Essays on Pro-Social Behavior of Individuals, Firms and States

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Contents

Int	rodu	ction	1
1	One	Good Deed a Day? Experimental Testing of Pro-social Saturation	6
	1.1	Introduction	7
	1.2	Related Literature	8
	1.3	Experimental Design and Procedure	9
	1.4	Experimental Results	12
	1.5	Conclusion	16
	1.6	Appendix	18
2	Inte	r-Charity Competition for Individuals' Contributions- Experimental Testing	
	of S	ubstitution-, Complementary-, and Crowding Out Effects	36
	2.1	Introduction	37
	2.2	Theoretical Background and Related Literature	39
	2.3	Experimental Design and Procedure	42
	2.4	Descriptive Statistics	45
	2.5	Experimental Results	46
	2.6	Discussion	55
	2.7	Appendix	58
3	Mor	al Courage in the Lab – Experimental Testing of Solidarity	83
	3.1	Introduction and Related Literature	84
	3.2	Experimental Design and Procedure	87
	3.3	Descriptive Statistics	89
	3.4	Experimental Results	90
	3.5	Discussion and Conclusion	95
	3.6	Appendix	97
4	Cor	porate Social Responsibility: A Microeconomic Review of the Literature	115
	4.1	Introduction	116
	4.2	Methodological Background	117
	4.3	Theoretical Explanations for Corporate Social Responsibility	117

Contents

	4.4	Empirical Research: Current State of Research	. 127
	4.5	Conclusion and Open Research Questions	133
	4.6	Appendix	. 134
5	Beh	ind the Scenes – What determines elections of non-permanent member	'S
	into	the UNSC?– An empirical analysis	136
	5.1	Introduction	. 137
	5.2	United Nations Security Council	. 139
	5.3	Econometric Setting	. 143
	5.4	Concluding Remarks and Discussion	. 152
	5.5	Appendix	154
Bi	bliog	raphy	163

List of Figures

1.1	Mean Donations in Time 1 and Time 2 and Donation Difference for all	
	Subjects and early Donors	19
1.2	Mean Donations in Time 1 and Time 2 to Organizations for all Subjects	
	and Early Donors	24
1.3	Experimental Instructions Part 1 (Translated from German)-1	31
1.4	Experimental Instructions Part 1 (Translated from German)-2	32
1.5	Experimental Instructions Part 1 (Translated from German)-3	33
1.6	Experimental Instructions Part 2 (Translated from German)-1	34
1.7	Experimental Instructions Part 2 (Translated from German)-2	35
		~ ~
2.1	Mean Donations by Choice	60
2.2	Donations to Organizations - Treatment Effects	61
2.3	Donations to Organizations L-LNI to Choice LNI–SI	66
2.4	Experimental Instructions (Translated from German)-1	81
2.5	Experimental Instructions (Translated from German)-2	82
0.1		00
3.1	Mean Sumyes, yes suffyes by Period- Treatment Effects	98
3.2	Experimental Instructions: Treatment Part A (Translated from German)-1	107
3.3	Experimental Instructions: Treatment Part A (Translated from German)-2	108
3.4	Experimental Instructions: Treatment Part A (Translated from German)-3	109
3.5	Experimental Instructions: Treatment Part B (Translated from German) .	110
3.6	Experimental Instructions: Control Part A (Translated from German)-1 $$. $$	111
3.7	Experimental Instructions: Control Part A (Translated from German)-2 $$. $$	112
3.8	Experimental Instructions: Control Part A (Translated from German)-3 $$.	113
3.9	Experimental Instructions: Control Part B (Translated from German)	114

