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Abstracts

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ABSTRACTS

SEASONAL SCARCITY AND SHARING NORMS

Vojtěch Bartoš[1], CERGE-EI, Czech Republic
bartos.vojta@gmail.com

The majority of households in agrarian societies across developing countries are regularly exposed to seasonal scarcities, as the major part of their incomes arrive with a volatile harvest only once or twice a year, but the households need to cover their consumption throughout the whole year. With access to neither the credit nor the insurance markets, and with only poor storage technologies, one of the few available coping mechanisms is the sharing of resources within own community. The main questions that has not yet been studied is whether the sharing behavior remains the same both in the period of scarcity as well as in the period of relative abundance after the harvest. Moreover, the theory of strong reciprocity posits that in order to be sustained, the sharing behavior requires to be enforced even by third parties (Gintis, 2000; Boyd et al., 2003). Despite its theoretical importance as well as possible policy implications, no study so far has examined the temporal dynamics of the sharing behavior and its enforcement.

In this paper I experimentally investigate the link between a regular exposure to scarcity and human prosocial behavior. Specifically, I study the temporal dynamics of preferences for sharing of resources and a third-party enforcement of resource-sharing norms over seasonal swings in income and consumption in rural Afghanistan, fluctuating between periods of scarcity and relative abundance.

The related literature is divided as to whether scarcity affects prosocial behavior positively (e.g. Ostrom et al., 1999) or negatively (e.g. Miguel, 2005; Hsiang et al., 2013), and none of the earlier studies differentiates between the changes in individual sharing preferences and the changes in the willingness to enforce the sharing behavior with exposure to scarcity. In other words, the previous literature does not distinguish whether the behavioral change – if there is any – is due to instability of preferences or rather due to a coordination problem on a community level.

The major challenge in the empirical examination of sharing preferences over time is that kinship, reputational concerns, reciprocity, and fear of retribution all confound the observed behavior. In the field, it is also virtually impossible to distinguish between the reputation-driven third-party punishment motivated by selfish motives from the punishment driven by altruistic goals, not mentioning that quantifying social norms for cross-temporal comparison is inconceivable using empirical data or narrative evidence. In order to overcome these issues, I conducted a controlled lab-in-the-field experiment using a one-shot dictator game (Kahneman et al., 1986) and a one-shot dictator game with a third party punishment option (Fehr & Fischbacher, 2004; Bernhard et al., 2006) among 207 subsistence farmers in northern Afghanistan since this remote rural society is exposed to dramatic aggregate idiosyncratic seasonal shocks to consumption. I conducted two rounds of experiments with the same participants: one during the lean season and one during the post-harvest season of 2013. This provides me with a unique opportunity to inspect within-subject behavioral changes when exogenously exposed to more or less scarcity.

The results show that despite substantial changes in income, consumption, health, and perceptions of stress within individuals across the lean and the post-harvest seasons, their sharing preferences measured by the amount passed in the dictator game as well as in the third party punishment game remain unchanged at the aggregate level and fairly stable at the individual level. However, the enforcement of sharing norms measured by the willingness to engage in costly punishment of unfair allocations by third parties is significantly weaker during the lean season. Although I do not observe a change in dictators' willingness to share across seasons, it is plausible that during a prolonged period of weak enforcement under scarcity sharing behavior would drop, too. This is an established finding in laboratory experiments where prosocial behavior gradually deteriorates with unavailable enforcement mechanisms (Fehr & Gächter, 2000). The results are robust to order effects, income effects and are of sufficient power to detect economically significant effects.

It is still not clear how narrow this gap between cooperation and its breakdown is and more research should be done in this direction, but the present study offers evidence that even

temporary periods of resource scarcity substantially weaken the norms of enforcing sharing. Policy makers should take this finding seriously in addressing the issue of transitory scarcity not only as a problem at the individual level, but also at the societal level. More importantly, as mounting evidence on causal links between the resource scarcity, antisocial behavior (Prediger et al., 2014), and the emergence of conflicts shows (Hsiang et al., 2013) it is possible that many societies exposed to temporary periods of resource scarcity might be closer to a spark of violence than was previously thought.

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[1]CERGE-EI is a joint workplace of the Center for Economic Research and Graduate Education, Charles University, and the Economics Institute of Academy of Sciences of the Czech Republic. Address: CERGE-EI, P.O. Box 882, Politických vězňů 7, Prague 1, 111 21, Czech Republic.

COOPERATION UNDER RISK AND AMBIGUITY

Lisa Björk[1], University of Gothenburg, Sweden

Martin G. Kocher[2], University of Munich, Germany; University of Gothenburg, Sweden; Queensland University of Technology, Brisbane, Australia

Peter Martinsson[3], University of Gothenburg, Sweden

Nam Pham-Khanh[4], Ho Chi Minh City University of Economics, Viet Nam

Experimental evidence of behavior in social dilemmas is conclusive in that, on average, people cooperate to some extent. In contrast to most public goods in real life, experimental setups rest on the assumption of a certain return from contributing. In this paper, we use an experimental public goods game to study how risk and uncertainty in the return from contributing affects voluntary contribution levels and how cooperation und risk and ambiguity evolves over time. Social settings of this character include eco system restoration, carbon emission sequestration, teamwork, and recycling. Ex-ante we expect risk (known probabilities) to reduce contributions to public goods. There is no evidence on ambiguity (unknown probabilities) in social dilemmas. We know from previous studies on risk and uncertainty in individual decision making that people on average are ambiguity averse, i.e., they are even more willing to avoid situation involving true uncertainty. A better understanding of these mechanisms is important from a policy and institutional design perspective, and our study provides a first step in that direction.

Our experimental design use a standard linear public goods experiment with known payoff structure as a control and two treatments. In the risky treatment, it is common knowledge that the marginal per capita return from the public good can take on either a high or a low value, with equal probability. Values are chosen in a way that the social dilemma aspect is retained,

regardless of whether the low or the high marginal per capita return applies. In the uncertainty/ambiguity treatment, the probabilities of the low or high marginal per capita return on the investment are unknown. Uncertainty is introduced by using an Ellsberg urn to determine the marginal per capita return.

We hypothesize that risk and uncertainty decrease the contributions to public goods compared to our control treatment. Our results are relevant for validating the generalizability of experimental results. The experimental design has already been developed, and the experiments will be carried out in June 2015.

WHEN INDUCING AFFECTIVE DECISION MAKING STATISTICAL SIGNIFICANCE MAY BE NOT ENOUGH[1]

Anna Blajer-Gołębiewska, University of Gdansk, Poland
a.blajer@ug.edu.pl
Dagmara Wach, University of Gdansk, Poland
Maciej Kos, University of Michigan, United States

Introduction: There is a wide array of research on the impact of emotions on decision-making process (Loewenstein, 2000; Rottenstreich, Hsee, 2001; Godek & Murray, 2008; Schul & Mayo, 2003; Nisbett, Peng, Choi, & Norezayan, 2001; Trope & Liberman, 2000; Sloman, 1996; Epstein, 1994, 1991 and others). Success of such studies in psychology and behavioural economics often hinges upon effectively inducing the desired – emotional or analytical - processing style. The aim of this article is to present results of using one such manipulation applied in a large on-line experiment designed to study risk information behaviour. We put forward the hypothesis that a successful manipulation would be reflected in the AIC indicator (analytical/affective induction check).

One previously verified procedure for inducing either emotional or analytical decision-making style was used by Schul & Mayo (2003) who conducted two experiments in future – focus and in the past-focus conditions. Individuals in the future-focus condition were asked about their plans for the future. In the past-focus condition, they were asked about reasons for past action. This study revealed that orienting subjects toward the future reinforces rational mode of thinking, and orienting them toward the past induces the experiential mode of thinking. We have used this manipulation to test our hypothesis.

Methodology: We designed an on-line experiment, in which we primed subjects to use either an analytical or an affective processing style following the procedure developed by Schul & Mayo (2003) and Godek & Murray (2008). We asked subjects the same questions as the ones introduced in Godek & Murray's experiment, i.e., we asked them to describe their past and future purchasing behaviours by writing five to seven sentences.

We checked whether the manipulation worked by asking:
"How would you describe your decision process when you are planning a purchase in the future?" (analytical treatment condition) / "How would you describe your decision process when you made a purchase in the past?" (affective treatment condition). "I would base my decision on: (How I would feel) 1 2 3 4 5 6 7 8 9 10 (What I would calculate)."

We stored subjects' answers to this last question in a variable called AIC.

Findings: Exactly 700 subjects participated in the study. Three observations were excluded from our analysis because essays written by these subjects were too short. We modelled the impact of the manipulation on AIC (our outcome variable) using ordered probit regression and controlled for age, sex, income. Our model is statistically significant (Likelihood Ratio Chi-Square statistic = 32.46 [df=5]), $p < 0.001$). We found a statistically significant relation confirming our hypothesis, i.e., participants with the induced analytical decision making style were likely to achieve higher value in the AIC test. However the size of the effect is surprisingly small (emotional: Coef.= -0.2133 [-0.367, -0.058], $p = 0.007$). Mean AIC score among subjects in the affective treatment condition was 6.558 (SD = 2.150) versus 6.967 (SD=1.875) in the analytical treatment condition with higher values corresponding to more analytical decision making.

Furthermore, we found sex to be significant predictor (Coef.= 0.299 [0.141, 0.457], $p < 0.001$). The income variable is statistically significant, however the size of the effect is very small. The result show that higher income increases the predicted probability of analytical processing style application (Coef.= 0.043 [0.004, 0.083], $p < 0.029$). Age, as well as economic education, have no impact on analytical or affective processing style.

Conclusion: Although the described procedure to induce analytical or affective processing produces a statistically significant effect, its size appears very small. Therefore it might be prudent to apply it with caution. Investigation of when and why this and similar manipulations work might be a valuable research path for other scholars to explore.

PREFERENCE REVERSALS IN THE SOCIAL DOMAIN: THE EFFECT OF SOCIAL DISTANCE ON CHOICE AND VALUATION

Geoffrey Castillo, CeDEx, School of Economics, University of Nottingham, United Kingdom
lexgc8@nottingham.ac.uk

This paper reports an experiment investigating the consequences for choice of manipulating social distance. We find that social distance is a significant determinant of choice behaviour; we find a new form of preference reversal in the social domain and we discuss a new interpretation of the preference reversal phenomenon based on our data.

To begin with, we consider a decision-maker embedded in a social space where there exists social distances between people or between individuals and social groups. This decision-maker discounts payoff provided to others as a function of the social distance. That is, the value of x given to a person or a group distant by s from the decision-maker is D(s) u(x) where D(s) is a social discount function. Some experimental work has hinted at its existence (Jones and Rachlin, 2006) and it is supported by theories in psychology, for example construal-level theory (Trope and Liberman, 2010) and self-expansion theory (Aron and Aron, 1986; Aron et al., 2001). At the most basic level, we predict that, keeping everything else constant, choices should be affected by variations in social distances.

We follow the preference reversal paradigm (Lindman, 1971; Lichtenstein and Slovic, 1971, 1973; Tversky et al., 1990; Cubitt et al., 2004) to test this idea experimentally. Akin to P-bets and $-bets, we define P-allocations which provide a relatively small amount of money to a person or a group socially close to the decision-maker; and $-allocations which provide a relatively large amount of money to a person or a group socially distant. To bring these small and large distances in the laboratory, we use two conditions: Faculty memberships and Charities. In the first case, we invite subjects from the Faculty of Arts and ask them to consider members of the Faculty of Social Sciences and of the Faculty of Engineering. In the Charity case, subjects consider Cancer Research UK and The Salvation Army. To control for and measure the distances, we use the Inclusion of Other in the Self scale (IOS) (Aron et al., 1992) and the Inclusion of the Ingroup in the Self (IIS) scale (Tropp and Wright, 2001). Both present participants with seven pairs of increasingly overlapping circles and ask them to select the one that best describes how connected they are to the Faculty member or the Charity depending on the condition. We use these as a proxies for the social distance and as a way to check that what we called 'small' and 'large' social distances are meaningful for the subjects. Then, participants face two tasks: choosing between a

P-allocation and a $-allocation; and reporting a valuation independently for each of these. We use no deception and decisions selected by the incentive mechanism are implemented for real.

In a between-subject comparison, we find that choices are affected by social distances, as predicted. For example, as the recipient of the large amount of money in the $-allocation becomes socially closer, subjects increasingly favour it over the P-allocation. We also find strong evidence for preference reversals when subjects consider Faculty members as recipients of the allocations but not when they consider Charities. This stems from differences in valuations between the two conditions. While subjects in the Charity condition successfully take into account the social distance dimension when forming a valuation, the subjects in the Faculty condition disregard this information and base their valuation purely on the money dimension. This suggests that preference reversals occur because of differences in attention drawn to the attributes. This interpretation is further reinforced by the fact that the IOS and IIS measures show that social distances were perceived to be less important in the Faculty condition.

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SMARTPHONE BAN, TRUST, AND WORKPLACE PRODUCTIVITY – EVIDENCE FROM A NATURAL FIELD EXPERIMENT

Adrian Chadi, IAAEU, University of Trier, Germany
chadi@iaaeu.de
Mario Mechtel, Leuphana University of Lüneburg, Germany
mario.mechtel@leuphana.de
Vanessa Mertins, University of Vechta, Germany
vanessa.mertins@uni-vechta.de

Smartphones have become increasingly prevalent over the last years and, by providing permanent internet access, have created notable changes in the lives of their users. Recent surveys reveal that HR managers see smartphones as a severe time thief at the workplace. Employees seem to use their smartphones during the working time, which led to a significant share of employers implementing smartphone/cellphone bans. These bans are implemented in order to weaken the negative productivity effects of being distracted by using one's smartphone.

However, there is to the best of our knowledge no study that investigates the effect of prohibiting smartphone use at the workplace on employees' motivation and effort.[1]

On the one hand, it is important to provide such evidence from an HR perspective. On the other hand, it is also interesting from an economic point of view given the growing literature on control, monitoring, and trust as signals which effect individual behavior.[2] First, one might expect a positive effect of a smartphone ban on employees' productivity, assuming that they are less distracted from their work. However, such a ban could be interpreted as a signal of distrust, lowering employees' motivation and, hence, effort. From a theoretical perspective, it remains unclear whether the expected positive productivity effect of the ban is able to compensate the negative effect of potentially sending a distrust signal.

We conduct a natural field experiment to test for the effect of a cellphone ban on individual work output. Our setup allows us to disentangle the basic effect of the ban from the potential distrust effect. To implement our different treatments, we utilized a study conducted at the University of Trier, Germany, in which casual employees helped conduct a survey. These individuals were employed for a one-time job that lasted 4 hours. Within this time, they conducted telephone interviews on the TV usage of the German population (Trierer Fernsehstudie). Implementing our field experiment in such a setting was very natural for several reasons: Similar interviewer jobs are typically carried out by pensioners and students. Given that the Trierer Fernsehstudie is carried out by a team of researchers of the University of Trier, it was very plausible to hire only students. Although these individuals are not yet in the labor market, they soon will be. They belong to what is often called "generation smartphone" and are permanently online and connected through a myriad of social networking apps such as WhatsApp etc.

In February 2015, the research team of the Trierer Fernsehstudie announced one-time job opportunities for students. Several hundred individuals applied for the job via an online form. Out of this pool, more than a hundred students agreed to work on specific dates, to which we invited the applicants. Each subject arrived at the headquarters of the Trierer Fernsehstudie. A research assistant (which was the same person for all subjects) showed the subject her office and gave an introduction of around 10 minutes. Subjects had to dial numbers from a large list. After 3 hours and 35 minutes, the research assistant walked in and handed out a short feedback questionnaire. After 5 additional minutes, the subject received her expense allowance of 30 Euro.

In this work environment, we experimentally varied whether cellphone use was prohibited or not. Overall, we used a very natural way of implementing the treatment that proved to be very effective but was specifically designed to be unsuspicious. In particular, no verbal treatment was needed, which helped us to avoid experimenter effects. Our setup consists of three conditions. In the Smartphone Ban Treatment (B), the use of cellphones was prohibited. In the Smartphone Ban & Trust Signal Treatment (B&T), the use of cellphones was prohibited and subjects received an additional trust signal to neutralize the potential distrust signal of the ban. The third condition without ban and trust signal acts as our benchmark and is referred to as Control Treatment (C).

Both the cellphone ban and the trust signal were implemented via a sign on the wall. Subjects were randomly assigned to treatments (between-subjects design), based on a stratification strategy that guaranteed (nearly) the same proportions of female/male subjects in the morning/afternoon per experimental condition. Assuming that cellphone use during the working time reduces an employee's productivity, we expect a smaller output level in the control condition than in the two treatments (B and B&T). If the ban was perceived as a signal of distrust, this might, however, counteract the positive effect of the ban on individual output. In this case, we expect that individual output is higher in the B&T treatment than in the B treatment. The difference between these two would then represent (a conservative estimate of) the distrust effect.

Our employees had to call numbers from large lists, and we therefore use the quantity of dialed phone numbers as our measure for individual work output. Average individual output was significantly higher in both ban treatments than in the control condition. However, we do not find a difference in individual output between the two ban treatments. Besides statistical significance, the effects are also economically significant: The cellphone ban increased individual output by more than 10 percent, irrespective of the existence of an additional trust signal implemented to neutralize the (potential) negative trust signal induced by the ban.

Given that we know the exact duration of each phone call (irrespective of whether it yielded a successfully completed interview, a refusal of participation, having called an answering machine etc.), we are furthermore able to account for the net time in which each employee was able to dial

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numbers (i.e. the time that she did not need to talk to individuals on the phone). Given that some interviewers might have conducted more interviews by chance, which should c.p. reduce their possibility to dial more numbers, our second output measure focuses on the number of dialed numbers per minute of "net dialing time".

Our conclusions with respect to the overall effects of the ban based on the raw output measure are supported by this additional measure: Individual output increased by more than 10 percent when the use of cellphones is prohibited. Although the differences between the B and B&T treatments are not statistically significant, it appears that there is a weak negative distrust effect induced by the ban. Our results hold once we run OLS regressions using an employee's number of (1) dialed numbers and (2) numbers per minute of "net dialing time" as dependent variables, controlling for factors such as age, gender, day fixed effects, etc.

The data from a detailed survey conducted some weeks after the experiment give us the possibility to analyze different indicators for employees' trust levels, preferences, emotions, and, most notably, cellphone use. The more detailed description of our results will be complemented by the data from this survey, which, amongst other things, suggest that actual cellphone use was indeed smaller in the two treatments.

[1]Indeed, evidence on the effects of cellphones on behavior is scarce. One exception is Cheng (2015, EI) who shows that prohibiting drivers from texting and talking on cellphones reduces both activities considerably.
[2]See, for example, Falk and Kosfeld (2006, AER), Ellingsen and Johannesson (2008, AER), Nagin et al. (2002, AER), Dickinson and Villeval (2008, GEB), Sliwka (2007, AER), and von Siemens (2013, JEBO).

SPYING, LYING AND SABOTAGING: PROCEDURES AND CONSEQUENCES

Nadine Chlaß, University of Turku, Finland
nadine.chlass@utu.fi
Gerhard Riener, Mannheim University, Germany

1) Motivation. In 2013, E. Snowden's leaks of classified information about global surveillance activities by the U.S. secret service led to an ongoing international diplomatic crisis. The leaks documented that—in pursuit of preventing terrorist attacks—the US secret service had systematically and preemptively intercepted and stored private communication and information on US citizens, governments, heads of friendly nations, and sabotaged internet encryption as a means to this end. In his interviews with the Guardian, Snowden stated that 'he was willing to sacrifice all [. . .] because he could not in good conscience allow the destruction of privacy and basic liberties [. . .]'.

Lying, spying, and sabotaging are of fundamental relevance to Economics. If market agents have heterogeneous preferences toward these activities, the self-regulating behaviour of the market place – Smith's invisible hand (Smith 1904) – is at stake. Lying, spying, and sabotaging share the common aspect that they erode the nature and welfare implications of competition. If firms who compete spy on and sabotage each other or their customers, fabricate and plant rumours on tax non-compliance or financial difficulties of their competitors, competition ultimately selects the most ruthless, but no longer the most cost-efficient or innovative market agent. Therefore, central economic concepts rely on the idea that self-interested agents compete fairly.

At the same time, fabrication-, spying-, and sabotaging-like activities are part of many people's work lives. Online shops collect, analyse, and complete information on clients' buying behaviour to develop comprehensive customer profiles, personnel managers screen social media to obtain information about the social life, and the character of job candidates, credit reference agencies collect and analyse information on financial incidents in people's lives, employees who develop or maintain software for cyber-security and defence may seek to find and exploit weaknesses in other companies' or nations' security systems. Little is known about how the individuals who carry out these tasks react to and deal with the nature of their work.

2) Research Question. Our paper aims to fill this gap. Which psychological cost—if any—do fabrication, spying, and sabotaging induce, and what is the nature and source of this cost? Which behavioural strategies do individuals employ to deal with this cost? Since field data are scarce given the secretive nature of the activities at hand, and the situations in which they occur can

hardly be systematically compared, we construct a laboratory experiment. In this experiment, two players A and B play a constant sum game with competitive payoffs such that one player carries away the entire payoff in the end.

3) Experimental Design. Player B chooses the rules of this constant sum game. In treatment SPY, B can nudge herself into a 'fair' set of rules where A and B choose simultaneously and neither party has information about her opponent's decisions. B can also nudge herself into an 'unfair' set of rules which allow her to look up A's decision. This way, B can ensure that strategy combination which secures her all payoff. Note, however, that B can also use that power to give all payoff to A. Throughout, A never learns which set of rules B has chosen. Treatments SABOTAGE and LIE proceed similarly. In SABOTAGE, party B can nudge herself into a fair set of rules, or into a set of rules which allows her to replace A's decision in the constant sum game. In treatment LIE, B can nudge herself into the fair set of rules, or into a set of rules under which she can fabricate some decision for A and reports that decision to a third party who makes the reported choices payoff-relevant. Similarly to spying, sabotage and fabrication allow B to secure all payoff.

4) Results. Which sets of rules do individuals choose? If the unfair set of rules involves fabrication (treatment: LIE), 88% of all subjects prefer either the fair set of rules, or toss a fair coin between the fair, and the unfair set of rules. If the unfair set of rules involves spying (treatment SPY) or sabotaging (SABOTAGE), roughly 70% of all subjects actively opt into the unfair set of rules. Therefore, individuals seem to have a significantly greater need to avoid rules which involve fabrication, than to avoid rules which involve sabotaging or spying.

Altruism varies substantially across treatments. Bs' willingness to give payoff away varies significantly across treatments SPY, LIE, and SABOTAGE. B explicitly foregoes payoff if upon arriving in the unfair set of rules, she gives all payoff to A thus using her power to spy, fabricate, or sabotage to the benefit of the opponent. In the LIE treatment, 68% of all subjects who arrive in the unfair set of rules use their power to give all payoff away, 71% do so in SABOTAGE, and nobody in SPY.

Preferences for fair rules and altruism under unfair rules link to the same moral ideal. Why do individuals avoid the unfair set of rules, and why do some opt into the unfair rules and give all payoff away? We elicit subjects' moral preferences, or put differently, subjects' preferences over invoking specific moral ideals when judging about the right or wrong of an action in a standardized moral judgement test. We use this entire set of preferences for each individual who could choose the set of rules to model her i) choice of the fair set of rules, or her ii) choice of the unfair set if she uses the unfair set to give all payoff away rather than securing all payoff for herself. The more subjects refer to individual rights and the social contract when judging whether an action was either right or wrong, the more likely they are to opt for the fair set of rules, and the more likely they lie or sabotage to benefit the opponent. We therefore conclude that individuals who avoid the unfair set of rules, and individuals who exploit the unfair rules for the good of the opponent refer to one and the same moral ideal. Both deviations from rational self-interest compensate an infringement of the opponent's rights to be treated equally by the rules of the game. If we hold the desire to compensate the violation of the opponent's rights constant, the specific compensation strategy can be explained by individuals' attitudes toward Ronald Inglehart's and Helmut Klages's materialist and postmaterialist values. The higher individuals score on materialist values, the more often they lie or sabotage to give all payoff to the opponent. The higher they score on post-materialist values, the more they prefer to grant their opponent the same rights and compete fairly with her.

5) Novelty. We present the first conclusive evidence about the source of the psychological cost induced by lying and sabotaging, and the compensation strategies which people employ to deal with this cost. Our work relates to the experimental studies on altruistic white and selfish black lies. To date, it is known that some people trade off the psychological cost of such lies with the material benefits these lies entail. Other people always avoid lying whereas still others lie as a function of what they believe they are expected to do. The sources of this heterogeneity are, however, unknown. We provide, for the first time, conclusive evidence that this heterogeneity is rooted in individuals' moral judgement and extend the analysis to sabotage and spying. Interestingly enough, people who avoid these activities per se, and those who exploit them for the

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good of their opponent show the same reasons for their behaviour – they hold ethical concerns about the rights of the opponent. Their different strategies to deal with these concerns reflect different attitudes toward hierarchy and power, but not different types of lie and sabotage aversion. Spying induces no cost or compensation whatsoever.

FINANCIAL LITERACY AND SELF-EMPLOYMENT: FIRST EVIDENCE FROM GERMANY

Aida Cumurovic, Halle Institute for Economic Research (IWH) – Member of the Leibniz Association, Germany
aida.cumurovic@iwh-halle.de
Walter Hyll, Halle Institute for Economic Research (IWH) – Member of the Leibniz Association, Germany
walter.hyll@iwh-halle.de

In this paper we show that financial literacy is a decisive factor in occupational choice, more precisely being self-employed, a finding which has not been addressed in the literature so far. The motivation for our investigation results from the fact that the interaction between households and the financial market is growing in importance and the necessity for a fundamental understanding of
financial market activity is increasing constantly. Financial sophistication affects household be-havior and a low level of financial knowledge causes inefficient decisions at household level. So far, scholars mainly have concentrated on the effects of financial literacy on household financial decision making. Little attention was paid to the context of financial sophistication and entrepreneurial activity. However, particularly for the move into self-employment a certain level of financial knowledge is required.

Shedding more light on that topic this paper contributes to two strands of research: studies on the characteristics of entrepreneurs and studies on the effects of financial sophistication.

