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LECTURE 5

Collecting data

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AGENDA

- Issues with collecting data
- Sources of data
- Data acquisition methods
- Questionnaire design

- To solve any issue or problem, we need to acquire data first
 - Income inequality
 - Vaccine for diseases
 - New product launch
- Shortage of data is not an issue in the modern world
 - We can collect an (almost) infinite amount of data
- Things to consider when collecting data:
 - Is the data appropriate?
 - Is the data adequate?
 - Is the data unbiased?

Is the data appropriate?

- What does it mean for data to be appropriate?
 - Is it relevant (i.e. useful) for the problem under consideration?

For example:

- Collecting data on habits from healthy individuals is not appropriate if we want to study the effects of smoking on individuals.
 - We need to look at the habits of those who smoke

Is the data adequate?

- What does it mean for data to be adequate?
 - Is the collected data enough?

For example:

- Collecting data on whether people smoke or not is not adequate if we want to study the health effects of smoking on individuals.
 - We need to collect data on their health as well

Is the data unbiased?

What does it mean for data to be unbiased?

- Does it fairly represent the underlying issues?

For example:

- Collecting data from only patients who go to the hospital for health issues from smoking will be an biased source of data.
 - It does not consider all other individuals who smoke but do not go to hospitals

Sources of data

- Primary source
- Secondary source

Secondary source

- Are cheaper to acquire
- Less time consuming
- However, it may not suit our specific purpose, as it was collected for other purposes (i.e. It may not be appropriate or adequate)

Examples of secondary sources

Search engines

Google (www.google.com)

Yahoo (www.yahoo.com)

Newspapers

NY Times (www.nytimes.com)

BBC (www.bbc.co.uk)

Wall Street Journal (www.wsj.com)

Examples of secondary sources

Sources of statistics

- World Bank Database (data.worldbank.org)
- OECD (www.oecd.org)
- Federal Reserve Economic Data (fred.stlouisfed.org)
- UK Office for National Statistics (ons.gov.uk)

- Are more costly
- More time consuming
- However, they are suited exactly for our purpose (i.e. They are appropriate and adequate for our specific purpose)

Sources of primary data

- Ourselves!

- Entire population? Or a sample?
- Population (also called a census):
 - Everyone in the target population
- Sample:
 - A small subset of the entire population

Collection methods

- Interviews:
 - Face to face
 - Telephone
- Self-reported
 - Mail
 - Online surveys
- Observations

Designing good questionnaires

Avoid the following:

- using biased or leading questions
- making unnecessary assumptions
- asking 2 questions in 1
- using jargon
- poor answer scales
- confusing questions

Using biased or leading questions:

Instead of

How awesome our service?

Use:

How would you rate our service?

Making unnecessary assumptions

Instead of:

How often do you drink coffee?

Use:

Do you drink coffee?

If you do, how often do you drink coffee?

Asking 2 questions in 1

Instead of:

How would you rate our product and or customer service?

Use:

How would you rate our product?

How would you rate our customer service?

Using jargon

Instead of:

How well does our product help you reach your KPIs?

Use:

How well does our product help you reach your goals?

Poor answer scales:

Instead of:

Do you agree with the following statements?

I find the product easy to use.

1 2 3 4 5

Use:

I find the product easy to use.

Strongly disagree Disagree Neutral Agree Strongly Agree

1 2 3 4 5

Confusing questions

Do you agree with the following statements?

It is not unlikely that I will recommend your products

<i>Strongly disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly Agree</i>
1	2	3	4	5

It is likely that I will recommend your products

<i>Strongly disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly Agree</i>
1	2	3	4	5

Essential readings:

- Jon Curwin..., “Quantitative methods...”, Chapters 3, 4