DFG Research Group 2104

Need-Based Justice and Distribution Procedures

Expert Advice in Need-based Allocations

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Working Paper Nr. 2017-24

http://bedarfsgerechtigkeit.hsu-hh.de/dropbox/wp/2017-24.pdf

Date: 2017-08

DFG Research Group 2104 at Helmut Schmidt University Hamburg

http://needs-based-justice.hsu-hh.de

Expert Advice in Need-based Allocations

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First Draft. This Version August 2017

Abstract

We study the interplay of transparency and expertise in the collective recognition of needs in distributive decisions in a laboratory experiment. Groups of three players have to decide by majority vote on the distribution of a collective endowment under the condition of exogenously given, heterogeneous need levels. Earnings are only paid out if a threshold of minimum earnings is passed. Transparency of need levels is operationalized by the source of information: players learn about the others' need levels either by public information or by individually stated claims. Expertise is operationalized by a fourth player who is publicly known to have correct information about the need levels and who makes a distributional proposal to the group. The private information setting puts players in a problem-solving mode of negotiations and the expert's proposal serves as a coordinating device that overcomes uncertainty, given that individual need claims are unprovable. In the public information setting, the expert's proposal does not add information. The proposal only serves as a potential reference for bargaining under complete information and may even cause reactance against its assumed moral superiority. The experimental findings tend to support these expectations.

Keywords: need-based justice, allocation, resource, voting, laboratory experiment
JEL classification: C91, C92, D72

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§This paper is part of project B1 “Need-based justice and distributive preferences in social exchange networks” and project B2 “Need-based justice, uncertainty and expertise”, both of which are part of the research group FOR2014 “Need-based justice and distribution procedures”, (http://bedarfsgerechtigkeit.hsu-hh.de/). We gratefully acknowledge funding by the Deutsche Forschungsgemeinschaft (DFG, KI 1419/2-1 and DFG, TE 1022/2-1) and the Austrian Wissenschaftsfonds (FWF, I1888-G11).

1 Introduction

Groups are often confronted with the challenge to distribute some joint resource. The three most common references for collectively determining individual allocations are the principles of equity, equality, and need (Miller, 1999; Sen, 2009). Equity links payoffs to some input, such as a contribution, an effort, or a merit. Individual inputs are commonly accepted as a legitimate reason for unequal allocations. Equality, in contrast, is typically used if a group cannot refer to a legitimate reason for deviating from equal shares. In this paper, we focus on the third of the "grand" principles, need. Needs vary across individuals, but no plausible universal principle for the determination of allocations has yet been elaborated (Brock, 2013; Miller, 2013). Perhaps the closest to a universal principle are the notions of a "minimally decent life" (Miller, 1999, 210) and of "thresholds" for a set of human "functionings" (Nussbaum, 2011).

Both approaches assume that survival in a specific social context is only possible if some minimum requirement is fulfilled. This may be a specific amount of calories or, as in a famous quote from Adam Smith (1776, 869-870), at least one pair of leather shoes in England. But the concept goes beyond those "intrinsic" needs and also refers to "instrumental" needs, that vary across societies and that merely depend on the agreement of the members of a society that the criterion should be applied (Miller, 1999, 225).

Whereas equity and equality merely require a procedural consensus among the group members to use the principle for the determination of individual allocations in the distribution of a joint resource, the acceptance of need depends on an additional consensus about the substantive content of the allocation. This requirement constitutes a much more challenging demand to the group's decision-making body because individual claims are difficult to operationalize and to evaluate. Still, there is ample survey evidence that needs are considered an important criterion for determining individual allocations (Gaertner and Schokkaert, 2012; Hülle et al., 2017) and that they are most popular among the less affluent strata of society (Reeskens and van Oorschot, 2013).

In real-world societies, two mechanisms are frequently used to evaluate need claims and facilitate the recognition of such claims. For example, in order to obtain social security benefits, many countries require applicants to uncover their financial assets, their relationship status, and other means of survival. Thus, these societies require transparency as a condition for the award of benefits. Likewise, the calculation of social welfare is based on an expert committee's evaluation of the elements that are necessary for a "minimally decent life". Thus, expertise is used as a counterweight for individual claims.

In principle, societies may decide on distributions under three conditions: First, resources may be abundant, so that the surplus after the satisfaction of needs has to be distributed according to a different criterion. Experimental work has suggested that self-interest is a major driving force besides a concern for equality (Kittel et al., 2017). Second, resources may just equate the sum of needs. This condition is more demanding in the sense of requiring full consensus on the satisfaction of needs because no margin for side payments to buy agreement is available. Third, resources may be scarce such that at least one need threshold cannot be reached, meaning that the group must decide under the provision that at least one player will receive nothing. In this situation, players may invoke the efficiency principle as an additional criterion (Konow, 2003).

We transfer the sketched mechanisms into a laboratory experiment by embedding the problem of need recognition in a well-established stream of research on committee decision making and by operationalizing transparency and expertise in a way suitable to a laboratory environment. We use the group bargaining framework with majority voting developed by (Baron and Ferejohn, 1989) and introduce the idea of a need threshold (Nussbaum, 2011) by amending the rules by the provision that each group member has to reach a certain number of tokens before she can obtain any payoff beyond the show-up fee. We set a common threshold for all players but randomly allocate heterogeneous initial endowments to players, which implies that the number of tokens needed to reach the threshold varies across players. We implement a $2x2x3$ design to identify the transparency and the expertise effects under scarcity, sufficiency, and abundance of the resource. With respect to transparency, we contrast a treatment in which the number of tokens needed are private knowledge to the players with a treatment in which this information is public knowledge. With respect to expertise, we contrast a treatment in which players have to bargaining over the distribution without any interference with a treatment in which an uninvolved expert who is informed about the need levels submits a proposal to the group.

