Homework 3 Zhaoxing Wu Stat 443

In this report, the main purpose is to estimate the population mean interest and dividend (INTRDVX). There are 25822 consumer units in total, and about 21000 consumer units have valid nonresponse on INTRDVX. Top 3% of INTRDVX are "topcoded", and for the remaining 4609 consumer units, there are 1771 missing INTRDVX and 2838 non-missing INTRDVX. To deal with the missing data, there are two approaches. One is to fit a GUIDE classification forest and use inverse probability weighted estimate (IPW) to get the estimate of 5009.928. The other way is to fit a GUIDE regression forest and use imputation to get the estimated mean of 4696.624. Compared with the estimate by using the classification tree and the regression tree, the estimate produced by the classification forest and the regression forest results in a higher estimate.

```
z <- read.table("cedata.txt",header=TRUE)</pre>
w <- z$FINLWT21 ### sampling weights
zclass <- read.table("gfpro.txt",header=TRUE)</pre>
probmissing <- zclass[,2] ### estimated P(INTRDVX = C)</pre>
p <- 1-probmissing ### estimated P(INTRDVX is nonmissing)</pre>
group <- !is.na(z$INTRDVX) ### group of nonmissing INTRDVX obs</pre>
ipw <- sum(w[group]*z$INTRDVX[group]/p[group])/sum(w[group]/p[group])</pre>
ipw
## [1] 5009.928
zreg <- read.table("in.fit.txt",header=TRUE)</pre>
vhat <- zreg$predicted</pre>
imputed <- (sum(w[group]*z$INTRDVX[group]) +sum(w[!group]*yhat[!group]))/sum(</pre>
simple <- sum(w[group]*z$INTRDVX[group])/sum(w[group])</pre>
simple
## [1] 4696.624
cat("IPW by GUIDE classification forest", ipw)
## IPW by GUIDE classification forest 5009.928
cat("Weighted mean by GUIDE regression forest", simple)
## Weighted mean by GUIDE regression forest 4696.624
```

```
GUIDE
            (do not edit this file unless you know what you are doing)
            (version of GUIDE that generated this file)
  36.2
            (1=model fitting, 2=importance or DIF scoring, 3=data
conversion)
"out.txt" (name of output file)
            (1=one tree, 2=ensemble)
 2
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=accept default number of trees, 2=change)
            (1=accept default number of variables for splitting,
 1
2=change it)
            (1=split point from quantiles, 2=use exhaustive search)
1
 1
            (1=accept default splitting fraction, 2=change it)
 1
            (1=default max. number of split levels, 2=specify no. in
next line)
            (1=default min. node size, 2=specify min. value in next
line)
"in.fit" (file name for predicted values)
            (rank of top variable to split root node)
```

```
GGG
    U U I DDDD
                  EEEE
        UID
G
   GU
               D
                  F
G
     IJ
        UID
               D
G
 GG U U I D
               D
                  EEE
  G U
        UID
               D
G
                  F
   G U
        UID
               D
                  Ε
      UUU
          I DDDD
                  EEEE
GGG
```

GUIDE Classification and Regression Trees and Forests
Version 36.2 (Build date: January 8, 2021)
Compiled with NAG Fortran 6.2.0 on macOS Catalina 10.15.7
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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

This job was started on 02/28/21 at 15:30

Health.

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/

					#Codes/	
Column	Name		Minimum	Maximum	Levels/ Periods	#Miccina
1	DIRACC	С	MITHIM	Maximum	2	#Missing 116
2	DIRACC_	m			1	110
3	AGE_REF		18.00	87.00	1	
4	AGE_REF_	S	10.00	07.00	0	
		m	22 00	97 00	V	1225
5 6	AGE2	S	22.00	87.00	1	1225
7	AGE2_	m	0 000	4 000	1	
	AS_COMP1 AS C MP1	S	0.000	4.000	0	
8		m	0 000	4 000	0	
9	AS_COMP2	S	0.000	4.000	۵	
10	AS_C_MP2	m	0 000	4 000	0	
11	AS_COMP3	S	0.000	4.000	۵	
12	AS_C_MP3	m	0 000	2 000	0	
13	AS_COMP4	S	0.000	3.000	α.	
14	AS_C_MP4	m	0 000	2 000	0	
15	AS_COMP5	S 	0.000	2.000	0	
16	AS_C_MP5	m	1 000	0 000	0	10
17	BATHRMQ	S 	1.000	8.000	2	10
18	BATHRMQ_	m	0 000	0.000	2	10
19	BEDROOMQ	S	0.000	9.000	2	10
20	BEDR_OMQ	m	4 000	2 000	2	
21	BLS_URBN	S	1.000	2.000		
22	BUILDING	С			11	
23	BUIL_ING	m			0	
24	CUTENURE	С			6	
25	CUTE_URE	m			0	
26	EARNCOMP	С			9	
27	EARN_OMP	m	40.00	46.00	0	
28	EDUC_REF	S	10.00	16.00		
29	EDUC0REF	m	40.00	46.00	0	4005
30	EDUCA2	S	10.00	16.00	_	1225
31	EDUCA2_	m			1	
32	FAM_SIZE	S	1.000	9.000	_	
33		m			0	
34		С			10	
35	FAMYPE	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	FG0VRETX	S	0.000	0.2469E+05		
43	FG0V_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	INCRS1	m			1	
69	INC_HRS2	S	1.000	84.00		1773
70	INCRS2	m			1	
71	INC_RANK	S	0.1000E-03	1.000		64
72	INCANK	m			1	
73	INCNONW1	С			6	1906
74	INCN_NW1	m			1	
75	INCNONW2	С			6	2374
76	INCN_NW2	m			1	
77	INCOMEY1	С			6	1016
78	INCO_EY1	m			1	
79	INCOMEY2	С			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	С			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	NUMUTO	m			0	

