

Principles of Questionnaire Design

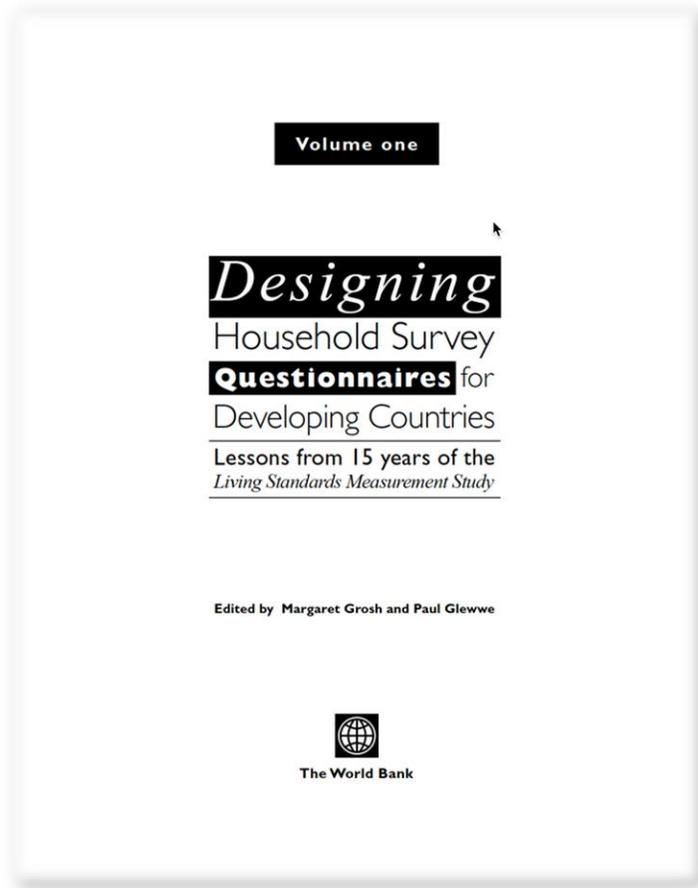
LECTURE 4

Today's agenda

- Overview of the **survey process**: where does questionnaire design fit?
- General principles of **questionnaire design**, with focus on the measurement of consumption
- Note: today is about **general principles**, whereas **specific guidelines** for each type of consumption expenditure will be provided in lectures 5-10.

Useful readings – I

Grosh and Glewwe eds. (2000)



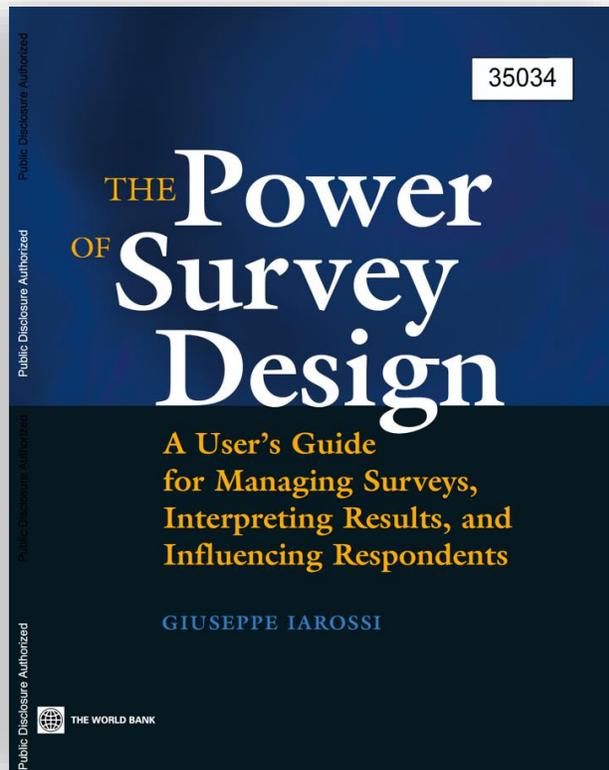
- Three-volume work
- Chapter 2
Making decisions on the overall design of the survey
by M. Grosh and P. Glewwe
- Chapter 3
Designing modules and assembling them into survey questionnaires
by M. Grosh and P. Glewwe and J. Munoz
- Chapter 5
Consumption
by A. Deaton and M. Grosh

Useful readings – II

Iarossi (2006)

