Cognitive Testing of Model Questionnaire on Working Time

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1. Introduction

In the frame of the new IESS Framework Regulation in 2021 there is going to be a huge set of new variables. In order to test those variables regarding working time for the Austrian LFS, we conducted cognitive interviews in summer of 2017.

We started with translating the model questions into German. In order to enable international comparison the questions corresponded as far as possible to the Model Questionnaire of Eurostat, but also kept the Austrian working time situation in mind. In addition to usual hours worked (HWUSUAL) and hours actually worked (HWACTUAL) we included variables regarding contractual hours (CONTRHRS) and days of absence. The national questionnaire contained also all other questions related to working time, such as unpaid and paid overtime. The national questions on overtime were simplified. The test was conducted by LFS team members with the support of the Questionnaire Lab at Statistics Austria. In addition we did a literature review on cognitive testing for planning the necessary steps to the best outcome.

The next section will give a short overview of the preparation and the field work of the test (Section 2). Afterwards there will be a short explanation of the performed analysis (Section 3). The focus will be on the main findings of the cognitive interviews (also Section 3). Finally, we will give a short conclusion of the results and an outlook of the upcoming steps (Section 4).

2. Planning and implementation of cognitive interviews regarding working time

2.1. Preparatory steps

After discussing the translated model questionnaire in several rounds in the LFS team, the model questionnaire was extensively evaluated by the Questionnaire Lab at Statistics Austria. Keeping in mind what to measure, we tried to keep the questions short and simple. In parallel we consulted national experts from the chamber of labour regarding concrete issues with employment contracts and specification of working time. The results of all consultations led to our finalized model questionnaire.

2.2. Planning of cognitive interviews and development of the interview guideline

A brief literature review revealed that we would retrieve the most valuable information for the new questionnaire design by cognitive interviewing. 'Cognitive interviewing is specially designed to uncover respondents' thought processes in answering a survey question, covering four cognitive steps of comprehension, recall, judgment and response.' (Campanelli, p.191). We decided to gather information on these cognitive processes by using various probing techniques like think-aloud, verbal probes and observation.

Based on possible problems and identified difficulties with respective questions, we created an interview guideline with different verbal probes. Depending on what we wanted to understand in the question-answering-process, we developed different probes, following proposals from Tourangeau (1984).

Regarding contractual working hours we probed for example the general comprehension with a general probe combined with a special comprehension probing (see *Table 1*):

Table 1: Probes for contractual working hours

Question	Do you have a written contract with your employer? (CUT_1, national question)
Answer	1. Yes 2. No
General probe	How easy or difficult was this answer? Why?
Special Comprehension Probing	What do you mean by a written employment contract?

For the majority of the questions we did a general probe and added special and general comprehension probes. Recall probes were used for the questions regarding usual and actual hours worked, paraphrasing was applied on the various questions on absences.

For some questions we developed additional 'going-back'-probes that is after completing the cognitive interview we went selectively back to some questions referring to the particular answers and the respondents' thought processes hereof. Furthermore we included a few questions regarding the whole interview situation at the end of the interview guideline. The questionnaire consisted of 22 questions with approximately two to three probes per question, including two national questions regarding (unpaid/paid) overtime. In the rare case of employed persons with a second job, three additional questions were asked. Three introductory questions served to clarify if the respondents were employed in the particular reference week, had a second job or worked full-time or part-time. We also prepared some guidelines for reacting to specific behaviour of the respondents, like unusual facial expressions, laughing or hesitating during answering the questions.

After discussing the interview guideline with the Questionnaire Lab and doing an in-house friendly user test with colleagues, the sampling and recruitment was planned and organized.

2.3. Sampling and recruitment

We decided to use a specific sample in order to identify problems in the survey questions and their causes. Due to the varying working time arrangements of different employment situations, the target group consisted of:
- employed with a second job,
- self-employed with and without employees,
- employees with shift-work,
- blue-collar workers,
- public officers,
- employees with overtime,
- employed persons in part-time.

Further selection criteria were:
- employed respondents with place of work 'Vienna' (capital of Austria),
- between 15 and 64 years old,
- working in the reference week,
- last wave of LFS second quarter 2017,
- non-proxy,
- 50% men and 50% women.

The distribution of the reference weeks corresponded to the regular LFS. A reference week with a bank holiday was also considered as well as vacation time as the interviews were conducted in the holiday season. Some of the above mentioned characteristics were combined. As part of 'iterative testing' the interview guideline was adapted after ten interviews ('first wave') and the revised questions and probes were tested again in the frame of five additional interviews ('second wave').

