

## Solomon Islands Poverty Maps: Supplementary Material

### Stata *do* Files for Constructing Census and Survey Variables

```

** person.do
** gets person characteristics for poverty mapping
** JKG 18 Dec 2016

clear
scalar drop _all

capture log close
cd "C:\Current\Poverty\SolomonIslands\Mapping"

log using person.log, text replace

set more off
set mem 600m

macro define data "C:\Current\Poverty\SolomonIslands\revised_HIES"
macro define output "C:\Current\Poverty\SolomonIslands\Mapping"

*****
***      get household head characteristics
*****
use $data\PERSON.dta
drop if p1000!=1
gen head_fem=cond(p1002==2,1,0)
gen head_age=p1003
gen head_married=cond(p1106==2|p1106==3|p1106==4,1,0)
gen head_birth_prov=p1105
gen head_nonmelanesian=cond(p1107!=1,1,0)

gen head_school=0
replace head_school=1 if p3102==2 & p3103==6
replace head_school=2 if p3102==3
replace head_school=3 if p3102==4
replace head_school=4 if p3102>4 & p3102!=.
label define head_school 0 "Nil/incomplete primary" 1 "Grade 6" 2 "Junior secondary" 3 "Senior secondary" 4
"Tertiary"
label values head_school head_school

gen head_inactive=cond(p1200>10,1,0)
gen head_employer=cond(p1200==1,1,0)
gen head_govt=cond(p1200==2,1,0)
gen head_private=cond(p1200==3|p1200==4|p1200==5,1,0)
gen head_self_emp=cond(p1200==6,1,0)
gen head_ownact=cond(p1200==7,1,0)
gen head_unpaid=cond(p1200==8|p1200==9,1,0)
gen head_volun=cond(p1200==10,1,0)

gen head_self=head_self_emp+head_ownact+head_unpaid

keep seq_num head_* p1200 p3100 p3102 p3103
save $output\hhead.dta, replace

*****
***      get household averages or totals of personal characteristics
*****
use $data\PERSON.dta

* remove list 2 people who used to live in the household (not needed for HH Head, who are all list 1)
drop if p_status==2

* remove list 1 people who are absent during the survey (to match census list of people staying in the HH)
drop if p1111==3

* remove anyone with missing age data
drop if p1003==.

* household size and age/sex demographic ratios
gen hysize=1
gen m06=cond(p1003<7 & p1002==1,1,0)
gen f02=cond(p1003<7 & p1002==2,1,0)
gen m714=cond(p1003>6 & p1003<15 & p1002==1,1,0)
gen f714=cond(p1003>6 & p1003<15 & p1002==2,1,0)
gen m1550=cond(p1003>14 & p1003<51 & p1002==1,1,0)
gen f1550=cond(p1003>14 & p1003<51 & p1002==2,1,0)
gen m51=cond(p1003>50 & p1002==1,1,0)
gen f51=cond(p1003>50 & p1002==2,1,0)

* education for ages 12+
gen age12plus=cond(p1003>11,1,0)

gen noschool=cond(p3100==1 & age12plus==1,1,0)

```

```

* Jnr Sec is completing Form 3, Snr Sec is completing Form 5, 6 or 7, everything above is tertiary
**   those who have completed school
gen preprimary=cond(p3102==1 & age12plus==1,1,0)
gen someprimary=cond(p3102==2 & p3103<6 & age12plus==1,1,0)
gen fullprimary=cond(p3102==2 & p3103==6 & age12plus==1,1,0)
gen jnrsecondary=cond(p3102==3 & age12plus==1,1,0)
gen snrsecondary=cond(p3102==4 & age12plus==1,1,0)
gen tertiary=cond(p3102>4 & p3102!=. & age12plus==1,1,0)

**   those currently in school
replace preprimary=1 if p3105==1
replace someprimary=1 if p3105==2 & p3106<6
replace fullprimary=1 if p3105==2 & p3106==6
replace jnrsecondary=1 if p3105==3
replace snrsecondary=1 if p3105==4
replace tertiary=1 if p3105>4 & p3105!=.

