

Effects of Changes in Subnational Survey Weight Allocations on Estimated Shifts in Vaccination Coverage in Africa

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Recent research analyzing vaccination coverage surveys in Nigeria examined large apparent changes in coverage from survey to survey and found that a surprisingly large portion of those reported changes were attributable to changes in stratum-level weights, rather than changes in the outcome itself. This paper follows up on that work, addressing the question of whether it is common or rare for changes in subnational weights to have a meaningful effect on apparent survey-to-survey shifts in national coverage. We examine outcomes from 70 Demographic and Health Surveys (DHS) in 15 African countries. For each pair of DHS surveys in a country we compare the reported change in national coverage – of the third dose of diphtheria-pertussis-tetanus containing vaccine, the first dose of measles-containing vaccine, and possession of a home-based vaccination record – to the change in coverage that would have been observed if both surveys used the same subnational weights. While there are many large shifts in coverage and in weights across survey rounds in our sample, Nigeria is the only country where post-stratifying to use the same subnational weights would change the conclusion about the outcome shift from survey to survey in an appreciable way. To facilitate further research extending these analyses to other countries and other survey outcomes, we present an R package for calculating the effect of changes in subnational weights.

Keywords

Survey weight, Poststratification, Vaccination coverage, Household surveys, Africa