

DFG Research Group 2104

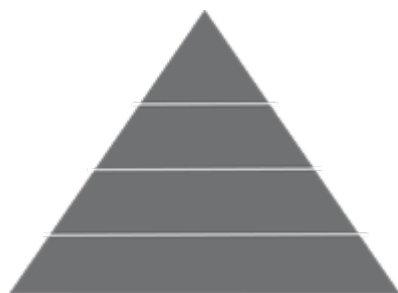
Need-Based Justice and Distribution Procedures

**Heterogeneity, Risk-taking and Discrimination:
An Experimental Study**

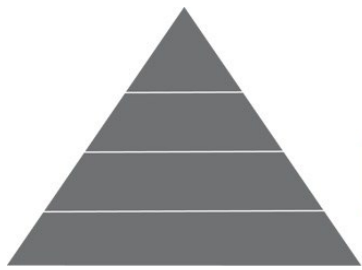
Jan Philipp Krügel and Stefan Traub

Working Paper Nr. 2023-03

May 2023



**FOR
2104**



FOR
2104



HELMUT SCHMIDT
UNIVERSITÄT

Universität der Bundeswehr Hamburg

Heterogeneity, Risk-taking and Discrimination: An Experimental Study

Jan Philipp Krügel* and Stefan Traub*

May 5, 2023

*Helmut-Schmidt-University Hamburg, Department of
Economics and Social Science, Holstenhofweg 85, D-22043
Hamburg, Germany, e-mail: kruegel@hsu-hh.de (Jan Philipp
Krügel) / traubs@hsu-hh.de (Stefan Traub)

Background

- This project was developed as part of the research group FOR 2104 “Need-based Justice and Distributive Procedures”.
- Financial support from the German Research Foundation is gratefully acknowledged.
- This presentation is organized as follows: In Section 1 we introduce our research questions. In Section 2 we present the experimental design. Results are presented in Section 3 while Section 4 concludes.

1 Introduction

- Studies show that many participants in experiments are willing to give a higher proportion of money to needier individuals (e.g. Lamm and Schwinger 1983, Cappelen et al. 2013).
- In general, many individuals prefer a distributional principle that maximizes average income, subject to a floor constraint (Traub et al. 2005).
- For an overview of the literature see Traub and Kittel (2020).

1 Introduction

- However, societies are heterogeneous and individuals differ in ascribed and acquired characteristics.
- This has yet not been adequately addressed in the experimental literature that focuses on need-based justice.
- In this project, we focus on different conceptions of need-based justice.
- We analyze whether need-based justice is considered as a universal concept or whether it applies only to specific groups.
- Individuals might *differentiate* by applying the need principle only to specific groups. Differentiation requires a valid justification.
- Individuals might *discriminate* against others. Discrimination lacks such a justification.

1 Introduction

- In-group favoritism has been extensively studied, but not in the context of need.
- Balliet et al. (2014) and Lane (2016) provide meta-studies about the experimental literature on in-group favoritism.
- Examples that study in-group favoritism in the context of redistributive choices include:
 - Klor and Shayo (2010), who find that subjects favor redistribution levels that benefit in-group members, even when this is detrimental to their own payoff.
 - Chen and Li (2009), who find that subjects are both more charitable and less envious when matched with members of the in-group rather than the out-group.

1 Introduction

- We use the following definitions:
 - If there is no objective basis to favor the in-group over the out-group (e.g., because groups are artificial), in-group favoritism is discrimination.
 - If some group members are treated differently than others, but they have characteristics that provide a reason for being treated differently compared to others, then there is differentiation.

1 Introduction

- We use a laboratory experiment on risk-taking and redistribution with a need threshold to study whether subjects discriminate or differentiate when they consider the needs of others.
- In our experiment, groups are heterogeneous. Group members may differ by...
 - risk attitude, which provides a reason to treat others differently because the risk attitude correlates with the subjects' investment task (differentiation).
 - their preference for a painter in the Klee-Kandinsky task (Tajfel et al. 1971). This attribute is irrelevant. Observed differences are therefore discrimination.
- We also analyze whether a redistributive system that is based on needs reduces discrimination.