*   Work activity for ages 12+
*   Use fewer categories than for household-heads, combine Volunteer with inactive
gen empl_inactive=cond(p1200>9,1,0)
gen empl_employer=cond(p1200==1,1,0)
gen empl_govt=cond(p1200==2,1,0)
gen empl_private=cond(p1200==3|p1200==4|p1200==5,1,0)
gen empl_self_emp=cond(p1200==6,1,0)
gen empl_ownact=cond(p1200==7,1,0)
gen empl_unpaid=cond(p1200==8|p1200==9,1,0)

gen empl_self=empl_self_emp+empl_ownact+empl_unpaid

for var noschool preprimary someprimary fullprimary jnrsecondary snrsecondary tertiary empl_* : replace X=.
if age12plus==0
collapse (sum) hhsize-empl_self, by(seq_num)
save $output\demogs.dta, replace

**   combine with hh_head and get the EA level variables

merge seq_num using $output\hhead.dta, sort uniqusing
tab _merge
drop _merge

merge seq_num using $data\CASE_DETAILS.dta, sort uniqusing keep(c_urban_rural c_province c_ward c_ea)
tab _merge
drop _merge

rename c_province province
rename c_ward ward
rename c_ea ea
gen urban=cond(c_urban_rural==1,1,0)
drop c_urban_rural

**   combine with the reweighting file to calculate national level means and SD for comparing with
census
merge seq_num using $output\rweight.dta, sort uniqusing keep(rpweight rhhwght)
tab _merge
keep if _merge==3
drop _merge

gen head_migrant=cond(province!=head_birth_prov,1,0)
gen head_subgr6=cond(head_school==0,1,0)
gen head_gr6=cond(head_school==1,1,0)
gen head_jnr=cond(head_school==2,1,0)
gen head_snr=cond(head_school==3,1,0)
gen head_tertiary=cond(head_school==4,1,0)

* collapse (sd) head_* [aw=rhhwght]
drop head_*

collapse (sd) hhsize-empl_self [aw=rhhwght]

stop
log close

```

```

** c_person.do
** gets person characteristics from CENSUS files
** JKG 26 Dec 2016

clear
scalar drop _all

capture log close
cd "C:\Current\Poverty\SolomonIslands\Mapping"

log using c_person.log, text replace

set more off
set mem 600m

macro define data "C:\Current\Poverty\SolomonIslands\Mapping\Census\R_Working"
macro define output "C:\Current\Poverty\SolomonIslands\Mapping"

*****
***      get household head characteristics
*****
import delimited $data\CensusPersonsHH.csv

gen head_migrant=cond(province!=head_birth_prov,1,0)
gen head_subgr6=cond(head_school==0,1,0)
gen head_gr6=cond(head_school==1,1,0)
gen head_jnr=cond(head_school==2,1,0)
gen head_snr=cond(head_school==3,1,0)
gen head_tertiary=cond(head_school==4,1,0)

rename head_self head_self_emp

gen head_self = head_self_emp+head_ownact+head_unpaid
summ head_self
order province ward ea hhno head_fem head_age head_married head_birth_prov head_nonmelanesian head_school
head_inactive head_employer head_govt head_private head_self_emp head_ownact head_unpaid head_self
head_volun head_migrant head_subgr6 head_gr6 head_jnr head_snr head_tertiary

save $output\c_hhead.dta, replace

*****
***      get household averages or totals of personal characteristics
*****
clear
import delimited "$data\HH Characteristics.csv"

egen myhhid=group(province ward ea hhno)
codebook myhhid

*      sum the three categories of self-employment and own-account
gen empl_self=empl_self_emp+empl_ownact+empl_unpaid

order empl_self, after(empl_unpaid)

collapse (mean) province ward ea hhno (sum) hhsizes-empl_self, by(myhhid)
summ hhsizes-empl_self, sep(0)

save $output\c_demogs.dta, replace

log close

```

```

** house.do
** gets dwelling and hh characteristics to match Section H of census
** JKG 18 Dec 2016

clear
scalar drop _all

capture log close