List of Tables

1.1	Denotation of Treatments	18
1.2	Summary Statistics	18
1.3	OLS Regressions Donation in Time 2	20
1.4	Wilcoxon Signed Rank Test: Donations in Time 1 and Time 2	21
1.5	Wilcoxon-Mann-Whitney-Test: Donation Difference over Time	21
1.6	OLS and Tobit Regressions Donation in Time 2 within SDT and OWT	22
1.7	Wilcoxon-Mann-Whitney Test: Donations in Time 2	23
1.8	Wilcoxon Signed Rank Test: Donations to Organizations Time 1 and Time 2 $$	23
1.9	Wilcoxon-Mann-Whitney-Test: Donation Difference by Charities	23
1.10	Tobit Regressions for Donations in Time 2	25
1.11	OLS Regressions for Donations in Time 2 and Donation Difference \ldots	26
1.12	OLS Regressions Donations in Time 2–Early Donors	27
1.13	Random Effects GLS and Tobit Regressions	28
1.14	Fixed Effects (LSDV) Regressions for Donations over Time	29
1.15	Cross-Correlation Table	30
2.1	Choice Sets	58
2.1 2.2	Choice Sets	58 58
2.12.22.3	Choice Sets	58 58 59
 2.1 2.2 2.3 2.4 	Choice Sets Summary Statistics Summary Statistics Summary Statistics Wilcoxon Signed-Rank Test: Subjects' Mean Donations Random Effects Log-Linear GLS Regression-All Choices Summary	58 58 59 59
 2.1 2.2 2.3 2.4 2.5 	Choice Sets Summary Statistics Summary Statistics Summary Statistics Wilcoxon Signed-Rank Test: Subjects' Mean Donations Random Effects Log-Linear GLS Regression-All Choices Summary Random Effects Log-Linear Regressions–Treatment Effects Summary	58 58 59 59 62
 2.1 2.2 2.3 2.4 2.5 2.6 	Choice Sets	58 58 59 59 62 63
 2.1 2.2 2.3 2.4 2.5 2.6 2.7 	Choice Sets	58 59 59 62 63 64
 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 	Choice Sets	58 59 59 62 63 64
 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 	Choice Sets	58 58 59 59 62 63 64 65
 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 	Choice Sets	 58 58 59 59 62 63 64 65 67
 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 2.10 	Choice Sets	 58 58 59 59 62 63 64 65 67
 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 2.10 	Choice Sets	 58 58 59 59 62 63 64 65 67 67
 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 2.10 2.11 	Choice Sets	 58 58 59 59 62 63 64 65 67 67 68
 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 2.10 2.11 2.12 	Choice Sets	 58 59 59 62 63 64 65 67 68 68

List of Tables

2.14	Wilcoxon Signed-Rank Test: TD by Choice	69			
2.15	Wilcoxon Signed-Rank Test: Unmatched TD by Choice-Treatment Effects 69				
2.16	Wilcoxon Signed-Rank Test: Unmatched Donations by Choice-Treatment				
	Effects	69			
2.17	Wilcoxon Signed-Rank Test: Donations to Charity by Choice	69			
2.18	Wilcoxon Signed-Rank Test: Mean Donations Pre LNI–20 and LNI to				
	within Treatments	70			
2.19	Fixed Effects Log-Linear and Linear GLS Regression–All Choices	71			
2.20 Random Effects Log-Linear GLS Regression–All Choices–TD and othe					
	than DV–Charity	72			
2.21	Wilcoxon-Mann-Whitney-Test: Differences between Treatments 1	73			
2.22	Wilcoxon-Mann-Whitney-Test: Differences between Treatments 2	73			
2.23	Fixed Effects Log-Linear Regression–Treatment Effects	74			
2.24	Fixed Effects Linear Regression–Treatment Effects	75			
2.25	Random Effects Log-Linear Regression with TD- Treatment Effects	76			
2.26	Random Effects Log-Linear Regression with other than DV–Charity–				
	Treatment Effects	77			
2.27	Random Effects and Fixed Effects Log-Linear Regression, Unmatched–				
	Treatment Effects	78			
2.28	TD, Local Giving, National Giving and International Giving by Choice	79			
2.29	Cross Correlation Table	80			
0.1		07			
3.1	Period Payoffs: Depending on Subjects Decision	97			
3.2	Summary Statistics	97			
3.3	Linear Probability Models: Random Effects GLS Regressions – Individual				
~ (Decisions in the Second ten Periods	99			
3.4	Linear Probability Models: Random Effects GLS Regressions – Individual	100			
~ ~	Decisions to Change Behavior	100			
3.5	OLS Regressions – Group Decisions on Mean-Helping and Suff_yes – Sec-				
	ond ten Periods	101			
3.6	Wilcoxon-Mann-Whitney Test: Yes and suff_yes, Second ten Periods	101			
3.7	Linear Probability Models: Fixed Effects Regressions – Individual Deci-				
	sions in the Second ten Periods	102			
3.8	Marginal Effects from RE Logit Regression: Individual Decisions in the				
	Second ten Periods	103			

