```
**********************************************************************
**********
/*
Building a Well-Being index from - Viet Nam MICS 2013-14 [STATA do-
file].

**********************************************************************
**********

clear all
set more off
set maxvar 10000
set mem 500m


*** Working Folder Path ***
global path_in "T:/GMPI 2.0/rdta/Viet Nam MICS 2013-14"
global path_out "G:/GMPI 2.0/cdta"
global path_ado "T:/GMPI 2.0/ado"


**********************************************************************
**********
*** VIETNAM MICS 2014 ***
**********************************************************************
**********


**********************************************************************
**********
*** Step 1: Data preparation
*** Selecting main variables from CH, WM, HH & MN recode & merging
with HL recode
**********************************************************************
**********

/*It should be noted that anthropometric data was not collected for
children
under 5 as part of the Viet Nam MICS 2014 dataset. Previously,
nutrition data
was collected as part of Viet Nam MICS 2011. However, the data was not
collected
in this round due to time and resource constraints as well as the
availability
of national nutrition survey data (p.61) */

**********************************************************************
**********
*** Step 1.1 CH - CHILDREN's RECODE (under 5)
**********************************************************************
```

```
**********

//No data

*************************************************************************
**********
*** Step 1.2  BH - BIRTH RECODE
*** (All females 15-49 years who ever gave birth)
*************************************************************************
**********
/*The purpose of step 1.2 is to identify children of any age who died
in
the last 5 years prior to the survey date.*/


use "$path_in/bh.dta", clear


rename _all, lower


*** Generate individual unique key variable required for data merging
using:
        *** hh1=cluster number;
        *** hh2=household number;
        *** wm4=women's line number.
gen double ind_id = hh1*100000 + hh2*100 + ln
format ind_id %20.0g
label var ind_id "Individual ID"


desc bh4c bh9c
gen date_death = bh4c + bh9c
        //Date of death = date of birth (bh4c) + age at death (bh9c)

gen mdead_survey = wdoi-date_death
        //Months dead from survey = Date of interview (wdoi) - date of
death
replace mdead_survey = . if (bh9c==0 | bh9c==.) & bh5==1
        /*Replace children who are alive as '.' to distinguish them
from children
        who died at 0 months */
gen ydead_survey = mdead_survey/12
        //Years dead from survey


gen age_death = bh9c if bh5==2
label var age_death "Age at death in months"
tab age_death, miss
        //Check whether the age is in months
```

```
codebook bh5, tab (10)
gen child_died = 1 if bh5==2
replace child_died = 0 if bh5==1
replace child_died = . if bh5==.
label define lab_died 0"child is alive" 1"child has died"
label values child_died lab_died
tab bh5 child_died, miss


bysort ind_id: egen tot_child_died = sum(child_died)
        //For each woman, sum the number of children who died


        //Identify child under 18 mortality in the last 5 years
gen child18_died = child_died
replace child18_died=0 if age_death>=216 & age_death<.
label values child18_died lab_died
tab child18_died, miss

bysort ind_id: egen tot_child18_died_5y=sum(child18_died) if
ydead_survey<=5
        /*Total number of children under 18 who died in the past 5
years
        prior to the interview date */

replace tot_child18_died_5y=0 if tot_child18_died_5y==. &
tot_child_died>=0 & tot_child_died<.
        /*All children who are alive or who died longer than 5 years
from the
        interview date are replaced as '0'*/

replace tot_child18_died_5y=. if child18_died==1 & ydead_survey==.
        //Replace as '.' if there is no information on when the child
died

tab tot_child_died tot_child18_died_5y, miss

bysort ind_id: egen childu18_died_per_wom_5y =
max(tot_child18_died_5y)
lab var childu18_died_per_wom_5y "Total child under 18 death for each
women in the last 5 years (birth recode)"


        //Keep one observation per women
bysort ind_id: gen id=1 if _n==1
keep if id==1
drop id
duplicates report ind_id
```

```
gen women_BH = 1
        //Identification variable for observations in BH recode


        //Retain relevant variables
keep ind_id women_BH childu18_died_per_wom_5y
order ind_id women_BH childu18_died_per_wom_5y
sort ind_id
save "$path_out/VNM14_BH.dta", replace


*******************************************************************************
**********
*** Step 1.3  WM - WOMEN's RECODE
*** (All eligible females 15-49 years in the household)
*******************************************************************************
**********

use "$path_in/wm.dta", clear


rename _all, lower


*** Generate individual unique key variable required for data merging
*** hh1=cluster number;
*** hh2=household number;
*** ln=respondent's line number
gen double ind_id = hh1*100000 + hh2*100 + ln
format ind_id %20.0g
label var ind_id "Individual ID"


duplicates report ind_id


gen women_WM =1
        //Identification variable for observations in WM recode


tab cm1 cm8, miss
        /*Women who has never ever given birth will not have
information on
        child mortality*/


lookfor marital
codebook mstatus ma6, tab (10)
```

```
tab mstatus ma6, miss
gen marital = 1 if mstatus == 3 & ma6==.
