Subject: Sampling weight calculation
Posted by Mahir on Thu, 18 Jul 2024 15:00:28 GMT
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Dear DHS team,

I would like to understand the calculation behind the spmling weight in DHS survey. i have gone through the multilevel modelling manual and I just want to make sure what I have understood is correct. Let me know if my explanation for sampling weight calcualtion is correct.

First P(hi) = a(h) * M(hi)/ M(h)
Let's assume that there are 5 stratas/region in a country and I want to calcualte the sampling weight for strata/region 1. Let's assume there are 12 clusters in strata/region 1 and we selelct 6 of these for sampling. IF there a total of 5000 households in region/strata 1 that means M(h) = 5000 and if there are 90 households in one of the 6 clusters selected for sampling M(hi) = 90
this means P(1hi) = (6*90)/5000 = 0.108

Now P(2hi) = s(hi)/L(hi)

Let's assume that total number of households in one of the selected cluster for sampling is 500 (L(hi)) and total number of households selected for survey in the cluster are 90 (s(hi)).
this means P(2hi)=90/500=0.18

Now sampling weight d(hij) =1/(P(1hi)*P(2hi))
this means d(hij) = 1/(0.108*0.18) =51.44

I have attached a sample figure I created on ym own. Could you tell me if my explanation is correct?
If not, you explain what is wrong in my example.

Thank you for your help

Best
Mahir

File Attachments

1) DHS_sampling_weight.png, downloaded 140 times

Subject: Re: Sampling weight calculation
Posted by Mahir on Mon, 22 Jul 2024 11:07:22 GMT
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Dear DHS team,

I am waiting for your reply in this matter.

Best
Mahir

Subject: Re: Sampling weight calculation
Posted by Janet-DHS on Tue, 23 Jul 2024 12:34:45 GMT
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Following is a response from DHS staff member, Tom Pullum and Senior DHS Sampling Specialist, Ruilin Ren:

Your formulas and calculations for the level weights appear to be correct. However, are you trying to replicate the standard weight calculation that is described in an appendix to each final report? There is no need to do that.

The purpose of your figure or map (the .png attachment) is not clear. Geographically, the strata, which are usually the combinations of region (v024) and urban/rural residence (v025), do not cleanly divide a region into two contiguous parts. Within a region, urban parts are typically scattered geographically and the rural part is like a background. (Occasionally a region is all urban or all rural.) The clusters are always entirely urban or entirely rural. The clusters are always spatially located within the strata.