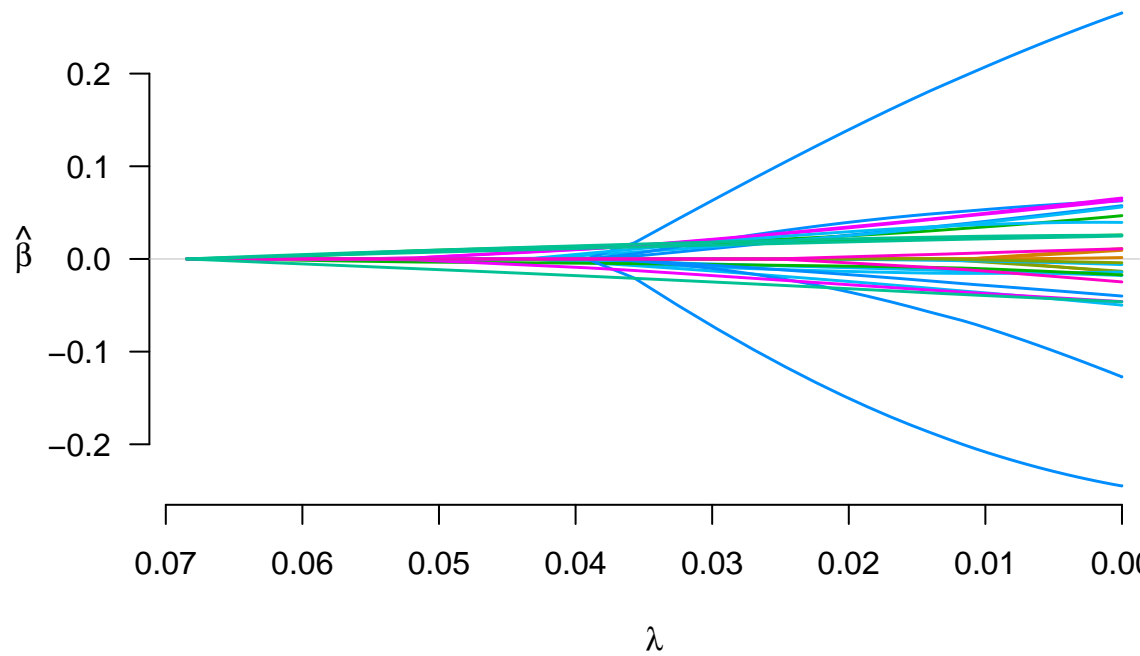# 03.2_grouped_LASSO

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Below models adjusted for cotinine, education, parity, home_score, race