97	OCCUCOD1	С			15	1016
98 99	OCCU_OD1 OCCUCOD2	m			1	1770
100	OCCU_OD2	C m			15 1	1773
101	OTHRINCX	S	2.000	0.5788E+05	_	2822
102	OTHR_NCX	m			2	
103	PERSLT18	S	0.000	7.000		
104 105	PERS_T18 PERS0T64	m	0.000	3.000	0	
106	PERS_T64	S M	0.000	3.000	0	
107	POPSIZE	S	1.000	5.000	ŭ	27
108	PRINEARN	С			8	
109	PRIN_ARN	m			0	
110	QINTRVMO	С			12	
111	QINTRVYR	С			2	1225
112 113	RACE2 RACE2_	C m			6 1	1225
114	REF_RACE	C			7	
115	REFACE	m			0	
116	REGION	C			4	27
117	RENTEQVX	S	1.000	4694.		451
118	RENT_QVX	m			1	
119	RESPSTAT	С			3	
120	RESP_TAT	m	4 000	10.00	0	4.0
121	ROOMSQ	S	1.000	19.00	2	12
122 123	R00MSQ_ SEX_REF	m			2 3	
123	SEX_REF_	C m			0	
125	SEX_INET_	C			2	1225
126	SEX2_	m			_ 1	
127	SL0CTAXX	S	1.000	0.2657E+05		2441
128	SL0C_AXX	m			2	
129	SLRFUNDX	S	1.000	4169.		1859
130	SLRF_NDX	m			2	
131	SMSASTAT	С			2	
132 133	ST_HOUS ST_HOUS_	C m			3 0	
134	TOTTXPDX	S	-0.1845E+05	0.1467E+06	O	
135	TOTT PDX	m	0110101	0121072100	0	
136	VEHQ	S	0.000	17.00		
137	VEHQ_	m			0	
138	WELFAREX	S	300.0	4344.		2909
139	WELF_REX	m	222.2		2	
140	TOTEXPPQ	S	233.2	0.2782E+06		
141 142	TOTEXPCQ FOODPQ	S S	0.000 0.000	0.8056E+05 0.2358E+05		
143	F00DFQ F00DCQ	S	0.000	7363.		
144	FDH0MEPQ	S	0.000	8450 <b>.</b>		
145	FDHOMECQ	S	0.000	6067.		
146	FDAWAYPQ	S	0.000	0.2098E+05		

```
147
     FDAWAYCQ
                        0.000
                                       5660.
                  S
148
     FDXMAPPQ
                        0.000
                                      0.2098E+05
                  S
149
     FDXMAPCQ
                  S
                        0.000
                                       5660.
150
     FDMAPPQ
                        0.000
                                       780.0
                  S
151
                                       666.7
     FDMAPC0
                        0.000
                  S
152
     ALCBEVPQ
                  S
                        0.000
                                       3152.
153
     ALCBEVCQ
                  S
                        0.000
                                       2550.
154
     HOUSPQ
                        0.000
                                      0.1811E+06
                  S
155
     HOUSCQ
                  S
                        0.000
                                      0.2794E+05
156
     SHELTPQ
                        0.000
                                      0.4074E+05
                  S
157
     SHELTC0
                  S
                        0.000
                                      0.2547E+05
158
                        0.000
                                      0.3070E+05
     OWNDWEPQ
                  S
159
     OWNDWECQ
                        0.000
                                      0.2507E+05
                  S
160
     MRTINTPQ
                  S
                        0.000
                                      0.2531E+05
161
     MRTINTCQ
                        0.000
                                       9450.
                  S
162
                                       4870.
     PROPTXPQ
                  S
                        0.000
163
     PROPTXC0
                  S
                        0.000
                                       4247.
164
     MRPINSPQ
                  S
                        0.000
                                      0.2110E+05
165
     MRPINSCQ
                  S
                        0.000
                                      0.2373E+05
166
                        0.000
                                       8546.
     RENDWEPQ
                  S
167
     RENDWECQ
                  S
                        0.000
                                       6742.
168
                                       8546.
     RNTXRPPQ
                  S
                        0.000
169
     RNTXRPCQ
                  S
                        0.000
                                       6742.
170
     RNTAPYPQ
                  S
                        0.000
                                       2922.
171
     RNTAPYCQ
                  S
                        0.000
                                       1433.
172
     OTHLODPQ
                        0.000
                                      0.3342E+05
                  S
173
     OTHLODCO
                        0.000
                                      0.1367E+05
                  S
174
     UTILPQ
                  S
                        0.000
                                       7581.
175
                                       3921.
     UTILCQ
                  S
                        0.000
176
     NTLGASPQ
                        0.000
                                       2306.
                  S
177
     NTLGASCQ
                        0.000
                                       885.0
                  S
178
     ELCTRCPQ
                        0.000
                                       4473.
                  S
179
                                       2200.
     ELCTRCC0
                  S
                        0.000
180
     ALLFULPQ
                        0.000
                                       2752.
                  S
181
     ALLFULCQ
                        0.000
                                       3081.
                  S
182
     FULOILPQ
                        0.000
                                       2752.
                  S
183
     FULOILCQ
                        0.000
                                       3081.
                  S
184
     OTHFLSPQ
                        0.000
                                       1813.
                  S
185
     OTHFLSCQ
                  S
                        0.000
                                       2269.
186
     TELEPHPQ
                        0.000
                                       1638.
                  S
187
     TELEPHCQ
                  S
                        0.000
                                       1497.
188
     WATRPSPQ
                        0.000
                                       1880.
                  S
189
     WATRPSCQ
                        0.000
                                       1035.
                  S
190
     HOUSOPPQ
                  S
                        0.000
                                      0.2493E+05
191
     HOUSOPCQ
                        0.000
                                       8380.
                  S
192
                                      0.1620E+05
     DOMSRVPQ
                        0.000
                  S
193
     DOMSRVCQ
                  S
                        0.000
                                       8192.
194
     DMSXCCPQ
                        0.000
                                      0.1062E+05
                  S
195
     DMSXCCC0
                  S
                        0.000
                                       7150.
196
     BBYDAYPQ
                                      0.1500E+05
                  S
                        0.000
```

```
197
                        0.000
                                       7600.
     BBYDAYCQ
                  S
198
     OTHHEXPQ
                        0.000
                                      0.2493E+05
                  S
199
     OTHHEXCQ
                  S
                        0.000
                                       5349.
200
     HOUSEQPQ
                        0.000
                                      0.1544E+06
                  S
201
                                      0.2268E+05
     HOUSEQCQ
                        0.000
                  S
202
     TEXTILPQ
                  S
                        0.000
                                       4000.
                                       2946.
203
     TEXTILCQ
                  S
                        0.000
204
     FURNTRPQ
                        0.000
                                      0.7500E+05
                  S
205
     FURNTRCQ
                  S
                        0.000
                                      0.1811E+05
206
     FLRCVRPQ
                        0.000
                                      0.1000E+05
                  S
207
     FLRCVRCQ
                  S
                        0.000
                                       2500.
     MAJAPPPQ
208
                        0.000
                                       4657.
                  S
209
     MAJAPPCQ
                        0.000
                                       5500.
                  S
210
     SMLAPPPQ
                  S
                        0.000
                                       1000.
211
     SMLAPPCQ
                        0.000
                                       944.0
                  S
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
                        0.000
                                       4200.
                  S
217
     MENBOYCO
                  S
                        0.000
                                       1754.
218
     MENSIXPQ
                  S
                        0.000
                                       4200.
219
                                       1754.
     MENSIXCQ
                  S
                        0.000
220
     BOYFIFPQ
                  S
                        0.000
                                       460.0
221
                                       322.0
     BOYFIFCQ
                  S
                        0.000
222
     WOMGRLPQ
                        0.000
                                       3181.
                  S
223
     WOMGRLCO
                        0.000
                                       1174.
                  S
224
     WOMSIXPQ
                  S
                        0.000
                                       3181.
225
                                       1174.
     WOMSIXCQ
                  S
                        0.000
226
     GRLFIFPQ
                        0.000
                                       1056.
                  S
227
     GRLFIFCQ
                        0.000
                                       856.0
                  S
228
     CHLDRNPQ
                        0.000
                                       717.0
                  S
229
     CHLDRNCO
                                       961.0
                  S
                        0.000
230
     F00TWRPQ
                  S
                        0.000
                                       1903.
231
                        0.000
                                       900.0
     F00TWRCQ
                  S
232
                                      0.2048E+05
     OTHAPLPQ
                  s
                        0.000
233
     OTHAPLCQ
                        0.000
                                       4076.
                  S
234
     TRANSPQ
                  S
                        0.000
                                      0.8778E+05
235
     TRANSCQ
                  S
                        0.000
                                      0.5436E+05
236
                        0.000
                                      0.8700E+05
     CARTKNPQ
                  S
237
     CARTKNCQ
                  S
                        0.000
                                      0.5400E+05
238
     CARTKUPQ
                        0.000
                                      0.3770E+05
                  S
239
     CARTKUCQ
                        0.000
                                      0.3300E+05
                  S
240
     OTHVEHPQ
                  S
                        0.000
                                      0.1417E+05
241
     OTHVEHCQ
                        0.000
                                       2700.
                  S
242
     GASMOPQ
                        0.000
                                       4832.
                  S
243
     GASMOCQ
                  S
                        0.000
                                       3770.
244
     VEHFINPQ
                        0.000
                                       1044.
                  S
245
     VEHFINCQ
                  S
                        0.000
                                       716.0
246
     MAINRPPQ
                                       4984.
                  S
                        0.000
```

```
247
                        0.000
                                       8060.
     MAINRPCQ
                  S
248
     VEHINSPQ
                        0.000
                                       3944.
                  S
249
     VEHINSCQ
                  S
                        0.000
                                       3167.
250
     VRNTL0PQ
                        0.000
                                     0.1301E+05
                  S
251
     VRNTL0C0
                        0.000
                                       6512.
                  S
252
     PUBTRAPQ
                  S
                        0.000
                                      0.2074E+05
253
     PUBTRACQ
                  S
                        0.000
                                      0.1047E+05
254
     TRNTRPPQ
                        0.000
                                      0.2067E+05
                  S
255
     TRNTRPCQ
                  S
                        0.000
                                      0.1042E+05
256
     TRNOTHPQ
                        0.000
                                       1448.
                  S
257
     TRNOTHCO
                  S
                        0.000
                                       1140.
258
     HEALTHPQ
                  S
                                      0.1538E+05
                      -100.0
259
     HEALTHCQ
                  S
                      -941.7
                                       7982.
260
     HLTHINPQ
                  S
                        0.000
                                      0.1221E+05
261
     HLTHINCQ
                        0.000
                                       6175.
                  S
262
                      -475.0
                                      0.1198E+05
     MEDSRVPQ
                  S
                                       7982.
263
     MEDSRVCQ
                  S
                      -1180.
264
     PREDRGPQ
                  S
                      -100.0
                                       2000.
265
     PREDRGCQ
                  S
                      -260.0
                                       2200.
266
     MEDSUPPQ
                      -300.0
                                       7000.
                  S
267
     MEDSUPC0
                  S
                      -449.0
                                       5310.
268
                        0.000
                                      0.6318E+05
     ENTERTPQ
                  S
269
                                       8790.
     ENTERTCO
                  S
                        0.000
270
     FEEADMPQ
                  S
                        0.000
                                       8844.
271
     FEEADMCQ
                  S
                        0.000
                                       8354.
272
     TVRDIOPQ
                        0.000
                                       7007.
                  S
273
     TVRDIOCQ
                        0.000
                                       5143.
                  S
274
     OTHEOPPO
                  S
                        0.000
                                      0.6300E+05
275
     OTHEQPCQ
                  S
                        0.000
                                       7154.
276
                                       4425.
     PETTOYPQ
                        0.000
                  S
277
     PETTOYCQ
                        0.000
                                       5657.
                  S
278
     OTHENTPQ
                        0.000
                                      0.6300E+05
                  S
279
     OTHENTCO
                                       7154.
                  S
                        0.000
280
     PERSCAPQ
                  S
                        0.000
                                       1018.
281
     PERSCACQ
                        0.000
                                       800.0
                  s
282
     READPQ
                  s
                        0.000
                                       3304.
283
     READCQ
                        0.000
                                      606.0
                  S
284
     EDUCAPQ
                        0.000
                                      0.3500E+05
                  S
285
     EDUCACQ
                  S
                        0.000
                                      0.3500E+05
286
     T0BACCPQ
                        0.000
                                       2253.
                  S
287
     TOBACCCQ
                  S
                        0.000
                                       2600.
288
     MISCPQ
                  S
                        0.000
                                      0.2000E+05
289
     MISCC0
                        0.000
                                     0.1703E+05
                  S
290
     MISC1PQ
                  S
                        0.000
                                      0.2000E+05
291
     MISC1CQ
                        0.000
                  S
                                     0.1703E+05
294
     CASHCOPQ
                  S
                        0.000
                                      0.8109E+05
295
     CASHC0CQ
                  S
                        0.000
                                     0.1600E+05
296
     PERINSPQ
                        0.000
                                     0.2589E+05
                  S
297
     PERINSCQ
                  S
                        0.000
                                      0.2298E+05
298
     LIFINSPQ
                                       7085.
                  S
                        0.000
```