We find that a need-satisfying distribution is more frequently observed than the zero expectation under the assumption of self-regarding utility maximization. Moreover, this outcome is most pronounced if a neutral and informed expert facilitates the bargaining process if the resource is scarce or just sufficient to meet all needs. But if resources are abundant, the vast majority of groups autonomously chooses the need-based distribution and the involvement of the expert does not further increase the rate. The results differ if information about levels of need are public knowledge. The expert's role is either insignificant or is even associated with a lower incidence of need satisfaction.

This study proceeds as follows: The second section provides a review of normative research on need-based justice and experimental research on the empirical validity of justice principles. The third section presents an experimental vehicle to explore need-based justice preferences in the context of committee decision making. The fourth section presents the experimental design and procedures followed by the discussion of experimental results in section five. The last section concludes.

2 Theoretical Framework

2.1 Need-based Justice

This study considers need as a principle of distributive justice underlying the allocation of shares of a joint resource in committees. Need differs from the two rivalling principles equality and equity. Equality means that all players obtain exactly the same share, whereas equity links the individual share to some criterion such as prior performance to justify deviations from the equal distribution (Miller, 1999; Sen, 2009; Konow, 2003). Equality can thus be seen as a limiting case of a conceptualization of justice in terms of proportionality, in which each contribution is the same (Homans, 1958; Adams, 1965). Both principles, however, unilaterally focus on the universal applicability of justice and thus forgo any heterogeneity in the needs of subjects. Neither equality nor equity can thus be applied to all distributive decisions (Frohlich and Oppenheimer, 1992).

For Rawls, the term "need'" plays an important role for the provision of fundamental goods, meaning goods that are required for citizens to express their interests and to make use of their freedoms (Rawls, 2005; Maffettone, 2010). Rawls' difference principle permits to diverge from strict equality as long as the inequalities in question would make the least advantaged in society materially better off than they would be under strict equality (Miller, 2017). Thus, according to Rawls (2001, 199-203) citizens cannot see themselves as complete members of society if their basic requirements were not met. This idea has been further elaborated in the "capabilities" approach developed by Sen (1973, 2000). Nussbaum (2000, 2011, 24) builds on this approach by introducing the idea of "thresholds" for a set of "human functionings" that are required for a dignified life: "[A]ll should get above a certain threshold level of combined capability, in the sense not of coerced functioning but of substantial freedom to choose and act."

Beyond these "intrinsic" needs, Miller (1999, 210) points to the existence of "instrumental" needs, for which neither objective standard of legitimation can be identified nor individual claims can be accepted as such by a community, but which still are subject to the condition of a "minimally decent life" in a specific society. (Miller, 1999, p. 2010). The substance of this condition varies with the natural and social environment of the society, implying that the only foundation of a collective recognition of instrumental need claims is that "members of the society have agreed that it should count" (Miller, 1999, 225).

Experimental studies that tested Rawls' theory against others theories of justice find a surprising regularity, which consists of maximizing the average income under the restriction that each obtains some minimum (Frohlich and Oppenheimer, 1992; Lissowski et al., 2016; Bond and Park, 2016; La Cruz-Doña and Martina, 2016; Oleson, 2001; Michelbach et al., 2003; Traub et al., 2005, 2009). This empirical regularity represents a combination of competing justice principles, namely Harsaniys (1955) utilitarianism, meaning maximizing expected utility and Rawls difference principle (Konow, 2001), or, put in more flowery terms, “Society lays a modest table at which all can sup and a high table at which the deserving can feast” (Boulding, 2013, 83).

We draw two conclusions from this discussion of need-based justice. First, needs are heterogeneous and particular to an individual, but at the same time defined with respect to some threshold supposed to hold for all members of a specific society. We thus operationalize needs as the difference between an individual initial endowment and a threshold that an individual must reach to survive, or, put in terms of a laboratory experiment, to obtain payoffs beyond the show-up fee. Second, there is neither universal criterion for need-based justice, nor can individual need claims be accepted as such, but the recognition of needs is “not simply in the eyes of an individual beholder, but it is in the eyes of a community, however defined” (Hegtvedt, 2005, 25).

2.2 Transparency and Expertise

The main problem for a decision body confronted with need claims is that such claims are difficult to evaluate. If non-verifiable claims are made with respect to a fixed resource, the distribution problem is similar to a common pool resource game (Ostrom et al., 2002), apart from the fact that self-regarding utility maximizing behavior does not directly translate into the dramatic deterioration or depletion of the resource triggered by excessive extraction. Instead, this arrangement includes as an intermediate step the recognition of a need claim by the decisive body. The committee can limit allocations to a sustainable amount or take concerns about distributive justice into account. Nevertheless, as experimental research about the limited inclination to state the truth if claims are unverifiable has shown (Rosenbaum et al., 2014), individual claims may easily add up to an amount surpassing the available resource. Committees thus need a mechanism for assessing the plausibility of need claims.

The first is transparency of needs which transforms an individual claim into an objective state. Transparency removes the latent common pool resource problem underlying the distribution of a joint resource according to needs because the incentive for individuals to overstate their needs is removed. If the truth of individual claims can be compared to some objective information, lies can easily be detected and sanctioned. Although transparency is no innocuous problem because even formal requirements to disclose their needs must eventually rely on the willingness of the claimant to cooperate, we move this problem backstage by introducing individual need levels as either private or public knowledge.

The second mechanism is expertise. If individual needs are private knowledge and individual claims are unprovable, experts can often probe the plausibility of claims. By using other sources of information, they can objectify needs to some extent and decision makers can compare this evaluation to individual claims. Apart from solving the problem of evaluating need claims autonomously, a committee can pass it on to experts. There is a growing number of examples from public policy-research in which political conflicts are shifted to expert committees (Mayntz et al., 2008; Siefken, 2007; Weingart and Lentsch, 2008; Fischer, 2003, 2009). Here, the referral of the problem to experts serves as an instrument to objectivize political dispute by means of scientific knowledge.