First, extensive research on characteristics of entrepreneurs has been carried out to find those characteristics which affect the probability of being self-employed. The focus is on personality traits like the Big Five, risk attitudes, or demographic characteristics. However, most personality traits that had been found to affect entrepreneurial decisions like the Big Five are classified as relatively stable over time and thus are out of control of policymakers (Cobb-Clark and Schurer 2011, Specht et al. 2011). Finding an impact of financial literacy on self-employment, we point to a new characteristic, which is also under control of policymakers.

Second, research on financial literacy has concentrated so far on the one hand on differences between levels across demographic groups, and on the other hand on effects on household financial decision-making. Preliminary findings have shown that the level of financial literacy mainly depends on gender, age, and education (Agarwal et al. 2009; Lusardi and Mitchell, 2008; Christiansen et al. 2008). Financial sophistication, in turn, affects wealth accumulation by influencing households' savings behavior, retirement preparation, and stock market behavior (e.g. Bucher-Koenen and Lusardi, 2011; Christiansen et al., 2008; Deuflhard et al. 2014; van Rooij et al., 2011, 2012). We augment the research on financial literacy, in focusing on the role of financial literacy for occupational choice.

Our study presents an analysis of the role of financial sophistication on self-employment
activities. We contribute to the existing literature in several respects. We provide a new relevant aspect that is influenced by financial sophistication, and we provide a new and important characteristic in which regularly employed and self-employed persons differ from each other. On top of that, this characteristic can be influenced and enhanced.

The empirical analysis is based on data from the German SAVE study that focuses on saving behavior and asset accumulation of private households. In addition to demographic information and information on financial assets, financial knowledge-based questions were asked in SAVE 2009-2011. We exploit these data to construct a number of indices for financial sophistication. The indices are based on relatively simple financial literacy questions as well as on more advanced questions. In estimating the effect of financial literacy on the choice of occupation we need to address several concerns with regard to endogeneity issues. We use an instrumental variables strategy and we apply two instruments by making use of general questions concerning potential effects of the financial and economic crisis on different types of investment types from SAVE 2009.

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The analysis shows that financial literacy levels differ significantly between regularly employed and self-employed respondents: self-employed individuals are more financially literate than employed peers. Our regression results suggest that the level of financial literacy has a positive impact on the probability of being self-employed. Results are robust to various specifications and different financial literacy indices.

Our preliminary findings suggest that a higher financial education leads to a higher rate of entrepreneurial activities. Less financially sophisticated persons rather work as employees than decide to take the step towards self-employment. Higher levels of financial sophistication may lead to more efficient acquisition of fundamental information and processing of information, to more self-confidence regarding financial matters, to confident risk assessments and finally to more entrepreneurial activities. Therefore, if entrepreneurship is to be supported in an economy then scholars and policy makers need to include into the debate regarding entrepreneurial activities an improvement of financial sophistication.

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GROUP IDENTITY AND THE ILLUSION OF FAIRNESS: AN EXPERIMENTAL INVESTIGATION ON GROUP IDENTITY MEDIATING DISHONESTY IN ALLOCATION CHOICES

Nives Della Valle, University of Trento, Italy
nives.dellavalle@unitn.it
Matteo Ploner, University of Trento, Italy

Perceptions of injustice shape behaviours turning into negative spillovers to society (Norton, 2014), although it is still debated which kind of injustice individuals actually perceive. Fairness scholars have been widely discussing justice as either insensitive or not to contextual cues (Konow, 2003). For instance, the extensive investigation by social psychologists and experimental economists (Cappelen et al., 2014) suggests that when agents exert some effort they perceive fairness in allocations proportional with contributions (i.e. equity (Adams, 1965)).

Experiences of unfairness as deviations from equity have been documented for enhancing unethical decisions (Greenberg, 1990; Gino & Pierce, 2009). In order to balance out the experienced unfairness, agents engage in dishonest behaviour when it provides monetary rewards.

Dishonest behaviour can also be driven by past choices involving fairness. Allocating according to a fairness criterion seizes an individual moral dilemma. As agents aim to maintain their positive self-image (Mazar et al., 2008), they might decide to either allocate conforming with a salient fairness criterion and, later, feel entitled to be self-indulgent when faced with subsequent moral

dilemma, or they might allocate deviating from the salient criterion and, later, feel the need to wash away their "sin" by behaving ethically (Nisan & Horenczyk, 1990; Ploner & Regner, 2013). Interactions involving fairness might take place among individuals sharing common group identities. When group identity is salient, a change in the perception of individual's self-concept occurs. On the one hand, agents process situations seeking to maintain positive the image of the group in order to avoid cognitive dissonance (Akerlof & Kranton, 2000; Festinger, 1957). For instance, they might avoid to interpret as unfair an allocation choice performed by a group fellow. On the other hand, when group traits are salient agents seek behaviours which are in the group's best interest (Bicchieri, 2006; Tajfel et al., 1971). Agents who are to allocate to a group fellow might look at the equality criterion which benefits the group regardless personal contributions.

Our study disentangles the interplay between group identity and dishonesty in a context where distributive fairness is involved. We conduct a laboratory experiment with 192 students that mirrors an organization having all their members tight by group identification but only an agent has the right to choose how to allocate the co-produced output. We design an effort task to suggest fairness in proportional allocations and we prime group identity with a modified version of Tajfel et al. (1971)'s minimal group paradigm. A dictator game works as baseline to observe the interaction between effort and group identity salience on allocation choices. Lastly, we observe the effect of allocation choices on the likelihood to engage in dishonest behaviour.

From the dictator's side we find that effort salience and exclusive decisional power induce self-serving behaviour lowering perceptions of moral dilemma in both the allocation and dishonest tasks. Dictators are dishonest unconditionally on the fairness embedded in past allocation choices. From the recipient's side we find that when group identity is not shared, recipients increase their dishonest behaviour when they receive allocations deviating from proportionality. Conversely, when group identity is shared, there is a shift in the way fairness is perceived which mediates subsequent dishonest behaviour.

Unethical decisions are central in daily interactions other than organizational contexts especially in the decentralized State-citizens relationship (i.e. tax evasion). We addressed that group identity moderates dishonesty as reaction to unfairness: identification appeases the need to question the fairness embedded in the group fellow's choice.

Our findings raise important questions concerning the effects of group identification: as a double-edged sword, while it moderates the extent to which agents incur in unethical reactions, it might instead alter the very essential perception of fairness.

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ABSTRACT

Markus Dertwinkel-Kalt, DICE Düsseldorf, Germany
dertwinkel@dice.hhu.de

Psychological evidence suggests that a decision maker's attention is limited and therefore allocated to outstanding features. Building on this insight, salience theory (Bordalo et al., 2012; 2013) predicts that agents overemphasize especially salient features of choices and underrate less prominent, but possibly important aspects. Regarding decision making under risk, salience theory provides an alternative rationale for violations of expected utility theory, which have previously been explained by prospect theory (Bordalo et al., 2012). With respect to riskless decision making, it can explain many violations of rational choice in the domain of consumer choice (Bordalo et al., 2013; henceforth BGS), like endowment or decoy effects. Thus, salience theory explains a broad variety of cognitive biases and puzzles via the assumption that agents' attention is limited and focused on outstanding features.

Besides explaining well-known biases, salience theory also yields novel predictions with respect to consumers' choices between vertically differentiated products. Suppose that there are two goods of different qualities and different prices where the lower quality comes at a lower price. Salience theory hypothesizes that an expected uniform price increase for both goods dampens the saliency of the price difference and increases the relative saliency of the quality difference, making it more likely that the high-quality, more expensive product is chosen. This effect is due to diminishing sensitivity with respect to zero, which is a core feature of human perception (Weber's law) and of prospect theory (Kahneman and Tversky, 1979). Accordingly, two values loom larger the closer the values are to zero such that a uniform upward price shift lowers the prominence of goods' price difference. As a consequence, salience theory predicts that the relative demand for a high-quality product is higher if the general price level is higher.

The following example by BGS illustrates why preferences between two vertically differentiated products may reverse if the general price level increases. Suppose a consumer intends to buy a red wine at a wine store at which all prices are modest. She has the choice between an Australian shiraz and a more expensive French syrah, where the French wine is perceived to be of a higher quality. Suppose that the consumer focuses on prices and, therefore, sightly prefers the cheaper Australian wine. A few weeks later she visits a restaurant, where again both wines are on display. As expected both wines are marked up by an additional amount of $40, making the difference in price levels less prominent than in the store (due to diminishing sensitivity). The consumer underweights the difference in prices and focuses on the different quality levels, eventually choosing the higher quality wine.

While the example nicely illustrates how changes in the saliency of the options' attributes can induce choice reversals, it does not clearly contradict alternative theories such as rational choice. For instance, the decision maker might have learned from her purchase at the store that the low-quality wine was worse than expected, such that the choice reversal might stem from learning effects. Even more important, the consumption utility of the two products could differ across the two locations. One might argue that at the more decent location, the more expensive product yields a higher consumption utility than at the store. Consequently, even a rational decision maker might reverse her decision between the two locations such that salience theory is not needed as an explanation. Therefore, we will consider an experiment in which salience theory's predictions cannot be explained by usual alternative theories. So far, we assumed that an agent either faces an expectedly low or high price level. Salience theory's predictions, however, are very different if the agent expects low prices, but is faced with unexpectedly high prices. In this case, the lower expected prices the agent has on her mind may make prices salient. As we will delineate in the paper, in BGS each attribute of an item is compared to the average value that attribute takes among all options which come to the agent's mind. If an agent has not only the high factual, but also low expected prices on her mind, then the point of comparison, that is, the average price, is also low, thereby rendering high prices more salient. Thus, salience theory predicts that an agent

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is more likely to choose a high-quality product at a high price level if she expected the price level to be high than if she expected it to be low.

This paper tests the two central predictions of salience theory with respect to vertically differentiated products in a laboratory experiment: (1) a higher expected price level for both products shifts demand toward the more expensive, high-quality product and (2) demand for the high-quality product is larger if the price level is expectedly high than if it is unexpectedly high.

A laboratory experiment is particularly suitable for testing these predictions because it has several advantages compared to a field study. Most notably, as good knowledge of a decision maker's price expectations is indispensable, our experimental setup allows to set and change expectations in a controlled manner. Moreover, in a laboratory experiment we can avoid the confounding effects from the wine example by ensuring the consumption location to be identical for all participants.

During our experiment, participants had to choose between a more expensive, fast internet connection (the high-quality product) and a cheaper, slow internet connection (the low-quality product). They were endowed with a lump-sum from which the costs for their purchase were deducted. We controlled for participants' expectations by sending out an email a couple of days prior to the experiment. In this information email (which mainly corresponded to the instructions that were distributed during the experiment) the experiment was described and the prices of the two options were announced.

We compared choices in a situation where the actual price level was low (LP-treatment) with a situation where all prices were marked up by the same amount (HP-treatment). In both treatments, the announced prices in the information email coincided with the actual prices faced in the experiment.

In order to test for the role of expectations, we ran an additional treatment in which prices were unexpectedly high (UHP-treatment). In this treatment, the listed prices in the email differed from those faced in the experiment. Participants received an email listing the prices from the LP-treatment, while they were confronted with the prices from the HP-treatment during the experiment.

We find strong support for the predictions of salience theory. First, we detect that in the HP-treatment the share of subjects opting for the premium product is significantly higher than in the LP-treatment. Second, there is a significant difference between choices in an environment with an expectedly and an unexpectedly high price level, pointing to the importance of controlled expectations. In particular, we find that, when faced with unexpectedly high prices in the UHP-treatment, subjects are less likely to choose the high-quality product than in the HP-treatment.

SUBSTITUTION ACROSS PROSOCIAL ALTERNATIVES

Claes Ek, Lund University, Sweden
claes.ek@nek.lu.se

A person who sets out to contribute to some prosocial cause – be it with respect to their fellow man, their community, the environment, or some abstract ideal – is likely to find that there is more than one way to do so. This is perhaps especially apparent with regard to the environment, for which people can (and do) recycle household waste, buy organic products, become a vegetarian, bicycle instead of using their car, and more. Yet even when there are several alternatives to choose from, public policy sometimes focuses on just one. For example, it is quite common for local governments to promote household recycling in various ways, including by information campaigns, building drop-off sites, and through economic incentives. Behavioral economists have by now devoted a great deal of research to the effect of such policies on the activity being targeted (for monetary incentives, see e.g. Bénabou and Tirole, 2006; information campaigns, see Nyborg, 2011). Less studied is how such policies spill over to contributions made through other activities. For example, do policies on recycling affect households' purchases of organic products? This paper attempts to partly fill that gap by presenting experimental evidence on productivity-driven behavioral spillovers across different prosocial alternatives.

In our experiment, subjects could donate money to two real-world charities by first earning 'points' in a real-effort task (they could not allocate money/points to themselves). This production and allocation decision was repeated for multiple rounds where, to mimic the effect of activity-specific policy, the productivity (money donated per point) of each charity was systematically varied. On

the basis of an initial theory paper (Ek, 2015), which generalized the 'moral-motivation' model of Brekke et al. (2003) to include two contributing activities, we predict 'incomplete negative spillovers' across alternatives: as the productivity (exchange rate) of one charity rises, less effort is spent on the other, but total production (amounts donated) rises. This prediction is clearly validated in our experimental data.

Our theoretical framework is based on the assumption that both activities contribute to the same public good. What counts as a single good, however, is an empirical question, as it depends on agents' beliefs about the activities, and there is an obvious policy relevance to charting the reach of spillovers in addition to providing evidence on their existence. Thus, partly as a robustness check, we induced variation in those beliefs by including four between-subject treatments where the similarity of the charity pairs was systematically varied.

This was done by isolating two dimensions along which charities may differ: (i) geographical scope, and (ii) the cause involved. In all treatments, Charity 2 was UNICEF; this is a global organization concerned with the welfare of children. Charity 1, however, differed across treatments. In the GLOBAL-CHILD treatment, UNICEF was paired with a 'Global Action Fund' run by Save the Children in the US. Since both charities address children's needs globally, they are similar along both dimensions. By contrast, the LOCAL-GREEN treatment paired UNICEF with the Lund office of the Swedish Society for Nature Conservation (SSNC), the largest Swedish environmental NGO. This pair is dissimilar along both dimensions. Finally, to isolate the effect of each dimension (local/global and cause involved), two intermediate treatments were included: LOCAL-CHILD and GLOBAL-GREEN. In the former, UNICEF was paired with the local Lund office of Save the Children (local/global dimension); in the latter, with WWF International, a major global environmental NGO (cause dimension).

We find that while incomplete negative spillovers occur significantly in all treatments, the effect is systematically weaker, the more dissimilar are the charity alternatives. In our most dissimilar treatment, it is only half as large as when alternatives are very similar. On the face of it, however, this effect could be driven not by differences in similarity between charity pairs, but by some other source of variation across treatments. For example, the data shows that SSNC in Lund (weak negative spillovers) is generally less liked and less well-known than Save the Children (strong negative spillovers). This might explain why people are less willing to increase donations to SSNC as its exchange rate rises relative to that of UNICEF, than they are to increase donations to Save the Children; in other words, this could explain our treatment effect.

To settle the issue, we carefully analyze individual variation within each treatment. In addition to the perceived similarity of each Charity 1 compared to UNICEF, we examine the effect of three other variables: the difference between Charity 1 and UNICEF with respect to subjects' knowledge, perceived favorability, and identity/self-image value. Similarity does indeed seem to be the most important factor in explaining spillover patterns. Our basic treatment-effect regression interacts treatment dummies with the exchange rate of Charity 1 to explain the number of points given to UNICEF; including the three difference variables (interacted with the exchange rate of Charity 1) has a negligible impact on treatment effects, suggesting that spillovers are not driven by these variables. By contrast, adding also the (interacted) similarity variable renders the treatment effect insignificant, while the interacted similarity variable itself is highly significant and has the expected negative sign.

In summary: does policy targeting a particular prosocial activity spill over onto other activities? We argue, on the basis of experimental data, that it may. In particular, we present evidence of 'incomplete negative spillovers' which attenuate, but do not reverse, the policy's impact. Furthermore, we present data indicating that spillovers decrease in magnitude as activities grow more distant in terms of similarity. Hence, policy affecting an environmental activity may spill over onto other environmental acts but, perhaps, not onto e.g. charitable giving to the poor. Whether this is actually the case is, of course, an empirical question which merits further investigation.

INDIVIDUAL PREFERENCES ACROSS CONTEXTS

Hande Erkut, School of Business and Economics, Maastricht University, Netherlands
h.erkut@maastrichtuniversity.nl

Abstract: This study aims to make a systematic comparison of generosity and rationalizability of individual preferences in a modified dictator game across monetary and non-monetary domains

with positive and negative framing using laboratory experiments. The rationalizability of preferences is measured using the severity of Generalized Axiom of Revealed Preferences (GARP) violations as in previous studies. (E.g. Andreoni and Miller, 2002; Davis et al. 2012) The results suggest that generosity and GARP violations (in amount and severity) are larger in non-monetary compared to monetary domain.

Introduction

Economists are focused on Dictator Game (DG) giving in monetary domain rather than non-monetary domain although investigation of giving in non-monetary domain has economic value. Examples include the allocation of household responsibilities such as housework and the allocation of workload in working groups/departments in firms.

There are several economic studies that focused on non-monetary domain: Davis et al. (2015) compared generosity in monetary vs. non-monetary domain and found out that people are more generous in non-monetary compared to monetary domain. Furthermore, Davis et al. (2012) examined rationalizability of preferences in non-monetary domain and found out that the preferences are less rationalizable compared to the preferences in monetary domain.[1]

In order to compare generosity and rationalizability of preferences in different domains, non-monetary unit needs to be calibrated to the monetary unit. Such systematic comparison of monetary vs. non-monetary domains with neutral framing is missing in the literature and this study aims to fill this gap.

Experimental Design

A 90 dB and 2083 Hz aversive tone is used for the non-monetary treatments. Both positive and negative framing is used due to the fact that the monetary unit is a 'good' and non-monetary unit is a 'bad'. Treatments of the 2x2 between-subject design are as follows:

Monetary-Positive: Dictator allocates money between himself and the recipient.
Monetary-Negative: Dictator allocates monetary loss between himself and the recipient.
Nonmonetary-Positive: Each player has to listen a loud aversive tone in status quo. Dictator saves himself and the recipient from listening a fixed amount of aversive tone.
Nonmonetary-Negative: Dictator allocates a given time of aversive tone between himself and the recipient.

Subjects play a modified DG introduced by Andreoni and Miller (2002) in each treatment. In the game, dictators have to divide a given amount of tokens between themselves and the recipient where the token endowment and, price for holding and passing a token vary.

To equalize the expected value for each treatment, we calibrated tone to Euro by a calibration experiment in which subjects' willingness to accept (WTA) and willingness to pay (WTP) values for the tone are elicited using BDM mechanism (Becker et al., 1964). Based on the elicited WTA/WTP values, the monetary and non-monetary units, and the participation fee for the respective treatments are set.
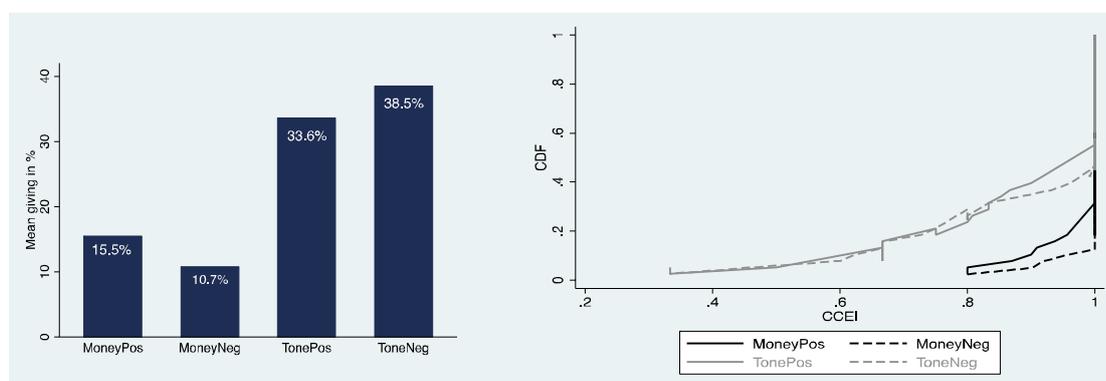
Results and Conclusion

Figure 1: Generosity and the severity of GARP violations across treatments

The graph on the left shows the levels of generosity across treatments. As we can observe, generosity in non-monetary treatments is larger than in monetary treatments. Based on Wilcoxon rank-sum test, this difference is significant at 1% level.

The graph on the right shows the severity of GARP violations across treatments. Critical Cost Efficiency Index (CCEI) is used to measure the severity of GARP violations. As CCEI gets closer to 1, the severity of violations decreases. As we can observe, severity of GARP in non-monetary treatments is larger than in monetary treatments and this difference is significant at 1% level.

An investigation on the utility functions across treatments suggest that Selfish preferences are observed significantly more in monetary compared to non-monetary treatments and Leontief preferences are observed significantly more in non-monetary compared to monetary treatments at 1% level. Further analysis suggests that high level of generosity cannot be fully explained by the high level of GARP violations in non-monetary treatments.

[1]Davis et al. (2012) compared their results with those of Andreoni and Miller (2002) who investigated the rationalizability of preferences in monetary domain.

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SOLIDARITY AND INFORMATION

María Paz Espinosa, Universidad del País Vasco, Spain
mariapaz.espinosa@ehu.es
Pablo Brañas-Garza, Middlesex University, UK
Marisa Bucheli, Universidad de la República, Uruguay

Experimental literature has accumulated evidence on the association of personal characteristics to a higher or lower level of prosocial behavior. There is also evidence that donations are affected by the available information about the personal characteristics of the recipients. In this paper we present a unified framework to analyze the impact on giving of social class, political orientation and gender. We elicit the personal characteristics of the subjects and then in a Dictator Game experiment we compare the outcome under different information sets about the donor and recipient concerning wealth, sex and ideology. Our experimental design allows us to reveal the effect of providing information by itself, with respect to the baseline treatment of no information, and separately from the effect of the informational content; this should be taken into account in any design intended to measure the effect on altruism of different manipulations of the Dictator Game.

Previous literature has provided a set of factors that modulate altruism, by showing their effect on giving as compared to the baseline of an anonymous DG. Personal characteristics have been found to be correlated with giving; for example, social class, political ideology, religion and gender. On the other hand, experimental results indicate that individuals react to the recipient's characteristics. For instance, individuals are more likely to increase their donations when the recipients are poor (Eckel & Grossman, 1996; Holm and Engseld, 2005; Brañas-Garza, 2006) or when the social distance to the recipient is short (Leider et al., 2009; Brañas-Garza et al., 2010; Bohnet and Frey, 1999; Rege and Telle, 2004). Subjects are also sensitive to the sex of the recipient and women receive higher donations than men (Dufwenberg and Muren, 2000; and Engel, 2011). Finally, there is an effect of the recipient knowing the sex identity of the donor (Eckel and Grossman, 2002). These results may be related to the fact that individuals are quite sensitive to the conditions of anonymity of dictator and recipient (Hoffman et al., 1994; Charness and Gneezy, 2008; Frohlich et al, 2001). Anonymity may have a cost in terms of credibility (see Bolton, Katok and Zwick, 1998 and Frohlich, Oppenheimer and Moore, 2001) and providing more information about the recipient may make donations more credible.

Social psychology provides a framework to explain why the personal characteristics of dictator and recipient matter for giving. People may care not only about themselves but also about the status of the social category to which they belong and membership triggers a different behavior towards in-group members and outsiders (see Charness, Rigotti and Rustichini, 2007; Chen and Li, 2009).

In this paper, we want to provide a unified framework where several of these effects may appear so that we can evaluate their relative strength depending on the information provided. For this purpose, we use a within-subjects design where participants take decisions in several contexts and those decisions appear in a random order. This design allows us to study how subjects react to different pieces of information about group membership and a comparison of their relative strength.

An important difference with previous laboratory experiments on the effect of social category on altruism is that we use natural groups. More precisely, we classify subjects based on wealth, sex and political orientation. Previous work on in-group and out-group differences in behavior has introduced the minimal group paradigm (Tajfel, 1971), inducing the membership that generates the weakest cohesion required to produce discrimination. Instead, in our experiment the groups correspond to the actual characteristics of dictators and recipients, which were collected before the experiment took place, and relate to wealth (Poor and Rich), gender (Men and Women), and political orientation (Right-wing and Left-wing).

At the beginning of the experiment donors were reminded their actual social categories (wealth, gender or political orientation). Then they faced several DG in which they had different pieces of information about the recipient. In our baseline case, no additional information is provided. In Treatment 1 (T1) the dictator was informed about the social category of the recipient. According to the theoretical literature on identity and in-group and out-group effects, we expect that donations to in-group members be higher than donations to out-groups. Eventually, this could be the result of favoring their own-group at the expense of the out-group.

We also expect that the introduction of saliency increase donations. Following Charness et al (2007), a group is salient if the members of the group not only know their membership but also believe that others know it. In Treatment 2 (T2), subjects were told that the recipient would know their membership. Note that in this treatment, what is at stake is the concern about the image of the group to which the subject belongs but not the welfare of in-group or out-group.

In Treatment 3 (T3), we made saliency stronger by giving all the information to the donor and the recipient. In this treatment, two aspects of identity are involved: in-group favoritism and out-group discrimination and the status of the group.

We find evidence of group membership effects in all the characteristics under study. Though not always it emerges as a higher donation to in-group over out-group, for all the social categories the donation is higher in Treatment 2 than in the baseline. An important finding is that information itself has a positive effect on donations.

SUCCESS RATES IN SIMPLIFIED THRESHOLD PUBLIC GOODS GAMES

Christian Feige, Karlsruhe Insitute of Technology (KIT), Germany
christian.feige@kit.edu

In threshold public goods games (ThrPGs), like e.g. crowdfunding campaigns, a number of players each independently choose contributions to a common project, which only generates benefits to the players if the group as a whole contributes enough to meet a predefined contribution target. The success rate, i.e. the frequency with which the threshold is reached, e.g. on average in an experimental treatment, is therefore the main criterion in the experimental literature concerned with ThrPGs. Nevertheless, attempts to predict this success rate theoretically have been sparse and are restricted to only a subtype of this game, usually binary contributions (Palfrey & Rosenthal, 1984, and later Offerman et al., 1996, as well as Goeree & Holt, 2005). Even the currently most general model by Alberti et al. (2013) only applies to groups with homogeneous players, excluding the possibility that the contributors differ in their endowment or their valuation of the public good.

