HUNGARIAN CENTRAL STATISTICAL OFFICE

Utilising Interviewer Observations on Housing Unit Characteristics in the Hungarian LFS Nonresponse Analysis: A Research Plan

Mohay, Linda & Mújdricza, Ferenc
Methodology Department

12. June 2019.

Outline

- Work-in-progress research on nonresponse adjustment
- Design phase
- Significant changes

    original plan was a simple split-sample experiment on the effect of well-tailored interviewer training

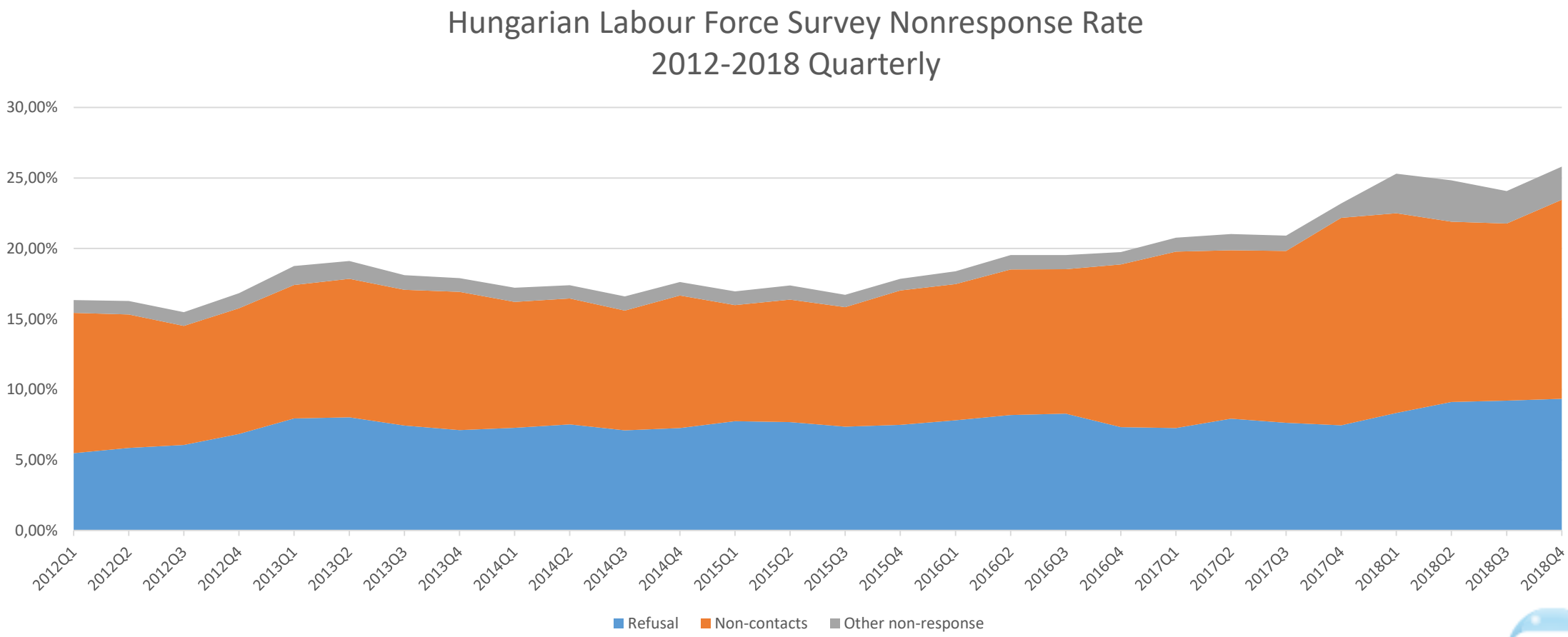
Today:

- early results of the literature review
- at-a-glance analysis of existing variables
- overview of alternative options
- next steps and expected results of the study

Background and progress made

The nonresponse issue and adjustment for nonresponse bias

Increasing HLFS nonresponse rates



Nonresponse and administrative data

- Increasing nonresponse potentially increases nonresponse bias
- Adjustment for nonresponse bias by weighting procedures
- Strong correlation is needed between weighting classes and survey measures as well as response propensity (Lynn 2003)
- Usually based on administrative data (Lynn 2003)

Problems with this approach:

- The HCSO does not access adequate administrative data sources
- Correlations are often not strong enough (Lynn 2003)

Nonresponse and interviewer observations

Interviewer observations on HU/neighbourhood characteristics

- Data *on* the nonrespondents
- Indirect, but
- Free from nonresponse issues
- Fully controlled (in theory)

Better alternative for nonresponse adjustment

HU/neighbourhood characteristics observations

- Strong correlation is required with key survey variables and survey participation (Lynn 2003)
- Correlations are low, weak predictive power (Casas-Cordero 2010, West 2011, etc.)
- Not suitable for nonresponse adjustment (Casas-Cordero 2010, West 2011, etc.)

