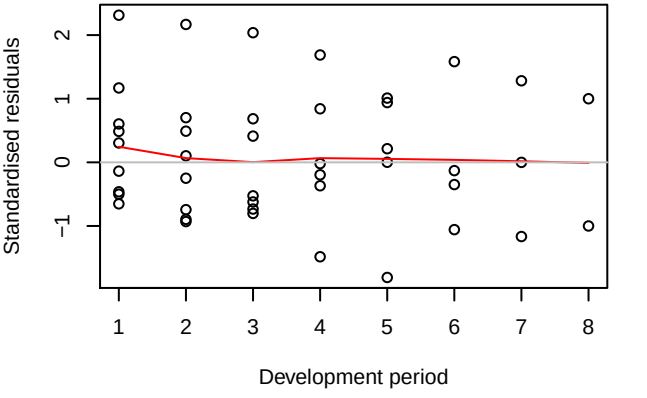

Mack Chain Ladder Results
Forecast
Latest
Value
0
10000
30000
1981
1983
1985
1987
1989
Origin period

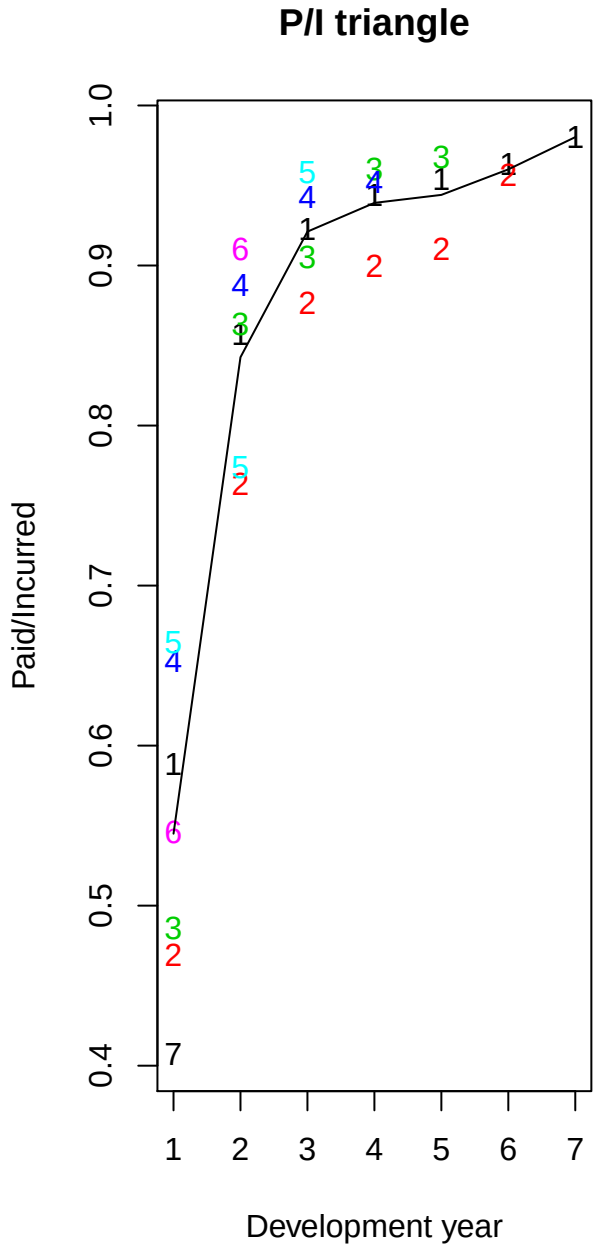

Chain ladder developments by origin period
Amount
0
10000
20000
30000
2
4
6
8
10
Development period