        //1: Never married
replace marital = 2 if mstatus == 1 & ma6==.
        //2: Currently married
replace marital = 3 if mstatus == 2 & ma6==1
        //3: Widowed
replace marital = 4 if mstatus == 2 & ma6==2
        //4: Divorced
replace marital = 5 if mstatus == 2 & ma6==3
        //5: Separated/not living together
label define lab_mar 1"never married" 2"currently married"
3"widowed" ///
4"divorced" 5"not living together"
label values marital lab_mar
label var marital "Marital status of household member"
tab marital, miss
tab ma6 marital, miss
tab mstatus marital, miss
rename marital marital_wom


        //Retain relevant variables:
keep wm7 cm1 cm8 cm9a cm9b ind_id women_WM *_wom
order wm7 cm1 cm8 cm9a cm9b ind_id women_WM *_wom
sort ind_id
save "$path_out/VNM14_WM.dta", replace


**********************************************************************
**********
*** Step 1.4  MR – MEN'S RECODE
***(All eligible man in the household)
**********************************************************************
**********

        /*Note: There is no male recode file for Viet Nam MICS 2014.
Hence the
        commands under this section have been removed */


**********************************************************************
**********
*** Step 1.5 HH – HOUSEHOLD RECODE
***(All households interviewed)
**********************************************************************
**********

use "$path_in/hh.dta", clear
```

```
rename _all, lower


*** Generate individual unique key variable required for data merging
*** hh1=cluster number;
*** hh2=household number;
gen     double hh_id = hh1*100 + hh2
format  hh_id %20.0g
lab var hh_id "Household ID"


save "$path_out/VNM14_HH.dta", replace


*************************************************************************
**********
*** Step 1.6 HL - HOUSEHOLD MEMBER
*************************************************************************
**********

use "$path_in/hl.dta", clear

rename _all, lower


*** Generate a household unique key variable at the household level
using:
        ***hh1=cluster number
        ***hh2=household number
gen double hh_id = hh1*100 + hh2
format hh_id %20.0g
label var hh_id "Household ID"


*** Generate individual unique key variable required for data merging
using:
        *** hh1=cluster number;
        *** hh2=household number;
        *** hl1=respondent's line number.
gen double ind_id = hh1*100000 + hh2*100 + hl1
format ind_id %20.0g
label var ind_id "Individual ID"


sort ind_id


*************************************************************************
**********
```

```
*** Step 1.7 DATA MERGING
*************************************************************************
**********


*** Merging BR Recode
****************************************
merge 1:1 ind_id using "$path_out/VNM14_BH.dta"
drop _merge
erase "$path_out/VNM14_BH.dta"


*** Merging WM Recode
****************************************
merge 1:1 ind_id using "$path_out/VNM14_WM.dta"
tab hl7, miss
        //Please make sure that hl7>0 does not include missing values.
        //Otherwise add the restriction 'if hl7!=.'
gen temp = (hl7>0)
tab women_WM temp, miss col
tab wm7 if temp==1 & women_WM==., miss
        //Total of eligible women not interviewed
drop temp
drop _merge
erase "$path_out/VNM14_WM.dta"


*** Merging HH Recode
****************************************
merge m:1 hh_id using "$path_out/VNM14_HH.dta"
tab hh9 if _m==2
drop  if _merge==2
        //Drop households that were not interviewed
drop _merge
erase "$path_out/VNM14_HH.dta"


*** Merging MN Recode
****************************************
gen marital_men = .
label var marital_men "Marital status of household member"



sort ind_id



*************************************************************************
**********
```

```
*** Step 1.8 CONTROL VARIABLES
**************************************************************************
**********

/* Households are identified as having 'no eligible' members if there
are no
applicable population, that is, children 0-5 years, adult women 15-49
years or
adult men. These households will not have information on relevant
indicators of
health. As such, these households are considered as non-deprived in
those
relevant indicators. */


*** No Eligible Women 15-49 years
****************************************
gen      fem_eligible = (hl7>0) if hl7!=.