List of Tables

3.9	Marginal Effects from RE Logit Regression – Individual Decisions to
	Change Behavior
3.10	Linear Probability Models: Fixed Effects Regression – Individual Decisions
	to Change Behavior
3.11	LSDV OLS Regressions – Group Decisions on Mean-Helping and Suff_yes
	– Second ten Periods
4.1	Hypothesis and Empirical Results 1
4.2	Hypothesis and Empirical Results 2
5.1	UN Regional Groups and Number of UNSC-Seats
5.2	List of Variables
5.3	Candidatures, Successful Candidatures, and Probability to Win \ldots . 147
5.4	Summary Statistics for the whole UN
5.5	Summary Statistics for the WEOG
5.6	Summary Statistics for the GRULAC
5.7	Regression Results for the whole UN
5.8	Regression Results for the WEOG
5.9	Regression Results for the GRULAC
5.10	Robustness Checks for the whole UN
5.11	Robustness Checks for the WEOG
5.12	Robustness Checks for the GRULAC

Pro-social behavior is part of our everyday life and plays an important role in many situations. Many people support friends and acquaintances, some even help strangers. Quite a lot of individuals donate clothes and give to charity. But pro-social behavior can not only be observed on the personal level. Numerous firms initiate working mother programs, support schools, hospitals and sport clubs by donations in form of money, equipment or services. Even nation states show preferences for social causes. They provide welfare services for the poor and development aid to needy countries. Subject of the presented work are specific approaches to pro-social behavior of these economic actors.

Many economic and psychological studies have analyzed pro-social behavior on the individual level already (see Fehr and Schmidt (2006) for a review). Individuals' motivations for doing good are diverse. Pro-social behavior might be driven through altruism. On the other hand, Andreoni (1989) points to the fact that social behavior is not entirely unselfish and that individuals receive a positive feeling, the so called 'warm glow', from benevolent acts that increase their utility. Following the idea of selfishness in prima-facie unselfish actions, some authors point to the fact that good deeds are, at least in parts, performed to signal generosity (Harbaugh, 1998b,a, Glazer and Konrad, 1996, Hardy and Vugt, 2006). In other words, individuals might engage pro-socially to increase their reputation. In other words, good deeds can increases individual utility. Further, studies show that individuals systematically incorporate the utility of other actors into their preferences (Charness and Rabin, 2002, Andreoni et al., 2003).

Thus, economist have increasingly turned away from the concept of utility maximization that takes individuals as purely selfish motivated. Although the concept of homo economicus could also include non-egoistic preferences, economists utilize concepts of sociology and social psychology. They do so in order to explain the non-selfish behavior of economic agents that drives market outcomes.

Despite the fact, that most studies on pro-social behavior consider individuals, motivations for– and economic concepts of – pro-social behavior can be transferred to the broader firm and international level. However, due to the fact that a firm has many stakeholders with individual preferences, motivations for firms to behave pro-socially are harder to detect. On the one hand, Corporate Social Responsibility can be driven by

pro-social preferences of managers and other stakeholders (Caroll, 1979). On the other hand, it can be to increase a firm's profit (Baron, 2001). A state's considerations for doing good are also twofold. Sates grant development aid, for example, due to, on the one hand, self-interest driven preferences and, on the other hand, social and altruistic motivations (Berthélemy, 2006).

The cumulative thesis consist of 5 articles where every single paper is fully selfcontained and can be read on its own. The first paper, 'One Good Deed a Day – Experimental Testing of Pro-Social Saturation' is single-authored and is under review at Economics Letters. It has been presented at and improved from numerous comments at four occasions, e. g. the IMEBE conference 2012 in Castellón and the ESA conference 2012 in New York. The second article, 'Inter-Charity Competition for Individuals' Contributions – Experimental Testing of Substitution–, Complementary–, and Crowding Out Effects' also is single-authored. It is currently under review at the Scandinavian Journal of Economics. It was presented at various seminars, most notably at the Behavioral Economics Seminar of the Kiel Institute for the World Economy in 2013 and the Adam Smith Workshop of the University of Hamburg in 2013. The third paper, 'Moral Courage in the Lab – Experimental Testing of Solidarity' is joint work with Jannis Liedtke from the University of Hamburg. The paper has also been presented at and improved from comments received at the ESA conference 2012 in New York. The fourth paper, 'Corporate Social Responsibility: A Microeconomic Review of the Literature' is co-authored with Jan Schrader from the KfW Development Bank, Frankfurt. It was revised according to comments from four anonymous referees and is has accepted for publication in the Journal of Economic Surveys. The fifth paper 'Behind the Scenes – What determines elections of non-permanent members into the UNSC? An empirical analysis' is co-authored with Johannes Schwarze from the University of Hamburg. The paper has been presented at a total of five conferences and seminars. In particular, the paper was improved by comments received at the ETSG conference 2011 in Copenhagen, the EALE conference 2011 in Hamburg, the PEIO conference 2012 in Philadelphia and two internal seminars of the University of Hamburg.

