Subject: Trend Analysis of Neonatal Mortality
Posted by abkolapo on Thu, 14 Oct 2021 21:33:26 GMT
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Hello DHS Experts,
Its wonderful to be part of this forum. I find it a great and helpful resource for research. Can you please help me out on this?
I am currently working on the trend of neonatal mortality in Nigeria using the Nigeria DHS 2008, 2013 and 2018 (KR files). I intend to find the statistical significance of the differences in NMR in disaggregated variables in the periods 2008-2013, 2013-2018 and 2008 2018. My purpose is to generate a table similar to Table 3.5 in: Winter, Rebecca, Thomas Pullum, Anne Langston, Ndicunguye V. Mivumbi, Pierre C. Rutayisire, Dieudonne N. Muhoza, and Solange Hakiba. Trends in Neonatal Mortality in Rwanda, 2000-2010. DHS Further Analysis Reports No. 88. Calverton, Maryland, USA: ICF International.

I have carefully read other posts addressing similar issues but have not been totally helped. I have about 20 categorical covariates and have disaggregated NMR into each using the Stata formula, svy linearized: mean NMR, over (variable). I combined the three datasets and generated new variables including cluster_ID, stratum_ID and survey as was suggested in a past post. I have tried using the logit regression formula and but remain unsure as to the validity of my findings. How can I calculate the significance of the trends in each variable across the time span?

Subject: Re: Trend Analysis of Neonatal Mortality
Posted by Bridgette-DHS on Tue, 19 Oct 2021 14:50:12 GMT
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Following is a response from DHS Research & Data Analysis Director, Tom Pullum:

There are several different ways to approach trends in neonatal mortality. This is easiest of the under-five rates to work with because the NNMR is not a compound rate. With a single survey, you could go into the BR file (e.g. NGBR7BFL.dta), to go back more than 5 years. (The KR file is limited to births in the past 5 years.) A potential issue is that as you go farther back in time, there may be increasing omission of children who died early.

Some Stata code is given below. It is different from FA88. The three surveys are put into one file. A logit regression is given that can be used to test for differences between the surveys and/or a trend over time. I do the logit regression (with a figure) for the 10 years before each survey, but when I tried it for 15 years or 5 years the results looked different. The term "c.b3##survey" allows different slopes and intercepts for the different surveys. You probably want similar terms for the different covariates.

You will have problems with 20 categorical covariates. There will be many empty combinations--empty in terms of the numerators, if not the denominators. Start with one covariate at a time, and only retain covariates that are significant (at least that's what I would do).

Linear terms for b3 (cmc of birth) may be too erratic. It might be better to use b2 (calendar year of birth). I included sampling weights but not a full svyset. If you use svyset you need to renumber

the strata and clusters with "egen group"--you know how to do that.

The slope(s) with b2 or b3 will indicate the direction, and the test statistics and p values will give you significance. However, if the model gets too complicated, it will be harder to interpret and it will be harder to get significance. In a model with many coefficients, set a high standard, at least .01, for significance.

```
cd e:\DHS\DHS_data\scratch

use ".... NGBR53FL.DTA", clear
gen survey=1
save NG_temp.dta, replace

quietly append using ".... NGBR6AFL.DTA"
replace survey=2 if survey==.
save NG_temp.dta, replace

quietly append using ".... NGBR7BFL.DTA"
replace survey=3 if survey==.
save NG_temp.dta, replace

keep survey v0* b*
keep if v008-b3<12*15

gen nnd=0
replace nnd=1 if b7==0

logit nnd c.b3##survey if v008-b3<12*10 [pweight=v005]
predict nndhat

gen nndhat_1=nndhat if survey==1
gen nndhat_2=nndhat if survey==2
gen nndhat_3=nndhat if survey==3

sort survey b3

twoway (line nndhat_1 b3 if survey==1) (line nndhat_2 b3 if survey==2) (line nndhat_3 b3 if survey==3), ylabel(0 .01 .02 .03 .04 .05 .06)
```