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1  insheet using "${par_path}\parameters_FI_model2.csv", clear
2  mkmat estimate, matrix(beta)
3
4  insheet using "${par_path}\vres_FI_model2.csv", clear
5  mkmat v, matrix(var)
6
7  insheet using "${par_path}\bound_FI.csv", clear
8  mkmat m, matrix(m)
9
10
11  use "${out_path}\temp_FI.dta", clear
12  sort sa0100 sa0010 im0100
13
14  gen x2 = 0 if _n == 1
15  gen x1 = 9*$seed if _n == 1
16
17  replace x1 = mod(x1[_n-1]*20077 + 12345,2^16) if _n>1
18  replace x2 = mod(int((x1[_n-1]*20077 + 12345 - x1)/2^16)+mod(16838*x1[_n-1]+20077*x2[_n-1],2^16),2^15) if _n>1
19
20  gen double z=2^16*x2+x1
21  format z %16.0g
22
23  gen u=z/2^31
24
25  gen rent = hb2300*12
26  replace rent = 0 if missing(hb2300) == 1
27  gen l_rent = log(max(rent,1))
28  gen head_male = (ra0200 == 1)
29  gen owner = (inlist(hb0300,1,2))
30  gen free_use = (hb0300 == 4)
31  gen hhsz1 = (dh0001 == 1)
32  gen hhsz3 = (dh0001 >= 3)
33  gen agerp_1 = (ra0300 < 30)
34  gen agerp_2 = (ra0300 < 40 & ra0300 >= 30)
35  gen agerp_3 = (ra0300 < 50 & ra0300 >= 40)
36  gen agerp_4 = (ra0300 < 60 & ra0300 >= 50)
37  gen agerp_5 = (ra0300 < 70 & ra0300 >= 60)
38  gen agerp_6 = (ra0300 >= 70)
39  gen number_children_1 = (number_children == 1)
40  gen number_children_2 = (number_children == 2)
41  gen number_children_3 = (number_children >= 3)
42  gen labour_status_1 = (inlist(pe0100a,1,2))
43  gen labour_status_2 = (inlist(pe0100a,3,4,6,7,8,9))
44  gen labour_status_3 = (pe0100a == 5)
45  gen diploma_2 = (pa0200 == 2)
46  gen diploma_5 = (pa0200 == 5)
47
48  /* computing quintiles */
49  forvalues i = 1/5{
50      _pctile di2000 if im0100 == `i' [weight=hw0010], nq(5)
51      gen q1_`i' = r(r1)
52      gen q2_`i' = r(r2)
53      gen q3_`i' = r(r3)
54      gen q4_`i' = r(r4)
55  }
56
57  gen q1 = (q1_1+q1_2+q1_3+q1_4+q1_5)/5
58  gen q2 = (q2_1+q2_2+q2_3+q2_4+q2_5)/5
59  gen q3 = (q3_1+q3_2+q3_3+q3_4+q3_5)/5
60  gen q4 = (q4_1+q4_2+q4_3+q4_4+q4_5)/5
61
62  gen income_quintile_1 = (di2000 <= q1)
63  gen income_quintile_2 = (di2000 > q1 & di2000 <= q2)
64  gen income_quintile_3 = (di2000 > q2 & di2000 <= q3)
65  gen income_quintile_4 = (di2000 > q3 & di2000 <= q4)
66  gen income_quintile_5 = (di2000 > q4)
67
68  gen lbound = rent
69  gen ubound = m[1,1]
70  gen a = log(lbound)
71  replace a = 0 if lbound == 0
72  gen b = log(ubound)

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73 #delimit ;
74 gen Xbeta = beta[1,1]+beta[2,1]*l_rent+beta[3,1]*l_rent^2+beta[4,1]*l_rent^3
75           +beta[5,1]*agerp_1+beta[6,1]*agerp_2+beta[7,1]*agerp_4+beta[8,1]*agerp_5+
           beta[9,1]*agerp_6
76           +beta[10,1]*head_male
77           +beta[11,1]*hhsize_1+beta[12,1]*hhsize_3
78           +beta[13,1]*number_children_1+beta[14,1]*number_children_2+beta[15,1]*
           number_children_3
79           +beta[16,1]*owner+beta[17,1]*free_use
80           +beta[18,1]*diploma_2+beta[19,1]*diploma_5
81           +beta[20,1]*labour_status_2+beta[21,1]*labour_status_3
82           +beta[22,1]*income_quintile_2+beta[23,1]*income_quintile_3+beta[24,1]*
           income_quintile_4+beta[25,1]*income_quintile_5
83           +beta[26,1]*income_quintile_2*l_rent+beta[27,1]*income_quintile_2*(l_rent
           ^2)+beta[28,1]*income_quintile_2*(l_rent^3)
84           +beta[29,1]*income_quintile_2*agerp_1+beta[30,1]*income_quintile_2*
           agerp_2+beta[31,1]*income_quintile_2*agerp_4+beta[32,1]*income_quintile_2*agerp_5+
           beta[33,1]*income_quintile_2*agerp_6
85           +beta[34,1]*income_quintile_2*head_male
86           +beta[35,1]*income_quintile_2*hhsize_1+beta[36,1]*income_quintile_2*
           hhsize_3
87           +beta[37,1]*income_quintile_2*number_children_1+beta[38,1]*
