

GESIS Summer School in Survey Methodology 2022

Syllabus for course: “Factorial Survey Design”

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Date: 15-19 August 2022

Time: Mo: 10:00-17:00 | Tu-Th: 09:00-16:30 | Fr: 09:00-14:30

Venue: Onsite at KOMED Mediapark 7, Cologne

About the Lecturers:

Prof. Dr. Katrin Auspurg currently holds a full professorship in Sociology, area Quantitative Methods of Empirical Research, at the Department of Sociology at the LMU Munich. Her main research interests are in survey and experimental research methods, social inequality, and labour market research. Her recent work has been published in the *American Sociological Review*, in *Socius: Sociological Research for a Dynamic World*, and in *Research in Social Stratification and Mobility*.

Prof. Dr. Carsten Sauer currently holds a full professorship in Sociology, area Social Inequality and Social Structure Analysis, at the Faculty of Sociology at Bielefeld University. His research interests include labour market inequality and justice perceptions, analytical sociology, and quantitative research methods (especially survey experiments). His recent work has been published in the *American Sociological Review*, *PloS one*, and in *Social Forces*.

Sabine Düval, M.A., is a research assistant and PhD-student at the Department of Sociology at the LMU Munich. Her research interests are in social inequality, in particular in regard to gender norms and division of labour within couples, and in methodological research on factorial survey experiments.

Selected Publications:

- Auspurg, K., Brüderl, J. (2021): Has the Credibility of the Social Sciences Been Credibly Destroyed? Reanalyzing the “Many Analysts, One Data Set” Project. *Socius: Sociological Research for a Dynamic World*, 7, 1-14.
- Auspurg, K., Hinz, T., & Sauer, C. (2017): Why Should Women Get Less? Evidence on the Gender Pay Gap from Multifactorial Survey Experiments. *American Sociological Review* 82,1, 179-210.
- Auspurg, K., Hinz, T. (2015): *Factorial Survey Experiments*. Thousand Oaks, CA: SAGE, Series: Quantitative Applications in the Social Sciences.
- Düval, S., Hinz, T. (2020): Different Order, Different Results? The Effects of Dimension Order in Factorial Survey Experiments. *Field Methods*, 32, 23-37.
- Sauer, C., Auspurg, K., & Hinz T. (2020): Designing Multi-Factorial Survey Experiments: Effects on Presentation Style (Text or Table), Answering Scales, and Vignette Order. *Methods, Data, Analyses*, 14, 195-214.

- Sauer, C., Valet, P., Shams, S., & Tomaskovic-Devey, D. (2021): Categorical Distinctions and Claims-Making: Opportunity, Agency, and Returns from Wage Negotiations. *American Sociological Review*, 86, 934-959.
- Valet, P., Sauer, C., & Tolsma, J. (2021): Preferences for Work Arrangements: A Discrete Choice Experiment. *PloS one*, 16, 1-20.

Course Description:

The factorial survey design (“vignette analysis”) is a method that integrates multi-factorial experimental set-ups into surveys. Respondents are asked to evaluate hypothetical situations, objects or persons. By systematically varying attributes of the descriptions, it is possible to determine their influence on respondents’ stated attitudes, decisions, or choices. The experimental variation of the stimuli makes it possible to estimate the influence of each attribute on the evaluation. The factorial survey method is therefore an appropriate instrument for testing theoretical predictions. Moreover, because the experiment is embedded in a survey questionnaire, it is possible to reach heterogeneous sample populations.

This course provides a theoretical and practical overview of factorial survey methods. Participants will gain practical insights into all the single steps necessary to design a factorial survey experiment: (1) construction of vignettes, (2) selection of an experimental design, (3) drafting and programming of questionnaires (for online surveys as well as paper and pencil surveys), (4) data management, and (5) data analysis techniques (e.g., multilevel analyses, willingness to pay estimates). The course is structured as follows: Instructors will provide an overview on factorial survey experiments and explain practical tasks. Participants work on the tasks in individual “hands on” exercises. For the practical exercises, participants may choose a research question related to their own research (e.g., PhD project).