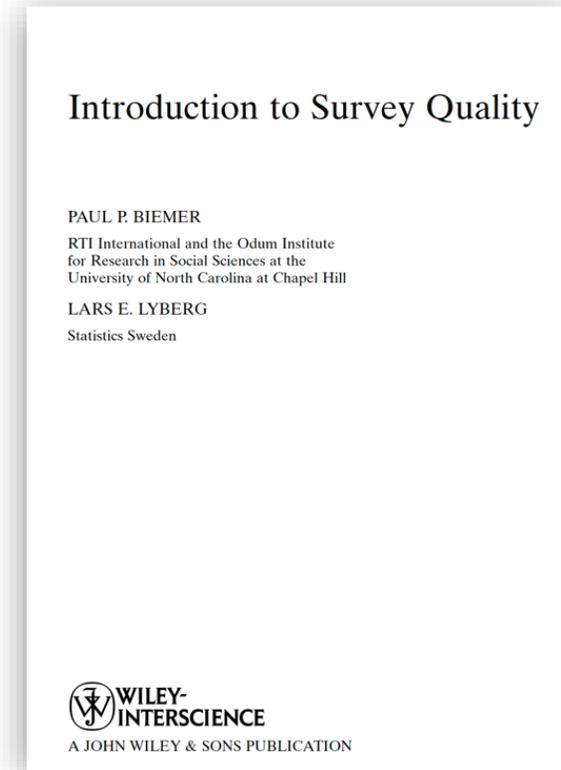
Chapter 3

How Easy It Is to Ask the Wrong Question



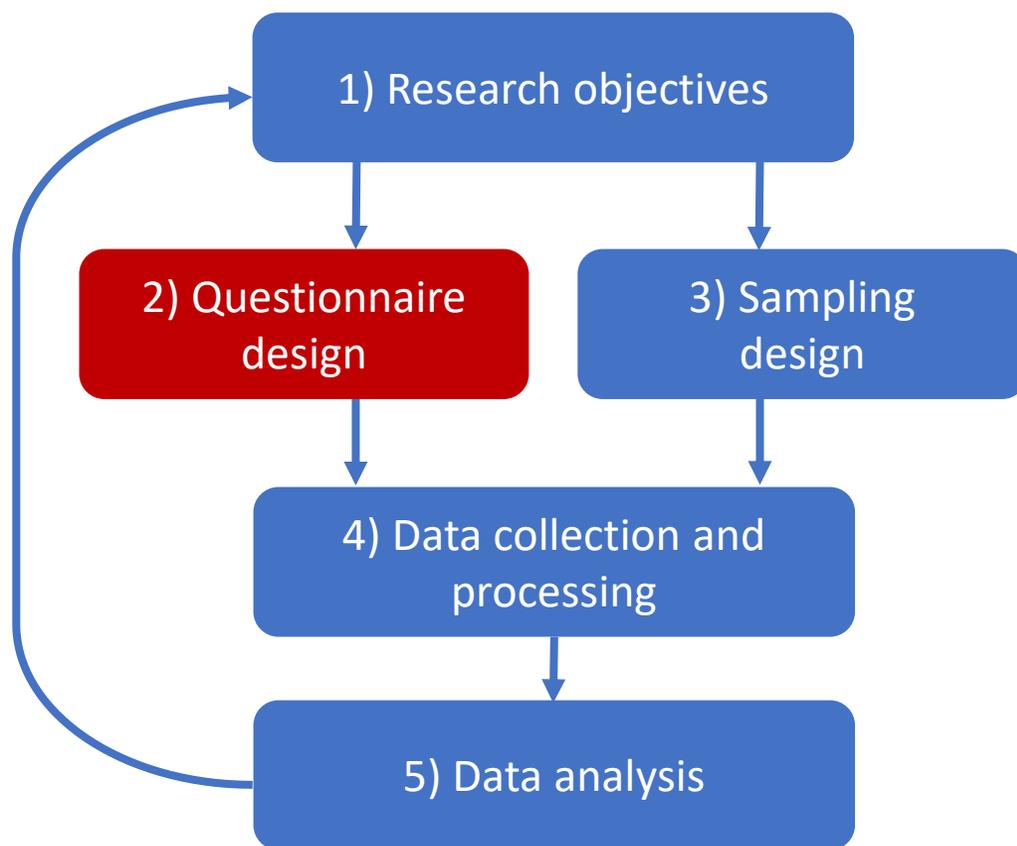
Chapter 2

The Survey Process and Data Quality



1. The survey process

Overview of the survey process



- 1) Identify a key set of **research questions** to be answered by the survey
- 2) & 3) Develop the **questionnaire**; define target population and **sampling** frame (in parallel)
- 4) Recruit and train interviewers, field the survey, **collect the data**, convert it to computer readable format, edit the data
- 5) Weight the data to compensate for unequal sampling probability and/or missing values, perform **analysis**.

