Possible forms of master thesis projects at the chair of Heiko Rauhut

Possible formats

Replication studies
General Idea: Science is currently in a crisis of replication even though replicating existing work is working right at the cutting edge of the field. Sociologically, the possibility that one's work could be replicated provides a social control mechanism that ideally discourages shoddy or fraudulent work. Replications are thus a norm of organized skepticism, contributing to successful functioning of science. The general idea here is to use an existing data set as a starting point and conduct various verifiability and robustness analyses.   Literature: Freese, J. and Peterson, D. (2017). Replication in Social Sciences. Annual Review of Sociology 43: 1-19.   King, G. (1995). Replication, replication. *PS: Political Science & Politics*, *28*(3), 444-452.   King, G. "Publication, publication." PS: Political Science & Politics 39.1 (2006): 119-125.
Examples for replications   McCullough, B. D., McGeary, K. A., & Harrison, T. D. (2006). Lessons from the JMCB Archive. *Journal of Money, Credit, and Banking*, *38*(4), 1093-1107.   Wicherts, J. M., Borsboom, D., Kats, J., & Molenaar, D. (2006). The poor availability of psychological research data for reanalysis. *American Psychologist*, *61*(7), 726.
Meta-analyses
General idea: Meta analyses are statistical analyses of a large collection of results from individual studies. They are especially interesting in cases when the research question is about a comparison of an aspect or improvements of methods or for evaluating the magnitude of the underlying overall effect of a phenomenon. The general idea here is to find a phenomenon worth investigating, compile a bibliography, estimate effect sizes and calculate combined results.   Literature: Field, A.P. and Gillet, R. (2010). How to do a meta-analysis. British Journal of Mathematical and Statistical Psychology 63: 665-694.
Examples for meta-analyses (also check successfully completed master theses)   Balliet, D., Mulder, L. B., & Van Lange, P. A. (2011). Reward, punishment, and cooperation: a meta-analysis. *Psychological bulletin*, *137*(4), 594.   Lensvelt-Mulders, G. J., Hox, J. J., Van der Heijden, P. G., & Maas, C. J. (2005). Meta-analysis of randomized response research: Thirty-five years of validation. *Sociological Methods & Research*, *33*(3), 319-348.   Zelmer, J. (2003). Linear public goods experiments: A meta-analysis. Experimental Economics, 6(3), 299-310.
Field research
General idea: Primary research is any type of research conducted by the researcher themselves. This can vary from a survey to an online experiment or a study with qualitative methods (e.g.

interviews). The general idea here is to come up with an own research design and conduct field research. Further, students can check out available data sets (e.g. the ones presented above).

Literature:

Creswell, J. W., & Creswell, J. D. (2017). Research design: Qualitative, quantitative, and mixed methods approaches. Sage publications.
O'leary, Z. (2004). The essential guide to doing research. Sage.

For examples check successfully completed master theses.

Available data sets

Behavioral games in Z-Proso

General Idea:

Our study within z-Proso combines observational with experimental data and mainly focuses on fundamental human capabilities such as honesty, cooperation and trust and their relation to delinquency. We implemented a series of simple decision-making games, in which subject's claim, bargain or steal money from each other and thus face real consequences of their own and others' actions. Our study tries to amplify the understanding of human behavior by asking both causal and observational, as well as methodological questions.

Previous evidence suggests that trust is an indispensable requirement for social and economic success; we, therefore, aim to explore the determinants of trust and the closely related concept of positive reciprocity. Further, our study allows investigating the use of signals and their effects on trusting behavior across strategic and non-strategic conditions. With this, we are particularly interested in whether people with criminal tendencies process suspicious information differently and use such signals strategically to cheat others.

Another important aspect we investigate is the tendency to punish unfair behavior, even at individual costs. Negative reciprocity is of significant importance for the establishment and maintenance of cooperation and norms. Within z-Proso, we therefore ask the question who are these strong reciprocators. We are particularly interested in whether individuals with socially undesirable delinquent tendencies are those who maintain cooperation and fairness.

