HW 3

Caitlin Bolz

3/10/2021

# Question 1

Fitted a guide classification forest to the CE data. Used ceclass.dsc as the data description file and cedata.txt as the data file. Input file is cein.txt, output file is ceout.txt, and predicted class and probability file is cepred.txt

# Question 2

The estimation of the population mean INTRDVX is 5010.44 by IPW by GUIDE classification forest

z = read.table("cedata.txt", header = T)  
w <- z$FINLWT21   
zclass <- read.table("cepred.txt",header=TRUE)  
probmissing <- zclass[,2]   
p <- 1-probmissing   
group <- !is.na(z$INTRDVX)  
ipw <- sum(w[group]\*z$INTRDVX[group]/p[group])/sum(w[group]/p[group])

ipw

## [1] 5010.44

# Question 3

Fitted a guide regression forest to the CE data. Used cereg.dsc as the data description file and cedata.txt as the data file. Input file is regin.txt, output file is regout.txt, and predicted class and probability file is regpred.txt

# Question 4

The estimation of the population mean INTRDVX is 4704.046 by weighted mean by GUIDE regression forest

zreg <- read.table("regpred",header=TRUE)  
yhat <- zreg$predicted  
imputed <- (sum(w[group]\*z$INTRDVX[group])+sum(w[!group]\*yhat[!group]))/sum(w)  
simple <- sum(w[group]\*z$INTRDVX[group])/sum(w[group])

imputed

## [1] 4704.046

# Question 5

Copy and pasted the input and output files below

## Question 1 Input File: cein.txt

GUIDE (do not edit this file unless you know what you are doing)

36.2 (version of GUIDE that generated this file)

1 (1=model fitting, 2=importance or DIF scoring, 3=data conversion)

"ceout.txt" (name of output file)

2 (1=one tree, 2=ensemble)

2 (1=bagging, 2=rforest)

2 (1=random splits of missing values, 2=nonrandom)

1 (1=classification, 2=regression)

2 (1=interaction tests, 2=skip them)

"ceclass.dsc" (name of data description file)

1 (1=accept default number of trees, 2=change)

1 (1=accept default number of variables for splitting, 2=change it)

1 (1=estimated priors, 2=equal priors, 3=other priors)

1 (1=unit misclassification costs, 2=other)

1 (1=split point from quantiles, 2=use exhaustive search)

1 (1=accept default splitting fraction, 2=change it)

1 (1=default max. number of split levels, 2=specify no. in next line)

1 (1=default min. node size, 2=specify min. value in next line)

"cepred.txt" (file name for predicted class and probability estimates)

1 (rank of top variable to split root node)

## Question 1 Output File: ceout.txt

GGG U U I DDDD EEEE

G G U U I D D E

G U U I D D E

G GG U U I D D EEE

G G U U I D D E

G G U U I D D E

GGG UUU I DDDD EEEE

GUIDE Classification and Regression Trees and Forests

Version 36.2 (Build date: January 10, 2021)

Compiled with Visual Fortran 64 18.0.1.156 on Windows 10

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This software is based upon work supported by the U.S. Army Research Office,

the National Science Foundation and the National Institutes of Health.

This job was started on 03/10/21 at 10:40

Random forest of classification trees

No pruning

Data description file: ceclass.dsc

Training sample file: cedata.txt

Missing value code: NA

Records in data file start on line 2

Number of M variables associated with C variables: 33

422 N variables changed to S

D variable is INTRDVX\_

Number of records in data file: 4693

Length of longest entry in data file: 11

Missing values found among categorical variables

Separate categories will be created for missing categorical variables

Missing values found among non-categorical variables

Number of classes: 3

Warning: S variable MISC2PQ is constant

Warning: S variable MISC2CQ is constant

Warning: S variable TCARTRKP is constant

Warning: S variable TCARTRKC is constant

Warning: S variable TOTHVHRP is constant

Warning: S variable TOTHVHRC is constant

Warning: S variable VMISCHEP is constant

Warning: S variable VMISCHEC is constant

Warning: S variable ROTHRFLP is constant

Warning: S variable ROTHRFLC is constant

Smallest and largest positive weights are 1.3507E+03 and 7.0269E+04

Training sample class proportions of D variable INTRDVX\_:

