CERTIFIED ANALYTICS AND INSIGHTS PROFESSIONALS OF CANADA

CAIP Canada
Exam Prep Seminar:

Sampling Practice Questions Feedback

ROBERT A. G. WONG, CAIP, FCRIC

MAY 2020


Your Turn Next!
Practice Questions

Practice Question 1

Calculating Response Rate

You have just completed a satisfaction study of Halifax residents (aged 18 or older) regarding municipal services and their delivery. In total, 1000 valid interviews were completed. In the process of completing the 1000 interviews, the call centre reported that they made 2433 calls to numbers but could not connect with anyone. There were1677 with answering machines, 701 had no answer and 55 were busy.

There were 1048 numbers that were not in service and 208 that were business numbers and 173 that were fax/modem numbers.

Finally, 73 were not completed due to language problems, 3416 were household refusals, 1118 respondents were not available, 783 respondents refused, 82 respondents hung-up mid way.

One thousand and forty nine people responded but 44 did not qualify because there was no one over 18 and 5 were eliminated due to over achieved quotas.

What is the response rate for this study using the empirical and estimation methods? Which calculation should be reported?

CERTIFIED ANALYTICS AND INSIGHTS PROFESSIONALS OF CANADA

Sampling Response Rate

- **Response rate= R/(U+IS+R)**

- R=Response: All those that responded to the telephone calling whether they are included in study or not (e.g. over a quota)
- U=Unresolved: numbers that we are not sure of their status but we were not refused…busy…answering machine…no answer
- IS=In-scope: calls are those who we connected with and might have refused for a variety of reasons from household refusals, or broke off

- What is not included in calculation is out of scope numbers such as business, fax numbers etc.

CERTIFIED ANALYTICS AND INSIGHTS PROFESSIONALS OF CANADA

Calculating Response Rates Empirical Method

Total # attempted	**10,383**
Unresolved (U)	**2433**
busy	55
answering machine	1677
no answer	701
Resolved Numbers	**7,950**
OUT of SCOPE	**1429**
office – non-residential	208
not-in-service	1048
fax/modem	173
In-scope – non-responding (IS)	**5472**
household refusal	3416
respondent refusal	783
respondent not available	1118
language issue	73
qualified but broke off	82
In-scope – responding (R)	**1049**
Not 18+	44
Quota filled	5
Completed interviews	1000

Response Rate

RR = R/(U+IS+R)

Responding/everyone except out of scope numbers

RR = 1049/(2433+5472+1049)

RR = 1049/8954

RR = .117*100

RR = 11.7% or 12%

Calculating Response Rates Estimation Method

Total # attempted	
OUT of SCOPE/INVALID	**1429**
office – non-residential	208
not-in-service	1048
fax/modem	173
Unknown (U)	**2433**
busy	55
answering machine	1677
no answer	701
Ineligible (I)	**44**
not 18+	44
Eligible (E)	**5477**
language issue	73
respondent not available	1118
household refusal	3416
respondent refusal	783
Qualified but broke off	82
quota filled	5
Completed interviews (C)	**1000**

Eligibility Rate

ER=(**C+E**)/(C+E+I)

ER=1000+5477/(1000+5477+44)

ER=6477/6521

ER=.99

Response Rate

RR = C/([**ER*U**] +C+E)

RR = 1000 / (.99*2433+1000+5477)

RR = 1000 / (2408+1000+5477)

RR= 1000/8886

RR = 0.113*100

RR = 11.3%

CAIP
CERTIFIED ANALYTICS AND INSIGHTS PROFESSIONALS OF CANADA

Practice Question 2

Sampling

Back to our High Schools

- Define the sample
- Identify the sample frame
  - Any limitations?
- Calculate sample size
- Describe a probability sampling procedure for the quantitative phase
- Then a non-probability for the qualitative phase

Long Way Off School District

High school students can take many paths after graduation. School Board administrators have expectations that the students are heading to post-secondary education opportunities while others are returning to high school for an additional year, working and other things. You have been asked to help describe and understand the pathways taken by high school graduates. There are approximately 5,000 graduates a year and the Board has home addresses when they were in school. There are 12 high schools in Long Way Off district.

CAIP
CERTIFIED ANALYTICS AND INSIGHTS PROFESSIONALS OF CANADA

Practice Question 2

Sampling

Back to our High Schools

- Population
  - Graduates of high school
  - Long Way Off school district
  - Last 3 years of graduates
- Sample frame
  - Records of graduates with previous home mailing address
- Sample size *(using quick method)*
  - $N=(100/E)^2$
  - $N=20^2$
  - $N=400$
- Sampling procedure
  - Randomly select four high school clusters, select all graduates and clean data base for graduates & addresses
  - Expect about 15% response rate
  - Mail letter to graduates requesting participation and provide web site link to survey. At completion of online survey respondents are asked to volunteer for an online bulletin board focus group

CAIP
CERTIFIED ANALYTICS AND INSIGHTS PROFESSIONALS OF CANADA

What Did You Take Away?

- Why sample?
- Sampling process
  - Four steps
- Defining population & identify sample frame
- Calculating sample size
- Applying sampling procedures
  - Non-probability
  - Probability & weighting data
- Standardization of response rate calculations

CAIP
CERTIFIED ANALYTICS AND INSIGHTS PROFESSIONALS OF CANADA

What's Up Next?