Subject: Maternal height: strange patters
Posted by J.Heckert@cgiar.org on Wed, 24 Jan 2018 22:31:41 GMT
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I have observed, for at least Tanzania and Rwanda at this point, that there is a strange pattern in women's height between 2005 and 2010. It decreases by ~1 cm, which is a lot! Overall, the trend on either side of this gap is toward taller women. We've looked at this by region, by birth cohort, and still see the decline. Are there any hypotheses for why this is happening? I am suspect that it might be attributable to different types of height boards being used between these two waves. I have observed that some don't fit together well after multiple uses. Alternatively, were the training/techniques for measuring maternal height improved during this time period?

Any thoughts on this?

Subject: Re: Maternal height: strange patters
Posted by Reduced-For(u)m on Wed, 24 Jan 2018 22:42:59 GMT
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A couple of possibilities, but not sure they'll help:

1 - has the reference population changed, so that you are weighting to a different representative population (maybe proportion rural/urban breakdown or something like that)?

2 - the age distribution of women is changing such that older cohorts (who were likely shorter) are somehow overtaking younger cohorts (even if time is moving forward)?

3 - are you perhaps picking up something in Rwanda that is a remnant of the genocide? I believe there is evidence that this led to decreases in height in children, and maybe continued through adulthood.

But I think the distribution of cohorts, the reference population you are weighting towards, or something horrible in the 1990's would all be possibilities.

Subject: Re: Maternal height: strange patters
Posted by J.Heckert@cgiar.org on Wed, 24 Jan 2018 22:51:47 GMT
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Thanks for your ideas. In response to each of your points:

1 - has the reference population changed, so that you are weighting to a different representative population (maybe proportion rural/urban breakdown or something like that)?
We account for weights.

2 - the age distribution of women is changing such that older cohorts (who were likely shorter) are

somehow overtaking younger cohorts (even if time is moving forward)?
I've looked at this by birth cohort e.g. comparing 20-24 year olds in 2005 to 25-29 year olds in 2010. We still observe a decrease in height. So cohort replacement is not the explanation.

3 - are you perhaps picking up something in Rwanda that is a remnant of the genocide? I believe there is evidence that this led to decreases in height in children, and maybe continued through adulthood.
We observe the same in Tanzania (haven't looked at other countries). And, it is occurs in regions that a further from Rwanda/Burundi, which helps consider migration and return migration patterns.

Any other ideas?

Subject: Re: Maternal height: strange patters
Posted by Reduced-For(u)m on Wed, 24 Jan 2018 22:57:38 GMT
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Hmmmm....

1 - it could be the DHS people changing the reference population, and so even if you were using weights, it could still be a problem (such as - they used to weight to a population that was 50-50 rural/urban, and now weight 40-60). But it seems unlikely.

2 - The fact that the same birth cohorts changed heights is scary weird...and points to your measurement conjecture (at least to me).

3 - If it is true across all regions and cohorts, it probably wasn't some weird exposure in the world...

So yeah, those ideas are probably wrong, other than possibly #1.

The DHS reports should specify how they actually measured people (like, what instruments they use). You could see if they changed their measurement technique.

You may also be able to test your "the equipment was breaking down" hypothesis by looking at the effect by month of survey...the first few people measured should be taller than the last few people measured if it is about equipment breakdown.

Other than that, I'm out of ideas at the moment. ¡Cool mystery! Let's hope it doesn't mean the world is falling apart.

Subject: Re: Maternal height: strange patters
Posted by J.Heckert@cgiar.org on Wed, 24 Jan 2018 23:10:13 GMT

Ha, no, the world isn't falling apart over height boards, just falling apart over other things.

The attached photo of a height board and a ruler next to it sort of explains what I mean by my faulty height board hypothesis. I centimeter isn't a centimeter over the bumps where the boards fit together. I assume these varies by brand/make.

I like your ideas about comparing earlier and later measurements within the same survey and checking on equipment in different surveys.

File Attachments

1) image.jpeg, downloaded 376 times

Subject: Re: Maternal height: strange patters
Posted by Reduced-For(u)m on Thu, 25 Jan 2018 04:17:43 GMT

What about a graph that shows cohort on the X-axis and average maternal height by cohort on the Y-axis, graphed in two separate lines, one from the 2005 survey and one from the 2010?

It might help at least rule out some possibilities... if you are right about the measurement thing, then I THINK that the 2010 curve should lie below the 2005 curve for each cohort. I think you said you checked that, but it might be worth looking at it by year of birth and not just bins and seeing it graphically.

Then maybe if that looks as expected a second way to check the within-survey equipment break-down problem would be to make that same graph but instead of 2005/10 breaking it up by early/late survey timing using just the 2010 data (after just calculating the mean by survey month, which would be the easiest way, and maybe makes this option unnecessary).

Apparently I want to know the answer, because my unconscious brain seems to have been thinking about this on my drive home. Let me know if you figure it out... and I'd love to actually just see the problem in a graph, because it sounds like it would look cool and I could show it around and see if anyone had any ideas.