2 The Experiment

The experiment consists of four parts:

1. Individual investment task (afterwards participants receive a label: either risk-loving or risk-averse).
2. Klee-Kandinsky task (afterwards participants receive a label: either Klee or Kandinsky).
3. Repeated group investment task (groups of four group members).
4. Real effort task (conditional on meeting need threshold in part 3).

2 The Experiment



Treatments

- The groups in part 3 are either based on the labels from part 1 (differentiation treatments, risk) or from part 2 (discrimination treatments, Klee/Kandinsky).
- The four group members in part 3 either all have the same label (hom) or two group members have a different label than the other two (het).
- We use eight treatments (between-subjects design):
 - Conditional redistribution
 - Differentiation Treatments: Risk (*Risk/Hom*, *Risk/Het*)
 - Discrimination Treatments: Klee/Kandinsky (*Min/Hom*, *Min/Het*, *Max/Hom*, *Max/Het*)
 - Unconditional redistribution
 - Discrimination Treatments: Klee/Kandinsky (*UR Hom*, *UR Het*)

2 The Experiment

■ Part 1 (Investment task)

- Subjects get an endowment of 100 points and choose an investment in a lottery with positive expectation. The amount that is not invested is kept for sure.
- In the lottery, the probability of winning or losing is identical:
 - In case of a win, the invested amount is multiplied by 2.5.
 - In case of a loss, the invested amount is multiplied by 0.5.

■ Part 2 (Klee-Kandinsky task)

- For details see Tajfel et al. (1971). In *Max/Hom* and *Max/Het*, another game is conducted with competition between groups and communication to maximize identity.

2 The Experiment

- **Part 3 (Group investment task)**
 - Part 3 is played for 10 rounds with an endowment of 100 points in each round.
 - There are 2 choices in each round. Subjects can...
 - contribute to a solidarity fund.
 - invest in a lottery (the lottery is the same as in part 1).
 - There is a need threshold of 1200 points. If this threshold is not reached, subjects cannot earn money in part 4.
 - The solidarity fund is distributed at the end of part 3 (how, depends on the treatment).
 - At the beginning of part 3, we ask about subjects' beliefs regarding contributions to the solidarity fund.

2 The Experiment



Only for treatments with **conditional** redistribution:

- The distribution of the solidarity fund depends on whether subjects have reached the threshold.
- The solidarity fund is distributed at the end of the 10 rounds:
 - If there are no group members with less than 1200 points (in need): contributions are paid back.
 - If there are group members in need and if there are enough points in the fund: all group members in need get the needed amount; the rest is paid back proportionally.
 - If there are group members in need but not enough points in the fund: contributions are paid back.

2 The Experiment

Only for treatments with **unconditional** redistribution:

- The distribution of the solidarity fund does not depend on whether subjects have reached the threshold.
- The solidarity fund is equally distributed to all group members at the end of the 10 rounds. Contributions are not paid back.

2 The Experiment

Hypotheses: Why do subjects contribute to the solidarity fund?

- A possible motive is solidarity (helping the needy).
- We are interested in the differences in solidarity between treatments.
- There is differentiation if...
 - beliefs and contributions are lower in Risk/Het than in Risk/Hom for **risk-averse** subjects.
 - beliefs and contributions are higher in Risk/Het than in Risk/Hom for **risk-loving** subjects.
- There is discrimination if...
 - beliefs and contributions are higher in Min/Hom or Max/Hom than in Min/Het or Max/Het, respectively.

2 The Experiment



Hypotheses

- Do we expect differentiation? “Yes”
 - There is a reason (risk preferences) to treat group members in heterogeneous risk groups differently than in homogeneous risk groups: On average, risk-averse individuals require more points from the solidarity fund than risk-loving individuals.
 - This should not depend on whether the redistributive system is conditional or unconditional.
- Do we expect discrimination? “Yes” and “No”
 - “No”, if redistribution is conditional and based on needs of participants.
 - “Yes”, if redistribution is unconditional.
 - Conjecture: Need-based redistribution reduces discrimination.