We also address general methodological concerns for both observational and experimental studies. A significant threat to the validity of survey data proposes subjects' tendencies to lie. We developed a method to identify survey items that suffer particularly from lying behavior (e.g., due to social desirability) as well as particularly trustworthy responders. In experimental studies, abstract games are used to mimic real-world situations to infer actual behaviors. We test the external validity of the public goods game on a diverse sample using detailed information about respondents' police records, including fare-dodging.

Overall, the study combines large-scale survey data with monetarily incentivized behavioral experiments to leverage our understanding of essential human behavior and research methodology.

Literature:

Fehr, E., Fischbacher, U., Von Rosenbladt, B., Schupp, J., & Wagner, G. (2003). A nation-wide laboratory: Examining trust and trustworthiness by integrating behavioral experiments into representative survey.

Exemplary questions
Methodological questions (e.g. How do problems of understanding affect decision-making in behavioral games? What is the effect of socio-economic background on behavior in lab experiments?),

Dice game (e.g. What are patterns of lying? Do delinquents use signals differently? Do they cheat more or in patterns?)

Trust game (e.g. What are the roots of trust? Do delinquents interpret signals differently? Do delinquents respond differently to trust by others?)

Public goods game (e.g. Do anti-social people behave anti-social in public goods game? Are there factors in childhood that affect the ability to cooperate within groups?)

Dictator and ultimatum game (e.g. Do delinquents evaluate risk differently? Are there childhood factors that trigger fairness propensities?)

Further information
Website: https://www.jacobscenter.uzh.ch/en/research/zproso/aboutus.html
Publication list: https://www.jacobscenter.uzh.ch/en/research/zproso/aboutus/publication_list.html
Instruments: https://www.jacobscenter.uzh.ch/en/research/zproso/aboutus/inst_erheb/inst_summ.html

Zurich Survey of Academics

General idea:

Recent developments, such as the significant increase in the number of large and interdisciplinary research teams, the strengthening of the open access movement and calls for more transparency in research, but also the replication crisis, pose new challenges for modern science.

The Zurich Survey of Academics is a large-scale and representative web survey among scientists at universities in Switzerland, Germany, and Austria (DACH region). The survey was conducted in 2020 and includes N=15,972 scientists from 236 universities. The survey is motivated by recent developments, such as the significant increase of team work in science and problems of how to organize fair and sustainable collaborations, the strengthening of the open access movement and calls for more transparency in research. It also reflects recent discussions around the replication crisis, problems of scientific integrity, and the apparently increasing pressures in scientific work.

The aim of the survey is to obtain in-depth insights from researchers in the German-speaking part of Europe. The survey includes a number of new measurements, such as vignettes, factorial surveys, behavioral games, an Implicit Association Test on misconduct, indirect questioning techniques for eliciting scientific misconduct, randomized survey experiments on selective publishing behavior, and more. These measurements are applied to elicit, among others, selfish versus prosocial behavior of scientists, authorship norms, and provisions of collective goods in science.

The survey further focuses on work and research situations (e.g. employment position, work load, publication pressure, discrimination due to personal characteristics, satisfaction with different areas of life) norms and practices of authorship (e.g. order of authorship, who is collaborating with whom, what tasks are deemed sufficient to be named as an author, authorship conflicts), publication strategies (e.g. preferred criteria for journal submissions, risk and time preferences, publication bias (e.g. dissemination and causes), scientific misconduct (explicit and implicit attitudes, experiences with and justification of misconduct), and science communication (e.g. mental models of good communication). The survey is part of the larger-scale SNF/ERC Starting grant project "Social Norms, Cooperation and Conflict in Scientific Collaborations".

Literature:

Rauhut, Heiko; Johann, David; Jerke, Julia; Rathmann, Justus; Velicu, Antonia (2020). The Zurich Survey of Academics: Methods, Design, and Data. Zurich: University of Zurich. https://www.zora.uzh.ch/id/eprint/188304/ (last accessed on 6.7.20)

Exemplary questions
Collaboration (e.g. What are the advantages and the challenges of team work in science? Are there free-rider problems, or even volunteer's dilemmas in large author groups with respect to controlling scientific integrity? On the other hand: do many authors contribute to the wisdom of crowds and produce more interesting research?)