The five articles can be seen as falling into one of three categories. The first two papers deal with pro-social behavior of individuals as they introduce and lay foundations of time dependence of pro-social actions (paper one) and individuals' perception of different charities to each other (paper two). The third article, is a hybrid article connecting individual decisions with those of other economic actors. Like paper one and paper two, the article gives insights into pro-social behavior of individuals and examines costly solidarity among individuals in different sized groups. However, the paper also presents evidence

on coordination behavior in groups and institutions in which memberships sequentially increase. Paper four identifies and classifies motives for pro-social behavior of firms. The fifth paper investigates social behavior on the nation state level. It investigates the influence of voluntary contributions to the United Nations and the effect of (social) ties between countries on a states' likelihood of winning a seat as a non-permanent member in the United Nations Security Council.

The first paper, 'One Good Deed a Day – Experimental testing of Pro-Social Saturation' is an experimental economics paper where, in a multi-session laboratory experiment, I investigate to what extent an individual's social behavior is saturated by charitable contributions. Despite the vast literature on social preferences, economic literature on the time dependence of these preferences is scant. Subjects participated in two temporally different sessions in which they face consecutive decisions to divide their endowment between themselves and a charity. A first group runs through two sessions on the same day and can make a donation declaration each time. A second group of subjects is re-treated a week after their first decision. With this paper, I provide new insights into the temporal structure of warm glow from doing good. I find that, warm glow giving is significantly higher the longer it has been since the last good deed.

My second paper, 'Inter-Charity Competition for Individuals' Contributions- Experimental Testing of Substitution-, Complementary-, and Crowding Out Effects' addresses two questions mainly unresolved in the literature on charitable giving: Firstly, whether charities that operate in different regions but serve the same cause are complements or substitutes? Secondly, how other persons' donations affects individual giving? Little research has been conducted on whether individuals perceive different charities as substitutes or complements i.e. how donations to one charity crowd out or crowd in donations to another. Answering these questions is of particular importance, since the influence of internationally and nationally occurring events and catastrophes like the terrorist attack of September 11, 2001, the Indian Ocean Tsunami in 2004 and Hurricane Sandy in 2012 on donation behavior has sparked the interest of fundraisers and economists alike (cf. Martinez 2006). Further, not only natural and humanitarian catastrophes might influence giving. Since the European Court of Justice decided that gifts to charitable bodies outside of the European countries' natural territory are equally tax deductible (European Court of Justice, 2009), competition between charitable organizations in Europe increased even further. The judgement of the ECJ reduces the relative price of giving to international organizations, if these organizations meet the same standards as in their counterparts in the national territory. Due to a lack of observational data and independent price variations, I experimentally implement a donation dictator game in multiple

periods and investigate individuals willingness to donate to different beneficiaries. By adding various matching and grouping mechanisms, I test for possible substitution or complementary effects between charities as well as for crowding out effects due to the personal giving of others. While charities are perceived as normal goods that satisfy demand for doing good when giving is equally expensive, the local charity is favored over the other charitable organizations. Since total giving rises when an additional charity enters the choice set, I find support for an "unpacking" effect. When relative prices change, cross price elasticities of demand are positive between the local and international charity and vice versa. However, they are close to zero between local and national organizations and positive again between national and international charities. Thus, charities are substitutes. An exception is giving locally and giving nationally, when relative prices of giving are not too high. In this regard, I find that intrinsically motivated subjects are less responsive to matching mechanisms.

The third paper, 'Moral Courage in the Lab – Experimental Testing of Solidarity' also is a laboratory experiment, in which me and Jannis Liedtke mimic economic situations, in which decision makers face the problem of actually passing on individual utility to support others. Our approach mostly resembles a Volunteer's Dilemma game in which a group needs one or several volunteers to assure the provision of a public good (Diekmann, 1985). We introduce a novel experimental design (the moral courage game) in which we test an individuals' willingness to support a member of her group who lost her whole period endowment. We investigate how the helping decision depends on the group size as well as how social norms of helping are carried over from small to big groups. Furthermore, we focus on the impact of a shared group identity in the past on the decision to help. We find that individuals cooperate more in big groups when they have previously been in small groups. Experienced solidarity (positive and negative) in small groups has a significant impact on subsequent behavior in big groups. Further, we find that past experiences drive the decision to help. Subjects show more pro-social behavior, if they experienced solidarity themselves and vice versa. This effect is strengthened when the helper and the loser have a shared group identity in the past.