2 The Experiment



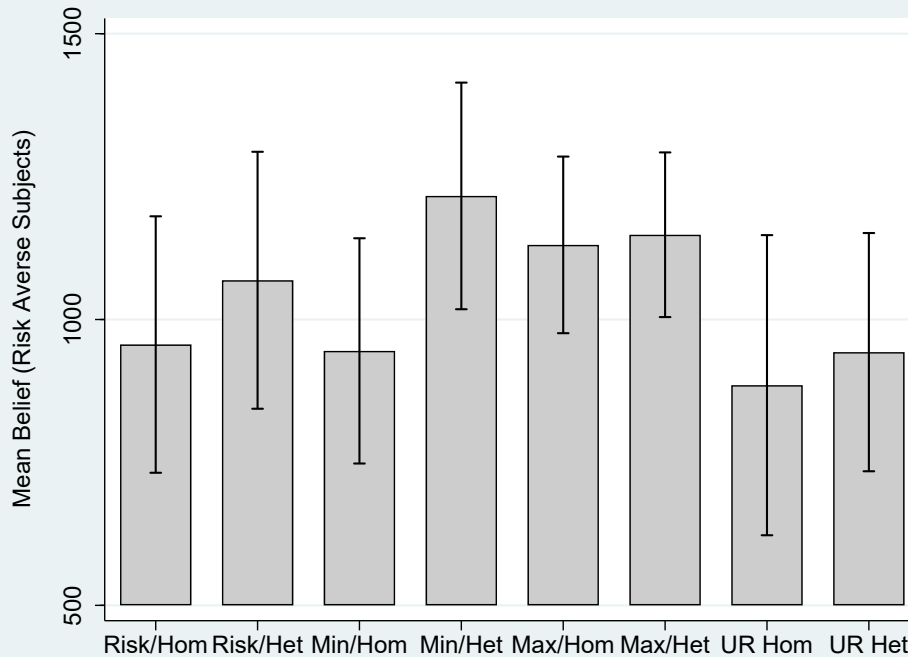
Procedures

- We programmed the experiment with z-Tree (Fischbacher 2007). Participants were recruited with hroot (Bock et al. 2004).
- The experiment was conducted at the laboratory of the University of Hamburg.
- We conducted 22 Sessions with a total of 452 subjects.
- In *Risk/Hom* and *Risk/Het* we dropped 48 subjects (24 out of 72 in each treatment) with medium investments.
- Thus, we have a total of 404 observations.

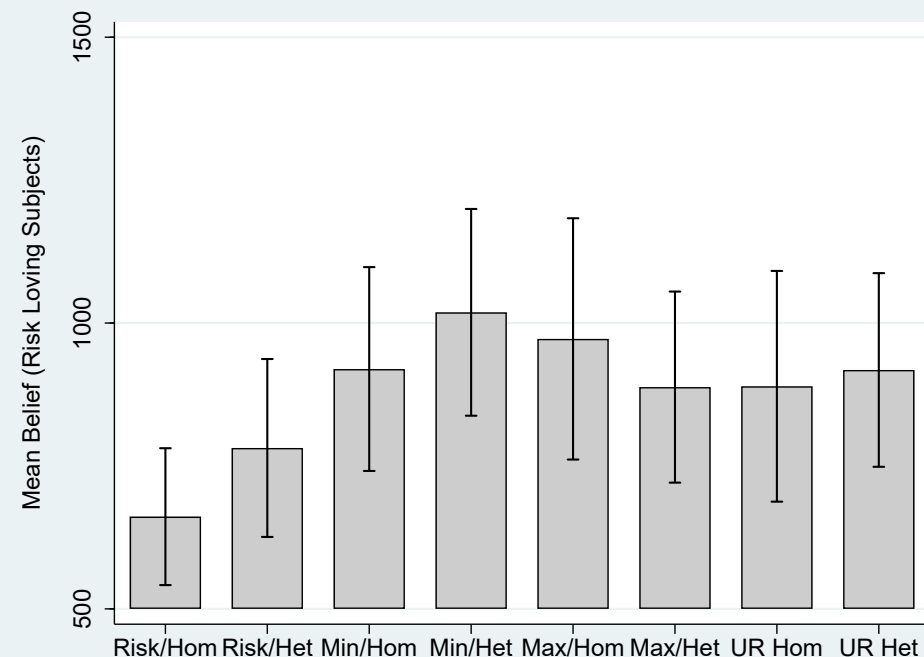
3 Results

Beliefs about contributions to the solidarity fund by treatment and risk type (mean)