cd "C:\Current\Poverty\SolomonIslands\Mapping"

log using house.log, text replace

set more off
set mem 600m

macro define data "C:\Current\Poverty\SolomonIslands\revised_HIES"
macro define output "C:\Current\Poverty\SolomonIslands\Mapping"

*      restrict to the reweighted data
use $data\HOUSE.dta
merge seq_num using $output\rweight.dta, sort uniuqusing keep(rpweight rhhwght c_province c_ward c_ea)
tab _merge
keep if _merge==3
drop _merge
rename c_province province
rename c_ward ward
rename c_ea ea

**      best match to census is h16_1 + h16_3 (car/bus/truck)
**      also has_motorboat matches with h16_6 (has outboard motor)
**      and has_fridge matches with h16_7

gen has_car=cond(h2402_111>0 & h2402_111 !=.,1,0)
gen has_ute=cond(h2402_112>0 & h2402_112 !=.,1,0)
gen has_truck=cond(h2402_113>0 & h2402_113 !=.,1,0)
gen has_motobike=cond(h2402_114>0 & h2402_114 !=.,1,0)
gen has_motorboat=cond(h2402_116>0 & h2402_116 !=.,1,0)
gen has_canoes=cond(h2402_117>0 & h2402_117 !=.,1,0)

gen has_carbustruck=cond(has_car==1|has_ute==1|has_truck==1,1,0)

**      note change in format - while vehicles are counts, these are 1/2 for yes/no
gen has_fridge=cond(h2302_313==1,1,0)
gen has_tv =cond(h2302_611 ==1,1,0)
gen has_computer=cond(h2302_711==1,1,0)

summ has_* [aw=rhhwght]

**      dwelling tenure - does not match well to census
gen tenure_rent=cond(h1410==1,1,0)
gen tenure_own=cond(h1410==2,1,0)
gen tenure_mortgage=cond(h1410==3,1,0)
gen tenure_free=cond(h1410==4,1,0)

summ tenure_* [aw=rhhwght]

**      dwelling characteristics
*      tin roof, makeshift walls and modern floor look like best matches
*      number of rooms is a good match

gen dwell_tinroof=cond(h1420_r==2,1,0)
gen dwell_modfloor=cond(h1420_f==3,1,0)
gen dwell_tempwall=cond(h1420_w==5,1,0)
gen dwell_detached=cond(h1421==1,1,0)
gen dwell_nrooms=h1422

summ dwell_* [aw=rhhwght]

**      main source of lighting is a bad match
gen light_elec=cond(h1430==1,1,0)
gen light_solar=cond(h1430==4,1,0)
gen light_kero=cond(h1430==5,1,0)
summ light_* [aw=rhhwght]

**      main fuel for cooking is better match
gen cook_wood=cond(h1432==1,1,0)
gen cook_gas=cond(h1432==3,1,0)
summ cook_* [aw=rhhwght]

**      main source of drinking water also a good match
gen water_meter=cond(h1440==1,1,0)
gen water_standpipe=cond(h1440==2,1,0)
gen water_hhtank=cond(h1440==3,1,0)
gen water_comtank=cond(h1440==4,1,0)
gen water_river=cond(h1440==7,1,0)

**      washing water not a good match, but adding river+sea might work (census h7 options 8&9)
gen wash_river_lake_sea=cond(h1447==6|h1447==7,1,0)

```

```
**      private flush toilet and private pit latrine (census option 1 and 5) seem an ok match
gen toilet_ownflush=cond(h1448==1,1,0)
gen toilet_ownpit=cond(h1448==6,1,0)

summ water_* wash_* toilet_* [aw=rhhwght]

keep has_* tenure_* dwell_* water_* wash_* toilet_* cook_* light_*  province ward ea seq_num rhhwght
summ

save $output\dwelling.dta, replace

* collapse (sd) has_* tenure_* dwell_* water_* wash_* toilet_* cook_* light_* [aw=rhhwght]
  stop
log close
```

```

** c_house.do
** gets dwelling and hh characteristics from Section H of census
** JKG 26 Dec 2016

clear
scalar drop _all

capture log close
cd "C:\Current\Poverty\SolomonIslands\Mapping"

log using c_house.log, text replace

set more off
set mem 600m

macro define output "C:\Current\Poverty\SolomonIslands\Mapping"

use C:\Current\Poverty\SolomonIslands\Mapping\Census\housing_gps.dta

