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Using Paradata to Assess the Quality of an Online Questionnaire

With Focus on Response Times

Paradata are process metadata, generated during the process of collecting survey data [our 'definition']

Use paradata to gain insights about the quality of an online questionnaire

- ▶ Where do respondents need longer to complete a question?
- ▶ How often and where do 'time-outs' occur?
- ▶ Where do plausibility checks pop up and how do the respondents deal with them?
- ▶ Where do respondents consult help-messages?

Focus on response times

- ▶ Do the paradata response times reflect our expectations?
- ▶ Do response times differ between CAWI and CAPI modes?
- ▶ Do response times differ between gender/age/education groups?

- ▶ Sample survey of private households (HBS), every household member asked
- ▶ Information about household consumption expenditures on goods and services
- ▶ Core of survey: Household account book
- ▶ Additionally, information about gender, age, education, employment situation, . . .

Requirements and requested characteristics for a modern survey data collection software

- ▶ Mixed mode designs (CAWI, CAPI, CATI)
- ▶ Centralization of question-, case-, and field-management in one system
- ▶ Possibility to save the paradata on surveys conducted
- ▶ Further often named: Modularization

→ Statistics Austria has begun to develop its own integrated software called **STATsurv**

→ HBS 2014/2015 first to implement and test new IT-system with new mode CAWI

- ▶ Paradata consists of IDnumber of household and person, identification of the page/question of the web-survey, action types for each page, online status of respondent, CAWI/CAPI mode, . . .
- ▶ Action types: *Go to next page, Show help, plausibility check popped up, . . .*
- ▶ Time stamp for each page and each action type occurred at the respective page
- ▶ Net sample size of HBS: 7162 households,
Completed paradata of the considered sub-questionnaire:
2263 households (3432 persons)
Reasons for the smaller number: only CAWI and CAPI mode, no proxy interviews, technical difficulties

- ▶ Order every data row by the household-ID, the person-ID and the time stamp (→ possible to track respondent through questionnaire)
- ▶ Time spent on a Page/Question = Time interval between time stamp of action *Go to next page* from last page until time stamp of action *Go to next page* of current page
- ▶ Ignore time stamps for actions like *Help sign consulted* in between
- ▶ Time-out after 180 seconds
- ▶ Sum over time intervals if respondent was more than one time on a question/page

	householdID	personID	CAWI/CAPI	question/page	action
1:	687659	767559	CAWI	PT1.X01.1.1.10	WEITER_GEKLICKT
2:	687659	767559	CAWI	PT1.A02.1.1.10	WEITER_GEKLICKT
3:	687659	767559	CAWI	PT1.A01.1.1.10	WEITER_GEKLICKT
4:	687659	767559	CAWI	PT1.A01.2.1.10	WEITER_GEKLICKT
5:	687659	767559	CAWI	PT1.A01.2.1.40	WEITER_GEKLICKT

	time	stamp	time
1:	2014-10-05	11:27:47.474	NA
2:	2014-10-05	11:28:05.372	17.9
3:	2014-10-05	11:28:09.75	4.4
4:	2014-10-05	11:28:16.383	6.6
5:	2014-10-05	11:28:47.365	31.0

Action *WEITER GEKLICKT* means *Go to next page*

Expectations Fulfilled? Yes/No Questions vs Specific Expenditures Asked

Do respondents need longer for yes/no questions than for questions asking for a specific number to type in?

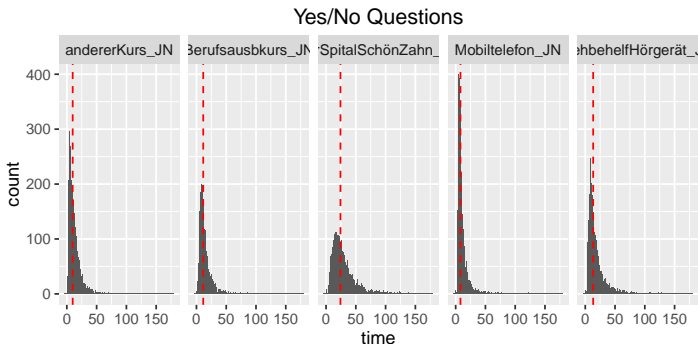


Abbildung: Histograms of five yes/no questions asking if expenditures occurred for (vocational) training programs (subfigure 1 and 2), health expenditures (subfigure 3), mobile phone devices (subfigure 4) and glasses or hearing aid instruments (subfigure 5)

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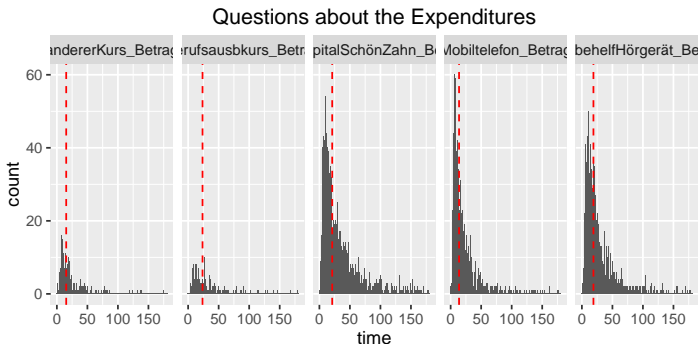