For most practical analyses, the statistical software package Stata will be used (prior knowledge required!). For setting up experimental designs and programming of questionnaires we use the software packages SAS and QuestBack (no prior knowledge required). The method is NOT connected to (confirmatory or explorative) factor analysis. Moreover, the course does not cover anchoring and video vignettes.

Keywords:

survey experiment, multi-factorial design, experimental set-up, vignette construction, sampling techniques

Course Prerequisites:

- Participants should be familiar with the statistical software package Stata before the course starts (i.e., command structure, do-files, use of ados).
- Participants should have basic knowledge of questionnaire design and experimental methods.
- Methodical knowledge of data management and quantitative data analyses (e.g. linear regression techniques, coding of variables, merging of data sets).

Target Group:

Participants will find the course useful if:

- they want to learn about survey-experimental designs to study attitudes, preferences or behavioural intentions,
- have initial ideas for their own research questions that could be realized by means of a factorial survey,
- plan to conduct a factorial survey in their own (PhD) projects,
- want to deepen their knowledge of experimental designs and quantitative statistical methods,
- want to learn how to analyse data from experimental designs and factorial surveys and evaluate the quality of such data.

Course and Learning Objectives:

By the end of the course participants will:

- have learned and discussed the features, typical applications, advantages, and shortcomings of factorial survey methods,

- have acquired practical insights into all single steps that are needed to set up factorial survey designs, to implement them into (computer assisted) questionnaires, to analyse resulting data, and report on results,
- be familiar with practical methods to evaluate data quality gained by factorial survey methods,
- have gained some insights into related experimental survey methods such as conjoint analyses and choice experiments,
- be able to apply factorial survey methods on their own.

Organizational Structure of the Course:

The course consists of 4 hours of classroom instruction in the morning and individual exercises in the afternoon.

Classroom instruction: The instructors provide an overview of different methodological aspects of factorial survey design, including statistical, experimental and survey methodology background, and explain the tasks for the hands-on exercises.

Individual exercises: In each exercise, participants are expected to work on assignments in the PC pool. Participants may use these exercises to advance factorial survey designs that are related to their own research projects (e.g., PhD projects) and discuss the results with other participants and the instructors. The instructors are available in the PC pool for 2 hours to assist with the exercises or to discuss specific research problems. If time permits, participants may consult instructors for more extensive help and guidance on their personal projects.

Software and Hardware Requirements:

Participants will need to bring a laptop computer to successfully participate in this course.

Exercises and solutions for both Stata and R will be provided by the lecturers. However, the lecturers are not familiar enough with R to answer questions concerning R syntax or help debugging code during the course. Such support is only available for Stata users.

GESIS will provide participants with Stata short term licenses for Stata for the duration of the course.

Stata ados used (and, ideally, installed before the course):

- fre
- dcreate
- listtab, from(<http://fmwww.bc.edu/RePEc/bocode/l>)
- estout, from(<http://fmwww.bc.edu/RePEc/bocode/e>)
- coefplot, from(<http://fmwww.bc.edu/RePEc/bocode/c>)
- wtp

Day-to-day Schedule and Literature:

Day	Topic(s)
1	<p>Introduction to the idea and approach of Factorial Surveys Selection of dimensions and levels, construction of vignettes: Part I Brief introduction to the syntax and workflow in Stata, introduction to Stata for advanced users of other statistical programs; data management</p> <p><u>Compulsory reading (has to be read before class):</u></p> <ul style="list-style-type: none"> ▪ Wallander, L. (2009): 25 years of factorial surveys in sociology: a review. In: Social Science Research 38: 505-520. <p><u>Suggested reading (suggested, yet do not have to be read before class):</u></p> <ul style="list-style-type: none"> ▪ Jasso, G. (2006): Factorial-Survey Methods for Studying Beliefs and Judgments. Sociological Methods and Research 34: 334-423.

