Subject: Multi-level mixed effect Poisson regression in Stata
Posted by iqbalnowshad on Wed, 04 Aug 2021 17:38:23 GMT
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Dear User forum members,
I am using the individual DHS survey data (IR file) where subjects are nested within households, and households are nested within clusters. My outcome of interest is a count variable and I have several categorical predicts. I would like to fit a multi-level mixed effect Poisson regression model with robust variance to identify factors associated with the outcome in Stata (version 15.1).

However, I am having difficulty in writing the code in Stata. For survey data we usually use "SVY" command. However, Stata documentation (https://www.stata.com/manuals/memepoisson.pdf) shows below command for "mepoisson" multi-level mixed effect Poisson regression which is very confusing to me.

svyset psu, weight(wvar3) || ssu, weight(wvar2) || _n, weight(wvar1)
svy: mepoisson y x || psu: || ssu:

How do I incorporate weight (v005), primary sampling unit (v021) and strata (v022) variable in the above code? Also how to estimate values for ICC, PCV, AIC, and BIC after model fitting.

I was hoping someone could help me with this or if anyone has done similar analysis and shares the code that will be much appreciated.

Thank you,
Iqbal

Subject: Re: Multi-level mixed effect Poisson regression in Stata
Posted by Shireen-DHS on Mon, 16 Aug 2021 14:44:53 GMT
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Hello,

Multilevel models require a weight for each level.

The generic code for instance for two levels would be the following:

svyset v001, weight(wt) strata(v023) , singleunit(centered) || _n, weight(wt2)

v001 is the psu and v023 is the strata if using DHS data. To check the strata for older surveys please refer to the Survey_strata.do file here:
https://github.com/DHSProgram/DHS-Analysis-Code

We only supply one weight in the DHS data (v005). However, recently we have published a report to estimate the second level weight. Please refer to this report for more detail. It also contains examples and Stata code: https://www.dhsprogram.com/publications/publication-mr27-met

hodological-reports.cfm

Good luck with your research.

Best,
Shireen Assaf
The DHS Program