The importance of questionnaire design

Jolliffe (2001)

Measuring absolute and relative poverty: The sensitivity of estimated household consumption to survey design¹

Dean Jolliffe

Economic Research Service, US Department of Agriculture, 1800 M Street NW, Washington, DC 20036-5831, USA

and William Davidson Institute, University of Michigan, Ann Arbor, MI 48109-1234, USA

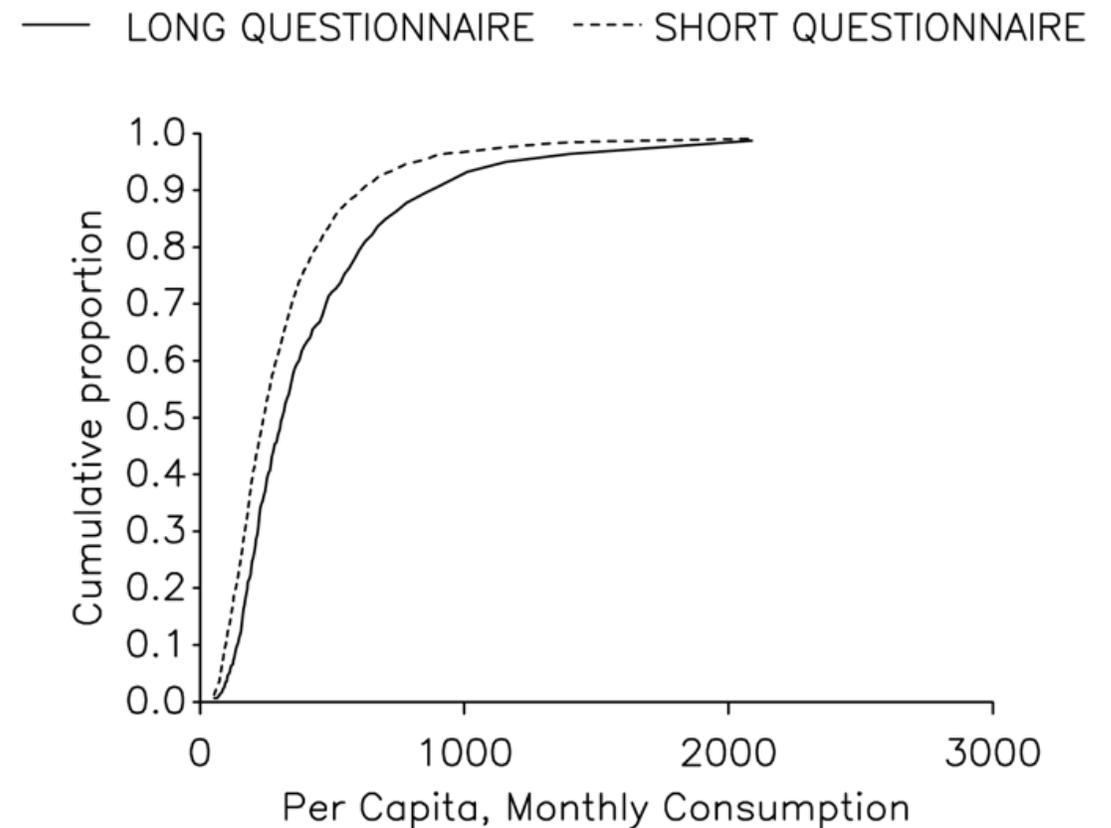
E-mail: jolliffe@ers.usda.gov

This paper illustrates that questionnaire design significantly affects estimates of household consumption and absolute poverty. In a between-groups designed experiment in El Salvador, longer, more detailed questions on consumption result in an estimate of mean, household consumption that is 31 percent greater than the estimate derived from a condensed version of the questionnaire. The distribution of household consumption from the long questionnaire first-order stochastically dominates the distribution from the short questionnaire over 96 percent of the range of the distribution. This difference in estimated consumption results in a measure of absolute, severe poverty from the short questionnaire that is 46 percent greater than the estimate derived from the long questionnaire. In contrast, the level of relative poverty is unaffected by the changes in questionnaire design. An implication of this paper is that modifications over time to questionnaires will result in spurious estimates of change in consumption and absolute poverty levels.

Keywords: Household consumption, poverty, El Salvador, questionnaire design, stochastic dominance.

Beyond any reasonable doubt

- The main finding of the paper is captured in the graph reporting the **cumulative distribution functions** (CDF)
- How to interpret a CDF?
- One curve (short questionnaire) lies below the other (long questionnaire), irrespective of the level of consumption
- This is called **first-order stochastic dominance** (FOD)
- Interpretation: the long questionnaire will generate a significantly lower estimate of the incidence of absolute poverty, irrespective of the level chosen for the poverty line.