Risk-averse subjects:



Risk-loving subjects:

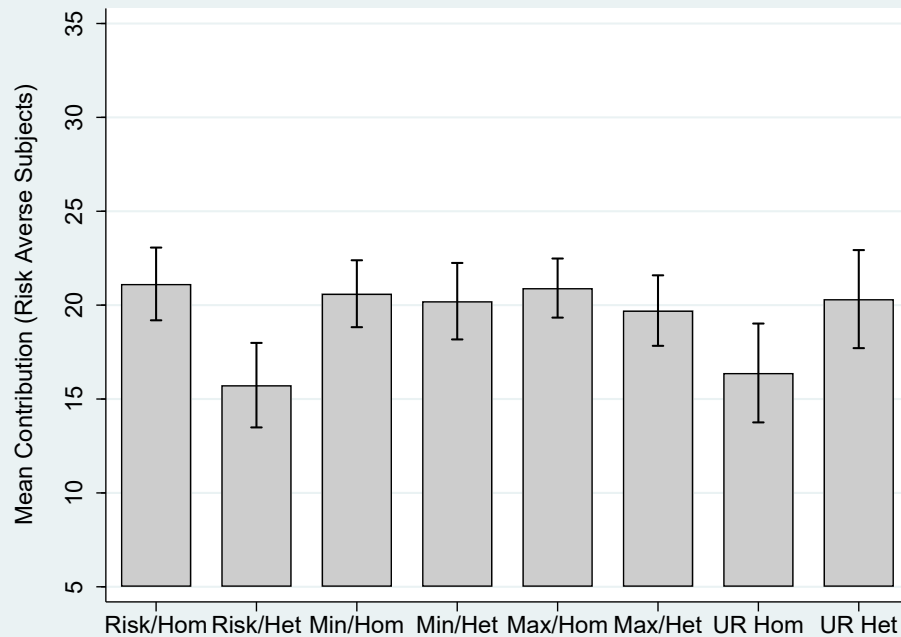


Result 1: When analyzing the subjects' beliefs, there is no evidence of differentiation or discrimination.