For the purpose of this study expertise is defined to include encompassing information and objectivity. Previous studies on justice decisions focused primarily on the role of objectivity. Rawls’ veil of ignorance often plays a pivotal role as a form of objectivity that an observer can have while also being invested in the outcome. Several studies have explored justice perceptions of various income distributions depending on whether the judging person is an external observer or an involved dictator looking from behind the veil of ignorance (Bernasconi, 2002; Bosmans and Schokkaert, 2004; Traub, 2002; Traub et al., 2005, 2009; Amiel et al., 1999). We amend this conception of objectivity by the full disclosure of the individual players' need levels to the external expert.

(REWRITE) The influence of expertise in the sense of knowledge has not been studied broadly. Hurley et al (2011) studied, which redistributive principles are preferred if the participants are only informed of the principles, the resulting redistribution, or both. Konow (2003) supplied a part of the subjects with additional quantitative information on their initial position and find support for the thesis that better informed observers reach a stronger consensus. Yet, non of these studies explored how expert advice influences the political process that transfers subjective need into collectively accepted need and redistributes accordingly. The question is under which institutional conditions the provision of expert advice helps pacifying distributional conflict.

3 Resource Allocation Game

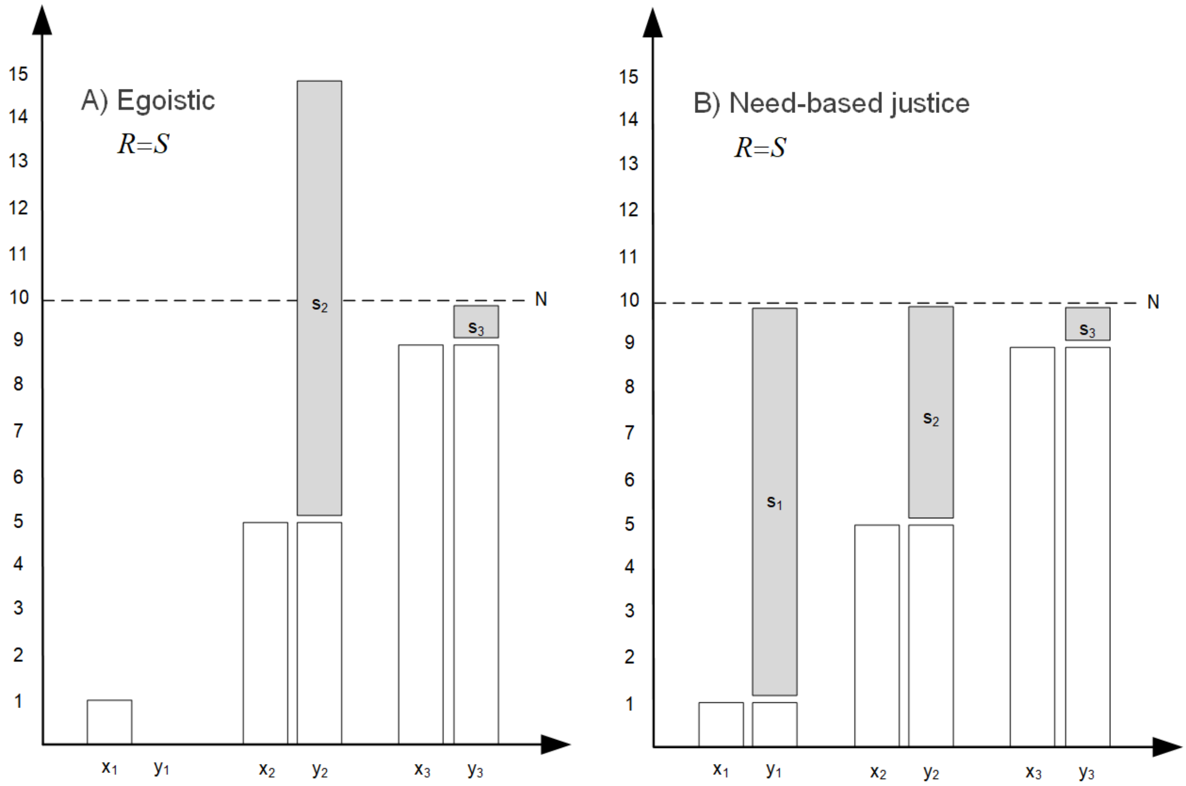
We conceptualize the collective decision problem as a resource allocation game which transforms individual need claims into a collective decision on individual allocations in a modified legislative bargaining framework (Baron and Ferejohn, 1989; Diermeier and Morton, 2006; Fréchette et al., 2012). A group consists of an uneven number (M) of players (i). Each group member is endowed with a gross income (x_i). Every group members is equipped with an endowment below an exogenous need threshold (N). The difference between the gross income (x_i) and the need threshold (N) is called the individual need (n_i). The needs threshold is equal for all group members and can therefore be thought of as an absolute poverty threshold. This means that group members whose net income (y_i) is below the need threshold will receive no payoff. The income of a group member (y_i) consists of their share obtained from the joint resource (s_i) and their endowment (x_i). The payoff of a single group member is y_i only if $y_i \geq N$, otherwise it is 0.

To meet the individual needs of its members (n_i), each group has access to a resource (R). Assume that the resource (R) is exogenous and the same size as the sum of individual needs ($\sum_{k=i}^{M} n$). There is thus one distribution of allocations which satisfies all needs. The group members have to vote on a allocation proposal (S) of the resource (R) for the entire group. An allocation proposal (S), distributing the resource among the group members has to match the joint resource (R) exactly ($R = S = \sum_{k=i}^{M} s$). Apart from this restriction, an allocation proposal (S) is not limited by any other requirement, meaning that the allotment can consider all or single group members, and the size of an allotment can vary (under the restriction $R = S$).