Class #Cases Proportion

C 1771 0.37737055

D 2838 0.60473045

T 84 0.01789900

Summary information for training sample of size 4693

d=dependent, b=split and fit cat variable using indicator variables,

c=split-only categorical, i=fit-only categorical (via indicators),

s=split-only numerical, n=split and fit numerical, f=fit-only numerical,

m=missing-value flag variable, p=periodic variable, w=weight

Levels of M variables are for missing values in associated variables

#Codes/

Levels/

Column Name Minimum Maximum Periods #Missing

1 DIRACC c 2 155

2 DIRACC\_ m 1

3 AGE\_REF s 18.00 87.00

4 AGE\_REF\_ m 0

5 AGE2 s 22.00 87.00 1903

6 AGE2\_ m 1

7 AS\_COMP1 s 0.000 4.000

8 AS\_C\_MP1 m 0

9 AS\_COMP2 s 0.000 4.000

10 AS\_C\_MP2 m 0

11 AS\_COMP3 s 0.000 4.000

12 AS\_C\_MP3 m 0

13 AS\_COMP4 s 0.000 4.000

14 AS\_C\_MP4 m 0

15 AS\_COMP5 s 0.000 2.000

16 AS\_C\_MP5 m 0

17 BATHRMQ s 1.000 8.000 21

18 BATHRMQ\_ m 2

19 BEDROOMQ s 0.000 9.000 25

20 BEDR\_OMQ m 2

21 BLS\_URBN s 1.000 2.000

22 BUILDING c 11

23 BUIL\_ING m 0

24 CUTENURE c 6

25 CUTE\_URE m 0

26 EARNCOMP c 9

27 EARN\_OMP m 0

28 EDUC\_REF s 10.00 16.00

29 EDUC0REF m 0

30 EDUCA2 s 10.00 16.00 1903

31 EDUCA2\_ m 1

32 FAM\_SIZE s 1.000 9.000

33 FAM\_\_IZE m 0

34 FAM\_TYPE c 10

35 FAM\_\_YPE m 0

36 FAMTFEDX s 0.000 0.9928E+05

37 FAMT\_EDX m 0

38 FEDRFNDX s 4.000 0.1428E+05 2597

39 FEDR\_NDX m 2

40 FEDTAXX s 2.000 0.8223E+05 3793

41 FEDTAXX\_ m 2

42 FGOVRETX s 0.000 0.2469E+05

43 FGOV\_ETX m 0

44 FINCATAX s -0.3380E+06 0.1410E+07

45 FINCAT\_X m 0

46 FINCBTAX s -0.3430E+06 0.1410E+07

47 FINCBT\_X m 0

48 FINDRETX s 0.000 0.1272E+06

49 FIND\_ETX m 0

50 FINLWT21 w 1351. 0.7027E+05

51 FJSSDEDX s 0.000 0.3042E+05

52 FJSS\_EDX m 0

53 FPRIPENX s 0.000 0.5902E+05

54 FPRI\_ENX m 0

55 FRRDEDX s 0.000 9980.

56 FRRDEDX\_ m 0

57 FRRETIRX s 0.000 0.5807E+05

58 FRRE\_IRX m 0

59 FSALARYX s 0.000 0.5301E+06

60 FSAL\_RYX m 0

61 FSLTAXX s 0.000 0.3010E+05

62 FSLTAXX\_ m 0

63 FSSIX s 0.000 0.3048E+05

64 FSSIX\_ m 0

65 HLFBATHQ s 0.000 4.000 23

66 HLFB\_THQ m 2

67 INC\_HRS1 s 1.000 93.00 1744

68 INC\_\_RS1 m 1

69 INC\_HRS2 s 1.000 99.00 2886

70 INC\_\_RS2 m 1

71 INC\_RANK s 0.1000E-03 1.000 367

72 INC\_\_ANK m 1

73 INCNONW1 c 6 2949

74 INCN\_NW1 m 1

75 INCNONW2 c 6 3710

76 INCN\_NW2 m 1

77 INCOMEY1 c 6 1744

78 INCO\_EY1 m 1

79 INCOMEY2 c 6 2886

80 INCO\_EY2 m 1

81 INCWEEK1 s 0.000 52.00

82 INCW\_EK1 m 0

83 INCWEEK2 s 0.000 52.00 1903

84 INCW\_EK2 m 1

85 MISCTAXX s 5.000 0.2524E+05 4601

86 MISC\_AXX m 3

87 LUMPSUMX s 4.000 0.5492E+06 4454

88 LUMP\_UMX m 2

89 MARITAL1 c 6

90 MARI\_AL1 m 0

91 NO\_EARNR s 0.000 6.000

92 NO\_E\_RNR m 0

93 NONINCMX s 0.000 0.5492E+06

94 NONI\_CMX m 0

95 NUM\_AUTO s 0.000 7.000

96 NUM\_\_UTO m 0

97 OCCUCOD1 c 15 1744

98 OCCU\_OD1 m 1

99 OCCUCOD2 c 15 2886

100 OCCU\_OD2 m 1

101 OTHRINCX s 2.000 0.5788E+05 4566

102 OTHR\_NCX m 2

103 PERSLT18 s 0.000 7.000

104 PERS\_T18 m 0

105 PERSOT64 s 0.000 4.000

106 PERS\_T64 m 0

107 POPSIZE s 1.000 5.000 38

108 PRINEARN c 8

109 PRIN\_ARN m 0

110 QINTRVMO c 12

111 QINTRVYR c 2

112 RACE2 c 6 1903

113 RACE2\_ m 1

114 REF\_RACE c 7

115 REF\_\_ACE m 0

116 REGION c 4 38

117 RENTEQVX s 1.000 4694. 667

118 RENT\_QVX m 1

119 RESPSTAT c 3

120 RESP\_TAT m 0

121 ROOMSQ s 1.000 19.00 30

122 ROOMSQ\_ m 2

123 SEX\_REF c 3

124 SEX\_REF\_ m 0

125 SEX2 c 2 1903

126 SEX2\_ m 1

127 SLOCTAXX s 1.000 0.2657E+05 4053

128 SLOC\_AXX m 2

129 SLRFUNDX s 1.000 4169. 3242

130 SLRF\_NDX m 2

131 SMSASTAT c 2

132 ST\_HOUS c 3

133 ST\_HOUS\_ m 0

134 TOTTXPDX s -0.1845E+05 0.1467E+06

135 TOTT\_PDX m 0

136 VEHQ s 0.000 17.00

137 VEHQ\_ m 0

138 WELFAREX s 300.0 4344. 4680

139 WELF\_REX m 2

140 TOTEXPPQ s 233.2 0.2782E+06

141 TOTEXPCQ s -3759. 0.9669E+05

142 FOODPQ s 0.000 0.2358E+05

143 FOODCQ s 0.000 7363.

144 FDHOMEPQ s 0.000 8450.

145 FDHOMECQ s 0.000 6067.

146 FDAWAYPQ s 0.000 0.2098E+05

147 FDAWAYCQ s 0.000 5660.

148 FDXMAPPQ s 0.000 0.2098E+05

149 FDXMAPCQ s 0.000 5660.

150 FDMAPPQ s 0.000 900.0

151 FDMAPCQ s 0.000 666.7

152 ALCBEVPQ s 0.000 3152.

153 ALCBEVCQ s 0.000 2550.

154 HOUSPQ s 0.000 0.1811E+06

155 HOUSCQ s -2196. 0.3466E+05

156 SHELTPQ s 0.000 0.4074E+05

157 SHELTCQ s 0.000 0.3354E+05

158 OWNDWEPQ s 0.000 0.3070E+05

159 OWNDWECQ s 0.000 0.3321E+05

160 MRTINTPQ s 0.000 0.2531E+05

161 MRTINTCQ s 0.000 0.1112E+05

162 PROPTXPQ s 0.000 5870.

163 PROPTXCQ s 0.000 4247.

164 MRPINSPQ s 0.000 0.2110E+05

165 MRPINSCQ s 0.000 0.2373E+05

166 RENDWEPQ s 0.000 8546.

167 RENDWECQ s 0.000 6742.

168 RNTXRPPQ s 0.000 8546.

169 RNTXRPCQ s 0.000 6742.

170 RNTAPYPQ s 0.000 2922.

171 RNTAPYCQ s 0.000 3000.

172 OTHLODPQ s 0.000 0.3342E+05

173 OTHLODCQ s 0.000 0.1367E+05

174 UTILPQ s 0.000 7581.

175 UTILCQ s 0.000 3921.

176 NTLGASPQ s 0.000 2306.

177 NTLGASCQ s 0.000 885.0

178 ELCTRCPQ s 0.000 4473.

179 ELCTRCCQ s 0.000 3261.

180 ALLFULPQ s 0.000 2752.

181 ALLFULCQ s 0.000 3081.

182 FULOILPQ s 0.000 2752.

183 FULOILCQ s 0.000 3081.

184 OTHFLSPQ s 0.000 1981.

185 OTHFLSCQ s 0.000 2269.

186 TELEPHPQ s 0.000 1638.

187 TELEPHCQ s 0.000 1907.

188 WATRPSPQ s 0.000 1880.

189 WATRPSCQ s 0.000 1035.

190 HOUSOPPQ s -37.00 0.2493E+05

191 HOUSOPCQ s -4868. 0.1815E+05

192 DOMSRVPQ s -37.00 0.2003E+05

193 DOMSRVCQ s -4960. 0.1805E+05

194 DMSXCCPQ s -37.00 0.2003E+05

195 DMSXCCCQ s -4960. 0.1000E+05

196 BBYDAYPQ s 0.000 0.1500E+05

197 BBYDAYCQ s 0.000 0.1740E+05

198 OTHHEXPQ s 0.000 0.2493E+05

199 OTHHEXCQ s 0.000 5653.

200 HOUSEQPQ s 0.000 0.1544E+06

201 HOUSEQCQ s 0.000 0.2268E+05

202 TEXTILPQ s 0.000 4000.

203 TEXTILCQ s 0.000 2946.

204 FURNTRPQ s 0.000 0.7500E+05

205 FURNTRCQ s 0.000 0.1811E+05

206 FLRCVRPQ s 0.000 0.1000E+05

207 FLRCVRCQ s 0.000 5500.

208 MAJAPPPQ s 0.000 0.1802E+05

209 MAJAPPCQ s 0.000 0.1200E+05

210 SMLAPPPQ s 0.000 3000.

211 SMLAPPCQ s 0.000 944.0

212 MISCEQPQ s 0.000 0.6510E+05

213 MISCEQCQ s 0.000 7155.

214 APPARPQ s 0.000 0.2440E+05

215 APPARCQ s 0.000 4604.

216 MENBOYPQ s 0.000 4200.

217 MENBOYCQ s 0.000 1797.

218 MENSIXPQ s 0.000 4200.

219 MENSIXCQ s 0.000 1797.

220 BOYFIFPQ s 0.000 2150.

221 BOYFIFCQ s 0.000 448.0