There are also two main empirical findings involving equilibrium convergence in games with continuous contribution that these models seem to neglect: The first is the convergence towards zero (group) contributions, which is never observed in ThrPGs with a money-back guarantee if the threshold is missed, but frequently occurs if no or only a partial refund of contributions is granted (e.g., Isaac et al., 1989). The second is the predominance of only a small number of "focal" outcomes to which gameplay converges, even if the players are heterogeneous and thus have reason to disagree (e.g., Bernard et al., 2014). It appears that each group of subjects learns to target a particular threshold allocation in addition to reaching the threshold. Each individual subject furthermore makes his contribution contingent on his belief that the group will reach this particular allocation, although the distinction between these two dimensions is often difficult to make. Nevertheless, a particular group will either converge to zero contributions or to one particular threshold allocation, but rarely alternate between several efficient outcomes.

As an improvement to the theoretical literature, I therefore present a model that is based on simplifying the archetypical ThrPG to only the choice between attempting to reach the threshold value with a specific allocation (which is a Nash equilibrium for any such feasible allocation) and taking the "safe" choice of zero contributions (which is also a Nash equilibrium if everybody else does the same). The thus simplified game is still a coordination game like the original version, but provides every player with only two pure strategies: to comply with the specified threshold allocation or to contribute nothing.

By determining the stochastically stable equilibrium (Kandori et al., 1995) of this game, which has only two Nash equilibria pure strategies and a unique mixed-strategy equilibrium to begin with, a general prediction on gameplay can be made, which ties in with the literature on equilibrium selection via risk dominance (Harsanyi & Selten, 1988; Harsanyi 1995). In addition, the same approach suggests that the relative distance of the pure-strategy equilibria to the mixed-strategy equilibrium in a geometric space spanned by the available strategies has a direct connection to the theoretical success rate (in the simplified game, as well as in the original version). This is because the location of the mixed-strategy equilibrium in this strategy space determines the relative size of the pure-strategy equilibria's basins of attraction, which in turn determines the most likely outcome of the game.

Calculating said relative distance between the equilibria yields a simple and explicit formula for a probability that proves to have high explanatory power in a meta-regression on the experimental literature on ThrPGs. Unless a ThrPG grants a full refund of contributions if the threshold is missed (in which case zero contribution is not a strict Nash equilibrium and always risk-dominated), the model suggests that the step return, defined by Croson & Marks (2000) as the ratio of total valuations to the threshold value, and the number of players are the essential determinants of successful group contributions.

The model fits particularly well with the many experimental studies that employ a partners design with the same group of players playing the game repeatedly. Here the subjects can indeed learn from previous rounds what the group's preferred allocation seems to be and if the risk of losing their contributions due to coordination failure is worth the gain. It also seems plausible that the extent of this gain as well as the group's size are the main drivers in this decision process.

In addition, the model also brings up a number of new questions that may be investigated in experimental studies:

-Do larger groups exhibit lower success rates (as the model predicts), even if the threshold value is unchanged and therefore easier to reach in larger groups?

-Does a fear of wasting contributions (also) determine which threshold allocation a heterogeneous group coordinates on, instead of (only) fairness considerations?

Furthermore, this geometric analysis can be more generally applied to normal-form coordination games with two pure strategies, provided that one pure-strategy equilibrium of this game payoff-dominates the other pure-strategy equilibrium.

In practice, the model will be useful to initiators of crowdfunding campaigns (e.g. via Kickstarter) as a rough, but quick estimation of their campaign's likelihood of success depending on a number of parameters, including most importantly the funding goal and its allocation among the backers, as suggested e.g. by the placement of reward tiers. One observation from the field is definitely consistent with the model's recommendation: Most crowdfunding platforms already offer a money-back guarantee if the funding goal is missed (cf. Mollick, 2014).

In summary, based on well-known approaches to equilibrium selection in coordination games, the simplified ThrPG provides a simple, but comparatively accurate prediction of success rates in ThrPGs. In addition this model generates novel findings whose experimental investigation may significantly extend the understanding of ThrPGs and possible coordination games in general.

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MENTAL ACCOUNTING, ACCESS MOTIVES, AND OVERINSURANCE

Markus Fels, Karlsruhe Institute of Technology, Germany
markus.fels@kit.edu

The avoidance of deductibles and the purchase of extended warranties are two types of behavior that have been described as instances of overinsurance.

There is a consensus among economists that extended warranties are exploitative devices. Due to our understanding of insurance as a consumption-smoothing device, warranties cannot produce a significant surplus since people should be approximately risk-neutral with regard to the expenses that warranties insure. Consequently, the observed attractiveness of warranties to consumers and the resulting possibility for firms to reap significant profits from their sale has left economists puzzled. Given the discrepancy between the predictions of standard models and observed behavior, this sort of behavior is typically explained as an instance of mistaken decision-making: either because of loss aversion or because of probability weighting (Rabin, Thaler 2001; Cutler, Zeckhauser, 2004; Michel, 2014). While there is empirical evidence supporting this view, other evidence calls into question whether this can be the whole story. First, it has been observed that customers' willingness-to-pay for warranties is strongly related to the value of the product (Chen et al. 2009, OFT, 2012). Second, despite the high profitability of warranties, their sale is often confined to expensive products (OFT, 2012). Finally, there is evidence suggesting that warranty purchase may vary with income - yet the sign of the variation differs across studies (Padmanabhan, Rao, 1993; Chen et al. 2009; Chu, Chintagunta, 2011). Neither the standard model of insurance nor the behavioral models of mistaken overinsurance are able to explain these empirical patterns.

At the same time, deductibles are an important part of insurance contracts in most insurance markets. The standard economic argument posits that the utility loss from incomplete coverage is negligible as long as consumers retain a ``modest'' amount of risk such that consumers are approximately risk neutral with regard to the stakes created by deductibles. In contrast to this prediction, consumers seem willing to bear significant premium increases in order to decrease or

even fully eliminate the deductible prescribed by an insurance policy. Again, the most popular explanations for this discrepancy are probability weighting and/or loss aversion. While these approaches succeed in predicting an aversion towards deductibles, they fail to explain the observed context sensitivity of this aversion (Barseghyan et al. 2011). Deductible avoidance has been documented in the context of flood insurance (Michel-Kerjan, Kousky, 2010), a market typically associated with probability underweighting, not overweighting. At the same time, Brown and Finkelstein (2007) find no evidence for deductible avoidance in the US market for private long-term care (LTC) insurance. The latter is particularly surprising as deductibles in the LTC insurance market are sizable enough that even standard expected-utility theory predicts more comprehensive insurance to be desirable.

I argue that a part of our models' inability to explain the observed attractiveness of warranties and unattractiveness of deductibles is a result of these models confining the value of insurance to its consumption-smoothing role. That is, part of economists' puzzle with regard to warranty demand and deductible avoidance is due to risk aversion being regarded as the single motive for buying insurance.

Following an idea initially proposed by Nyman (2003) in the context of health insurance, I argue that insurance can be valuable to a risk-neutral individual as it helps to overcome budget constraints. In this way, insurance protects the consumption value of the insured good. This is not the case in the standard view of insurance, in which insurance is a device to mitigate the consumption variation due to the cost of (re-)purchasing the good. I argue that this access motive is relevant for modest stakes such as the expenses insured by warranties or the expense to pay a deductible since there is ample evidence that people have a tendency to perform mental accounting (Thaler, 1990; Heath, Soll, 1996; Thaler, 1999; Hastings, Shapiro, 2012). With this minor modification, the model can explain why there is a significant gap between a risk-neutral customer's willingness-to-pay for the warranty and its actuarial value even if the customer does not misjudge the claim probability. This allows a seller to reap significant monopoly profits from selling warranties. Second, it explains why a customer's valuation for a warranty is related to his valuation of the insured product. Finally, it explains why poorer customers as well as customers that buy the product on promotion are more likely to buy a warranty (Chen et al., 2009) and why warranties are more likely to be sold on expensive products (OFT). Allowing for a deductible, I show that the sign of the variation with income changes with the size of the deductible. This is because a poorer customer may envisage the possibility of not being able to pay the deductible, making the insurance policy effectively worthless. As this risk increases in the size of the deductible, customers can show a strong aversion towards deductibles. Also, it can explain why a negative effect of income on warranty purchase has been observed for warranties insuring electronics that come with no deductible (Chen et al. 2009), while a positive effect or a concave relationship have been observed for extended service contracts for cars that typically involve a deductible (Padmanabhan, Rao, 1993; Chu, Chintagunta, 2011). Investigating the attitudes towards deductibles that the model predicts, I find that deductible avoidance is strongly related to the value of the product. That can explain the evidence on context-dependence of deductible avoidance that has been documented by Barseghyan et al. (2011). Finally, I show that the way in which an insurance pays benefits has a strong effect on both the value and the cost of insurance. In particular, there is a strict order in both value and cost of insurance dependent on whether insurance benefits are paid unconditionally, conditional on a deductible payment, or by reimbursement. This is because insurance benefits are paid in all loss states in the first case. In the second case, they are paid only in the states in which the insuree is able to pay the deductible. In the case of reimbursement, they are paid only in the states in which the insuree is able to advance the money to cover the complete loss. The different valuations dependent on payment style can rationalize why a strong deductible avoidance is observed for flood insurance, where benefits are paid unconditionally (Michel-Kerjan, Kousky, 2010). At the same time, it can explain why there is no evidence for deductible avoidance in the private market for LTC insurance in the US, in which benefits have traditionally been paid by (Brown, Finkelstein, 2007).

USING PREDICTION MARKETS TO ESTIMATE THE REPRODUCIBILITY IN SCIENCE: THE MANY LABS 2 REPLICATIONS

Eskil Forsell*[1], Stockholm School of Economics, Sweden
Anna Dreber*[1], Stockholm School of Economics, Sweden
Thomas Pfeiffer[2], New Zealand Institute for Advanced Study, Auckland, New Zealand
Johan Almenberg,
Brad Wilson, Consensus Point, Nashville, Tennessee, USA
Yiling Chen, School of Engineering and Applied Sciences, Harvard University, Cambridge, MA 02138, USA
Brian A. Nosek, Department of Psychology, University of Virginia, Charlottesville, Virginia 22904, USA
Magnus Johannesson[1], Stockholm School of Economics, Sweden

Ever since the publication of John Ioannidis' paper on "Why most published research findings are false" there has been an increasing interest in how to make more of them true. The use of replications to lessen the problem and help sort out which findings hold up under repeated testing has been successfully used in many bio-medical fields, and is lately being used more and more in some of the social sciences such as for example psychology. This replication trend is an opportunity to investigate how science works in different fields of study. While the most obvious statistic is the rate of replication itself there are others of equal or greater interest.

This paper investigates how well researchers in the field of psychology can judge the replicability of different hypothesis in their field. We use prediction markets to elicit and combine the researchers' beliefs about both whether a hypothesis will be replicated and what the effect size in the replication will be compared to that in the original study. We compare the accuracy of the estimated probabilities and relative effect sizes to aggregated pre-market beliefs reported by the same experts as well as to the outcomes of the actual replications.

Additionally, we use the estimated probability of replication from each market to back out the researchers' assessment of the probability that that the hypothesis is true at different stages in the testing process: before and after the replication has been performed and even before the original study had been performed.

All markets in our study are based on replications from the "Many Labs 2" project within the Open Science Framework. This project will replicate effects from 28 studies in psychological science and uses many labs across the world to asses general replicability as well as variations in effect sizes across different samples and settings.

We have finished data collection from the markets and are waiting for the replication results of the "Many Labs 2" project before we can evaluate all of the results of our study. We are currently awaiting the replication results that should be available shortly.

*Eskil Forsell and Anna Dreber contributed equally to this work.
[1]Department of Economics, Stockholm School of Economics, Box 6501, SE-113 83 Stockholm, Sweden
[2]New Zealand Institute for Advanced Study, Private Bag 102904, North Shore Mail Centre, Auckland 0745, New Zealand

SOCIAL REFERENCE POINTS AND RISK TAKING

Andreas Friedl[1], Kiel Institute for the World Economy
andreas.friedl@ifw-kiel.de
Michael Eichenseer, University of Passau
Ulrich Schmidt, Kiel Institute for the World Economy; University of Kiel; University of Johannesburg

For long, risky decisions where perceived as decisions in isolation. But, even if the decision not directly affects someone else, the presence of someone else can have an effect on the decision by social comparison. The literature on risk and social comparison shows that especially men react to social comparison by increasing their risk choices compared to decisions in isolation. Men are perceived as prone to compete what could explain the increased risk taking often observed. We use an experimental study where subjects take individual risks and compare their outcomes with a peer. We specifically can control for believes about the other peer's outcome

and gender. By changing the correlation structure between outcomes in our treatments we can vary the potential outcome difference between the two peers (Positive correlated: both win or both lose vs negative correlated: one wins the other loses). Women don't react to a social comparison situation by changing their risk attitudes, neither in the positive correlated or in the negative correlation treatment, either when matched with a man or a woman. Contrary, men do react to the partner's gender. Surprisingly, similar to women, men do not change their risk taking when matched with a male peer. Surprisingly, when matched with a woman, they adapt their risk taking to minimize the possible outcome differences between them and their peer. Depending on the treatment, in positive correlated this means they increase their risk choices, in negative correlated they decrease their risk choices, compared to their choice in isolation. We conclude that social comparison does play a role in risky decisions and that special emphasis should be given to the gender of the peer, decision takers compare themselves with.

[1]Corresponding author: Andreas Friedl, Kiel Institute for the World Economy, 24105 Kiel, Germany, Fon: +49 431 8814-608, E-mail mailto:andreas.friedl@ifw‑kiel.de

DECEIVING HOMO ECONOMICUS AT THE SUPERMARKET

Michele Garagnani, University of Cologne, Faculty of Management, Economics and Social Sciences
michele.garagnani2@gmail.com
Andrea Albertazzi, CERGE-EI

This work has the aim to show that if even rational consumer can be deceived by a firm to buy wasteful products then policy intervention is justified, in certain kind of markets, to promote welfare improving situations. With this purpose we develop a senderreceiver model which includes insights from the domain of psychology: the presence of costs in order to fully process information (Dual Process Theory) and the constraint on the elaboration process from which the consumer is affected (Coarse Thinking). As a main result, we find that a bad quality firm can successfully deceive a rational consumer exploiting her optimal behaviour and thus, selling wasteful products. However, we show that this situation can be avoided by policy interventions which promote common and expensive standard of quality and improve the welfare of both the consumer and good quality firms. In addition, we argue that our findings are supported by several examples that represent real market situations.

The activity of deception is part of many aspects of our daily life. Politicians, businessmen, lawyers and firms tend to take advantage of private information whenever it is beneficial, especially because individuals do not have enough skills or time to scrutinise every information they face. Despite the role of deception has been widely studied both in economics and psychology, only in recent years models that try to explain the dynamic of deception have been proposed. In this paper we present a sender-receiver model related to Dewatripont and Tirole (2005) that additionally combines insights from research in economics and psychology. Concerning the economic literature, our framework is largely borrowed from Bilancini and Boncinelli (2014). In this work, the sender delivers a message composed by two parts: a public signal and a hidden information. The public signal is designed to induce the receiver to assign the message to a similar mental category, while the hidden information is useful in assessing the sender's trustworthiness. However, the receiver has to pay a cognitive cost in order to obtain such information. Further, the paper refers to Mullainathan et al. (2006) in assuming that the consumer suffers from "coarse thinking" and so she might be unable to distinguish between objects falling in the same mental category. Moreover, in agreement with a large stream of the marketing literature (Bagwell (2007) among others), we assume a positive correlation between the expected quality of the message and the associated price. The latter, as part of the message, contributes to the formation of consumer's beliefs. Thus, represents an additional variable that the firms can strategically use in order to deceive the consumer.

With regards to the psychological stream of literature, the model employs the Dual Process Theory, elaborated by Evans (2008) among others, in modelling the decision making process of the consumer. Hence, when facing an offer, she can choose between two different cognitive processes in order to take a decision. If the consumer decides to exert a low cognitive effort (Low Cognitive Process - L) her decision is based only on the observed public signal and the beliefs

about the average quality of the category to which the signal refers to. Alternatively, the consumer can "think more" about the offer (High Cognitive Process - H) and disclose the real quality of the firm. This behaviour leads her to accept solely if the quality is good but it can be sustained only bearing a cognitive cost which negatively affects her utility. In this sense, the use of L leads to coarse thinking and to make a choice that is not the best one in each situation but that is good on average, allowing to the consumer to save on cognitive resources and time[1]. On the other hand, the use of H guarantees to take the best decision available but implies to bear a higher elaboration cost that is not always the most valuable choice. We stress that, consistently with the assumptions of rational and Bayesian updater agents, L is not treated as an irrational behaviour but as a lack of knowledge that the consumer is aware of and able to quantify. Thus, she can form expectations and choose the elaboration level in order to maximise her expected utility. In this sense, this way to model is similar to the Rational Inattention of Sims (2003). However, since the firm is aware of the elaboration cost, she can make a strategic use of the information associated with her offer and in some case she can successfully deceive the consumer. We emphasise that the cognitive cost sustained by the consumer when she chooses H, can be alternatively viewed as the time and resources required to collect more information about the offer, e.g., the comparison between different products, gathering information via Internet, think more at previous experiences, etc. Obviously, the deception implies a welfare loss from the consumer side but it can be easily argued that the same also holds for concurrent firms in the role of less profit gained by an unfair competition. We provide several examples of real market situations that our model can describe. Cosmetics, wines, antiques furniture, shops location, craft unions, used cars[2] and the market of organic products can be all represented by our deceptive equilibria. We argue that, in contrast with the prediction made in Spiegler (2006), whenever such deceptive behaviour occurs and cannot be eliminated by market dynamics, then a policy intervention is justified. As a matter of fact we identify the conditions under which the intervention can successfully increase the welfare of both the consumer and the good quality firm while the bad quality one is pulled out of the market.

[1]See Gigerenzer (2008) on the argumentation in favour of the optimality of L in certain situations.
[2]Where we match findings of Akerlof (1970)

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ARE MULTIPLE-CHOICE TESTS GENDER-NEUTRAL?
Javier Gardeazabal, University of the Basque Country, Spain
javier.gardeazabal@ehu.es
María Paz Espinosa, University of the Basque Country, Spain

Evidence from the psychometric literature suggesting that there are sex-related differences in Multiple Choice Tests (MCT) performance. Bolger and Kellaghan (1990) found that males

performed significantly better than females in MCT as compared to free-response examinations. Mazzeo, Schmitt and Bleistein (1990) also report systematic higher MCT scores for males than females. Prieto and Delgado (1999) report mild evidence that sex-related differences might be due to framing of instructions given in the exams. Pekkarinen (2014) reports evidence from University entrance examinations showing that women tend to omit more items and perform worse than men. Baldiga (2014) provides experimental evidence showing that women answer significantly fewer questions than men on MCT and that those who omit tend to do significantly worse. Therefore, MCT with correction for guessing scoring rules could be understood as another instance of gender discrimination against women.

The goal of this paper is to investigate the existence of gender differences in MCT exams. In particular, we study whether there are gender differences in the number of items correctly answered, left unanswered and test scores. In addition, we also investigate the reasons why these gender differences appear in MCT.

There are at least four explanations as of why some people leave items blank even when the expected value from answering those items is positive. The first explanation is risk aversion. Under the most often used formula scoring, a risk averse individual would strictly prefer omitting. Furthermore, sufficiently strong risk aversion could lead to omissions even in the case when the test taker can rule out some of the alternatives as incorrect. Therefore, risk aversion can explain why individuals omit items with a positive expected payoff from answering.

A second feasible explanations as of why individuals may omit items with positive expected payoff is framing of the scoring rule (e.g., Bereby-Meyer et al. 2002). To account for this possibility, we make use of the formula scoring rules proposed by Espinosa and Gardeazabal (2013) which frame the scoring rule either as a penalty for wrong answers or as rewards for omissions, while actually resulting in exactly the same score for any combination of rights, wrongs and omissions. Using these scoring rules allow us to disentangle whether gender differences are due to differential attitudes towards risk or framing.

A third alternative explanation why test takers leave unanswered some items with positive expected score is the influence of directions given before the exam (e.g., Budescu and Bar-Hillel, 1993). Sometimes, test directions instruct students to avoid leaving an item blank whenever they can rule out one or more distractors as incorrect, because in such a case the expected value from answering is positive. To avoid this possibility, the experimental evidence reported below did not use directions in terms of suggesting whether test takers with partial knowledge should omit or guess.

A fourth explanation as of why some test takers leave some items blank has to do with their knowledge assessment. Those whose assessment of their knowledge is very optimistic will tend to answer more items than those whose assessment is more pessimistic. Therefore, an overconfidence subject would answer items that, al else equal, a less overconfidence subject would omit.

We conducted a field experiment at the University of the Basque Country, Spain. Subjects were second year undergraduate students pursuing a bachelors degree in Economics, enrolled for Intermediate Macroeconomics in the Spring of 2005. The students' performance on the course was evaluated using five multiple-choice tests, each accounting for 20% of the total grade. Each exam covered the material in one chapter, except the first exam, which covered the first two shorter chapters. Each exam had ten items and each item had four possible answers, one correct and three incorrect. We used four different scoring rules. All scoring rules are such that, when a student has no idea what the correct answer is, the expected value of answering is equal to the value of omitting the item.

The empirical evidence reported in this paper suggests that there are significant gender differences in the number of omissions, number of correct answers and test scores. On average, women tend to score 0.89 (out of 20) points less than men. As a result, women tend to get, on average, 0.546 (out of 10) fewer right answers and that this difference is statistically significant. Further splitting the sample into different scoring rules using correction for guessing indicates that when we use reward for omissions and modified penalty scoring rules women get 0.544 and 0.937 fewer right answers than men respectively and that these differences are statistically significant. The different performance between men and women appears only when tests are graded with scoring rules using some correction for guessing mechanism, while those tests using the number right scoring rule do not exhibit gender differences in either test scores or number of right answers.

The underlying reason for this result is twofold. On the one hand, when no correction for guessing is applied, students answer all items, either because they know (or think they know) the right answer or simply guess. However, when tests are grades using scoring rules that incorporate a correction for guessing mechanism, some students omit some items. On the other, as the following evidence shows, women tend to omit more items than men. When we pool observations from all scoring rules together, women tend to omit, on average, 0.449 more items than men. On average, women omit 0.219 items more than men when faced with the penalty for wrongs scoring rule, 0.695 more items when the reward for omissions is applied and 0.433 more items when tests are grades with the modified penalty scoring rule.

Regression analysis allows us to check for the significance of the accumulated score from previous tests, which is indirect evidence that the reason for omitting is risk aversion.

BECAUSE OF YOU I DID NOT GIVE UP – HOW PEERS AFFECT PERSEVERANCE

Leonie Gerhards, Aarhus University, Denmark
lgerhards@econ.au.dk
Christina Gravert, University of Gothenburg, Sweden

Both theoretical papers (for instance Kandel and Lazear, 1992) and empirical studies (such as Falk and Ichino, 2006, Mas and Moretti, 2009 and Bandiera et al., 2010) have discussed and documented that individuals are influenced by others working besides them. However, the exact channels through which individuals influence each other are still unexplored. These peer effects could, for example, come from imitation of behavior, learning effects, competitive preferences or the pure joy of working with others. We apply a novel experimental design that allows us to focus on one particular channel of peer effects: the imitation of effort, and in particular the imitation of perseverance of others.

In our controlled laboratory experiment subjects solve anagrams of English words and are paid on a piece rate basis. They have the opportunity to either skip individual anagrams or to switch to anagrams of a lower difficulty level, if they want to avoid working on the harder ones altogether. Both of these avoidance behaviors come at a monetary cost.

In a first step, we compare the subjects' overall performance and amount of avoidance behavior across two treatments. In the Baseline treatment subjects work on the task individually, i.e. the information box on their computer screen only displays information about their own avoidance behavior. In the Random Matching treatment, on the other hand, subjects are randomly assigned the role of "Peers" or "Observers". Peers only know that they are observed by someone and receive information about their own avoidance behavior, just as the subjects from the Baseline treatment. Observers are additionally informed about their randomly matched Peer's concurrent avoidance behavior.

We opted for this experimental design due to several reasons. First, it allows us to rule out the so called "reflection problem" of peers simultaneously influencing each other. Second, it precludes a self-selection into peer groups based on homophilistic preferences, which otherwise causes spurious correlations (Manski, 1993). And finally, instead of informing the Observers about their Peers' (quantitative) performance, a type of information, which can implicitly increase competitive behavior, we inform Observers only about their Peers' avoidance behavior on the task. This performance variable rather reflects the quality than the quantity of the Peer's effort, a factor that, to the best of our knowledge, has also not yet been investigated explicitly in the peer effect literature.

We find that, first, Observers, who are presented with information about their Peers' avoidance behavior, significantly reduce their respective behavior compared to the average subjects from the Baseline treatment. Second, comparing Peers to the Baseline subjects, our results reveal that being looked at by a random Observer has no significant effect on the Peers' avoidance behavior. In a second step we extend the existing peer effect literature by exploring the conscious part of selecting peers and influencing others. More specifically, we look at 1) which personal characteristics can explain a preference for being observed (i.e. self-selection into the Peer's role) rather than observing someone else (i.e. self-selection into the Observer's role) and 2) in case a subject wants to be an Observer, who this person chooses to observe given information about the Peer's previous performance.

As regards the first question, we find that the majority of our subjects prefers to take on the "Peers" role. In the final questionnaire most of those subjects justify their choice with a desire to not get distracted by the information about another participant's performance on the task. However, in the event that they are randomly assigned the role of an Observer and cannot avoid the peer situation, the majority of subjects prefers to being informed about the avoidance behavior of a Peer, who is similarly or only slightly more able than they are themselves. These findings point to the conclusion that the majority of our subjects consciously seeks, if at all, only slight peer pressure in order to improve their own performance in our cognitively demanding task.

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RELATIVE PERFORMANCE FEEDBACK: MERELY EFFECTIVE OR FOR SOME AT DISMAY

William G. Gjedrem, UiS Business School, University of Stavanger, Norway
william.g.gjedrem@uis.no

Information technology has made it easier for firms to evaluate their employees' performance more precisely and use these evaluations to rank colleagues relative to each other. It might be tempting for firms to (uncritically) adapt these modern evaluation tools, believing that it will boost performances to new heights. However, research have yet to establish the full extent of how feedback on relative performance (hereafter also shortened RPF) affects motivation. Understanding this fully is complex, as competing mechanisms are likely to affect employees simultaneously. For example, while competition between employees may induce them to exert higher effort, it may at the same time also make them feel incompetent. One particular worry is that mechanisms "crowd out" employees' intrinsic motivation to work (Frey et al., 1997).

