

Video 4 of 5: Survey Data Quality – Phone Surveys

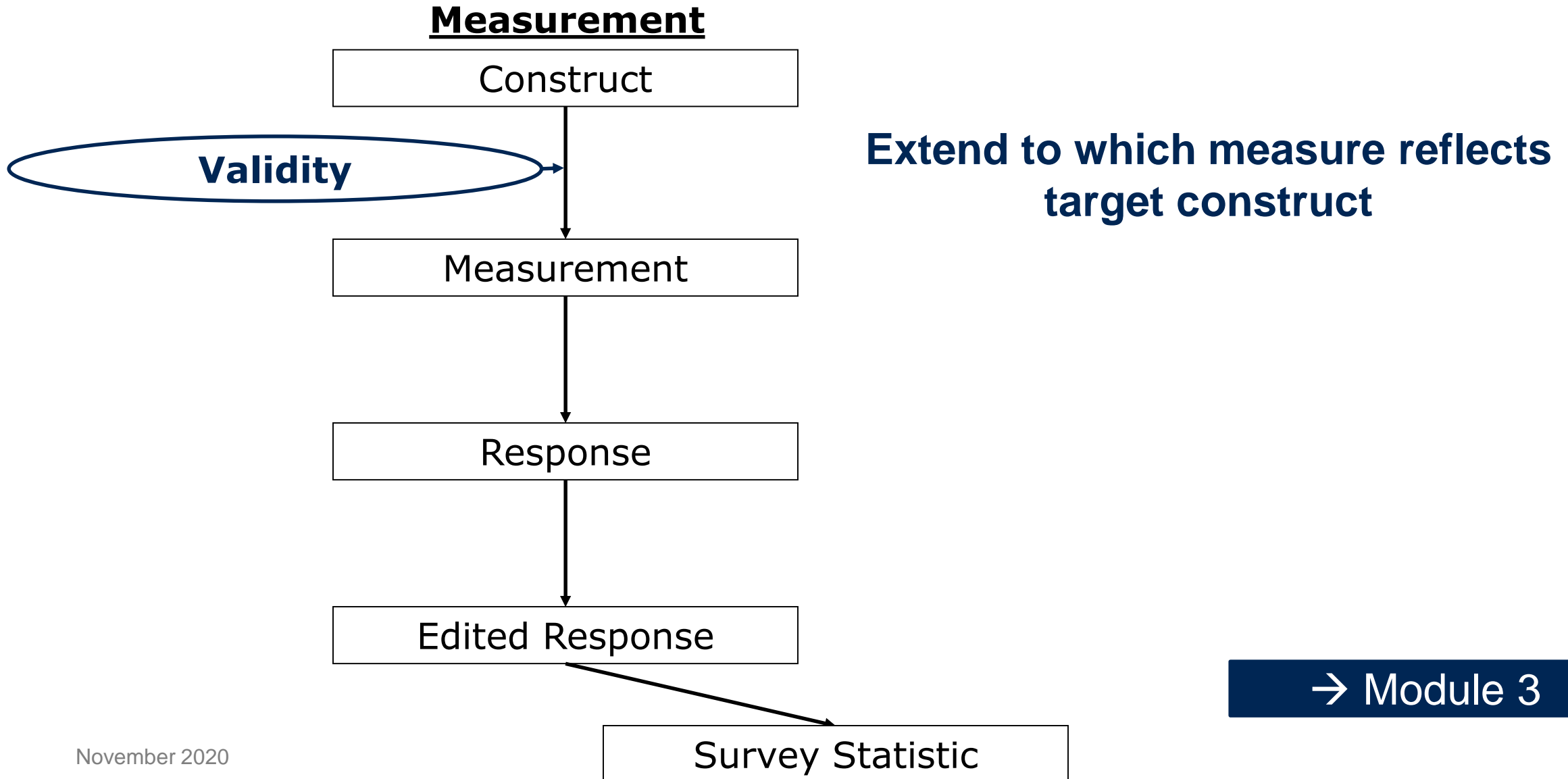
Introduction to Phone Surveys



THE WORLD BANK

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BUSINESS SCHOOL

Survey Lifecycle from a Quality Perspective



Survey Lifecycle from a Quality Perspective

Measurement

Construct



Measurement



Measurement Error



Response



Edited Response



Survey Statistic

True value of measure not (completely) reflected in response

Sources of Measurement Error

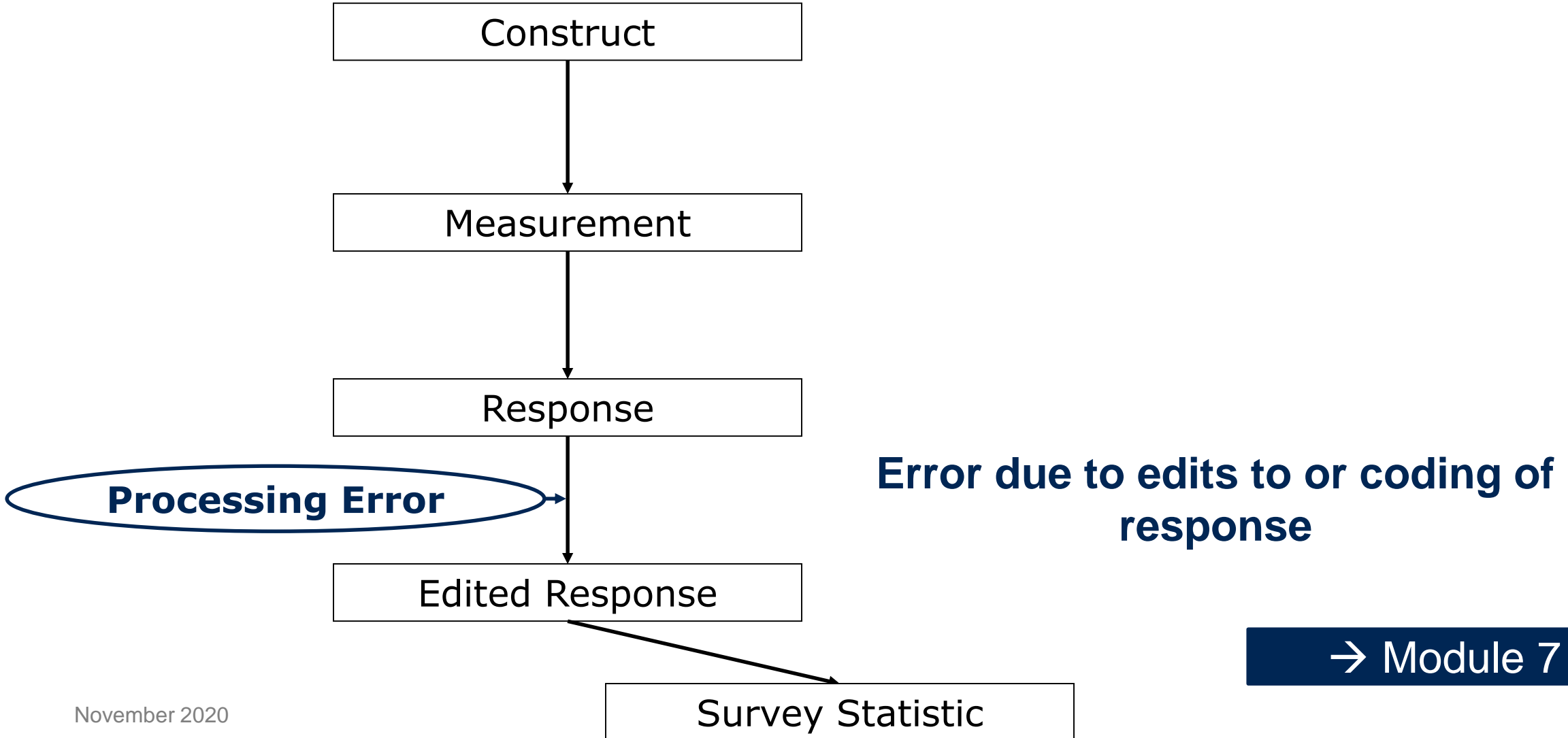
- Respondent
 - e.g., fatigued, inattentive, and distracted because of extremely long questionnaire (>2 hrs.)
- Interviewer → Module 4
 - e.g., unfamiliar with questionnaire and important concepts (e.g., what is meant by employment), low interviewing skills (e.g., insufficient probing)
- Instrument or questionnaire → Module 3
 - e.g., ill-defined concepts (e.g., using household and family interchangeably) or not explaining to respondents what household means
- Mode of data collection → Module 5
 - e.g., attitude items more sensitivity to order of questions on phone than in self-administration