Abbildung: Histograms of five questions asking about the expenditures occurred for (vocational) training programs (subfigure 1 and 2), health expenditures (subfigure 3), mobile phone (subfigure 4) devices and glasses or hearing aid instruments (subfigure 5)

Is there a difference in the response times between respondents navigating through an online questionnaire on their own (CAWI) and respondents being interviewed (CAPI)?

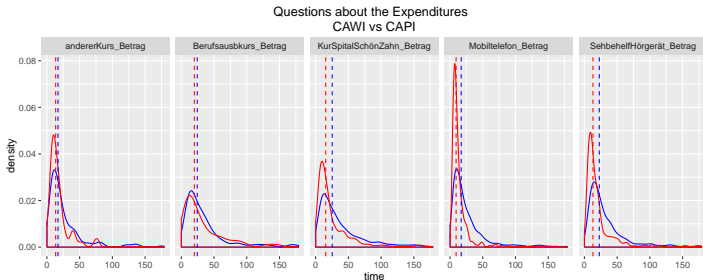


Abbildung: Time needed to complete questions on expenditures, for respondents completing the survey themselves via CAWI (blue) and respondents interviewed via CAPI (red)

Is there a difference in the response time for male and female respondents?

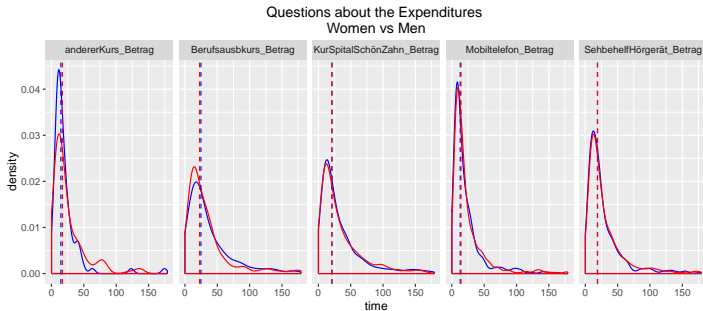


Abbildung: Density plots of the five questions about expenditures as before, differentiated between male (blue) and female (red) respondents.

Is there a difference in the response time for different age groups?

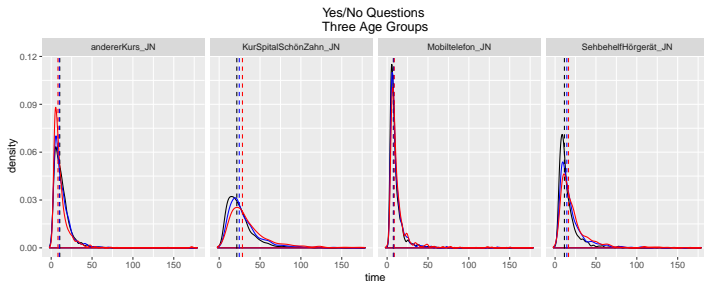


Abbildung: Time needed to complete Yes/NO Questions, for three age categories: 15 – 40 years (black), 41 – 60 years (blue) and > 60 years (red).

Is there a difference in the response time for different groups of respondents with different educational background?

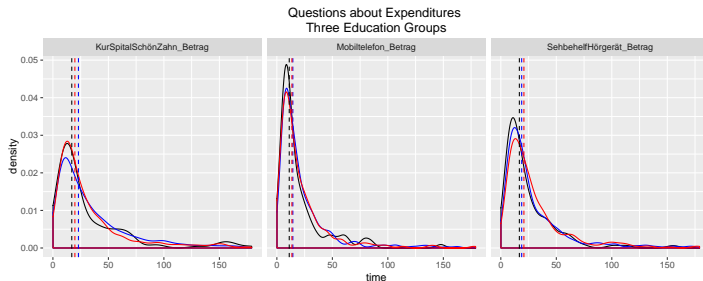


Abbildung: Time needed to complete Yes/NO Questions, for three groups concerning education: no or basic school degree (black), apprenticeship or higher school degree (blue), university degree or similar (red)

- ▶ Overall, expectations concerning response times fulfilled
- ▶ Very interesting difference between CAWI and CAPI mode
- ▶ Very difficult to classify a page/question as 'problematic' solely based on distribution/median of response times:
qualitatively different kind of questions, more items/questions on one page, hierarchical questionnaire (e.g. more older people asked about expenditures on hearing aid advices...)
- ▶ Feedback on IT department
- ▶ Further paradata quality dimensions have to be considered!