Two behavioral aspects have been considered especially important to how RPF affects motivation; whether employees feel competent or not, and employees' competitive preferences. The former aspect is considered the core feature of intrinsic motivation (Deci et al., 2000), and learning about own performance relative to colleagues provide information that may adjust that persons feeling of own competence. At the same time though, people may have competitive preferences that strengthens from revealing to colleagues how they perform relative to each other. These competitive preferences may arise out of reasons such as joy of outperforming others or a desire for public recognition for their performance. Disentangling these two mechanisms will provide insight to how they differently affect motivation, and enhance our understanding of RPF as a motivational tool.

In this paper I present the results of a lab experiment designed to separately test the effects of these two mechanisms when providing feedback on relative performance. The first treatment, referred to as the competence treatment, provide subjects with RPF in an environment with no competition. Subjects do not learn anything about the performance of any other participant in the session. The feedback subjects receive is instead based on their relative to the performance of participants in the past. As they are compared relative to many others, the feedback should invoke a strong signal about their competence. The second treatment, referred to as the tournament treatment, is designed to maximize the feeling of competition within the session by ranking subjects performance relative to three other participants working simultaneously on the task. In contrast to the former treatment, it provides just a weak and noisy signal about competence. These treatments are compared to a baseline in which subjects only learn about their own absolute performance.

In addition to these three different feedback conditions (first dimension of the experiment), the experiment also vary between fixed pay and performance pay (second dimension). This forms a

2x3 factorial design. Subjects work on a real effort task of solving math questions. Before being provided with any feedback, they are asked to self-assess their own ability to solve the task, in order to establish a measure of their prior self-esteem or reference point. Such measures have been shown important to people's future reactions (Gibbons et al., 1991; Abeler et al., 2011).

The mean performance of subjects increases in both of the RPF treatments when payment is fixed, but only significantly so in the competence treatment. However, when the effects of the treatments are analyzed depending on their self-assessed ability rating, it reveals that there are substantial differences in the effects across them. Subjects with low self-assessment in the competence treatment perform subsequently worse after the provision of performance feedback, but the same does not apply to the equivalent group of subjects in the tournament treatment. Moreover, those with high self-assessment improve performance in both RPF treatments. The improvement is significantly greater in the competence treatment relative to the tournament treatment. In the performance pay dimension of the experiment, no overall treatment effects have been identified. However, I do find large gender differences that cancels out each other.

These findings contributes to the literature by showing that the effects of relative feedback on performance have competing mechanisms, and that behavioral responses depends on which of the mechanisms the work environment facilitates the most. "Crowding out" of intrinsic motivation has long been an issue with the introduction of various types of external interventions (Kluger et al., 1996; Gneezy et al., 2000; Falk et al., 2006). Recent studies have mainly identified improved performance after providing RPF across different pay schemes (Azmat et al., 2012; Charness et al., 2014) and different contexts (Bandiera et al., 2009; Hannan et al., 2013). There are still reasons to be concerned with deteriorating behavior nevertheless, as some studies have not established a link between relative feedback and performance (Eriksson et al., 2009) or identified negative effects (Barankay, 2012). This study highlights the effects of RPF in two separate environments, and show that this leads to different reactions. In particular, it suggests that some people may be dismayed by RPF when it reveals information about their competence, whereas it slightly improve overall motivation when revealed in a competitive setting. Moreover, this is the first paper to highlight that prior self-esteem or reference points seems to play an important role to how people respond to RPF. These findings could point us towards an explanation to what causes the divergence of findings in the literature.

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PERCEPTIONAL LIMITATIONS AND MARKET COMPETITION: AN EXPERIMENT

Andreas Gotfredsen, University of Copenhagen, Denmark
andreas.gotfredsen@econ.ku.dk

Conventional consumer theory asserts that people perfectly perceive the value of all product attributes when valuating and comparing them. For example, when deciding on which smartphone to buy we are perfectly able to valuate and compare multiple technical attributes, different operating and design attributes, etc. However, this may well be a too strong assumption. As Spiegler (2011) hypothesize: consumers may not have enough brainpower to evaluate and compare complicated products. Such limited perceptual capabilities expose consumers to exploitation. For example, Carlin (2009), Gabaix and Laibson (2006), Spiegler (2006) and Piccione and Spiegler (2012) propose models of boundedly rational consumers and show that firms have an incentive to increase the complexity of their goods or pricing structure in an effort to confuse consumers and to dampen competition.

Not much is, however, known about the degree to which people are actually limited in their perception and the associated consequences for their consumption choices and firm behavior. In a series of experiments we explore whether perceptional limitations matter for consumer choice and market outcomes.

To establish the strength and nature of perceptional limitations' effect on individual choice, we elicit the participants' willingness-to-pay for experimental goods of different values and visual complexity using the BDM mechanism. An important feature of the experimental goods we employ is that the visual complexity of the goods can be varied while keeping their value constant. We also use these goods in an experimental market setting to explore the consequences of limited perception on supply and demand. In a posted-offer market, sellers with full information sell to buyers with heterogeneous preferences.

The results of the individual choice experiment show that perceptual limitations do matter for the participants' willingness-to-pay for the experimental goods, as they are less sensitive to the goods' true value when the goods are visually complex rather than simple. Similarly, buyers in the market experiment are more likely to make mistakes or abstain from buying when facing complex rather than simple goods. Finally, we do not find a supply-side effect of good complexity. The prices offered by sellers do not differ between situations with simple and complex goods.

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THE INFLUENCE OF ERROR CULTURE AND TASK-INHERENT LEARNING OPPORTUNITIES ON ERROR REPORTING BEHAVIOR: A LABORATORY EXPERIMENT

Frederik Graff, RWTH Aachen University, Germany
frederik.graff@org.rwth-aachen.de
David Antons, RWTH Aachen University, Germany
Christine Harbring, RWTH Aachen University, Germany
Oliver Salge, RWTH Aachen University, Germany

It is accepted knowledge amongst authors in the field of organizational science that wherever human beings work, errors can and will happen. Therefore, since the 1970s the research focus on errors in organizations has shifted from error prevention towards error management (e.g., Argyris & Schön, 1978; Catino & Patriotta, 2013; Reason, 1997). However, an optimal error management requires successful error detection and avoidance of error cover-up (Hofmann & Frese, 2011). Thus, an open error culture which encourages employees to frankly communicate their errors instead of hiding them is crucial (Walton, 2004). Paradigmatic is the distinction of two extreme forms of error cultures: the Blame Culture and the No Blame culture[1] (Popper & Lipshitz, 2000; Putz, Schilling, Kluge, & Stangenberg, 2013).

In a Blame Culture, it is assumed that errors are basically avoidable, just given the individual effort is sufficiently high. The focus in a Blame Culture, lies on the negative outcomes of an error and neglects its potentials. Principals following a Blame Culture threaten their agents with sanction in case of an error (Bosk, 1979; Pearn, Mulrooney, & Payne, 1998), which simultaneously reduces the agents' willingness to report their errors and makes error cover-up more likely (Edmondson, 1999; Putz et al., 2013).

A No Blame Culture accepts errors as an inevitable part of life and work and manages to see the error and its outcome as two different things, which can be treated differently. Errors should be avoided, but once they happen, it is even more important to stress the chances which lie in it. In a No Blame Culture the focus lies on the potential positive side-effects of an error (e.g. learning, personnel matching) and its thorough analysis (Hofmann & Frese, 2011; Sitkin, 1992).

Extensive research – both theoretical and empirical – has already been done on error management (e.g., Dimitrova, 2014, p. 95; van Dyck, Frese, Baer, & Sonnentag, 2005), error reporting (e.g. Edmondson, 1996; Zhao & Olivera, 2006), and error cultures (e.g. Gold, Gronewold, & Salterio, 2014; Gronewold, Gold, & Salterio, 2013). However, experimental evidence, which can help to understand the causal effects enabling error reporting, is rare. The results of a first lab experiment (Graff, 2014) indicate that culture alone cannot explain the participants' error reporting willingness. Further empirical research suggests that besides an open error culture the task-inherent opportunity to learn from errors directs employees' willingness to report errors at least in a moderating way (e.g. Zhao, 2011 and unpublished work by the authors). Thus, the research question we address is the following: Is it the culture, the learning opportunity or the interaction of both that makes employees to report errors?

We approach this question with a novel experimental design using a demanding, but not unfair, task, and strong culture framing. Additionally, we implement a task-inherent opportunity to learn from errors reported for two of the treatment groups. In a two-round laboratory real effort experiment we disentangle the effects of culture and learning opportunity and may also analyze interaction effects of both. We compare six treatments in a complete 2x3 experimental plan, in which the task either contains a learning opportunity or not, while subjects are framed either on a Blame, No Blame, or Neutral Culture.

In the first round subjects work in groups of four plus one principal on a real effort task. Each group is split into two subgroups of two subjects. Via short codes of conduct and a poster in the laboratory the subjects are framed either on a Blame Culture, a No Blame Culture or a Neutral Culture. The code of conduct for the Blame treatments points out, that errors are not accepted and are harmful to the whole group. The code of conduct for the No Blame treatments stresses the importance of error reporting and – according to treatment group – the related learning opportunity. In the Neutral Culture treatment no code of conduct is presented. Round two is analog to round one, but the cultural framing is more intense. Additionally to the code of conduct and the poster, the subjects get verbal feedback (either laudatory or blaming) by their principal at the end of round two. The feedback is announced at the beginning of round two.

As a real effort task subjects have to complete the Abstract Reasoning part of the MCQ[2] under a piece rate incentive. Here, the members of each subgroup work individually on a sample of tasks taken from a joint task pool. Always two subjects get the same sample of tasks and after a given period of time, the two subgroups change their tasks. In case of an error, subjects are automatically informed and then have to decide whether to report the error to the principal or not to do so. The learning opportunity is implemented by giving the subjects the possibility to mark a wrong answer before handing the task to the other subgroup. Answer marking is only possible in combination with reporting the error. In the No Learning Opportunity treatments the possibility to mark wrong answers is omitted.

Results indicate that it seems to be the opportunity to learn from errors rather than the error friendly culture what makes agents to report their errors. Descriptive results are in line with the hypotheses. Error reporting willingness is highest in the No Blame / Learning group and lowest in the Blame / No Learning group, while there is no difference in the number of correct and wrong answers neither between the groups nor between the rounds. In an OLS regression a main effect of culture (A Blame culture decreases and a No Blame culture increases error reporting willingness significantly compared to a neutral culture.) is found as well as a main effect of learning (The presence of a task-inherent possibility to learn from errors increases the agents' error reporting willingness significantly.).

[1]Terminology is heterogeneous here. Some authors talk about error prevention vs. error management culture/strategy (e.g., van Dyck, Frese, Baer, and Sonnentag, 2005; Hofmann and Frese, 2011), or learning/learning-friendly culture/climate (e.g., Popper and Lipshitz, 2000; Putz, Schilling, Kluge, and Stangenberg, 2013), others about error avers/aversion culture/strategy (e.g., Zhao and Olivera, 2006), error management vs. blame cycle (Reason, 1997), blame-oriented vs. open climate (Gold, Gronewold, and Salterio, 2014), or climate of fear vs. climate of openness (Edmondson, 1996).

[2]The MCQ is he assessment test used for European Union competitions. It consists of different parts testing different aspects of cognitive ability. The Abstract Reasoning test is one part of it.

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ON THE SOURCES OF AGGREGATE INSTABILITY IN TIME PREFERENCES

Hjördis Hardardottir, Department of Economics, Lund University, P.O. Box 7082, S-22007 Lund, Sweden

hjordis.hardardottir@nek.lu.se

In this paper, we look at survey data from the Dutch DNB household survey where time preferences are elicited through a series of questions on subjective, non-monetary, time preferences. We observe that in the aggregate, time preferences are not stable over time. We first show that the instability is only aggregate, not relative, i.e. individuals keep their position in the distribution of time preferences over time despite fluctuation at the aggregate level. Secondly, we illustrate that none of our broad range of socio-economic variables explains instability of time preferences at the individual level, i.e. we do not identify any difference between individuals with stable and individuals with less stable time preferences. Lastly, we note that even when controlling for individual fixed effects, our list of socio-economic variables is only weakly related to changes in time preferences. We further argue that given the non-monetary nature of our time preference measure, changes in economic incentives, e.g. during the business cycle, cannot in a reasonable manner explain the observed fluctuation of aggregate time preferences. We conclude that the observed fluctuation in aggregate time preferences cannot be explained by changes in individual socio-economic situation, instead common factors such as the economic situation are possible movers of time preferences.

In the literature on determinants of preferences, personal experience has been found to play an important role in determining peoples' preferences (Malmendier and Nagel (2011), Bucciol and Zarri (2013), Fisman et al. (2014)). It is therefore motivated to suggest that the aggregate instability that we observe has it sources in some common experience in the population, for example the macroeconomic situation. We study this possibility by including three macroeconomic variables in which changes come with societal changes that substantially affects the social experience of the individual. These variables are income inequality, measured by the Gini coefficient, economic growth and inflation in house prices.

Our dataset covers the years 1998-2012 for a total of about 5800 individual that on average participate in the survey 3 times. We look at three questions that measure inter-temporal attitudes. The first question measures the importance of the present to the respondent. The second question captures the relative importance of the present when compared to the future and the third question captures the respondents' tendency to work on projects with long time horizons. In order to increase variation in the macroeconomic variables, we include the three variables at the province level, using regional data from Statistics Netherlands (CBS). Controlling for year effects as well as our panel of socio-economic variables, we fit our model using ordinal logit with fixed effects.

Our results indicate that income inequality is negatively related to patience for the broad middle class (excluding only the top and bottom 10 % of the income distribution), but less so for the bottom and top 10%, when importance of the present is our measure of time preferences.

Assuming that consumption behavior is related to time preferences and that changes in the Gini coefficient are driven by changes at the top of the income distribution[1], our results are in line with the results of Bertrand and Morse (2013), that consumption of the middle class increases more than the consumption of others when income inequality at the top increases. Hence we show that in addition to status- and supply driven consumption, the channels discussed in Bertrand and Morse (2013), altered time preferences is a possible additional channel through which income inequality affects consumption behavior.

When time preferences are measured as the relative importance of the future to the immediate present, we still find that the broad middle class's patience is negatively related to income inequality while the poor are less affected. However, contrary to above, we find that the rich are even more sensitive to changes in income inequality than the middle class when time preferences are measured as the relative importance of the future to the present. The results for our third measure of time preferences, the tendency to engage in projects with long time horizon does not have as clear cut results as the first two measures.

We find that changes in economic growth are positively related to patience for when the measure of time preferences includes the future, but nonexistent when focusing on the immediate present only. Similarly, we find that inflation in house prices has little or no effect on time preferences, except when we look at the tendency to engage in project with long time horizon where the correlation with patience is positive and fairly evenly distributed across income groups. We conclude that our results are coherent with the view that the macroeconomic situation shapes individual time preferences.

[1]See e.g. Meier and Sprenger (2010) for discussion on the connection between consumption and time preferences. The correlation between the Gini coefficient and the share of the top 10% of the total income is 0.92, indicating a close connection between the two variables.

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INFORMATION QUALITY AND REGIME CHANGE IN THE LAB
Leif Helland, Department of Economics & CESAR, BI Norwegian Business School, Norway
leif.helland@bi.no
Ragnar E. Juelsrud, Department of Economics, BI Norwegian Business School, Norway
Plamen Nenov, Department of Economics, BI Norwegian Business School, Norway

We study experimentally the impact of information quality on coordination in regime change games. A two by two design is employed, in which we manipulate the variance of the players private signal and the type of regime change game. In one type of game benefits are a function of the fundamentals, while costs are constant. In the other type of game the reverse holds true. The two types of games nest a number of regime change situations studied in the literature, such as currency crises, debt rollover crises, bank runs, and political revolt. Equilibria for the discrete, small group setting are calculated, allowing for testing in the laboratory. Experimental results are in line with model predictions. As behavior converges, the effect of information quality on coordination is conditioned on the sensitivies of payoffs in the case of regime change and status quo survival.

HOW FRAMING GUIDES THE DECISION MAKING PROCESS

Adrian Hillenbrand, Bonn Graduate School of Economics; Max Planck Institute for Research on Collective Goods, Germany
adrian.hillenbrand@gmail.com
Susann Fiedler

Framing influences choice. Casual observations as well as numerous studies are in line with that statement. Framing is also a powerful tool which is regularly and intentionally used in political speeches, advertisement and health care or donation campaigns. Changing the perceived context of a situation, simple relabelling of decisions or the description of outcomes as a gain or a loss can have a huge impact on human decision makers. Therefore, a clear understanding of framing effects is of high value.

The frame which is studied most prominently in economics is gain-loss framing. People react differently when facing losses compared to gains. This effect has been introduced to the economic literature in the seminal study by A. Tversky and Kahneman (1981) when comparing choices over lives lost compared to lives saved. Further examples are demonstrated by the fact that people are more risk-loving when facing gains compared to facing losses and the endowment effect (Kahneman, Knetsch, & Thaler, 1990; Kahneman & Tversky, 1984; A. Tversky & Kahneman, 1991).

Importantly, being prone to framing effects (like gain-loss framing) has not only consequences for the decision makers themselves. Often decision maker's choices directly or indirectly impact the well-being of others. Even when decision makers take the outcome for others into account, the extent to which they do is influenced by framing (e.g., Brekke, Konow, & Nyborg, 2012; Dariel, 2013; Engel & Rand, 2014). This might be driven by a different perception of the situation and with that the understanding of "what is the right thing to do". Further, mechanisms could be that decision makers facing losses are more occupied with themselves while decision makers facing gains are more open to "think about others". The first goal of this paper is to see how decision makers' choices about income distributions between themselves and others are influenced in decision situations involving gains versus losses.

For economic theory framing poses a fundamental challenge. When choices are not consistent but influenced by framing, the common revealed preference attempt is potentially misleading. In behavioural economics frames are mainly understood and modelled as a variation in the reference point (A. Tversky & Kahneman, 1981; Amos Tversky & Kahneman, 1986) and as a factor influencing beliefs (Dufwenberg et al. 2011). A general framework is given by Salant and Rubinstein (2008) and Bernheim and Rangel (2007). They among others suggest that economic models should take "ancillary conditions" like frames into account. In Salant and Rubinstein (2008) a frame is described as "[…] observable information, other than the set of feasible alternatives, which is irrelevant in the rational assessment of the alternatives but nonetheless affects behavior". The effects of framing on choice and judgment behavior have been demonstrated in individual and interdependent decision situations various times, but, how framing affects behavior i.e., how the perception of a situation changes (e.g. how a reference point is formed) remains still unclear. This makes predictions challenging. Specifically, observing a decision maker's behavior in one frame does not necessarily translate into similar behavior in a different frame (see e.g. Frackenpohl et al. 2015). So far, economists mainly focus on outcome-based models with choice as the main observational variable. It is recognized that in order to understand decision-making and its influential factors completely this might not be. Multiple processes sometimes lead to the same outcome and thereby mimic the same decision behaviour. When the aim is to develop a theory of framing capable of predicting choices also in different, previously unobserved frames, a clear understanding of the underlying psychological mechanism, i.e. the decision making process is important.

While studying process information is very untypical for an economic study, in the last years the interest in understanding the underlying mechanisms behind choices is increasing (e.g., Krajbich, Oud, & Fehr, 2014). With the advancements in neuroeconomics and psychology, new tools and a better understanding of how to interpret process data such as eye-movements and decision times are available (A Arieli, Ben-Ami, & Rubinstein, 2009; Amos Arieli, Ben-Ami, & Rubinstein, 2011; Armel & Rangel, 2008; Bernheim, Camerer, & Rangel, 2013; Fiedler, Glöckner, & Nicklisch, 2012; Reutskaja, Nagel, Camerer, & Rangel, 2011).

With respect to framing, results from the psychological literature suggest that framing influences attentional processes (Kovach et al., 2014). At the same time, results from neuroscience show that manipulating attention might influence choice (Armel et al., 2008). Taken together, this suggests an under-investigated channel through which framing works: Framing manipulates which information decision makers attend to and this influences the decisions they make. The second goal of this study is to shed light on this connection. For this we observe which information subjects attend to using eye-tracking.

In order to study these questions we conducted a lab experiment. Subjects play multiple mini-dictator games where they decide between an own-outcome maximizing (selfish) option and an other-outcome maximizing (altruistic) option. Decisions are either framed as a gain (GAIN) in one treatment or as a loss (LOSS). We use eye-tracking to record visual fixations of subjects.

We find a clear framing effect. Subjects facing gains choose the altruistic option more often (55%) than subjects facing losses (38%) in cases where their income is above the income of the other subject. This difference disappears in cases where the dictator has a lower income than the other subject. Interestingly, we find a strong difference between frames concerning subject's information search behavior. Subjects in LOSS focus more on their own income compared to subjects in GAIN. This reveals a potential channel through which losses influence choice. Losses to the own outcome seem to draw more attention of the decisionmaker than losses of other people. Put differently, facing losses preoccupies people such that they do not have the will or resources to care about other peoples outcomes. This "attentional bias" might influence how decision makers weight their own income compared to the other person's income and therefore influence choice.

SOFT COMMITMENTS, REMINDERS AND STUDENT OUTCOMES – A FIELD EXPERIMENT IN HIGHER EDUCATION

Oliver Himmler[1], MPI Bonn, Germany
ohimmle@gwdg.de
Robert Jaeckle[2], TH Nuernberg, Germany

A large share of students in higher education leave university without a degree, and those who graduate often take much longer than scheduled. These problems may in part stem from prevalent procrastination issues, and against this backdrop we conducted a field experiment with the incoming cohort of business administration majors at a German university. All students were offered an introductory lesson on how to best organize their studies in order to stay on track for a timely graduation. In addition, our first treatment group received two letters in the mail. The first reminded students to sign up for all scheduled exams. The second reminder came six weeks before the actual exam week, saying that now would be a good time to start studying if they hadn't already done so. The second treatment group were in addition given the opportunity to sign a non-enforceable contract, stating that they would adhere to the recommended exam schedule. This group also received a copy of their signed contract in the mail with the second reminder. After the first semester, we find no effect of the reminders on dropout rates, grades, and exams passed. However, those who were on top offered the soft commitment device earned on average 10% more credit points while at the same time maintaining the same average grades as the control group. The effect is entirely driven by much improved performance in the mathematically challenging exams, where the treatment group was 17% more likely to show up, and subsequently earned 25% more credit points than the controls, without a drop in GPA.

Introduction
A large share of students in higher education leaves university without a degree, and those who do graduate often take much longer than scheduled. In the US, less than 40% of a typical cohort entering 4-year tertiary education institutions attains a bachelor's degree on time. After 5 years, less than 60% have graduated and that number does not change much after 6 years[3]. The OECD reports similar numbers. Dropout rates across 23 countries range from roughly 20% to 50% of a starting cohort, with an overall dropout share of about 30% (OECD 2013). Information on the time to degree is not available from the OECD, but the German Statistical Office reports that among students graduating in 2012 from tertiary education institution, 40% did so within the officially prescribed time to degree, and 77% exceeded the prescribed time by one year at most.[4] In

contrast to the above US statistics, this does not even include students who drop out and never attain a degree at all.

There may be good reasons for exceeding the prescribed time to degree or for dropping out of college. Many students have to juggle jobs and education, or they may wish to spend time abroad or do an internship, all of which may prolong the time to graduation. Some may drop out because they receive a good job offer or more because they have some better outside option. But for many students the exceedingly long times to completion or dropping out are not perfectly rational choices but the outcome of bounded rationality.

In the education context, the issue can present itself in a number of flavors. First, students may not possess the necessary information in order to advance adequately in their studies. This can mean being unaware of what classes to take in which sequence, or a lack of knowledge about how many credit points per semester are needed in order to be on track for graduation. In this case, the problem can be solved by simply providing the needed information. Second and perhaps a bit more interesting, limited attention can hamper academic progress of college students. Limited attention in an education setting can mean that while students in general have the information how to best proceed in their studies, they may simply "forget". Refocusing attention on the investment into studying ant its rewards could then alleviate the problem, for example by way of reminders (Altmann and Traxler 2014, Karlan et al. 2015). Finally, problems of self-regulation can seriously interfere with academic success. More specifically, many students engage in procrastination due to time-inconsistent preferences (see Steel 2007 for an excellent survey on procrastination). At the beginning of the semester students, aspire to excel academically. The benefits of doing so are driving these aspirations, but as the exam period draws nearer the cost of studying becomes more salient and can deter students from following through on their original intentions. Commitment devices which limit the available future choice set are one way of mitigating the problem (Ariely and Wertenbroch 2002, for survays see Bryan et al. 2010, Brocas et al. 2004).

We set out to test the latter two approaches to overcoming bounded rationality in the field at a German institute of higher education. In the context of the multi-billion euro "Qualitätspakt Lehre" (Quality Agreement on Teaching) funded by the German Ministry of Education, the University of Applied Sciences Würzburg was looking for ways to improve the academic performance of their students. Their short-run goal was to increase the passing rates in exams, because ultimately an increase in passing rates would translate into a shorter time to degree and potentially also lower dropout rates. We set up a reminder scheme and also offer a soft commitment devide to the incoming cohort of business administration majors, thereby attempting to contribute to this specific goal.

At the beginning of the semester, all students in our subject pool are offered an introductory lesson on how to best organize their studies in order to stay on track for a timely graduation. We also provided specific information on the suggested curriculum, i.e. which exams to take when, and we stressed the importance of starting to study for the exams on time.

All of this information is publicly available in pamphlets distributed by the university, so our experiment is not about providing any additional information. However, in order to address the problem of limited attention, our first treatment group received two reminder letters in the mail. The first one was sent out in the week before the exam sign-ups took place and reminded students that it is recommended to sign up for all exams that the official curriculum prescribed. A second reminder came six weeks before the actual exam week, urging students that now would be a good time to start studying if they hadn't already done so.