Measurement Error: Personal vs. Phone

- Secondary analysis of multiple personal vs. telephone comparison studies (Holbrook, Green, & Krosnick 2003)
 - Respondents interviewed by phone appear to be less cooperative, and less interested in survey
 - Telephone Respondents more likely to doubt genuineness of study
 - Suspicion of survey process promotes socially desirable responding and satisficing
 - However, magnitudes of mode effects small and no reason for concern about phone mode
 - Mode effects appear even smaller in light of large cost savings associated with telephone interviewing

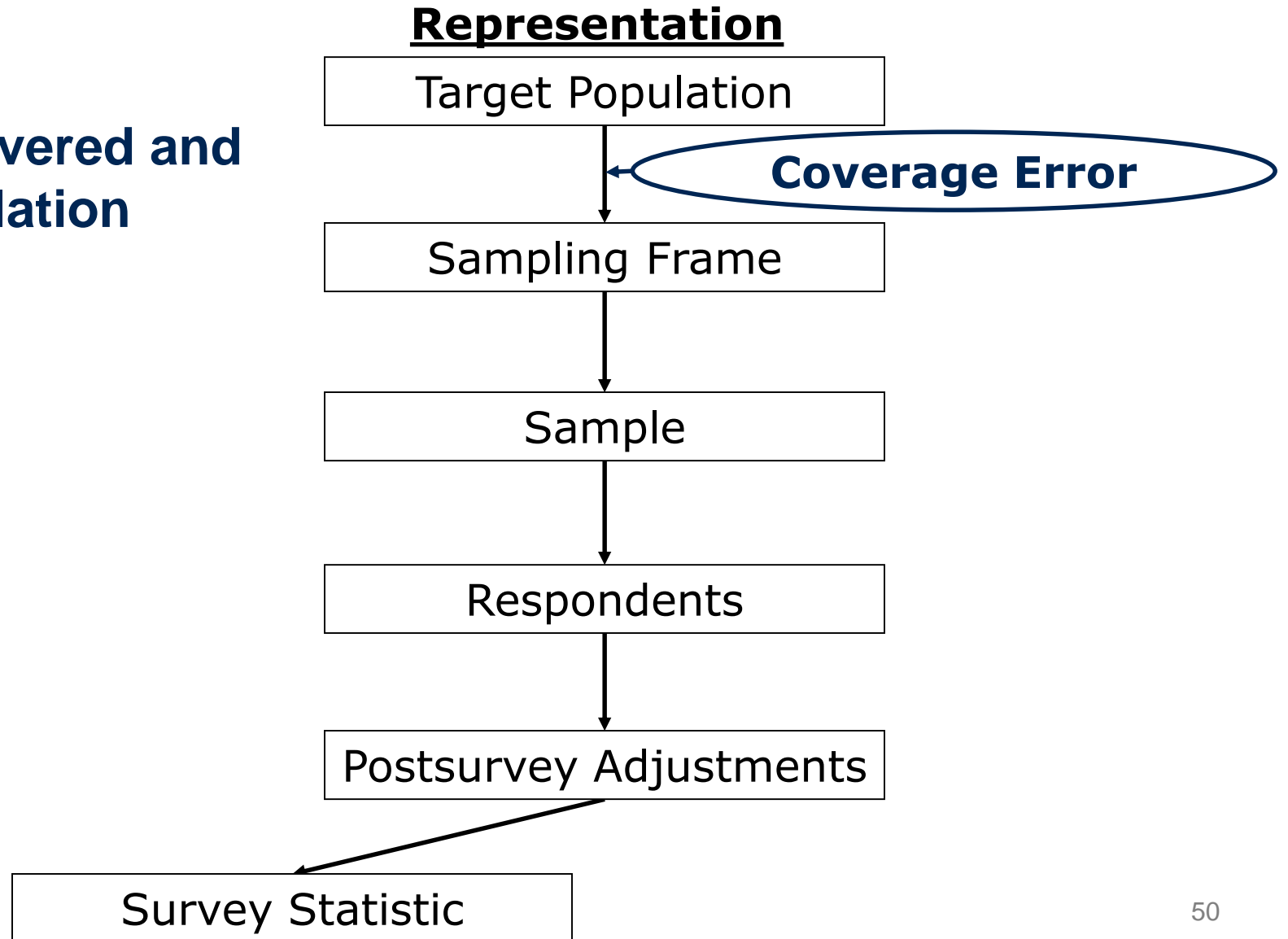
Survey Lifecycle from a Quality Perspective

