For cross-validations, we stratify the data by both racial groups and disease outcomes.

Low dimensional setting: 6 predictors including the variable for racial groups; data are generated from GLM, and we fit a GLM for prediction

|  |  |  |
| --- | --- | --- |
| Proportion\_White | Prob\_Case | num\_folds |
| 0.5 | 0.2 | 5 |

Coverage probability of 95% CI:

* Calibration intercept:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| W0\_byAvg | W1\_byAvg | W0\_byAgt | W1\_byAgt | W0\_ext | W1\_ext |
| 1.000 | 1.000 | 1.000 | 1.000 | 0.849 | 0.818 |

* Calibration slope:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| W0\_byAvg | W1\_byAvg | W0\_byAgt | W1\_byAgt | W0\_ext | W1\_ext |
| 0.997 | 0.999 | 0.997 | 1.000 | 0.897 | 0.887 |

High dimensional setting: 51 predictors including the variable for racial groups and 13 non-zero predictors; data are generated from GLM, and we fit a GLM and lasso model for prediction, respectively

|  |
| --- |
| num\_folds |
| 5 |

Coverage probability of 95% CI - GLM:

* Calibration intercept:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| W0\_byAvg | W1\_byAvg | W0\_byAgt | W1\_byAgt | W0\_ext | W1\_ext |
| 0.984 | 1.000 | 0.984 | 1.000 | 0.908 | 0.846 |

* Calibration slope:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| W0\_byAvg | W1\_byAvg | W0\_byAgt | W1\_byAgt | W0\_ext | W1\_ext |
| 0.682 | 0.084 | 0.632 | 0.046 | 0.719 | 0.338 |

The coverage rate is significantly lower than 95% because the estimated calibration slope is far below 1.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| W0\_cali\_slp\_byAvg | W1\_cali\_slp\_byAvg | W0\_cali\_slp\_byAgt | W1\_cali\_slp\_byAgt | W0\_cali\_slp\_ext | W1\_cali\_slp\_ext |
| 0.644 | 0.681 | 0.613 | 0.657 | 0.702 | 0.724 |

Coverage probability of 95% CI - lasso:

* Calibration intercept:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| W0\_byAvg | W1\_byAvg | W0\_byAgt | W1\_byAgt | W0\_ext | W1\_ext |
| 0.997 | 1.000 | 0.997 | 1.000 | 0.902 | 0.849 |

* Calibration slope:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| W0\_byAvg | W1\_byAvg | W0\_byAgt | W1\_byAgt | W0\_ext | W1\_ext |
| 0.741 | 0.536 | 0.731 | 0.544 | 0.753 | 0.565 |

The coverage rate is also significantly lower than 95% because the estimated calibration slope is a little below 1.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| W0\_cali\_slp\_byAvg | W1\_cali\_slp\_byAvg | W0\_cali\_slp\_byAgt | W1\_cali\_slp\_byAgt | W0\_cali\_slp\_ext | W1\_cali\_slp\_ext |
| 0.985 | 0.950 | 0.817 | 0.882 | 0.953 | 0.987 |