The second treatment group were in addition given the opportunity to sign a non-enforceable contract, stating that they would adhere to the exam schedule that was officially recommended by the university. We made it very clear that signing the contract and not adhering to the schedule would not carry any additional consequences, on top of simply not attaining the credits that are awarded for passing the exams. In other words, we offered a soft commitment device, the effectiveness of which can be driven by psychological costs, in particular a "preference for consistency". Take up of the commitment device was very high, in line with widespread engagement in procrastination, and students not being naïve about the problem. The reminders this group received were almost identical to the reminders that the first treatment group received. The only difference was that these reminders made an explicit reference to the fact that the student had signed the learning contract (if they had done so). In addition, in the mail wit the

second reminder, the group also received a scanned copy of their contract with their signature clearly visible.

After the first semester, we find no effect of the pure reminder treatment on either dropout rates, grades attained, or exams passed. This could be interpreted as tentative evidence that "forgetting" to sign up for exams or to study may not be a problem. However, in line with students exhibiting time-inconsistent preferences and engaging in procrastination, those who were on top offered the soft commitment device earned on average 10% more credit points while at the same time maintaining the same average grades as the control group. The effect is entirely driven by much improved performance in the mathematically challenging exams, where the treatment group was 17% more likely to show up, and subsequently earned 25% more credit points than the controls, without a drop in GPA.

[1]Max Planck Institute for Research on Collective Goods, Kurt-Schumacher-Strasse 10, 53113 Bonn, Germany. Email: himmler@coll.mpg.de
[2]TH Nuernberg, Department of Economics, Bahnhofstrasse 87, 90402 Nuernberg, Germany. Email: robert.jaeckle@th-nuernberg.de
[3]http://nces.ed.gov/programs/digest/d13/tables/dt13_326.10.asp
[4]https://www.destatis.de/DE/PresseService/Presse/Pressemitteilungen/2014/02/PD14_037_213.html

ADAPTATION AND ASYMMETRIES IN THE GDP-SUBJECTIVE WELL-BEING RELATIONSHIP

Matti Hovi, University of Tampere, Finland
matti.hovi@staff.uta.fi
Jani-Petri Laamanen, University of Tampere, Finland

We examine the role of adaptation and loss aversion in the relationship between subjective well-being (SWB) and GDP. Earlier micro-level studies have found that over time, people adapt to changes in their income and also that people are more sensitive to income losses than income gains. These previous micro-level analyses, however, have focused on two specific datasets that limit the scope of the analysis to individuals in Germany and Great Britain. In our macro-level analysis we study these two behavioral treats in a panel of 33 different European countries with the longest time series spanning from 1973 to 2013.

In the recent literature, adaptation to income has been discussed as one of the explanations for Easterlin paradox (see for example Vendrik (2013) and Clark (2015)). Easterlin paradox states that although we find a positive relationship between SWB and income across countries and across individuals within a country, we often do not find such a relationship in the time series dimension (Easterlin 1973). This means that as people and countries grow richer over time their SWB stays constant. Our study is the first to examine both adaptation and loss aversion as the explanation for Easterlin paradox at the macro-level. We conduct our analysis using averages of people's answers to a question about their life satisfaction in a given country in a given year. This way we end up having one observation for each country-year-combination.

Previous empirical literature has presented convincing evidence in favor of adaptation. For example Di Tella et al. (2010) conclude that at the individual level full adaption to income shocks cannot be rejected. Clark (2015) summarizes recent studies on adaptation to income and finds that many of them end up in a similar conclusion of full adaptation to income shocks. One of the shortfalls in this literature is that studies have either focused on adaptation over a very short time period or that studies have implicitly assumed complete adaptation over a longer time period. One of our main contributions is that we allow for the adaptation process to be only partial in the long run instead of forcing it be complete. This means that we allow for permanent shocks in GDP to have permanent effects on satisfaction even after an infinite adaptation process.

As one of the explanations for the Easterlin paradox Easterlin (2013) has proposed that people may react differently to business cycle fluctuations than they do to trend growth of GDP. Following this practice we divide the effect of GDP on SWB to trend and cyclical components and allow for different adaptation parameters for each component. By doing this we are able to test whether people fully adapt to trend growth of GDP. Also our models test the difference in the adaptation to cyclical component and the trend component. According to our results trend growth has no lasting effects on SWB. One of the most interesting results in our study, however, is that the extent

of adaption to cyclical fluctuations is not complete. This means that people never fully adapt to long lasting recessions while the long-term trend growth is fully adapted to and thus cannot produce any changes in the level of life satisfaction over time. Our estimation results show that about 1/3 to 1/2 of the effect of a cyclical shock on SWB is adapted to over time. This less than complete adaptation to cyclical fluctuations in output is in line with the micro-level results that show only partial adaptation to unemployment (see for example Clark et al. 2008).

Our study also shows the importance of loss aversion in the determination of SWB at the macro-level. In the spirit of Kahneman and Tversky the previous studies on SWB show that people react differently to losses and gains at the individual level (see for example Clark et al. (2013) or Di Tella et al. (2010)). We conduct these same analyses at the aggregate level and extend the models of loss aversion to include partial adaptation also. Our results show that there is significant loss aversion and that people adapt to positive changes in GDP but not to negative changes. The result that people suffer more when output falls than they feel better when output rises is consistent with the micro-level findings.

Taken together the empirical findings presented in our study support similar adaptation and loss aversion patterns at the macro-level that previous studies have shown to hold at the micro-level. By decomposing the GDP series into its trend and cyclical components we are able to show that the adaptation to cyclical fluctuations is only partial and that the trend component of GDP has no lasting effects on SWB. We also show that people react differently to losses and gains and that the adaptation to negative changes in output differs from the adaptation to positive changes.

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DISCRIMINATION IN LABOR MARKETS WITH DIRECTED SEARCH

Knut-Eric Joslin, BI Norwegian Business School, Norway
knut-eric.n.joslin@bi.no

This project investigates experimentally a novel mechanism by which discrimination in labor markets can operate. Specifically, we consider a model of the labor market in which workers observe posted wages prior to making applications, and there are two worker types---a ``preferred'' worker type and a ``discriminated'' worker type---and the preferred worker is hired whenever different worker types apply to the same job. Because firms can only hire a single worker, and workers can only make a single application, workers trade off wages and the probability of getting hired. Moreover, because one of the worker types is given priority in hiring, the discriminated worker type will avoid applying to the firms to which the preferred workers apply. This enables some firms to offer low wages, to which only the discriminated types apply, and some firms to offer a higher wage, to which only the preferred worker type applies. Theoretically, we expect the wage to which the discriminated worker types apply to be equal to the expected income of the preferred type. The outcome is a separating equilibrium in which the workers self-segregate into markets offering low and high wages, respectively. The discriminatory hiring priority thus produces a large wage differential between the worker types unrelated to productivity differences. Moreover, in this equilibrium, firms earn higher profits than in the case without

discriminatory hiring. This is because firms can pay the discriminated workers less and, simultaneously, this reduces the demand for the preferred worker type. In contrast to alternative models of discrimination, this outcome is the result of individual profit maximization by the firms and does not depend on market imperfections, imperfect information, or self-fulfilling beliefs.

The reasons for performing a laboratory test of the model are two-fold. Foremost, although the theoretical predictions are clear, they depend, perhaps unrealistically, on firms setting wages that cause the worker types to sort into different markets. A laboratory test provides evidence for whether this effect emerges with real agents. Moreover, to the extent that this discrimination mechanism does or does not operate, it is of behavioral interest to analyze the process by which firms adjust their wage offers and how the search behavior of workers changes over time.

Preliminary results suggest some evidence of the self-segregation effect identified in the theoretical model.

ASYMMETRIC DOMINANCE ANS COMPROMISE EFFECTS AS MANIFESTATIONS OF CHOICE WITHOUT PREFERENCE

Kim Kaivanto, Department of Economics, Lancaster University, Lancaster LA1 4YX, UK
k.kaivanto@lancaster.ac.uk

In choice situations involving no risk or uncertainty about the state of the world, asymmetric dominance effects have been documented for humans, vertebrate and invertebrate animals, and even the unicellular slime mold Physarum polycephalum. This wide-ranging evidence has motivated the development of alternatives to theories of choice axiomatically predicated on the existence of a complete ordering, where outcomes have unique and context-independent decision values. Several different theories of context-dependent choice have been advanced to account for asymmetric dominance effects in humans. Common to these psychological explanations is the notion that choice results from the real-time construction of preferences through relative judgments, instead of merely reflecting a pre-existing and context-independent set of absolute judgments of decision value.

This paper shows that the asymmetric dominance effect (ADE) – as well as the closely related compromise effect (CE) – may be understood as manifestations of incomplete preferences among a subset of subjects. Both the two- and three-option choice tasks are forced-choice tasks. Furthermore, in the trinary task, the dimensional structure of choice options constrains the set of possible rankings, increasing the posterior probability of Target dominating Competitor. A choice bias toward the Target in trinary tasks by subjects with incomplete preferences is therefore consistent with this posterior probability. The empirical magnitude of the ADE/CE effect size is predicted to be moderated by the proportion of subjects with incomplete preferences. This prediction is borne out in experiments where experimental manipulations map to high (and respectively low) propensity for preference incompleteness.

PROMOTING COOPERATION THROUGH STRATEGIC COMPLEMENTARITY

Olli Lappalainen, University of Turku, Finland
oljula@utu.fi

In the games where actions are strategic complements, the change in one player's choice gives the other player incentive to move into same direction. In other words, increased activity level of a player has a positive effect on the marginal payoff of other players, whereas in games with strategic substitutes the opposite is true. This is mind, the technology aggregating individual contributions may be important factor for efficient voluntary contribution of public goods, since in a game with strategic complementarities the best response to a cooperative move by one player is to increase one's own level of cooperation, but in the case of strategic substitutes increased activity level by one individual induces more free-riding by others.

We study experimentally a voluntary contribution game in which returns from the private project have diminishing marginal benefits and the contributions to the joint project exhibit pairwise strategic complementarities. As a control, we use a public good game with a dominating interior equilibrium action and an identical private production technology, but standard linear public good aggregation. In addition to the aggregation technology, we manipulate the group size variable (n=2 vs. n=5). We specify coefficient for the return from the public good in the linear setup and

the degree of complementarity between actions in the game with strategic complements in such manner that the respective payoffs from both the minimal action and the maximal action profiles, and the equilibrium contribution level to the joint project are the same in both settings when the group size is 5.

A significant over-contribution is observed under both technologies when the group size is 5. The rate of over-contribution is much higher under the complementary technology, but as predicted by theory, it drops drastically when the group size is reduced. Since the larger group size induces more cooperative behavior also in the control treatment, our experiment provides empirical evidence that the group size effect familiar from linear public good experiments is also present in a public good game with an interior equilibrium.

Given the specification of the payoff function in the game with strategic complements, the results can be utilized as a baseline study for the empirical research investigating the connection between Bonacich centrality and Nash equilibria in networks.

THE POLITICAL ECONOMY OF UNIVERSITY TUITION FEES: INFORMATION PROVISION AND INCOME CONTINGENCY IN A REPRESENTATIVE SURVEY EXPERIMENT

Philipp Lergetporer, Ifo Institute for Economic Research and CESifo, Germany
lergetporer@ifo.de
Ludger Wößmann, University of Munich, Ifo Institute for Economic Research and CESifo, Germany

Over the past decades, empirical research has produced many insights on how altered education policies could improve student outcomes. Political actors, however, are often reluctant to implement reforms suggested by high-quality research. While the reasons for the discrepancy between political awareness and political action are manifold and often issue-specific, the interplay between political forces and public opinion – the "political economy" of education policy – may be key for the implementation of education policies. A case in point is the introduction of tuition fees in Germany. After the German Constitutional Court abolished the ban of tuition fees in 2005, seven out of sixteen German states introduced tuition fees at a level of 1000 Euro per year (see, for instance, Dwenger et al. (2012) for a short historical account). These fees, however, were removed shortly afterwards in each state due to massive student protests and citizens' initiatives. In Bavaria, for instance, tuition fees were abandoned due to a referendum against tuition fees which was signed by more than 1.3 million voters (that is, 14 percent of the Bavarian electorate).

Motivated by theories which argue that the public's knowledge about the consequences of a proposed policy is decisive for its implementation (see Romer, 2003), this paper systematically investigate whether and how the public opinion on tuition fees can be shaped by information provision. We present evidence from a new opinion poll on education policy with more than 4000 respondents in Germany who are representative for the German population over the age of eighteen. We implemented a survey-experiment and randomly assigned each respondent to one of four treatments: In the baseline-treatment, we elicited preferences towards tuition fees without any further information. In treatment "Public Expenditure", the respondents were informed that, on average, the government spends €8,600 per university student each year before eliciting their preference for tuition fees. In treatment "Academic Background", we informed our participants about the university enrollment rates of individuals with academic parental background (75%) and without (25%). Finally, participants who were assigned to treatment "Earnings" were informed that university graduates earn about 40 percent more each year after graduation than persons with vocational degrees. After the main survey experiment, all participants were asked about their opinion on income-contingent tuition fees which have to be paid back after graduation and only if the graduate's income exceeds a certain threshold.

Figure 1 and Table 1 depict our main results: In the baseline-treatment, 45.7% oppose tuition fees while 40% favor them (the remainder of 14.3% is indifferent). This result is surprising since it indicates that the political pressure which led to the abolition of tuition fees was not exerted by the vast majority of Germans but was rather induced by well-organized interest groups. Further analyses show that current students and individuals with a university entrance diploma are significantly less likely to favor tuition fees.

Figure 1: Public preferences for tuition fees
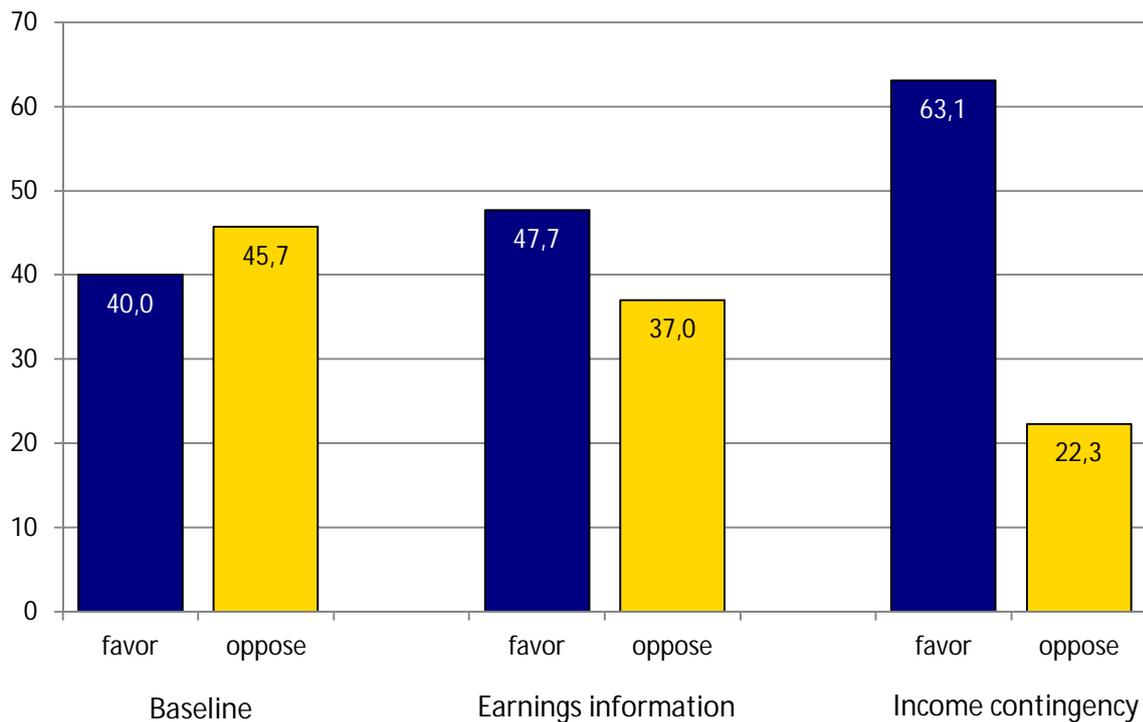
Notes: "favor" reports the share of respondents that either "completely favor" or "somewhat favor" tuition fees. "oppose" reports the share of respondents that either "somewhat oppose" or "completely oppose" tuition fees. The remainder of respondents "neither favor nor oppose" tuition fees.

Wording of question: *Baseline [Earnings]*: [University graduates earn about 40 percent more each year than persons with vocational degrees.] Do you favor or oppose that students at German universities or universities of applied sciences cover a part of the costs of their studies themselves via tuition fees? *Income contingency:* Other countries have tuition fees in place which are due after graduation, when the former students receive income. The fees only have to be paid if their annual income exceeds a certain threshold. Do you favor or oppose that students at German universities or universities of applied sciences cover a part of the costs of their studies themselves via these tuition fees?

Data source: Ifo Education Barometer 2014.

While treatments "Academic Background" and "Public Expenditure" do not alter re-sponses, we find a significant effect of treatment "Earnings": The plurality of respondents favors tuition fees after being informed about the positive effect of a university degree on individual earnings. Thus, the public opinion towards tuition fees is malleable: A plurality against tuition fees turns into a plurality in favor of it due to information on the earnings-differential between university graduates and persons with a vocational degree.

Table 1: Effects of information treatments on public preferences for tuition fees

	Support for tuition fees		Opposition against tuition fees	
	(1)	(2)	(3)	(4)
Salary	0.077***	0.080***	-0.087***	-0.091***
	(0.024)	(0.024)	(0.024)	(0.024)
Academic Background	-0.029	-0.021	0.034	0.025
	(0.023)	(0.023)	(0.024)	(0.024)
Costs	0.026	0.029	-0.003	-0.006
	(0.024)	(0.024)	(0.024)	(0.024)
Control mean	0.400	0.400	0.457	0.457
Covariates?	No	Yes	No	Yes
Observations	4,210	4,055	4,210	4,055
R-squared	0.006	0.048	0.008	0.072

Note. Robust standard errors in parentheses. Data source: Ifo Education Barometer 2014.
Dependent variable…
… in regressions (1) and (2): Dummy-variables (1=strongly favor or somewhat favor tuition fees, 0 else).
… in regressions (3) and (4): Dummy-variables (1=strongly oppose or somewhat oppose tuition fees, 0 else).
Controls for covariates include age, monthly income, patience, altruism and dummies for gender, university entrance diploma, university degree, university student status, living with partner in household, born in Germany, parents' university degree, parent status, full-time employment, part-time employment, other employment and state (Land) of residence. The row "Control mean" reports the mean of the outcome variable for the control group.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Income-contingent tuition fees find even broader support in the German population: The overwhelming majority (63.1%) favors this type of tuition fees, independent of the in-formation provided in the main survey experiment.

We conclude that (i) in contrast to the public perception, the abolition of tuition fees is not supported by the majority of the German population, (ii) preferences towards tuition fees are malleable insofar as informing respondents about the earnings differential be-tween university graduates and persons with vocational degrees turns the plurality op-posing tuition fees into a plurality in support of tuition fees and (iii) income-contingent tuition fees would find broad support in the German population.

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COOPERATION IN DIVIDED SOCIETIES

Andrea Martinangeli[1], Department of Economics, University of Gothenburg, Sweden
andrea.martinangeli@economics.gu.se
Peter Martinsson[2], Department of Economics, University of Gothenburg, Sweden

People typically belong to many different groups - from colleagues at work to neighbors. Field evidence suggests that the same individual might behave differently in different groups; for example she can be cooperative in one group but free-rider in another. Among the many dimensions dividing societies, that of differences in economic status (income or wealth) has been the focus of intense research. Objective of this paper is therefore to investigate how cooperation is affected by income inequality and membership in two independent and differently unequal groups.

We explore this via a linear public goods laboratory experiment, which avoids us the identification problems ubiquitous in naturally occurring data. Subjects are randomly allocated to societies of 9 people, where each subject is randomly located in one of the nine cells in a matrix (our society) with three rows and three columns. Each subject is then a member of two groups, each consisting

of 3 members including themselves. One group consists of all subjects located on the same row while the other of all people located on the same column.

To run our tests we used two different treatments. In the first, all nine subjects in a society received the same endowment. In the second, 3 subjects received a higher endowment than the other 6. For comparability, we kept the total endowment equal in both societies. In the unequal society, the three rich individuals were spatially located in a column so they had 2 rich subjects in one (homogeneous-high) group, while they had two poor subjects in the other (mixed) group. Similarly, the poor subjects were matched with 2 poor subjects in one (homogeneous-low) group, and with one rich and one poor in one (mixed) group. In the 20 period public goods experiment, we had 12 unequal and 9 equal societies.

Preliminary results show greater cooperation in equal than in unequal societies. In the unequal society, richer subjects tend to contribute smaller proportions of their endowment to the mixed group public good, consistently with previous literature. Conversely, we observe rich subjects contributing greater proportions of their endowment to their homogeneous-high group than the poor are contributing to their homogeneous-low group. Therefore, rich subjects are observed behaving more pro-socially towards their ingroup than the poor to theirs. A closer look reveals a fundamental difference between how each type contributes to the two groups: while the rich contribute more to the homogeneous-high group than to the mixed, the poor display no difference in their contribution to the mixed and homogeneous-low groups. Noticeably, while we observe the standard decreasing cooperation in the mixed and in the homogeneous-low groups, cooperation increases over time in the high-endowment groups. In the paper we discuss policy and public good provision efficiency implications of our findings.

[1] Andrea Martinangeli, Department of Economics, University of Gothenburg, Box 640, 405 30 Gothenburg, Sweden; e-mail: Andrea.Martinangeli@economics.gu.se; Ph +46 31 786 52 49.
[2] Peter Martinsson, Department of Economics, University of Gothenburg, Box 640, 405 30 Gothenburg, Sweden; e-mail: Peter.Martinsson@economics.gu.se; Ph +46 31 786 52 55.

TESTING SUBLIMINAL INFLUENCE ON GENEROSITY

Topi Miettinen, Hanken School of Economics, Finland
topi.miettinen@hanken.fi
Ola Andersson
Kaisa Hytönen
Magnus Johannesson
Ute Stephan

We experimentally vary a subliminal prime prior to charity donation decisions. The primes are words shown to subjects for a very short duration (17 ms), i.e. below the duration needed to reach conscious awareness. There are two alternative primes: one with connotations with pro-social values (universalism) and another prime without any particular value-laden connotations (neutral). For our first Hypothesis, that the universalism prime increases overall donations, we cannot reject the null Hypothesis of no difference. For our second Hypothesis, that the universalism prime increases donations among subjects with strong universalism preferences, we find support. For subjects above the median level of universalism, as measured one week before the priming experiment, donations is about 10-17 percent higher with the universalism prime. This interaction effect between universalism and priming is consistent with psychological priming theories and a recent study on supraliminal priming and team contest contributions. A similar effect is also found in our data when interacting the universalism prime with the personality characteristic of agreeableness (BigFive). In a test for "sublimity" some subjects recognize some of the prime words, and the results are mixed when controlling for the capacity to recognize the prime words. In summary, our results suggest that subliminal prosocial priming increases donations among individuals with high levels of prosociality, but further work is needed to confirm this result.

HROOT: HAMBURG REGISTRATION AND ORGANIZATION ONLINE TOOL[1]

Andreas Nicklisch[2], University of Hamburg, School of Economics and Social Sciences, Germany
andreas.nicklisch@wiso.uni-hamburg.de
Olaf Bock, University of Hamburg, School of Economics and Social Sciences, Germany
Ingmar Baetge, Software Developer, Stuttgart, Germany

hroot (Hamburg Registration and Organization Online Tool) is a web-based software designed for managing participants of economic experiments. This package provides important features to assure a randomized invitation process based on a filtered, pre-specified subject pool, and a complete documentation of the selection procedure for potential participants of an experiment.

1.Introduction

The success of the experimental method in economics in recent years is astonishing. The number of articles related to economic experiments has been increasing exponentially: comparing the number of articles reporting experimental results in nine leading economics journals, a 75% increase in the years 2006-2010 compared to 2001-2005 has been reported (Noussair, 2011). Important components for the progress of the experimental method are advances in computerization (e.g., the software package z-Tree, Fischbacher, 2007, or the recruitment software package ORSEE, Greiner, 2004). With the current software package hroot, we continue this track facilitating the organization and administration of experiments in economics.

hroot is a continuing online development project initiated at the University of Hamburg in 2011. hroot (except customized solutions) can be licensed free of charge. However, when reporting results of experiments organized with hroot, the license requires citing hroot's use in the publication. The license is available upon request at the University of Hamburg.

During the last decade, the software requirements for the recruitment and the administration of economic experiments have become more demanding. One crucial dimension is the development of social online networks which facilitate the spread of information on experiments constantly and at any given time (e.g., via web-enabled mobile phones). hroot responds to this challenge by introducing new precautions regarding the recruitment and randomization of participants. On the other hand, economic and other social science laboratories need efficient and transparent procedures concerning the sampling for experiments with large numbers of participants to meet the scientific standards of highly ranked (economic) journals. Again, hroot reflects these requirements by introducing special features for the documentation of the entire experimental process. Moreover, hroot allows the replacement of previous software solutions in a well-documented migration process.

2.Technical features

2.1Development environment

hroot is implemented in Ruby using the web framework Ruby on Rails. To improve user experience and browser interoperability, many front end features are implemented using jQuery and Ajax components. Mysql databases can be used for data storage. To ensure software quality, the project was organized as an agile software development process, borrowing elements from the Scrum development method, such as focus on user stories with estimation, short development cycles and test-driven development as well as test coverage measurement.

2.2How to get hroot

We use the open source software platform github for development enabling the joint collaboration with other institutions on hroot. The software can be downloaded via github. The platform also serves as a distribution channel for the latest features, as well as a tracker for customized hroot installations, so that the improvements of individual users are quickly available to all other licensees. On githup you find a wiki with a de-tailed installation guide and an opportunity for bug reports. Registration at github is free of charge. We provide access for the hroot project on githup as soon as possible, also for non-licensees sending us a short notification.

3.User features

3.1User hierarchy

The hroot system works with three groups of users: administrator, experimenter, and participant. All are listed in the Menu "User". By filtering for "role", hroot provides member-lists of each of

these groups separately. User-rights are continually manageable: administrators can access and edit every bit of data in the system; participants are restricted in their access to the system and can manage bits of their own data only, while experimenters are endowed with rights that might be appropriate for a specific experimental and laboratory environment. All users enter the system via personalized secure login. The design of the login page can be adapted via templates to seamlessly integrate visually with other websites, as most laboratories already have a web infrastructure (see Figure 1).