**      best match to census is h16_1 + h16_3 (car/bus/truck)
**      also has_motorboat matches with h16_6 (has outboard motor)
**      and has_fridge matches with h16_7

gen has_car=cond(h16_1>0,1,0)
gen has_ute=cond(h16_3>0,1,0)
gen has_truck=cond(h16_3>0,1,0)
gen has_motobike=cond(h16_2>0,1,0)
gen has_motorboat=cond(h16_6>0,1,0)
gen has_canoes=cond(h16_4>0,1,0)

gen has_carbustruck=cond(h16_1>0|h16_3>0,1,0)

gen has_fridge=cond(h16_7>0,1,0)
gen has_tv =cond(h16_8>0,1,0)
gen has_computer=cond(h16_10>0,1,0)

summ has_*

**      dwelling tenure - based on h12
gen tenure_rent=cond(h12==2,1,0)
gen tenure_own=cond(h12==1,1,0)
gen tenure_mortgage=cond(h12==1,1,0)
gen tenure_free=cond(h12==4,1,0)

summ tenure_*

**      dwelling characteristics, based on H2, H3, H4, H5

gen dwell_tinroof=cond(h4==2,1,0)
gen dwell_modfloor=cond(h3==3,1,0)
gen dwell_tempwall=cond(h2==5,1,0)
gen dwell_detached=cond(h1==1,1,0)
gen dwell_nrooms=h5

summ dwell_*

**      main source of lighting based on H10
gen light_elec=cond(h10==1,1,0)
gen light_solar=cond(h10==3,1,0)
gen light_kero=cond(h10==5,1,0)
summ light_*

**      main fuel for cooking based on H11 is better match
gen cook_wood=cond(h11==3,1,0)
gen cook_gas=cond(h11==5,1,0)
summ cook_*

**      main source of drinking water based on H6
gen water_meter=cond(h6==1,1,0)
gen water_standpipe=cond(h6==2,1,0)
gen water_hhtank=cond(h6==3,1,0)
gen water_comtank=cond(h6==4,1,0)
gen water_river=cond(h6==7,1,0)

**      washing water not a good match, but adding river+sea might work (census h7 options 8&9)
gen wash_river_lake_sea=cond(h7==8|h7==9,1,0)

**      private flush toilet and private pit latrine (census option 1 and 5) seem an ok match
gen toilet_ownflush=cond(h8==1,1,0)
gen toilet_ownpit=cond(h8==5,1,0)

summ water_* wash_* toilet_*

**      keep hh-level of village has church, as a cluster variable
gen EAchurch=cond(church==1,1,0)

keep has_* tenure_* dwell_* water_* wash_* toilet_* cook_* light_* EAchurch province ward ea hhno

```

```
summ
save $output\c_dwelling.dta, replace
collapse (sd) has_* tenure_* dwell_* water_* wash_* toilet_* cook_* light_*
log close
```

## Appendix B: Files Used for Database Construction and Initial Estimation of Beta and Alpha Models in *Stata*

```
** c_merge.do
** merges constructed census files and links to survey-census-link
** JKG 26 Dec 2016

clear
scalar drop _all

capture log close
cd "C:\Current\Poverty\SolomonIslands\Mapping"

set more off
set mem 600m

use c_dwelling.dta, replace

merge province ward ea hhno using c_hhead.dta, sort uniqusing
tab _merge
drop _merge

merge province ward ea hhno using c_demogs.dta, sort uniqusing
tab _merge
drop _merge

**      drop unneeded variables and ones that don't merge
drop v1 excludee myhhid
drop head_fem head_birth_prov head_school head_inactive head_govt head_private head_self_emp head_ownact
drop_unpaid head_gr6 head_jnr head_snr head_tertiary

drop empl_self_emp empl_ownact empl_unpaid noschool preprimary fullprimary jnrsecondary snrsecondary
tertiary

*      turn demographics into ratios rather than counts
for var someprimary - empl_self : replace X=X/age12plus
for var m06 - f51: replace X=X/hhsize
drop age12plus

drop has_car has_ute has_truck has_motobike has_canoes has_tv has_computer tenure_own tenure_mortgage
light_elec light_solar light_kero

**      merge with HIES Sample Design file to get urban indicator for each PSU

merge province ward ea using HIES_sample_design, sort keep(urb_rural_code) uniqusing
