

FAM SAMPLING WORKSHOP
WESTMINSTER CATERING AND CONFERENCE CENTER
WESTMINSTER, MARYLAND

TUESDAY, MAY 25, 1999

01:30 - 03:00

Breakout Group Exercise: Sample Size Calculations

Breakout Group Exercise – Sample Size Determination

Part I

Suppose you were designing a baseline survey for a Title II program focused on child health. Given the following parameters, what sample size would you recommend for the baseline survey in terms of numbers of households to be contacted?

Parameters:

- Expected starting values of indicators and anticipated program effects:

	Expected Baseline Value	Change to be Detected (percentage points)
a. % of households consuming minimum calories	50%	10
b. % children 6-59 months stunted	10%	5
c. % infants 6-10 months fed supplementary foods	75%	10

- Assume a design effect (deft) of 2.0.
- Assume 95% significance and 90% power.
- Assume six persons per household
- Assume you are working in a high fertility population.

Part II

What would happen to your sample size requirements if the baseline value of indicator (c) were to be 85% instead of 75%? What if it were 65%?

Part III

What would happen to your sample size requirements if you would be content with measuring a change of 20 percentage points instead of instead of 10 percentage points on indicator (c)?

Part IV

Suppose that indicator (b) above is deemed the most critical for the survey, and thus the sample size required for this indicator you calculated in Part I will be used for the survey. What level of significance and power would this yield for indicator (a)? For indicator (c)? [Assume parameters as given in Part I]

Part V

Suppose that after calculating sample size requirements above you determine that your budget is insufficient to cover a survey of this size, and it is thus necessary to reduce the sample size to 1,000 households. Which parameters would you recommend changing? What effect would these changes have on the significance and power of your estimates of the three each indicators?

Answers:

Part I

	(Col 1) Number of elements needed (from look -up table)	(Col 2) Number of HH needed per sample element	(Col 3) Total (Col 1 * 2)
Indicator a	840	1	840
Indicator b	1,491	0.9	1,342
Indicator c	711	11.1	7,893

Ideally, would take largest of sample sizes = 7,893 HH

Part II

	(Col 1) Number of elements needed (from look -up table)	(Col 2) Number of HH needed per sample element	(Col 3) Total (Col 1 * 2)
(a)	540	11.1	5,994
(b)	814	11.1	9,036

Part III

	(Col 1) Number of elements needed (from look -up table)	(Col 2) Number of HH needed per sample element	(Col 3) Total (Col 1 * 2)
(a)	197	11.1	2,187

Part IV

Indicator a – requires a smaller sample size than indicator b, thus significance and power will be higher than required

Indicator c – sample size required for indicator b is only 17% of that for indicator c , thus significance and power will be only .576 and .399, respectively (see table in notes). This sample size will be inadequate for this indicator.

Part V

	(Col 1) Number of elements needed (from look -up table)	(Col 2) Number of HH needed per sample element	(Col 3) Total (Col 1 * 2)
1. Reduce power on indicator b to 80%	1,075	0.9	968
2. Increase change to be detected for indicator c to 20%	171	11.1	1,899
3. Also reduce power on indicator c to 80%	134	11.1	1,488
4. Also increase age range for indicator c to 6-16 months (3% of population) and ask questions retrospectively as needed	134	5.6	751