

Video 14 of 21: Weighting Adjustments for unknown eligibility

Sampling



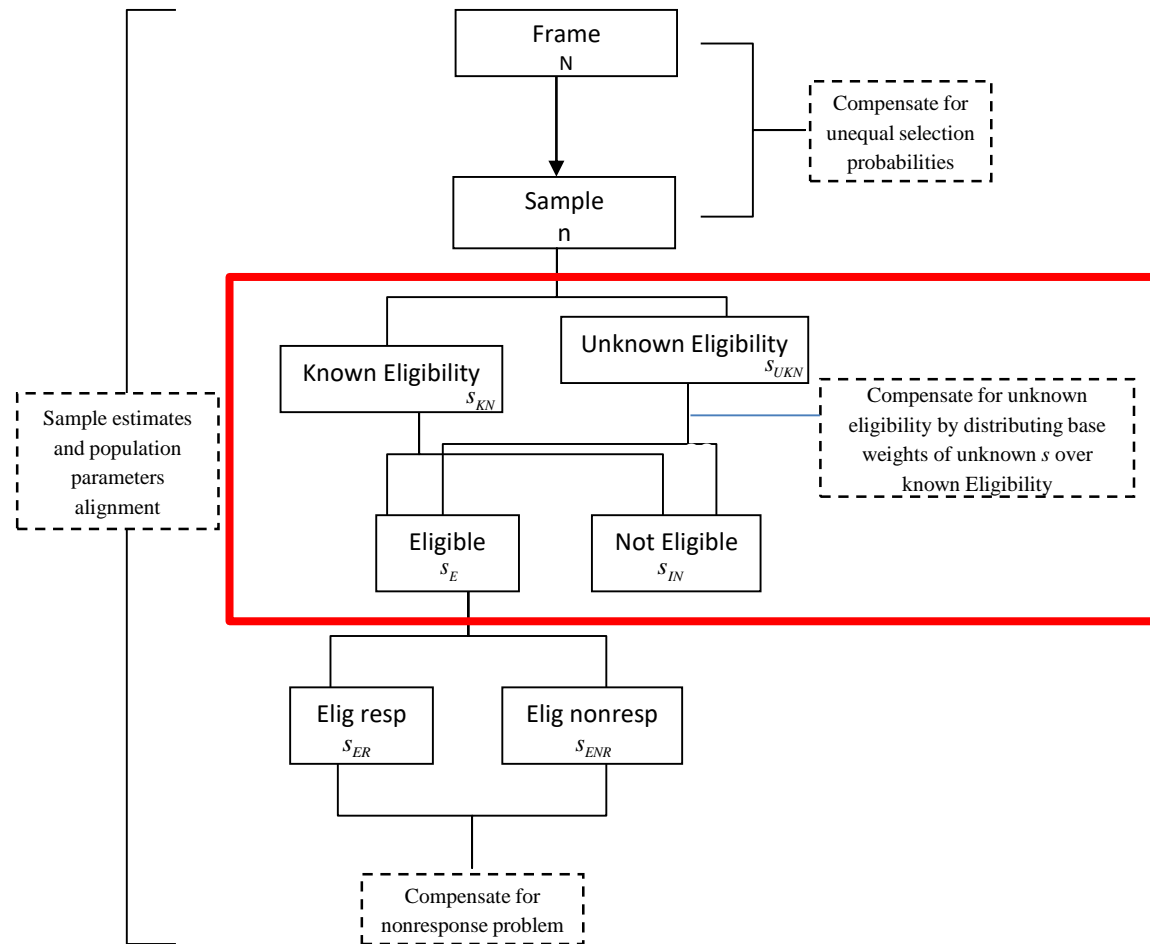
THE WORLD BANK

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Adjustments for unknown eligibility (I)

- Unknown eligibility is driven by the inability to initiate the contact with the sample element:
 - Ring/no-answers in a phone survey
 - Undeliverable addresses in a mail survey
 - Never at home in personal visit survey
- Weight adjustments for unknown eligibility and nonresponse are usually made to allow the respondents to weight up to the full eligible population
- If the ineligible cases can be excluded from the frame before the sampling stage, no need for this step

General steps used in weighting: Adjustments for unknown eligibility



Adjustments for unknown eligibility (II)

- Single class adjustment:
 - We can simply distribute the total sample weight of the unknown eligibility set S_{UKN} among those whose eligibility status is known S_{KN}
 - The unknown eligibility adjusted household weight, d_{i1} , is computed as:

$$d_{1i} = d_{0i} \times a_{1i}$$

where a_{1i} is the unknown eligibility adjustment factor computed as:

$$a_{1i} = \begin{cases} \frac{\sum_S d_{0i}}{\sum_{S_{KN}} d_{0i}}, & i \in S_{KN} \\ 0 & , i \in S_{UKN} \end{cases}$$

Adjustments for unknown eligibility (III)

Single class adjustment example

	Final Disposition	$\sum d_{0i}$	a_{1i}
S_{KN} {	Eligible respondents	33,256,181	1.4517
	Eligible non-respondents	20,601,509	1.4517
	Ineligible	28,801,071	1.4517
S_{UKN} {	Unknown eligibility	37,335,106	0

$$a_{1i} = \begin{cases} \frac{\sum_S d_{0i}}{\sum_{S_{KN}} d_{0i}}, & i \in S_{KN} \\ 0 & , i \in S_{UKN} \end{cases}$$

Adjustments for unknown eligibility (IV)

- Class-based adjustment:
- Use frame information known for all cases to form B classes
- Let s_b be the set of sample units in class b , regardless of eligibility or response status, and $s_{b,KN} = s_b \cap s_{KN}$ be the set with known eligibility in class b
- The unknown eligibility adjustment for sample units in class b is:

$$a_{1bi} = \begin{cases} \frac{\sum_{i \in s_b} d_{oi}}{\sum_{i \in s_{b,KN}} d_{oi}}, & i \in s_{b,KN} \\ 0 & , i \in s_{b,UKN} \end{cases}$$

Adjustments for unknown eligibility (V)

Class-based adjustment example

Region	S_{KN}			S_{UKN}	Total	a_{1b}
	Eligible respondents	Eligible non-respondents	Ineligible	Unknown eligibility		
West	6,822,109	4,320,669	5,116,581	8,755,039	25,014,398	1.5385
Midwest	9,579,554	4,461,710	6,955,018	7,086,245	28,082,527	1.3375
Northeast	6,383,883	4,103,925	7,361,008	7,165,583	25,014,398	1.4015
South	10,470,636	7,715,205	9,368,464	14,328,238	41,882,543	1.5200

For the West region, $d_{0i} = 113,701.81 \rightarrow d_{1i} = d_{0i} \times a_{1i} = 113,701.81 \times 1.5385 = 174,930.2$

END OF VIDEO 14