299 300 301 302	LIFINSCQ RETPENPQ RETPENCQ HH_CU_Q	S S S	0.000 0.000 0.000 1.000	5842. 0.2584E+05 0.2298E+05 5.000		
303 304	HH_CU_Q_ HHID	m C			0 46	2855
305 306	HHID_ POV_CY	m C			1 2	73
307 308	POV_CY_ POV_PY	m C			1 2	73
309 310	POV_PY_ SWIMPOOL	m C			1 1	2546
311 312	SWIM_00L APTMENT	m C			2 1	2874
313 314	APTMENT_ OFSTPARK	m C			2 1	782
315 316	OFST_ARK WINDOWAC	m C			2 1	2546
317 318	WIND_WAC CNTRALAC	m C			2 1	934
319 320	CNTR_LAC CHILDAGE	m S	0.000	7.000	2	
321 322	CHIL_AGE INCLASS	m S	1.000	9.000	0	222
323 324	STATE ERANKH	C S	0.6848E-02	1.000	39	322 64
			0.0040E-02	1.000	1	04
325 326	ERANKH_ TOTEX4PQ	m S	233.2	0.2782E+06	1	04
325 326 327 328	ERANKH_ TOTEX4PQ TOTEX4CQ MISCX4PQ	m S S	233.2 0.000 0.000	0.2782E+06 0.8056E+05 0.2000E+05	1	04
325 326 327 328 329 330	ERANKH_ TOTEX4PQ TOTEX4CQ MISCX4PQ MISCX4CQ VEHQL	m S S S	233.2 0.000	0.2782E+06 0.8056E+05		04
325 326 327 328 329 330 331 332	ERANKH_ TOTEX4PQ TOTEX4CQ MISCX4PQ MISCX4CQ VEHQL VEHQL_ NUM_TVAN	m S S S S S	233.2 0.000 0.000 0.000	0.2782E+06 0.8056E+05 0.2000E+05 0.1703E+05	0	04
325 326 327 328 329 330 331 332 333 334	ERANKH_ TOTEX4PQ TOTEX4CQ MISCX4PQ MISCX4CQ VEHQL VEHQL_ NUM_TVAN NUMVAN TTOTALP	m s s s s s m s m s	233.2 0.000 0.000 0.000 0.000 0.000	0.2782E+06 0.8056E+05 0.2000E+05 0.1703E+05 4.000 9.000		04
325 326 327 328 329 330 331 332 333 334 335 336	ERANKH_ TOTEX4PQ TOTEX4CQ MISCX4PQ MISCX4CQ VEHQL_ VEHQL_ NUM_TVAN NUMVAN TTOTALP TTOTALC TFOODTOP	m	233.2 0.000 0.000 0.000 0.000 0.000	0.2782E+06 0.8056E+05 0.2000E+05 0.1703E+05 4.000 9.000 0.3821E+05 0.2303E+05 5500.	0	04
325 326 327 328 329 330 331 332 333 334 335 336 337 338	ERANKH_ TOTEX4PQ TOTEX4CQ MISCX4PQ MISCX4CQ VEHQL VEHQL_ NUM_TVAN NUMVAN TTOTALP TTOTALC TFOODTOP TFOODTOC TFOODAWP		233.2 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	0.2782E+06 0.8056E+05 0.2000E+05 0.1703E+05 4.000 9.000 0.3821E+05 0.2303E+05 5500. 4305. 5500.	0	04
325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340	ERANKH_ TOTEX4PQ TOTEX4CQ MISCX4PQ MISCX4CQ VEHQL VEHQL_ NUM_TVAN NUMVAN TTOTALP TTOTALC TFOODTOP TFOODTOC TFOODAWP TFOODAWC TFOODHOP		233.2 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	0.2782E+06 0.8056E+05 0.2000E+05 0.1703E+05 4.000 9.000 0.3821E+05 0.2303E+05 5500. 4305. 5500. 4180. 3300.	0	04
325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342	ERANKH_TOTEX4PQ TOTEX4CQ MISCX4PQ MISCX4CQ VEHQL VEHQL_NUM_TVAN NUM_VAN TTOTALP TTOTALC TFOODTOP TFOODTOC TFOODAWP TFOODAWC TFOODHOP TFOODHOC TALCBEVP		233.2 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	0.2782E+06 0.8056E+05 0.2000E+05 0.1703E+05 4.000 9.000 0.3821E+05 0.2303E+05 5500. 4305. 5500. 4180. 3300. 1050. 2252.	0	04
325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344	ERANKH_TOTEX4PQ TOTEX4CQ MISCX4PQ MISCX4CQ VEHQL VEHQL_NUM_TVAN NUM_VAN TTOTALP TTOTALC TFOODTOP TFOODAWP TFOODAWC TFOODHOP TFOODHOC TALCBEVP TALCBEVC TOTHRLOP		233.2 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	0.2782E+06 0.8056E+05 0.2000E+05 0.1703E+05 4.000 9.000 0.3821E+05 0.2303E+05 5500. 4305. 5500. 4180. 3300. 1050. 2252. 1220. 0.1013E+05	0	04
325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343	ERANKH_TOTEX4PQ TOTEX4CQ MISCX4PQ MISCX4CQ VEHQL VEHQL_NUM_TVAN NUM_VAN TTOTALP TTOTALC TFOODTOP TFOODTOC TFOODAWP TFOODAWC TFOODHOP TFOODHOC TALCBEVC		233.2 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	0.2782E+06 0.8056E+05 0.2000E+05 0.1703E+05 4.000 9.000 0.3821E+05 0.2303E+05 5500. 4305. 5500. 4180. 3300. 1050. 2252. 1220.	0	04

```
349
     TGASMOTC
                        0.000
                                       1540.
                  S
350
     TVRENTLP
                        0.000
                                       445.0
                  S
     TVRENTLC
351
                  S
                        0.000
                                       514.0
356
     TOTHTREP
                        0.000
                                       445.0
                  S
357
                                       514.0
     TOTHTREC
                  S
                        0.000
358
     TTRNTRIP
                  S
                        0.000
                                      0.2067E+05
359
     TTRNTRIC
                  s
                        0.000
                                      0.1042E+05
360
     TFAREP
                        0.000
                                      0.2046E+05
                  S
361
     TFAREC
                  S
                        0.000
                                      0.1030E+05
362
     TAIRFARP
                        0.000
                                      0.2000E+05
                  S
363
     TAIRFARC
                  S
                        0.000
                                      0.1000E+05
364
                        0.000
                                       9800.
     TOTHFARP
                  S
365
     TOTHFARC
                        0.000
                                       3521.
                  S
366
     TLOCALTP
                  S
                        0.000
                                       728.0
367
     TLOCALTC
                        0.000
                                       1000.
                  S
368
                                       7400.
     TENTRMNP
                  S
                        0.000
369
     TENTRMNC
                        0.000
                                       3000.
                  S
370
     TFEESADP
                  S
                        0.000
                                       7400.
371
     TFEESADC
                  S
                        0.000
                                       3000.
372
     TOTHENTP
                        0.000
                                       1400.
                  S
373
     TOTHENTC
                  S
                        0.000
                                       2400.
374
     OWNVACP
                  S
                        0.000
                                      0.2329E+05
375
     OWNVACC
                  S
                        0.000
                                      0.1367E+05
376
     V0THRL0P
                        0.000
                                      0.2329E+05
                  S
377
     V0THRL0C
                  S
                        0.000
                                      0.1367E+05
     UTILOWNP
380
                        0.000
                                       2077.
                  S
381
     UTILOWNC
                        0.000
                                       943.0
                  S
382
                                       682.0
     VFUELOIP
                  S
                        0.000
383
                                       625.0
     VFUELOIC
                  S
                        0.000
384
                                       547.0
     VOTHRFLP
                        0.000
                  S
385
     VOTHRFLC
                        0.000
                                       907.0
                  S
386
     VELECTRP
                        0.000
                                       1360.
                  S
387
     VELECTRC
                        0.000
                                       489.0
                  S
388
     VNATLGAP
                  S
                        0.000
                                       2077.
389
     VNATLGAC
                        0.000
                                       177.0
                  S
390
     VWATERPP
                        0.000
                                       429.0
                  S
391
     VWATERPC
                        0.000
                                       571.0
                  S
392
     MRTPRN0P
                        0.000
                                      0.2643E+05
                  S
393
                                      0.1322E+05
     MRTPRN0C
                  S
                        0.000
394
     UTILRNTP
                        0.000
                                       1157.
                  S
395
     UTILRNTC
                  S
                        0.000
                                       628.0
396
     RFUEL0IP
                        0.000
                                       565.0
                  S
397
     RFUELOIC
                        0.000
                                       553.0
                  S
400
     RELECTRP
                  S
                        0.000
                                       558.0
401
     RELECTRC
                        0.000
                                       209.0
                  S
402
                                       254.0
     RNATLGAP
                        0.000
                  S
403
     RNATLGAC
                        0.000
                                       59.00
                  S
404
     RWATERPP
                                       552.0
                  S
                        0.000
405
     RWATERPC
                  S
                        0.000
                                       242.0
406
     POVLEVCY
                                      0.5087E+05
                  S
                       0.1145E+05
```