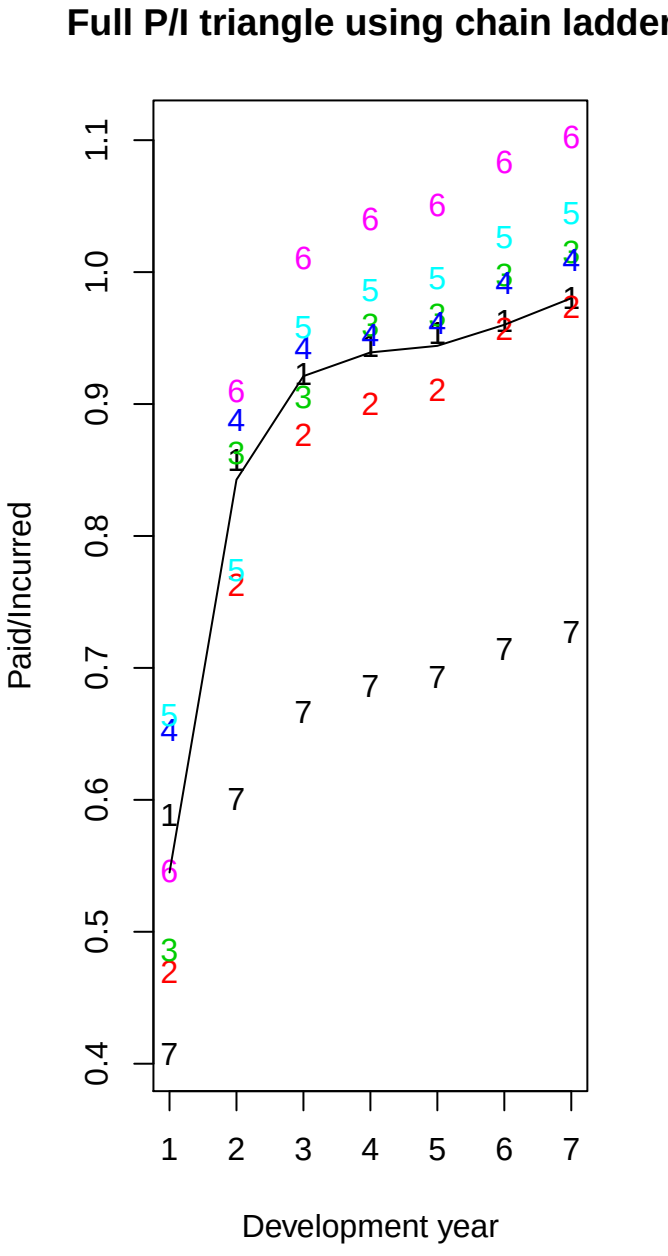

Standardised residuals
−1
0
1
2
0
5000
10000
15000
20000
25000
30000
Fitted

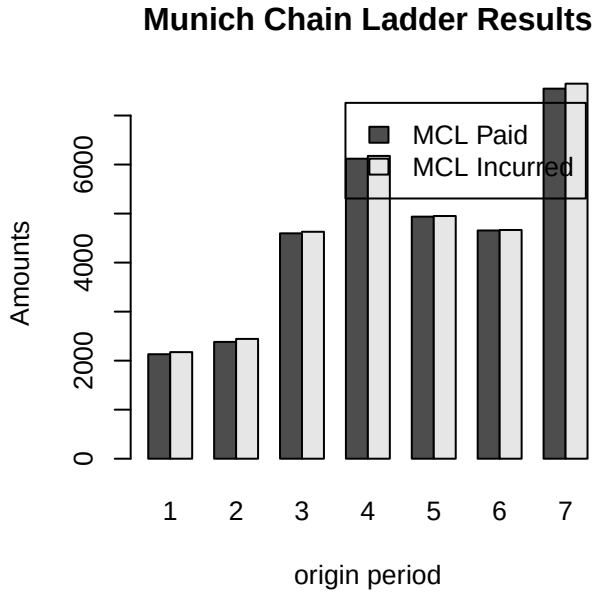

Standardised residuals
−1
0
1
2
1982
1984
1986
1988
Origin period

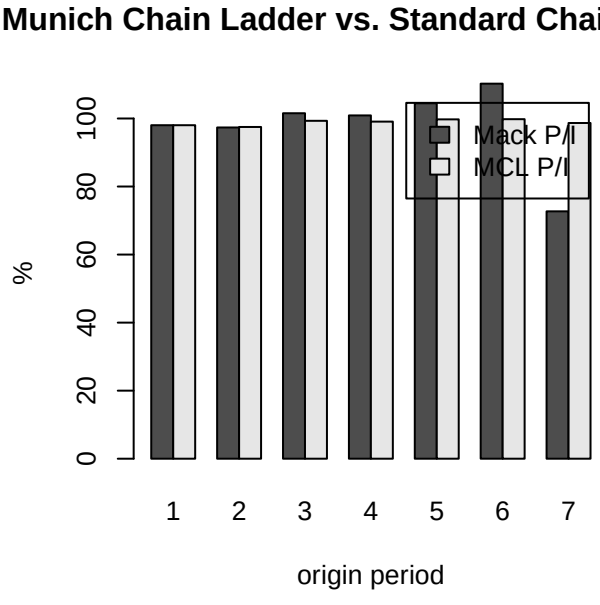

Standardised residuals
−1
0
1
2
1982
1984
1986
1988
Calendar period

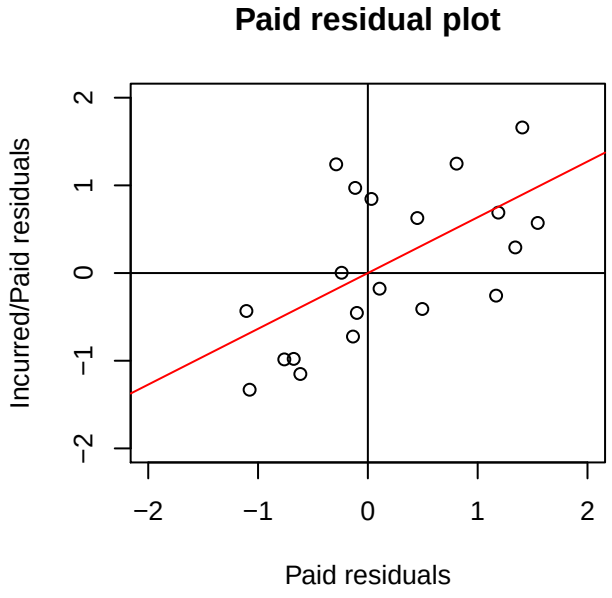