But:

Successful quantitative reliability/validity tests

(Andresen et al. 2006, Andresen et al. 2008, etc.)

Why are the correlations low?

(Andresen et al. 2006, Andresen et al. 2008, Kreuter et al. 2010, West 2011, Casas-Cordero et al. 2013, West & Kreuter 2015)

- Survey: auxiliary observations →← quantitative tests
- Measurement error/interviewer effect: erroneous interviewer judgments

Solution (?): enhanced training protocols

- standardising the use of the instrument
- minimising the differences in individual perception and judgment

(Casas-Cordero 2010, Casas-Cordero et al. 2013, West 2011, Sinibaldi et al. 2013, West & Kreuter 2015, 2018)

But:

- Andresen et al. (2013) – no improvement in measurement quality!

Another direction: enhancing the instrument

- Researchers blame the interviewers for measurement error!

Example: Respondent rents or owns the dwelling? - Accuracy: 46%
(Pickering et al. 2003)

West (2011): social psychological aspects of judgments based on brief observations

Admit instead if the instrument is inadequate for its purpose.

Adequate instrument is a prerequisite:

Go back to design (operationalisation) phase!

Lack of appropriate testing

> *'As with questionnaire items, observation questions should accurately capture the construct of interest and be understood consistently by interviewers.'* (Sinibaldi et al. 2013, 190.)

- Intended use and interpretation cannot be tested and corrected by quantitative psychometric tests

How then?

- Qualitative test protocols – Cognitive interviewing
- The literature does not report cognitive testing of the variables

Dealing with measurement error summarised

Two possible directions:

- Enhancing training protocols: multiple studies
- Enhancing the instrument by cognitive testing: **no studies**

First change in the research plan:

cognitive testing of the HU/neighbourhood observation variables is necessary.

Core requirements on HU/neighbourhood observation variables

1. Flawless design

   Logically sound, precise formulations, represent the typical HU/neighbourhood characteristics of the population

2. Clarity and ease of use

   clear, straightforward, easy to use items, proper interviewer interpretation

3. Suitability for adjustment

   Suitability for nonresponse bias assessment, i.e. strong correlations

Existing variables

First glance expert analysis of the Hungarian LFS HU/neighbourhood observation variables

- Serious design issues
- Not ready for cognitive testing
- Not ready for interviewer training
- Not ready for field survey use

Second change in the research plan:

Existing instrument needs to be corrected and complemented with further items

Interviewer observation variables in the HLFS

A. Neighbourhood characteristics of the close residential area of the building
1) traditional urban built environment
2) microdistrict
3) block of flats and villa district
4) detached houses
5) rural characteristics
6) industrial area
7) peripheral
8) socio-economically deprived neighbourhood
9) other, namely .....

?

vacation homes?

Interviewer observation variables in the HLFS

B. What is the condition of the building in which the dwelling resided by the household is situated?	Interviewer observations in LFS 2018
1) excellent (newly built, renovated)	11.28 %
2) good	59.84 %
3) satisfactory	22.78 %
4) degraded condition	6.1 %

Interpretation of categories?

Interviewer observation variables in the HLFS

C. In what type of building is the dwelling?	
1)	detached house
2)	semi-detached or terraced house
3)	block of flats with less than 10 flats
4)	block of flats with 10 or more than 10 flats
5)	other dwelling unit, namely …

Instruments from the literature

5 instruments stand out, but further research is needed

1. 6-item Krause scale (1998)
   - does not work in case of noncontact
2. AAH 5-item Neighbourhood Assessment Scale (Andresen et al. 2006)
   - Subjective assessment items (amount of noise, air quality)
   - No item on type and condition of the building
3. AAH 7-item NAS (Andresen et al. 2008)
   - Less subjective, more sensitive
   - Still no item on type and condition of the building

Instruments from the literature (continued)

4. Longer scales, e.g. 18-item NAS (Andresen et al. 2013), LA FANS 30+ items (Casas-Cordero 2010)

   Too burdensome for interviewers

   LA FANS instrument covers the type and condition of the building, but has serious design flaws.