         //Make sure that hl7>0 does not include hl7==.
bys      hh_id: egen hh_n_fem_eligible = sum(fem_eligible)
         //Number of eligible women for interview in the hh
gen      no_fem_eligible = (hh_n_fem_eligible==0)

         //Takes value 1 if the household had no eligible females for
an interview
lab var no_fem_eligible "Household has no eligible women"
tab no_fem_eligible, miss


*** No Eligible Men
****************************************
         /*NOTE: Viet Nam MICS 2014 have no male recode file. As such
this variable
         takes missing value */
gen no_male_eligible = .
lab var no_male_eligible "Household has no eligible man"
tab no_male_eligible, miss



*** No Eligible Children 0-5 years
****************************************
         /*NOTE: Viet Nam MICS 2014 have no child nutrition. As such
this variable
         takes missing value */
gen      no_child_eligible = .
lab var no_child_eligible "Household has no children eligible"
tab no_child_eligible, miss
```

```
*** No Eligible Women and Men
**********************************************
        /*NOTE: Viet Nam MICS 2014 have no male recode. As such this
variable
        takes missing value */
gen     no_adults_eligible = .
lab var no_adults_eligible "Household has no eligible women or men"
tab no_adults_eligible, miss


*** No Eligible Children and Women
**********************************************
        /*NOTE: In the DHS datasets, we use this variable as a control
        variable for the nutrition indicator if nutrition data is
        present for children and women. However, in MICS, we do NOT
        use this as a control variable. This is because nutrition
        data is only collected from children. However, we continue to
        generate this variable in this do-file so as to be
consistent*/
gen     no_child_fem_eligible = .
lab var no_child_fem_eligible "Household has no children or women
eligible"
tab no_child_fem_eligible, miss


*** No Eligible Women, Men or Children
**********************************************
        /*NOTE: In the DHS datasets, we use this variable as a control
        variable for the nutrition indicator if nutrition data is
        present for children, women and men. However, in MICS, we do
NOT
        use this as a control variable. This is because nutrition
        data is only collected from children. However, we continue to
        generate this variable in this do-file so as to be
consistent*/
gen no_eligibles = .
lab var no_eligibles "Household has no eligible women, men, or
children"
tab no_eligibles, miss


*** No Eligible Subsample
**********************************************
        /*Note that the MICS surveys do not collect hemoglobin data.
        As such, this variable takes missing value. However, we
continue
        to generate this variable in this do-file so as to be
consistent*/
gen     no_hem_eligible = .
lab var no_hem_eligible "Household has no eligible individuals for
```

```
hemoglobin measurements"


drop fem_eligible hh_n_fem_eligible


sort hh_id


*************************************************************************
**********
*** Step 1.9 RENAMING DEMOGRAPHIC VARIABLES ***
*************************************************************************
**********

//Sample weight
clonevar weight = hhweight
label var weight "Sample weight"


//Area: urban or rural
desc hh6
clonevar area = hh6
replace area=0 if area==2
label define lab_area 1 "urban" 0 "rural"
label values area lab_area
label var area "Area: urban-rural"



//Sex of household member
codebook hl4
clonevar sex = hl4
label var sex "Sex of household member"


//Age of household member
codebook hl6, tab (100)
clonevar age = hl6
replace age = . if age>=98
label var age "Age of household member"

//Age group
recode age (0/4 = 1 "0-4")(5/9 = 2 "5-9")(10/14 = 3 "10-14") ///
                    (15/17 = 4 "15-17")(18/59 = 5 "18-59")(60/max=6
"60+"), gen(agec7)
lab var agec7 "age groups (7 groups)"

recode age (0/9 = 1 "0-9") (10/17 = 2 "10-17")(18/59 = 3 "18-59") ///
                    (60/max=4 "60+"), gen(agec4)
```

```
lab var agec4 "age groups (4 groups)"


//Total number of hh members in the household
gen member = 1
bysort hh_id: egen hhsize = sum(member)
label var hhsize "Household size"
tab hhsize, miss
drop member


//Subnational region
lookfor region
codebook hh7, tab (100)
decode hh7, gen(temp)
replace temp =  proper(temp)
encode temp, gen(region)
lab var region "Region for subnational decomposition"
tab hh7 region, miss
drop temp
label define lab_reg ///
1 "Central Highlands" ///
2 "Mekong River Delta" ///
3 "North Central & Central Coastal Area" ///
4 "Northern Midlands & Mountain Area" ///
5 "Red River Delta" ///
6 "South East"
label values region lab_reg


*****************************************************************************
**********
***  Step 2 Data preparation  ***
***  Standardization of the 10 Global MPI indicators
***  Identification of non-deprived & deprived individuals
*****************************************************************************
**********


*****************************************************************************
**********
*** Step 2.1 Years of Schooling ***
*****************************************************************************
**********
        /*Note: In Viet Nam, children enter primary school aged 6
years, enter lower
        secondary school at 11 and upper secondary school at 15. There
are grades in
        primary school (Grades 1 to 5), four in lower secondary school
(Grades 6 to
```

```
        9) and three in upper secondary school (Grades 10 to 12).(pg
192 report)*/

tab ed4b ed4a, miss
tab age ed6a if ed5==1, miss
clonevar edulevel = ed4a
replace edulevel = . if ed4a>=8
tab ed4a ed3, miss
        //All missing values for attending school are also missing in
edulevel
replace edulevel = 0 if ed3==2 | ed3 == .