The voting procedure on allocation proposals (S) is similar to the procedure suggested by Baron and Ferejohn (1989). Every group member formulates an allocation proposal $S = s_1^i, \ldots, s_M^i$, in which s_j^i is the share of the resource which group member i offers to group member j. One group member is randomly chosen and his or her allocation proposal is put up for a vote by the other group members (motion on the floor). Every group member has the same probability ($p_i = 1/M$) that his or her allocation proposal is selected to be the motion on the floor. The group members voting on a suggestion have no way to influence the suggested allotment (S_i). They can only accept or reject the suggested allotment. The group member that suggested the allocation proposal on the floor cannot vote, as her or his acceptance is already given by making the allocation proposal. In line with the Baron-Ferejohn model, we employ majority voting, meaning that in a group with three members, one of the two other group members has to agree with the suggested resource allocation (S_i), yielding a two-third majority. After a motion is accepted, the suggested resource allocation S_i is implemented. If no other player agrees, all proposals from the previous round are deleted and the group members suggest new resource allocations (S_i). Again, one of these allocations is randomly chosen to become the motion on the floor. This process is repeated until the group reaches a majority.[1]

[1]Since we allow for an infinite number of repetitions, there is no game-theoretical solution of this particular model specification via backward induction. Further research will restrict the number of repetitions to be finite and define a threat point. This additional specification allows to apply backward induction and test the empirical validity of the rational

Figure 1: Example of egoistic and need-based just resource allocations by M2



The dependent variable here is the individually preferred and the collectively chosen resource allocation. In the present context, the vector of allocations at the group level can be simplified to a count of the number of group members whose needs were met in the implemented allocation, meaning the number of group members for which $y_i \geq N$. Need-based justice would require that each group member has an income $y_i \geq N$.

3.1 Size of the Resource

Under the assumption of rational, egoistic actors, we expect players to propose resource allocations that will maximize their own payoff under the restriction that they need one other player's vote to form a minimum winning coalition. Thus, in the case of groups of three subjects, the assumption of rational, egoistic actors predicts that only two out of three subjects will reach a net income of $y_i \geq N$, regardless of the size of the resource (R) relative to the the sum of individual needs $(\sum_{k=i}^{M} n)$. In contrast, if a player's proposed resource allocation is guided by need-based justice, all three group members should meet their need threshold, that is $y_i \geq N$.

To explore these predictions in further depth we alter the size of the resource (R) relative to the the sum of individual needs $(\sum_{k=i}^{M} n)$. In the baseline treatment $(R = S = \sum_{k=i}^{M} n)$. Beyond that, the resource (R) can now be lower $(R < S = \sum_{k=i}^{M} n)$ (scarcity) or higher than the sum of individual needs $(R > S = \sum_{k=i}^{M} n)$ (abundance). These variations should not alter the group level rational prediction. Regardless of the size of the resource (R) relative to the the sum of individual needs $(\sum_{k=i}^{M} n)$, rational self-regarding subjects will maximize their own payoff under the restriction to get a minimum winning coalition for their proposed resource allocation.

The situation changes, however, for subjects adhering to the principle of need-based justice. If the resource is scarce $(R < S = \sum_{k=i}^{M} n)$, subjects must undertake a prioritization and decide which group member they do not consider in their resource allocation proposal. In the literature, the concept of

solution of the game.

"triage" is used to refer to a procedure which attempts to balance need versus efficiency, such as in medical treatment under crisis conditions such as emergency or battlefield medicine (Miller, 1999), but which has also been used to describe the marginalization of the weakest strata of society (Simmons and Casper, 2012). According to this approach, the player's proposal would meet the lower of the other players' needs and allocate all the remaining resource to herself.

A different normative problem arises if $R > S = \sum_{k=i}^{M} s$. Group members who adhere to the need principle are now faced with the question of how to distribute the surplus once all group members' needs are satisfied. This dilemma, which is more of a luxury problem, may be solved by any of the principles, depending on the social preferences and justice attitudes of the two players who form a majority. A reasonable prediction may combine a concern for needs with the assumption of self-regarding utility maximization once all needs are satisfied, thus predicting that the surplus will be shared among the players who form a coalition, though not necessarily equally.

3.2 Expert Advice

The resource allocation game outlined above can be used to test the effect of expertise on the political process that transforms individual need claims into collectively recognized need and redistributes accordingly. The expert is modelled as a player who stands outside the group (objectivity) and is fully informed about the decision situation (information), most notably about the true distribution of x_i. The expert formulates a resource allocation proposal that is given as advice to the group before group members formulate their own proposals. The payoff of the expert is not affected by the group decision.

The effect of expertise on group decisions on the allocation of the resource is expected to depend on an institutional and an economic condition. The institutional condition is whether the information about the endowments x_i is private knowledge to the expert or public knowledge. The latter means that the expert and all group members are informed about the allocation of x_i, whereas only the expert is informed about all three endowments in the private information condition. The economic condition introduces variation in the size of the resource, $R < S$, $R = S$, or $R > S$. We expect the the exact combination of these two institutional conditions alters the negotiation situation in a why that makes expert advice more or less valuable for the decision of the group members.