gen urban=cond(urb_rural_code==1,1,0)
replace urban=1 if _merge==1
drop if _merge==2
drop _merge urb_rural_code
summ, sep(0)

for var has_motorboat-urban: egen mean_X=mean(X), by(province ward ea)

merge province using povline.dta, sort uniqusing
tab _merge
drop _merge

gen hhsize2=hhsize^2
gen dwell_nroom2=dwell_nrooms^2

gen double HHID = (province * 1000000) + (ward * 10000) + (ea * 1000) + hhno
gen double clusterID = (province * 10000) + (ward * 100) + ea

order HHID clusterID province ward ea hhno urban

saveold c_databank.dta, replace
```



```

** merge.do
** merges constructed HIES files and uses survey-census-link to bring in EA means
** also brings in the consumption and poverty line data
** JKG 26 Dec 2016

clear
scalar drop _all

capture log close
cd "C:\Current\Poverty\SolomonIslands\Mapping"

tempfile survey

set more off
set mem 600m

**      use dwelling.dta for the merges because it already has the rhhwght and correct sample size
(n=4364)

use dwelling.dta, replace
drop has_car has_ute has_truck has_motobike has_canoes has_tv tenure_own tenure_mortgage light_elec
light_solar light_kero

**      hh head file needs to have same education categories as census file

merge seq_num using hhead.dta, sort uniqusing
tab _merge
keep if _merge==3
gen head_subgr6=cond(head_school==0,1,0)
gen head_gr6=cond(head_school==1,1,0)
gen head_jnr=cond(head_school==2,1,0)
gen head_snr=cond(head_school==3,1,0)
gen head_tertiary=cond(head_school==4,1,0)
gen head_migrant=cond(head_birth_prov!=province,1,0)

drop _merge head_fem head_birth_prov head_school head_inactive head_govt head_private head_self_empt
head_ownact head_unpaid head_gr6 head_jnr head_snr head_tertiary pl200 p3100 p3102 p3103

**      demogs file needs to turn counts into ratios

merge seq_num using demogs.dta, sort uniqusing
tab _merge
keep if _merge==3
drop _merge empl_self_empt empl_ownact empl_unpaid empl_govt empl_private noschool preprimary fullprimary
jnrsecondary snrsecondary tertiary

*      turn demographics into ratios rather than counts
for var someprimary - empl_self : replace X=X/age12plus
for var m06 - f51: replace X=X/hhsize
drop age12plus

**      merge with HIES Sample Design file to get urban indicator for each PSU
**      and to get the bridge to the EA means
merge province ward ea using census_survey_link, sort uniqusing keep(urban c_province c_ward c_ea)
tab _merge
drop _merge

save `survey', replace

use c_databank.dta, clear
collapse (p50) mean_*, by(province ward ea)
rename province c_province
rename ward c_ward
rename ea c_ea

merge c_province c_ward c_ea using `survey', sort uniqmaster
tab _merge
keep if _merge==3
drop _merge

order seq_num province ward ea urban rhhwght has_motorboat has_carbustruck has_fridge has_computer
tenure_rent tenure_free dwell_tinroof dwell_modfloor dwell_tempwall dwell_detached dwell_nrooms cook_wood
cook_gas water_meter water_standpipe water_hhtank water_comtank water_river wash_river_lake_sea
toilet_ownflush toilet_ownpit head_age head_married head_nonmelanesian head_employer head_volun head_self
head_subgr6 head_migrant hhsize m06 f06 m714 f714 m1550 f1550 m51 f51 someprimary empl_inactive
empl_employer empl_self

**      now bring in the expenditure data and poverty lines
merge seq_num using C:\Current\Poverty\SolomonIslands\PovAnalysis_2014\Analysis\welfare_data.dta, sort
uniqusing keep(texpae zu)