        //Never attended school
clonevar eduhighyear = ed4b
        //Highest grade of education completed
replace eduhighyear = .  if ed4b==. | ed4b==97 | ed4b==98 | ed4b==99
        //These are all missing values, (97 inconsistent, 98 DK, 99
missing)
tab ed4b ed3, miss
        //All missing values for attending school are also missing in
eduhighyear .
replace eduhighyear = 0  if ed3==2 | ed3 == .
        //Never attended school
lab var eduhighyear "Highest year of education completed"
tab eduhighyear, miss


** Cleaning inconsistencies
replace eduhighyear = 0 if age<10
        //2615 real changes made
replace eduhighyear = . if edulevel==1 & eduhighyear>5
        //According to the report (page 192) Primary school is until
5th grade
replace eduhighyear = . if (edulevel==2)  & eduhighyear>9
        //Lower secondary education covers 9grades of education
replace eduhighyear = . if (edulevel==3)  & eduhighyear>12
        //Upper secondary education covers 12grades of education
replace eduhighyear = 0 if edulevel==0


** Now we create the years of schooling
        //The VNM report does inform on school attainment in terms of
years
gen     eduyears = eduhighyear
replace eduyears = 0 if edulevel==1 & eduhighyear==.
        //Assuming 0 year if they only attend primary but the last
year is unknown
replace eduyears = 5 if (edulevel == 2) & (eduhighyear ==.|
eduhighyear ==0)
        //5 for primary education
replace eduyears = 9 if (edulevel==3) & (eduhighyear ==.| eduhighyear
```

```
==0)
replace eduyears = 12 if (edulevel==4) & (eduhighyear ==.| eduhighyear
==0)
replace eduyears = 12 if (edulevel==4) & (eduhighyear ==.| eduhighyear
==0)
replace eduyears = 13 if (edulevel==4 | edulevel==5) & (eduhighyear
==.| eduhighyear ==0)

replace eduyears = 0 if edulevel == 0
replace eduyears = . if edulevel==.


** Checking for further inconsistencies
        /*There are some cases in which the years of schooling are
greater than the
        age of the individual, which is clearly a mistake in the data.
There might
        also be individuals that show too much schooling given their
age (e.g. a 7
        year-old with 5 years of schooling). Please check whether this
is the case
        in your country and correct when necessary */
replace eduyears = . if age<=eduyears & age>0
replace eduyears = 0 if age<10
lab var eduyears "Total number of years of education accomplished"

        //Tabulate the original values to check the final variable
tab eduyears edulevel, miss
tab ed4b age if eduyears==0 & edulevel>=2, miss



        /*A control variable is created on whether there is
information on
        years of education for at least 2/3 of the household members
aged 10 years
        and older */
gen temp = 1 if eduyears!=. & age>=10 & age!=.
bysort  hh_id: egen no_missing_edu = sum(temp)
        /*Total household members who are 10 years and older with no
missing
        years of education */
gen temp2 = 1 if age>=10 & age!=.
bysort hh_id: egen hhs = sum(temp2)
        /*Total number of household members who are 10 years and older
*/
replace no_missing_edu = no_missing_edu/hhs
replace no_missing_edu = (no_missing_edu>=2/3)
        /*Identify whether there is information on years of education
for at
```

```
        least 2/3 of the household members aged 10 years and older */
tab no_missing_edu, miss
        //Values for 0 are less than 1%
label var no_missing_edu "No missing edu for at least 2/3 of the HH
members aged 10 years & older"
drop temp temp2 hhs


*** Standard MPI ***
/*The entire household is considered deprived if no household member
aged 10 years or older has completed SIX years of schooling.*/
******************************************************************
gen      years_edu6 = (eduyears>=6)
replace years_edu6 = . if eduyears==.
bysort hh_id: egen hh_years_edu6_1 = max(years_edu6)
gen     hh_years_edu6 = (hh_years_edu6_1==1)
replace hh_years_edu6 = . if hh_years_edu6_1==.
replace hh_years_edu6 = . if hh_years_edu6==0 & no_missing_edu==0
        //Final variable missing if household has info for < 2/3 of
members
lab var hh_years_edu6 "Household has at least one member with 6 years
of edu"
tab hh_years_edu6, miss


**********************************************************************
**********
*** Step 2.2 Child School Attendance ***
**********************************************************************
**********

codebook ed5, tab (10)
gen     attendance = .
replace attendance = 1 if ed5==1
        //Replace attendance with '1' if currently attending school
replace attendance = 0 if ed5==2
        //Replace attendance with '0' if currently not attending
school
replace attendance = 0 if ed3==2
        //Replace attendance with '0' if never ever attended school

tab age ed5, miss
        //Check individuals who are not of school age

replace attendance = 0 if age<5 | age>24
        //Replace attendance with '0' for individuals who are not of
school age

tab attendance, miss
```

```
*** Standard MPI ***
/*The entire household is considered deprived if any school-aged
child is not attending school up to class 8. */
*******************************************************************
gen     child_schoolage = (age>=6 & age<=14)
        /*Note: In Vietnam, the official school entrance age for
primary school is
        6 years in 2014. So, age range is 6-14 (=6+8)
        Source: "http://data.uis.unesco.org/?ReportId=163"
        Go to Education>Education>System>Official entrance age to
primary education.