The importance of questionnaire design – Niger

Backiny-Yetna et al. (2017) experiment

Food Policy 72 (2017) 7–19



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The impact of household food consumption data collection methods on poverty and inequality measures in Niger



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ARTICLE INFO

Keywords:
Poverty measurement
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Expenditure
Survey design

ABSTRACT

Many countries are faced with the problem of monitoring poverty indicators when different food data collection methodologies have been used in national household surveys over the years. This paper provides a comprehensive analysis of this problem in the case of Niger. The paper assesses the impact of three methods of food data collection on the welfare distribution, and poverty and inequality measures in Niger. The study leverages a food consumption experiment to evaluate the three methods of food data collection implemented in the country's most recent national household surveys. The first method was 7-day recall, the second was usual month, and the third was 7-day diary. The study finds that there was a large difference in measures of consumption and poverty between the first two methods (which yielded similar results) and the 7-day diary method. Annual per capita consumption from the 7-day recall method was, on average, 28 percent higher than that from the 7-day diary method. This gap exists not only at the mean of the distribution, but at every level. The observed differences in measured annual per capita consumption leads to differences in poverty and inequality measures even when alternate poverty lines are used.

Impact on poverty indicators

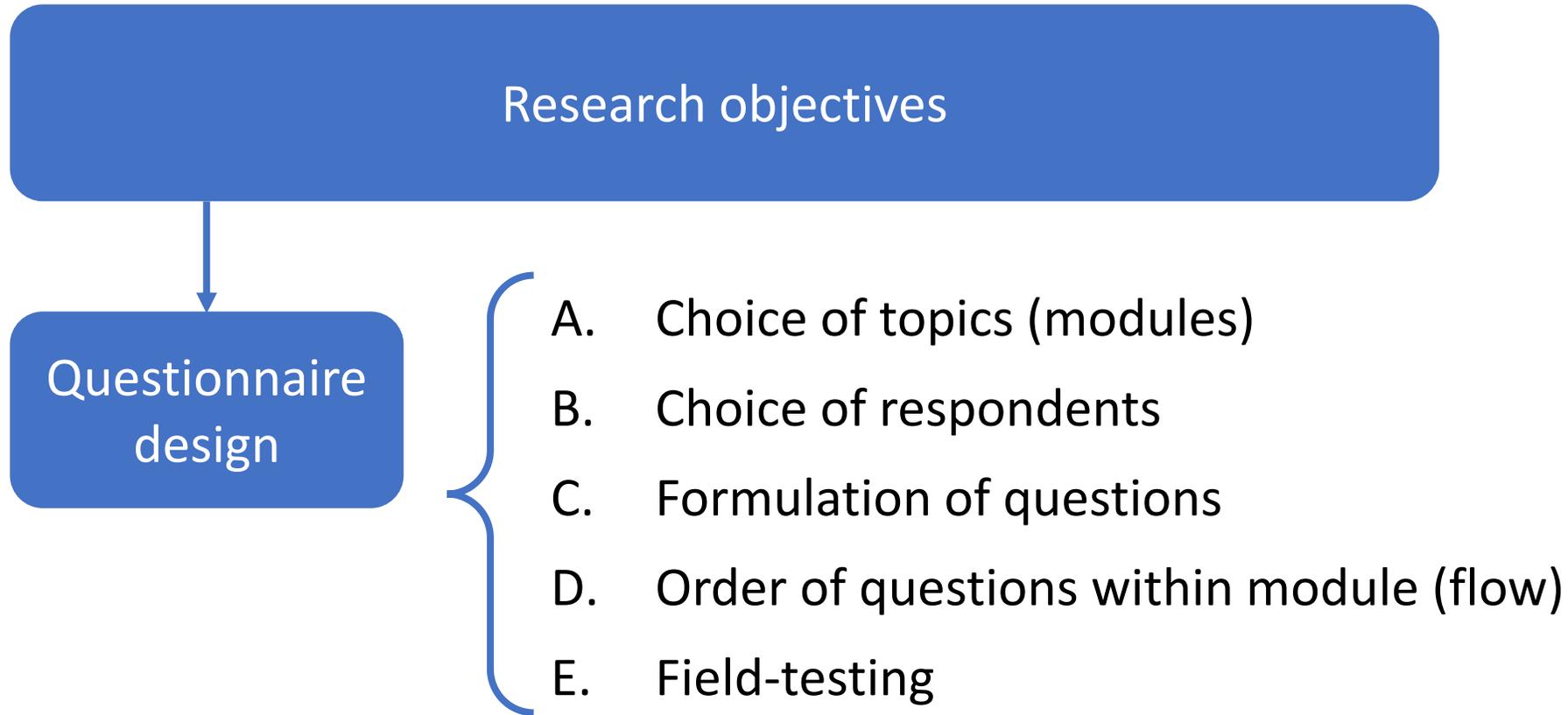
Table 8
Poverty Indicators by Type of Questionnaire Using the National Poverty Line (Niger).