Measurement



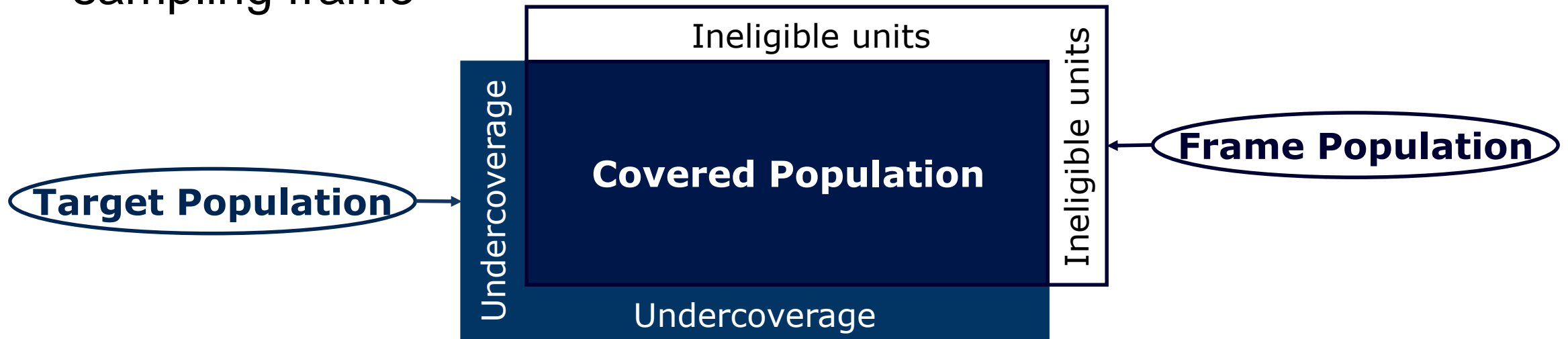
Survey Lifecycle from a Quality Perspective

Difference between covered and noncovered population



Coverage Error

- Error due to fact that not every unit in population represented on sampling frame

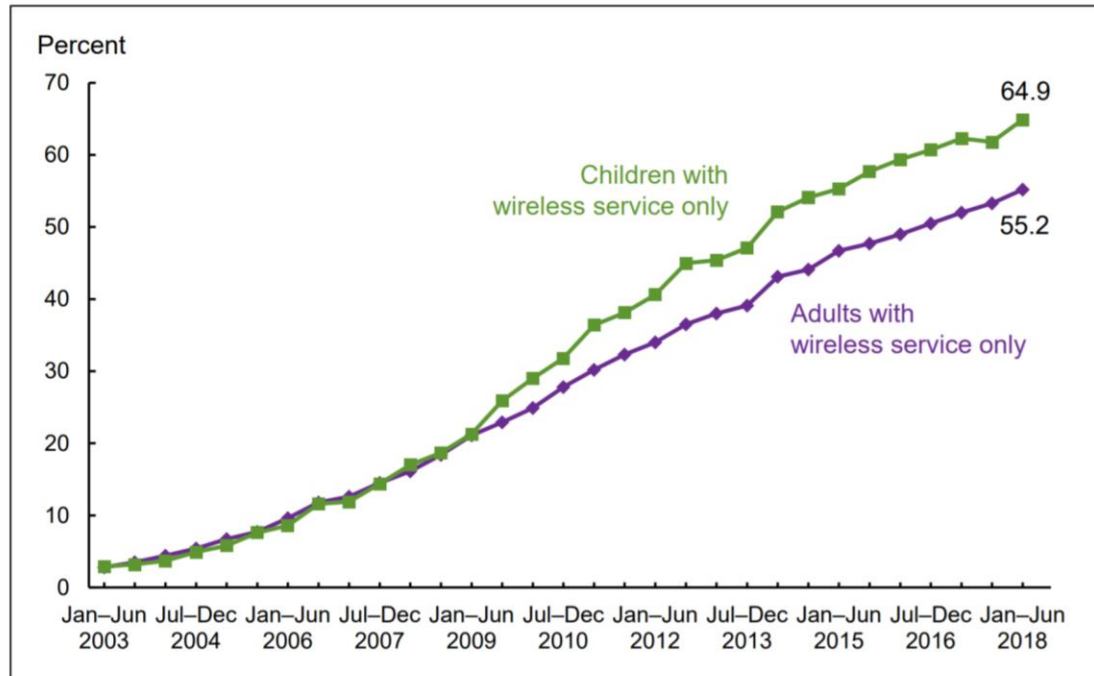


- Coverage error is function of both rate of noncoverage and difference between those covered by frame and those not