        Look at the starting age and add 8.
        */


        /*A control variable is created on whether there is no
information on
        school attendance for at least 2/3 of the school age children
*/
count if child_schoolage==1 & attendance==.
        //Understand how many eligible school aged children are not
attending school
gen temp = 1 if child_schoolage==1 & attendance!=.
bysort hh_id: egen no_missing_atten = sum(temp)
        /*Total school age children with no missing information on
school
        attendance */
gen temp2 = 1 if child_schoolage==1
bysort hh_id: egen hhs = sum(temp2)
        //Total number of household members who are of school age
replace no_missing_atten = no_missing_atten/hhs
replace no_missing_atten = (no_missing_atten>=2/3)
        /*Identify whether there is missing information on school
attendance for
        more than 2/3 of the school age children */
tab no_missing_atten, miss
        //Values for 0 are less than 1%
label var no_missing_atten "No missing school attendance for at least
2/3 of the school aged children"
drop temp temp2 hhs


bysort  hh_id: egen hh_children_schoolage = sum(child_schoolage)
replace hh_children_schoolage = (hh_children_schoolage>0)
        //Control variable:
        //It takes value 1 if the household has children in school age
lab var hh_children_schoolage "Household has children in school age"
```

```
gen     child_not_atten = (attendance==0) if child_schoolage==1
replace child_not_atten = . if attendance==. & child_schoolage==1
bysort  hh_id: egen any_child_not_atten = max(child_not_atten)
gen     hh_child_atten = (any_child_not_atten==0)
replace hh_child_atten = . if any_child_not_atten==.
replace hh_child_atten = 1 if hh_children_schoolage==0
replace hh_child_atten = . if hh_child_atten==1 & no_missing_atten==0
        /*If the household has been intially identified as non-
deprived, but has
        missing school attendance for at least 2/3 of the school aged
children, then
        we replace this household with a value of '.' because there is
insufficient
        information to conclusively conclude that the household is not
deprived */
lab var hh_child_atten "Household has all school age children up to
class 8 in school"
tab hh_child_atten, miss

/*Note: The indicator takes value 1 if ALL children in school age are
attending
school and 0 if there is at least one child not attending. Households
with no
children receive a value of 1 as non-deprived. The indicator has a
missing value
only when there are all missing values on children attendance in
households that
have children in school age. */



*************************************************************************
**********
*** Step 2.3 Nutrition ***
*************************************************************************
**********
        /*Note: Anthropometric data was not collected for children
under 5 as part
        of the Viet Nam MICS 2014 dataset.*/

gen hh_nutrition_uw_st = .

*************************************************************************
**********
*** Step 2.4 Child Mortality ***
*************************************************************************
**********

        //NOTE: Viet Nam MICS 2014: No information on child mortality
from men
```

```
codebook cm9a cm9b
        //cm9a or cm9b: number of sons/daugters who have died provided
by women


egen temp_f = rowtotal(cm9a cm9b), missing
        //Total child mortality reported by eligible women
replace temp_f = 0 if cm1==1 & cm8==2 | cm1==2
        /*Assign a value of "0" for:
        - all eligible women who have ever gave birth but reported no
child death
        - all eligible women who never ever gave birth */
replace temp_f = 0 if no_fem_eligible==1
        /*Assign a value of "0" for:
        - individuals living in households that have non-eligible
women */
bysort  hh_id: egen child_mortality_f = sum(temp_f), missing
lab var child_mortality_f "Occurrence of child mortality reported by
women"
tab child_mortality_f, miss
drop temp_f


gen child_mortality_m = .