	7-day recall		Usual month		7-day diary		χ^2	Test Level
	Mean	SE	Mean	SE	Mean	SE		
Poverty headcount	0.425	0.052	0.465	0.050	0.510	0.051	1.91	0.392
Poverty Gap Squared	0.150	0.024	0.136	0.018	0.199	0.028	8.57	0.020
poverty gap	0.070	0.014	0.053	0.010	0.100	0.019	11.64	0.006

- Differences in questionnaire design are responsible for different poverty estimates
- A similar result applies to inequality estimates
- Questionnaire design matters

2. Principles of questionnaire design

Topics covered



Definition of research objectives

principles

- What research questions should the data answer?
- The answer influences the whole survey process
- Two priorities:
 1. Organizing a survey design **team**
 2. Formulating objectives as **questions**

Organizing a survey design team

Grosh and Glewwe (2000: 21-29)

- Designing a survey questionnaire is a **joint effort** of different experts, stakeholders, institutions.
- The higher the **diversity** within the survey design team, the better:
 - researchers
 - policy analysts
 - policy makers
 - data producers
- **Local knowledge** is crucial, as is familiarity with **international** best practice. They are complements not substitutes.

Formulating objectives

Grosh (2005: 36-40)

- Useful to formulate **objectives as questions**, for instance:
 - “What proportion of the population is poor?”
 - “Has poverty increased or decreased over time?”
- Objectives are likely to multiply with consultations.
- Balance with **constraints**:
 - budget
 - capacity of the organization (experience, know-how)
 - respondents’ willingness and ability to cooperate

Choice of topics

principles

- What pieces of information are needed to attain research objectives?
- Unfortunately, few general guidelines exist
- In practice, a popular solution is the **module approach** (typical of LSMS-type surveys): choosing modules (that is, topics), then moving to drafting each module.
- The **order** of modules matters: group together modules answered by same household member, and put **sensitive modules last**.

Choice of topics – an example

(Grosh and Glewwe, 2000: 30)

LSMS “core” modules

- 1) Household roster
 - 2) Housing
 - 3) Education
 - 4) Consumption
 - 5) Health
 - 6) Employment
 - 7) Transfers and other nonlabor income
 - 8) Metadata
 - 9) Prices
 - 10) Credit
 - 11) Agriculture
- Sub-topics for Consumption:
- Daily expenditures
 - Food and fuel
 - Non-food consumption
 - Expenditures on private interhousehold transfers
 - Durable goods

Choice of respondents – I

principles

- Who should answer the questions?
- Answer: “the most knowledgeable person”
- Individual questions (*e.g.* employment)
 - Individuals themselves should answer
 - When forced to use “**proxy respondent**” (one person responds for another) consider recording who is answering on behalf of who
- Household questions
 - Household is asked to determine the “**most informed individual**”, who will respond to questions (may change for different sub-modules)

Choice of respondents – II

in practice (Deaton and Grosh, 2000: 118)

- For **expenditures**, “most informed person” is a good approach, because it does not pre-judge division of labor in household (who does the shopping? who manages budget?)
- Has worked well when food is large share of budget, and when most of the household resources are pooled
- **Problem**: “There are expenditures on which no single person may have an accurate picture. (...) There may be items, such as clothing, that individuals purchase without any other household member knowing how much was spent.”
- **No easy fix**: interviewing each household member individually on own expenditures is very expensive

Formulation of questions

principles

- What to ask, exactly – and how?
- When developing a question, the designer should first of all put himself in the position of the typical, or rather the **least educated, respondent**.
- A good rule to remember in designing questions is that the respondent has probably not thought about these questions at the level of **detail required** by the survey.
- Details will be the subject of the next lectures. For now, a few **general principles** on two **specific issues**:
 1. Question wording
 2. Question type

Question wording

Iarossi (2006: p. 30-43)

- A number of studies have shown that changing even a single word in a question can significantly alter response distribution and accuracy.
- Useful checklist: **the “BOSS” principle**
- Four criteria should be followed when wording any question: **brief, objective, simple, and specific**

Brief

- As a **rule of thumb**, a question should not exceed **20 words**, and should not have more than **three commas**
- Brevity also means asking **one question at a time**, that is, avoiding “hidden questions”
- **Example**: “What interest rate are you paying on your loan?”
- **Problem**: implies the hidden question of whether the person has a loan or not.
- **Possible fix**: Ask questions separately: “Do you have a loan?” and “What interest rate are you paying?”

Objective

- Non-objective questions share a common characteristic: they tend to **suggest an answer**
- Avoid **leading questions**, that is, questions that push the respondent in the direction of a specific answer
- **Example**: “Shouldn’t something be done about X?”
- **Problem**: question leads to a positive answer.
- **Possible fix**: “Do you think something should be done about X?”