Selfishness (e.g. How selfish are scientists? Do selfish or altruistic scientists better in their career? Does it depend on team vs. solo disciplines? How common is lying among scientists?)

Scientific misconduct (e.g. How widespread is scientific misconduct? How can we explain it, how can we measure it?)

Social norms in science (e.g. What are the social norms of collaboration in science? How to deal with different expectations about the order of authors? Methodological questions (e.g. How do problems of understanding affect decision-making in behavioral games? What is the effect of socio-economic background on behavior in lab experiments?)

Further information
Website: https://www.suz.uzh.ch/en/institute/professors/rauhut/zurich-survey-of-academics.html

School studies with cooperation and networks

General idea:

This project examines processes, mechanisms and dynamics of building values and norms in children and adolescents. In particular, the focus is on the evolution of prosocial values, such as cooperativity, and the question to what extent social processes in friendship networks in school classes play a role here.

Schools are one of the core institutions for children and adolescents that act as a social environment and influence human behavior. Within schools, classes are the places where students spend most of the time, where they are continuously asked to work together, and to develop together and individually. To understand who we are and what we become, schools can be seen as early determinants of cooperative behavior, and as a basis for conveying prosocial and altruistic values. On the other hand, competition in schools can also trigger anti-social behavior or emphasize selfish values. These values and behaviors have a strong impact on performance in school and later in life. Prosocial values are crucial for the development of a variety of social norms, such as voluntary work, contributions to the intergenerational contract, an environmentally friendly life or participation in democracy.

Most behavioral research on prosocial values and cooperation standards is carried out in relatively small laboratory facilities. The present project analyzes data from the field and pursues the goal of shedding more light on the mechanisms of norm formation. For this purpose, the network structures in school classes in the formation and development of cooperation should be examined in particular. By systematically examining these structures, we will understand in more detail how contextual, individual and network characteristics influence value creation in children and adolescents.

Literature:

Kindschi, M., Cieciuch, J., Davidov, E., Ehlert, A., Rauhut, H., Tessone, C. J., & Algesheimer, R. (2019). Values in adolescent friendship networks. *Network Science*, *7*(4), 498-522.

Exemplary questions
How does having prosocial values impact individual outcomes?
How do friendship structures affect value formation in school classrooms?

Project ideas

Intersectional discrimination of scientists
General idea: Given that the academic system is often interpreted as an environment that produces and reproduces patriarchal power relations and is thus considered a masculine environment, insights into intersectional discrimination of scientists are particularly valuable. One way to research this phenomenon is to employ a qualitative methodology and conduct interviews with scientists that share their experiences.   Literature: Beaufaÿs, S., & Krais, B. (2005). Doing Sciene–Doing Gender. Die Produktion von Wissenschaftlerinnen und die Reproduktion von Machtverhältnissen im wissenschaftlichen Feld. Feministische Studien, 23(1), 82-99.   Crenshaw, K. (1990). Mapping the margins: Intersectionality, identity politics, and violence against women of color. Stan. L. Rev., 43, 1241.   Foschi, M. (2000): Double Standards for Competence: Theory and Research, Annual Review of Sociology 26: 21-42.   Krais, B. (2000): Das soziale Feld Wissenschaft und die Geschlechterverhältnisse, in: Krais, B. (Hg.): Wissenschaftskultur und Geschlechterordnung: Über die verborgenen Mechanismen männlicher Dominanz in der akademischen Welt. Frankfurt/Main: Campus, S. 31-54.   Merton, R. K. (1973): The normative structure of science, in: Merton, R. (Hg.): The Sociology of Science: Theoretical and Empirical Investigations, Chicago: The University of Chicago Press, S. 267-78.   Paludi, M. A.; Strayer, L. A. (1985): What's in an Author's Name? Differential Evaluations of Performance as a Function of Author's Name, in: Sex Roles 12(3/4): 353-361.
Examples for qualitative studies of discrimination in academia   Johansson, M., & Śliwa, M. (2014). Gender, foreignness and academia: An intersectional analysis of the experiences of foreign women academics in UK business schools. Gender, Work & Organization, 21(1), 18-36.   Sang, K., Al-Dajani, H., & Özbilgin, M. (2013). Frayed careers of migrant female professors in British academia: An intersectional perspective. Gender, Work & Organization, 20(2), 158-171.