           income_quintile_2*number_children_2+beta[39,1]*income_quintile_2*number_children_3
88           +beta[40,1]*income_quintile_2*owner+beta[41,1]*income_quintile_2*free_use
89           +beta[42,1]*income_quintile_2*diploma_2+beta[43,1]*income_quintile_2*
           diploma_5
90           +beta[44,1]*income_quintile_2*labour_status_2+beta[45,1]*
           income_quintile_2*labour_status_3
91           +beta[46,1]*income_quintile_3*l_rent+beta[47,1]*income_quintile_3*(l_rent
           ^2)+beta[48,1]*income_quintile_3*(l_rent^3)
92           +beta[49,1]*income_quintile_3*agerp_1+beta[50,1]*income_quintile_3*
           agerp_2+beta[51,1]*income_quintile_3*agerp_4+beta[52,1]*income_quintile_3*agerp_5+
           beta[53,1]*income_quintile_3*agerp_6
93           +beta[54,1]*income_quintile_3*head_male
94           +beta[55,1]*income_quintile_3*hhsize_1+beta[56,1]*income_quintile_3*
           hhsize_3
95           +beta[57,1]*income_quintile_3*number_children_1+beta[58,1]*
           income_quintile_3*number_children_2+beta[59,1]*income_quintile_3*number_children_3
96           +beta[60,1]*income_quintile_3*owner+beta[61,1]*income_quintile_3*free_use
97           +beta[62,1]*income_quintile_3*diploma_2+beta[63,1]*income_quintile_3*
           diploma_5
98           +beta[64,1]*income_quintile_3*labour_status_2+beta[65,1]*
           income_quintile_3*labour_status_3
99           +beta[66,1]*income_quintile_4*l_rent+beta[67,1]*income_quintile_4*(l_rent
           ^2)+beta[68,1]*income_quintile_4*(l_rent^3)
100          +beta[69,1]*income_quintile_4*agerp_1+beta[70,1]*income_quintile_4*
           agerp_2+beta[71,1]*income_quintile_4*agerp_4+beta[72,1]*income_quintile_4*agerp_5+
           beta[73,1]*income_quintile_4*agerp_6
101          +beta[74,1]*income_quintile_4*head_male
102          +beta[75,1]*income_quintile_4*hhsize_1+beta[76,1]*income_quintile_4*
           hhsize_3
103          +beta[77,1]*income_quintile_4*number_children_1+beta[78,1]*
           income_quintile_4*number_children_2+beta[79,1]*income_quintile_4*number_children_3
104          +beta[80,1]*income_quintile_4*owner+beta[81,1]*income_quintile_4*free_use
105          +beta[82,1]*income_quintile_4*diploma_2+beta[83,1]*income_quintile_4*
           diploma_5
106          +beta[84,1]*income_quintile_4*labour_status_2+beta[85,1]*
           income_quintile_4*labour_status_3
107          +beta[86,1]*income_quintile_5*l_rent+beta[87,1]*income_quintile_5*(l_rent
           ^2)+beta[88,1]*income_quintile_5*(l_rent^3)
108          +beta[89,1]*income_quintile_5*agerp_1+beta[90,1]*income_quintile_5*
           agerp_2+beta[91,1]*income_quintile_5*agerp_4+beta[92,1]*income_quintile_5*agerp_5+
           beta[93,1]*income_quintile_5*agerp_6
109          +beta[94,1]*income_quintile_5*head_male
110          +beta[95,1]*income_quintile_5*hhsize_1+beta[96,1]*income_quintile_5*
           hhsize_3
111          +beta[97,1]*income_quintile_5*number_children_1+beta[98,1]*
           income_quintile_5*number_children_2+beta[99,1]*income_quintile_5*number_children_3
112          +beta[100,1]*income_quintile_5*owner+beta[101,1]*income_quintile_5*
           free_use
113          +beta[102,1]*income_quintile_5*diploma_2+beta[103,1]*income_quintile_5*
           diploma_5
114          +beta[104,1]*income_quintile_5*labour_status_2+beta[105,1]*

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```
115     income_quintile_4*labour_status_3;
116     #delimit cr
117     gen Phi_a = normal((a-Xbeta)/sqrt(var[1,1]))
118     gen Phi_b = normal((b-Xbeta)/sqrt(var[1,1]))
119
120     gen di3001 = round(exp(Xbeta + invnormal((Phi_a + (Phi_b - Phi_a)*u))*sqrt(var[1,1])))
121     keep sa0100 sa0010 im0100 di3001
122     save "${out_path}\temp_FI.dta", replace
123
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