
Subject: Melogit and Weights

Posted by [Yawo](#) on Thu, 23 Jul 2020 14:19:30 GMT

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Hello,

I am trying to fit a multilevel model examining HIV risk behaviors among those living with HIV using a pooled data from 23 countries.

My model nests individuals (level 1) into clusters (level 2). For melogit, I am aware I need to set weights at the two levels of my analysis, yet DHS only provides one weight.

From my review of forum here (https://userforum.dhsprogram.com/index.php?t=msg&goto=13522&&srch=multilevel+weights#msg_13522), I understand I can svyset my data, using the following:

```
gen weight=hiv05/1000000
gen weight2=1
svyset idhspsu, weight(weight) strata(idhsstrata) singleunit(centered) || _n, weight(weight2)
```

When I run my basic melogit, <svy: melogit condomless_spouse sex || idhspsu: >

I get the following error: "weights in variable weight not constant within groups defined by: idhspsu an error occurred when svy executed melogit"

I am sure I may not be doing something wrong here. I would be very grateful if any of you could point me in the right direction.

Thanks in advance of your assistance.

cY

Subject: Re: Melogit and Weights

Posted by [Trevor-DHS](#) on Thu, 23 Jul 2020 14:50:26 GMT

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I suspect that the problem is that you do not have constant weights for each PSU. You can check this by summarizing the weight variable by the idhspsu - the minimum and the maximum should be identical in all cases. For example:

```
sort idhspsu
by idhspsu: summ weight
```

Be warned that the output is going to be very long, and you probably want to capture the output and process it to find if there are PSUs where the weight is not a constant.

An alternative way of doing the same is:

```
sort idhspsu
gen dif = 0
replace dif = 1 if idhspsu == idhspsu[_n-1] & weight != weight[_n-1]
```

browse if dif == 1

Any case where dif equals 1 indicates a PSU where the weight is not constant.

Subject: Re: Melogit and Weights

Posted by [BillC](#) on Thu, 23 Jul 2020 21:09:45 GMT

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Hi Trevor,

Am facing the same issue as Yawo. I am examining a multilevel model in Afghanistan and want to run a random intercept model with region (v024) as the second level.

A) Here is my code (based on Shireen's post):

```
gen wt=v005/1000000
```

```
gen wt2=1
```

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

Stata output follows:

Note: Stage 1 is sampled with replacement; further stages will be ignored for variance estimation.

```
pweight: <none>
```

```
VCE: linearized
```

```
Single unit: centered
```

```
Strata 1: v023
```

```
SU 1: region
```

```
FPC 1: <zero>
```

```
Weight 1: wt
```

```
Strata 2: <one>
```

```
SU 2: <observations>
```

```
FPC 2: <zero>
```

```
Weight 2: wt2
```

B) Here is the Stata output for the svy: melogit model

(running melogit on estimation sample)

weights in variable wt not constant within groups defined by: region

an error occurred when svy executed melogit

C) Here is the output of the code you suggested to check if there is variation in the min/max of wt2:

wt2	Freq.	Percent	Cum.
-----+-----			
1	29,461	100.00	100.00
-----+-----			
Total	29,461	100.00	

Thoughts?

Thanks!

Subject: Re: Melogit and Weights

Posted by [Trevor-DHS](#) on Thu, 23 Jul 2020 21:19:11 GMT

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Wt2 is not the variable to look at. You know that is constant. You need to look at wt1.

Subject: Re: Melogit and Weights

Posted by [Trevor-DHS](#) on Thu, 23 Jul 2020 21:27:20 GMT

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For BillC, in fact in your case, I think you have a different issue. You are working with just one survey, so I think your problem is in the specification of the melogit command and the levelvars that you are using. It looks like you are using only region as your levelvars, but I think you need to include PSU. Your svyset command is using region instead of PSU (v021) as well - that needs to use PSU.