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407
     POVL VCY
                                                          0
                  m
408
     POVLEVPY
                      0.1122E+05
                                     0.4982E+05
                  S
     POVL VPY
409
                  m
                                                          0
                                                          1
410
     PORCH 
                  С
                                                                  624
                                                          2
411
     PORCH
                  m
412
     ETOTALP
                  S
                       233.2
                                     0.2782E+06
413
                       0.000
     ETOTALC
                  s
                                     0.6995E+05
                       233.2
414
     ETOTAPX4
                                     0.2782E+06
                  S
415
     ETOTACX4
                  S
                       0.000
                                     0.6995E+05
416
     EHOUSNGP
                       0.000
                                     0.1811E+06
                  S
417
     EHOUSNGC
                  S
                       0.000
                                     0.3303E+05
418
                       0.000
                                     0.4456E+05
     ESHELTRP
                  S
419
     ESHELTRC
                       0.000
                                     0.2724E+05
                  S
420
     EOWNDWLP
                  S
                       0.000
                                     0.4456E+05
421
     EOWNDWLC
                        0.000
                                     0.2613E+05
                  S
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
                       0.000
                                     0.2643E+05
                  S
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
                       0.000
                                     0.8790E+05
                  S
433
     ECARTKNC
                        0.000
                                     0.5400E+05
                  S
434
     ECARTKUP
                  S
                       0.000
                                     0.2643E+05
435
     ECARTKUC
                  S
                       0.000
                                     0.2662E+05
436
     EOTHVEHP
                       0.000
                                     0.1166E+05
                  S
437
     EOTHVEHC
                       0.000
                                       2700.
                  S
438
     EENTRMTP
                        0.000
                                     0.6318E+05
                  S
439
     EENTRMTC
                                       8790.
                  S
                       0.000
440
     EOTHENTP
                  S
                       0.000
                                     0.6300E+05
441
     EOTHENTC
                       0.000
                                       7154.
                  s
442
     ENOMOTRP
                       0.000
                                       7700.
                  S
443
     ENOMOTRC
                       0.000
                                      696.0
                  S
444
     EMOTRVHP
                       0.000
                                     0.6300E+05
                  S
445
     EMOTRVHC
                  S
                        0.000
                                      6971.
                                       3750.
446
     EENTMSCP
                       0.000
                  S
447
     EENTMSCC
                  s
                       0.000
                                       5000.
448
     EMISCELP
                       0.000
                                     0.2000E+05
                  S
449
     EMISCELC
                       0.000
                                     0.1703E+05
                  S
450
     EMISCMTP
                  S
                       0.000
                                      1048.
451
                                       2113.
     EMISCMTC
                       0.000
                  S
452
                                       10.00
     UNISTRQ
                  S
                       1.000
453
     UNISTRQ
                                                          0
                  m
                                                          2
455
     WELF_EBX
                  C
                                                          3
457
     LUMP UMB
                  C
                                                          3
459
     LMPS_MBX
                  C
```

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	2000
467	HORREF1	C			6	2800
468	HORREF1_	m			1	2040
469	HORREF2	C			5 1	2840
470 471	HORREF2_	m	0 75045 02	1 000	1	
471 472	ERANKHM ERANKHM	S	0.7504E-02	1.000	0	
472	FGOVRETM	m S	0.000	0.2509E+05	V	
474	FGOV_ETM	S M	0.000	0.2309L703	0	
475	FPRIPENM	S	0.000	0.4551E+05	v	
476	FPRI_ENM	m	0.000	0.4331L103	0	
477	FRRDEDM	S	0.000	0.1043E+05	· ·	
478	FRRDEDM_	m	01000	0110456105	0	
479	PSU	C			21	1659
480	HISP_REF	C			2	1055
481	HISP2	C			2	1225
482	HIGH_EDU	S	10.00	16.00	_	1225
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	С			2	2169
500	DEFB_NRP	m			2	
501	EITC	С			2	598
502	EITC_	m			2	
503	FMLPYYRX	S	4.000	4000.	2	2844
504	FMLP_YRX	m	4 000	12.00	2	2002
505	FS_MTHI	S	1.000	12.00	4	2893
506	FS_MTHI_	m	0 40005.00	0 10005.07	1	
507	FSMPFRMX	S	-0.4000E+06	0.1090E+07	0	
508 513	FSMP_RMX	W	1 000	0 0034E+0E	0	
522	INTRDVX IRAB	d	1.000	0.9834E+05 6.000		2826
523		S	1.000	0.000	2	2020
523 524	IRAB_ IRABX	m S	1000.	0.7250E+06	۷	2826
J24	TI/WDV	5	TOOO.	0 . / ZJULTUU		2020

525	IRABX_	m			2	
526	IRAX	S	0.000	0.2635E+07	2	2309
527	IRAX_	m	1 000	C 000	2	2004
528	IRAYRB	S 	1.000	6.000	2	2804
529	IRAYRB_	m	1000	0 72505.06	2	2004
530 531	IRAYRBX IRAYRBX_	S	1000.	0.7250E+06	2	2804
532	IRAYRX	m S	0.000	0.2129E+07	۷	2344
533	IRAYRX_	m	0.000	0121232107	2	2344
534	JFS_AMT	S	0.000	4800.	2	
535	JFS_AMT_	m	01000	10001	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	2022
554	NETRENTB	S	0.000	0.000	2	2920
555	NETR_NTB	m	0 54005.05	0 11405.00	2	2650
556	NETRENTX	S	-0.5499E+05	0.1148E+06	2	2650
557	NETR_NTX	m	2400	2400	2	2020
558	NETRNTBX	S	-2400 <b>.</b>	-2400 <b>.</b>	2	2920
559 560	NETR_TBX OTHASTBX	m	0.3000E+05	0.7250E+06	2	2909
561	OTHA_TBX	S	0.3000E+03	0.7230E+00	2	2909
562	OTHASTB	m S	3.000	6.000	۷	2909
563	OTHASTB	m	3.000	0.000	3	2303
564	OTHASTX	S	2.000	0.6000E+06	5	2889
565	OTHASTX_	m	21000	010000100	2	2003
566	OTHFINX	S	0.000	900.0	2	2889
567	OTHFINX_	m	01000	30010	2	2003
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	0THLNYRB	S	2.000	5.000		2920
573	OTHL_YRB	m			2	
574	0THLNYRX	S	0.000	0.5500E+05		2880

575	0THL_YRX	m			2	
576	OTHLOAN	m	1.000	2.000	2	2150
577		S	1.000	2.000	1	2130
	OTHLOAN_	m	1 000	1 000	1	2021
578 570	OTHLONB	S	1.000	1.000	2	2921
579	OTHLONB_	m	1 000	0 21065.06	Z	2077
580	OTHLONX	S 	1.000	0.3106E+06	2	2877
581	OTHLONX_	m	400.0	0 50005.05	2	2012
582	OTHREGBX	S	488.0	0.5000E+05	2	2913
583	OTHR_GBX	m	4 000	40.00	2	2042
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	0THSYRBX	S	6000.	0.7250E+06		2908
589	OTHS_RBX	m			2	
590	0THSTYRB	S	2.000	6.000		2908
591	OTHS_YRB	m			2	
592	0THSTYRX	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	С			3	
599	RETSURV_	m			0	
600	RETSURVB	S	1.000	12.00	•	2913
601	RETS_RVB	m	11000	12100	2	2313
604	ROYESTBX	S	1300.	6000.	_	2916
605	ROYE_TBX	m	15001	00001	2	2310
606	ROYESTB	S	2.000	6.000	_	2916
607	ROYESTB_	m	21000	01000	2	2310
608	ROYESTX	S	1.000	0.1592E+06	_	2730
609	ROYESTX_		1.000	0.13322100	2	2750
610	STCKYRBX	m S	1000.	0.7250E+06	۷	2874
611	STCK RBX		1000.	0.7230L+00	2	20/4
-	_	m	4 000	6 000	Z	2913
612	STDNTYRB	S	4.000	6.000	2	2913
613	STDN_YRB	m	0 000	0 41005.06	2	2021
614	STDNTYRX	S	0.000	0.4100E+06	2	2821
615	STDN_YRX	m	6250	0 25005.05	2	2012
616	STDTYRBX	S	6250.	0.3500E+05	2	2913
617	STDT_RBX	m	1 000	6 000	2	2074
618	STOCKYRB	S	1.000	6.000	2	2874
619	STOC_YRB	m			2	0700
620	STOCKYRX	S	0.000	0.5784E+07	_	2703
621	STOC_YRX	m	4 000	6 000	2	202-
622	STOCKB	S	1.000	6.000	_	2887
623	STOCKB_	m	4005	. 705	3	200=
624	STOCKBX	S	1000.	0.7250E+06	_	2887
625	STOCKBX_	m			2	
626	ST0CKX	S	25.00	0.6587E+07		2683

```
627
         ST0CKX
                                                         2
                    m
    628 STUDFINX
                         0.000
                                       9000.
                                                               2847
                    S
    629 STUD_INX
                                                         2
                    m
    630 STUDNTBX
                         6250.
                                      0.3500E+05
                                                               2917
                    S
                                                         2
    631
        STUD TBX
                    m
    632 STUDNTB
                                       6.000
                    S
                         4.000
                                                               2917
    633 STUDNTB_
                                                         2
                    m
    634 STUDNTX
                         250.0
                                      0.4200E+06
                                                               2815
                    S
    635
        STUDNTX_
                                                         2
                    m
    636 WHLFYRBX
                                      0.3500E+05
                                                               2895
                         250.0
                    S
    637 WHLF_RBX
                                                         2
                    m
    638 WHLFYRB
                         1.000
                                       6.000
                                                               2895
                    S
    639 WHLFYRB_
                                                         2
                    m
    640 WHLFYRX
                    S
                         0.000
                                      0.7674E+06
                                                               2786
                                                         3
    641
        \mathsf{WHLFYRX}_{\_}
                    m
    642 WHOLIFBX
                         250.0
                                      0.3500E+05
                                                               2895
                    S
    643 WHOL FBX
                                                         2
    644 WHOLIFB
                                       6.000
                         1.000
                                                               2895
                    S
    645 WHOLIFB_
                                                         2
                    m
    646 WHOLIFX
                         1.000
                                      0.7892E+06
                                                               2780
                    S
                                                         3
    647 WHOLIFX_
                    m
    648 TOTXEST
                        -8990.
                                      0.2938E+06
                    S
    649 FFTAXOWE
                        -8943.
                                      0.2485E+06
                    S
    650 FFTA OWE
                                                         0
                    m
    651 FSTAX0WE
                                      0.5991E+05
                    S
                        -2505.
    652 FSTA_OWE
                                                         0
                    m
    653 ET0TA
                         1199.
                                      0.2782E+06
                    S
     Total
            #cases w/
                        #missing
              miss. D ord. vals
                                                                #S-var
    #cases
                                    #X-var
                                             #N-var
                                                      #F-var
      4693
                 1771
                             4693
                                        30
                                                                   409
    #P-var
             #M-var
                      #B-var
                                #C-var
                                         #I-var
                                    44
                168
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:
                                   152.5
Resubstitution estimate of mean squared error: 121372696.4018
based on number of training cases: 2922
```

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

0.5711

Number of OOB cases: 2922

00B estimate of mean squared error: 173140359.1619 Mean number of trees per 00B observation: 184.09

Number of test cases with 0 weight and nonmissing responses = 0 Observed and fitted values are stored in in.fit

Elapsed time in seconds: 1324.2