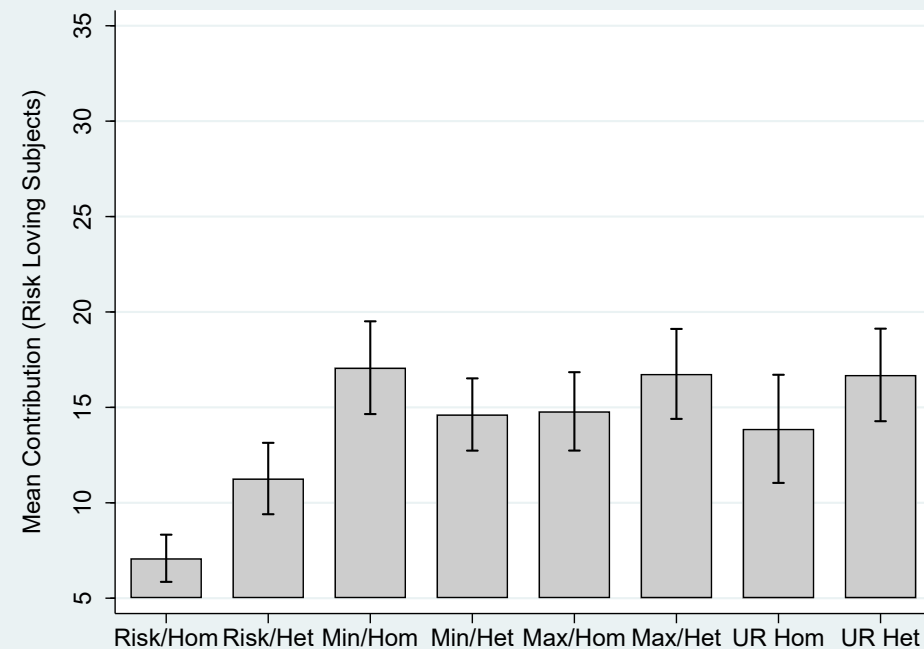
3 Results

Contributions to the solidarity fund by treatment and risk type (mean)

Risk-averse subjects:



Risk-loving subjects:



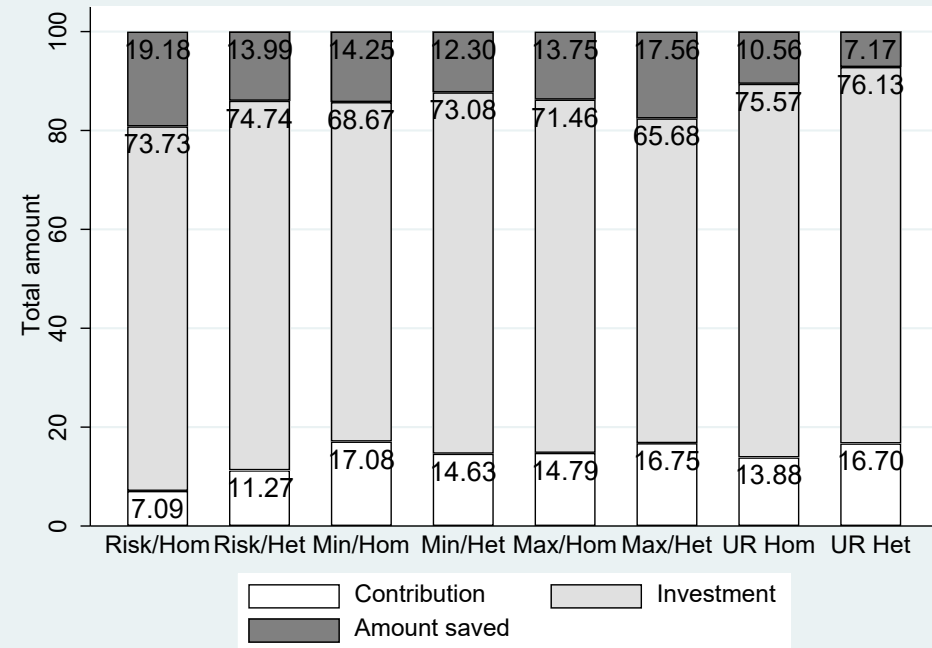
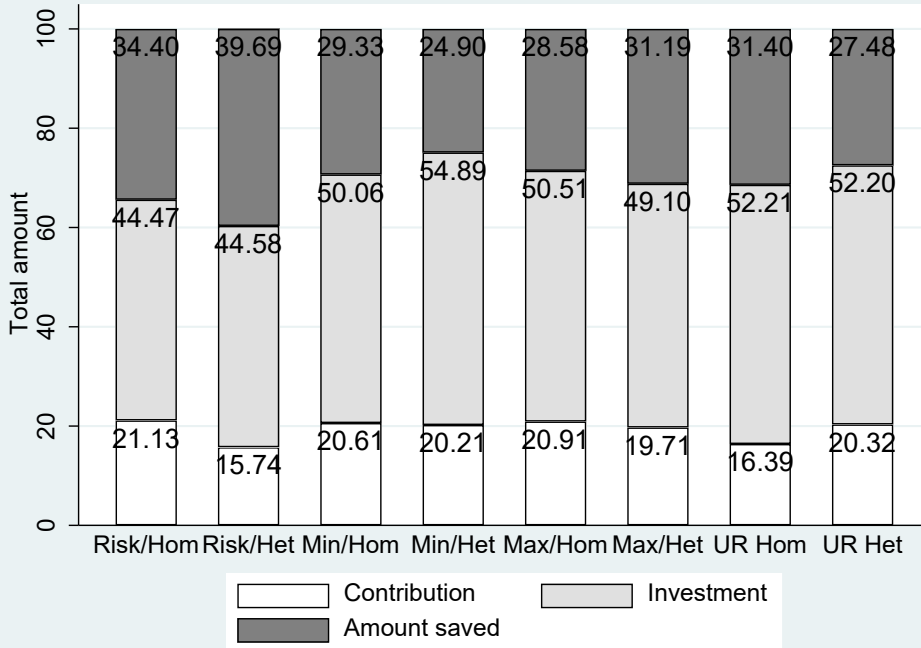
Result 2: We find weak evidence for differentiation (there is a difference between Risk/Hom and Risk/Het for both risk types).