Andresen et al. (2013): shorter scales have better utility for survey use

5. Lynn's (2003) 10-item instrument

   Item on respondent race – noncontact? interviewer effect?

Next steps and expectations of the study

Next steps

1. Designing a new, succinct, less than 10-item instrument

   Adaptation of the instruments in the literature – adjusting them to Hungarian conditions

   Correcting and complementing them with items on the buildings/residential area/close built environment.

2. Cognitive testing of the instrument among survey interviewers, and implementation of the necessary corrections

Next steps (continued)

3. Devising a brief but efficient training protocol

   Extensive trainings (e.g. Andresen et al. 2013) are unrealistic

   Novel education solutions: Google Street View situations instead of pictures

   Two versions of training: traditional classroom and e-learning

4. Control and treatment training groups for testing the effectiveness of the two versions.

   Tests after the training to assess if e-learning is feasible or not.

   (Street View situations to assess using the instrument)

Final step

6. Correlation analysis of the new instrument with

   key survey variables and
   nonresponse data

   using the data to be collected in the next wave of the HLFS.

Expectations

- In case the after-training test-results are promising, we expect strong correlations and low levels of measurement error that enables the future devising of nonresponse adjustment procedures.
- Walsh et al. (2013): if the instruments perform well on the field, they can predict level of effort (number of contact attempts and interim refusals)

Future upgrading of the Hungarian LFS data collection procedures to apply adaptive design.

Questions

- Does any of the attendants' institutes collect interviewer observations in the LFS or other similar data collections?
- Which observations are found to be working for nonresponse analysis?
- Does any of the attendants' institutes use interviewer observations to estimate the level of sufficient fieldwork effort?
- Do interviewers get special training on collecting these observations?

Thank you for your kind attention!

Ferenc.Mujdricza@ksh.hu

References

- Andresen, E. M., Malmstrom, T. K., Miller, D. K. & Wolinsky, F. D. (2006): Reliability and Validity of Observer Ratings of Neighborhoods. *Journal of Aging and Health* 18(1): 28-36.
- Andresen, E. M., Malmstrom, T. K., Schootman, M., Wolinsky, F. D., Miller, J. P. and Miller, D. K. (2013): Observer Ratings of Neighborhoods: Comparison of Two Methods. *BMC Public Health* 13(1024).
- Andresen, E. M., Malmstrom, T. K., Wolinsky, F. D., Schootman, M., Miller, J. P. and Miller, D. K. (2008): Rating Neighborhoods for Older Adult Health: Results from the African American Health Study. *BMC Public Health* 8(35)
- Casas-Cordero, V. (2010): *Neighborhood Characteristics and Participation in Household Surveys.* PhD. dissertation, Faculty of the Graduate School of the University of Maryland, College Park.
- Casas-Cordero, V., Kreuter, F., Wang, Y. & Babey, S. (2013): Assessing the Measurement Error Properties of Interviewer Observations of Neighbourhood Characteristics. *Journal of the Royal Statistical Society* A 176: 227-249.
- Kreuter, F., Olson, K., Wagner, J., Yan, T., Ezzati-Rice, T. M., Casas-Cordero, C., Lemay, M., Peytchev, A., Groves, R. M. & Raghunathan, T. E. (2010): Using Proxy Measures and Other Correlates of Survey Outcomes to Adjust for Non-response: Examples from Multiple Surveys. *Journal of the Royal Statistical Society* A 173: 389-407.
- Lynn, P. (2003): PEDAKSI: Methodology for Collecting Data About Survey Non-Respondents. *Quality and Quantity* 37: 239-261.
- Pickering, K., Thomas, R. & Lynn, P. (2003): *Testing the Shadow Sample Approach for the English House Condition Survey*. Report. London: National Centre for Social Research.
- Sinibaldi, J., Durrant, G. B. & Kreuter, F. (2013): Evaluating the Measurement Error of Interviewer Observed Paradata. *Public Opinion Quarterly* 77(Special Issue): 173-193.
- Walsh, R., Dahlhamer, J. & Bates, N. (2013): *Assessing Interviewer Observations in the NHIS.* Conference paper presented at the JSM 2013 Survey Research Methods Section.
- West, B. T. (2011): *The Error Properties of Interviewer Observations and their Implications for Nonresponse Adjustment of Survey Estimates.* PhD. dissertation, University of Michigan.
- West, B. T. & Kreuter, F. (2015): A Practical Technique for Improving the Accuracy of Interviewer Observations of Respondent Characteristics. *Field Methods* 27(2): 144-162.