Pre-process data

data prep - WPPSI FSIQ

MODEL -FSIQ

```
##                        0.0246
## (Intercept)    -3.533093e+00
## BCEtP           0.000000e+00
## BDCPP           0.000000e+00
## BPA             0.000000e+00
## cotinine       -5.521591e-03
## DBuP            0.000000e+00
## DDE             1.898175e-02
## DMA             2.151508e-02
```

```
## DPhP             0.000000e+00
## Hg               1.852352e-02
## MBP             -7.607400e-03
## MBZP            -1.160975e-02
## MCPP            -1.900798e-02
## MEP              1.590939e-05
## MIBP             1.947361e-02
## Pb              -6.939239e-03
## PBDE_47         -1.205047e-02
## PCB_118          3.094705e-02
## PCB_138         -2.212922e-02
## PCB_153         -1.167275e-01
## PCB_180          1.049803e-01
## PFHxS           -2.322466e-02
## PFOA             2.733587e-02
## PFOS             2.821437e-02
## TCS              0.000000e+00
## sigma_DEHP       2.458405e-02
## di_Ethyl_OP     -5.539315e-04
## di_Methyl_OP     3.118984e-04
## B_PB             1.680528e-02
## M_PB             2.012594e-02
## P_PB            -2.870241e-02
## mom_edu_cat      1.933458e-01
## parity_n        -6.582211e-02
## mom_age          3.997298e-03
## home_score_total 6.244995e-02
## race_bin         1.280190e-01


## [1] 0.7737912
```
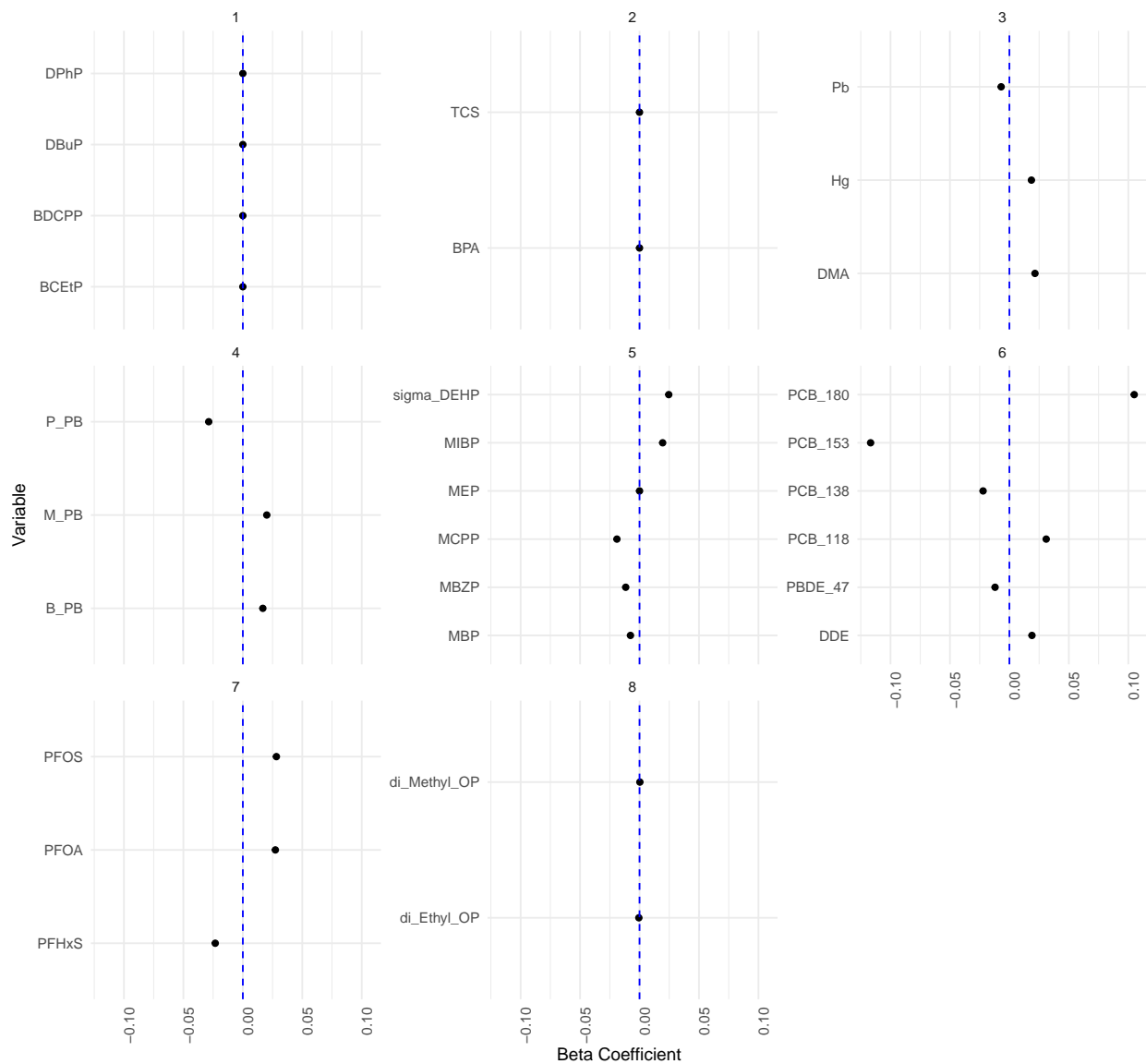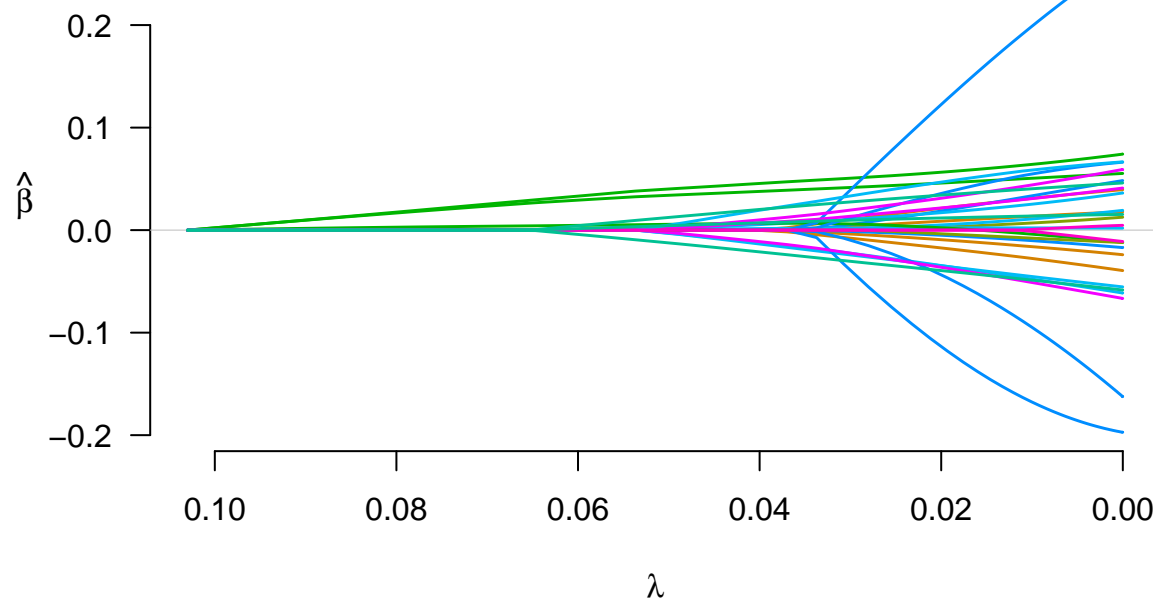
Lasso Coefficients for 8 Group Model
With lambda values extracted from 10−fold cross−validation
Outcome: WPPSI−FSIQ