222 WOMGRLPQ s 0.000 4540.

223 WOMGRLCQ s 0.000 2958.

224 WOMSIXPQ s 0.000 4474.

225 WOMSIXCQ s 0.000 2958.

226 GRLFIFPQ s 0.000 1799.

227 GRLFIFCQ s 0.000 1624.

228 CHLDRNPQ s 0.000 717.0

229 CHLDRNCQ s 0.000 961.0

230 FOOTWRPQ s 0.000 2162.

231 FOOTWRCQ s 0.000 1148.

232 OTHAPLPQ s 0.000 0.2048E+05

233 OTHAPLCQ s 0.000 4076.

234 TRANSPQ s 0.000 0.8778E+05

235 TRANSCQ s 0.000 0.6490E+05

236 CARTKNPQ s 0.000 0.8700E+05

237 CARTKNCQ s 0.000 0.6480E+05

238 CARTKUPQ s 0.000 0.4200E+05

239 CARTKUCQ s 0.000 0.4163E+05

240 OTHVEHPQ s 0.000 0.1417E+05

241 OTHVEHCQ s 0.000 0.1800E+05

242 GASMOPQ s 0.000 4832.

243 GASMOCQ s 0.000 6400.

244 VEHFINPQ s 0.000 1201.

245 VEHFINCQ s 0.000 716.0

246 MAINRPPQ s 0.000 0.1400E+05

247 MAINRPCQ s 0.000 8060.

248 VEHINSPQ s 0.000 4236.

249 VEHINSCQ s 0.000 3800.

250 VRNTLOPQ s 0.000 0.2200E+05

251 VRNTLOCQ s 0.000 0.2223E+05

252 PUBTRAPQ s 0.000 0.2287E+05

253 PUBTRACQ s 0.000 0.1198E+05

254 TRNTRPPQ s 0.000 0.2287E+05

255 TRNTRPCQ s 0.000 0.1198E+05

256 TRNOTHPQ s 0.000 1448.

257 TRNOTHCQ s 0.000 1386.

258 HEALTHPQ s -2402. 0.1665E+05

259 HEALTHCQ s -0.1281E+05 0.2189E+05

260 HLTHINPQ s 0.000 0.1426E+05

261 HLTHINCQ s 0.000 8789.

262 MEDSRVPQ s -3290. 0.1543E+05

263 MEDSRVCQ s -0.1330E+05 0.1368E+05

264 PREDRGPQ s -940.0 6844.

265 PREDRGCQ s -260.0 2800.

266 MEDSUPPQ s -3600. 7000.

267 MEDSUPCQ s -449.0 7530.

268 ENTERTPQ s 0.000 0.6318E+05

269 ENTERTCQ s 0.000 0.4249E+05

270 FEEADMPQ s 0.000 0.1958E+05

271 FEEADMCQ s 0.000 0.1577E+05

272 TVRDIOPQ s 0.000 7007.

273 TVRDIOCQ s 0.000 5143.

274 OTHEQPPQ s 0.000 0.6300E+05

275 OTHEQPCQ s 0.000 0.4204E+05

276 PETTOYPQ s 0.000 0.1165E+05

277 PETTOYCQ s 0.000 5657.

278 OTHENTPQ s 0.000 0.6300E+05

279 OTHENTCQ s 0.000 0.4204E+05

280 PERSCAPQ s 0.000 1550.

281 PERSCACQ s 0.000 973.3

282 READPQ s 0.000 3304.

283 READCQ s 0.000 1100.

284 EDUCAPQ s 0.000 0.3850E+05

285 EDUCACQ s 0.000 0.3500E+05

286 TOBACCPQ s 0.000 2253.

287 TOBACCCQ s 0.000 2600.

288 MISCPQ s 0.000 0.2305E+05

289 MISCCQ s 0.000 0.1703E+05

290 MISC1PQ s 0.000 0.2305E+05

291 MISC1CQ s 0.000 0.1703E+05

292 MISC2PQ s 0.000 0.000

293 MISC2CQ s 0.000 0.000

294 CASHCOPQ s 0.000 0.8109E+05

295 CASHCOCQ s 0.000 0.2150E+05

296 PERINSPQ s 0.000 0.7000E+05

297 PERINSCQ s 0.000 0.3337E+05

298 LIFINSPQ s 0.000 0.7000E+05

299 LIFINSCQ s 0.000 0.3100E+05

300 RETPENPQ s 0.000 0.2584E+05

301 RETPENCQ s 0.000 0.2298E+05

302 HH\_CU\_Q s 1.000 5.000

303 HH\_CU\_Q\_ m 0

304 HHID c 46 4614

305 HHID\_ m 1

306 POV\_CY c 2 378

307 POV\_CY\_ m 1

308 POV\_PY c 2 378

309 POV\_PY\_ m 1

310 SWIMPOOL c 1 4115

311 SWIM\_OOL m 2

312 APTMENT c 1 4616

313 APTMENT\_ m 2

314 OFSTPARK c 1 1181

315 OFST\_ARK m 2

316 WINDOWAC c 1 4049

317 WIND\_WAC m 2

318 CNTRALAC c 1 1491

319 CNTR\_LAC m 2

320 CHILDAGE s 0.000 7.000

321 CHIL\_AGE m 0

322 INCLASS s 1.000 9.000

323 STATE c 39 492

324 ERANKH s 0.4735E-02 1.000 367

325 ERANKH\_ m 1

326 TOTEX4PQ s 233.2 0.2782E+06

327 TOTEX4CQ s -3759. 0.9669E+05

328 MISCX4PQ s 0.000 0.2305E+05

329 MISCX4CQ s 0.000 0.1703E+05

330 VEHQL s 0.000 4.000

331 VEHQL\_ m 0

332 NUM\_TVAN s 0.000 9.000

333 NUM\_\_VAN m 0

334 TTOTALP s 0.000 0.3821E+05

335 TTOTALC s 0.000 0.2303E+05

336 TFOODTOP s 0.000 5600.

337 TFOODTOC s 0.000 4305.

338 TFOODAWP s 0.000 5500.

339 TFOODAWC s 0.000 4180.

340 TFOODHOP s 0.000 3300.

341 TFOODHOC s 0.000 1050.

342 TALCBEVP s 0.000 2252.

343 TALCBEVC s 0.000 1220.

344 TOTHRLOP s 0.000 0.1013E+05

345 TOTHRLOC s 0.000 7498.

346 TTRANPRP s 0.000 0.2296E+05

347 TTRANPRC s 0.000 0.1198E+05

348 TGASMOTP s 0.000 1750.

349 TGASMOTC s 0.000 2200.

350 TVRENTLP s 0.000 445.0

351 TVRENTLC s 0.000 514.0

352 TCARTRKP s 0.000 0.000

353 TCARTRKC s 0.000 0.000

354 TOTHVHRP s 0.000 0.000

355 TOTHVHRC s 0.000 0.000

356 TOTHTREP s 0.000 445.0

357 TOTHTREC s 0.000 514.0

358 TTRNTRIP s 0.000 0.2287E+05

359 TTRNTRIC s 0.000 0.1198E+05

360 TFAREP s 0.000 0.2202E+05

361 TFAREC s 0.000 0.1126E+05

362 TAIRFARP s 0.000 0.2086E+05

363 TAIRFARC s 0.000 0.1000E+05

364 TOTHFARP s 0.000 9800.

365 TOTHFARC s 0.000 6238.

366 TLOCALTP s 0.000 853.0

367 TLOCALTC s 0.000 1000.

368 TENTRMNP s 0.000 7400.

369 TENTRMNC s 0.000 4131.

370 TFEESADP s 0.000 7400.

371 TFEESADC s 0.000 4131.

372 TOTHENTP s 0.000 1400.

373 TOTHENTC s 0.000 2400.

374 OWNVACP s 0.000 0.2329E+05

375 OWNVACC s 0.000 0.1367E+05

376 VOTHRLOP s 0.000 0.2329E+05

377 VOTHRLOC s 0.000 0.1367E+05

378 VMISCHEP s 0.000 0.000

379 VMISCHEC s 0.000 0.000

380 UTILOWNP s 0.000 2077.

381 UTILOWNC s 0.000 1523.

382 VFUELOIP s 0.000 682.0

383 VFUELOIC s 0.000 625.0

384 VOTHRFLP s 0.000 547.0

385 VOTHRFLC s 0.000 907.0

386 VELECTRP s 0.000 1360.

387 VELECTRC s 0.000 988.0

388 VNATLGAP s 0.000 2077.

389 VNATLGAC s 0.000 201.0

390 VWATERPP s 0.000 475.0

391 VWATERPC s 0.000 571.0

392 MRTPRNOP s 0.000 0.2643E+05

393 MRTPRNOC s 0.000 0.1322E+05

394 UTILRNTP s 0.000 1157.

395 UTILRNTC s 0.000 628.0

396 RFUELOIP s 0.000 565.0

397 RFUELOIC s 0.000 553.0

398 ROTHRFLP s 0.000 0.000

399 ROTHRFLC s 0.000 0.000

400 RELECTRP s 0.000 558.0

401 RELECTRC s 0.000 209.0

402 RNATLGAP s 0.000 254.0

403 RNATLGAC s 0.000 89.00

404 RWATERPP s 0.000 552.0

405 RWATERPC s 0.000 242.0

406 POVLEVCY s 0.1145E+05 0.5184E+05

407 POVL\_VCY m 0

408 POVLEVPY s 0.1122E+05 0.5078E+05

409 POVL\_VPY m 0

410 PORCH c 1 1006

411 PORCH\_ m 2

412 ETOTALP s 233.2 0.2782E+06

413 ETOTALC s -2683. 0.7288E+05

414 ETOTAPX4 s 233.2 0.2782E+06

415 ETOTACX4 s -2683. 0.7288E+05

416 EHOUSNGP s 0.000 0.1811E+06

417 EHOUSNGC s -2196. 0.3897E+05

418 ESHELTRP s 0.000 0.4456E+05

419 ESHELTRC s 0.000 0.3786E+05

420 EOWNDWLP s 0.000 0.4456E+05

421 EOWNDWLC s 0.000 0.3752E+05

422 EOTHLODP s 0.000 0.3342E+05

423 EOTHLODC s 0.000 0.1433E+05

424 EMRTPNOP s 0.000 0.3516E+05

425 EMRTPNOC s 0.000 0.2247E+05

426 EMRTPNVP s 0.000 0.2643E+05

427 EMRTPNVC s 0.000 0.1322E+05

428 ETRANPTP s 0.000 0.8868E+05

429 ETRANPTC s 0.000 0.5436E+05

430 EVEHPURP s 0.000 0.8790E+05

431 EVEHPURC s 0.000 0.5400E+05

432 ECARTKNP s 0.000 0.8790E+05

433 ECARTKNC s 0.000 0.5400E+05

434 ECARTKUP s 0.000 0.2643E+05