→ Module 2

(Cell) Phones and Coverage

Figure. Percentages of adults and children living in households with only wireless telephone service: United States, 2003–2018

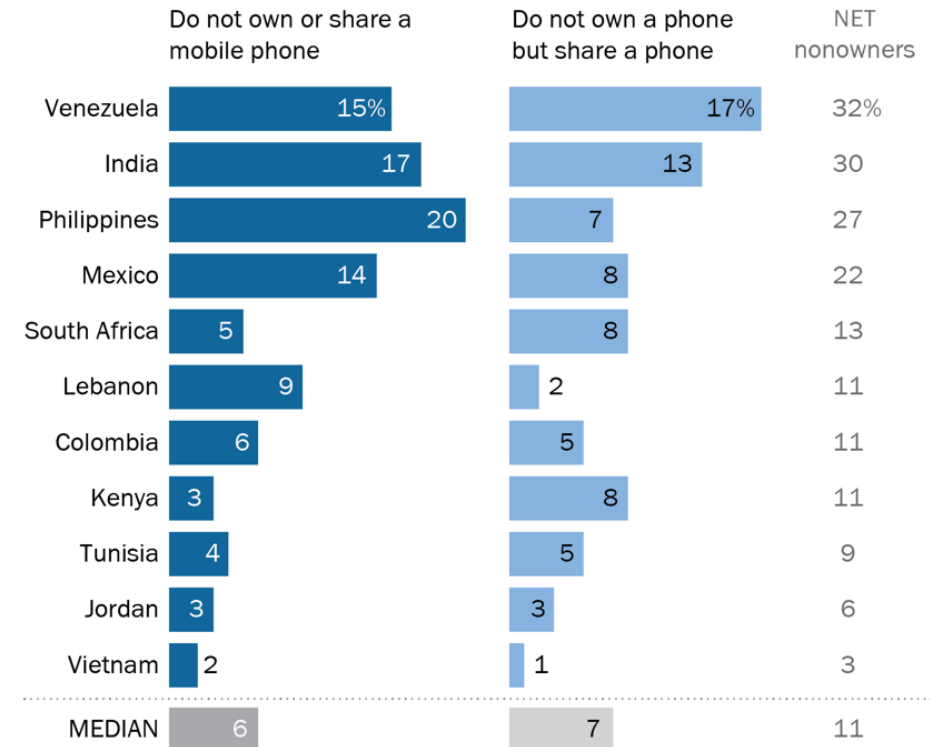


NOTE: Adults are aged 18 and over; children are under age 18.
DATA SOURCE: NCHS, National Health Interview Survey.

Source: Blumberg & Luke (2018)

In some emerging economies, many do not own – or even share – mobile phones

% of adults who ...



Source: Mobile Technology and Its Social Impact Survey 2018. Q4 & Q5.
"Mobile Divides in Emerging Economies"

Source: Silver et al. (2019)

(Cell) Phone Coverage Bias

- Pew Research Center study in seven African countries (Ghana, Kenya, Nigeria, Senegal, South Africa, Tanzania, Uganda)
 - Highly educated particularly likely to own cell phones
 - e.g., 93% of Ugandans with secondary education or greater own cell phone, compared with 61% of those with less education
 - Cell phone ownership also more common among Africans with at least some English facility
 - e.g., three-quarters of Ugandans with English language skills own cell phone, while only about half of those with no English language skills
 - Men more likely than women to own cell phone in six of seven countries surveyed
 - All countries surveyed except South Africa

Source: Poushter et al. (2015)

Survey Lifecycle from a Quality Perspective

Representation

Target Population

Sampling Frame

Sample

Respondents

Postsurvey Adjustments

Survey Statistic

Sampling bias vs. sampling variance

Sampling Error

Sampling Variance vs. Sampling Bias

- Sampling variance
 - Variation in values of survey statistic because different subsets of population fall into sample over replications of same sample design
 - Most commonly measured statistic in surveys
 - Confidence intervals, standard errors
- Sampling bias
 - Consistent failure to estimate proportion of population
 - Sampling bias is 0 for probability samples