```
GUIDE
            (do not edit this file unless you know what you are doing)
            (version of GUIDE that generated this file)
  36.2
            (1=model fitting, 2=importance or DIF scoring, 3=data
conversion)
"afout.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=accept default number of trees, 2=change)
            (1=accept default number of variables for splitting,
 1
2=change it)
            (1=estimated priors, 2=equal priors, 3=other priors)
 1
 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=default min. node size, 2=specify min. value in next
 1
line)
"qfpro.txt" (file name for predicted class and probability estimates)
            (rank of top variable to split root node)
```

```
GGG
       U I DDDD
                 EEEE
    U
  G U
       UID
G
               D
                 F
G
    IJ
       U I D
G
 GG U U I D
               D
                EEE
  Gυ
       UID
               D
G
                 F
  G U
       UID
               D
                 Ε
GGG
     UUU
          I DDDD
```

**EEEE** GUIDE Classification and Regression Trees and Forests Version 36.2 (Build date: January 8, 2021) Compiled with NAG Fortran 6.2.0 on macOS Catalina 10.15.7 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 02/22/21 at 16:40 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

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/	
C = 1	NI		M	M =	Levels/	#M
Column 1	Name	6	Minimum	Maximum	Periods 2	#Missing 155
2	DIRACC DIRACC_	C m			1	155
3	AGE_REF	m S	18.00	87.00	1	
4	AGE_REF_		10.00	07.00	0	
5	AGE2	m S	22.00	87.00	V	1903
6	AGE2_	m	22.00	07.00	1	1905
7	AS COMP1	S	0.000	4.000	_	
8	AS_C_MP1	m	01000	41000	0	
9	AS_COMP2	S	0.000	4.000	· ·	
10	AS_C_MP2	m	01000	41000	0	
11	AS_COMP3	S	0.000	4.000	Ū	
12	AS_C_MP3	m	0.000		0	
13	AS_COMP4	S	0.000	4.000	Ū	
14	AS_C_MP4	m	0.000		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	С			11	
23	BUIL_ING	m			0	
24	CUTENURE	С			6	
25	CUTE_URE	m			0	
26	<b>EARNCOMP</b>	С			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		m			0	
34	FAM_TYPE	С			10	
35	FAMYPE	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	FG0VRETX	S	0.000	0.2469E+05		
43	FGOV_ETX	m		0 4440= 07	0	
44	FINCATAX	S	-0.3380E+06	0.1410E+07	•	
45	FINCAT_X	m	0. 24205 . 00	0.44405.07	0	
46	FINCBTAX	S	-0.3430E+06	0.1410E+07	0	
47	FINCBT_X	m	0.000	0 12725.00	0	
48	FINDRETX	S 	0.000	0.1272E+06	0	
49	FIND_ETX	m	1251	0 70275.05	0	
50 51	FINLWT21	W	1351.	0.7027E+05		
51 52	FJSSDEDX	S	0.000	0.3042E+05	0	
53	FJSS_EDX FPRIPENX	m	0 000	0.5902E+05	V	
54	FPRI_ENX	S	0.000	0.39026+03	0	
55	FRRDEDX	m S	0.000	9980.	V	
56	FRRDEDX		0.000	9900.	0	
57	FRRETIRX	m S	0.000	0.5807E+05	v	
58	FRRE_IRX		0.000	0.300/6+03	0	
59	FSALARYX	m S	0.000	0.5301E+06	V	
60	FSAL_RYX	m	0.000	0.330IF+00	0	
61	FSLTAXX	S	0.000	0.3010E+05	V	
62	FSLTAXX_		0.000	0.30100.03	0	
63	FSSIX	S	0.000	0.3048E+05	V	
64	FSSIX_	m	0.000	0130401103	0	
65	HLFBATHQ		0.000	4.000	O	23
66	HLFB_THQ		0.000	41000	2	23
67	INC_HRS1	S	1.000	93.00	2	1744
68	INCRS1	m	11000	33100	1	1/ 1-1
69	INC_HRS2	S	1.000	99.00	_	2886
70	INCRS2	m			1	
71	INC_RANK	S	0.1000E-03	1.000	_	367
72	INC ANK	m	012002		1	
73	INCNONW1	С			6	2949
74	INCN_NW1	m			1	
75	INCNONW2	С			6	3710
76	INCN_NW2	m			1	
77	INCOMEY1	С			6	1744
78	INCO_EY1	m			1	
79	INCOMEY2	С			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	С			6	

00	MADT AL1	m			0	
90 91	MARI_AL1	m	0 000	6.000	0	
91	NO_EARNR NO_E_RNR	S	0.000	0.000	0	
		m	0 000	0 54025+06	V	
93	NONINCMX	S	0.000	0.5492E+06	ο.	
94	NONI_CMX	m	0 000	7 000	0	
95	NUM_AUTO	S 	0.000	7.000	0	
96	NUMUTO	m			0	4744
97	OCCUCOD1	С			15	1744
98	OCCU_OD1	m			1	
99	OCCUCOD2	С			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	PERS0T64	S	0.000	4.000		
106	PERS_T64	m			0	
107	POPSIZE	S	1.000	5.000		38
108	PRINEARN	С			8	
109	PRIN_ARN	m			0	
110	QINTRVMO	C			12	
111	QINTRVYR	C			2	
112	RACE2	c			6	1903
113	RACE2_	m			1	1303
114	REF_RACE	C			7	
115	REFACE	m			0	
116	REGION				4	38
117		С	1 000	4604	4	
	RENTEQVX	S	1.000	4694.	1	667
118	RENT_QVX	m			1	
119	RESPSTAT	C			3	
120	RESP_TAT	m	1 000	10.00	0	20
121	ROOMSQ	S	1.000	19.00		30
122	ROOMSQ_	m			2	
123	SEX_REF	С			3	
124	SEX_REF_	m			0	
125	SEX2	С			2	1903
126		m			1	
127		S	1.000	0.2657E+05		4053
128	SL0C_AXX	m			2	
129	SLRFUNDX	S	1.000	4169.		3242
130	SLRF_NDX	m			2	
131		С			2	
132	ST_H0US	С			3	
133	ST HOUS	m			0	
134	TOTTXPDX	S	-0.1845E+05	0.1467E+06	ŭ	
135	TOTT_PDX	m	0110101.00	312.372.00	0	
136	VEHQ	S	0.000	17.00	Ŭ	
137	VEHQ_	m	0.000	17.00	0	
138	WELFAREX	S	300.0	4344.	v	4680
139	WELF_REX		20010	7,771	2	T000
T 2 2	MLLI TULY	m			۷	

```
140
     TOTEXPPQ
                        233.2
                                      0.2782E+06
                  S
                       -3759.
141
     T0TEXPCQ
                                      0.9669E+05
                  S
142
     F00DPQ
                  S
                        0.000
                                      0.2358E+05
143
     F00DCQ
                        0.000
                                       7363.
                  S
144
                        0.000
                                       8450.
     FDHOMEPQ
                  S
145
     FDHOMECQ
                  S
                        0.000
                                       6067.
                                      0.2098E+05
146
     FDAWAYPQ
                  S
                        0.000
147
     FDAWAYCQ
                        0.000
                                       5660.
                  S
148
     FDXMAPPQ
                  S
                        0.000
                                      0.2098E+05
149
     FDXMAPCQ
                        0.000
                                       5660.
                  S
150
     FDMAPP0
                  S
                        0.000
                                       900.0
151
     FDMAPCQ
                        0.000
                                       666.7
                  S
152
     ALCBEVPQ
                        0.000
                                       3152.
                  S
153
     ALCBEVCO
                  S
                        0.000
                                       2550.
154
     HOUSPQ
                        0.000
                                      0.1811E+06
                  S
155
     H<sub>0</sub>USC<sub>0</sub>
                       -2196.
                  S
                                      0.3466E+05
156
     SHELTP0
                  S
                        0.000
                                      0.4074E+05
157
                        0.000
     SHELTC0
                  S
                                      0.3354E+05
158
     OWNDWEPQ
                  S
                        0.000
                                      0.3070E+05
159
     OWNDWECQ
                        0.000
                                      0.3321E+05
                  S
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
                        0.000
                                      0.2373E+05
                  S
166
     RENDWEPQ
                        0.000
                                       8546.
                  S
167
     RENDWECQ
                  S
                        0.000
                                       6742.
                                       8546.
168
     RNTXRPPQ
                  S
                        0.000
169
     RNTXRPCQ
                        0.000
                                       6742.
                  S
170
     RNTAPYPQ
                        0.000
                                       2922.
                  S
171
     RNTAPYCQ
                        0.000
                                       3000.
                  S
172
     OTHLODPO
                        0.000
                                      0.3342E+05
                  S
173
     OTHLODCQ
                  S
                        0.000
                                      0.1367E+05
174
     UTILPQ
                        0.000
                                       7581.
                  S
175
                                       3921.
     UTILCQ
                  s
                        0.000
176
     NTLGASPQ
                        0.000
                                       2306.
                  S
177
     NTLGASCQ
                  S
                        0.000
                                       885.0
178
     ELCTRCPQ
                  S
                        0.000
                                       4473.
                                       3261.
179
     ELCTRCCQ
                        0.000
                  S
180
     ALLFULPQ
                  S
                        0.000
                                       2752.
181
     ALLFULCQ
                        0.000
                                       3081.
                  S
182
     FULOILPQ
                        0.000
                                       2752.
                  S
183
     FULOILCQ
                  S
                        0.000
                                       3081.
184
     OTHFLSPQ
                        0.000
                                       1981.
                  S
185
                        0.000
                                       2269.
     OTHFLSCQ
                  S
186
     TELEPHPQ
                  S
                        0.000
                                       1638.
187
     TELEPHCQ
                        0.000
                                       1907.
                  S
188
     WATRPSP0
                  S
                        0.000
                                       1880.
189
     WATRPSCQ
                        0.000
                                       1035.
                  S
```

