|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Supplementary Table 1: Proportion of simulations where individual variables were detected** | | | | | | | | | | | |
| **Binary outcomes** | UNIV-BFN | LASSO-MIN | LASSO-1SE | ELNET-MIN | ELNET-1SE | HCLST-CORR-GL | HCLST-CORR-SGL | HCLST-BOOT-GL | HCLST-BOOT-SGL | RF | RF+LASSO |
| X1 | 0.25 | 0.48 | 0.37 | 0.67 | 0.62 | 0.72 | 0.61 | 0.61 | 0.59 | 0.29 | 0.24 |
| X2 | 0.97 | 0.14 | 0.14 | 0.84 | 0.78 | 0.92 | 0.92 | 0.77 | 0.78 | 0.58 | 0.11 |
| X3 | 0.55 | 0.22 | 0.19 | 0.55 | 0.60 | 0.42 | 0.40 | 0.41 | 0.37 | 0.24 | 0.16 |
| X4 | 0.02 | 0.00 | 0.00 | 0.04 | 0.00 | 0.12 | 0.01 | 0.11 | 0.01 | 0.05 | 0.02 |
| X5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| **Mean X1-5** | **0.36** | **0.17** | **0.14** | **0.42** | **0.40** | **0.44** | **0.39** | **0.38** | **0.35** | **0.23** | **0.11** |
| X6 | 0.32 | 0.79 | 0.71 | 0.78 | 0.78 | 0.81 | 0.80 | 0.81 | 0.80 | 0.60 | 0.60 |
| X7 | 0.81 | 0.92 | 0.87 | 0.94 | 0.92 | 0.93 | 0.92 | 0.93 | 0.93 | 0.71 | 0.71 |
| X8 | 0.39 | 0.76 | 0.70 | 0.77 | 0.64 | 0.77 | 0.77 | 0.78 | 0.77 | 0.33 | 0.33 |
| X9 | 0.79 | 0.90 | 0.85 | 0.93 | 0.90 | 0.93 | 0.93 | 0.86 | 0.93 | 0.74 | 0.74 |
| X10 | 0.00 | 0.04 | 0.01 | 0.02 | 0.00 | 0.03 | 0.03 | 0.03 | 0.02 | 0.00 | 0.00 |
| **Mean X6-10** | **0.46** | **0.68** | **0.63** | **0.69** | **0.65** | **0.69** | **0.69** | **0.68** | **0.69** | **0.48** | **0.47** |
|  |  |  |  |  |  |  |  |  |  |  |  |
| **Continuous outcomes** | UNIV-BFN | LASSO-MIN | LASSO-1SE | ELNET-MIN | ELNET-1SE | HCLST-CORR-GL | HCLST-CORR-SGL | HCLST-BOOT-GL | HCLST-BOOT-SGL | RF | RF+LASSO |
| X1 | 0.40 | 0.54 | 0.22 | 0.63 | 0.34 | 0.77 | 0.67 | 0.49 | 0.63 | 0.74 | 0.55 |
| X2 | 0.99 | 0.16 | 0.15 | 0.54 | 0.61 | 0.95 | 0.93 | 0.63 | 0.70 | 0.92 | 0.11 |
| X3 | 0.70 | 0.29 | 0.16 | 0.37 | 0.31 | 0.54 | 0.51 | 0.54 | 0.50 | 0.56 | 0.29 |
| X4 | 0.07 | 0.00 | 0.00 | 0.01 | 0.00 | 0.15 | 0.03 | 0.09 | 0.02 | 0.24 | 0.02 |
| X5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.01 |
| **Mean X1-5** | **0.43** | **0.20** | **0.11** | **0.31** | **0.25** | **0.48** | **0.43** | **0.35** | **0.37** | **0.51** | **0.20** |
| X6 | 0.56 | 0.86 | 0.55 | 0.86 | 0.62 | 0.87 | 0.87 | 0.87 | 0.87 | 0.80 | 0.80 |
| X7 | 0.68 | 0.95 | 0.71 | 0.94 | 0.76 | 0.95 | 0.95 | 0.95 | 0.95 | 0.92 | 0.92 |
| X8 | 0.66 | 0.81 | 0.45 | 0.82 | 0.53 | 0.84 | 0.84 | 0.85 | 0.84 | 0.74 | 0.73 |
| X9 | 0.81 | 0.94 | 0.64 | 0.95 | 0.72 | 0.94 | 0.94 | 0.75 | 0.93 | 0.93 | 0.93 |
| X10 | 0.01 | 0.06 | 0.00 | 0.06 | 0.00 | 0.06 | 0.06 | 0.04 | 0.06 | 0.03 | 0.03 |
| **Mean X6-10** | **0.54** | **0.72** | **0.47** | **0.73** | **0.53** | **0.73** | **0.73** | **0.69** | **0.73** | **0.68** | **0.68** |