We designed a recruiting text including an announcement of a financial incentive for the respondents' time and our in-house survey infrastructure department organised the recruiting of the respondents.

2.4. In the field

We conducted 15 cognitive interviews which took place at Statistics Austria from June to September 2017. The whole interview was done face-to-face and was accompanied and observed by a second person and was furthermore recorded on audio tape. Additionally to the probes the respondents were asked to say out loud every thought that went through their mind (think-aloud), so that we could understand the answering process of the respondents. However we experienced that this technique was hard for most of the respondents, most of them forgot to verbalise their thinking process (as often mentioned in literature, e.g. see Willis, 2015). As a result we did not persist on this technique; instead we actively probed what they thought of during answering the questions.

At the end of the cognitive interview – after turning off the recorder – a few questions regarding the entire interview situation, like difficulty or understanding, were discussed with the participants of the cognitive interviews (see Section 2.2.). On average the interviews lasted about 40 minutes.

Immediately after the interviews we summarized our experiences in an observation protocol, as recommended from the Questionnaire Lab (see also Campanelli, 2008, p.195). The protocol comprised some hard facts of the interview, overall impressions as well as serious problems with questions or other irregularities from the first impression after the interview. Already these protocols revealed problems with some of the questions.

3. Findings of the cognitive interviews

3.1. Analysis

Transcriptions of the tape recordings were outsourced. According to the recommendations of Prüfer/Rexroth (2005) and Collins et al. (2015) these transcriptions were analysed question by question on the basis of several standardised categories, as spontaneous reaction and degree of difficulty. The analysis was divided into three phases: 1) starting with paraphrasing the answers of each interview per question; 2) then generalizing the statements with a brief evaluation and 3) reducing the information afterwards. The findings of the last phase served as basis for a comprehensive summary

of the findings. The third phase and the summary were executed independently, after a common discussion both findings were merged.

3.2. Main results

The in-depth analysis of the cognitive interviews helped identifying problems with the questions regarding working time. The following table gives a short overview of the results (see *Table 2*). The green colour means that there was no problem with the question and most of the respondents understood the question and the given answer categories easily. Orange flagged questions bore some problems with the questions and some minor details should be improved. Red marked questions were difficult to understand or were simply misunderstood. The questions in *Table 2* are taken from the Explanatory Notes (Version before March 2019) and don't correspond exactly to the national questions within the interview guideline.

Table 2: Overview of the results

CONTRHRS	
CUT_1	Do you have a written contract or verbal agreement with your employer?
CUT_2	Does this contract or agreement indicate the number of hours to be worked?
CUT_3	How many hours per week is this?
HWUSUAL	
CUT_4	Do you usually work this number of hours per week?
CUT_5	How many hours do you usually work per week?
ABSHOLID*	
ABS_1a	In that week, did you have days or half days off due to holidays or leave, including [name of public holiday(s) and weekday(s)]?
ABS_1b	In that week, did you have days or half days off due to holidays or leave?
ABS_2	How many days in total was this? Please include also half days.
ABSILLINJ*	
ABS_3a	In that week, was there any other day or half day you were absent from work because of your own illness, injury or temporary disability?
ABS_3b	In that week, were there any days or half days you were absent from work because of your own illness, injury or temporary disability?
ABS_4	How many days in total was this? Please include also half days.
ABSOTHER*	
ABS_5a	In that week, were there any other day or half day you were absent from work because of any other reason?
ABS_5b	In that week, were there any days or half days you were absent from work because of any other reason?
ABS_6	How many days in total was this? Please include also half days.
EXTRAHRS	
EXT_1a	In that week, in your main job, were there any days or half days you worked overtime, be it paid or unpaid, or did extra hours to be recuperated later (taking the contractual hours as reference)?
EXT_1b	In that week, in your main job, were there any days you worked more than usual?
EXT_2	For the entire week, how many hours in total was this?
HWACTUAL	
ACT_1	In total, during the week from Monday [date] to Sunday [date], how many hours did you actually work in your main job?
DWUSUAL	
CUT_7	On how many days do you work in a typical week?

The following results mainly present details on the red marked questions, especially related to question CUT_4 regarding variable HWUSUAL for 'usually worked hours'. Question CUT_4 was addressed to all employees with contractual hours. According to the Model Questionnaire respondents should

indicate whether they usually work these contractual hours or not. As during the first wave of the test this question was really problematic and showed inconsistencies with the contractual and usual hours per week, CUT_4 was only tested in the first wave of the cognitive interviews. CUT_4 was difficult to answer and seemed to be rather suggestive; therefore it was deleted in the second wave. All respondents of the second wave got only the direct question to indicate the exact number of hours usually worked (CUT_5).

