

Application Exercise 2: Sampling and Nonresponse Error Due March 9

You have been asked to administer a survey to alumni of a university. There are 200,000 alumni. The university will provide you with a complete list of alumni, with the name, address, telephone number, and email address. Assume for this assignment that the list is absolutely correct and that there is no coverage error. Also assume that the survey has been perfectly adapted to each mode so that there will be no mode effects for the questions (e.g., desirability bias, recency effects, etc.). The survey topic and length cannot be changed.

The survey asks alumni to rate satisfaction with various aspects of the institution, and the university president is interested in the percentage of alumni satisfied with each item on the survey. You have a budget of \$10,000 that you cannot exceed. In 3-5 pages, double-spaced, propose a mode (web, mail, or phone interview) and implementation plan that tries to minimize sampling error and nonresponse error:

1. *Sampling error* – your sampling design will be a simple random sample, unless you decide to survey all alumni. Use the ACT sample calculator and provide a 95% confidence interval for the estimates from your survey. For example, if you decide to survey 250 people (and all of them respond), your 95% CI will be +/- 6.2%. In other words, if 50% of alumni in your final sample are satisfied with the Alumni Office, you will be able to say with 95% confidence that the proportion of all alumni that are satisfied with the Alumni Office lies between 43.8% and 56.2%. You will have to make a judgment call as to what is the acceptable level of precision for the president.
2. *Nonresponse error* – using the cost estimates provided below, develop a plan of administration that minimizes nonresponse error. You can choose the mode(s), the number of contacts, and the use and type of incentive. You will have to make a realistic estimate about the response rate for each wave of your survey, if you choose to have more than one contact. I recommend using 20%-30% for the first wave, with diminishing proportions.

Item	Fixed cost	Variable cost (per person)
Letter	-	\$0.45
Postcard	-	\$0.30
Survey via mail (includes return envelope)	-	\$1.50
Data entry for printed survey		\$0.50
Telephone call	-	\$2.00
Web survey (<i>see note</i>)	\$1000	\$0.75
Email contact	-	\$0.05
Prepaid incentive	-	Your decision
Postpaid incentive	-	Your decision
Postpaid incentive (lottery)	Your decision	-

Note that the web survey cost varies per person, but not per contact. In other words, you are only charged \$.75 for each person in your initial sample, regardless of how many times you contact them.

Obviously you face several tradeoffs, for example in terms of sample size versus resources devoted to nonresponse. So there is not one correct answer to this assignment; instead, I will be looking at how well you design your plan of administration and how you justify your choices. You will also have to make some educated guesses about the project, just as you would in real life.

Please write the paper as a memo to the president proposing how you will administer the university's survey. In your paper, be sure to provide your initial sample size and an estimated size for the number of respondents you expect to have, your expected margin of error, a description of your administration plan, and a breakdown of your budget so that I can confirm that your plan does not exceed the \$10,000 limit.

You may only use your readings and notes/handouts from class to complete this assignment. Feel free to contact me with any questions you might have.