	<ul style="list-style-type: none"> ▪ Kohler, U./Kreuter, F. (2012): Data Analysis Using Stata, Third Edition. Austin, TX: Stata Press. ▪ Auspurg, K./Hinz, T. (2015): Factorial Survey Experiments. Thousand Oaks, CA: SAGE, Series: Quantitative Applications in the Social Sciences: Ch. 1,2.
2	<p>Selection of dimensions and levels, construction of vignettes: Part II Vignette sampling techniques: random and fractional designs</p> <p><u>Compulsory reading:</u></p> <ul style="list-style-type: none"> ▪ Dülmer, H. (2007): Experimental Plans in Factorial Surveys: Random or Quota Design? Sociological Methods & Research 35: 382-409. <p><u>Suggested reading:</u></p> <ul style="list-style-type: none"> ▪ Atzmüller, C./Steiner, P. (2010): Experimental Vignette Studies in Survey Research. Methodology 6: 128-138. ▪ Jasso, G. (2006): Factorial-Survey Methods for Studying Beliefs and Judgments. Sociological Methods and Research 34: 334-423. ▪ Kuhfeld, W.F. (2010): Marketing Research Methods in SAS. Experimental Design, Choice, Conjoint and Graphical Techniques. Cary: SAS Institute. ▪ Kuhfeld, W.F./Randall, T. D./Garratt, M. (1994): Efficient Experimental Design with Marketing Research Applications. Journal of Marketing Research 31: 545-557. ▪ Auspurg, K./Hinz, T. (2015): Factorial Survey Experiments. Thousand Oaks, CA: SAGE, Series: Quantitative Applications in the Social Sciences: Ch. 3.
3	<p>Construction of questionnaires (PAPI and CASI) and data preparation. Response scales and survey modes.</p> <p><u>Compulsory reading:</u></p> <ul style="list-style-type: none"> ▪ Sauer, Carsten/Auspurg, Katrin/Hinz, Thomas (2020): Designing Multi-Factorial Survey Experiments: Effects of Presentation Style (Text or Table), Answering Scales, and Vignette Order. Methods, Data, Analyses 14(2): 195-214. <p><u>Suggested reading:</u></p> <ul style="list-style-type: none"> ▪ Weinberg, J. D./Feeese, J./McElhattan, D. (2014): Comparing Data Characteristics and Results of an Online Factorial Survey between a Population-Based and a Crowdsourced-Recruited Sample. Sociological Science 1: 292-310. ▪ Auspurg K./Hinz, T./Walzenbach, S. (2019): Are Factorial Survey Experiments Prone to Survey Mode Effects? In: Lavrakas, P./Traugott, M./Kennedy, C./Holbrook, A./de Leeuw, E./West, B. (Eds): Experimental Methods in Survey Research. Hoboken: Wileys, 371-392. ▪ Auspurg, K./Hinz, T. (2015): Factorial Survey Experiments. Thousand Oaks, CA: SAGE, Series: Quantitative Applications in the Social Sciences: Ch. 4
4	<p>Complex analysis of Factorial Surveys: cluster-robust regressions, multi-level analysis, willingness-to-pay analysis.</p> <p><u>Compulsory reading:</u></p> <ul style="list-style-type: none"> ▪ Hox, J.J./Kreft, I.G.G./Hermkens, P.L.J. (1991): The Analysis of Factorial Surveys. Sociological Methods & Research 19: 493-510. <p><u>Suggested reading:</u></p> <ul style="list-style-type: none"> ▪ Cameron, A.C./Trivedi, P.K. (2010): Microeconometrics Using Stata. Austin, TX: Stata Press. ▪ Jasso, G. (2006): Factorial-Survey Methods for Studying Beliefs and Judgments. Sociological Methods and Research 34: 334-423. ▪ Hox, J.J. (2010): Multilevel Analysis: Techniques and Applications, Second Edition (Quantitative Methodology Series: New York: Routledge. ▪ Auspurg, K./Hinz, T. (2015): Factorial Survey Experiments. Thousand Oaks, CA: SAGE, Series: Quantitative Applications in the Social Sciences: Ch. 5.

