```
insheet using "${par_path}\parameters_SK_model2.csv", clear
mkmat estimate, matrix(beta)

insheet using "${par_path}\vres_SK_model2.csv", clear
mkmat v, matrix(var)

insheet using "${par_path}\bound_SK.csv", clear
mkmat m, matrix(m)


use "${out_path}\temp_SK.dta", clear
sort sa0100 sa0010 im0100

gen x2 = 0 if _n == 1
gen x1 = 8*$seed if _n == 1

replace x1 = mod(x1[_n-1]*20077 + 12345,2^16) if _n>1
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

gen double z=2^16*x2+x1
format z %16.0g

gen u=z/2^31

gen cfood = hi0100*12
gen cresto = hi0200*12
gen rent = hb2300*12
replace rent = 0 if missing(hb2300) == 1
gen l_cfood = log(max(cfood,1))
gen l_cresto = log(max(cresto,1))
gen l_rent = log(max(rent,1))
gen head_male = (ra0200 == 1)
gen owner = (inlist(hb0300,1,2))
gen free_use = (hb0300 == 4)
gen hhsize_1 = (dh0001 == 1)
gen hhsize_3 = (dh0001 >= 3)
gen agerp_1 = (ra0300 < 30)
gen agerp_2 = (ra0300 < 40 & ra0300 >= 30)
gen agerp_3 = (ra0300 < 50 & ra0300 >= 40)
gen agerp_4 = (ra0300 < 60 & ra0300 >= 50)
gen agerp_5 = (ra0300 < 70 & ra0300 >= 60)
gen agerp_6 = (ra0300 >= 70)
gen number_children_1 = (number_children == 1)
gen number_children_2 = (number_children == 2)
gen number_children_3 = (number_children >= 3)
gen labour_status_1 = (inlist(pe0100a,1,2))
gen labour_status_2 = (inlist(pe0100a,3,4,6,7,8,9))
gen labour_status_3 = (pe0100a == 5)
gen diploma_1 = (pa0200 == 1)
gen diploma_2 = (pa0200 == 2)
gen diploma_5 = (pa0200 == 5)

/* computing quintiles */
forvalues i = 1/5{
    _pctile di2000 if im0100 == `i' [weight=hw0010], nq(5)
    gen q1_`i' = r(r1)
    gen q2_`i' = r(r2)
    gen q3_`i' = r(r3)
    gen q4_`i' = r(r4)
}

gen q1 = (q1_1+q1_2+q1_3+q1_4+q1_5)/5
gen q2 = (q2_1+q2_2+q2_3+q2_4+q2_5)/5
gen q3 = (q3_1+q3_2+q3_3+q3_4+q3_5)/5
gen q4 = (q4_1+q4_2+q4_3+q4_4+q4_5)/5

gen income_quintile_1 = (di2000 <= q1)
gen income_quintile_2 = (di2000 > q1 & di2000 <= q2)
gen income_quintile_3 = (di2000 > q2 & di2000 <= q3)
gen income_quintile_4 = (di2000 > q3 & di2000 <= q4)
gen income_quintile_5 = (di2000 > q4)

gen lbound = cfood+cresto+rent
gen ubound = m[1,1]*12
gen a = log(lbound)
gen b = log(ubound)
#delimit ;
gen Xbeta = beta[1,1]+beta[2,1]*l_cfood+beta[3,1]*l_cfood^2+beta[4,1]*l_cfood^3
            +beta[5,1]*income_quintile_2+beta[6,1]*income_quintile_3+beta[7,1]*income_quintile_4+beta[8,1]*income_quintile_5
            +beta[9,1]*l_cresto+beta[10,1]*l_cresto^2+beta[11,1]*l_cresto^3
            +beta[12,1]*l_rent+beta[13,1]*l_rent^2+beta[14,1]*l_rent^3
            +beta[15,1]*agerp_1+beta[16,1]*agerp_2+beta[17,1]*agerp_4+beta[18,1]*agerp_5+beta[19,1]*agerp_6
            +beta[20,1]*hhsize_1+beta[21,1]*hhsize_3
            +beta[22,1]*number_children_1+beta[23,1]*number_children_2+beta[24,1]*number_children_3
            +beta[25,1]*owner+beta[26,1]*free_use
            +beta[27,1]*diploma_1+beta[28,1]*diploma_2+beta[29,1]*diploma_5
            +beta[30,1]*labour_status_2+beta[31,1]*labour_status_3
            +beta[32,1]*income_quintile_2*l_cfood+beta[33,1]*income_quintile_2*(l_cfood^2)+beta[34,1]*income_quintile_2*(l_cfood^3)
            +beta[35,1]*income_quintile_3*l_cfood+beta[36,1]*income_quintile_3*(l_cfood^2)+beta[37,1]*income_quintile_3*(l_cfood^3)
            +beta[38,1]*income_quintile_4*l_cfood+beta[39,1]*income_quintile_4*(l_cfood^2)+beta[40,1]*income_quintile_4*(l_cfood^3)
            +beta[41,1]*income_quintile_5*l_cfood+beta[42,1]*income_quintile_5*(l_cfood^2)+beta[43,1]*income_quintile_5*(l_cfood^3) ;
#delimit cr

gen Phi_a = normal((a-Xbeta)/sqrt(var[1,1]))
gen Phi_b = normal((b-Xbeta)/sqrt(var[1,1]))

gen di3001 = round(exp(Xbeta + invnormal((Phi_a + (Phi_b - Phi_a)*u))*sqrt(var[1,1])))
keep sa0100 sa0010 im0100 di3001
save "${out_path}\temp_SK.dta", replace

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