435 ECARTKUC s 0.000 0.2662E+05

436 EOTHVEHP s 0.000 0.1166E+05

437 EOTHVEHC s 0.000 6542.

438 EENTRMTP s 0.000 0.6318E+05

439 EENTRMTC s 0.000 0.1605E+05

440 EOTHENTP s 0.000 0.6300E+05

441 EOTHENTC s 0.000 7502.

442 ENOMOTRP s 0.000 7700.

443 ENOMOTRC s 0.000 1500.

444 EMOTRVHP s 0.000 0.6300E+05

445 EMOTRVHC s 0.000 6971.

446 EENTMSCP s 0.000 6000.

447 EENTMSCC s 0.000 5000.

448 EMISCELP s 0.000 0.2305E+05

449 EMISCELC s 0.000 0.1703E+05

450 EMISCMTP s 0.000 1096.

451 EMISCMTC s 0.000 2113.

452 UNISTRQ s 1.000 10.00

453 UNISTRQ\_ m 0

455 WELF\_EBX c 2

456 LUMPSUMB s 2.000 12.00 4684

457 LUMP\_UMB m 2

458 LMPSUMBX s 1200. 0.8000E+05 4684

459 LMPS\_MBX m 2

460 OTHRINCB s 5.000 12.00 4687

461 OTHR\_NCB m 2

462 OTRINCBX s 4693

463 OTRI\_CBX m 1

464 INCLASS2 s 1.000 7.000

465 INCL\_SS2 m 0

467 HORREF1 c 6 4532

468 HORREF1\_ m 1

469 HORREF2 c 5 4577

470 HORREF2\_ m 1

471 ERANKHM s 0.6205E-02 1.000

472 ERANKHM\_ m 0

473 FGOVRETM s 0.000 0.2509E+05

474 FGOV\_ETM m 0

475 FPRIPENM s 0.000 0.5826E+05

476 FPRI\_ENM m 0

477 FRRDEDM s 0.000 0.1043E+05

478 FRRDEDM\_ m 0

479 PSU c 21 2616

480 HISP\_REF c 2

481 HISP2 c 2 1903

482 HIGH\_EDU s 10.00 16.00

483 BUILT s 1915. 2013. 592

484 BUILT\_ m 2

485 CREDFINX s 0.000 6629. 4360

486 CRED\_INX m 2

487 CREDITB s 1.000 5.000 4667

488 CREDITB\_ m 2

489 CREDITBX s 250.0 0.2250E+05 4667

490 CRED\_TBX m 2

491 CREDITX s 1.000 0.5132E+05 4311

492 CREDITX\_ m 2

493 CREDTYRX s 0.000 0.5092E+05 4327

494 CRED\_YRX m 2

495 CREDYRB s 1.000 6.000 4656

496 CREDYRB\_ m 2

497 CREDYRBX s 250.0 0.3500E+05 4656

498 CRED\_RBX m 2

499 DEFBENRP c 2 3551

500 DEFB\_NRP m 2

501 EITC c 2 1042

502 EITC\_ m 2

503 FMLPYYRX s 4.000 4000. 4598

504 FMLP\_YRX m 2

505 FS\_MTHI s 1.000 12.00 4644

506 FS\_MTHI\_ m 1

507 FSMPFRMX s -0.4000E+06 0.1090E+07

508 FSMP\_RMX m 0

514 INTRDVX\_ d 3

522 IRAB s 1.000 6.000 4514

523 IRAB\_ m 2

524 IRABX s 1000. 0.7250E+06 4514

525 IRABX\_ m 2

526 IRAX s 0.000 0.2635E+07 3917

527 IRAX\_ m 2

528 IRAYRB s 1.000 6.000 4489

529 IRAYRB\_ m 2

530 IRAYRBX s 1000. 0.7250E+06 4489

531 IRAYRBX\_ m 2

532 IRAYRX s 0.000 0.2129E+07 3964

533 IRAYRX\_ m 2

534 JFS\_AMT s 0.000 4800.

535 JFS\_AMT\_ m 0

536 LIQDYRBX s 250.0 0.3500E+05 4531

537 LIQD\_RBX m 2

538 LIQUIDBX s 250.0 0.3500E+05 4563

539 LIQU\_DBX m 2

540 LIQUDYRB s 1.000 6.000 4531

541 LIQU\_YRB m 2

542 LIQUDYRX s 0.000 0.5155E+06 3942

543 LIQU\_YRX m 2

544 LIQUIDB s 1.000 6.000 4563

545 LIQUIDB\_ m 2

546 LIQUIDX s 0.000 0.4910E+06 3892

547 LIQUIDX\_ m 2

548 MEALSPAY s 1.000 2.000 9

549 MEAL\_PAY m 2

550 MLPAYWKX s 2.000 300.0 4598

551 MLPA\_WKX m 2

552 MLPYQWKS s 1.000 52.00 4592

553 MLPY\_WKS m 2

554 NETRENTB s 0.000 12.00 4666

555 NETR\_NTB m 3

556 NETRENTX s -0.5499E+05 0.1148E+06 4338

557 NETR\_NTX m 2

558 NETRNTBX s -2400. 0.7130E+05 4666

559 NETR\_TBX m 2

560 OTHASTBX s 0.3000E+05 0.7250E+06 4673

561 OTHA\_TBX m 2

562 OTHASTB s 3.000 6.000 4673

563 OTHASTB\_ m 3

564 OTHASTX s 2.000 0.2767E+07 4648

565 OTHASTX\_ m 2

566 OTHFINX s 0.000 900.0 4654

567 OTHFINX\_ m 2

568 OTHLONBX s 250.0 0.2250E+05 4690

569 OTHL\_NBX m 2

570 OTHLYRBX s 750.0 0.2250E+05 4689

571 OTHL\_RBX m 2

572 OTHLNYRB s 2.000 5.000 4689

573 OTHL\_YRB m 2

574 OTHLNYRX s 0.000 0.5500E+05 4642

575 OTHL\_YRX m 2

576 OTHLOAN s 1.000 2.000 3485

577 OTHLOAN\_ m 1

578 OTHLONB s 1.000 5.000 4690

579 OTHLONB\_ m 2

580 OTHLONX s 1.000 0.3106E+06 4638

581 OTHLONX\_ m 2

582 OTHREGBX s 488.0 0.5000E+05 4678

583 OTHR\_GBX m 2

584 OTHREGB s 1.000 12.00 4678

585 OTHREGB\_ m 2

586 OTHREGX s 36.00 0.6367E+05 4422

587 OTHREGX\_ m 2

588 OTHSYRBX s 6000. 0.7250E+06 4669

589 OTHS\_RBX m 2

590 OTHSTYRB s 2.000 6.000 4669

591 OTHS\_YRB m 2

592 OTHSTYRX s 0.000 0.1533E+07 4656

593 OTHS\_YRX m 2

594 RETSURVX s 30.00 0.1269E+06 3571

595 RETS\_RVX m 2

596 RETSRVBX s 480.0 0.6200E+05 4626

597 RETS\_VBX m 2

598 RETSURV c 3

599 RETSURV\_ m 0

600 RETSURVB s 1.000 12.00 4626

601 RETS\_RVB m 2

604 ROYESTBX s 200.0 0.6000E+05 4654

605 ROYE\_TBX m 2

606 ROYESTB s 1.000 12.00 4654

607 ROYESTB\_ m 2

608 ROYESTX s 1.000 0.1592E+06 4441

609 ROYESTX\_ m 2

610 STCKYRBX s 1000. 0.7250E+06 4613

611 STCK\_RBX m 2

612 STDNTYRB s 3.000 6.000 4675

613 STDN\_YRB m 2

614 STDNTYRX s 0.000 0.4100E+06 4566

615 STDN\_YRX m 2

616 STDTYRBX s 1750. 0.3500E+05 4675

617 STDT\_RBX m 2

618 STOCKYRB s 1.000 6.000 4613

619 STOC\_YRB m 2

620 STOCKYRX s 0.000 0.5784E+07 4420

621 STOC\_YRX m 2

622 STOCKB s 1.000 6.000 4632

623 STOCKB\_ m 3

624 STOCKBX s 1000. 0.7250E+06 4632

625 STOCKBX\_ m 2

626 STOCKX s 25.00 0.6587E+07 4390

627 STOCKX\_ m 2

628 STUDFINX s 0.000 9000. 4595

629 STUD\_INX m 2

630 STUDNTBX s 6250. 0.3500E+05 4682

631 STUD\_TBX m 2

632 STUDNTB s 4.000 6.000 4682

633 STUDNTB\_ m 2

634 STUDNTX s 250.0 0.4200E+06 4556

635 STUDNTX\_ m 2

636 WHLFYRBX s 250.0 0.3500E+05 4648

637 WHLF\_RBX m 2

638 WHLFYRB s 1.000 6.000 4648

639 WHLFYRB\_ m 2

640 WHLFYRX s 0.000 0.7674E+06 4524

641 WHLFYRX\_ m 3

642 WHOLIFBX s 250.0 0.3500E+05 4654

643 WHOL\_FBX m 2

644 WHOLIFB s 1.000 6.000 4654

645 WHOLIFB\_ m 3

646 WHOLIFX s 1.000 0.7892E+06 4508

647 WHOLIFX\_ m 3

648 TOTXEST s -8990. 0.2938E+06

649 FFTAXOWE s -8943. 0.2485E+06

650 FFTA\_OWE m 0

651 FSTAXOWE s -2505. 0.5991E+05

652 FSTA\_OWE m 0

653 ETOTA s 1199. 0.2782E+06

Total #cases w/ #missing

#cases miss. D ord. vals #X-var #N-var #F-var #S-var

4693 0 4693 16 0 0 422

#P-var #M-var #B-var #C-var #I-var

0 171 0 42 0

Number of cases used for training: 4693

Number of split variables: 464

Number of cases excluded due to 0 weight or missing D: 0

Number of trees in ensemble: 500

Number of variables used for splitting: 155

Warning: No linear splits; number of S variables must be < 225

Simple node models

Estimated priors

Unit misclassification costs

Warning: All positive weights treated as 1

Univariate split highest priority

No interaction splits

No linear splits

Fraction of cases used for splitting each node: .0213

Maximum number of split levels: 19

Minimum node sample size: 23

Mean number of terminal nodes: 140.2

Classification matrix for training sample:

Predicted True class

class C D T

C 1282 64 7

D 489 2774 77

T 0 0 0

Total 1771 2838 84

Number of cases used for tree construction: 4693

Number misclassified: 637

Resubstitution estimate of mean misclassification cost: .1357

Number of OOB cases: 4693

Number OOB misclassified: 1036

OOB estimate of mean misclassification cost: .2208

Mean number of trees per OOB observation: 183.71

Predicted class probabilities are stored in cepred.txt

Elapsed time in seconds: 1315.2

## Question 3 Input File: regin.txt

GUIDE (do not edit this file unless you know what you are doing)

36.2 (version of GUIDE that generated this file)

1 (1=model fitting, 2=importance or DIF scoring, 3=data conversion)

"regout.txt" (name of output file)

2 (1=one tree, 2=ensemble)

2 (1=bagging, 2=rforest)

2 (1=random splits of missing values, 2=nonrandom)

2 (1=classification, 2=regression)

2 (1=interaction tests, 2=skip them)

"cereg.dsc" (name of data description file)

1 (1=accept default number of trees, 2=change)

1 (1=accept default number of variables for splitting, 2=change it)

1 (1=split point from quantiles, 2=use exhaustive search)

1 (1=accept default splitting fraction, 2=change it)

1 (1=default max. number of split levels, 2=specify no. in next line)

1 (1=default min. node size, 2=specify min. value in next line)

"regpred" (file name for predicted values)

1 (rank of top variable to split root node)

## Question 3 Output File: regout.txt

GGG U U I DDDD EEEE

G G U U I D D E

G U U I D D E

G GG U U I D D EEE

G G U U I D D E

G G U U I D D E

GGG UUU I DDDD EEEE

GUIDE Classification and Regression Trees and Forests

Version 36.2 (Build date: January 10, 2021)

Compiled with Visual Fortran 64 18.0.1.156 on Windows 10

Copyright (c) 1997-2020 Wei-Yin Loh. All rights reserved.

This software is based upon work supported by the U.S. Army Research Office,

the National Science Foundation and the National Institutes of Health.

This job was started on 03/10/21 at 11:26

Random forest of GUIDE least-squares regression trees

No pruning

Data description file: cereg.dsc

Training sample file: cedata.txt

Missing value code: NA

Records in data file start on line 2

Number of M variables associated with C variables: 33

409 N variables changed to S

D variable is INTRDVX

Piecewise constant model

Number of records in data file: 4693

Length of longest entry in data file: 11

Missing values found in D variable

Missing values found among categorical variables

Separate categories will be created for missing categorical variables

Missing values found among non-categorical variables

Warning: S variable OTHRINCB is constant

Warning: S variable NETRENTB is constant

Warning: S variable NETRNTBX is constant

Warning: S variable OTHLONBX is constant

Warning: S variable OTHLONB is constant

Smallest and largest positive weights are 1.3507E+03 and 7.0269E+04

Summary information for training sample of size 2922 (excluding observations with

non-positive weight or missing values in d, e, t, r or z variables)