Simple

- Use words and expressions that are simple, direct, and familiar to respondents
- Avoid **technical terms, jargon, and slang**
- Adopt the same definitions throughout the questionnaire

How simple is my question?

Burgess (2001: 9)

(Please circle relevant number)

	Yes	No
Are you against a ban on smoking	1	2

- Would you consider this question as a good example?
- **Problem:** double negative expression
- **Possible fix:** “Do you think smoking should be banned?”
- **Recommendation:** avoid negatives or double-negative expressions.

Specific

- Being specific means asking precise questions.
- **Example:** “on average per month”
- **Problem:** it is unclear whether the question means “on average over the past 12 months” or “on average over the months in which there were positive expenditures” (yes to Q5)
- **Possible fix:** indicate explicitly which is the case

MONTHLY CHARACTERISTICS			
5.- In the past 12 months, how many months have you had expenditures on this ..[ARTICLE] ^ YES 0 ► 8	6.- How much have you spent <u>on average per month</u> on this ..[ARTICLE]..?	7.- Quantity purchased of this ..[ARTICLE].. <u>on average per month</u> , in the unit utilized for the product?	
MONTH	ARY (average per mo	QUANTITY	UNIT

Question wording – I/II

example

- “During the past seven days, were you employed for wages or other remuneration, or were you self-employed in a household enterprise, were you engaged in both types of activities simultaneously, or were you engaged in neither activity?”
- How would you improve this question?

Question wording – II/II

explanation

- “During the past seven days, were you employed for wages or other remuneration, or were you self-employed in a household enterprise, were you engaged in both types of activities simultaneously, or were you engaged in neither activity?”
- **Long, unclear**, and contains **technical jargon**
- Possible fix: revising it as two separate questions that are **brief, simple, specific**
 1. During the past seven days, did you work for pay for someone who is not a member of this household?
 2. During the past seven days, did you work on your own account, for example, as a farmer or a seller of goods or services?

Question type

Grosh (2005: 45-46)

- A key decision is whether to make use of **open questions** (permitting respondents to answer in their own words) or **closed questions** (requiring respondents to select an answer from a set of choices).
- The use of “**closed questions**”, that is questions with **pre-coded answers**, is recommended
- Codes should be **mutually exclusive and collectively exhaustive**
- Coding schemes should be consistent across questions, *e.g.* if one question uses 1 for yes, 2 for no, then this should be maintained throughout the questionnaire, and should be clearly available for interviewer to consult

What's wrong with my question?

Burgess (2001: 9)

What is your most usual means of travelling to college?

(Tick one box only)

Bus	<input type="checkbox"/>
Car	<input type="checkbox"/>
Bike	<input type="checkbox"/>

- This is an example of a **closed question**.
- Assume that the computer codes Bus by 1, Car by 2 and Bike by 3. If the respondent omitted to answer then this could be coded as 0 or some other missing value.

Question type

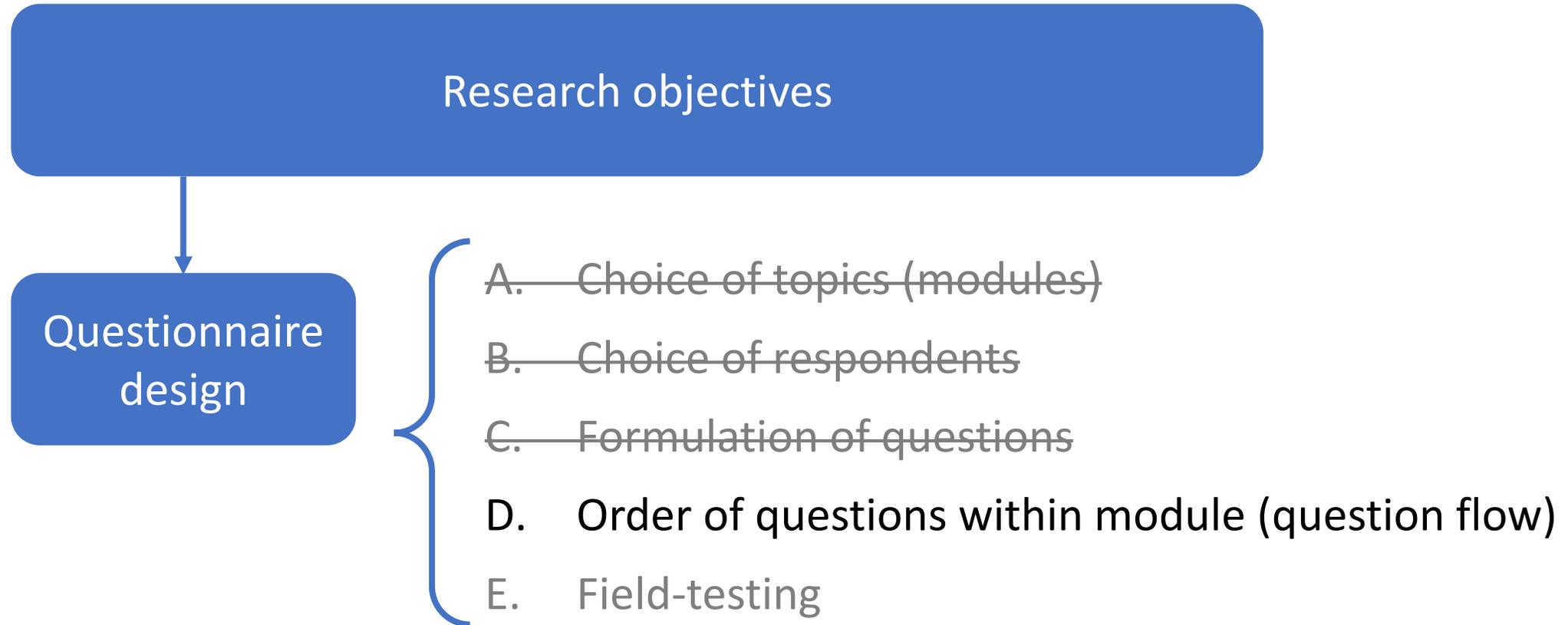
Grosh (2005: 45-46)

