IPUMS MICS data analysis exercise: Data on child health and demographics

(Children 0-4 as the unit of analysis)
June 2024

We will be looking at various indicators of child demographic and child health. MICS includes data on all children age 0-4 in a household.

You will need to log in using an email and password approved by UNICEF MICS to create a customized data extract in IPUMS MICS. If you have not yet registered for a UNICEF account, do this first as it can take between 1-3 business days for approval.

Answers are included at the end of the handout.

Making your own extract: Selecting Data

Once you have logged in, click on "Select Data" in the blue bar located towards the top of the IPUMS MICS homepage.

For this exercise, choose "Children 0-4" as the unit of analysis.

Click on the "Select Samples" box and check the following boxes:

- Bangladesh 2006, 2012, and 2019
- Viet Nam 2006, 2010, 2013, and 2020

Then click on "Submit sample selections." Note that your Data Cart will show that you have chosen 7 samples, and the variable display shows only the samples you selected.

Use the Search tool to identify the following variables, and click on the purple circle to the left of the variable name to add these variables to your Data Cart:

SEXCH (Sex of child)
AGECH (Age of child)
URBAN (Urban-rural status)

BIRTHCERT (Child has a birth certificate)
BIRTHREG (Child's birth is registered)

DIARR (Child had diarrhea recently in the last 2 weeks)
DIARRTREAT (Whether treatment was sought for child's diarrhea)
DIARRORSPACK (Child given oral rehydration for diarrhea)
DIARRORSPREPACK(Child given pre-packaged oral rehydration for diarrhea)

Your Data Cart should now show 9 variables and 7 samples.

Click the green VIEW CART button under your Data Cart.
You will see that other variables have been automatically added to your cart. The data extract system automatically supplies variables that are needed for

- estimating variance (CLUSTER, STRATA)

- linking to other IPUMS MICS files (HHNO, LINENOCH, LINEMC)
- weighing the variables (WEIGHTCH) and
- identifying incomplete interviews (RESULTCH).

To create a dataset for analysis, click on the purple CREATE DATA EXTRACT button.

This brings up a page that summarizes the data extract and allows us to go back and modify the specifications (for example, to add a variable that we forgot). It's highly recommended to provide a description of your data extract.

The email account used to log in is sent a message when the account is created. To access the page to download the data, go to the Home Page and click on "My Data Extracts."

Getting the Data onto Your Computer for Analysis

Step 1: Download the data

- Go to the Home page and click on "My Data Extracts"
- Click on the link "Download from UNICEF" next to the extract you created to download the data and IPUMS harmonization syntax from UNICEF.
- From UNICEF, click on the blue link to Download Your Data.

Step 2: Decompress the data

- In your downloads folder, find the folder downloaded from UNICEF.
- Right click on the ".zip" file
- Use decompression software to unzip the compressed file (if using 7-zip, choose Extract Here. "mics_0001"
- You will see a "data" folder, a "syntax" folder, and a Stata .do file "mics_0001.do"

Step 3: Import the Data

- If you have Stata on the computer that you are working on, click on the Stata .do file to open it.
- Run the .do file.
- Hint: If you are having difficulty running the .do file, make sure that the "data" and "syntax" folders are in the same directory as the .do file. You may need to change your working directory.

Hints and data exploration before you start.

To simplify this exercise, you can limit the samples to only the most recent sample in each country. The UNICEF MICS is organized by rounds. In Stata, run:

```
keep if round==6
```

Note that the weight, WEIGHTCH, supplies numbers equal to the total number of young children in the survey, not the total number of children in the population. (Ignore the numbers after the decimal point in the weighted results.)

Incomplete interviews can be identified by the variable RESULTCH. In many of the following variables, the universe will consist of children with completed interviews.

Data Analysis with young children as the unit of analysis

1a. What proportion of these young children live in urban areas?

Hint: Use the Stata command "tab" or "tabulate"

tab sample urban [aw=weightch], row nofreq

1b. Does the term "urban" mean the same thing in both countries?
Hint: Go to the IPUMS MICS website and consult the Comparability tab of the URBAN variable description to answer.