lab var child_mortality_m "Occurrence of child mortality reported by
men"
        /* In the case of Vietnam, this takes missing value because
the survey did
        not colelct information on child mortality from men */


egen child_mortality = rowmax(child_mortality_f)
lab var child_mortality "Total child mortality within household
reported by women & men"
tab child_mortality, miss


*** Standard MPI ***
/* The standard MPI indicator takes a value of "0" if women in the
household
reported mortality among children under 18 in the last 5 years from
the survey
year. The indicator takes a value of "1" if eligible women within the
household
reported (i) no child mortality or (ii) if any child died longer than
5 years
from the survey year or (iii) if any child 18 years and older died in
the last
5 years. Households were replaced with a value of "1" if eligible
```

```
men within the household reported no child mortality in the absence of
information from women. The indicator takes a missing value if there
was
missing information on reported death from eligible individuals. */
**********************************************************************
**

tab childu18_died_per_wom_5y, miss
        /* The 'childu18_died_per_wom_5y' variable was constructed in
Step 1.2 using
        information from individual women who ever gave birth in the
BH file. The
        missing values represent eligible woman who have never ever
given birth and
        so are not present in the BR file. But these 'missing women'
may be living
        in households where there are other women with child mortality
information
        from the BH file. So at this stage, it is important that we
aggregate the
        information that was obtained from the BH file at the
household level. This
        ensures that women who were not present in the BH file is
assigned with a
        value, following the information provided by other women in
the household.*/
replace childu18_died_per_wom_5y = 0 if cm1==1 & cm8==2 | cm1==2
        /*Assign a value of "0" for:
        - all eligible women who have ever gave birth but reported no
child death
        - all eligible women who never ever gave birth */
replace childu18_died_per_wom_5y = 0 if no_fem_eligible==1
        /*Assign a value of "0" for:
        - individuals living in households that have non-eligible
women */

bysort hh_id: egen childu18_mortality_5y =
sum(childu18_died_per_wom_5y), missing
replace childu18_mortality_5y = 0 if childu18_mortality_5y==. &
child_mortality==0
        /*Replace all households as 0 death if women has missing value
and men
        reported no death in those households */
label var childu18_mortality_5y "Under 18 child mortality within
household past 5 years reported by women"
tab childu18_mortality_5y, miss

gen hh_mortality_u18_5y = (childu18_mortality_5y==0)
replace hh_mortality_u18_5y = . if childu18_mortality_5y==.
lab var hh_mortality_u18_5y "Household had no under 18 child mortality
```

```
in the last 5 years"
tab hh_mortality_u18_5y, miss


*************************************************************************
**********
*** Step 2.5 Electricity ***
*************************************************************************
**********


*** Standard MPI ***
/*Members of the household are considered
deprived if the household has no electricity */
*****************************************************
clonevar electricity = hc8a
codebook electricity, tab (10)
replace electricity = 0 if electricity==2
replace electricity = . if electricity==9
label var electricity "Household has electricity"


*************************************************************************
**********
*** Step 2.6 Sanitation ***
*************************************************************************
**********
/*
Improved sanitation facilities include flush or pour flush toilets to
sewer
systems, septic tanks or pit latrines, ventilated improved pit
latrines, pit
latrines with a slab, and composting toilets. These facilities are
only
considered improved if it is private, that is, it is not shared with
other
households.
Source: https://unstats.un.org/sdgs/metadata/files/
Metadata-06-02-01.pdf

Note: In cases of mismatch between the country report and the
internationally
agreed guideline, we followed the report.
*/

clonevar toilet = ws8
codebook toilet, tab(30)
codebook ws9, tab(30)

clonevar shared_toilet = ws9
```

```
recode shared_toilet (2=0)
replace shared_toilet=. if shared_toilet==9
tab ws9 shared_toilet, miss nol
        //0=no;1=yes;.=missing


*** Standard MPI ***
/*Members of the household are considered deprived if the household's
sanitation facility is not improved (according to the SDG guideline)
or it is improved but shared with other households*/
*******************************************************************
        /*Note: In the case of Vietnam MICS 2014, all flush toilet
including flush
        to somewhere else and flush to unknown place are identified as
improved
        sanitation facility in the report (p.122). As such these
categories are
        identified as improved in this dofile.  */
gen     toilet_mdg = ((toilet<=22 | toilet==31) & shared_toilet!=1)
replace toilet_mdg = 0 if (toilet<=22 | toilet==31)  &
shared_toilet==1
replace toilet_mdg = . if toilet==.  | toilet==99
lab var toilet_mdg "Household has improved sanitation with MDG
Standards"
tab toilet toilet_mdg, miss


*******************************************************************
**********
*** Step 2.7 Drinking Water  ***
*******************************************************************
**********
/*
Improved drinking water sources include the following: piped water
into
dwelling, yard or plot; public taps or standpipes; boreholes or
tubewells;
protected dug wells; protected springs; packaged water; delivered
water and
rainwater which is located on premises or is less than a 30-minute
walk from
home roundtrip.
Source: https://unstats.un.org/sdgs/metadata/files/
Metadata-06-01-01.pdf

Note: In cases of mismatch between the country report and the
internationally
agreed guideline, we followed the report.