Standardised residuals
−1
0
1
2
1
2
3
4
5
6
7
8
Development period

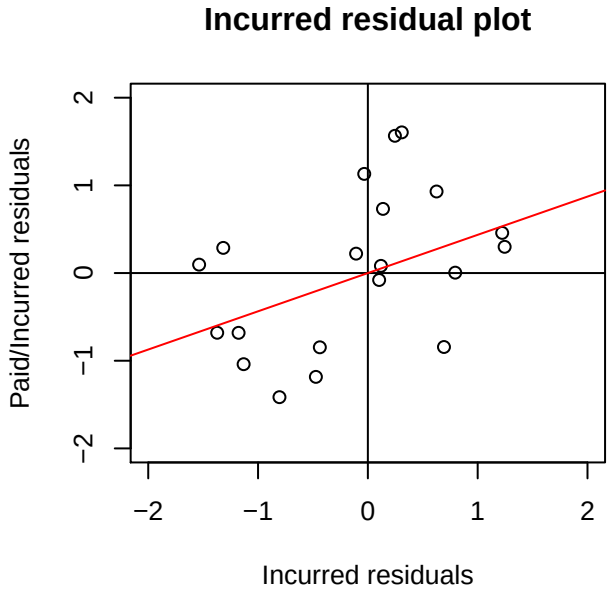

P/I triangle
Paid/Incurred
Development year
1.0
0.9
0.8
0.7
0.6
0.5
0.4
1
2
3
4
5
6
7

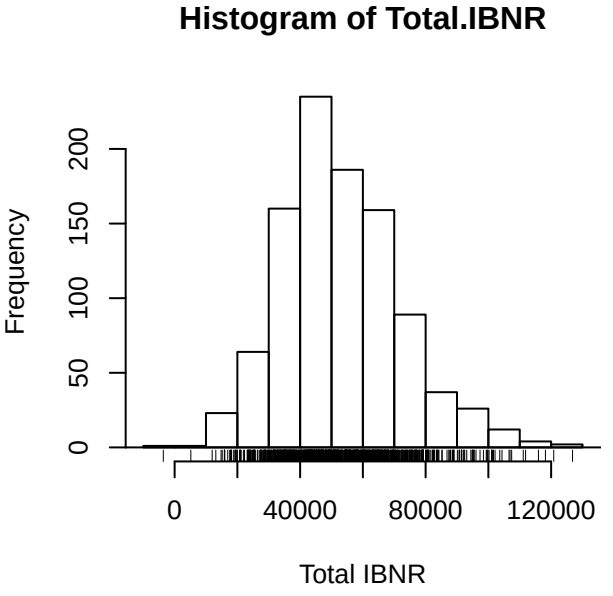

Full P/I triangle using chain ladder
Paid/Incurred
Development year
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
1
2
3
4
5
6
7