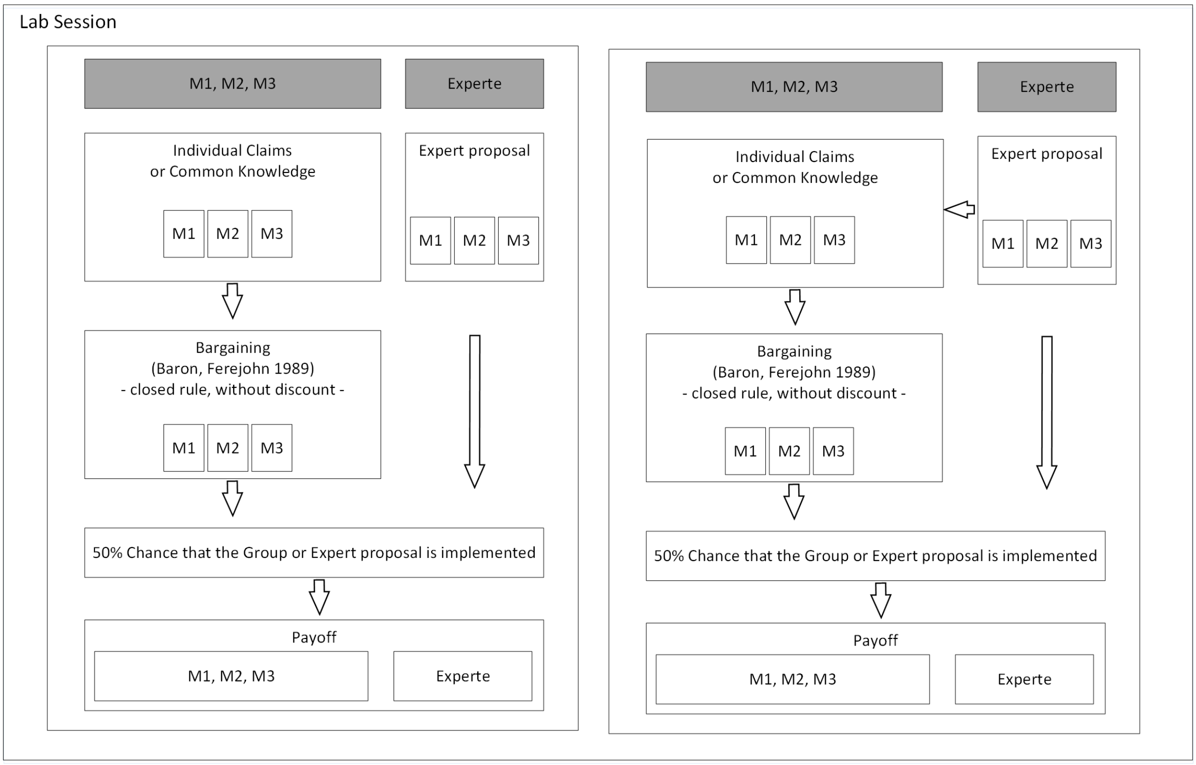
First, we expect that expert advise is most valuable to group members if the distribution of x_i is private information to the expert in a situation were $R < S$. Under these conditions group members face a "problem solving" dilemma (Scharpf, 1997, 126). Although players make claims about their needs, other players cannot trust these claims. Expert advice can thus help group members to coordinate on a resource allocation. With $R = S$ and $R > S$, the problem pressure is lower and the ensuing need to coordinate on an expert advice becomes less valuable.

Second, if the distribution of x_i is public information, the impact of expert advice on the group decision is expected to become irrelevant. Once group members know the need of their fellow group members the situation is a bargaining situation (Scharpf, 1997, 126). Group members can think about which type of proposal to offer in order to create a minimal winning coalition. Or in other words, once the the distribution of x_i becomes public information, the formulation of resource allocations is subject to rational bargaining.

4 Experimental Design and Procedures

The experimental sessions were conducted at University of Oldenburg. A total of 80 subjects participated in the study. The experiments took place in the computer laboratory using the experimental software z-Tree (Fischbacher, 2007). All sessions were conducted by the same experimenter following exactly the same procedures for every session: At the beginning of each session, after randomly handing out place

Figure 2: Experimental design



cards, the experimenter read instructions[2] out loud and answered questions. At the End of each session subjects were individually paid in private and in cash. Subjects earned approximately 12 € (13.64 $) on average and sessions lasted approximately 90 minutes. The experimental design consists of two treatments as summarized in Table 1: Voting on redistribution with and without expert advice and group members being informed and not being informed about x_i.

In each of ten rounds, subjects were randomly assigned into groups of four, including three players and one expert. In each round, subjects are allocated initial endowments between 0 and 10 by means of a random algorithm, which makes sure that the sum of needs for the group equals 15€. The experiment was designed between subjects. To avoid session biases we implemented both treatment conditions in each session by splitting the participants into two groups, meaning that in every session half of the participants were assigned to one and the other half to the other treatment condition. The experiment consisted of the following stages:

1. *Information about role for the following ten periods.* In the first period, subjects are informed about their roles in the upcoming experiment.

2. *Information about endowment and decision for claims.* The first stage of every period consists of the information about one's own endowment and the group's resources. Resources vary between 10€(scarcity), 15€(sufficiency) and 20€(abundance). Subjects are then asked to make a claim on the share of the resources that they want for themselves.

3. *Expert proposal on distribution.* Parallel, the randomly chosen experts are informed about the resource and each member's endowment. Experts then make final proposal on the distribution of the group's resource. Experts have to propose a distribution equal to the quantity of resource, meaning that no more or less than the offered resource has to be allocated to at least one group member. The expert's income is predefined every period to be the average of all available capital, which is a third of each group member's endowment plus a third of the group's resource ($\frac{\sum_{k=i}^{(M)} x+R}{3}$).

[2] See appendix A

Table 1: Overview of Between Subjects Treatments

Treatments	Subjects	Rounds	Observations
Expert & no information	24	10	240
No expert & no information	24	10	240
Expert & information	16	10	160
No expert & information	16	10	160
Overall	80		800

4. *Group proposal on distribution.* Depending on the treatment, subjects are informed about either every group member's claim (private information treatment) or endowment (public information treatment), and have to propose a distribution of the resource among the group members.

5. *Closed rule vote.* In this stage, the proposal of one group member is chosen as the motion to be voted on by the other two members. If at least one member accepts the proposal, majority among group members is reached and the proposal is accepted. If no group member accepts the proposal, the process starts over with a new round of claims. The endowment remains constant within one period.

6. *Information about earned money.* After a successful vote, either the accepted groups proposal or the expert's proposal for is selected by random draw. Conditional on whether a member reached the minimum gain of 10€ she receives the sum of the initial endowment and the allocated share in the resource. If a player fails to reach the threshold, she receives no payment.

After the tenth period, subjects complete a questionnaire consisting of questions about their political attitudes, socio-demographic background (age, gender) and field of study. Subjects' partisan orientation is measured on a 1 to 10 scale, where 1 represents extreme right-wing orientation and 10 represents an extreme left-wing orientation.

