Post-stratification for District-specific parameters

For estimating district-specific mean and distribution function, the survey data is post-stratified based on the number of children aged under-5 per districts extracted from the Census 2011 (ECLAC/CELADE Redatam+SP, 11/16/2016). The main task is to calculate post-stratification weights considering the total number of census children per district. Thus the new weights will be provided in such way that the sum of weights per district will be same as the total number of census children per district. To describe the calculation procedure of post-stratifications weights, let N_i = Total Number of census children for i^{th} area, n_i is total number of unweighted children in the ith area, $w_i = \sum_j w_{ij}$ is total number of weighted children where w_{ij} is the sampling weight for j^{th} individual of ith area. Now the steps are as follows:

1. calculate an area-specific value, $V_i^{fac} = N_i / w_i$ and

2. then calculate individual-specific reweighted value for i^{th} area, $w_{ij}^{rw} = V_i^{fac} * w_{ij}$ such that

$$\sum_j w_{ij}^{rw} = V_i^{fac} * \sum_j w_{ij} = N_i / w_i * w_i = N_i.$$