- Allow respondents to **answer on their own terms** as much as possible
- **Example:** “How much do you pay per month to rent your dwelling?”
- **Problem:** reference period is forced as 1 month. If giving amount per week or per year comes more natural to respondent, he/she is forced to convert, making room for mistakes
- **Possible fix:** “How much do you pay in rent for your dwelling?”, with option to associate pre-coded reference period, such as week, month, year, to declared amount.

What happens when people are asked a question about which they have no relevant knowledge?

- In theory, respondents will say that they do not know the answer
- In practice, they may wish not to appear uninformed and may therefore give an answer to satisfy the interviewer.
- In order to reduce the likelihood of such behavior, some researchers have recommended that **don't know (DK) options** (or filters) routinely be included in questions.
- Do **DK filters** work? Evidence is mixed. Krosnick and Presser (2010: 282) argue that DK filters do *not* improve measurement.

Remember where we are...



Question flow

- In what order should questions be asked?
- Early questions should be easy and pleasant to answer, and should build rapport between the respondent and the interviewer
- Flow should be tuned to logical reasoning **of the respondent**
- Related questions grouped together, minimize abrupt changes of topic
- “Filter” questions (**skips**) are important to minimize irrelevant questions
- **Sensitive questions last**

Sensitive questions

- Certain questions are perceived as sensitive
- A typical example is for **income** (another is wealth)
- “How much do you have in your current account?”
- People are less likely to participate in surveys with sensitive topic (Tourangeau et al., 2010)
- People are likely to provide an unreliable answer (underreporting)
- This is why questions that might make respondents uncomfortable should be placed at the **end of the questionnaire**

Did you kill your wife?

Barton (1958)

Asking the Embarrassing Question

BY ALLEN H. BARTON

University of Chicago

THE POLLSTER's greatest ingenuity has been devoted to finding ways to ask embarrassing questions in non-embarrassing ways. We give here examples of a number of these techniques, as applied to the question, "Did you kill your wife?"

1. The Casual Approach:

"Do you happen to have murdered your wife?"

2. The Numbered Card:

Would you please read off the number on this card which corresponds to what became of your wife?" (HAND CARD TO RESPONDENT)

1. Natural death

2. I killed her

3. Other (What?)

(GET CARD BACK FROM RESPONDENT BEFORE PROCEEDING!)

3. The Everybody Approach:

"As you know, many people have been killing their wives these days.

Do you happened to have killed yours?"

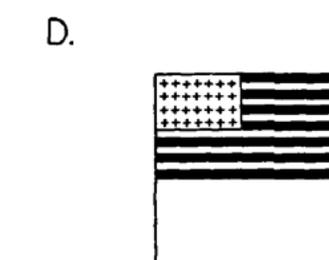
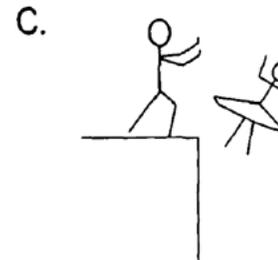
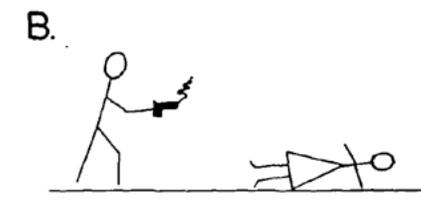
4. The "Other people" Approach:

(a) "Do you know any people who have murdered their wives?"