*/
```

```
clonevar water = ws1
clonevar timetowater = ws4
codebook water, tab(99)

clonevar ndwater = ws2
        //Non-drinking water

tab ws2 if water==91
/*Because the quality of bottled water is not known, households using
bottled
water for drinking are classified as using an improved or unimproved
source
according to their water source for non-drinking activities such as
cooking and
hand washing. However, it is important to note that households using
bottled
water for drinking are classified as unimproved source if this is
explicitly
mentioned in the country report. */


*** Standard MPI ***
/* Members of the household are considered deprived if the household
does not have access to improved drinking water (according to the SDG
guideline) or safe drinking water is at least a 30-minute walk from
home, roundtrip */
**********************************************************************
gen     water_mdg = 1 if water==11 | water==12 | water==14 | water==21
| water==13 | ///
                                            water==31 | water==41 |
water==51 | water==91

        /*Non deprived if water is "piped into dwelling", "piped to
yard/plot",
         "public tap/standpipe", "tube well or borehole", "protected
well",
         "protected spring", "rainwater", "bottled water" */



replace water_mdg = 0 if water==32  | water==42 |  ///
                                                    water==81 |
water==96
        /*Deprived if it is "unprotected well", "unprotected spring",
"tanker truck"
        "surface water (river/lake, etc)", "cart with small
tank","other" */

replace water_mdg = 0 if water_mdg==1 & timetowater >= 30 &
timetowater!=. & ///
```

```
                                                        timetowater!=998 &
timetowater!=999
        //Deprived if water is at more than 30 minutes' walk
(roundtrip)

replace water_mdg = . if water==. | water==99
replace water_mdg = 0 if water==91 & ///
                                                       (ndwater==32 |
ndwater==42 | ///
                                                        ndwater==81 |
ndwater==96)
        /*Households using bottled water for drinking are classified
as using an
        improved or unimproved source according to their water source
for
        non-drinking activities  */
lab var water_mdg "Household has drinking water with MDG standards
(considering distance)"
tab water water_mdg, miss


**********************************************************************
**********
*** Step 2.8 Housing ***
**********************************************************************
**********

/* Members of the household are considered deprived if the household
has a dirt, sand or dung floor */
clonevar floor = hc3
codebook floor, tab(99)
gen     floor_imp = 1
replace floor_imp = 0 if floor==11 | floor == 96
        //Deprived if "mud/earth/clay", "sand", "dung", "other"
replace floor_imp = . if floor==99
replace floor_imp = . if floor == .
lab var floor_imp "Household has floor that it is not earth/sand/dung"
tab floor floor_imp, miss


/* Members of the household are considered deprived if the household
has wall
made of natural or rudimentary materials */
clonevar wall = hc5
codebook wall, tab(99)
gen     wall_imp = 1
replace wall_imp = 0 if wall<=26 | wall==96
        /*Deprived if "no wall" "cane/palms/trunk" "mud/dirt"
        "grass/reeds/thatch" "pole/bamboo with mud" "stone with mud"
"cardboard"
```

```
        "carton/plastic" "uncovered adobe" "canvas/tent" "unburnt
bricks" "other"
        "plywood" */
replace wall_imp = . if wall == .
lab var wall_imp "Household has wall that it is not of low quality
materials"
tab wall wall_imp, miss


/* Members of the household are considered deprived if the household
has roof
made of natural or rudimentary materials */
clonevar roof = hc4
codebook roof, tab(99)
gen     roof_imp = 1
replace roof_imp = 0 if roof<=23 |  roof==96
        /*Deprived if "no roof" "thatch/palm leaf" "mud/earth/lump of
earth"
        "sod/grass" "plastic/polythene sheeting" "rustic mat"
"cardboard"
        "canvas/tent" "unburnt bricks" "other"*/
replace roof_imp = . if roof== .
lab var roof_imp "Household has roof that it is not of low quality
materials"
tab roof roof_imp, miss



*** Standard MPI ***
/* Members of the household is deprived in housing if the roof,
floor OR walls are constructed from low quality materials.*/
**********************************************************************
gen housing_1 = 1
replace housing_1 = 0 if floor_imp==0 | wall_imp==0 | roof_imp==0
replace housing_1 = . if floor_imp==. & wall_imp==. & roof_imp==.
lab var housing_1 "Household has roof, floor & walls that it is not
low quality material"
tab housing_1, miss



**********************************************************************
**********
*** Step 2.9 Cooking Fuel ***
**********************************************************************
**********
/*
Solid fuel are solid materials burned as fuels, which includes coal as
well as
solid biomass fuels (wood, animal dung, crop wastes and charcoal).