3.2 Administrator

An administrator has full access to all the features provided by hroot (that is, administrators can edit all features which are described subsequently for other user groups, too). They can set up and edit experiments, send invitations and reminders, edit users, manage the laboratory calendar, change the default settings of hroot and add new set-tings, including email templates, experiment parameters, a message history, and data export. In the following, we describe only a small sample of hroot's features.
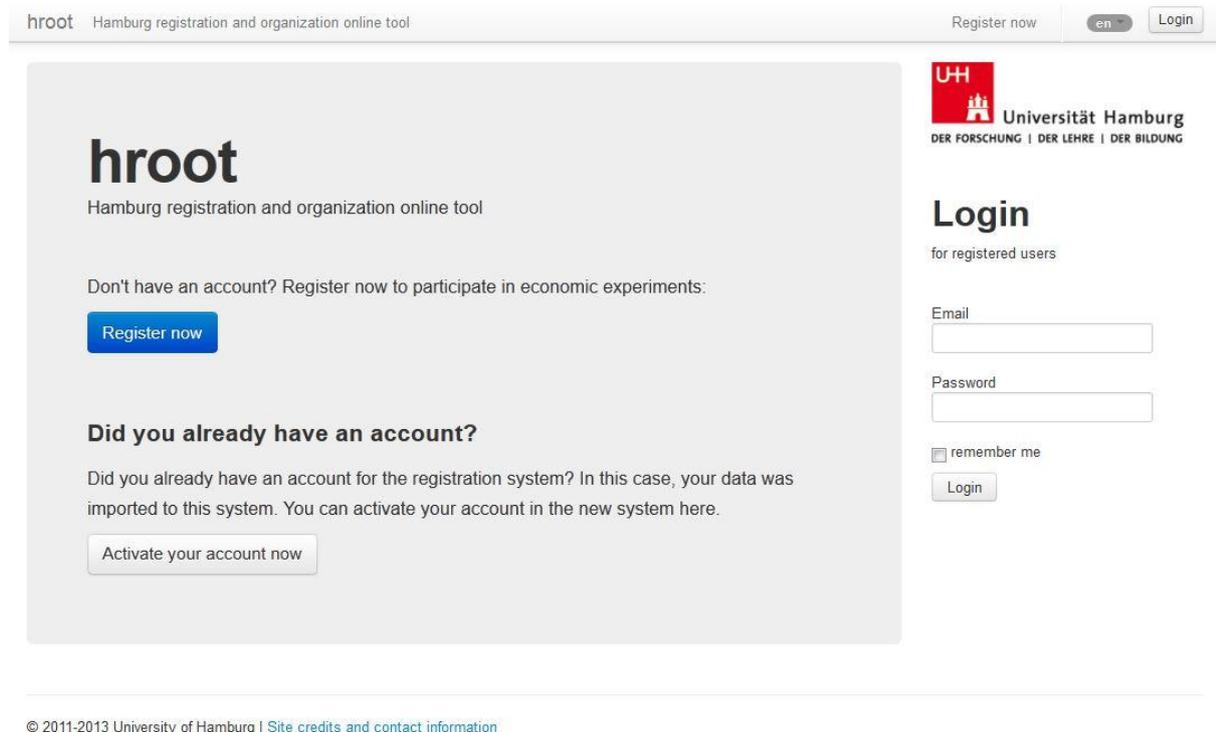
Fig. 1: Login page

Setting up an experiment

For registering a new experiment, administrators have to provide some basic details of the experiment, such as name, category tags (e.g. "Public Good"), short description, and contact information regarding the experimenter (which will all not be shown publicly). When editing sessions of an experiment, hroot supports session groups – experimenters can invite subjects to multiple sessions allowing for experiment designs with follow-up sessions. Session groups can also be used to randomize subjects to one of multiple sessions.

Assigning pool members

Potential participants are assigned to an experiment or even specific sessions. Here, one can select all pool members or filter the pool by a set of criteria, which is provided by a generic tag system. To ensure the replicability of experiments, hroot documents the entire filtering procedure of potential participants. For this purpose, a detailed documentation of the "history of participant assignment" is provided (see Figure 2). The feature reports for each experiment how participants were selected by using hroot's filters. Every step of filtering can thus be analyzed in detail at any time, especially after the experimental sessions have taken place. Participants' accounts which

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have been deactivated by administrators are inactively stored in the system so that their activities are still documented in the system.[3]

Fig. 2: Filter documentation

Initiating invitations
The registration for an experiment has to be actively initiated by an administrator or an experimenter with appropriate rights. To protect against the formation of 'quick-response' groups, hroot offers a multi-stage randomization of the invitations sent out to the subject pool. As contemporary mailing systems send out emails in packages, hroot allows for the active control of this packaging. That is, the assignment of an email address to a certain package is random (by default – however, the program allows to specify alternative packaging to invite specific subgroups first), while the size of the packages and length of the dispatch period can be controlled in hroot. The delivery of invitations can be stopped at any time by the administrators, and in addition, hroot stops inviting pool members via email as soon as the sessions of an experiment are filled. Text templates and default text blocks facilitate the invitation process.

Limited email format
To reduce the risk of multiple registrations of a single participant in the system, hroot offers the option to limit the self-registration of participants to certain email domains (e.g., only email addresses with the ending "@uni-hamburg.de" are accepted). If those domains issue one unique email per user (as many universities do), this restriction reduces the risk of multiple participations of a single person considerably. Nonetheless, administrators can create new hroot accounts without any limitations to domain specific email addresses. To check for duplicates on a day to day basis, hroot provides the feature "Duplicate accounts", which compares names and email addresses in the complete data base, and reports duplicates.

3.3 Experimenter
A dashboard provides a customized quick and easy access-point to various features of the system. Past, current and future experiments are listed in chronological order. hroot provides a strictly internal laboratory calendar only accessible for experimenters and administrators – this decreases the risk of clique formation since the least amount of information concerning the relation between experiments and sessions is made public. The calendar contains a detailed overview of all experiments and their sessions for a given experimenter and of all experiments for the administrator. It can be integrated into other calendars via ICS-link.
All selection criteria and processes concerning the actual sampling of potential participants are fully documented. An upload/download system allows the storage of data files, instructions, and

experimental programs for every session, facilitating the collabo-ration on data files, instructions, and others.

3.4 Participant
Each participant has to use a personal password to access his or her account. Sessions for which the pool member has already registered are also shown providing a quick overview and reminder at any time to participants logging-in to their account. Personal information like phone number and alternative email addresses are shown; participants may change them – except fundamental data like name, gender and birthday.

4. Summary
We hope that hroot will be an important component enhancing substantially the quality of experimental research in the realm of social sciences and especially experimental economics. The system combines all the main tools to systematically manage subject-pools and to schedule experiments. It provides the documentation of the complete invitation and participation process, and implements a controlled process for the randomized selection of participants. A constant and ongoing development of hroot is initiated and guided by the WiSo Experimental Laboratory at the University of Hamburg.

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[2]Corresponding author: School of Economics and Social Science, University of Hamburg, Von-Melle-Park 5, 20146 Hamburg, Germany, email: andreas.nicklisch@wiso.uni-hamburg.de
[3]Administrators may delete actively the complete data set of an inactive pool member if data protection regulations require them to do so.

WINNERS DON'T PUNISH – THEY REWARD![1]
Andreas Nicklisch[2], University of Hamburg, School of Economics and Social Sciences, Germany
andreas.nicklisch@wiso.uni-hamburg.de
Alexander Cappelen[3], Norwegian School of Economics, Department of Economics, Norway
Bertil Tungodden[4], Norwegian School of Economics, Department of Economics, Norway

Voluntary cooperation is a key asset for human societies (Nowak, 2006). However, if there is a mismatch between what is best for the individual and the what is the best for the group, cooperation is fragile and its sustainability requires the coexistence of sanctioning mechanisms for non-cooperative behavior. Contemporary research in social sciences pays a lot of attention to costly punishment (Ostrom et al., 1992, Fehr & Gächter, 2000, 2002, Gürerk et al., 2006, Sutter et al., 2010, Chaudhuri, 2011, Markussen et al., 2014). That is, punishers bear costs to decrease the payoff of other group members. Yet here comes the puzzle: punishing others decreases the

sum of payoffs for groups (Gächter et al., 2008), while those group members with the highest payoffs do not punish (Dreber et al., 2008). In other words, winners don't punish. However, if enforcers of cooperation are systematically disadvantaged against non-enforcer within and across groups, how can cooperation enforcement be sustained? The answer is that there is a better measure for norm enforcement within this context. We conduct laboratory experiments showing that costly rewards have desirable properties for cooperation enforcement. Rewarding other group members increases both cooperation rates and average payoff of groups (Sefton et al., 2007, Rand et al., 2010), while the financial burden of costly norm-enforcement is shared among cooperators and non-cooperators. Thus, there is no systematic influence between rewarding group members and their payoff raking within groups. That is to say: winners reward.

[2]University of Hamburg, School of Business, Economics and Social Science, von-Melle-Park 5, 20146 Hamburg, Germany, & German Science Foundation Research Unit "Need Based Justice and Distributive Procedures", email: andreas.nicklisch@wiso.uni-hamburg.de
[3]Norwegian School of Economics, Department of Economics, Helleveien 30, 5045, Bergen, Norway, email: alexander.cappelen@nhh.no
[4]Norwegian School of Economics, Department of Economics, Helleveien 30, 5045, Bergen, Norway, email: bertil.tungodden@nhh.no

WHISTLE-BLOWING AND DIFFUSION OF RESPONSIBILITY, AN EXPERIMENT BASED ON THE ULTIMATUM GAME

Kohei Nitta, University of Erlangen-Nuremberg, Germany
kohei.nitta@fau.de
L.C.Y Choo
V. Grimm
G. Horvath

Whistle-blowing is often characterized by the public disclosure of private information by individuals who are benefited from such asymmetric information, even when the gains from doing so are less obvious. Despite its centrality to the general regulation of economic activities (e.g., the Dodd-Frank Wall-street Reform and Consumer Protection Act), there is still large ambiguity as to the determinants of whistleblowing behaviors.

In this study, we investigate what factors lead to such disclosures by using laboratory experiment. Particularly, we elaborate on the "Diffusion of Responsibility" (DOR) hypothesis in the whistle-blowing framework: Individuals are less likely to blow a whistle when they are aware that other individuals can also blow a whistle. In most cases, the person who discloses the information is not the only individual who can access to and reveal the information. Nevertheless, it occurs by the solo effort, not group-wise. Our hypothesis reflects such a background.

To accomplish this, our experiment utilizes the multi-person Ultimatum game with asymmetric information, where our treatments are only differentiated by the number of subjects who can disclose private information. Detailed experimental design is as follow. There are two 3-member groups (named Team-A and Team-B) in Multi-person Ultimatum game, where each group has asymmetric information between two groups. The proposer who belongs to Team-A is to share a pot of money between two groups where Team-A members are aware of the amount of money and the distribution, while Team-B members know the distribution only. The members of Team-A can decide to share the information with Team-B. If such an information sharing occurs, the proposer has the possibility to revise the suggested allocation of money. The both group members except the proposer vote about the original proposal if there is no whistleblowing or about the new proposal if there is. We consider two treatments. TwoWB treatment allows two subjects in Team-A to reveal the privileged information, while OneWB treatment allows only one subject in Team-A to do so. Comparing with the two treatments which differ in the number of disclosers, we test the diffusion of responsibility hypothesis.

Our experimental results show: 1) On Proposer's and Team-B Members' behaviors, there is no treatment effects. 2) On Team-A Members' behavior, although there is no treatment effect on their acceptant decisions, subjects in OneWB describe higher propensity of disclosing their private information than ones in TwoWB. In other words, our results suggest that as the number

of potential whistleblowers increases, the likelihood of each individual to blow a whistle decreases, a phenomenon that is consistent with the DOR hypothesis.

LEARNING AND LOSS AVERSION: EVIDENCE FROM A FINANCIAL BETTING MARKET

Tomás Ó Briain[1], University of Edinburgh, United Kingdom
tomas.obriain@ed.ac.uk

Odean (1998) provides evidence that investors readily realise paper gains by selling their winning stocks, yet hold on to their losing stocks too long. This loss aversion is consisted with Kahneman and Tversky (1979) prospect theory, however, would an investor behave this way if he or she were subjected to strong reinforcement? How long would the investor hold on to a stock that is losing value on a day-to-day basis? Conversely, would an investor rush to sell a stock that has yielded positive returns in each month during the past year? We test the interaction between learning and loss aversion in a financial betting experiment. Our two treatment groups are subjected to consecutive gains or losses. We find that reinforcement learning may mitigate the disposition effect in this setting.

1.Motivation

Empirical research in the area of behavioural economics and finance has brought normative predictions from Utility Theory into question. In particular, the observed behaviour in the winning and losing domains of economic decisions has received continued attention in the literature. This anomaly was coined the reflection effect by Kahneman and Tversky (1979) and was outlined as part of their Prospect Theory framework. In empirical research, a number of reasons have been suggested for winning investments being sold more readily than losers, for example: differences in utility functions in the domain of gains and losses, belief in mean reversion, portfolio re-balancing and avoidance of higher transaction costs on losing stocks. Kahneman and Tversky (1979) proposed a framework based on gains and losses, where a decision weight is applied to each probability and a value weight applied to each outcome in the expected utility function. They suggest that agents are risk-seeking in the loss domain and risk averse in the domain of gains relative to a reference point. However, Thaler and Johnson (1990) analysed decision making in the presence of prior outcomes, concluding that there was risk seeking in the presence of a prior gain, risk aversion in the domain of losses, but a particular attraction in the losing domain for break-even prospects.

This loss aversion component evident in the shape of the prospect theory curve has motivated empirical and experimental research on investor behaviour. Shefrin and Statman (1985) show that investors book gains too early and hold on to losses too long coining the phrase the disposition effect. Odean (1998) tested for the existence of the disposition effect, using a stocks purchase prices as the reference point, and conclude that investors exhibit behaviour consistent with Shefrin and Statman (1985), even when controlling for other behavioural explanations such as mean reversion, portfolio re-balancing and optimal tax strategies. Central to the explanation for the existence of this bias in Shefrin and Statman (1985) are the reference-point effects described in Kahneman and Tversky (1979) and the concept of mental accounting outlined in Thaler (1985).

While Prospect Theory has been successful addressing some of the empirical regularities that are inconsistent with the Expected Utility Theory, it still leaves many questions unanswered. In particular, how should investors apply Prospect Theory following prior gains/losses (Thaler & Johnson, 1990)? Do they adapt to prior gains/losses or see them as part of the next investment? How does their learning behaviour impact their risk preferences? Odean (1998) provides evidence that investors more readily realise paper gains by selling their winning stocks, but hang on to their losing stocks longer. This is consistent with loss aversion, which is a prediction of Prospect Theory. However, would an investor behave the same way if he or she were subjected to strong reinforcement? For example, how long would the investor hold on to a stock that is day-by-day losing value? Conversely, would an investor rush to sell a stock that has yielded positive returns in each month during the past year?

Reinforcement learning theory, or the law of effect, dictates that agents will repeat behaviour that has been associated with positive feedback and avoid behaviour that has resulted in negative feedback. It dictates that agents should stick to given choices as long as they generate rewards, otherwise they should switch (Roth and Erev, 1995). Rational learning incorporates both private signals and public information, updating beliefs about payoffs accordingly. For example, Bayesian learning refers to weighing both experienced and observed outcomes equally, whereas reinforcement learning over-weighs experienced outcomes. In contrast with a pure stay/switch reinforcement model, Bayesian belief-learners rationally learn from experience (Camerer and Ho, 1999).

This study contributes to our understanding of decision making under risk. In a pilot experiment, we find some support for the hypothesis that subjects exposed to a reinforcement-learning treatment are more prone to exhibiting behaviour consistent with loss aversion than our control group. We endowed subjects with £25, presented them with a trading interface and asked them to make a series of bets. The trading interface contained a financial chart with an underlying time-series generated by a random-number generator. All bets were fair and there was no commission, margin or overround. They were faced with a decision node after the second and subsequent bets at which point they could decide to stop betting and be paid their earnings to date, or continue betting with a chance of losing or winning more.

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[1]Correspondence: Tomas O Briain, Room 323, University of Edinburgh Business School, 29 Buccleuch Place, Edinburgh, UK. EH8 9JS. Email: tomas.obriain@ed.ac.uk

ABSTRACT

Anna Pauls, University of Oslo, Norway
anna.pauls@econ.uio.no

Given the uncertainties involved with what consumption good constitutes the more environmentally friendly option, willful ignorance as found by Dana, Weber and Kuang (2007) would be an important hindrance for environmentally friendly consumer behavior. In our lab experiment conducted at University of Oslo in spring 2015, we use the set-up by Dana, Weber and Kuang (2015) to test willful ignorance in the context of environmentally friendly behavior.
We find that the result of Dana, Weber and Kuang (2007) and replications thereof that the option to remain ignorant about the consequences of one's choice for the recipient decreases prosocial behavior does not hold when the recipient is an organization engaging in carbon offset in poor countries instead of another participant. Total ignorance is also much lower than in their results. However, those choosing the selfish option prefer to remain ignorant when given the possibility, suggesting that they suffer from cognitive dissonance.
We interpret this result in the sense that when the decision is considered more important and less arbitrary than sharing with another participant, ignorance is less used as an excuse, at least in our Norwegian sample.
We also test the impact of social interaction with a "messenger", who can give the dictator information on the consequences of the dictator's actions. When this possibility of getting forced upon potentially unwanted information exists, almost all dictators choose information themselves, but prosocial behavior does not increase as a result. If anything, prosocial behavior decreases.

Where dictators apparently felt pressure to acquire information, they take away significantly more from subjects in the messenger role in an additional dictator situation with take frame when messengers only could state their opinion without consequence for the dictator. Messengers' willingness to provide information seems to reduce when they may be sanctioned for their answer, but this difference is not significant.

TRUST YOUR GUT: HUNGER INCREASES TRUST AND TRUSTWORTHINESS

Elias Rantapuska, Aalto University, Finland
elias.rantapuska@aalto.fi

Trust has been the grease in the wheels of historical and modern societies. Trust promotes economic growth, organizational efficiency, and innovation. Trusting is endogenous to trustworthiness—individuals trust more if they believe that their counterpart is trustworthy (Fehr, 2009). If individuals expect not to be cheated on and act accordingly, trading partners, acquaintances, or strangers can transact more smoothly with each other without the need of an explicit enforcement mechanism for every single contract.

Trust cannot be attributed to a single origin, but a set of environmental and biological factors are required to comprehensively understand variation in trust and trustworthiness (Bachmann and Akbar, 2006). Economists stress the importance of environmental factors. Environmental factors contributing to the choice of whether to trust include experiences (Nunn and Wantchekon, 2011; Stevenson and Wolfers, 2011), culture (Guiso, Sapienza, and Zingales, 2009; Bohnet et al., 2010), institutions (Algan and Cahuc, 2010; Alesina and Zhuravskaya, 2010), and even physical appearance (Duarte, Siegel, and Young, 2012). The environment an individual lives in, and the clues on the trustworthiness of others she picks up, are important determinants of trust.

However, while part of trust is driven by the environment an individual is exposed to, biology also matters. Trust and trustworthiness both have a genetic component (Javor and Riedl, 2012; Cesarini et al., 2008), they are affected by hormones (Kosfeld et al., 2005; Zak et al., 2005), and can be traced to distinct brain areas in functional magnetic-resonance imaging (fMRI) representing fear of deception, anticipation of long-term benefits, mentalizing and rewarding experiences of being trusted (Rilling and Sanfey, 2011). Genes, hormones, and brain research constitute different but interrelated biological levels of analysis and all yield the same conclusion: a significant part of trust and trustworthiness can be explained by human biology.

An important everyday biological factor, hunger, has been until now virtually ignored in research for trust and reciprocity. Loewenstein (1996) suggests that hunger, among other visceral factors such as sleepiness and pain, is relevant in decision making. However, empirical evidence on visceral factors mitigating or inhibiting trust is so far limited to physical temperature. Higher temperature causes individuals to regard other individuals warmer, trust others more, and act more prosocially (Williams and Bargh, 2008; Kang et al., 2011). We contribute to the very limited body of knowledge on the role of visceral factors in decision making by investigating how trust and trustworthiness are influenced by an everyday visceral factor, short-term hunger. To our knowledge, we are the first to empirically investigate how hunger influences trust and trustworthiness.

We study trust and trustworthiness in two different datasets by observing choice behavior in a laboratory and analyzing responses in survey data. Similar to earlier work in social sciences (see Coleman, 1990; Fehr, 2009), we collect data on trust and trustworthiness behavior using the trust game (Berg et al., 1995) and by observing whether an individual leaves belongings in an unlocked and unsupervised laboratory room. In the laboratory, we compare decisions by sated healthy Finnish subjects after consuming breakfast with decisions by subjects consuming only water. We further validate our results using survey data from the latest 2012 wave of the European Social Survey by investigating responses of 7,275 Nordic interviewees before and after lunchtime to the classic question "generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?"

We offer three contributions to the literature. First, this study is the first that links temporary hunger with trusting and reciprocal behavior. While human energy levels have been previously linked with decisions requiring self-control (Gailliot and Baumeister, 2007), risk taking (Symmonds et al., 2010; Wang and Dvorak, 2010; de Ridder et al., 2014), and political views (Pedersen et al., 2013), scholars have not yet linked hunger with individual trust and trustworthiness. Second, we provide

somewhat provocative results indicating that hunger leads to less greedy behavior. The literature so far almost unanimously associates reduced energy levels with heightened greed (e.g., Briers et al.; Gailliot and Baumeister, 2007), although very recent evidence (de Ridder et al., 2014) indicates that hungry individuals may be more capable of making decisions with a long-term benefit. Our results would support the notion that both trust and being trustworthy are automated, default-choice responses in our sample operating in a social environment where fair division of resources and interpersonal trust are strong social norms. Low blood glucose concentration may cause the brain to deprioritize higher cognitive functions and use more hard-wired, automated responses. Third, we highlight how a seemingly innocent research design choice of scheduling laboratory sessions prior to, or after a meal, significantly influence experimental outcomes. This insight is particularly relevant to research designs with treatment conditions varying between subject groups. Experimental sessions should begin at the same time to account for systematic diurnal patterns in the temporary hunger levels of experimental session volunteers.

JOY OF GIVING – INCREASING PRODUCT UPTAKE BY ALLOWING CONSUMERS TO FORWARD

Bjørn-Atle Reme, Telenor Research, Norway
remebjornatle@gmail.com
Johannes Bjelland, Telenor Research, Norway
Geoffrey St. John Canright, Telenor Research, Norway
Asif Muhammad Iqbal, Telenor Research, Norway
Gorm A. Grønnevet, Telenor Research, Norway
Michael Norton, Harvard Business School, United States
Pål Roe Sundsøy, Telenor Research, Norway

Abstract: In a field experiment we show that allowing a customer to forward a freebie greatly increases the probability of product uptake.

Background: Over the last decades the literature on social preferences and altruism has documented that individuals cannot be well understood by a model based on simple self-interest. The literature shows that acts of kindness are prevalent and important for understanding human behavior. There could be several different reasons for kindness, ranging from genuine concern for other's well-being to more complex forms of self-interest, such as reciprocal altruism. Whatever the reason may be, it is important to understand how managers and marketers may benefit from taking such social concerns into account when designing marketing campaigns.
In this study we investigate how allowing a customer to forward a special offer to friends and family influences the probability of product uptake. The experiment was done with a telecom provider in an Asian market.

Control: 16 000 customers were randomly selected from a target segment of 300 000 customers. The target segment was based on two main criteria: i) the customer was likely to have some utility from receiving the offer, ii) the offer was not likely to cannibalize existing revenue. The randomly selected 16 000 customers were given 15MB of free mobile data if they replied to a marketing SMS from their provider – no strings attached. The offer was valid for 10 days.

Treatment: 16 000 customers were randomly selected from the same target segment as in the control treatment. These customers were given an offer which was identical to the one given to the control group (15MB for free – valid 10 days), but they were also allowed to forward the offer to friends and family. Note that forwarding here means that both the target customers and their friends/family could receive 15MB for free, hence forwarding the offer did not require the customers to sacrifice their freebie.

Hypothesis: Allowing customers to forward gifts from a telecom provider should have no effect on their probability of taking up the offer themselves since 15MB has the same use-value to a consumer, regardless of whether friends and family get the same offer.
Results: Uptake in the control and treatment was 3% and 9%, respectively. In other words, a 200% increase in the probability of taking up the offer.

Discussion: The experiment shows the importance of social mechanisms in consumption. In order to understand the mechanism behind this result we do an analysis of the social networks of adopters in control and treatment. We find large and significant differences between the takers with regards to the structure and size of their social networks.

IS FEMALE EMPOWERMENT ALWAYS GOOD FOR CHILD WELFARE? A LAB IN THE FIELD EXPERIMENT IN TANZANIA

Charlotte Ringdal, Department of Economics & The Choice Lab, Norwegian School of Economics, Norway

Ingrid Hoem Sjursen, Department of Economics & The Choice Lab, Norwegian School of Economics, Norway

Female empowerment and child welfare are important issues in today's development policies. It is generally assumed that by targeting women, their children will benefit. However, the evidence in the literature is mixed and predictions from theoretical household models differ considerably. The present project contributes to the literature by studying whether women invest more in their children's education than men do and what the potential reasons for this might be. The research questions are the following:

1. Is child welfare influenced by whether additional resources to the household are allocated to women or men?
2. What are the underlying mechanisms determining resources spent on children in the household?

Concerning the first research question, many studies have shown that there is a relationship between gender and household expenditures. The assumption that women spend more resources on their children than men leads us to the second research question: What are the mechanisms determining the amount of resources spent on children? More specifically, we investigate two main channels:

- Preferences (Valuation on children's welfare, time preferences, risk preferences)
- Bargaining power

To answer the research questions, we conducted a lab-in-the-field experiment in Dar es Salaam, Tanzania, in July 2015. In the experiment, we invited 312 married couples with at least one child in primary school to the lab. The experiment consisted of three parts. The sequence of events is the described in table 1.