d=dependent, b=split and fit cat variable using indicator variables,

c=split-only categorical, i=fit-only categorical (via indicators),

s=split-only numerical, n=split and fit numerical, f=fit-only numerical,

m=missing-value flag variable, p=periodic variable, w=weight

Levels of M variables are for missing values in associated variables

#Codes/

Levels/

Column Name Minimum Maximum Periods #Missing

1 DIRACC c 2 116

2 DIRACC\_ m 1

3 AGE\_REF s 18.00 87.00

4 AGE\_REF\_ m 0

5 AGE2 s 22.00 87.00 1225

6 AGE2\_ m 1

7 AS\_COMP1 s 0.000 4.000

8 AS\_C\_MP1 m 0

9 AS\_COMP2 s 0.000 4.000

10 AS\_C\_MP2 m 0

11 AS\_COMP3 s 0.000 4.000

12 AS\_C\_MP3 m 0

13 AS\_COMP4 s 0.000 3.000

14 AS\_C\_MP4 m 0

15 AS\_COMP5 s 0.000 2.000

16 AS\_C\_MP5 m 0

17 BATHRMQ s 1.000 8.000 10

18 BATHRMQ\_ m 2

19 BEDROOMQ s 0.000 9.000 10

20 BEDR\_OMQ m 2

21 BLS\_URBN s 1.000 2.000

22 BUILDING c 11

23 BUIL\_ING m 0

24 CUTENURE c 6

25 CUTE\_URE m 0

26 EARNCOMP c 9

27 EARN\_OMP m 0

28 EDUC\_REF s 10.00 16.00

29 EDUC0REF m 0

30 EDUCA2 s 10.00 16.00 1225

31 EDUCA2\_ m 1

32 FAM\_SIZE s 1.000 9.000

33 FAM\_\_IZE m 0

34 FAM\_TYPE c 10

35 FAM\_\_YPE m 0

36 FAMTFEDX s 0.000 0.9928E+05

37 FAMT\_EDX m 0

38 FEDRFNDX s 4.000 0.1428E+05 1415

39 FEDR\_NDX m 2

40 FEDTAXX s 2.000 0.8223E+05 2282

41 FEDTAXX\_ m 2

42 FGOVRETX s 0.000 0.2469E+05

43 FGOV\_ETX m 0

44 FINCATAX s -0.3380E+06 0.1410E+07

45 FINCAT\_X m 0

46 FINCBTAX s -0.3430E+06 0.1410E+07

47 FINCBT\_X m 0

48 FINDRETX s 0.000 0.1272E+06

49 FIND\_ETX m 0

50 FINLWT21 w 1351. 0.7027E+05

51 FJSSDEDX s 0.000 0.3042E+05

52 FJSS\_EDX m 0

53 FPRIPENX s 0.000 0.4589E+05

54 FPRI\_ENX m 0

55 FRRDEDX s 0.000 9980.

56 FRRDEDX\_ m 0

57 FRRETIRX s 0.000 0.5241E+05

58 FRRE\_IRX m 0

59 FSALARYX s 0.000 0.5301E+06

60 FSAL\_RYX m 0

61 FSLTAXX s 0.000 0.3010E+05

62 FSLTAXX\_ m 0

63 FSSIX s 0.000 0.3048E+05

64 FSSIX\_ m 0

65 HLFBATHQ s 0.000 3.000 12

66 HLFB\_THQ m 2

67 INC\_HRS1 s 1.000 93.00 1016

68 INC\_\_RS1 m 1

69 INC\_HRS2 s 1.000 84.00 1773

70 INC\_\_RS2 m 1

71 INC\_RANK s 0.1000E-03 1.000 64

72 INC\_\_ANK m 1

73 INCNONW1 c 6 1906

74 INCN\_NW1 m 1

75 INCNONW2 c 6 2374

76 INCN\_NW2 m 1

77 INCOMEY1 c 6 1016

78 INCO\_EY1 m 1

79 INCOMEY2 c 6 1773

80 INCO\_EY2 m 1

81 INCWEEK1 s 0.000 52.00

82 INCW\_EK1 m 0

83 INCWEEK2 s 0.000 52.00 1225

84 INCW\_EK2 m 1

85 MISCTAXX s 5.000 0.2524E+05 2855

86 MISC\_AXX m 1

87 LUMPSUMX s 4.000 0.5492E+06 2735

88 LUMP\_UMX m 2

89 MARITAL1 c 6

90 MARI\_AL1 m 0

91 NO\_EARNR s 0.000 6.000

92 NO\_E\_RNR m 0

93 NONINCMX s 0.000 0.5492E+06

94 NONI\_CMX m 0

95 NUM\_AUTO s 0.000 7.000

96 NUM\_\_UTO m 0

97 OCCUCOD1 c 15 1016

98 OCCU\_OD1 m 1

99 OCCUCOD2 c 15 1773

100 OCCU\_OD2 m 1

101 OTHRINCX s 2.000 0.5788E+05 2822

102 OTHR\_NCX m 2

103 PERSLT18 s 0.000 7.000

104 PERS\_T18 m 0

105 PERSOT64 s 0.000 3.000

106 PERS\_T64 m 0

107 POPSIZE s 1.000 5.000 27

108 PRINEARN c 8

109 PRIN\_ARN m 0

110 QINTRVMO c 12

111 QINTRVYR c 2

112 RACE2 c 6 1225

113 RACE2\_ m 1

114 REF\_RACE c 7

115 REF\_\_ACE m 0

116 REGION c 4 27

117 RENTEQVX s 1.000 4694. 451

118 RENT\_QVX m 1

119 RESPSTAT c 3

120 RESP\_TAT m 0

121 ROOMSQ s 1.000 19.00 12

122 ROOMSQ\_ m 2

123 SEX\_REF c 3

124 SEX\_REF\_ m 0

125 SEX2 c 2 1225

126 SEX2\_ m 1

127 SLOCTAXX s 1.000 0.2657E+05 2441

128 SLOC\_AXX m 2

129 SLRFUNDX s 1.000 4169. 1859

130 SLRF\_NDX m 2

131 SMSASTAT c 2

132 ST\_HOUS c 3

133 ST\_HOUS\_ m 0

134 TOTTXPDX s -0.1845E+05 0.1467E+06

135 TOTT\_PDX m 0

136 VEHQ s 0.000 17.00

137 VEHQ\_ m 0

138 WELFAREX s 300.0 4344. 2909

139 WELF\_REX m 2

140 TOTEXPPQ s 233.2 0.2782E+06

141 TOTEXPCQ s 0.000 0.8056E+05

142 FOODPQ s 0.000 0.2358E+05

143 FOODCQ s 0.000 7363.

144 FDHOMEPQ s 0.000 8450.

145 FDHOMECQ s 0.000 6067.

146 FDAWAYPQ s 0.000 0.2098E+05

147 FDAWAYCQ s 0.000 5660.

148 FDXMAPPQ s 0.000 0.2098E+05

149 FDXMAPCQ s 0.000 5660.

150 FDMAPPQ s 0.000 780.0

151 FDMAPCQ s 0.000 666.7

152 ALCBEVPQ s 0.000 3152.

153 ALCBEVCQ s 0.000 2550.

154 HOUSPQ s 0.000 0.1811E+06

155 HOUSCQ s 0.000 0.2794E+05

156 SHELTPQ s 0.000 0.4074E+05

157 SHELTCQ s 0.000 0.2547E+05

158 OWNDWEPQ s 0.000 0.3070E+05

159 OWNDWECQ s 0.000 0.2507E+05

160 MRTINTPQ s 0.000 0.2531E+05

161 MRTINTCQ s 0.000 9450.

162 PROPTXPQ s 0.000 4870.

163 PROPTXCQ s 0.000 4247.

164 MRPINSPQ s 0.000 0.2110E+05

165 MRPINSCQ s 0.000 0.2373E+05

166 RENDWEPQ s 0.000 8546.

167 RENDWECQ s 0.000 6742.

168 RNTXRPPQ s 0.000 8546.

169 RNTXRPCQ s 0.000 6742.

170 RNTAPYPQ s 0.000 2922.

171 RNTAPYCQ s 0.000 1433.

172 OTHLODPQ s 0.000 0.3342E+05

173 OTHLODCQ s 0.000 0.1367E+05

174 UTILPQ s 0.000 7581.

175 UTILCQ s 0.000 3921.

176 NTLGASPQ s 0.000 2306.

177 NTLGASCQ s 0.000 885.0

178 ELCTRCPQ s 0.000 4473.

179 ELCTRCCQ s 0.000 2200.

180 ALLFULPQ s 0.000 2752.

181 ALLFULCQ s 0.000 3081.

182 FULOILPQ s 0.000 2752.

183 FULOILCQ s 0.000 3081.

184 OTHFLSPQ s 0.000 1813.

185 OTHFLSCQ s 0.000 2269.

186 TELEPHPQ s 0.000 1638.

187 TELEPHCQ s 0.000 1497.

188 WATRPSPQ s 0.000 1880.

189 WATRPSCQ s 0.000 1035.

190 HOUSOPPQ s 0.000 0.2493E+05

191 HOUSOPCQ s 0.000 8380.

192 DOMSRVPQ s 0.000 0.1620E+05

193 DOMSRVCQ s 0.000 8192.

194 DMSXCCPQ s 0.000 0.1062E+05

195 DMSXCCCQ s 0.000 7150.

196 BBYDAYPQ s 0.000 0.1500E+05

197 BBYDAYCQ s 0.000 7600.

198 OTHHEXPQ s 0.000 0.2493E+05

199 OTHHEXCQ s 0.000 5349.

200 HOUSEQPQ s 0.000 0.1544E+06

201 HOUSEQCQ s 0.000 0.2268E+05

202 TEXTILPQ s 0.000 4000.

203 TEXTILCQ s 0.000 2946.

204 FURNTRPQ s 0.000 0.7500E+05

205 FURNTRCQ s 0.000 0.1811E+05

206 FLRCVRPQ s 0.000 0.1000E+05

207 FLRCVRCQ s 0.000 2500.

208 MAJAPPPQ s 0.000 4657.

209 MAJAPPCQ s 0.000 5500.

210 SMLAPPPQ s 0.000 1000.

211 SMLAPPCQ s 0.000 944.0

212 MISCEQPQ s 0.000 0.6510E+05

213 MISCEQCQ s 0.000 7155.

214 APPARPQ s 0.000 0.2118E+05

215 APPARCQ s 0.000 4604.

216 MENBOYPQ s 0.000 4200.

217 MENBOYCQ s 0.000 1754.

218 MENSIXPQ s 0.000 4200.

219 MENSIXCQ s 0.000 1754.

220 BOYFIFPQ s 0.000 460.0

221 BOYFIFCQ s 0.000 322.0

222 WOMGRLPQ s 0.000 3181.

