**Rake’s Progress Revisited**

1. **Family weights**
	* Usually family weight is defined as the weight of the householder or reference person; may under or over represent families with specific types of socio-demographic characteristics
	* “Averaging” over all individuals in the family may be preferable
	* Start with final person weight, compute the geometric mean at the family-level, then family weight is assigned to each person and raked to person-level control totals, and then iterate until convergence of family weights
	* Why geometric mean instead of arithmetic mean? Reduces the influence of extreme weights of any person within a family
2. **Person weights**
	* Usually a single set of weights are created for estimation
	* Different weights for different outcome variables should yield more efficient estimates
	* Allow for different variables to be used in raking for each outcome variable
	* Some of the variables used in raking would be the same for all weights
	* Not all variables used in raking are required to exactly agree with the control totals
	* Some variables only need to be within a designated threshold of the control totals
	* Weights are said to have converged if after iterating over all dimensions, weights are within the designated thresholds of the control totals for every dimension
	* Less variation in the raked weights and faster convergence
3. **Alternative Raking**
	* Calibrated weights are derived by minimizing the “distance” between the pre- and post- calibrated weights subject to agreeing with external population totals
	* To reduce variability of the weights, minimize the “distance” between the calibrated weights and average weight, and also “distance” between pre- and post- calibrated weights subject to agreeing with external population totals

$$\sum\_{}^{}D(w\_{i},d\_{i})+γ\sum\_{}^{}D(w\_{i},\overbar{w})+λ\left(\sum\_{}^{}w\_{i}x\_{i}-t\_{x}\right)$$