```
190
     HOUSOPPQ
                      -37.00
                                     0.2493E+05
                  S
191
     HOUSOPCQ
                      -4868.
                                      0.1815E+05
                  S
192
     DOMSRVPQ
                  S
                      -37.00
                                     0.2003E+05
193
     DOMSRVCQ
                  S
                      -4960.
                                     0.1805E+05
194
                      -37.00
     DMSXCCP0
                  S
                                      0.2003E+05
195
     DMSXCCCQ
                  S
                      -4960.
                                     0.1000E+05
196
                        0.000
     BBYDAYPQ
                  S
                                      0.1500E+05
197
     BBYDAYCQ
                       0.000
                                      0.1740E+05
                  S
198
     OTHHEXPQ
                  S
                       0.000
                                     0.2493E+05
199
     OTHHEXCQ
                        0.000
                                       5653.
                  S
200
     H0USE0P0
                  S
                        0.000
                                      0.1544E+06
201
                        0.000
                                      0.2268E+05
     HOUSEQCQ
                  S
202
     TEXTILPQ
                        0.000
                                      4000.
                  S
203
     TEXTILC0
                  S
                       0.000
                                       2946.
204
     FURNTRPQ
                        0.000
                                      0.7500E+05
                  S
205
     FURNTRCQ
                  S
                        0.000
                                     0.1811E+05
206
     FLRCVRP0
                  S
                        0.000
                                      0.1000E+05
207
     FLRCVRCQ
                  S
                       0.000
                                       5500.
208
     MAJAPPPQ
                  S
                       0.000
                                      0.1802E+05
209
     MAJAPPCQ
                        0.000
                                      0.1200E+05
                  S
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
                       0.000
                                       4604.
                  S
216
     MENBOYPQ
                        0.000
                                      4200.
                  S
217
     MENBOYCO
                  S
                        0.000
                                       1797.
218
                                      4200.
     MENSIXPQ
                  S
                        0.000
219
                                       1797.
     MENSIXCQ
                       0.000
                  S
220
     BOYFIFPQ
                       0.000
                                       2150.
                  S
221
     BOYFIFCQ
                        0.000
                                       448.0
                  S
222
     WOMGRLPO
                                       4540.
                  S
                        0.000
223
     WOMGRLCQ
                        0.000
                                       2958.
                  S
224
     WOMSIXPQ
                       0.000
                                      4474.
                  S
225
                                       2958.
     WOMSIXCQ
                       0.000
                  S
226
     GRLFIFPQ
                        0.000
                                       1799.
                  S
227
     GRLFIFCQ
                        0.000
                                       1624.
                  S
228
     CHLDRNPQ
                  S
                        0.000
                                      717.0
229
     CHLDRNCO
                       0.000
                                      961.0
                  S
230
     F00TWRPQ
                  S
                       0.000
                                       2162.
231
     F00TWRCQ
                       0.000
                                       1148.
                  S
232
     OTHAPLPQ
                       0.000
                                     0.2048E+05
                  S
233
     OTHAPLCQ
                  S
                        0.000
                                       4076.
234
     TRANSPQ
                        0.000
                                     0.8778E+05
                  S
235
     TRANSC0
                       0.000
                                      0.6490E+05
                  S
236
     CARTKNPQ
                       0.000
                                      0.8700E+05
                  S
237
     CARTKNCQ
                       0.000
                  S
                                     0.6480E+05
238
     CARTKUPQ
                  S
                        0.000
                                      0.4200E+05
239
                                      0.4163E+05
     CARTKUCQ
                  S
                        0.000
```

```
240
     OTHVEHPQ
                        0.000
                                     0.1417E+05
                  S
241
     OTHVEHCQ
                        0.000
                                     0.1800E+05
                  S
242
     GASMOPQ
                  S
                        0.000
                                      4832.
243
     GASMOCQ
                        0.000
                                      6400.
                  S
244
                                      1201.
     VEHFINPQ
                        0.000
                  S
                       0.000
245
     VEHFINCQ
                  S
                                      716.0
246
                                     0.1400E+05
     MAINRPPQ
                  S
                       0.000
247
     MAINRPCQ
                       0.000
                                      8060.
                  S
248
     VEHINSPQ
                  S
                       0.000
                                      4236.
249
     VEHINSCQ
                       0.000
                                      3800.
                  S
250
     VRNTL0P0
                  S
                        0.000
                                     0.2200E+05
251
                        0.000
                                     0.2223E+05
     VRNTLOCQ
                  S
252
     PUBTRAPQ
                       0.000
                                     0.2287E+05
                  S
253
     PUBTRACQ
                  S
                       0.000
                                     0.1198E+05
254
     TRNTRPP0
                        0.000
                                     0.2287E+05
                  S
255
                                     0.1198E+05
     TRNTRPCQ
                  S
                       0.000
256
                                      1448.
     TRN0THP0
                  S
                       0.000
257
     TRNOTHCQ
                  S
                       0.000
                                      1386.
258
     HEALTHPQ
                  S
                      -2402.
                                     0.1665E+05
259
                     -0.1281E+05
                                     0.2189E+05
     HEALTHCO
                  S
260
     HLTHINPQ
                  S
                        0.000
                                     0.1426E+05
261
     HLTHINCQ
                  S
                        0.000
                                      8789.
262
                      -3290.
                                     0.1543E+05
     MEDSRVPQ
                  S
263
     MEDSRVCQ
                  S
                     -0.1330E+05
                                     0.1368E+05
     PREDRGPQ
264
                  S
                      -940.0
                                      6844.
     PREDRGCQ
265
                      -260.0
                                      2800.
                  S
266
     MEDSUPPQ
                  S
                      -3600.
                                      7000.
267
     MEDSUPCO
                  S
                      -449.0
                                      7530.
268
     ENTERTPQ
                  S
                       0.000
                                     0.6318E+05
269
     ENTERTCQ
                       0.000
                                     0.4249E+05
                  S
     FEEADMPQ
270
                       0.000
                                     0.1958E+05
                  S
271
     FEEADMCQ
                        0.000
                                     0.1577E+05
                  S
272
     TVRDIOP0
                       0.000
                                      7007.
                  S
273
     TVRDIOCQ
                  S
                        0.000
                                      5143.
274
     OTHEQPPQ
                       0.000
                                     0.6300E+05
                  S
275
     OTHEQPCQ
                  S
                       0.000
                                     0.4204E+05
276
     PETTOYPQ
                        0.000
                                     0.1165E+05
                  S
277
     PETTOYCQ
                        0.000
                                      5657.
                  S
278
     OTHENTPQ
                  S
                        0.000
                                     0.6300E+05
279
                                     0.4204E+05
     OTHENTCQ
                       0.000
                  S
280
     PERSCAPQ
                  S
                       0.000
                                      1550.
281
     PERSCACQ
                       0.000
                                      973.3
                  S
282
     READP0
                       0.000
                                      3304.
                  S
283
     READCQ
                  S
                        0.000
                                      1100.
284
     EDUCAPQ
                        0.000
                                     0.3850E+05
                  S
285
     EDUCACQ
                  S
                       0.000
                                     0.3500E+05
286
     TOBACCPQ
                  S
                       0.000
                                      2253.
287
     TOBACCCQ
                       0.000
                                      2600.
                  S
288
     MISCPQ
                  S
                        0.000
                                     0.2305E+05
289
     MISCCQ
                                     0.1703E+05
                  S
                        0.000
```