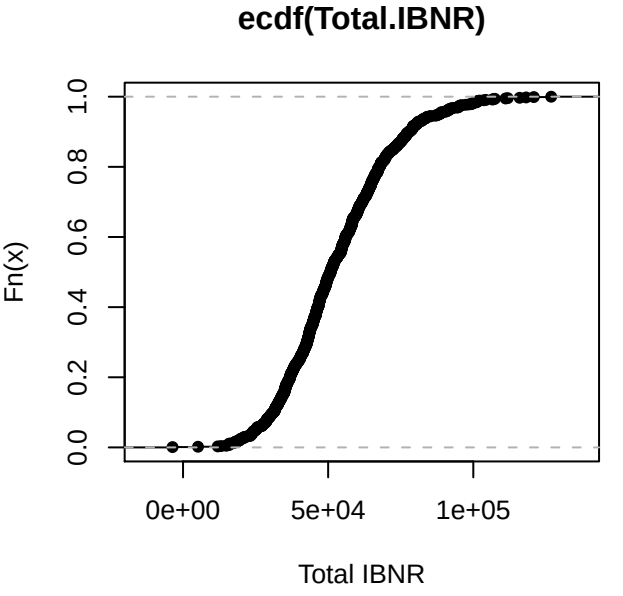

Munich Chain Ladder Results
MCL Paid
MCL Incurred
Amounts
0
2000
4000
6000
1
2
3
4
5
6
7
origin period

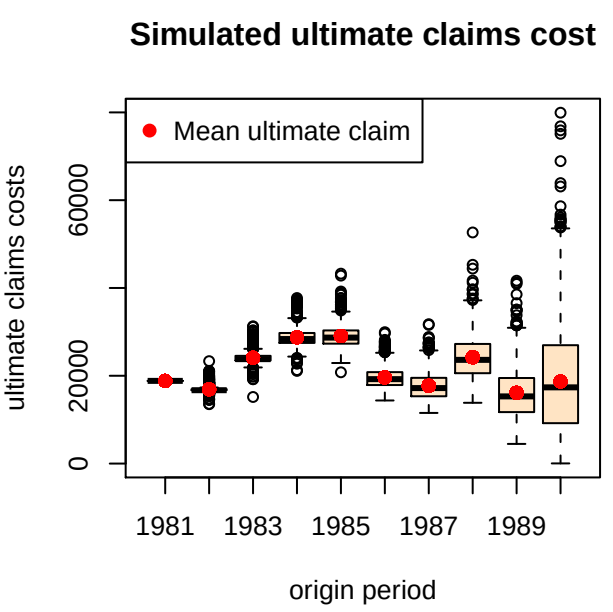

Munich Chain Ladder vs. Standard Chain La
Mack P/I
MCL P/I
%
0
20
40
60
80
100
1
2
3
4
5
6
7
origin period