Development of moral sentiments
How do human moral sentiments develop? While many people behave collaboratively, others develop a self-centered or anti-social character. Understanding the roots of social behaviors such as honesty, trust, and fairness is an essential way to raise cooperation and avoid people straying away from the right path. Various reasons might lead to deviation and can be investigated, such as drug abuse, bullying, delinquency, or the role of social isolation or integration. Projects can combine ten years of survey responses with the actual decision-making in economic games of over 1`000 adolescents.
Gintis, H. (2014). The Bounds of Reason: Game Theory and the Unification of the Behavioral Sciences-Revised Edition. Princeton University Press. [Book]   Mussen, P., & Eisenberg-Berg, N. (1977). Roots of caring, sharing, and helping: The development of pro-social behavior in children. WH Freeman. [Book]   Gintis, H., Henrich, J., Bowles, S., Boyd, R., & Fehr, E. (2008). Strong reciprocity and the roots of human morality. Social Justice Research, 21(2), 241-253.   Gibbs, J. C. (2019). Moral development and reality: Beyond the theories of Kohlberg, Hoffman, and Haidt. Oxford University Press. [Book]   Gintis, H., Bowles, S., Boyd, R. T., & Fehr, E. (Eds.). (2005). Moral sentiments and material interests: The foundations of cooperation in economic life (Vol. 6). MIT press. [Book]   *Note:* Dependent on the kind of social behavior, various (more specific) research articles can be found.

Social preferences predict crime

Understanding why people commit crimes is a crucial topic in the social sciences and essential to designing crime prevention programs. According to the theory, there are two key components linked to criminal acts: (1) social and economic conditions that incentive criminal behavior (e.g., high gains of reputation or low opportunity costs) and (2) social preferences that alter the perceptions of costs and benefits of criminal acts (e.g., high risk tolerance or low concerns for others). A recent study among danish men suggests that while risk preferences and self-control play a major role in predicting criminal behavior, other preferences such as altruistic preferences play only a minor role. The objectives of this project are to (1) verify these results with a unique sample of Swiss juveniles from Zurich, (2) identify other aspects of pro- and antisocial behavior that prevent or promote the chances of young individuals to engage in crime activities (such as honesty, trust, reciprocity or punishment preferences), and (3) to analyze in how far these preferences alter in their importance for different types of criminal behaviors.

A good starting point for this research project is:
Epper, T., Fehr, E., Hvidberg, K. B., Kreiner, C. T., Leth-Petersen, S., & Nytoft Rasmussen, G. (2022). Preferences predict who commits crime among young men. Proceedings of the National Academy of Sciences, 119(6), e2112645119.

The Wisdom of Crowds: When are individuals smarter than the crowd?

How do groups of people make "good" decisions? Under which circumstances are their solutions better than those of experts? How should the information contributed by the many fuse into a single opinion? The literature on the wisdom of the crowd (e.g. Surowiecki, 2005, Lorenz et al. 2011, Becker 2017) investigates these questions in interesting and often intriguing ways.

 To investigate this question further, this research project makes use of a unique historical dataset from popular culture. In the 1960 and early 1970s, the famous Holocaust survivor Hans Rosenthal moderated a live radio show called "Allein gegen Alle" in Germany. The goal for the participants of this show was to submit five knowledge questions so difficult, that a whole city of competitors wouldn't be able to find the answers. What sounds impossible today, where the internet has the world's knowledge at our fingertips, required the help of the whole city fifty years ago. The participants started against a small city of about 10.000 inhabitants, and, if they beat that city, progressed to compete against 25.000, 100.000, and finally Cities as big as Hamburg, Cologne, or Berlin. The goal of this project is to (1) describe the relationship between population size and the probability of winning, and (2) find a suitable way to deal with the fact that assignment of participants to cities happens endogenously, i.e. good candidates proceed to bigger cities.

The complete dataset, including the questions, the number of correctly answered questions, the city-size and a few additional data points is available from us. Feel free to get in touch with us if you are interested to work on project.