data prep - WPPSI VIQ

MODEL -VIQ

```
##                        0.028
## (Intercept)   -3.4852395877
## BCEtP          0.0000000000
## BDCPP          0.0000000000
## BPA            0.0000000000
## cotinine      -0.0058051077
## DBuP           0.0000000000
## DDE            0.0139995952
## DMA            0.0193047999
## DPhP           0.0000000000
## Hg             0.0174100094
## MBP           -0.0062320420
## MBZP          -0.0099602330
## MCPP          -0.0151783962
## MEP            0.0002422473
## MIBP           0.0155135253
## Pb            -0.0062964955
## PBDE_47       -0.0086862717
## PCB_118        0.0237291917
## PCB_138       -0.0141168740
## PCB_153       -0.0893502512
## PCB_180        0.0787278755
## PFHxS         -0.0198900861
## PFOA           0.0230234531
```
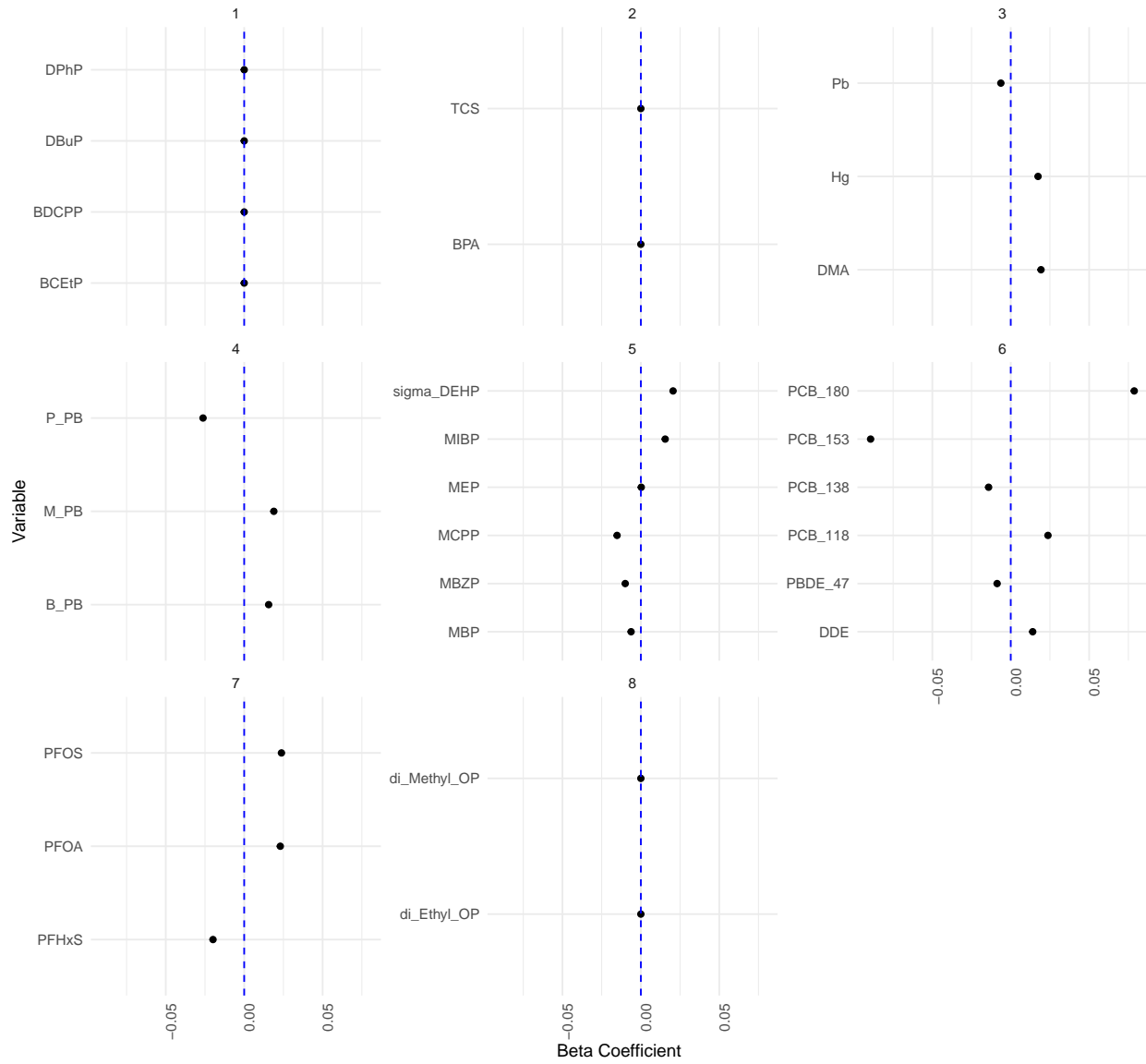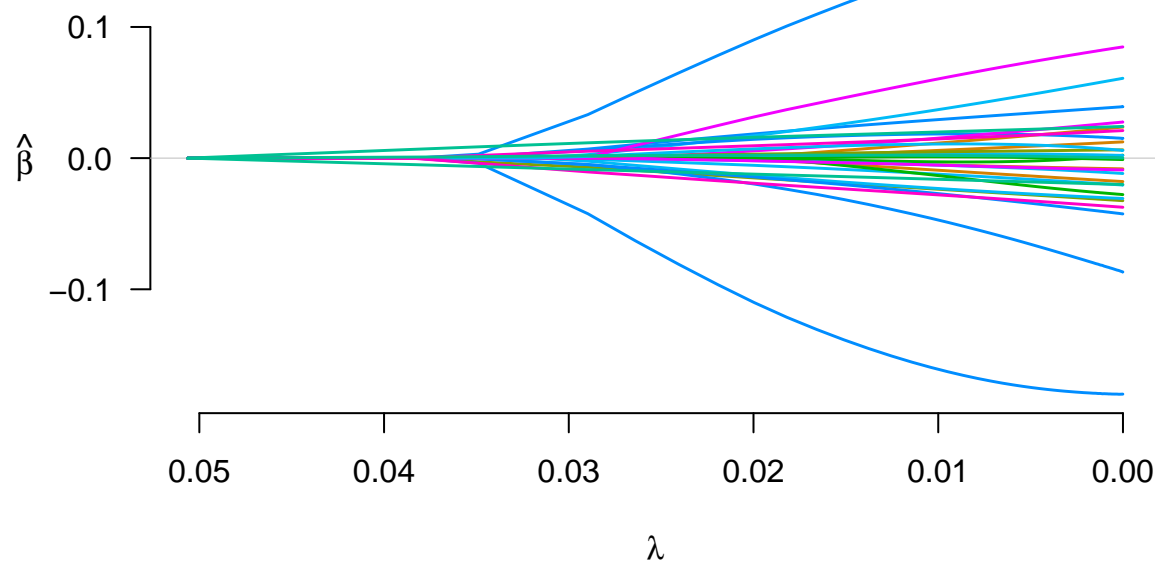
```
## PFOS              0.0237551323
## TCS               0.0000000000
## sigma_DEHP        0.0205299045
## di_Ethyl_OP       0.0000000000
## di_Methyl_OP      0.0000000000
## B_PB              0.0155997736
## M_PB              0.0189030913
## P_PB             -0.0262498864
## mom_edu_cat       0.1953600750
## parity_n         -0.0691319713
## mom_age           0.0043159582
## home_score_total  0.0614037249
## race_bin          0.1257894392
```

```
## [1] 0.7781927
```