Subject: Re: Melogit and Weights

Posted by [BillC](#) on Thu, 23 Jul 2020 21:46:50 GMT

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Hi Trevor,

Many thanks for the quick reply - appreciate it. Its been a long day tussling with code, so my brain is a bit addled.

I used this code for svyset and it worked well for the logit command:

```
generate wgt = v005/1000000
```

```
svyset[pw=wgt], psu(v021) strata(v022)
```

```
svy: logit outcome iv1 iv2, or (this worked fine)
```

If I want to use v024(region) as the clustering variable for Level 2, what is the svyset code?

Thanks again,

Subject: Re: Melogit and Weights
Posted by [Trevor-DHS](#) on Thu, 23 Jul 2020 22:46:50 GMT
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You can't use region for the svyset command - it must be the PSU. I think you have to use region as one of your independent variables in the logit command.

Subject: Re: Melogit and Weights
Posted by [Yawo](#) on Thu, 23 Jul 2020 23:48:38 GMT
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Trevor:

thanks very much for your response. i checked my data and confirmed that dif==1 for all the observations in my data. According to your explanation, this means that the sample weight in this case is not constant within each psu/cluster. However, given that this is the sample weight (v005 or hiv05), shouldn't it be expected to vary among PSU's, as it is a Level 1 (individual level) variable?

My understanding is that all level2 variables should be constant within the level2 grouping ? Our pseudo level2 weight is set to 1, and therefore constant across all PSU clusters as it should be.

Or what am I missing here? I even checked with an newly downloaded DHS dataset for a single country, and got the same non-constant error?

I would appreciate some further thoughts on this...

Thanks - cY

Subject: Re: Melogit and Weights
Posted by [Yawo](#) on Wed, 05 Aug 2020 04:16:44 GMT
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Mr.Trevor,

good morning. I am following up on the above issue to see if you have any further suggestion as to how to handle the "weights in variable wt not constant within groups defined by: idhspsu"

I am not sure how to make the level 1 weights constant within each psu. At first, I thought it was an issue with my data, but checked with fresh data downloads and got the same error.

I appreciate further thoughts from you. thanks - Yawo

Subject: Re: Melogit and Weights
Posted by [Trevor-DHS](#) on Wed, 05 Aug 2020 15:14:32 GMT
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Hi Yawo

I think the problem is probably that you do not have a constant value for the weight within level 1. The weight must be constant for all cases in the PSU - it does not vary within PSU. Can you send the code that you are trying to use.

Subject: Re: Melogit and Weights
Posted by [Yawo](#) on Thu, 06 Aug 2020 04:40:51 GMT
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Hi Trevor:

Thanks very much for your assistance. Here is the code I've been using:

```
/* creating psu and strata for pooled samples/countries */
egen psupool= group(idhspsu sample)
egen stratapool= group(idhsstrata sample)

gen weight=hiv05/1000000
gen weight2=1
svyset psupool, weight(weight) strata(stratapool) singleunit(centered) || _n, weight(weight2)
```

My data still shows non-constant weights in some of the PSU's

Below is a sample of 4 PSU's from Angola. I checked and many other data (including freshly downloaded versions from DHS) have non-constant weights within PSUs.

Thanks again, and looking forward to any further advice from you.

best - cY

```
. list sample idhspsu psupool weight weight2 v005 in 200/250
```

```
. list sample idhspsu psupool weight weight2 v005 in 200/250
[font=Courier]
```

```
+-----+
|  sample  idhspsu  psupool  weight  weight2  v005 |
```

200.	Angola 2015	2401000011	11	3.262758	1	2.964534
201.	Angola 2015	2401000011	11	2.894893	1	2.836539
202.	Angola 2015	2401000011	11	2.894893	1	2.836539
203.	Angola 2015	2401000011	11	3.262758	1	2.964534
204.	Angola 2015	2401000011	11	3.262758	1	2.964534