tab _merge
drop _merge

gen ltexpae=ln(texpae)
gen hhsize2=hhsize^2
gen dwell_nroom2=dwell_nrooms^2

** generate hierarchical ID (base on c_* to match census)

```

```

gen hhno=(seq_num/1000)-(int(seq_num/1000))*1000
gen double HHID = (c_province * 10000000) + (c_ward * 100000) + (c_ea * 1000) + hhno
gen double clusterID = (c_province * 10000) + (c_ward * 100) + c_ea

order HHID clusterID seq_num province ward ea hhno urban rhhwght texpae ltxpae zu

saveold databank.dta, replace

drop mean_f51 mean_empl_govt mean_urban
preserve

**      beta model
stepwise, pr(.1): regress ltxpae has_motorboat has_carbustruck has_fridge tenure_rent tenure_free
dwell_tinroof dwell_modfloor dwell_tempwall dwell_detached dwell_nrooms dwell_nroom2 cook_wood cook_gas
water_meter water_standpipe water_hhtank water_comtank water_river wash_river_lake_sea toilet_ownflush
toilet_ownpit head_age head_married head_nonmelanesian head_employer head_volun head_self head_subgr6
head_migrant hssize hssize2 m06 f06 m714 f714 m1550 f1550 m51 someprimary empl_inactive empl_employer
empl_self mean_* [pw=rhhwght]
*outreg using betatable, replace 10pct
display_result(8)
indeplist

**      alpha model
predict yhat
gen yhat2=yhat^2
predict uhat, resid
egen muhat=mean(uhat), by(clusterID)
gen epsilon2=(uhat-muhat)^2
egen a=max(epsilon2)
gen alpha=ln(epsilon2/(a-epsilon2))

local myx "has_motorboat has_carbustruck has_fridge mean_has_carbustruck mean_water_hhtank dwell_tinroof
mean_empl_self mean_tenure_free mean_hssize dwell_nrooms mean_m06 cook_wood mean_head_age water_meter
water_standpipe water_comtank water_river wash_river_lake_sea toilet_ownflush mean_water_river
mean_has_fridge mean_water_standpipe head_nonmelanesian mean_empl_inactive mean_m1550 mean_water_meter
head_subgr6 mean_dwell_tempwall hssize hssize2 m06 f06 mean_head_self mean_dwell_nrooms m1550 f1550
mean_EAchurch mean_dwell_tinroof empl_inactive mean_head_employer empl_self mean_has_motorboat"

foreach x of local myx {
gen y`x' = yhat*`x'
gen y2`x' = yhat2*`x'
}
*
stepwise, pr(.05): regress alpha `myx' y* [pw=rhhwght]
display_result(8)
indeplist
restore

**      on separate domains
**      Honiara
preserve
keep if province==10
stepwise, pr(.1): regress ltxpae has_motorboat has_carbustruck has_fridge tenure_rent tenure_free
dwell_tinroof dwell_modfloor dwell_tempwall dwell_detached dwell_nrooms dwell_nroom2 cook_wood cook_gas
water_meter water_standpipe water_hhtank water_comtank water_river wash_river_lake_sea toilet_ownflush
toilet_ownpit head_age head_married head_nonmelanesian head_employer head_volun head_self head_subgr6
head_migrant hssize hssize2 m06 f06 m714 f714 m1550 f1550 m51 someprimary empl_inactive empl_employer
empl_self mean_* [pw=rhhwght]
*outreg using betatable, append 10pct
display_result(8)
indeplist

**      alpha model
predict yhat
gen yhat2=yhat^2
predict uhat, resid
egen muhat=mean(uhat), by(clusterID)
gen epsilon2=(uhat-muhat)^2
egen a=max(epsilon2)
gen alpha=ln(epsilon2/(a-epsilon2))

local myx "mean_has_fridge has_carbustruck has_fridge mean_toilet_ownpit tenure_free dwell_tinroof
mean_hssize dwell_tempwall dwell_detached mean_EAchurch dwell_nroom2 mean_water_river cook_gas
mean_toilet_ownflush mean_wash_river_lake_sea mean_head_self mean_cook_wood empl_inactive
wash_river_lake_sea toilet_ownflush mean_dwell_tinroof head_married head_nonmelanesian head_employer