223 WOMGRLCQ s 0.000 1174.

224 WOMSIXPQ s 0.000 3181.

225 WOMSIXCQ s 0.000 1174.

226 GRLFIFPQ s 0.000 1056.

227 GRLFIFCQ s 0.000 856.0

228 CHLDRNPQ s 0.000 717.0

229 CHLDRNCQ s 0.000 961.0

230 FOOTWRPQ s 0.000 1903.

231 FOOTWRCQ s 0.000 900.0

232 OTHAPLPQ s 0.000 0.2048E+05

233 OTHAPLCQ s 0.000 4076.

234 TRANSPQ s 0.000 0.8778E+05

235 TRANSCQ s 0.000 0.5436E+05

236 CARTKNPQ s 0.000 0.8700E+05

237 CARTKNCQ s 0.000 0.5400E+05

238 CARTKUPQ s 0.000 0.3770E+05

239 CARTKUCQ s 0.000 0.3300E+05

240 OTHVEHPQ s 0.000 0.1417E+05

241 OTHVEHCQ s 0.000 2700.

242 GASMOPQ s 0.000 4832.

243 GASMOCQ s 0.000 3770.

244 VEHFINPQ s 0.000 1044.

245 VEHFINCQ s 0.000 716.0

246 MAINRPPQ s 0.000 4984.

247 MAINRPCQ s 0.000 8060.

248 VEHINSPQ s 0.000 3944.

249 VEHINSCQ s 0.000 3167.

250 VRNTLOPQ s 0.000 0.1301E+05

251 VRNTLOCQ s 0.000 6512.

252 PUBTRAPQ s 0.000 0.2074E+05

253 PUBTRACQ s 0.000 0.1047E+05

254 TRNTRPPQ s 0.000 0.2067E+05

255 TRNTRPCQ s 0.000 0.1042E+05

256 TRNOTHPQ s 0.000 1448.

257 TRNOTHCQ s 0.000 1140.

258 HEALTHPQ s -100.0 0.1538E+05

259 HEALTHCQ s -941.7 7982.

260 HLTHINPQ s 0.000 0.1221E+05

261 HLTHINCQ s 0.000 6175.

262 MEDSRVPQ s -475.0 0.1198E+05

263 MEDSRVCQ s -1180. 7982.

264 PREDRGPQ s -100.0 2000.

265 PREDRGCQ s -260.0 2200.

266 MEDSUPPQ s -300.0 7000.

267 MEDSUPCQ s -449.0 5310.

268 ENTERTPQ s 0.000 0.6318E+05

269 ENTERTCQ s 0.000 8790.

270 FEEADMPQ s 0.000 8844.

271 FEEADMCQ s 0.000 8354.

272 TVRDIOPQ s 0.000 7007.

273 TVRDIOCQ s 0.000 5143.

274 OTHEQPPQ s 0.000 0.6300E+05

275 OTHEQPCQ s 0.000 7154.

276 PETTOYPQ s 0.000 4425.

277 PETTOYCQ s 0.000 5657.

278 OTHENTPQ s 0.000 0.6300E+05

279 OTHENTCQ s 0.000 7154.

280 PERSCAPQ s 0.000 1018.

281 PERSCACQ s 0.000 800.0

282 READPQ s 0.000 3304.

283 READCQ s 0.000 606.0

284 EDUCAPQ s 0.000 0.3500E+05

285 EDUCACQ s 0.000 0.3500E+05

286 TOBACCPQ s 0.000 2253.

287 TOBACCCQ s 0.000 2600.

288 MISCPQ s 0.000 0.2000E+05

289 MISCCQ s 0.000 0.1703E+05

290 MISC1PQ s 0.000 0.2000E+05

291 MISC1CQ s 0.000 0.1703E+05

294 CASHCOPQ s 0.000 0.8109E+05

295 CASHCOCQ s 0.000 0.1600E+05

296 PERINSPQ s 0.000 0.2589E+05

297 PERINSCQ s 0.000 0.2298E+05

298 LIFINSPQ s 0.000 7085.

299 LIFINSCQ s 0.000 5842.

300 RETPENPQ s 0.000 0.2584E+05

301 RETPENCQ s 0.000 0.2298E+05

302 HH\_CU\_Q s 1.000 5.000

303 HH\_CU\_Q\_ m 0

304 HHID c 46 2855

305 HHID\_ m 1

306 POV\_CY c 2 73

307 POV\_CY\_ m 1

308 POV\_PY c 2 73

309 POV\_PY\_ m 1

310 SWIMPOOL c 1 2546

311 SWIM\_OOL m 2

312 APTMENT c 1 2874

313 APTMENT\_ m 2

314 OFSTPARK c 1 782

315 OFST\_ARK m 2

316 WINDOWAC c 1 2546

317 WIND\_WAC m 2

318 CNTRALAC c 1 934

319 CNTR\_LAC m 2

320 CHILDAGE s 0.000 7.000

321 CHIL\_AGE m 0

322 INCLASS s 1.000 9.000

323 STATE c 39 322

324 ERANKH s 0.6848E-02 1.000 64

325 ERANKH\_ m 1

326 TOTEX4PQ s 233.2 0.2782E+06

327 TOTEX4CQ s 0.000 0.8056E+05

328 MISCX4PQ s 0.000 0.2000E+05

329 MISCX4CQ s 0.000 0.1703E+05

330 VEHQL s 0.000 4.000

331 VEHQL\_ m 0

332 NUM\_TVAN s 0.000 9.000

333 NUM\_\_VAN m 0

334 TTOTALP s 0.000 0.3821E+05

335 TTOTALC s 0.000 0.2303E+05

336 TFOODTOP s 0.000 5500.

337 TFOODTOC s 0.000 4305.

338 TFOODAWP s 0.000 5500.

339 TFOODAWC s 0.000 4180.

340 TFOODHOP s 0.000 3300.

341 TFOODHOC s 0.000 1050.

342 TALCBEVP s 0.000 2252.

343 TALCBEVC s 0.000 1220.

344 TOTHRLOP s 0.000 0.1013E+05

345 TOTHRLOC s 0.000 7498.

346 TTRANPRP s 0.000 0.2101E+05

347 TTRANPRC s 0.000 0.1086E+05

348 TGASMOTP s 0.000 1750.

349 TGASMOTC s 0.000 1540.

350 TVRENTLP s 0.000 445.0

351 TVRENTLC s 0.000 514.0

356 TOTHTREP s 0.000 445.0

357 TOTHTREC s 0.000 514.0

358 TTRNTRIP s 0.000 0.2067E+05

359 TTRNTRIC s 0.000 0.1042E+05

360 TFAREP s 0.000 0.2046E+05

361 TFAREC s 0.000 0.1030E+05

362 TAIRFARP s 0.000 0.2000E+05

363 TAIRFARC s 0.000 0.1000E+05

364 TOTHFARP s 0.000 9800.

365 TOTHFARC s 0.000 3521.

366 TLOCALTP s 0.000 728.0

367 TLOCALTC s 0.000 1000.

368 TENTRMNP s 0.000 7400.

369 TENTRMNC s 0.000 3000.

370 TFEESADP s 0.000 7400.

371 TFEESADC s 0.000 3000.

372 TOTHENTP s 0.000 1400.

373 TOTHENTC s 0.000 2400.

374 OWNVACP s 0.000 0.2329E+05

375 OWNVACC s 0.000 0.1367E+05

376 VOTHRLOP s 0.000 0.2329E+05

377 VOTHRLOC s 0.000 0.1367E+05

380 UTILOWNP s 0.000 2077.

381 UTILOWNC s 0.000 943.0

382 VFUELOIP s 0.000 682.0

383 VFUELOIC s 0.000 625.0

384 VOTHRFLP s 0.000 547.0

385 VOTHRFLC s 0.000 907.0

386 VELECTRP s 0.000 1360.

387 VELECTRC s 0.000 489.0

388 VNATLGAP s 0.000 2077.

389 VNATLGAC s 0.000 177.0

390 VWATERPP s 0.000 429.0

391 VWATERPC s 0.000 571.0

392 MRTPRNOP s 0.000 0.2643E+05

393 MRTPRNOC s 0.000 0.1322E+05

394 UTILRNTP s 0.000 1157.

395 UTILRNTC s 0.000 628.0

396 RFUELOIP s 0.000 565.0

397 RFUELOIC s 0.000 553.0

400 RELECTRP s 0.000 558.0

401 RELECTRC s 0.000 209.0

402 RNATLGAP s 0.000 254.0

403 RNATLGAC s 0.000 59.00

404 RWATERPP s 0.000 552.0

405 RWATERPC s 0.000 242.0

406 POVLEVCY s 0.1145E+05 0.5087E+05

407 POVL\_VCY m 0

408 POVLEVPY s 0.1122E+05 0.4982E+05

409 POVL\_VPY m 0

410 PORCH c 1 624

411 PORCH\_ m 2

412 ETOTALP s 233.2 0.2782E+06

413 ETOTALC s 0.000 0.6995E+05

414 ETOTAPX4 s 233.2 0.2782E+06

415 ETOTACX4 s 0.000 0.6995E+05

416 EHOUSNGP s 0.000 0.1811E+06

417 EHOUSNGC s 0.000 0.3303E+05

418 ESHELTRP s 0.000 0.4456E+05

419 ESHELTRC s 0.000 0.2724E+05

420 EOWNDWLP s 0.000 0.4456E+05

421 EOWNDWLC s 0.000 0.2613E+05

422 EOTHLODP s 0.000 0.3342E+05

423 EOTHLODC s 0.000 0.1433E+05

424 EMRTPNOP s 0.000 0.3516E+05

425 EMRTPNOC s 0.000 0.2247E+05

426 EMRTPNVP s 0.000 0.2643E+05

427 EMRTPNVC s 0.000 0.1322E+05

428 ETRANPTP s 0.000 0.8868E+05

429 ETRANPTC s 0.000 0.5436E+05

430 EVEHPURP s 0.000 0.8790E+05

431 EVEHPURC s 0.000 0.5400E+05

432 ECARTKNP s 0.000 0.8790E+05

433 ECARTKNC s 0.000 0.5400E+05

434 ECARTKUP s 0.000 0.2643E+05

435 ECARTKUC s 0.000 0.2662E+05

436 EOTHVEHP s 0.000 0.1166E+05

437 EOTHVEHC s 0.000 2700.

438 EENTRMTP s 0.000 0.6318E+05

439 EENTRMTC s 0.000 8790.

440 EOTHENTP s 0.000 0.6300E+05

441 EOTHENTC s 0.000 7154.

442 ENOMOTRP s 0.000 7700.

443 ENOMOTRC s 0.000 696.0