(b) "How about yourself?"

5. The Sealed Ballot Technique:

In this version you explain that the survey respects people's right to anonymity in respect to their marital relations, and that they themselves are to fill out the answer to the question, seal it in an envelope, and drop it in a box conspicuously labelled "Sealed Ballot Box" carried by the interviewer.



Asking sensitive questions after 1958

- Use methods to reassure households of the **confidentiality** of their responses
- Explain the **reasons** of the questions
- Use **unfolding brackets questions**

Unfolding bracket questions

Income

- The first question asks the respondent to provide the exact amount of the family's savings in the last year
- If the respondent does not provide an answer to the exact amount question, the respondent is asked to provide the family's savings in relation to \$20,000 (greater than or equal to, or less than).

The Bank of Italy

SHIW

Q1. This is a list of different forms of saving and investment. Did the household have ... (*form of saving or investment*) on 31-12-2016?
(1=Yes or 2=No)

Q2. (SHOW CARD C25)

(For each form of saving or investment held on 31-12-2016)

What was the value on 31-12-2016? Answer using one of the ranges on this card.

Field-testing the questionnaire

- Pre-testing is the word
- Some evaluation methods require administration of the questionnaire to respondents, whereas others do not.
- The least structured evaluation method is **expert review**, in which one or more experts critiques the questionnaire
- The most common form of pretest data collection — conventional pretesting — involves administering a questionnaire to a small sample of the relevant population under conditions close to, or identical to, those of the main survey.

Accuracy vs. Comparability

- Trade-off between following best practices and **improving** the questionnaire, vs. ensuring **comparability** with previous data
- No easy solution. Incremental progress, when benefits from accuracy outweigh disadvantages of non-comparability



Lessons learned

- No need to repeat guidelines for stages of questionnaire design: choice of modules, choice of respondents, formulation of questions, order of questions (flow), field-testing
- In practice, choices not made in a vacuum: always consider **previous questionnaire**
- Important to strike a balance between comparability with the past and accuracy of data

References

Required readings

Glewwe, P. (2005). Chapter III: Overview of questionnaire design for household surveys in developing countries. In United Nations Statistical Division, United Nations Department of Economic and Social Affairs (Eds.), *Household surveys in developing and transition countries*. New York, NY: United Nations.

Grosh, M. & Glewwe, P. (2000). *Designing Household Questionnaires for Developing Countries, Lessons from 15 years of Living Standards Measurement Study, Volume One*: World Bank. Chapters 2, 3, 5

Suggested readings

Backiny-Yetna, P., Steele, D., & Dijma, I. (2017). The impact of household food consumption data collection methods on poverty and inequality measures in Niger. *Food Policy*, 72, 7-19.

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Tourangeau, R., Groves, R. M., & Redline, C. D. (2010). Sensitive topics and reluctant respondents: Demonstrating a link between nonresponse bias and measurement error. *Public Opinion Quarterly*, 74,413–432.

Thank you for your attention

Homework

Exercise 1 – Engaging with the literature

- P. Conforti, K. Grünberger, N. Troubat (2017) have investigated the impact of certain survey characteristics on the measurement of food consumption.
- Summarize the main findings of the paper.

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The impact of survey characteristics on the measurement of food consumption 

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ARTICLE INFO

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Survey design
Food consumption
Food acquisition

ABSTRACT

Survey characteristics affect the quality of the measurement of food consumption within households; thus, it is important to identify best practices for designing surveys that collect food data. This paper analyses the impact of survey characteristics on the measurement of food consumption from a sample of 81 national surveys. Results highlight regularities that can inform best practices in designing surveys and promoting the use of the data for multiple purposes. Surveys focused on food acquisition collect higher food quantities compared to those that target food consumption. Surveys based on recall interviews collect higher food quantities compared to those based on diaries, but the difference decreases with long reference periods. The use of standard units of measurement as well as the consideration of partakers in meals and of seasonality generates significant differences in the survey results. The impact of the different survey characteristics carries substantive implications when food consumption data are employed for assessing food security conditions. The results are part of a wider work program aimed at improving the quality of household survey data. More evidence is needed, ideally through coordinated sets of analyses and experiments in different contexts. Additionally, survey characteristics must be complemented by effective field work in order to generate high quality data. Towards this end, statistical capacity development is crucial to promote better data and more evidence-based decision making.

Exercise 2 – Question wording

- We want to measure the current net present value of owner-occupied dwellings.
- Which of the following wordings is most appropriate, and why?
 1. How much is your house worth?
 2. What is the current net present value of this dwelling?
 3. How much would you sell your house for today?
 4. If you were to sell your house today, what price do you believe you could receive?
 5. How much did you pay for this house?