mean_head_nonmelanesian mean_water_standpipe mean_tenure_free hssize hssize2 mean_dwell_tempwall
someprimary"

foreach x of local myx {
gen y`x' = yhat*`x'
gen y2`x' = yhat2*`x'
}
*
stepwise, pr(.05): regress alpha `myx' y* [pw=rhhwght]
display_result(8)
indeplist
restore

```

```

**      rural sector
preserve
drop if province==10
keep if urban==0
stepwise, pr(.1): regress ltxpae has_motorboat has_carbustruck has_fridge tenure_rent tenure_free
dwell_tinroof dwell_modfloor dwell_tempwall dwell_detached dwell_nrooms dwell_nroom2 cook_wood cook_gas
water_meter water_standpipe water_hhtank water_comtank water_river wash_river_lake_sea toilet_ownflush
toilet_ownpit head_age head_married head_nonmelanesian head_employer head_volun head_self head_subgr6
head_migrant hhsizes hhsizes2 m06 f06 m714 f714 m1550 f1550 m51 someprimary empl_inactive empl_employer
empl_self mean_* [pw=rhhwght]
*outreg using betatable, append 10pct
display_result(8)
indeplist

**      alpha model
predict yhat
gen yhat2=yhat^2
predict uhat, resid
egen muhat=mean(uhat), by(clusterID)
gen epsilon2=(uhat-muhat)^2
egen a=max(epsilon2)
gen alpha=ln(epsilon2/(a-epsilon2))

local myx "has_motorboat mean_cook_gas mean_has_fridge mean_water_river dwell_tinroof mean_dwell_tempwall
mean_head_subgr6 mean_EAchurch dwell_nrooms mean_empl_self cook_wood mean_water_standpipe
mean_empl_inactive mean_tenure_free water_hhtank mean_head_self mean_toilet_ownpit wash_river_lake_sea
toilet_ownflush mean_head_employer mean_tenure_rent mean_hhsizes head_nonmelanesian mean_has_carbustruck
mean_f714 head_self head_subgr6 mean_water_hhtank hhsizes hhsizes2 m06 f06 mean_dwell_nrooms mean_head_age
m1550 f1550 mean_m06 mean_m714 empl_inactive mean_dwell_tinroof empl_self mean_has_motorboat"

foreach x of local myx {
gen y`x' = yhat*`x'
gen y2`x' = yhat2*`x'
}
*
stepwise, pr(.05): regress alpha `myx' y* [pw=rhhwght]
display_result(8)
indeplist
restore

**      urban sector

preserve
drop if province==10
keep if urban==1

drop mean_f06 mean_f714 mean_f1550 mean_m51 mean_empl_employer
stepwise, pr(.1): regress ltxpae has_motorboat has_carbustruck has_fridge tenure_rent tenure_free
dwell_tinroof dwell_modfloor dwell_tempwall dwell_detached dwell_nrooms dwell_nroom2 cook_wood cook_gas
water_meter water_standpipe water_hhtank water_comtank water_river wash_river_lake_sea toilet_ownflush
toilet_ownpit head_age head_married head_nonmelanesian head_employer head_volun head_self head_subgr6
head_migrant hhsizes hhsizes2 m06 f06 m714 f714 m1550 f1550 m51 someprimary empl_inactive empl_employer
empl_self mean_* [pw=rhhwght]
*outreg using betatable, append 10pct
display_result(8)
indeplist

**      alpha model
predict yhat
gen yhat2=yhat^2
predict uhat, resid
egen muhat=mean(uhat), by(clusterID)
gen epsilon2=(uhat-muhat)^2
egen a=max(epsilon2)
gen alpha=ln(epsilon2/(a-epsilon2))

local myx "has_motorboat has_carbustruck has_fridge mean_someprimary mean_toilet_ownpit dwell_modfloor
dwell_tempwall mean_head_married mean_head_age dwell_nroom2 cook_wood mean_dwell_modfloor mean_head_self
water_standpipe empl_self m1550 f1550 mean_water_hhtank toilet_ownflush toilet_ownpit mean_m1550
mean_has_motorboat head_nonmelanesian mean_cook_gas mean_cook_wood head_self mean_dwell_tempwall
mean_EAchurch hhsizes hhsizes2 m06 f06 mean_head_subgr6"

foreach x of local myx {
gen y`x' = yhat*`x'
gen y2`x' = yhat2*`x'
}
*
stepwise, pr(.05): regress alpha `myx' y* [pw=rhhwght]
display_result(8)
indeplist
restore

```