205.	Angola 2015	2401000011	11	2.894893	1	2.836539
206.	Angola 2015	2401000011	11	2.894893	1	2.836539
207.	Angola 2015	2401000011	11	3.262758	1	2.964534
208.	Angola 2015	2401000011	11	3.262758	1	2.964534
209.	Angola 2015	2401000011	11	3.262758	1	2.964534

210.	Angola 2015	2401000011	11	3.262758	1	2.964534
211.	Angola 2015	2401000011	11	3.262758	1	2.964534
212.	Angola 2015	2401000011	11	2.894893	1	2.836539
213.	Angola 2015	2401000011	11	3.262758	1	2.964534
214.	Angola 2015	2401000011	11	2.894893	1	2.836539

215.	Angola 2015	2401000011	11	2.894893	1	2.836539
216.	Angola 2015	2401000011	11	2.894893	1	2.836539
217.	Angola 2015	2401000011	11	3.262758	1	2.964534
218.	Angola 2015	2401000011	11	3.262758	1	2.964534
219.	Angola 2015	2401000011	11	2.894893	1	2.836539

220.	Angola 2015	2401000012	12	.396283	1	.41734
221.	Angola 2015	2401000012	12	.40295	1	.437145
222.	Angola 2015	2401000012	12	.40295	1	.437145
223.	Angola 2015	2401000012	12	.40295	1	.437145
224.	Angola 2015	2401000012	12	.396283	1	.41734

225.	Angola 2015	2401000012	12	.396283	1	.41734
226.	Angola 2015	2401000012	12	.396283	1	.41734
227.	Angola 2015	2401000012	12	.40295	1	.437145
228.	Angola 2015	2401000012	12	.396283	1	.41734
229.	Angola 2015	2401000012	12	.40295	1	.437145

230.	Angola 2015	2401000012	12	.40295	1	.437145
231.	Angola 2015	2401000012	12	.40295	1	.437145
232.	Angola 2015	2401000012	12	.40295	1	.437145
233.	Angola 2015	2401000012	12	.40295	1	.437145
234.	Angola 2015	2401000012	12	.396283	1	.41734

235.	Angola 2015	2401000012	12	.40295	1	.437145
236.	Angola 2015	2401000012	12	.396283	1	.41734
237.	Angola 2015	2401000012	12	.40295	1	.437145
238.	Angola 2015	2401000012	12	.40295	1	.437145
239.	Angola 2015	2401000013	13	.586726	1	.595693

240.	Angola 2015	2401000013	13	.547652	1	.604053
241.	Angola 2015	2401000013	13	.586726	1	.595693
242.	Angola 2015	2401000013	13	.547652	1	.604053
243.	Angola 2015	2401000013	13	.586726	1	.595693
244.	Angola 2015	2401000013	13	.547652	1	.604053
245.	Angola 2015	2401000013	13	.547652	1	.604053
246.	Angola 2015	2401000013	13	.586726	1	.595693
247.	Angola 2015	2401000013	13	.547652	1	.604053
248.	Angola 2015	2401000013	13	.547652	1	.604053
249.	Angola 2015	2401000014	14	.503401	1	.477899
250.	Angola 2015	2401000014	14	.465081	1	.491306

Subject: Re: Melogit and Weights
 Posted by [Daniel](#) on Wed, 23 Sep 2020 08:26:15 GMT
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Hi there-- I am wondering if Yawo or/and BillC came across solutions/suggestions to your concerns, because I am facing the same problem after pooling one recent survey from multiple countries.
 I appreciated any assistance.

Subject: Re: Melogit and Weights
 Posted by [Trevor-DHS](#) on Wed, 23 Sep 2020 15:38:21 GMT
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In Yawo's example, I'm not certain exactly what the data is, but it looks to me like this is a combination of data for women and for men, and using the HIV weight (hiv05). Women and men's datasets have separate different weights, but the weights for women in a PSU (cluster) are constant as are the weights for men.

You may be interested in a recent publication Multilevel Modeling Using DHS Surveys: A Framework to Approximate Level-Weights that provides information on how to produce approximate level-1 and level-2 weights from published data.