```
290
     MISC1PQ
                       0.000
                                     0.2305E+05
                  S
291
     MISC1CQ
                  S
                       0.000
                                     0.1703E+05
                                      0.000
292
     MISC2PQ
                  S
                       0.000
293
     MISC2CQ
                       0.000
                                      0.000
                  S
294
     CASHCOPQ
                       0.000
                                     0.8109E+05
                  S
295
     CASHCOCQ
                  S
                       0.000
                                     0.2150E+05
296
     PERINSPQ
                       0.000
                  S
                                     0.7000E+05
297
     PERINSCQ
                       0.000
                                     0.3337E+05
                  S
298
     LIFINSPQ
                  S
                       0.000
                                     0.7000E+05
299
     LIFINSCQ
                       0.000
                                     0.3100E+05
                  S
300
                                     0.2584E+05
     RETPENPQ
                  S
                       0.000
301
                                     0.2298E+05
     RETPENCQ
                  S
                       0.000
302
     HH_CU_Q
                  S
                       1.000
                                      5.000
                                                         0
303
     HH_CU_Q_
                  m
                                                        46
304
     HHID
                  C
                                                                4614
305
     HHID
                                                         1
                  m
306
     POV CY
                  С
                                                         2
                                                                 378
307
     POV_CY_
                                                         1
                  m
                                                         2
308
     POV_PY
                  C
                                                                 378
                                                         1
309
     POV_PY_
                  m
                                                         1
310
     SWIMP00L
                  C
                                                                4115
311
     SWIM_00L
                                                         2
                  m
312
                                                         1
     APTMENT
                                                                4616
                  C
                                                         2
313
     APTMENT
                  m
                                                         1
314
     OFSTPARK
                  C
                                                                1181
                                                         2
315
     OFST_ARK
                  m
                                                         1
316
                                                                4049
     WINDOWAC
                  C
                                                         2
317
     WIND WAC
                  m
318
     CNTRALAC
                                                         1
                                                                1491
                  С
319
     CNTR LAC
                                                         2
                  m
320
     CHILDAGE
                       0.000
                                      7.000
                  S
321
     CHIL AGE
                                                         0
                  m
322
     INCLASS
                       1.000
                                      9.000
                  S
323
                                                        39
                                                                 492
     STATE
                  C
324
     ERANKH
                  s
                      0.4735E-02
                                      1.000
                                                                 367
325
                                                         1
     ERANKH
                  m
326
     T0TEX4P0
                       233.2
                                     0.2782E+06
                  S
327
     TOTEX4CQ
                  S
                      -3759.
                                     0.9669E+05
328
     MISCX4PQ
                  S
                       0.000
                                     0.2305E+05
329
     MISCX4CQ
                       0.000
                                     0.1703E+05
                  S
330
     VEHQL
                  S
                       0.000
                                      4.000
331
     VEHQL
                                                         0
                  m
332
     NUM_TVAN
                       0.000
                                      9.000
                  S
333
                                                         0
     NUM VAN
                  m
334
     TTOTALP
                       0.000
                                     0.3821E+05
                  S
335
                       0.000
                                     0.2303E+05
     TT0TALC
                  S
336
     TF00DT0P
                  S
                       0.000
                                      5600.
337
     TF00DT0C
                       0.000
                                      4305.
                  S
338
                                      5500.
     TFOODAWP
                  S
                       0.000
339
     TF00DAWC
                       0.000
                                      4180.
                  S
```

```
340
     TF00DH0P
                        0.000
                                       3300.
                  S
341
     TF00DH0C
                        0.000
                                       1050.
                  S
342
     TALCBEVP
                  S
                        0.000
                                       2252.
343
     TALCBEVC
                        0.000
                                       1220.
                  S
344
                                      0.1013E+05
     TOTHRLOP
                        0.000
                  S
345
     T0THRL0C
                  S
                        0.000
                                       7498.
346
                                      0.2296E+05
     TTRANPRP
                  s
                        0.000
347
     TTRANPRC
                        0.000
                                      0.1198E+05
                  S
348
     TGASMOTP
                  S
                        0.000
                                       1750.
349
     TGASMOTC
                        0.000
                                       2200.
                  S
350
                                       445.0
     TVRENTLP
                  S
                        0.000
351
     TVRENTLC
                        0.000
                                       514.0
                  S
352
     TCARTRKP
                        0.000
                                       0.000
                  S
353
     TCARTRKC
                  S
                        0.000
                                       0.000
354
     TOTHVHRP
                        0.000
                                       0.000
                  S
355
                        0.000
     T0THVHRC
                  S
                                       0.000
356
                                       445.0
     TOTHTREP
                  S
                        0.000
357
     TOTHTREC
                  S
                        0.000
                                       514.0
358
     TTRNTRIP
                  S
                        0.000
                                      0.2287E+05
359
     TTRNTRIC
                        0.000
                                      0.1198E+05
                  S
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
                        0.000
                                       6238.
                  S
366
     TLOCALTP
                        0.000
                                       853.0
                  S
367
     TLOCALTC
                  S
                        0.000
                                       1000.
368
     TENTRMNP
                  S
                        0.000
                                       7400.
369
                                       4131.
     TENTRMNC
                        0.000
                  S
370
     TFEESADP
                        0.000
                                       7400.
                  S
371
     TFEESADC
                        0.000
                                       4131.
                  S
372
     TOTHENTP
                        0.000
                                       1400.
                  S
373
     TOTHENTC
                  S
                        0.000
                                       2400.
374
     OWNVACP
                        0.000
                                      0.2329E+05
                  s
375
     OWNVACC
                  s
                        0.000
                                      0.1367E+05
376
     V0THRL0P
                        0.000
                                      0.2329E+05
                  S
377
     V0THRL0C
                        0.000
                                      0.1367E+05
                  S
378
     VMISCHEP
                  S
                        0.000
                                       0.000
379
     VMISCHEC
                        0.000
                                       0.000
                  S
380
     UTILOWNP
                  S
                        0.000
                                       2077.
381
     UTILOWNC
                        0.000
                                       1523.
                  S
382
     VFUEL0IP
                        0.000
                                       682.0
                  S
383
     VFUELOIC
                  S
                        0.000
                                       625.0
384
                                       547.0
     VOTHRFLP
                        0.000
                  S
385
                                       907.0
     VOTHRFLC
                  S
                        0.000
386
     VELECTRP
                  S
                        0.000
                                       1360.
387
     VELECTRC
                        0.000
                                       988.0
                  S
388
     VNATLGAP
                  S
                        0.000
                                       2077.
389
     VNATLGAC
                                       201.0
                  S
                        0.000
```