5 Findings

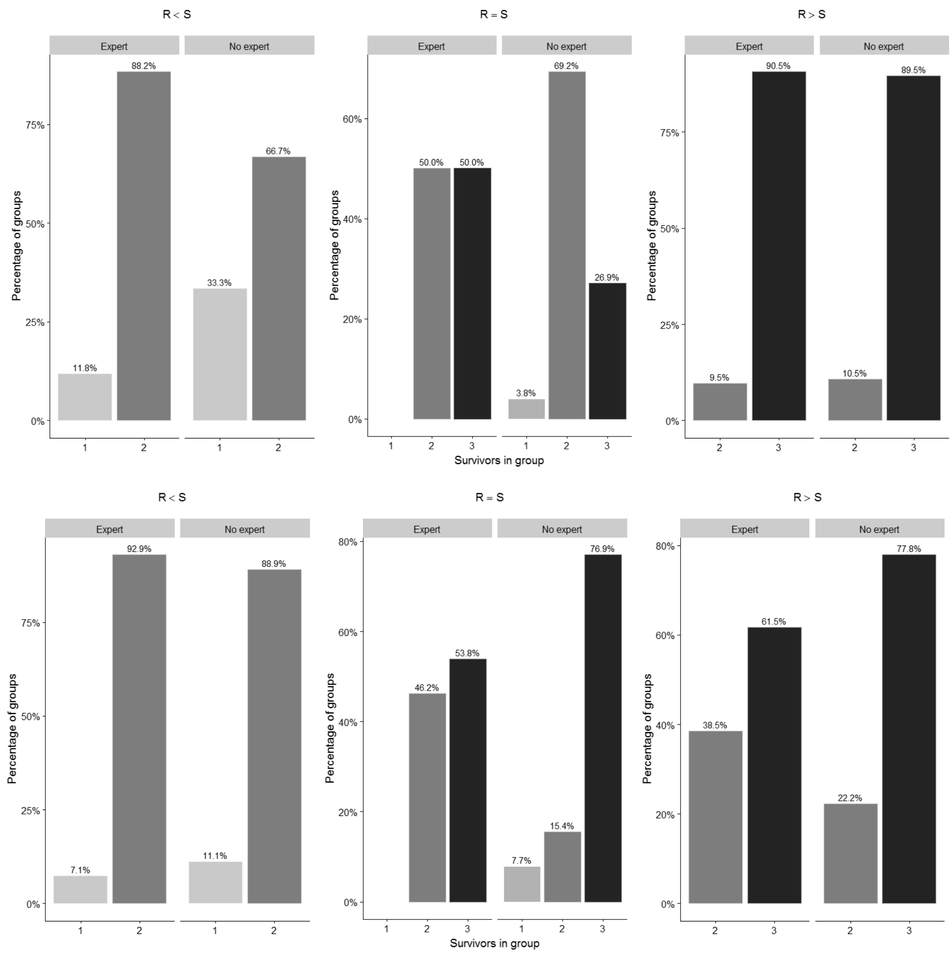
To begin with, we look at the percentage of groups in which all group members reach the need threshold for the treatment conditions $R = S$ and $R > S$, bearing in mind that under the premises of rationality and self-interest subjects are predicted to choose a 'minimal winning coalition' of two subjects, regardless of whether $R = S$ or $R > S$. If $R = S$, 47.3% of all groups agree on a distribution of S that satisfies all subjective needs. With $R > S$, this share increase to 81.7%. These raw effects, which do not take into account the influence of expertise and transparency, provide strong evidence that subjects' voting behavior is not exclusively guided by self-interest.

The next step is to explore the effects of expertise and transparency on the number of subjects with $y_i \geq N$ (survivors). Figure 3 reports the number of group members that reached the need threshold for each of the 12 treatment conditions and can be summarized as follows:

First, we study the transparency effect by comparing the the private information condition (top three panels) to the public information condition. We can see that under $R < S$ and $R = S$ the existence of an expert proposal is associated with a strong increase in the number of survivors from 66.7% to 88.2% if $R < S$ (for 2 survivors) and from 26.9% to 50.0% if $R = S$ (for 3 survivors). These figures suggest that expertise helps group members to coordinate on a need-based resource allocation.

Second, in the case of $R > S$ (top panel right side), expertise does not increase the share of groups in which all members reach the need threshold. It is remarkable that so many groups manage to achieve a

Figure 3: Survivors per group with private (top) and public (bottom) information on x_i.