5	<p>Methodological research on Factorial Surveys: learning effects, fatigue effects, order effects. Related methods: conjoint analysis, choice experiments.</p> <p><u>Compulsory reading:</u></p> <ul style="list-style-type: none"> ▪ Auspurg, K./Jäckle, A. (2015): First Equals Most Important? Order Effects in Vignette-based Measurement. <i>Sociological Methods & Research</i>, DOI: 10.1177/0049124115591016 ▪ Sauer, C./Auspurg, K./Hinz, Th./Liebig, S. (2011): The Application of Factorial Surveys in General Population Samples: The Effects of Respondent Age and Education on Response Times and Response Consistency. <i>Survey Research Methods</i> 5: 89-102. <p><u>Suggested reading:</u></p> <ul style="list-style-type: none"> ▪ Auspurg, K./Hinz, Th./Liebig, S. (2009): Komplexität von Vignetten, Lerneffekte und Plausibilität im Faktoriellen Survey. <i>Methoden, Daten, Analysen</i> 3: 59-96. ▪ Faia, M.A. (1980): The Vagaries of the Vignette World: A Comment on Alves and Rossi. <i>American Journal of Sociology</i> 85: 951-954. ▪ Louviere, J.J./Hensher, D.A./Swait, J.D. (2000): <i>Stated Choice Methods. Analysis and Application</i>. Cambridge: Cambridge University Press. ▪ Auspurg, K./Hinz, T. (2015): Multifactorial Experiments in Surveys: Conjoint Analysis, Choice Experiments, and Factorial Surveys. In: Wobring, T./Keuschnigg, M. (Eds): <i>Experimente in den Sozialwissenschaften. Sonderband 22 der Sozialen Welt</i>. Baden-Baden: Nomos. ▪ Sauer, C./Auspurg, K./Hinz, T./Liebig, S./Schupp, J. (2014): Method Effects in Factorial Surveys: An Analysis of Respondents' Comments, Interviewers' Assessments, and Response Behavior. <i>SOEppapers on Multidisciplinary Panel Data Research # 629</i>. Berlin: German Institute for Economic Research (DIW).
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Preparatory Reading:

- Auspurg, K. and Hinz, T. (2015): *Factorial Survey Experiments*. Sage.
- Jasso, G. (2006). Factorial Survey Methods for Studying Beliefs and Judgments. *Sociological Methods and Research*, 34, 334-423.
- Düval, S., Hinz, T. (2020): Different Order, Different Results? The Effects of Dimension Order in Factorial Survey Experiments. *Field Methods*, 32, 23-37.
- Rossi, P. H. and Anderson, A. B. (1982). The Factorial Survey Approach. An Introduction. In Rossi, P. H. and Nock, S. L. (Eds.). *Measuring Social Judgments. The Factorial Survey Approach*. Beverly Hills: SAGE, pp. 15-67.
- Sauer, C., Auspurg, K., & Hinz T. (2020): Designing Multi-Factorial Survey Experiments: Effects on Presentation Style (Text or Table), Answering Scales, and Vignette Order. *Methods, Data, Analyses*, 14, 195-214.
- Sauer, C., Auspurg, K., Hinz, T. and Liebig, S. (2011). The Application of Factorial Surveys in General Population Samples. The Effects of Respondent Age and Education on Response Times and Response Consistency. *Survey Research Methods*, 5, 89-102.
- Wallander, L. (2009). 25 Years of Factorial Surveys in Sociology. A Review. *Social Science Research*, 38, 505-520.

Additional Recommended Literature:

- Kohler, U. and Kreuter, F. (2012). *Data Analysis Using Stata, Third Edition*. Stata Press.
- Acock, A.C. (2014). *A Gentle Introduction to Stata, Revised Fourth Edition*. Stata Press.
- <http://www.stata.com/bookstore/books-on-stata/>