→ Module 2

Survey Lifecycle from a Quality Perspective

Representation

Target Population



Sampling Frame



Sample



Respondents



Postsurvey Adjustments



Survey Statistic

Values of statistic computed based only on respondent data differ from those based on entire sample

Nonresponse Error

- Error due to fact that not every unit in sample answers (all) survey questions
 - Failure to deliver survey (Noncontact)
 - Refusal by participant
 - Inability to participate
- Nonresponse error is function of both response rate and difference between respondents and nonrespondents
- Different strategies can be used to limit nonresponse, including use of incentives, call scheduling, interviewer training, etc.

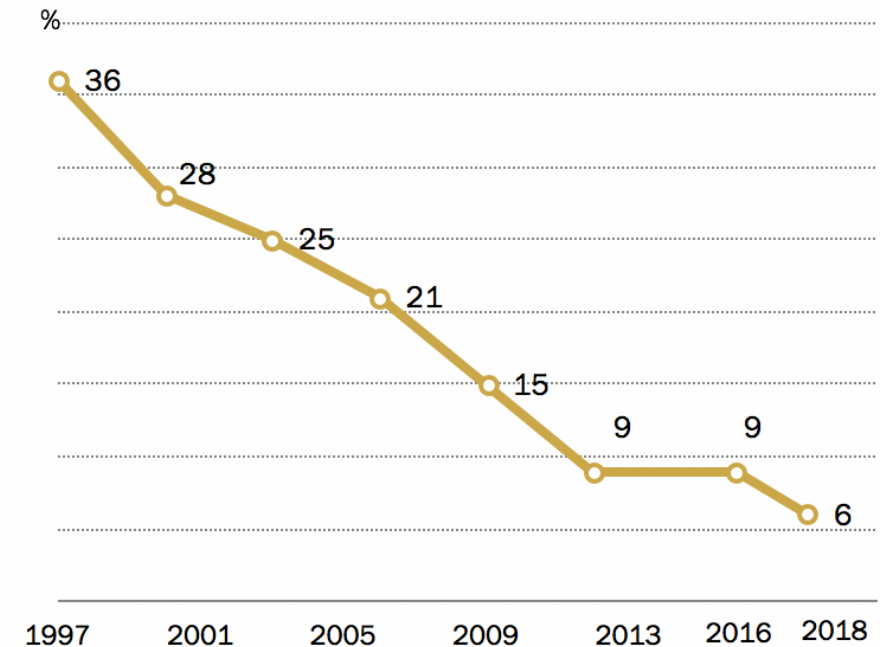
→ Modules 4 & 5

Nonresponse in Phone Surveys

- Response rates to phone surveys have dramatically declined in Western countries recently
 - See Pew Research (right)
 - Response rate of Labour Force Survey in 27 countries (U.S. & Europe) dropped by ~0.75 p.p. every year between 1980 and 2015 (deLeeuw, et al. 2018)
- Little research on change in response rates in non-western countries

After brief plateau, telephone survey response rates have fallen again

Response rate by year (%)



Note: Response rate is AAPOR RR3. Only landlines sampled 1997-2006. Rates are typical for surveys conducted in each year.

Source: Pew Research Center telephone surveys conducted 1997-2018.