```
390
     VWATERPP
                        0.000
                                      475.0
                  S
391
     VWATERPC
                       0.000
                                      571.0
                  S
392
     MRTPRNOP
                  S
                       0.000
                                     0.2643E+05
393
     MRTPRN0C
                       0.000
                                     0.1322E+05
                  S
394
                                      1157.
     UTILRNTP
                       0.000
                  S
395
     UTILRNTC
                  S
                       0.000
                                      628.0
396
                                      565.0
     RFUEL0IP
                  s
                       0.000
397
     RFUELOIC
                       0.000
                                      553.0
                  S
398
     ROTHRFLP
                  S
                       0.000
                                      0.000
399
     ROTHRFLC
                       0.000
                                      0.000
                  S
400
     RELECTRP
                  S
                       0.000
                                      558.0
401
                       0.000
                                      209.0
     RELECTRC
                  S
402
     RNATLGAP
                       0.000
                                      254.0
                  S
403
     RNATLGAC
                  S
                       0.000
                                      89.00
404
     RWATERPP
                       0.000
                                      552.0
                  S
405
                                      242.0
     RWATERPC
                  S
                        0.000
406
     POVLEVCY
                      0.1145E+05
                                     0.5184E+05
                  S
407
     POVL_VCY
                                                          0
                  m
408
     POVLEVPY
                  S
                      0.1122E+05
                                     0.5078E+05
409
     POVL VPY
                                                          0
                  m
                                                          1
410
                                                                 1006
     PORCH
                  C
411
                                                          2
     PORCH
                  m
412
                       233.2
                                     0.2782E+06
     ETOTALP
                  S
413
     ETOTALC
                  S
                      -2683.
                                     0.7288E+05
414
                       233.2
     ETOTAPX4
                  S
                                     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
                       0.000
                                     0.3786E+05
                  S
420
     EOWNDWLP
                       0.000
                                     0.4456E+05
                  S
421
     EOWNDWLC
                       0.000
                                     0.3752E+05
                  S
422
     EOTHLODP
                       0.000
                                     0.3342E+05
                  S
423
     EOTHLODC
                       0.000
                                     0.1433E+05
                  S
424
     EMRTPNOP
                       0.000
                                     0.3516E+05
                  S
425
     EMRTPNOC
                  s
                       0.000
                                     0.2247E+05
426
     EMRTPNVP
                       0.000
                                     0.2643E+05
                  S
427
     EMRTPNVC
                       0.000
                                     0.1322E+05
                  S
428
     ETRANPTP
                  S
                       0.000
                                     0.8868E+05
429
     ETRANPTC
                       0.000
                                     0.5436E+05
                  S
430
     EVEHPURP
                  s
                       0.000
                                     0.8790E+05
431
     EVEHPURC
                       0.000
                                     0.5400E+05
                  S
432
     ECARTKNP
                       0.000
                                     0.8790E+05
                  S
433
     ECARTKNC
                  S
                       0.000
                                     0.5400E+05
434
     ECARTKUP
                       0.000
                                     0.2643E+05
                  S
435
                       0.000
                                     0.2662E+05
     ECARTKUC
                  S
436
     EOTHVEHP
                       0.000
                                     0.1166E+05
                  S
437
     EOTHVEHC
                       0.000
                                      6542.
                  S
438
     EENTRMTP
                  S
                        0.000
                                     0.6318E+05
439
     EENTRMTC
                                     0.1605E+05
                  S
                       0.000
```

440	<b>EOTHENTP</b>	S	0.000	0.6300E+05		
441	<b>EOTHENTC</b>	S	0.000	7502.		
442	<b>ENOMOTRP</b>	S	0.000	7700.		
443	<b>ENOMOTRC</b>	S	0.000	1500.		
444	<b>EMOTRVHP</b>	S	0.000	0.6300E+05		
445	<b>EMOTRVHC</b>	S	0.000	6971.		
446	EENTMSCP	S	0.000	6000.		
447	EENTMSCC	S	0.000	5000.		
448	<b>EMISCELP</b>	S	0.000	0.2305E+05		
449	<b>EMISCELC</b>	S	0.000	0.1703E+05		
450	<b>EMISCMTP</b>	S	0.000	1096.		
451	<b>EMISCMTC</b>	S	0.000	2113.		
452	UNISTRQ	S	1.000	10.00		
453	UNISTRQ_	m			0	
455	WELF_EBX	С			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	.000
464	INCLASS2	S	1.000	7.000	_	
465	INCL_SS2	m	11000	71000	0	
467	HORREF1	C			6	4532
468	HORREF1_	m			1	7332
469	HORREF2	C			5	4577
470	HORREF2_	m			1	4377
471	ERANKHM	S	0.6205E-02	1.000	1	
472	ERANKHM_	m	0.0203L-02	1.000	0	
473	FGOVRETM	S	0.000	0.2509E+05	v	
474	FGOV_ETM		0.000	0.2303LT03	0	
475	FPRIPENM	m S	0.000	0.5826E+05	v	
475			0.000	0.30200+03	0	
	FPRI_ENM	m	0 000	0 10/25:05	0	
477 470	FRRDEDM	S m	0.000	0.1043E+05	0	
478 470	FRRDEDM_	m			0	2616
479	PSU	С			21	2616
480	HISP_REF	С			2	1002
481	HISP2	С	10.00	16.00	2	1903
482	HIGH_EDU	S	10.00	16.00		F02
483	BUILT	S	1915.	2013.	2	592
484	BUILT_	m	0.000	6620	2	4260
485	CREDFINX	S	0.000	6629.	2	4360
486	CRED_INX	m	1 000	Г 000	2	4007
487	CREDITB	S	1.000	5.000	2	4667
488	CREDITB_	m	250.2	0.00505.05	2	4007
489	CREDITBX	S	250.0	0.2250E+05	2	4667
490	CRED_TBX	m	1 000	0 54335 05	2	4244
491	CREDITX	S	1.000	0.5132E+05		4311

400	CDEDITY				2	
492	CREDITX_	m	0 000	0 50025.05	2	4227
493 494	CREDTYRX	S	0.000	0.5092E+05	2	4327
494 495	CRED_YRX	m	1 000	6 000	Z	1656
	CREDYRB	S	1.000	6.000	2	4656
496	CREDYRB_	m	250 0	0 25005.05	Z	1656
497 498	CREDYRBX	S	250.0	0.3500E+05	2	4656
498	CRED_RBX DEFBENRP	m			2	3551
500		C			2	2221
501	DEFB_NRP EITC	m			2	1042
502	EITC_	C			2	1042
503	FMLPYYRX	m S	4.000	4000.	۷	4598
504	FMLP_YRX	m	4.000	40001	2	4530
	FS_MTHI	S	1.000	12.00	۷	4644
	FS_MTHI_	m	1.000	12.00	1	4044
	FSMPFRMX	S	-0.4000E+06	0.1090E+07	т	
508	FSMP_RMX	m	-0.4000L+00	0.1090L+07	0	
514	INTRDVX	d			3	
522	IRAB	S	1.000	6.000	J	4514
523	IRAB_		1.000	0.000	2	4314
524	IRABX	m S	1000.	0.7250E+06	۷	4514
525	IRABX_		1000	0.7230L700	2	4314
526	IRAX	m S	0.000	0.2635E+07	۷	3917
527	IRAX_		0.000	0.2033LT0/	2	3917
	IRAYRB	m	1 000	6.000	۷	4489
528 529	IRAYRB_	S	1.000	0.000	2	4409
530		m	1000	0 72505.06	۷	4489
531	IRAYRBX	S	1000.	0.7250E+06	2	4409
532	IRAYRBX_ IRAYRX	m	0.000	0.2129E+07	Z	3964
533	IRAYRX_	S	0.000	0.2129LT0/	2	3904
534	JFS_AMT	m	0.000	4800.	۷	
535	JFS_AMT_	S	0.000	4000	0	
536	LIQDYRBX	m	250.0	0.3500E+05	V	4531
537	LIQDIRBX	S	230.0	0.33000+03	2	4331
538		m	250 0	0 25005.05	۷	4562
	LIQUIDBX LIQU DBX	S	250.0	0.3500E+05	2	4563
539	• —	m	1 000	6 000	2	<b>4</b> E21
540	LIQUDYRB	S	1.000	6.000	2	4531
	LIQU_YRB	m	0 000	0.5155E+06	Z	2042
	LIQUDYRX	S	0.000	0.31335+00	2	3942
	LIQU_YRX	m	1 000	6 000	2	4560
	LIQUIDB	S	1.000	6.000	2	4563
	LIQUIDB_	m	0 000	0 40105.06	2	2002
546	LIQUIDX	S 	0.000	0.4910E+06	2	3892
547	LIQUIDX_	m	1 000	2 000	2	0
548	MEAL DAY	S	1.000	2.000	2	9
549	MEAL_PAY	m	2 000	300 0	2	4500
550 551	MLPAYWKX	S	2.000	300.0	า	4598
551 552	MLPA_WKX	m	1 000	E2 00	2	4502
552 552	MLPYQWKS	S	1.000	52.00	2	4592
553	MLPY_WKS	m			2	

554 555	NETRENTB NETR_NTB	S m	0.000	12.00	3	4666
556 557	NETRENTX NETR_NTX	S	-0.5499E+05	0.1148E+06	2	4338
558	NETRNTBX	m S	-2400.	0.7130E+05	2	4666
559 560	NETR_TBX OTHASTBX	m S	0.3000E+05	0.7250E+06	2	4673
561 562	OTHA_TBX OTHASTB	m S	3.000	6.000		4673
563 564	OTHASTB_ OTHASTX	m S	2.000	0.2767E+07	3	4648
565 566	OTHASTX_ OTHFINX	m S	0.000	900.0	2	4654
567 568	OTHFINX_ OTHLONBX	m S	250.0	0.2250E+05	2	4690
569 570	OTHL_NBX OTHLYRBX	m S	750.0	0.2250E+05	2	4689
571 572	OTHL_RBX OTHLNYRB	m S	2.000	5.000	2	4689
573 574 575	OTHL_YRB OTHLNYRX	m S	0.000	0.5500E+05	2	4642
576	OTHL_YRX OTHLOAN	m S	1.000	2.000		3485
577 578	OTHLOAN_ OTHLONB	m S	1.000	5.000	1	4690
579 580	OTHLONB_ OTHLONX	m S	1.000	0.3106E+06	2	4638
581 582	OTHLONX_ OTHREGBX	m S	488.0	0.5000E+05	2	4678
583 584	OTHR_GBX OTHREGB	m S	1.000	12.00	2	4678
585 586	OTHREGB_ OTHREGX	m S	36.00	0.6367E+05	2	4422
587 588	OTHREGX_ OTHSYRBX	m S	6000.	0.7250E+06	2	4669
589 590	OTHS_RBX OTHSTYRB	m S	2.000	6.000	2	4669
591 592	OTHS_YRB OTHSTYRX	m S	0.000	0.1533E+07	2	4656
593 594	OTHS_YRX RETSURVX	m S	30.00	0.1269E+06	2	3571
595 596	RETS_RVX RETSRVBX	m S	480.0	0.6200E+05	2	4626
597 598	RETS_VBX RETSURV	m C			2	
599 600	RETSURV_ RETSURVB	m S	1.000	12.00	0	4626
601 604	RETS_RVB ROYESTBX	m S	200.0	0.6000E+05	2	4654
605	ROYE_TBX	m			2	

606	ROYESTB	S	1.000	12.00		4654
607	R0YESTB_	m			2	
608	R0YESTX	S	1.000	0.1592E+06		4441
609	R0YESTX_	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	ST0CKYRB	S	1.000	6.000		4613
619	STOC_YRB	m			2	
620	ST0CKYRX	S	0.000	0.5784E+07		4420
621	ST0C_YRX	m			2	
622	STOCKB	S	1.000	6.000		4632
623	ST0CKB_	m			3	
624	STOCKBX	S	1000.	0.7250E+06		4632
625	STOCKBX_	m	10001	0172302700	2	.052
626	STOCKX_	S	25.00	0.6587E+07	-	4390
627	STOCKX_	m	23100	0103072:07	2	1330
628	STUDFINX	S	0.000	9000.	_	4595
629	STUD_INX	m	01000	30001	2	7333
630	STUDNTBX	S	6250.	0.3500E+05	2	4682
631	STUD_TBX		02301	0:3300E103	2	4002
632	STUDNTB	m S	4.000	6.000	2	4682
633	STUDNTB_		4.000	0.000	2	4002
634	STUDNTX	m S	250.0	0.4200E+06	2	4556
635			230.0	0.4200L+00	2	4550
636	STUDNTX_ WHLFYRBX	m	250.0	0 25005+05	2	1610
		S	230.0	0.3500E+05	2	4648
637	WHLF_RBX	m	1 000	6 000	Z	4640
638	WHLFYRB	S	1.000	6.000	2	4648
639	WHLFYRB_	m	0 000	0.76745.06	2	4524
640	WHLFYRX	S 	0.000	0.7674E+06	2	4524
641	WHLFYRX_	m	250.0	0 35005.05	3	4654
642	WHOLIFBX	S	250.0	0.3500E+05	2	4654
	WHOL_FBX	m	1 000	6 000	2	4654
644	WHOLIFB	S	1.000	6.000	2	4654
645	WHOLIFB_	m	1 000	0 70005 06	3	4500
646	WHOLIFX	S	1.000	0.7892E+06	_	4508
647	WHOLIFX_	m	0000		3	
648	TOTXEST	S	-8990.	0.2938E+06		
649	FFTAX0WE	S	–8943 <b>.</b>	0.2485E+06	_	
650	FFTA_OWE	m	0.5.5		0	
651		S	-2505 <b>.</b>	0.5991E+05	_	
	FSTA_OWE	m			0	
653	ETOTA	S	1199.	0.2782E+06		

Total #cases w/ #missing

miss. D ord. vals #X-var #cases #N-var #F-var #S-var 4693 4693 0 16 0 0 422 #P-var #M-var #B-var #C-var #I-var 171 0 42

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: 139.9

Classification matrix for training sample:

irue	class	
C	D	T
1286	68	7
485	2770	77
0	0	0
1771	2838	84
	1286 485 0	485 2770 0 0

Number of cases used for tree construction: 4693

Number misclassified: 637

Resubstitution estimate of mean misclassification cost: .1357

Number of OOB cases: 4693

Number 00B misclassified: 1041

00B estimate of mean misclassification cost: .2218 Mean number of trees per 00B observation: 183.88

Predicted class probabilities are stored in gfpro.txt

Elapsed time in seconds: 1629.1