Table 1: Sequence of events in the experiment

1. Background survey:	Gender, age, phone number, level of education, occupation, number of children, number of children in primary school, name and standard of children in primary school
2. Preference elicitation:	Time and risk
3. Distributional phase:	Allocating resources between self, spouse and child
4. Survey questions:	Who mainly makes the decision about • Major household purchases • Woman's health • Children's education • Visiting woman's relatives and family
5. Payment:	Participants are paid

In the distributional phase, couples are randomized into three treatments:

Treatment 1: Dictator male, dictator game with male dictator
Treatment 2: Bargaining, bargaining game with randomized first proposer
Treatment 3: Dictator female, dictator game with female dictator

In all treatments, the participants are asked to allocate Tsh 15,000 (≈ USD 7) between themselves, their child and their spouse. The money allocated to themselves and their spouse was paid out directly after the experiment. For each Tsh 1,500 allocated to the child, the child was given one week of tuition. If a couple had more than one child in primary school, one of them was randomly selected and this was communicated to the participants before the decision was made.

A pre-analysis plan for how to conduct the empirical analysis was pre-registered before the data collection started at AEA RCT Registry. Preliminary evidence suggests that there is no significant difference in investments in children's tutoring between female and male dictators. However, when married couples bargaining over the allocation of resources, investments in children suffers. If these results are robust to further analysis, this has important theoretical and policy implications.

THE ROLE OF ANSCOMBE-AUMANN MONOTONICITY IN MODELS AND TESTS OF AMBIGUITY AVERSION

Florian Schneider, University of Zurich, Department of Economics, Switzerland
florian.schneider2@uzh.ch
Martin Schonger

Since Ellsberg (1961) pioneered the concept of ambiguity aversion, both theorists and experimentalists have taken a keen interest in the concept. Most commonly ambiguity aversion is studied in the Anscombe-Aumann (1963) framework. In that framework an axiom that is both implied by Subjective Expected Utility but also widely used in models of ambiguity aversion is Anscombe-Aumann's Monotonicity. Apart from basic choice theoretic axioms like transitivity and continuity, Monotonicity seems to be the most common axiom models of ambiguity aversion satisfy. Models of ambiguity aversion that satisfy Monotonicity include Multiple priors (Gilboa and Schmeidler, 1989), Rank-Dependent/Choquet Model (Schmeidler, 1989), Smooth ambiguity preferences (Klibanoff, Marinacci, and Mukerji, 2005), Variational preferences (Maccheroni, Marinacci, and Rustichini, 2006), Confidence-function preferences (Chateauneuf and Faro, 2009), Vector Expected Utility (Siniscalchi, 2009), MBC-preferences Ghirardato and Siniscalchi (2010), Uncertainty-averse preferences (Cerreia-Vioglio, Maccheroni, Marinacci, and Montrucchio, 2011), MBA-preferences (Cerreia-Vioglio, Ghirardato, Maccheroni, Marinacci, and Siniscalchi, 2011),monotone mean-dispersion preferences (Grant and Polak, 2013), and Hedging preferences (Dean and Ortoleva, 2014).

Experimental work on ambiguity aversion has focused on measuring ambiguity aversion or seeking in different domains (gains, losses), for different likelihoods, and for different sources of ambiguity. We know of no operationally practical method to test the Monotonicity axiom, let alone experimental work that actually does so. This paper aims to help bridge the gap between the theoretical and experimental literature on ambiguity aversion focusing on Monotonicity. Our paper starts with a thought experiment that is a direct test of Monotonicity. The thought experiment is an adaptation of the classical Allais paradox to a world where there are both objective and subjective sources of uncertainty. Therefore we call our thought experiment the Allais Horse Race. The Allais Horse Race differs from previous modifications of the Allais paradox which replaced all objective uncertainty with subjective uncertainty (see MacCrimmon and Larsson 1979; Tversky and Kahneman 1992; Wu and Gonzalez 1999). These prior adaptations test the joint hypothesis of probabilistic sophistication and expected utility, while our thought experiment tests Monotonicity. The Allais Horse Race serves two roles: it poses an intuitive challenge to Monotonicity, and paves the way to experimental testing of its descriptive validity. In a pilot study with a convenience sample at an elite technical university we found that 37.5% of subjects violated Monotonicity. A pre-registered study with 500 subjects from a more representative student subject pool is scheduled to be conducted in June 2015.

Another perspective that also suggests the questionable positive validity of Monotonicity is to compare it with the classical von Neumann-Morgenstern (vNM) Independence axiom which is generally seen to be descriptively inaccurate. We establishes that Monotonicity serves a similar role in the mixed objective/subjective uncertainty world as vNM-Independence does in the world of objective uncertainty. Formally, for any probabilistically sophisticated decision-maker Monotonicity and Independence are equivalent. Independence is probably the most widely

discussed axiom in the theory of choice under uncertainty, thus if, as we argue, Monotonicity is its analogon, theoretical criticisms and empirical regularities found concerning Independence may translate to Monotonicity.

Given that most models of ambiguity aversion satisfy Monotonicity, the question arises what Monotonicity implies for utility representations. We show that Monotonicity is essentially equivalent to the existence of a state-wise separable representation. The theorem might also be helpful as a first hint to identify those models that imply Monotonicity but do not explicitly assume it.

Machina (AER 2014) proposed a set of five thought experiments in order to investigate ambiguity aversion at low vs. high outcomes, and proved that four major theories of ambiguity aversion are not rich enough to allow for ambiguity aversion to differ at low vs. high outcomes. We show that each of these thought experiments can be understood as tests of a joint hypothesis of Monotonicity and a particular risk attitude. The reason that the four major theories Machina lists are not rich enough is thus simply due to the fact that they all assume Monotonicity. Experimental implementation of the Machina thought experiments is complicated by the fact that each requires either knowledge of each subject's certainty equivalent or risk attitude. The Allais Horse Race requires no knowledge of certainty equivalents or risk attitudes. But unlike the Machina thought experiments which each consist of a single question, the Allais Horse Race consists of two questions. However, for practical questions such as stakes, wording and framing, the Allais Horse Race allows experimenters to draw on the large body of literature concerning implementation of the Allais paradox.

SIGNALING COOPERATION

Heiner Schumacher, Aarhus University, Denmark
hschumacher@econ.au.dk
Matthias Heinz, Universität zu Köln, Germany
heinz@wiso.uni-koeln.de

In a market with asymmetric information, the informed party may be able to credibly signal advantageous type information by taking some costly action (Spence 1973). This mechanism is particularly important in labor markets where employers know less about an applicant's capabilities and preferences than the applicant herself. However, what exactly does an applicant's vita reveal about her? In the theoretical and empirical literature on job market signaling, the object of asymmetric information is the agent's productivity – her value to the employer – and the costly signal is her education. In practice, productivity may comprise attributes like cognitive ability or general knowledge. It may also include behavioral characteristics such as the agent's intrinsic motivation to pursue the employer's goals (Besley and Ghatak 2005), or her willingness to cooperate with other employees. Such characteristics may be important for the employer, in particular, if the scope for monitoring or providing monetary incentives is limited. Nevertheless, so far there exists no analysis about whether and how an applicants' vita signals these characteristics to employers.

In this paper, we show that an applicant's vita is quite informative about her behavior and that employers use résumé content effectively to predict behavior. Specifically, we demonstrate that intensive social engagement during high school or university education signals one's willingness to cooperate in teams. In contrast, other extracurricular activities such as engagement in student or sports associations have no such effect. To establish these results in a clean manner, we conduct two experiments. In the first experiment (Study 1), we collect student subjects' current résumés and measure their behavior in a standard linear public goods game (PGG). In the second experiment (Study 2), we ask human resource managers from different firms and industries to predict the behavior of Study 1 subjects in the PGG based on their résumés. To elicit beliefs in an incentive-compatible manner, their payoff increases in the precision of their predictions. By randomly varying the informational content of the résumés, we can identify the signaling value of Study 1 subjects' extracurricular activities with respect to the willingness to cooperate.

Our experimental design circumvents the problems that alternative empirical strategies (using observational or experimental data) have in identifying the signaling value of certain attributes of one's résumé. Firms may differ in the extent to which they value an applicant's willingness to cooperate with others in the absence of explicit incentives. Hence, the decision to accept or reject

an applicant or the wage offer made to the applicant would be confounded with the employer's preferences over employee attributes. Moreover, a particular activity on the applicant's résumé may be a signal about several different personal characteristics. For example, an applicant who exhibits intensive social engagement besides her studies may not only signal a concern for others, but also that she is well-organized and capable of performing both activities at the same time. We avoid such problems by directly measuring employers' beliefs about subjects' behavior in the PGG.

Since we test a signaling mechanism that is outside the control of the experimenter, a hurdle in the analysis is the evaluation of subjects' intensity of engagement in a particular activity (i.e., the costs of generating the signal). Subjects in Study 1 are engaged in various activities which differ in tasks, frequency, time spent in the activity, type of organization, location, clients, and the hierarchical position in the organization. Some activities may reflect only limited commitment (e.g. "three weeks volunteering project in the seniors residence XY; renovation of the house, helping seniors"), while others indicate dedicated engagement for others (e.g. "full-time voluntary social year in the organization XY for disabled people; providing part-time support to a family with a disabled child for 2.5 years"). In order to get an objective measure for the intensity of engagement, we recruit subjects who are uninformed about the project and ask them to rate for a given résumé the intensity of engagement in a particular domain. The average rating is the measure of intensity of engagement we use in our analysis. For the domain of social engagement, we call it the "social intensity score." As an example, the social intensity score for the three weeks volunteering project mentioned above is 2.36 (on a scale between 1 and 10), while it is 7.25 for the full-time voluntary social year.

The data from Study 1 show that subjects' willingness to cooperate increases in their degree of social engagement. Subjects who indicate social engagement on their résumé, but are in the lowest quartile of the social intensity score distribution, do not behave differently than subjects without any social engagement. Those in the second quartile contribute 7 percent more in the PGG than subjects without social engagement (the effect is borderline significant); those in the third quartile 30 percent more; and those in the fourth quartile 40 percent more. The subjects in the third and fourth quartile comprise 10 percent of our total sample. Importantly, the differences in behavior are not caused by differing beliefs. On average, subjects' beliefs about opponents' behavior equal the mean contribution. Subjects in the third and fourth quartile of the social intensity distribution have the same beliefs as all other subjects, but they expect to contribute more in the PGG than others. In a control experiment, we also can rule out that our results are driven by demand or priming effects through the collection or résumés.

We do not find any significant behavioral differences for subjects engaged in student or sports associations. Other items on the résumé such as age, gender, field of studies or the industry in which a subject collected professional experience are usually not informative about contributions in the PGG.

Employers largely anticipate the relative behavioral differences. When the human resource managers in our sample have to predict behavior based on résumé content that does not contain extracurricular activities, socially engaged subjects are expected to behave like subjects active in student associations. However, if résumé content includes extracurricular activities, socially engaged subjects are expected to contribute around 30 percent more in the PGG than all other subjects; for subjects in the first, second, third and fourth quartile the bonus is 15, 25, 30 and 50 percent, respectively. In contrast, the intensity of engagement in student associations has no effect on beliefs. Instead, participants predict a pronounced gender effect. Women are expected to contribute 20 percent more in the PGG than men (which is not the case in our Study 1 data). These results can be generalized to a more general subject pool. When we replicate the study with student subjects, we find very similar average predictions.

The results from the two studies taken together demonstrate that intensive social engagement credibly signals the willingness to cooperate. In line with signaling theory, producing the signal is costly. The activities in the third and fourth quartile of the social intensity distribution almost always involve working in positions with a high degree of commitment and responsibility for other people. The information that has to be provided on the résumé in order to reach a high social intensity score includes details about the organization in which the engagement takes place. Like educational achievements, this information is verifiable by a third party. We therefore conclude

that an applicants' vita not only signals ability through education, but also her attitude towards others through social engagement.

MONEY ILLUSION, LOSS AVERSION AND HOMEOWNERSHIP

Thomas Alexander Stephens, WU Vienna, University of Vienna, Austria
thomas.alexander.stephens@wu.ac.at
Jean-Robert Tyran

Homeownership rates vary considerably across OECD countries, and tend to be positively correlated with past inflation. There are many potential explanations for this observation, and causality may go either way, or indeed both ways. We focus on one particular factor, namely money illusion and loss aversion amongst individual investors. For our study, we combine a vignette experiment carried out using a quasi-representative sample of the Danish population with an analysis of detailed financial data from official registers, which is anonymously matched to our subjects. We find that individuals who react more strongly to purely nominal gains v losses in the experiment have systematically different portfolio structures, with a larger share of their gross wealth held in nominally safe assets such as bank deposits and bonds, and, equivalently, a smaller share in real estate and equities. These differences are consistent with bias resulting from money illusion and loss aversion.

Much of the literature on portfolio allocation focuses on the choice between equities and bonds, with equities offering higher expected returns at the cost of higher volatility. In practice, however, individual portfolios tend to be dominated by real estate and bank deposits, with shares and bonds often representing only single-digit percentages of total gross assets. Nevertheless, real estate and bank deposits present a similar trade-off between expected returns and risk, with real estate offering both higher expected returns (capital gains and imputed rents) and higher volatility than bank deposits. In our study, however, we focus on loss aversion, where there is a similar trade-off between housing and bank deposits, in which money illusion potentially plays a role.

If there is no inflation, then individual investors who are sufficiently loss averse will tend to shy away from real estate and equities, in favour of bank deposits and bonds, which are safe from losses (barring defaults by bond issuers or bank failures not covered by deposit insurance). If some loss averse investors are prone to money illusion, then even low, stable inflation changes the situation in an important way. By gradually obfuscating real losses over time, inflation increases the attractiveness of real estate, and, to a lesser extent equities, relative to bank deposits and bonds. Assuming similar levels of loss aversion and money illusion across countries, the resulting hypothesis is that, all else equal, countries with higher average inflation will tend to have higher homeownership rates. Cross-country evidence from OECD countries does appear to be consistent with this hypothesis, but there are many other factors, and causality is unclear.

To test our hypothesis, rather than comparing across countries, we focus on variation in money illusion and loss aversion amongst individual investors in Denmark. Danish homeownership rates have been moderate relative to many other OECD countries, so there is reasonable variation. Past inflation has been relatively moderate too. We use a within-subject vignette experiment to estimate the degree to which obfuscation of losses through inflation attenuates individual-level loss aversion. We then correlate the resulting subject-level measure with asset holdings, using a zero-one-inflated beta model in which the dependent variable is the proportion of total gross assets allocated to nominally safe instruments, meaning bank deposits and bonds. In line with the prediction of money illusion and loss aversion, we find that individuals who react more strongly to purely nominal obfuscation of losses by inflation tend to allocate a larger share of their total gross wealth to nominally safe assets. This difference is driven by the choice between bank deposits and real estate, and is robust to relevant controls.

COMPETING TO COOPERATE. PARTNER CHOICE AND COMMUNICATION IN THE PRISONER'S DILEMMA

Eirik Strømland, Department of Economics, University of Bergen, Hermann Fossgate 6, 5007 Bergen, Norway
eirik.stromland@uib.no
Sigve Tjøtta, Department of Economics, University of Bergen, Hermann Fossgate 6, 5007 Bergen, Norway
Gaute Torsvik, Department of Economics, University of Oslo, Moltke Moes vei 31, Eilert Sundts hus, 0317 OSLO, Norway

Through what mechanisms do individuals enforce cooperation? Some suggest a crucial role for partner choice. Real world institutions based on partner choice abound; Diamond traders in New York deal in exclusive dealers' clubs and on eBay sellers are chosen based on their past ratings. Partner choice opportunities creates incentives to compete for attractive social partners, and is expected to influence cooperation in social dilemmas.

In this paper, we study whether mutual partner choice influences cooperation in a repeated continuous prisoner's dilemma (two-player Public Goods Game) compared to random matching. Additionally, we explore the interaction effect between partner choice and communication. We employ a 2 x 2 factorial design varying whether chat room communication is allowed and whether matching is random or based on mutual choice. The baseline features random matching of pairs within a fixed group of eight subjects. In total, 128 subjects participated in our experiment.
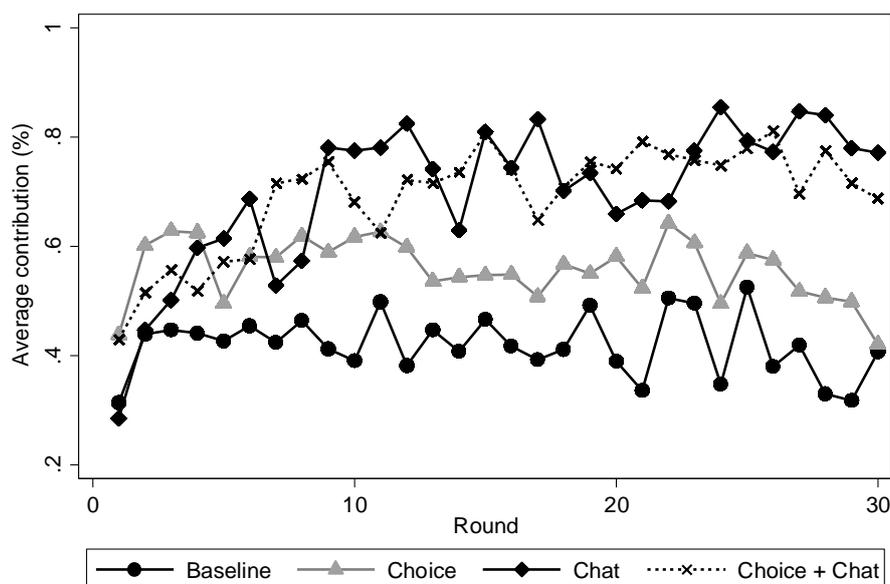

Figure 1: Average cross-sectional pattern of contributions over rounds, by treatment

The results show that partner choice creates competition for partners in our experimental environment, and increases overall cooperation by about 14 percentage points (a 33.2% increase relative to random matching). We also find that partner choice sorts cooperators from free riders, but there is no overall welfare gain from such sorting.

However, when we allow for chat room communication there is no effect of partner choice. Chat room communication is in itself so efficient so as to overshadow the effect of partner choice. These results may suggest that in environments where group communication is feasible, partner choice will not have additional efficiency benefits. However, in settings where group communication is infeasible, partner choice may lead to less defection in prisoner's dilemma situations.

NORMATIVE CONFLICT AND COOPERATION IN SEQUENTIAL SOCIAL DILEMMAS

Lauri Sääksvuori, National Institute for Health and Welfare, Finland
lauri.saaksvuori@gmail.com

We investigate how conflicting normative views of fair contribution rules can be used to design sequential contribution mechanisms to foster cooperation. We show, using survey and experimental data, that individuals hold well-defined yet widely diverse normative views of fair contribution rules. We use the information about the conflicting normative views of fair contributions to model cooperative behavior in sequential collective action problems in the presence of wealth inequality. Our model predicts that a sequential mechanism which solicits contributions first from wealthy actors generates greater public good provision and narrows wealth inequality more than any alternative sequential mechanism. Our experimental data show that the mechanism with wealthy first-movers generates greater contributions and narrows wealth inequality more than the alternative mechanisms, as predicted. Our results suggest how altering the sequential order of contributions in heterogeneous populations may affect public good provision and help organizations to increase the total value of solicited contributions.

SOCIAL RISK PREFERENCES: THEORY AND EXPERIMENTAL EVIDENCE

Erik Ø. Sørensen, Norwegian School of Economics, Norway
Alexander W. Cappelen
Shachar Kariv
Bertil Tungodden
William Zame

Public policy is about trading off social risk, that is inequality and efficiency under uncertainty. We present theoretical results showing that under rationality and a weak independence requirement, preferences over private risk and deterministic social tradeoffs pin down preferences over social risk. We test the predictions of the theory in a lab experiment that allows us to test the theory even without parametric assumptions about preferences.

ABSTRACT

Sigve Tjøtta, Department of Economics, University of Bergen, Norway
sigve.tjotta@econ.uib.no

Is more money better than less? Not always; it depends on the situation. If more money for you means less money for a stranger, the majority of participants in dictator experiments choose less money for themselves. But if you are alone, and do not have to share with a stranger, will you then choose more money instead of less? Here, I report on five experiments in which 25% of the total of 1,367 participants chose less money instead of more. Why? You'll never walk alone. Adam Smith's impartial spectator will be with you – and through him all others as well. Through the impartial spectator's eyes, individuals evaluate the propriety of actions, not of outcomes.
In two of these experiments, an overwhelming share of participants who chose less money instead of more, chose to share equally in a standard dictator game. For those participants, it is problematic to interpret equal sharing as a preference for equality, as those in the same situation also chose less money for themselves when they were alone.

CONCESSION BARGAINING: AN EXPERIMENTAL COMPARISON OF PROTOCOLS AND TIME HORIZONS.

Kei Tsutsui, Department of Economics, University of Portsmouth, UK; Department of Economics, University of Bath, UK
k.tsutsui@bath.ac.uk
Federica Alberti[1], Department of Economics, University of Portsmouth, UK
Sven Fischer, Department of Economics, University of Portsmouth, UK; Max Planck Institute for Research on Collective Goods, Bonn, Germany
Werner Güth, Department of Economics, University of Portsmouth, UK

Concessions to avoid conflict in negotiations have already been theoretically analysed by Zeuthen (1930). His prediction is closely related to the bargaining solution proposed by Nash (1950 and 1953), as shown by Harsanyi (1956). However, the so-called Nash-bargaining solution appeals to neither time nor concession making.[2] Other approaches to bargaining, e.g. Rubinstein (1982), appeal to alternation in trying to avoid a deadlock, but impose restrictions with profound consequences for equilibrium predictions. This introduces our main research question: does it behaviourally matter whether concession making is allowed to unfold in time? In trying to answer this question, we do not impose alternation but rather allow for independent choices along the way. This raises another question:[3] do independent choices naturally lead to alternation in conceding better terms to the other party? Does behaviour change if we restrict feedback about earlier attempts to find an agreement, even if such restrictions do not alter the fundamental incentives?

We test experimentally whether dynamic interaction is crucial for concession bargaining. In our full information bargaining experiments, two bargaining parties with asymmetric conflict payoffs need to divide a commonly known pie over a predefined number of trials. We compare the fully dynamic interaction to two reduced protocols. In the quasi-dynamic protocol, later trials merely reveal that so far no agreement has been reached, and in the static protocol no feedback is given across trials at all. We find that neither rate of agreements nor efficiency or inequality of agreements differ across protocols. Comparing over different numbers of maximal trials, we find that more trials can lead to less agreement due to stubbornness of the participant with higher conflict payoff. Finally, we find only little indication for intended alternation in concession making.

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[1] Corresponding author: Max Planck Institute of Economics, Kahlaische Str. 10, 07745 Jena, Germany, alberti@econ.mpg.de, Tel: +49 (0)3641-686-638.

[2] We abstract from endogenous threats which, according to Nash (1953), are strategically chosen before trying to reach an agreement, an at least debatable timing assumption. This is done by assuming exogenously given conflict payoffs as in Nash (1950).

[3] Our approach is similar to the bargaining study of Harsanyi and Selten (1972), who generalize the Nash bargaining solution to situations with incomplete information.

GOAL SETTING AND RAISING THE BAR: A FIELD EXPERIMENT

Max van Lent, Department of Economics, Erasmus University Rotterdam, and Tinbergen Institute
vanlent@ese.eur.nl
Michiel Souverijny, Department of Economics, Erasmus University Rotterdam, and Tinbergen Institute
souverijn@ese.eur.nl

People often set goals, for example dieters set a target weight, runners aim for a certain time, and managers set goals for employees in the form of targets. Using a series of field experiments the psychologists Locke and Latham (1979) are the first to report evidence that goals help to increase performance.[1] More recently, goal setting is also being studied by management scientists and economists. Several theory papers show that goals can be used as reference points in order to increase performance for loss averse or hyperbolic discounting agents (see e.g. Suvorov and Van de Ven 2008, Hsiaw 2013, and Koch and Nafziger 2011). Others suggest that meeting goals can lead to a sense of self-achievement that makes pursuing goals worthwhile (Gomez-Minambres 2012).

We are interested in the effects of goal setting on student performance in an academic course. Furthermore, we are interested to learn whether challenging students to be more ambitious by increasing the goal's difficulty can increase performance further. Learning about the effects of increasing a goal set by students is interesting as it is a potentially simple, unobtrusive method to increase study performance. It is important to learn whether teachers should motivate students to set ambitious goals, or whether this effort to motivate students is ineffective or can possibly even backfire.

In this paper we develop a simple theory which explains how and when increasing a goal's difficulty can increase performance. We predict that people are willing to set a goal since setting a goal increases both performance and utility, and that having an outsider propose a more ambitious goal can increase performance further.[2] Increasing the goal too much will lead people

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to give up on the goal, in which case performance will be similar to that of a student who did not set a goal.

We test our predictions by means of a field experiment among 1092 first year university students. Each of these first year students has individual meetings with a mentor. The mentor helps students to get used to studying at a university, teaches them study skills, helps them with their (study) motivation, monitors their performance, and gives suggestions in order to increase study performance. We ran our experiment during an individual meeting between students and their mentor. In one treatment (goal treatment) we instructed mentors to ask their students whether they had a specific grade goal in mind for the main course they participated in at that moment, and if not, whether they wanted to set a goal. In another treatment (raise treatment) mentors received identical instructions as in the goal treatment, and were in addition instructed to attempt to get the students raise their goal. We subsequently measured performance in this course using the grade the student obtained for the course.

We find that students whose mentor was instructed to ask students to set a goal do not perform better when they complete the course, but are less likely to drop out as compared to the control group. For students whose mentor was also instructed to ask students to raise their goal we find that they do not perform significantly different from the control group. For students in the goal treatment completing the course we find that those who were asked for a goal scored 0.3 points better (i.e. 17% of a standard deviation) compared to the control group, in addition to being less likely to drop out of the course by four percentage points. Combining these two effects we find that asking students to set a goal increases performance. Students in the raise treatment who were actually asked to set a goal perform significantly worse than comparable students in the goal treatment, being similar to the control group in terms of performance and drop out rate. Combining these two effects we see that students in the raise group perform significantly worse as compared to the goal treatment, and there is some indication (although not significant) that these students do even worse than the control group. Furthermore, comparing students in the raise group who were asked to raise, with their counterparts in the goal treatment, we see that being asked to raise leads to significantly lower performance. This remarkable result is not in line with our prediction.

Next, we are interested in heterogeneous treatment effects. We test whether there are heterogeneous effects of the treatment dependent on the mentor's experience, mentor's gender, and a (mis)match between mentors and students gender. We find some heterogeneity in treatment effects, and elaborate on these results.

