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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 sampling 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 calculation is correct.

First  $P(h_i) = a(h) * M(h_i) / M(h)$

Let's assume that there are 5 strata/region in a country and I want to calculate the sampling weight for strata/region 1. Let's assume there are 12 clusters in strata/region 1 and we select 6 of these for sampling. If there is 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  $M(h_i) = 90$  this means  $P(1h_i) = (6*90)/5000 = 0.108$

Now  $P(2h_i) = s(h_i)/L(h_i)$

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

Now sampling weight  $d(h_{ij}) = 1/(P(1h_i)*P(2h_i))$

this means  $d(h_{ij}) = 1/(0.108*0.18) = 51.44$

I have attached a sample figure I created on my 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

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### File Attachments

1) [DHS\\_sampling\\_weight.png](#), downloaded 157 times

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