2a. What proportion of these young children have a birth certificate?

tab birthcert [aw=weightch], row nofreq

2b. Looking at a single country over time, how does BIRTHCERT change over time?
As a reminder, this will only be illuminating if you have not limited the sample to only samples in Round 6.

tab sample birthcert [aw=weightch], row nofreq

2c. Of the children who do not have a birth certificate, how many of them have had their birth registered? What is the universe for the variable BIRTHREG?

tab birthcert birthreg[aw=weightch], row nofreq

2d. Why is it important to know about the relationship between BIRTHCERT and BIRTHREG when conducting analysis?

3a. For the most recent sample for Bangladesh and Vietnam, what proportion of children experienced diarrheal disease in the past 2 weeks? *As a reminder, MICS Round 6 is the most recent available data for these countries. When using only one sample per round, the variable* "country" *can be used instead of* "sample".

tab country diarr [aw=weightch] if resultch==1 & round==6, row nofreq

3b. For what percent of children with diarrheal disease in the past two weeks did their mothers seek some treatment or advice about the child's illness? What percent of the children were treated with oral rehydration solution (a sugar-salt-water mixture [sometimes containing other electrolytes and minerals]), which is a cheap and effective treatment against dehydration during diarrheal disease?

tab diarrtreat sample [aw= weightch] if diarr==1 & round==6, col
tab diarrorspack sample [aw= weightch] if diarr==1 & round==6, col nofreq
tab diarrorsprepack sample [aw= weightch] if diarr==1 & round==6, col nofreq

Open ended questions: How is the age of the child related to experiencing diarrhea in the last 2 weeks? What other factors might be interesting to look at?

Answers to data analysis using children as the unit of analysis

1a. Urban versus rural residence: The proportions residing in urban areas are:

Sample	Percent Urban
Bangladesh 2006	25.5%
Bangladesh 2012	20.4%

Bangladesh 2019	21.2%
Viet Nam 2006	23.6%
Viet Nam 2010	27.5%
Viet Nam 2013	29.7%
Viet Nam 2020	31.6%

This answer shows proportions for all samples in this data set. If you simplified to only samples in Round 6, you may see fewer samples.

1b. The numbers are not fully comparable, however, due to differing country-specific definitions of what is urban. Vietnam samples follow the census definition of urban which includes urban districts of cities, urban quarters, and towns. Bangladesh Census Bureau defines urban areas to include any developed areas around an identified central place with amenities, densely populated, and employed in nonagricultural sectors. Also noted in Bangladesh 2006, additional categories of slums or tribal areas are also defined.

2a. A total of 35 percent of children have a birth certificate. This result is the combination of the categories "Yes, seen" and "Yes, not seen".

2b. The percentage of children who had a birth certificate in Bangladesh increased from 8% in 2006 to 39% in 2019. Vietnam had a higher overall percentage of children with birth certificates, but also saw increases from 87% in 2006 to 97% in 2020. The difference between these two countries suggests the importance of looking at trends by country or by sample.

2c. In IPUMS MICS, a universe describes who was asked the question. Therefore, the category "NIU (not in universe)" represents who was not asked a question. Only children who reported that they didn't have a birth certificate in BIRTHCERT were asked if their birth was registered (BIRTHREG). Among children who didn't have a birth certificate, 9% of them were reported to have their birth registered.

2d. It is important to understand the universe of each variable when doing analysis. It is also important to know if there are any differences in the country-specific universes. In Bangladesh 2006 and Viet Nam 2006, children who reported having a birth certificate but it was not shown to the interviewer were also asked about their birth registration. This can be identified in the Universe tab for the variable BIRTHREG. Additionally, the following codes can unmask differences between samples:

```
bysort sample: tab birthcert birthreg
or
bysort sample: tab birthcert birthreg[aw=weightch], row nofreq
```

3a. The proportion of children who had diarrhea recently was fairly similar across countries, at 6.9 percent for Bangladesh and 4.8 percent for Viet Nam.

3b . For children who experienced diarrhea in the past 2 weeks, the percent for whom mothers sought advice or treatment for the illness was 73 percent for Bangladesh and 72 percent for Vietnam. The percent treated with oral rehydration solution (which could be prepared at home) was much higher, at 71 percent and 52 percent, respectively, than the *prepackaged* ORS solution (11 percent and 40 percent).