3 Results

Contributions to the fund, investment and saved amount by treatment and risk type

Risk-averse subjects:

Risk-loving subjects:



Result 3: Investments are on a similar level between treatments for risk-averse and risk-loving subjects.

4 Conclusion

- When we analyze the beliefs, we find neither differentiation nor discrimination.
- When we analyze contributions, we find weak evidence for differentiation:
 - Risk-averse subjects reduce their solidarity in heterogeneous groups, which can be justified by the fact that risk-loving group members invest more themselves and are less often in need.
 - On the other hand, risk-loving subjects increase their solidarity when paired with risk-averse subjects.
- We find no effect of discrimination:
 - Since we do not observe discrimination, the conjecture that need-based redistribution reduces discrimination cannot be confirmed based on our data.

Literature



- Balliet, D., J. Wu, and C. K. De Dreu (2014): “Ingroup Favoritism in Cooperation: A Meta-Analysis”, *Psychological Bulletin*, 140(6), 1556.
- Bock, O., I. Baetge, and A. Nicklisch (2014): “hroot: Hamburg Registration and Organization Online Tool”, *European Economic Review* 71, 117-120.
- Cappelen, A. W., J. Konow, E. Ø. Sørensen, and B. Tungodden (2013): “Just Luck: An Experimental Study of Risk-taking and Fairness”, *American Economic Review* 103(4), 1398-1413.
- Chen, Y., and S. X. Li (2009): “Group Identity and Social Preferences”, *American Economic Review* 99(1), 431–457.
- Fischbacher, U. (2007): “z-Tree: Zurich Toolbox for Ready-made Economic Experiments”, *Experimental Economics* 10(2), 171-178.
- Klor, E. F., and M. Shayo (2010): “Social Identity and Preferences over Redistribution”, *Journal of Public Economics* 94(3-4), 269–278.
- Lamm, H., and T. Schwinger (1983): “Need Consideration in Allocation Decisions: Is it Just?”, *Journal of Social Psychology* 119(2), 205–209.
- Lane, T. (2016): “Discrimination in the Laboratory: A Meta-Analysis of Economics Experiments”, *European Economic Review* 90, 375-402.
- Tajfel, H., M. G. Billig, R. P. Bundy, and C. Flament (1971): “Social Categorization and Intergroup Behaviour”, *European Journal of Social Psychology* 1(2), 149–178.
- Traub, S. (2020): “Perspectives for a Theory of Need-based Distributive Justice”, in: Traub, S., and B. Kittel (eds): *Need-Based Distributive Justice: An Interdisciplinary Perspective* 1-20. Springer Nature, Cham.
- Traub, S., C. Seidl, U. Schmidt, and M. V. Levati (2005): “Friedman, Harsanyi, Rawls, Boulding - or Somebody Else? An Experimental Investigation of Distributive Justice”, *Social Choice and Welfare* 24, 283-309.

DFG Research Group 2104

– Latest Contributions

<https://www.hsu-hh.de/bedarfsgerechtigkeit/publikationen/>

Dietrich, Brian: Public Service Motivation in Germany. An Empirical Assessment of the Adaptability of PSM to Germany. Working Paper Nr. 2023-02.