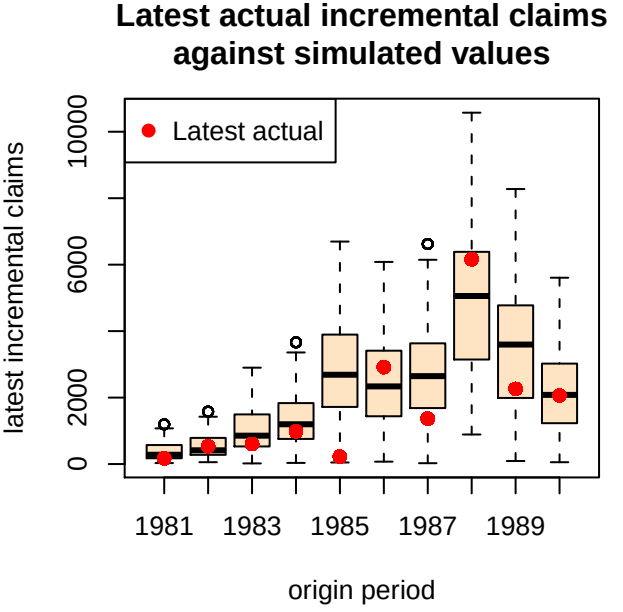

Paid residual plot
Incurred/Paid residuals
−2
−1
0
1
2
Paid residuals

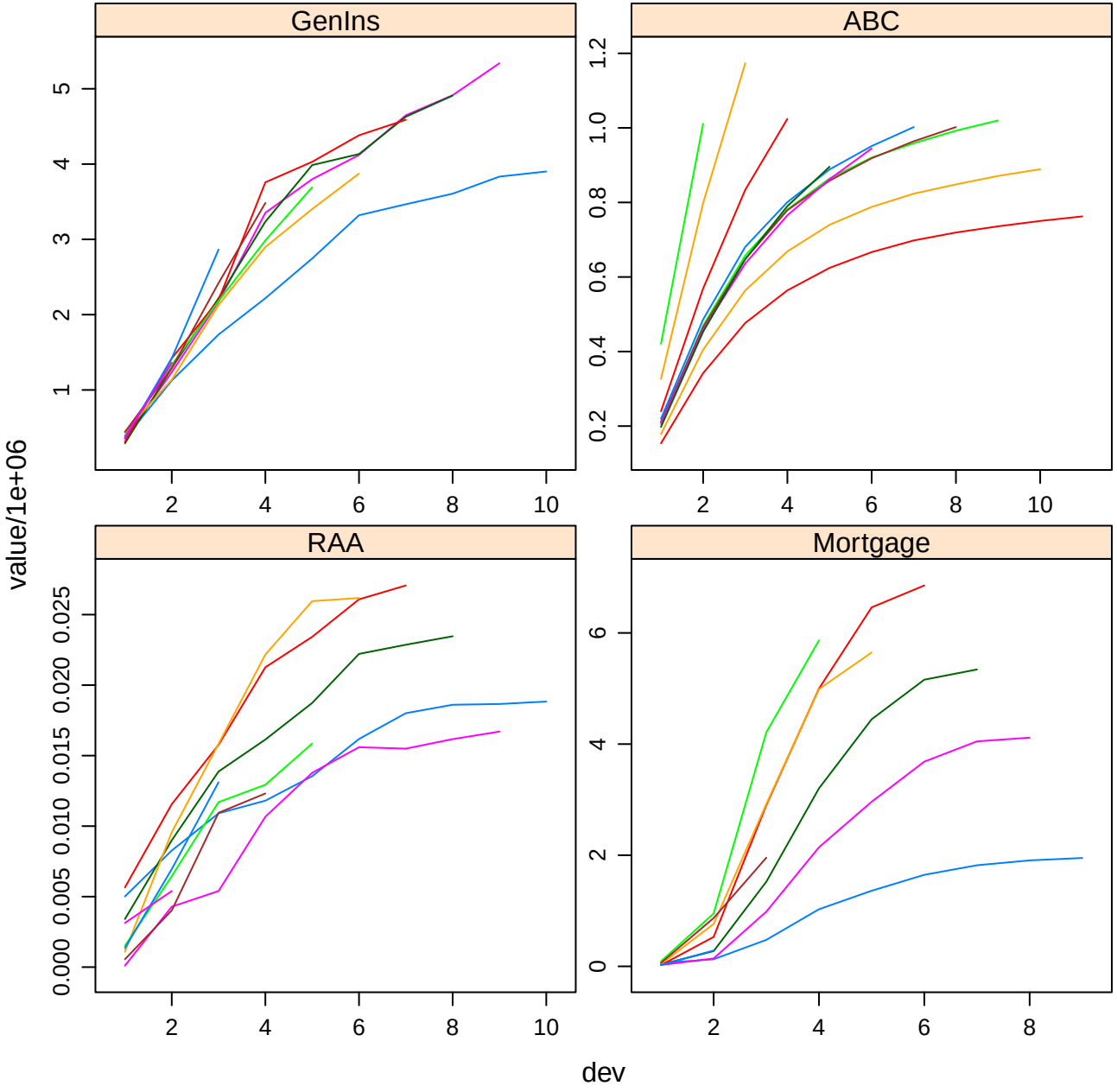

Incurred residual plot
Paid/Incurred residuals
−2
−1
0
1
2
Incurred residuals


Histogram of Total.IBNR
Frequency
0
50
100
150
200
0
40000
80000
120000
Total IBNR


ecdf(Total.IBNR)
Fn(x)
0.0
0.2
0.4
0.6
0.8
1.0
0e+00
5e+04
1e+05
Total IBNR


Simulated ultimate claims cost
Mean ultimate claim
ultimate claims costs
0
20000
60000
1981
1983
1985
1987
1989
origin period


Latest actual incremental claims against simulated values
Latest actual
latest incremental claims
0
2000
6000
10000
1981
1983
1985
1987
1989
origin period


GenIns
ABC
RAA
Mortgage
value/1e+06
dev
1
2
3
4
5
0.2
0.4
0.6
0.8
1.0
1.2
0.000
0.005
0.010
0.015
0.020
0.025
0
2
4
6
8
10