```

```
Source:
https://apps.who.int/iris/bitstream/handle/
10665/141496/9789241548885_eng.pdf
*/

lookfor cooking
clonevar cookingfuel = hc6
codebook cookingfuel, tab(99)


*** Standard MPI ***
/* Members of the household are considered deprived if the
household uses solid fuels and solid biomass fuels for cooking. */
*********************************************************************
gen     cooking_mdg = 1
replace cooking_mdg = 0 if cookingfuel>5 & cookingfuel<95
replace cooking_mdg = . if cookingfuel==. |cookingfuel==99
lab var cooking_mdg "Household has cooking fuel according to MDG
standards"
        /* Non deprived if: "electricity", "lpg", "natural gas",
"biogas",
                                                    "kerosene" , "no
food cooked in household", "other"
           Deprived if: "coal/lignite", "charcoal", "wood", "straw/
shrubs/grass"
                                              "agricultural crop", "animal
dung" */
tab cookingfuel cooking_mdg, miss


**********************************************************************
**********
*** Step 2.10 Assets ownership ***
**********************************************************************
**********
/*Assets that are included in the global MPI: Radio, TV, telephone,
bicycle,
motorbike, refrigerator, car, computer and animal cart */


        //Check that for standard assets in living standards: "no"==0
and yes=="1"
codebook hc8c hc8b hc8d hc9b hc8e hc8q hc9c hc8o hc11


recode hc8c (2=0 "no")(1=1 "yes"), gen (television)
gen bw_television   = .

recode hc8b (2=0 "no")(1=1 "yes"), gen (radio)
```

```
recode hc8d (2=0 "no")(1=1 "yes"), gen (telephone)
recode hc9b (2=0 "no")(1=1 "yes"), gen (mobiletelephone)
recode hc8e (2=0 "no")(1=1 "yes"), gen (refrigerator)
recode hc8p (2=0 "no")(1=1 "yes"), gen (car)
recode hc9c (2=0 "no")(1=1 "yes"), gen (bicycle)
recode hc9d (2=0 "no")(1=1 "yes"), gen (motorbike)
recode hc8j (2=0 "no")(1=1 "yes"), gen (computer)
gen animal_cart = .


foreach var in television radio telephone mobiletelephone
refrigerator ///
                            car bicycle motorbike computer animal_cart
{
replace `var' = 0 if `var'==2
replace `var' = . if `var'==9 | `var'==99 | `var'==8 | `var'==98
}
        //Missing values replaced



        //Group telephone and mobiletelephone as a single variable
replace telephone=1 if telephone==0 & mobiletelephone==1
replace telephone=1 if telephone==. & mobiletelephone==1


*** Standard MPI ***
/* Members of the household are considered deprived in assets if the
household
does not own more than one of: radio, TV, telephone, bike, motorbike,
refrigerator, computer or animal cart and does not own a car or
truck.*/
**********************************************************************
*******
egen n_small_assets2 = rowtotal(television radio telephone
refrigerator bicycle motorbike computer animal_cart), missing
lab var n_small_assets2 "Household Number of Small Assets Owned"

gen hh_assets2 = (car==1 | n_small_assets2 > 1)
replace hh_assets2 = . if car==. & n_small_assets2==.
lab var hh_assets2 "Household Asset Ownership: HH has car or more than
1 small assets incl computer & animal cart"


**********************************************************************
**********
*** Step 2.11 Rename and keep variables for MPI calculation
**********************************************************************
**********
```

```
        //Retain data on sampling design:
desc psu stratum
rename stratum strata


        //Retain year, month & date of interview:
desc hh5y hh5m hh5d
clonevar year_interview = hh5y
clonevar month_interview = hh5m
clonevar date_interview = hh5d


        //Generate presence of subsample
gen subsample = .



*** Rename key global MPI indicators for estimation ***
recode hh_mortality_u18_5y  (0=1)(1=0) , gen(d_cm)
recode hh_nutrition_uw_st         (0=1)(1=0) , gen(d_nutr)
recode hh_child_atten             (0=1)(1=0) , gen(d_satt)
recode hh_years_edu6              (0=1)(1=0) , gen(d_educ)
recode electricity                        (0=1)(1=0) , gen(d_elct)
recode water_mdg                          (0=1)(1=0) , gen(d_wtr)
recode toilet_mdg                         (0=1)(1=0) , gen(d_sani)
recode housing_1                          (0=1)(1=0) , gen(d_hsg)
recode cooking_mdg                        (0=1)(1=0) , gen(d_ckfl)
recode hh_assets2                         (0=1)(1=0) , gen(d_asst)


*** Generate coutry and survey details for estimation ***
char _dta[cty] "Vietnam"
char _dta[ccty] "VNM"
char _dta[year] "2013-2014"
char _dta[survey] "MICS"
char _dta[ccnum] "704"
char _dta[type] "micro"


*** Sort, compress and save data for estimation ***
sort ind_id
compress
la da "Micro data for `_dta[ccty]' (`_dta[ccnum]'). Last save:
`c(filedate)'."
save "$path_out/vnm_mics14.dta", replace
```