[1]They find evidence that goals set by an outsider (a peer or a manager), goals set in cooperation, and self-set goals can all lead to a better performance as compared to not setting goals.
[2]Performance can increase if there is a (psychological) cost of rejecting a goal proposed by an outsider, or if the alternative is not setting a goal (instead of the goal set initially).

GENDER-DIFFERENCES IN COMPETITIVE CHOICES: RISK, CONFIDENCE, OR A TASTE FOR TOURNAMENTS?

Roel van Veldhuizen, WZB Berlin, Germany
rrvanveldhuizen@gmail.com

Even in 2015, there is still a large gender gap in labor market outcomes. Women earn lower wages for similar positions, and are strongly underrepresented in positions of leadership. Traditional explanations posit that women may simply not enjoy being in a managerial position, or that discrimination may cause women and men of similar ability to hold different occupations. However, in recent years a series of studies have emphasized that women may be less competitive than men, and that this could explain the existing gender gap in labor market outcomes. In particular, in a carefully controlled laboratory experiment, Niederle and Vesterlund (2007) show that, when given the choice between piece rate incentives and a tournament, men overwhelmingly prefer the tournament, whereas women prefer the piece rate. Importantly, the laboratory experiment allows the authors to rule out several alternative explanations, including discrimination and differences in ability.

An important open question is what causes women to select out of the tournament. One explanation is that women dislike competition per se, and therefore avoid the competitive

environment. Women may also be less confident in their ability to do well in the tournament. In addition, they may be more risk averse, which could induce them to choose the 'safer' piece rate. In this paper, I use a novel experimental approach to non-parametrically disentangle these three explanations. This is important, because the three explanations have very different policy implications.

In the experiment, participants have to solve addition problems and have to choose whether to be paid according to a piece rate or tournament incentives, as in Niederle and Vesterlund (2007). This choice is then directly compared with choices from two additional (within-subject) treatments where overconfidence and/or the taste for tournaments cannot explain behavior.

The results are striking. When participants choose between a piece rate and tournament, men are 32 percentage points more likely to choose the tournament. Crucially, the gender gap remains constant (33 percentage points) when the taste for tournaments is removed as an alternative explanation. Indeed, further analysis suggest that of the total gender gap, approximately 40% is due to gender differences in risk preferences, 40% is due to differences in confidence, and the remaining 20% is due to the interaction of the two.

Importantly, none of the gender gap is explained by a taste for tournaments. This stands in stark contrast to earlier studies that have attempted to control for risk preferences and overconfidence using standard econometric techniques. To explain this difference, I also elicit confidence using reservation probabilities, and elicit risk preferences using the Holt-Laury, Eckel-Grossman and Falk-Dohmen elicitation methods. This allows me to directly compare the results of the experimental approach and the standard econometric approach in my data. The results suggest that the standard econometric approach leads to a substantial attenuation bias, downplaying the importance of risk preferences and overconfidence and overemphasizing the taste for tournaments.

Overall, the results highlight the importance of risk preferences and overconfidence in explaining the gender gap in labor market outcomes, and suggest that the taste for tournaments may not be as important as has been suggested by previous research. They also highlight the power of experimental methods in avoiding biases inherent in traditional econometric techniques.

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PEERS OR PARENTS? ON THE WORKING OF SOCIAL INCENTIVES IN SCHOOL EVIDENCE FROM A LARGE-SCALED FIELD EXPERIMENT IN GERMANY[1]

Valentin Wagner, Düsseldorf Institute for Competition Economics, Germany
wagner@dice.hhu.de
Gerhard Riener, University of Mannheim and Düsseldorf Institute for Competition Economics, Germany
riener@dice.hhu.de

The question whether financial incentives for parents, pupils or teachers can increase pupils' school performance has received much attention in recent years. However, there is little knowledge about which kind of non-monetary incentives can be transferred to the educational sector. This paper analyzes the effectiveness of social incentives on pupils' mathematical test performance in a large-scaled field experiment in Germany. Based on findings in our pretest, we test four different social incentives in deprived as well as in high achieving schools: (i) a "homework-free" voucher (ii) a medal (iii) a letter of praise and (iv) a surprise. We find substantial differences between non-high schools and high schools as well as differences between age groups. The working of social incentives is likely to depend on pupils' socio-economic background and can be a cost effective and easy to implement method to increase test performance in deprived schools. Treatment effects are positive and significant for older pupils in non-high schools but social incentives crowd out intrinsic motivation for younger pupils in high schools. Additionally, we analyze the effect of predetermined incentives vs. incentives that can be freely selected. The most popular chosen incentive is the surprise but low achieving pupils are in favor of choosing a reward with signaling value to their parents. Letting pupils choose from a larger set of incentives leads to positive and significant treatment effects for older pupils in deprived schools.

Furthermore, pupils who are free to chose their incentive increase their willingness to prepare for the test.

1. Introduction

There is a growing body of experimental literature on the effects of financial incentives on student achievement in developed and developing countries but so far, little research has focused on the working of non-monetary rewards in education. Knowing about the working of incentives that aim at recognizing the achievement of a student within the class or towards the parents may provide a simple and cost effective way to circumvent the problems of financial incentives. Furthermore, this kind of incentives are accepted and frequently used by teachers [Caffyn, 1989]—as important stakeholders in the implementation of the policy—and are politically feasible.

In this paper, we contribute to the literature by testing how social incentives—that differ in the target of the audience—alter the performance in a standardized mathematics test and their interaction with the school type, grade and gender. We conducted a field experiment in 25 secondary schools totaling 2.113 pupils in North Rhine Westphalia (henceforth NRW), Germany in the school year 2013/2014. We compare social incentives within the German system, that allows us to compare high achieving schools, which are considered of having a special academic status, with schools preparing for vocational education. This comprehensive view on different achievement levels of schooling has been largely neglected so far as previous experimental studies have mainly focused on deprived schools.[2] Social incentives were tested for pupils in grades 5 and 6 because within the German school system this grade levels are very important as they serve as a testing stage.[3] Furthermore, our experimental design allows us to investigate the effect of social rewards on gender. As (social) incentives, if not properly designed, have the potential to backfire, it is an important question for the researcher how to choose among the infinite possibilities the potentially effective ones.[4] The choice of our incentives is driven by a questionnaire based pre-study among 241 pupils of the same age group asking on the nature of incentives that would induce them to learn. Following this selection process, we decided to test four incentives: (i) a medal awarded within class (ii) a letter of praise sent to the parents by the teacher (iii) a surprise and (iv) a homework-free voucher.

We stratified 89 school classes into one control group and three treatment groups: the Letter Treatment, Medal Treatment and the Choice Treatment.[5] In the Choice Treatment incentives i)-iv) were not exoge- nously given but could be chosen beforehand whereas in the Letter and Medal Treatment incentives were predetermined. Furthermore, rewards were handed to pupils within the class, hence having a (positive or negative) signaling value. We find that social incentives can be a cost effective way to increase test score performance in deprived schools, particularly for sixth graders in the Choice Treatment. This is interesting in the light of a potential negative signaling value to their peers ("Acting White") in the low achieving schools.[6] In contrast, the Medal and Letter Treatment work detrimental for pupils in grade 5 in high achieving schools.

Considering gender differences, we find that flexibility and freedom of choice positively effects boys in grade 6 in deprived schools and girls in grade 5 in high achieving schools but works detrimental for younger males in high achieving schools. Nevertheless, pupils in the Choice Treatment are more likely to spend time on test preparation. Rewarding a medal works positive for girls in grade 6 in deprived schools and for boys in grade 6 in high achieving schools. In contrast, the medal as well as the letter of praise which is sent to the parents crowds out boys' intrinsic motivation in grade 5 in high achieving schools.

In this study we are exclusively interested in the working of short-term incentives and their signaling value. Whether and how social incentives work in the long-run remains to be answered for future research. However, before putting a new incentive scheme into place nationwide, it is important to understand potential trade-offs one faces when changing policies. Clearly, our findings have internal validity but are not necessarily expandable to the sample of all schools in Germany. Nevertheless, they give interesting and promising insights on the working of social incentives.

[2]A notable exception is the study by Angrist and Lavy [2009]. Cash awards were provided for low-achieving high school pupils in Israel. However, the sample consisted of 40 nonvocational high schools with the lowest Bargut (matriculation certificate) rates in a national ranking.

[3]The suitability for the particular type of school is assigned with the successful promotion after the sixth grade.

[4]Incentives may crowd out motivation if they are too low powered or if they signal behavior which is unusual for pupils' peer group. For example, usually low performing pupils could be seen as geeks by their peer group if they perform well and hence lower performance.

[5]We used a classroom-based block randomization design to ensure that there is at least one control and one treatment group in each school.

[6]See Austen-Smith and Fryer Jr [2005] on "Acting White". In their acting white equilibrium pupils with medium ability types pool at a lower than optimal (without peer effect) schooling due to the fear of being rejected by their peer group, even if this peer group does not care about the level of education per se.

CHANGE WE CAN PERCEIVE: THE ECONOMICS OF DYNAMIC INATTENTION

Edward J. Webb, Department of Economics, University of Copenhagen, Denmark
edward.webb@econ.ku.dk

The world around us is constantly changing, and it is impossible for an individual to pay attention to every single change. This article seeks to demonstrate some of the consequences of inattention to such change.

That people do not pay perfect attention to changes in their surroundings has been well documented in psychology, where it is dubbed change blindness (Simons and Levine, 1997). This has been further extended to unawareness of changes even to an object of choice, termed choice blindness. (Johansson, Hall and Sikström, 2008).

This paper seeks to apply this psychological insight to economic choice. The principle concept is this: Individuals are less likely to be attentive to economic variables that change slowly than to variables that change quickly. Section 1 details the formal model framework and section 2 describes three applications.

1 Model framework

Let there be time periods $t=0,1,\ldots,T$ where T may or may not be infinite. There is a finite set of economic variables J with typical element j and for each $j \in J$ a set of states Ω_j with typical element ω_j. The state of the world is hence $\omega = \cup_{j \in J} \omega_j$ and the set of states of the world is $\Omega = \cup_{j \in J} \Omega_j$.

There is a set of economic agents I with typical element i. For every $i \in I$ and every $\omega \in \Omega$ there is a set of actions $A_{i\omega}$ available in state ω. For each i there is a payoff function $u_i : A \times \Omega \to R$ where $A = \cup_{i \in I} \cup_{\omega \in \Omega} A_{i\omega}$.

For every $\omega, \omega' \in \Omega$ there is a probability function $p_{\omega\omega'} : A \to [0,1]$ describing the probability of transitioning from ω to ω'.

For each $i \in I$ and $j \in J$ there is a perceived state of the variable j denoted $\tilde{\omega}_{ij}$ and an initial perceived state $\tilde{\omega}_{ij0}$. Individual i's perceived state of the world is then $\tilde{\omega}_i = \cup_{j \in J} \tilde{\omega}_{ij}$. In each period there is some probability that each i is inattentive towards changes in the state of each j. $\tilde{p}_{ij} : \Omega \times \Omega \to [0,1]$ is a function that gives the probability that $\tilde{\omega}_{ijt} = \tilde{\omega}_{(ijt-1)}$, otherwise $\tilde{\omega}_{ijt} = \omega_{jt}$.

A restriction is placed on perceived states of the world that $A_{(i\tilde{\omega}_i)} = A_{i\omega} \forall i$, so agents are always correct about the actions available to them.

2 Applications

Finance

Della Vigna and Pollet (2007) demonstrate that changes in demographic variables reliably predict industry returns (e.g. a large birth cohort predicts higher demand for toys), but investors do not exploit this information fully. Demographics are slow moving variables, and it is shown that such changes do not attract attention, which then leads to underinvestment.

In general low volatility in an asset's returns means it's less likely to attract attention. Thus inattentive investors will fail to purchase such assets when returns are high and fail to sell when returns are low.

Consumer products and shrinkage

It is an often observed phenomenon that consumer products shrink in size over time.[1] It is assumed that consumers attend to prices to a much greater extent than product size and the aggregate price level. If consumers are inattentive to a rise in the price level, their nominal willingness-to-pay is unchanged, implying lower real willingness-to-pay. As consumers attend to price rises of individual goods, firms reduce product size instead.

Medical screening programs

For many ailments, symptoms develop slowly. This leads to individuals failing to attend to them, and thus wait too long before seeking medical treatment. It is shown that in such cases screening programs can be welfare improving, even if individuals find the screening process costly.

3 Conclusion

The novel behavioural insight that individuals may not attend to slow or small changes over time is formalized in an economic model. Three example applications are presented, and the dynamic inattention approach has much potential for future development.

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[1]See for example Misleading and opaque pricing practices in the grocery market, Which? 2015.

COOPERATORS, FREE RIDERS AND PUNISHMENT: FREE RIDERS PUNISH TOO

Till Weber, University of Nottingham, United Kingdom
till.weber@nottingham.ac.uk
Simon Gächter
Ori Weisel

Costly peer punishment is often seen as a remedy for social dilemmas like voluntary contributions to a public good (Fehr and Gächter 2000, Fehr and Gächter 2002). It is a widely replicated phenomenon and occurs even in one-shot encounters that rule out any monetary benefits for the punisher (Gächter and Herrmann 2009). As this behaviour is not consistent with self-regarding preferences, theories of other-regarding preferences, such as inequity aversion (Fehr and Schmidt 1999, Bolton and Ockenfels 2000) or intention-based reciprocity (Falk and Fischbacher 2006) attempt to rationalise costly and altruistic punishment. The aforementioned theories are consistent with experimental evidence on heterogenous cooperative attitudes that have been

found to be consistent over games and time (Fischbacher et al. 2012, Volk et al. 2012), but are less accurate in predicting punishment behaviour (Falk et al. 2005).

Our aim is to investigate whether individual cooperative attitudes link to punishment behaviour in public goods experiments. This analysis sheds light on a common implicit assumption in the literature summarised by Camerer and Fehr (2006): "Strong reciprocators bear the cost of rewarding or punishing even if they gain no individual economic benefit from their acts."

For our experimental test, we elicit subjects' cooperative attitudes and observe contribution, punishment behaviour and self-reported emotions in a public goods game without and with punishment. This design allows for a between subject comparison of play in our games. Additionally, we explore individual differences in the driving factors behind punishment using the subjects' emotional response.

The experimental results provide new insights into cooperation, punishment behaviour and its motivations. We find that the commonly observed higher contribution level in public goods experiments with peer punishment is predominantly caused by free riders adapting their contribution behaviour to the changes in strategic incentives. Our most striking result is that if costly peer punishment is available, conditional cooperators and free riders are very similar in their punishment behaviour. This result challenges the assumption that free riders are selfish money maximisers and is at odds with the implications of the literature described above. Conditional cooperators and free riders report comparable anger levels, revealing that both types make a similar trade-off between the relief of negative emotions and money when taking the punishment decision.

Our study supports recent experimental evidence suggesting that cooperation and punishment behaviour are not connected and triggered by distinct systems (Peysakhovich et al. 2014). We conclude that instead negative emotions like anger cause our subjects' punishment decisions.

SOCIAL INFORMATION AND SELFISHNESS[1]

Yilong Xu, Tilburg University, Warandelaan 2, Tilburg, the Netherlands
y.xu@uvt.nl
Jan Potters, Tilburg University, Warandelaan 2, Tilburg, the Netherlands
j.j.m.potters@uvt.nl

Abstract

We study whether and how participants react to social information regarding the decisions of other participants in a twice-repeated dictator game, both with and without "earned" property rights of being the dictator. We find that anticipating allocations to be publicly revealed makes dictators more generous in the first round allocation, while learning the first round allocations of others makes dictators become more self-regarding in the second round. In fact, 32% of the dictators in our experiment decrease their offers by half or more after learning others' allocations, whereas this is only 15% without social information. The most self-regarding allocations are found in the second period after reviewing other dictators' allocations in case property right is earned.

Extended Abstract

The availability of social information regarding the decisions of others may affect the degree of selfish decision making.[2] It may curtail selfishness by embarrassing those who behave more selfishly than others do. It may also feed selfishness for those who see others behave (even) more self-regarding than they do themselves. In addition, anticipating that decisions will be publicly revealed may already change individuals' degree of selfishness.

We study whether and how participants react to social information regarding decisions of other participants in a twice-repeated dictator game, both with and without "earned" property rights of being the dictator.[3] In the four treatments of this experiment, we vary whether or not participants receive information about the first round offers of other pairs before they play the second round of the dictator game. Independently we vary whether the property right of being the dictator is

randomly assigned or earned. Studying the interaction between social information and property right is important because entitlements may effect how individuals process social information.

Pervious studies report mixed results concerning social information on selfishness with randomly assigned property right of being the first mover. For instance, Cason and Mui (1998) find that some participants constrain themselves of being more self-regarding in the second decision after they have learnt one other dictator's allocation, while others are not affected by the information. Iriberri and Rey-Biel (2013) find that most dictators become more self-regarding after seeing the information, but they attribute the change to repeated play, rather than to social information per se. Bohnet and Zeckhauser (2004) study repeated ultimatum games and find that both offers and rejection rates increase with social information.

In our experiment we obtain the following results. Firstly, anticipating allocations to be publicly revealed makes dictators more generous in the first round allocation on average. This effect is smaller when property rights for the being the dictator are earned. Secondly, learning the first round allocations of others triggers a greater decline in offers compared to the case social information is not available. Thirdly, the second round allocations are significantly more self-regarding than those in the first round, especially when social information is available. The most self-regarding allocation is found in the second period after reviewing other dictators' allocations in case property right is earned.

The main conclusion of our study is that, anticipating allocations to be publicly revealed makes dictators significantly more generous in the first round, but only when the right to be the dictator is randomly assigned. Individuals exhibit more self-regarding behavior after learning social information, regardless of whether dictator rights are earned or randomly assigned.

Our experiment provides insights into an important policy issue. The Dodd-Frank act in the United States came into effect in 2010. The SEC requires publicly traded companies to reveal CEO-worker pay ratio, which is the ratio between the total compensation of a company's CEO and the median compensation of all other employees. Proponents of this provision believe that disclosing the ratio will shame boards into lowering CEO pay (Murphy, 2012). What is less often argued is that executives might feel entitled to their level of compensation, or even more so, once they learn the compensation levels of their peers.

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[1]We thank CentER at Tilburg University for financial support. We also thank participants at the meeting of the Experimental Economists Tilburg for helpful comments and suggestions.
[2]A number of papers studying charitable giving find that social information about the amount others have contributed increase charitable giving. See e.g., Duffy and Kornienko(2010) on a generosity tournament, and Croson and Shang (2008), and Frey and Meier (2004), for field experiments on social information.
[3]We choose to employ dictator game because we want to study individual preferences in a non strategic setting.

TWO MECHANISMS OF ACCOUNTABILITY: AN EXPERIMENTAL APPROACH

Juha Ylisalo, University of Turku, Finland
jtylis@utu.fi
Kaisa Herne, University of Tampere, Finland
Olli Lappalainen, University of Turku, Finland
Maija Setälä, University of Turku, Finland

Does the accountability of office-holders to the public improve their performance? It can be said that in a well-functioning representative system actors' trust in each other and decision-makers produce outcomes that improve the welfare of the public. The means by which these ends are most often sought to attain are based on the accountability of those with decision-making power to the general public.

Conceptions of accountability that by now have become classical approach accountability from the perspective of sanctioning and the incentives it arguably creates for a decision-maker to act in the best interest of the principals. For example, Fearon (1999, 55) defined accountability entirely in these terms by stating that Y is accountable to X if Y is obliged to act on behalf of X and X is empowered to sanction or reward Y for her activities or performance. However, accountability can also be understood as a relationship based not only on rewards or sanctions but also on decision-makers' obligation to justify their decisions (March and Olsen 1995; Philp 2009). The latter aspect of accountability, or discursive aspects in general, have seldom been addressed in experimental research, however.

We present an experimental design intended to analyse the effects of the opportunity to punish an office-holder, on the one hand, and the requirement of public justification, on the other. The design draws an analogy to democratic decision-making in which experimental subjects act as voters and holders of public office. We expect that the possibility of punishment and the requirement of justification increase both the trust the public has in the office-holder and the payoffs that the members of the public receive as a result of representative decision-making.

The experimental design is based on the trust game where X decides whether to send resources to Y, the latter in turn deciding whether to send some resources back to X (Berg et al. 1995). In the design we propose, increased trust should be reflected in the amounts that first-movers send to the second-mover, and increased incentives to improve the welfare of the public should be visible in the amounts the second-mover returns to the first-movers. In other words, it is assumed that the second-mover's contributions depend on 1) first-movers' contributions, 2) the requirement of the public justification of the second-mover's contribution and 3) the opportunity of the first-movers to punish the second-mover.

There are four treatments in the experiment:

		Opportunity to punish	
		No	Yes
Requirement of public justification	No	Treatment A (Least contributions)	Treatment B (Medium contributions)
	Yes	Treatment C (Medium contributions)	Treatment D (Most contributions)

In the basic game (A), three players participate in a two-stage game. At the beginning, the first-movers (players 1 and 2) are endowed with an amount of experimental units. At stage 1, players 1 and 2 decide whether to exit and keep their endowments or to pass their endowments to the second-mover (player 3). Experimental units sent are multiplied by a constant. At the second stage, player 3 decides how much she sends back to each of the other players and how much she keeps to herself. The set of possible distributions is determined by the experimenters in advance. In treatments B and C, the second-mover is either required to justify the distribution she chooses or the second-movers are able to punish the first-mover after learning her choice. In treatment D, the second-mover is required to give a justification and the first-movers are able to punish her.

In treatments C and D, the second-mover chooses the justification from a set of pre-determined alternatives prior to choosing the distribution, and the set contains 'selfish', 'fair' and 'prosocial' alternatives. The justification is revealed to the first-movers simultaneously with the distribution. The punishments available in treatments B and D are costly to the first-movers if they decide to use them. No communication apart from announcing the justification, where applicable, is allowed in any treatment. All knowledge is common.

The experimental subjects are randomly assigned to groups of three, and each group repeats stages 1 and 2 five times in total. After this, groups are dissolved and the experimental subjects are again randomly assigned to groups. At the end of the experiment, experimental units earned by the participants are converted into euros according to a pre-determined rate.

We expect that the amount of contributions – both those by the first-movers and those by the second-mover – are lowest in treatment A and highest in treatment D, with B and C falling in between. Thus, although the requirement of justification does not change the structure of the game as the possibility of punishment does, we expect public justification to have independent effects apart from and in addition to those that follow from the threat of sanctions.

The experiment will be conducted at the Public Choice Research Centre laboratory at the University of Turku in the autumn of 2015. The participants will be recruited from a pool of voluntary university students.

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THE 'SALES AGENT' PROBLEM: RISK AVERSION AND EFFORT UNDER MULTIPLICATIVE NOISE

Nick Zubanov, Goethe University Frankfurt, Germany
zubanov@econ.uni-frankfurt.de
C. Bram Catsby
Fei Song

Introduction
We study the relationship between effort and risk aversion under a linear incentive pay scheme with a production function where noise to output multiplies with effort. Such multiplicative noise situations occur whenever agent's productivity at the time of exerting effort is uncertain.

Our leading example is that of a sales agent who contacts potential buyers, each contact having a certain probability of a deal, earning a set commission per deal. The more contacts he makes, the higher are his expected earnings, but so too is the earnings variance. Hence, under linear incentives, more risk-averse agents will put in less effort. We show in the theory section of our paper that this prediction holds beyond the mean-variance representation of utility at risk, and that the risk aversion--effort link disappears when noise to output is additive to, and independent of, effort.

Experimental procedures
To test our theoretical predictions -- i) the negative risk aversion--effort link under multiplicative noise and ii) no link under additive noise -- we ran a lab experiment involving 180 student participants. The task was to decide how many ``investment certificates'' to buy out of an endowment of 100 ECUs. The costs of certificates, the same in all treatments, was $0.5*n*n$, where n is the number of certificates bought. The income per certificate differed by treatment as specified below.

Treatments:

- ▶ Additive noise (TADD): each certificate gives the income of 10. 31.6 ECUs will equiprobably be added to or subtracted from the total income from certificates.
- ▶ Multiplicative noise (TMULT): each certificate will win either 20 or 0 with equal probability. Outcomes for each certificate are independent or one another.
- ▶ All or nothing (TAON): all n purchased certificates will either win 20 or 0 each.
- ▶ Control: no noise. Each certificate wins 10.

Thus, given n, the expected income would be the same in each treatment, but the extent of multiplicative noise would differ, being the largest in TAON and zero in TADD or control.

Each participant had to go through all four treatments in a random order. To avoid wealth effects, only one randomly picked treatment was paid. Because we observed different decisions taken by the same individuals under different strength of multiplicative noise, we did not require a particular measure of risk aversion to test our model's predictions. However, we did record the general willingness to take risks as a participant's answer to the following question: ``are you generally a person who is fully prepared to take risks or do you try to avoid taking risks? Tick a box on the scale 0 (not at all willing to take risks) to 10 (very willing to take risks''.

Results

1. The distribution of the number of certificates purchased differs by treatment, with the average number decreasing, and the variance increasing, as one moves from TADD (no multiplicative noise) to TMULT to TAON (strong multiplicative noise).

2. Participants differ in their risk preferences revealed by their choices in different treatments. As the table below shows, 77% of participants have revealed risk preferences consistent with our model.

Type	Criterion	Share
Risk-neutral	$n_{TADD} = n_{TMULT} = n_{TAON} = 10$	18%
Risk-averse	$n_{TAON} \leq n_{TMULT} \leq 10$ AND NOT risk-neutral	45%
Risk-loving	$n_{TAON} \geq n_{TMULT} \geq 10$ AND NOT risk-neutral	14%
Rest		23%

3. The distributions of the willingness to take risks (WTR) scores differs by revealed risk preference type. Participants with revealed risk aversion have lower average WTR than those who are revealed risk-neutral.

4. The number of certificates bought increases with WTR under both TMULT and TAON, and more so under TAON. There is no such correlation under TADD.

Discussion and conclusion

We report clean evidence on the negative risk aversion--effort link under linear incentives and multiplicative noise. Our findings do not depend on a particular measure of risk aversion or a particular form of utility function, and bear implications for the design of incentive schemes. Because any variation in effort levels across agents under the same incentives is inefficient, efficiency gains could be made from incentivizing less productive workers to work harder. This can be accomplished by convexifying incentive schemes, for instance, through performance

targets. Our theory and results supporting it shed light on the use of performance targets in managing effort under multiplicative noise.