444 EMOTRVHP s 0.000 0.6300E+05

445 EMOTRVHC s 0.000 6971.

446 EENTMSCP s 0.000 3750.

447 EENTMSCC s 0.000 5000.

448 EMISCELP s 0.000 0.2000E+05

449 EMISCELC s 0.000 0.1703E+05

450 EMISCMTP s 0.000 1048.

451 EMISCMTC s 0.000 2113.

452 UNISTRQ s 1.000 10.00

453 UNISTRQ\_ m 0

455 WELF\_EBX c 2

457 LUMP\_UMB c 3

459 LMPS\_MBX c 3

460 OTHRINCB s 5.000 5.000 2921

461 OTHR\_NCB m 1

464 INCLASS2 s 1.000 7.000

465 INCL\_SS2 m 0

467 HORREF1 c 6 2800

468 HORREF1\_ m 1

469 HORREF2 c 5 2840

470 HORREF2\_ m 1

471 ERANKHM s 0.7504E-02 1.000

472 ERANKHM\_ m 0

473 FGOVRETM s 0.000 0.2509E+05

474 FGOV\_ETM m 0

475 FPRIPENM s 0.000 0.4551E+05

476 FPRI\_ENM m 0

477 FRRDEDM s 0.000 0.1043E+05

478 FRRDEDM\_ m 0

479 PSU c 21 1659

480 HISP\_REF c 2

481 HISP2 c 2 1225

482 HIGH\_EDU s 10.00 16.00

483 BUILT s 1915. 2012. 363

484 BUILT\_ m 2

485 CREDFINX s 0.000 6629. 2665

486 CRED\_INX m 2

487 CREDITB s 1.000 5.000 2914

488 CREDITB\_ m 2

489 CREDITBX s 250.0 0.2250E+05 2914

490 CRED\_TBX m 2

491 CREDITX s 1.000 0.5132E+05 2628

492 CREDITX\_ m 2

493 CREDTYRX s 0.000 0.5092E+05 2639

494 CRED\_YRX m 2

495 CREDYRB s 1.000 6.000 2904

496 CREDYRB\_ m 2

497 CREDYRBX s 250.0 0.3500E+05 2904

498 CRED\_RBX m 2

499 DEFBENRP c 2 2169

500 DEFB\_NRP m 2

501 EITC c 2 598

502 EITC\_ m 2

503 FMLPYYRX s 4.000 4000. 2844

504 FMLP\_YRX m 2

505 FS\_MTHI s 1.000 12.00 2893

506 FS\_MTHI\_ m 1

507 FSMPFRMX s -0.4000E+06 0.1090E+07

508 FSMP\_RMX m 0

513 INTRDVX d 1.000 0.9834E+05

522 IRAB s 1.000 6.000 2826

523 IRAB\_ m 2

524 IRABX s 1000. 0.7250E+06 2826

525 IRABX\_ m 2

526 IRAX s 0.000 0.2635E+07 2309

527 IRAX\_ m 2

528 IRAYRB s 1.000 6.000 2804

529 IRAYRB\_ m 2

530 IRAYRBX s 1000. 0.7250E+06 2804

531 IRAYRBX\_ m 2

532 IRAYRX s 0.000 0.2129E+07 2344

533 IRAYRX\_ m 2

534 JFS\_AMT s 0.000 4800.

535 JFS\_AMT\_ m 0

536 LIQDYRBX s 250.0 0.3500E+05 2839

537 LIQD\_RBX m 2

538 LIQUIDBX s 250.0 0.3500E+05 2861

539 LIQU\_DBX m 2

540 LIQUDYRB s 1.000 6.000 2839

541 LIQU\_YRB m 2

542 LIQUDYRX s 0.000 0.5155E+06 2320

543 LIQU\_YRX m 2

544 LIQUIDB s 1.000 6.000 2861

545 LIQUIDB\_ m 2

546 LIQUIDX s 0.000 0.4910E+06 2289

547 LIQUIDX\_ m 2

548 MEALSPAY s 1.000 2.000 2

549 MEAL\_PAY m 1

550 MLPAYWKX s 2.000 120.0 2844

551 MLPA\_WKX m 2

552 MLPYQWKS s 1.000 52.00 2841

553 MLPY\_WKS m 1

554 NETRENTB s 0.000 0.000 2920

555 NETR\_NTB m 2

556 NETRENTX s -0.5499E+05 0.1148E+06 2650

557 NETR\_NTX m 2

558 NETRNTBX s -2400. -2400. 2920

559 NETR\_TBX m 2

560 OTHASTBX s 0.3000E+05 0.7250E+06 2909

561 OTHA\_TBX m 2

562 OTHASTB s 3.000 6.000 2909

563 OTHASTB\_ m 3

564 OTHASTX s 2.000 0.6000E+06 2889

565 OTHASTX\_ m 2

566 OTHFINX s 0.000 900.0 2889

567 OTHFINX\_ m 2

568 OTHLONBX s 250.0 250.0 2921

569 OTHL\_NBX m 2

570 OTHLYRBX s 750.0 0.2250E+05 2920

571 OTHL\_RBX m 2

572 OTHLNYRB s 2.000 5.000 2920

573 OTHL\_YRB m 2

574 OTHLNYRX s 0.000 0.5500E+05 2880

575 OTHL\_YRX m 2

576 OTHLOAN s 1.000 2.000 2150

577 OTHLOAN\_ m 1

578 OTHLONB s 1.000 1.000 2921

579 OTHLONB\_ m 2

580 OTHLONX s 1.000 0.3106E+06 2877

581 OTHLONX\_ m 2

582 OTHREGBX s 488.0 0.5000E+05 2913

583 OTHR\_GBX m 2

584 OTHREGB s 1.000 12.00 2913

585 OTHREGB\_ m 2

586 OTHREGX s 100.0 0.6367E+05 2725

587 OTHREGX\_ m 2

588 OTHSYRBX s 6000. 0.7250E+06 2908

589 OTHS\_RBX m 2

590 OTHSTYRB s 2.000 6.000 2908

591 OTHS\_YRB m 2

592 OTHSTYRX s 0.000 0.1533E+07 2894

593 OTHS\_YRX m 2

594 RETSURVX s 30.00 0.1269E+06 2127

595 RETS\_RVX m 2

596 RETSRVBX s 480.0 0.6200E+05 2913

597 RETS\_VBX m 2

598 RETSURV c 3

599 RETSURV\_ m 0

600 RETSURVB s 1.000 12.00 2913

601 RETS\_RVB m 2

604 ROYESTBX s 1300. 6000. 2916

605 ROYE\_TBX m 2

606 ROYESTB s 2.000 6.000 2916

607 ROYESTB\_ m 2

608 ROYESTX s 1.000 0.1592E+06 2730

609 ROYESTX\_ m 2

610 STCKYRBX s 1000. 0.7250E+06 2874

611 STCK\_RBX m 2

612 STDNTYRB s 4.000 6.000 2913

613 STDN\_YRB m 2

614 STDNTYRX s 0.000 0.4100E+06 2821

615 STDN\_YRX m 2

616 STDTYRBX s 6250. 0.3500E+05 2913

617 STDT\_RBX m 2

618 STOCKYRB s 1.000 6.000 2874

619 STOC\_YRB m 2

620 STOCKYRX s 0.000 0.5784E+07 2703

621 STOC\_YRX m 2

622 STOCKB s 1.000 6.000 2887

623 STOCKB\_ m 3

624 STOCKBX s 1000. 0.7250E+06 2887

625 STOCKBX\_ m 2

626 STOCKX s 25.00 0.6587E+07 2683

627 STOCKX\_ m 2

628 STUDFINX s 0.000 9000. 2847

629 STUD\_INX m 2

630 STUDNTBX s 6250. 0.3500E+05 2917

631 STUD\_TBX m 2

632 STUDNTB s 4.000 6.000 2917

633 STUDNTB\_ m 2

634 STUDNTX s 250.0 0.4200E+06 2815

635 STUDNTX\_ m 2

636 WHLFYRBX s 250.0 0.3500E+05 2895

637 WHLF\_RBX m 2

638 WHLFYRB s 1.000 6.000 2895

639 WHLFYRB\_ m 2

640 WHLFYRX s 0.000 0.7674E+06 2786

641 WHLFYRX\_ m 3

642 WHOLIFBX s 250.0 0.3500E+05 2895

643 WHOL\_FBX m 2

644 WHOLIFB s 1.000 6.000 2895

645 WHOLIFB\_ m 2

646 WHOLIFX s 1.000 0.7892E+06 2780

647 WHOLIFX\_ m 3

648 TOTXEST s -8990. 0.2938E+06

649 FFTAXOWE s -8943. 0.2485E+06

650 FFTA\_OWE m 0

651 FSTAXOWE s -2505. 0.5991E+05

652 FSTA\_OWE m 0

653 ETOTA s 1199. 0.2782E+06

Total #cases w/ #missing

#cases miss. D ord. vals #X-var #N-var #F-var #S-var

4693 1771 4693 30 0 0 409

#P-var #M-var #B-var #C-var #I-var

0 168 0 44 0

Weight variable FINLWT21 in column: 50

Number of cases used for training: 2922

Number of split variables: 453

Number of cases excluded due to 0 weight or missing D: 1771

Number of trees in ensemble: 500

Number of variables used for splitting: 152

No nodewise interaction tests

Fraction of cases used for splitting each node: .0342

Maximum number of split levels: 17

Minimum node sample size: 14

Mean number of terminal nodes: 152.8

Resubstitution estimate of mean squared error: 121794358.4173

based on number of training cases: 2922

Proportion of variance (R-squared) explained by ensemble model: 0.5696

Number of OOB cases: 2922

OOB estimate of mean squared error: 173639779.3134

Mean number of trees per OOB observation: 183.87

Number of test cases with 0 weight and nonmissing responses = 0

Observed and fitted values are stored in regpred

Elapsed time in seconds: 1124.6