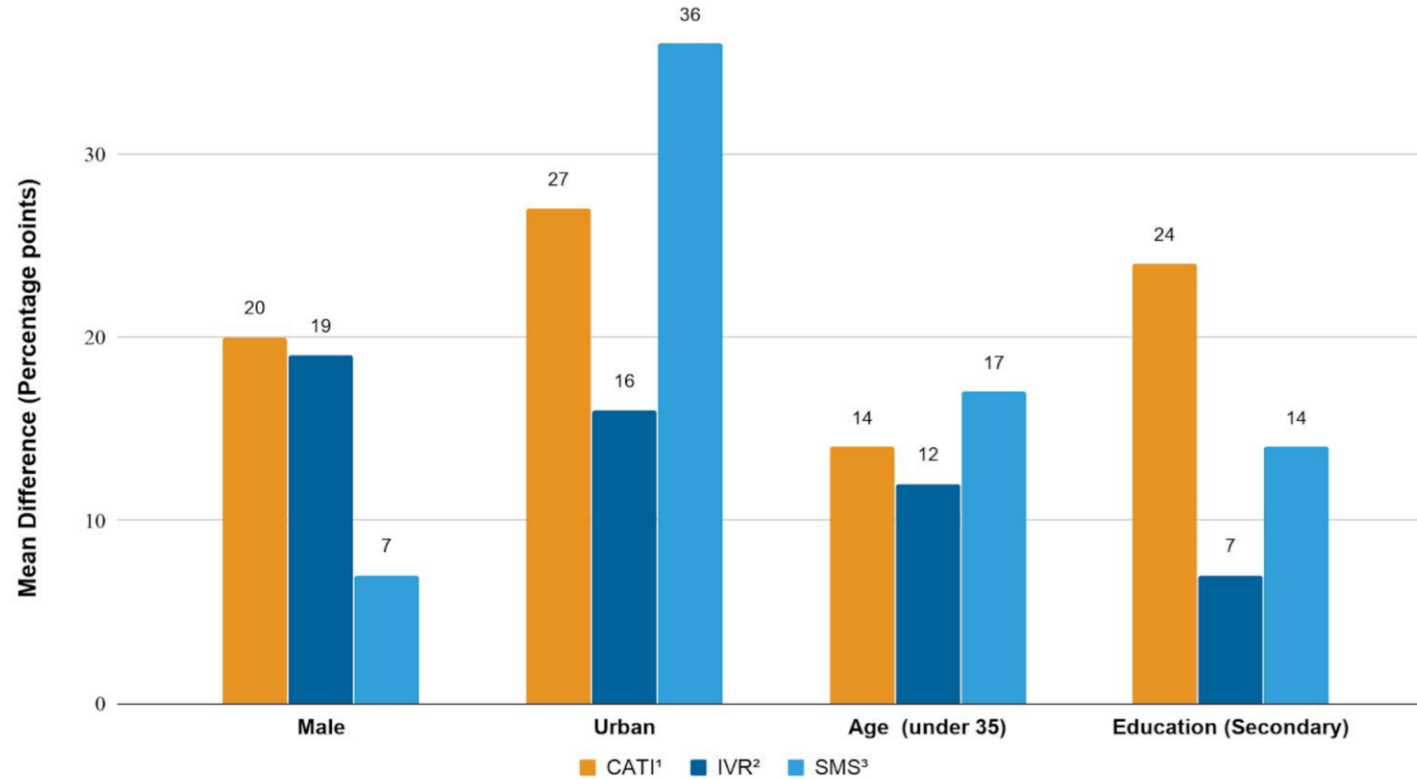
Source: Kennedy & Hartig (2019)

Nonresponse in Phone Surveys: Examples

- Listening-to-Africa (L2A) data collected in Sierra Leone and Liberia during 2014 Ebola crisis (Etang & Himelein 2019)
 - Impossible to deploy enumerators to collect information from households through face-to-face interviews
 - Three/Five rounds of phone interviews based on samples from earlier face-to-face surveys
 - Low network coverage rates, particularly in rural areas, led to low response rates (16-30%)
- Interactive voice response, random-digit dial, national mobile phone survey in Ghana 2017 (L'Engle et al. 2018)
 - >1m calls placed – majority of numbers did not connect with eligible respondent
 - 16,003 (partially) completed interview for AAPOR RR4 of 31%

Nonresponse Bias in Phone Surveys

Figure 6: Representativeness of Remote Surveys Compared to Nationally Representative Surveys



Note: This reflects the difference between remote surveys and nationally representative household surveys. Differences are reported here across four domains common in reported surveys. We limit this graph to studies that report any of these data with the exception of Australia (9), which was excluded as representativeness data for high-income countries may not apply to LMICs.

¹ Liberia (28); Nigeria (37)

² Afghanistan (40); Ethiopia (40); Ghana (31); Mozambique (40); Nigeria (37); Zambia (5); Zimbabwe (40)

³ Ghana (34); Kenya (34); Nigeria (34, 37); Philippines (4); Uganda (34)

Source: Henderson & Rosenbaum (2020)

Survey Lifecycle from a Quality Perspective

Representation

Target Population



Sampling Frame



Sample



Respondents



Adjustment Error

Postsurvey Adjustments



Survey Statistic

Although postsurvey adjustments introduced to reduce coverage, sampling, and nonresponse errors, they can also increase them

→ Module 2

END OF VIDEO 4