

“Standardized Calibration Adjustment Index (SCAI)” Transcription

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Well, I came up with a metric I called Standardized Calibration Adjustment Index (SCAI). I don't want to get too deep into the statistical weeds, but what this does is boils the difference between the respondents and the population down into a one number. You calculate your design weights, in this case, with a simple random sample assumption for RICS. In an outbound telephone you might have strata and disproportional stratification—You can account for that in the design weights. In the analysis weights are the weights where you calibrate the design weights to the population total. What the SCAI is simply the sum of the absolute value of difference between the design weights and the analysis weights over the sum of the analysis weights and then you multiply by a hundred—It is what percentage did you have to stretch the total weights. You then divide by two because when you change the weights some get bigger and some gets smaller so your double counting the stretching of the weights. The more you have to change the weights the more off your sample was from your population.

It has a very nice interpretation if you simplify. If you calibrate it to one distribution and had two levels like sex and in this example, there is 50% male in the population—If your design weights had 30% male then your SCAI would be 20%. The 20 is the percentage you had to adjust your weights to make it match up. So that gives you a kind of heuristic to understand what's going on here.

So now I'm going to apply that SCAI measure but I'm going to look at three different types of surveys and each one I have three different studies. The one in orange on top that's all the NY State adult tobacco survey and this was done with an ABS Frame. ABS stands for Address Based Sample, so this is a frame of all the addresses the US Postal Service delivers mail to and then the mode PAPI stands for paper and pencil interview, then we had web and PAPI, we did both. Then we calculate the SCAI and take the average. For the ABS the average SCAI is 26.6, so you miss your population because the people who respond to mail surveys are different, they tend to be higher educated and older and more female. So now we look at the blue three studies. Those are the outbound telephone surveys with CATI data collection and here when you average the SCAI you get 18.5 (Should be 18.7). The purple (section) are the three RICS surveys so this includes the assumption that there is a simple random sample. Certainly, it is not 100% true but if that was causing a lot bias we wouldn't expect the respondents to look like the population. Now remember, this isn't like web panels where they're using quotas to force it to look like the population—This is organically what we get from the sampling procedure. The average SCAI (For RICS*) is 20.5, which is a little bit worse than the outbound telephone survey but quite a bit better than the ABS.

*RICS costs about 50% less cost than outbound telephone surveys