Lasso Coefficients for 8 Group Model
With lambda values extracted from 10−fold cross−validation
Outcome: WPPSI−VIQ

data prep - WPPSI PIQ

MODEL -PIQ

```
##                        0.0506
## (Intercept)   -3.143582984
## BCEtP          0.000000000
## BDCPP          0.000000000
## BPA            0.000000000
## cotinine      -0.006347083
## DBuP           0.000000000
## DDE            0.000000000
## DMA            0.008344558
## DPhP           0.000000000
## Hg             0.009197909
## MBP            0.000000000
## MBZP           0.000000000
## MCPP           0.000000000
## MEP            0.000000000
## MIBP           0.000000000
## Pb            -0.003425244
## PBDE_47        0.000000000
## PCB_118        0.000000000
## PCB_138        0.000000000
## PCB_153        0.000000000
## PCB_180        0.000000000
## PFHxS         -0.001710582
## PFOA           0.001857054
```

```
## PFOS              0.002022588
## TCS               0.000000000
## sigma_DEHP        0.000000000
## di_Ethyl_OP       0.000000000
## di_Methyl_OP      0.000000000
## B_PB              0.007164570
## M_PB              0.009382347
## P_PB             -0.011167547
## mom_edu_cat       0.201443224
## parity_n         -0.086723553
## mom_age           0.005825427
## home_score_total  0.054750106
## race_bin          0.116285774
```

```
## [1] 0.8040788
```

Lasso Coefficients for 8 Group Model
With lambda values extracted from 10−fold cross−validation
Outcome: WPPSI−PIQ