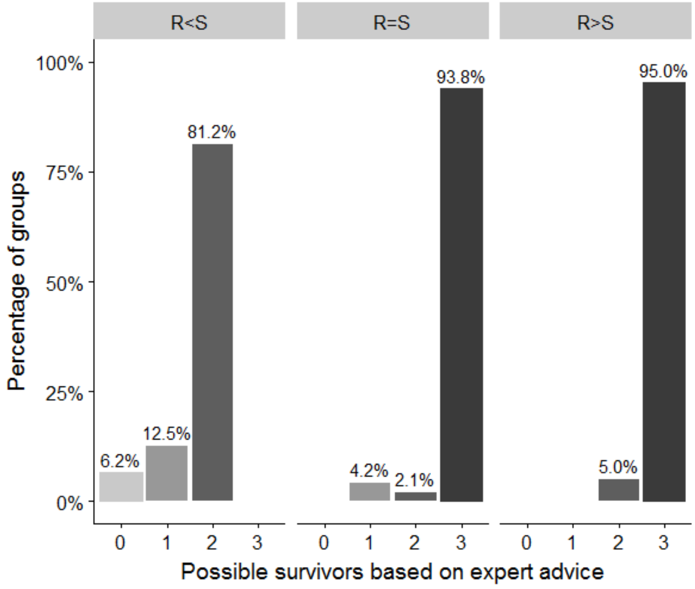


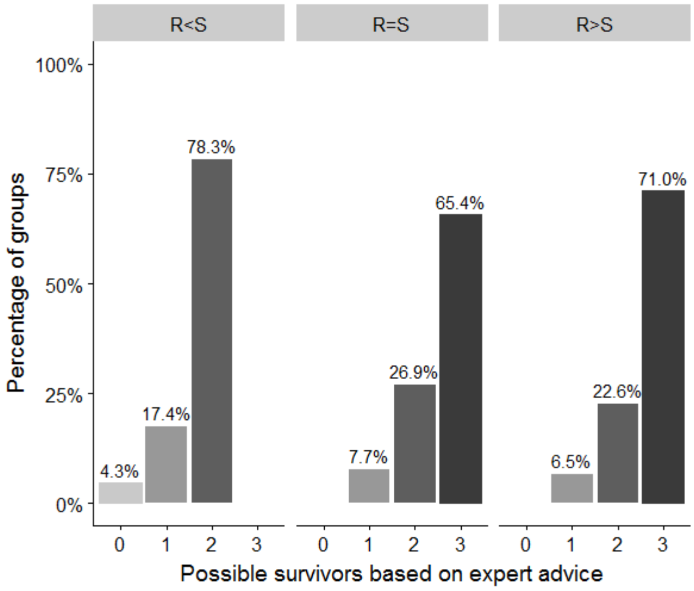
need-satisfying allocation of S in the absence of expertise. In the private information condition, in which subjects make individual claims about their needs that cannot be validated by other group members, actual overreporting rates are indeed slightly higher than 50% on average, and around 60% in the case of abundance. Given these individual attempts that are a clear indication of self-regarding behavior, the general effect of transparency and expertise on the recognition of needs is all the more impressive.

Third, the effect of expertise on the number of subjects with $y_i \geq N$ looks very different under the public information treatments (bottom three panels). In the transparency treatment the expert as well as the groups are informed about the distribution of x_i within their group. In the case of $R < S$ (bottom panel left side), expertise has no effect on the number of survivors. Two subjects survive in about 90% of all groups, with and without expertise. This result suggest that with full knowledge about the distribution of x_i, group members no longer need to rely on expertise for coordinating on a resource allocation. Instead, with full knowledge each subject knows which fellow group member would be a partner for a minimal winning coalition. Thus, for group members the nature of the game has changed from a pure coordination problem to a rational bargaining situation, as suggested by (Scharpf, 1997).

Fourth, this interpretation is supported by findings on the effect of expertise for $R = S$ and $R > S$ (bottom panel mid and right side). Here, the effect of expertise on the number of survivors turns out to be reversed, compared to the private information treatment. The number of survivors decreases from 76.9% to 53.8% if $R = S$ (for 3 survivors) and from 77.8% to 61.5% if $R > S$ (for 3 survivors). These figures suggest that the quality of expertise might have changed from 'moral' towards 'technical' expertise. Rather than helping groups to find a need-based resource allocation, expertise has become an instrument

Figure 4: Expert advice with private (top) and public (bottom) information on x_i.





supporting the identification of the optimal minimal winning coalition, as the number of groups with two survivors increase with expertise from 15.4% to 46.2% for $R = S$ and from 22.2% to 38.5% for $R > S$. Apparently, altering the advance of knowledge of the expert compared to the group members does not only change the group members' need to rely on expertise, but it also changes the self-image of the expert.

Figure 4 presents the number of subjects with $y_i \geq N$ according to the resource allocation suggested by the expert without (top panel) and with transparency (bottom panel) for the three resource conditions ($R < S$, $R = S$, $R > S$). Under the premises of rationality and self-interest, we would expect that subjects in the role of an expert avoid any cognitive costs related to proposing a resource allocation to the group. Since the experts' payoff is independent from the quality of his proposal and the final group decision, experts are expected to suggest random resource allocations at best. Figure 4 shows that this is obviously not the case.

First, let us look at the private information treatments (top three panels). We can see that under $R < S$ 81.2% of the expert proposals guarantee two survivors. With $R = S$ 93.8% of the expert proposals guarantee three survivors and with $R > S$ 95.0% of the expert proposal guarantee three survivors. These figures clearly show that experts do care about the number of survivors as they make proposals that intentionally maximize the number of survivors. This is a strong indication that need-based justice matters for experts.

Second, the quality of resource allocations suggested by experts changes in the public information treatments (bottom three panels), particular if $R = S$ and $R > S$. Under $R < S$ the number of survivors according to the resource allocation suggested by the expert is almost identical with the resource allocation suggested in the private information treatments. With $R = S$ and $R > S$, however, the number of survivors associated with the experts' advice is substantially smaller. With $R = S$, 65.4% of the expert proposal guarantee three survivors, compared to 93.8% under private information. With $R > S$, 71.0% of the expert proposal guarantee three survivors, compared to 95.0% under private information. At the same time, the share of expert suggestions that guarantee two survivors increases when the distribution of x_i is public knowledge. This pattern is largely consistent with the interpretation of Figure 3. Thus, transparency does not only alter group members' need for expertise, it also alters the quality of expert advice from 'moral' expertise towards 'technical' expertise. Once experts do not have a knowledge advantage compared to the group members, an increasing share of experts seems to see their main task in identifying and proposing minimal winning coalitions.

6 Summary and Conclusion

We have implemented need thresholds in a legislative bargaining framework in order to study the effect of transparency and external expertise on majoritarian decisions about the distribution of a joint resource. To this end, members of three-person committees are allocated heterogeneous initial endowments and have to agree by majority on the distribution of an additional joint resource, subject to the condition that only payoffs exceeding the threshold will be actually paid out. We have varied conditions in a $2x2x3$ design contrasting transparency (private versus public information on need levels), expertise (presence or absence of a proposal by an external, objective, and fully informed expert), and the size of the resource being smaller (scarcity), equal (sufficiency), or larger (abundance) than the sum of needs.

Contrary to the rationality assumption of self-regarding utility maximization, a substantial number of groups ends up with meeting the needs of players, thus highlighting the relevance of the need principle in small laboratory committee decisions. However, we observe substantial variation in this number that can be related to the treatments. First, an external expert's proposal covering the needs of two or all three committee members serves as a focal point on which committee members tend to coordinate if individual endowments are private information and the resource is scarce or sufficient, respectively. This role of expertise does not appear in the condition with an abundant resource. Second, moving from private information to public information has a major effect on the role of the expert in the group, but also, and unexpectedly, on the expert's self-image. The availability of an expert proposal is now associated with a lower incidence of need satisfaction under sufficiency and abundance, while no effect is observed under scarcity. We interpret this result, for the group, as a shift from a joint problem-solving situation under uncertainty about the truth of others' need claims in the private information condition, to an explicit bargaining situation under public information. Knowing that all need levels are public information, the experts seem to also interpret their role differently by shifting from a concern over need satisfication to the facilitation of the most efficient solution.