Dietrich, Brian, Jankowski, Michael, Schnapp, Kai-Uwe and Tepe, Markus: Differentiation or Discrimination? Discretionary Decision-making of Street-level Bureaucrats. Working Paper Nr. 2023-01.

Kittel, Bernhard, Schwaninger, Manuel and Szendrő Réka: Need-based Justice beyond Close Social Ties: Experimental Evidence on the Scope of the Need Principle. Working Paper Nr. 2022-03.

Wyszynski, Marc and Diederich, Adele: Individual differences moderate effects in an Unusual Disease paradigm: A within-subjects study using a psychophysical data collection approach. Working Paper Nr. 2022-02.

Wyszynski, Marc and Bauer, Alexander Max: Give what you can, take what you need – The effect of framing on rule-breaking behavior in social dilemmas. Working Paper Nr. 2022-01.

Springhorn, Nils: Bargaining According to the Baron-Ferejohn Model, Taking into Account Need. Working Paper Nr. 2021-06.

Springhorn, Nils: Capitulate for Nothing? Does Baron and Ferejohn's Bargaining Model Fail Because No One Would Give Everything for Nothing? Working Paper Nr. 2021-05.

Kittel, Bernhard, Neuhofer, Sabine and Schwaninger, Manuel: The Dark Side of Transparent Needs. An Experiment on Information and Need-based Justice. Working Paper Nr. 2021-04.

Neuhofer, Sabine: Let's chat about justice in a fair distribution experiment. Working Paper Nr. 2021-03.

Schwaninger, Manuel: Sharing with the Powerless Third: Other-regarding Preferences in Dynamic Bargaining. Working Paper Nr. 2021-02.

Traub, Stefan, Schwaninger, Manuel, Paetzl, Fabian and Neuhofer, Sabine: Evidence on Need-sensitive Giving Behavior: An Experimental Approach to the Acknowledgment of Needs. Working Paper Nr. 2021-01.

Bauer, Alexander Max: Sated but Thirsty. Towards a Multidimensional Measure of Need-Based Justice. Working Paper Nr. 2018-03.

Khadjavi, Menusch and Nicklisch, Andreas: Parent's Ambitions and Children's Competitiveness. Working Paper Nr. 2018-02.

Bauer, Alexander Max: Monotonie und Monotoniesensitivität als Desiderata für Maße der Bedarfsgerechtigkeit. Working Paper Nr. 2018-01.

Schramme, Thomas: Mill and Miller: Some thoughts on the methodology of political theory. Working Paper Nr. 2017-25.

Kittel, Bernhard, Tepe, Markus and Lutz, Maximilian: Expert Advice in Need-based Allocations. Working Paper Nr. 2017-24.

Tepe, Markus and Lutz, Maximilian: The Effect of Voting Procedures on the Acceptance of Redistributive Taxation. Evidence from a Two-Stage Real-Effort Laboratory Experiment. Working Paper Nr. 2017-23.

Tepe, Markus and Lutz, Maximilian: Compensation via Redistributive Taxation. Evidence from a Real-Effort Laboratory Experiment with Endogenous Productivities. Working Paper Nr. 2017-22.

DFG Research Group 2104 at Helmut Schmidt University Hamburg

<https://www.hsu-hh.de/bedarfsgerechtigkeit/>

Kittel, Bernhard, Neuhofer, Sabine, Schwaninger, Manuel and Yang, Guanzhong: Solidarity with Third Players in Exchange Networks: An Intercultural Comparison. Working Paper Nr. 2017-21.

Nicklisch, Andreas, Puttermann, Louis and Thöni, Christian: Self-governance in noisy social dilemmas: Experimental evidence on punishment with costly monitoring. Working Paper Nr. 2017-20.

Chugunova, Marina, Nicklisch, Andreas and Schnapp, Kai-Uwe: On the effects of transparency and reciprocity on labor supply in the redistribution systems. Working Paper Nr. 2017-19.



DFG Research Group 2104 at Helmut Schmidt University Hamburg
<https://www.hsu-hh.de/bedarfsgerechtigkeit/>