Information from the core LFS was also taken into account for the analyses. As the last wave of the LFS was recruited for the cognitive interviews, we compared the test results with given answers in the last LFS interview (CATI). The data show that most of the respondents answered 'Yes' related to CUT_4, that means they usually work their declared contractual hours per week. These results in a smaller number of usually worked hours compared to the last wave of the LFS. As a consequence, the average of the hours usually worked declines when asking question CUT_4.

According to the Model Questionnaire main meal breaks and regular overtime are not mentioned in question CUT_5 itself, currently this is the case in our national questions (HWUSUAL, HWACTUAL). CUT_5 worked well for most of the interviewees, but tends to be burdensome for specific groups like self-employed or respondents with varying working times.

The variables ABSHOLID, ABSILLINJ and ABSOTHER (marked with *) were tested with varying wording in two waves. In the first wave the questions regarding all reasons of absences were asked at first and the amount of days of absence afterwards. Also a slight misunderstanding caused by the first translation of 'days you were not working' was detected and corrected[1]. However, in the second wave the question regarding the amount of days followed directly after each reason of absence like illustrated in *Table 2* above. The main problem with these variables seemed to be remembering the explicit reference week – even if it was the previous week. Especially respondents with atypical working times like shift workers had problems with these questions, e.g. what does 'weekend' mean for shift workers?

As to ABSHOLID: bridge days confused respondents additionally. We tested flexitime in the first wave in a separate question, in the second wave we added the term 'flexitime' in the question itself and found out that this option is easier to process for the respondents. Referring to ABSILLNJ we detected no serious problems in the second wave. As to ABSOTHER we detected problems for respondents with atypical working times (shift work) and troubles remembering the concrete reference week.

No problems were detected concerning variable EXTRAHRS; it was a short and easy question. The indicated number of contractual (employees) or usual (self-employed, no contractual hours) hours were shown ('more than xx hours') in the question itself.

HWACTUAL seemed rather difficult for the respondents, particularly remembering the reference week. As with HWUSUAL we were interested in the handling of main meal breaks and overtime by

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[1] Wave 1: The following questions refer to your non-working days in the week from Monday ... to Sunday ...
  Wave 2: The following questions refer to the week from Monday ... to Sunday... We are interested in those days on which you normally work, but had a day off for a certain reason.

the respondents, as both these concepts will no longer be mentioned in the new questions. For the most part, respondents only count those working hours they actually worked, so the results of the cognitive tests reassured the newly designed question, even it was hard to remember the concrete working hours in the reference week.

The variable DWUSUAL was difficult for respondents with shift work. Especially respondents whose night shifts cover both day and night had problems to distinguish between working days; so we decided to remove this variable in the future questionnaire on working times.

At the end details regarding the second job and preferred working hours were questioned. Unfortunately there was only one respondent with a second job. Since the interviewee had no problems we decided to keep these questions unchanged, apart from an adaption of WISHMORE[2].

4. Conclusion and outlook

In summer 2017 a cognitive test on the new variables regarding working time within the framework of the new IESS Framework Regulation in 2021 was conducted. After literature review and discussing the new questionnaire with the in-house Questionnaire Lab, a cognitive interview test seemed to give the best results and insights in potential problems with the questionnaire design.

Fifteen respondents of the last wave of the Austrian LFS with different characteristics were invited to test the new questions on working time. Two versions of the interview guideline were developed, so ten respondents were interviewed in the first place. After revising the interview guideline, five further respondents were invited for testing the new questions on working time.

The interviews were conducted at Statistics Austria with the help of an interview guideline. One interviewer and one observer were present at each interview and we recorded the interview. The transcription of the recordings was outsourced; the analysis of the transcripts was done by LFS team members.

In a nutshell, the test led to two problematic variables, which we consider to eliminate; namely CUT_4 (first model question referring to HWUSUAL) and CUT_7 for DWUSUAL; whereas DWUSUAL was an optional variable, which was removed from Eurostat somewhat later. No problems were detected in the cognitive interviews with the variables regarding contractual working hours (CONTRHRS), absences by illness (ABSILLINJ) and extra hours (EXTRAHRS).

The results of the cognitive interviews contributed to a revised questionnaire, which is going to be retested by web probing. These results again will be part of the pilot survey planned for 2020 (for more information see the presentation of our colleagues: Forster J./Gumprecht D.: The Austrian way towards a new LFS questionnaire).

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[2] The questions will be retested via a web probing questionnaire.

References

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