Further theoretical analyses will focus on developing a rational solution to the resource allocation game by backward induction. Further research, especially for a larger sample, will have to be conducted in order to test the robustness of our findings. Most notably, we will explore who makes which resource allocation proposal for what reasons.

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A Instructions

Welcome and thank you for your participation in this experiment!

Briefing/Instructions

The goal of this experiment is the study of decision making. You and your fellow participants will be tasked with making decisions over the course of this experiment. Your decisions, and those of the other participants, will influence your accumulated payment according to the rules explained on the following pages. The briefing is to serve as an explanation and introduction into the structure of the experiment and the consequences your decisions will have. The experimenter is not withholding or altering any information.

Payment

Over the course of the experiment you will earn your payment. You will receive your payment without it being revealed to the other participants, and in cash.

Duration

The entire experiment will take approximately 90 minutes. After you have completed the tasks, a questionnaire will appear on your screen. Following your completion of this questionnaire, you will have to wait until your seat number is called. You will then receive your payment in Euro.

Please take enough time to read the instructions and to come to your decision. You cannot speed up the process of the experiment by completing your tasks faster, as the completion by all participants is required to proceed.

Anonymity

All participants will not know the identity of the others participating, neither during, nor after the experiment. The other participants will also not be informed of how much you have earned, neither during, nor after the experiment.

Ban on communication

Throughout the entire experiment you are not allowed to communicate with other participants. Please also shut off any mobile devices. Furthermore, we would like to indicate that you are only allowed to use those functions on the computer that are required for the experiment. Violation of these rules will lead to expulsion from the experiment.

If you have any questions regarding the experiment after reading this briefing, please raise your hand. One of the experimenters will come to you and answer your question in private.

Content and procedure

Over the course of the experiment, you and a group of two other participants must agree on a distribution of resources. During this task, you will be assisted by an expert assigned to your group.

Each group consists of three members and an expert assigned to the group. At the beginning of the experiment, you will be assigned either the role of a group member or expert. Your assigned role will remain the same for the duration of the experiment.

Group task:

At the begin of each round, the three group members are informed of their randomly given endowment. The endowment ranges from 0 and 10 Euros.

The task of the three group members is to decide on a redistribution of a resource. The resource to be distributed is randomly chosen from either 10, 15, or 20 Euros.

The challenge consists of the fact that each group member has to earn a minimum of 10 Euros to receive a payout. The 10 Euros are made up of the initially assigned endowment and the part of the resource received.

If a group member fails to reach the minimum income of 10 Euros, their payout for that round is 0.

Group vote on a distribution:

Each group member states a demand of how much of the resource they would like to claim for themselves. These individual claims are shown to the two other group members.

In the next step, each group member proposes a distribution of the resource among the group. The amount to be redistributed is always equal to the resource. The group cannot distribute more, nor less than the resource.

After each group member proposes their distribution among all three group members (including themselves), one of the propositions is randomly chosen and put up to vote among the remaining two group members (yes/no). Each proposition has the same chance to be put up to vote.

The two group members whose proposition was not chosen must now decide whether they accept or reject the third member's proposition. If one of the voting members accept the proposition, a majority has been found (the proposing group member accepts their own proposal automatically) and the proposition is accepted for the group.

If neither of the two group members accept the proposition, the electoral procedure starts over, with each group member proposing a new distribution among the three group members. One of these propositions is chosen and put up to vote with the other two group members. Each proposal has the same chance to be chosen. This electoral procedure is repeated until a proposal is chosen.

The expert's task:

If you are assigned the role of an expert, your task is to make a suggestion for the distribution of resources. The same limitations apply here; the suggested distribution among the three group members cannot be more or less than the resources available.

The expert's payment is completely independent of their suggestion and completely independent of the group's decision. The expert's payment consists of a third of the available resources and each group member's assigned endowment.

Randomly chosen groups will be presented with their assigned expert's proposition. In this case, group members are presented with their endowment, their claim and those of their group members, as well as the expert's proposition.

The expert is not informed whether their proposition was passed on to the group.

Implementation:

When the expert has proposed a distribution of the resources and the group members agreed on a distribution, one of the two propositions (the one chosen by the group and the one suggested by the expert) is randomly chosen and its distribution implemented.

The whole process is repeated 10 times. This means that you will be able to decide on a distribution 10 times within your group. After each agreement, the groups are shuffled.

Calculation of your payment:

Your payment for the experiment consists of the average profit in Euros from two randomly chosen rounds. Therefore, each round can be relevant to your payment. The payment will take place right after the experiment and will be anonymous.

The experiment will begin shortly!
If you have any questions, please raise your hand until someone comes to speak to you.
Thank you and have fun.

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After each group member proposes their distribution among all three group members (including themselves), one of the propositions is randomly chosen and put up to vote among the remaining two group members (yes/no). Each proposition has the same chance to be put up to vote.

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If you are assigned the role of an expert, your task is to make a suggestion for the distribution of resources. The same limitations apply here; the suggested distribution among the three group members cannot be more or less than the resources available. Being an expert, you have an advantage in knowledge over your group members, because in the beginning of each period you are informed about the endowments oft the group members you were assigned to.

The expert's payment is completely independent of their suggestion and completely independent of the group's decision. The expert's payment consists of a third of the available resources and each group member's assigned endowment.

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Thank you and have fun.

DFG Research Group 2104

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Guo, Lisa, Trueblood, Jennifer S. and Diederich, Adele: Thinking Fast Increases Framing Effects in Risky Decision-making. Working Paper Nr. 2016-04. http://bedarfsgerechtigkeit.hsu-hh.de/dropbox/wp/2016-04.pdf

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