'Corporate Social Responsibility: A Microeconomic Review of the Literature' provides a review of the theoretical and empirical literature on Corporate Social Responsibility (CSR). Depending on whether an individual can be considered as selfish and whether she has also social preferences, motives for CRS can be explained in different ways. When stakeholders of the firm are purely selfish, social commitment of firms can be used as a communication instrument (Goyal, 2006). It can be utilized to signal profitability to an investor (Jones and Murrel, 2001) or to signal product quality to consumers (Fisman

et al., 2006). CSR can also be an instrument to reduce and forgo governmental regulations (Maxwell et al., 2000, Andries, 2008). When stakeholders have social preferences and firms are profit maximizing, CSR can also be applied to achieve companies' goals. It can be instrumentalized to attract investors with social preferences (Graff Zivin and Small, 2005) or attract more qualified workers (Brekke and Nyborg, 2007). In addition, we consider the situation where all stakeholders might have pro-social preferences. Furthermore, we explicitly highlight the influence of different Corporate Governance Systems on CSR as well as the relationship between firms' size and social commitment.

The fifth paper, 'Behind the Scenes – What determines elections of non-permanent members into the UNSC? An empirical analysis' is an empirical paper investigating a country's likelihood of winning a seat as a non-permanent member on the United Nations Security Council (UNSC). We first examine what criteria are likely to determine elections of non-permanent members to the UNSC and then test for the significance of their influence. We identify a variety of variables which can broadly be separated into three categories: A country's power, its pro-social and mandatory activities within the UN system, and policy relevant characteristics outside of the UN system. UNSC membership is highly attractive to both developing and developed countries. Candidates compete within five regional country groups¹ and elections are increasingly competitive. Applying generalized estimating equations with a logistic link and cluster-robust standard errors, we investigate whether an average state is more likely to be elected to the UNSC as a non-permanent member. Contributing voluntarily to the financing system, the organizations and suborgans of the UN increases the likelihood of receiving a seat on the council. However, we concentrate on the more competitive elections within the groups of Western European and Others and the Group of Latin American Countries. To exclude cold war strategic voting, this article uses data from 1990-2009 and tests for variables representing state power as well as state conduct within and outside the UN system. For the groups tested, our results support the idea that "embeddedness" in the international community through diplomatic delegates and international organizations affects the chances to win a seat significantly positively. We conclude that informal ties within the international community help achieving the desired membership.

¹The groups are: the Western European and Others Group, the Group of Latin American Countries, the African Group, the Asian Group and the Eastern European Group.

Chapter 1 One Good Deed a Day? Experimental Testing of Pro-social Saturation*

Abstract

In a multi-session laboratory experiment, I investigate to what extent an individual's social behavior is saturated by charitable contributions. Subjects participated in two temporally different sessions in which they face consecutive decisions to divide their endowment between themselves and a charity. A first group runs through two sessions on the same day facing their donation declaration. A second group of subjects is re-treated a week after their first decision. With this paper, I provide new insights into the temporal structure of warm glow from doing good. Warm glow giving is significantly higher, the longer it has been since the last good deed.

Keywords

Experimental Economics Warm Glow Charitable Giving Social Preferences

JEL Classification C91, D03, H41

1.1 Introduction

In his seminal work, Andreoni (1989) extends the classic model of pure selfishness by adding impure altruism to the utility functions of individuals. He allows individuals to not only gain utility from consuming private and public goods, but also from the act of doing good itself. This utility gained from prima facie non-selfish actions is denoted as warm glow. Recent empirical and experimental studies support this theory. In particular, they have questioned the assumption of pure selfishness. For example, Charness and Rabin (2002) and Andreoni et al. (2003) show that individuals do indeed mainly act selfishly, but that they systematically incorporate the utility of other actors into their preferences. In other words, they show social preferences (see Fehr and Schmidt (2006) for a review on social preferences). However, the dynamic structure of warm glow is largely unexplored.

More, precisely, the interdependence between time passed between good deeds and the effect of doing good on utility has not been satisfactorily investigated. Whether good deeds make people happier (Lyubomirsky et al., 2004) but only when undertaken on the same day, or whether pro-social behavior tends to lead to more selfish behavior in subsequent decisions (Khan and Dhar, 2006, Brosig et al., 2007, Sass and Weiman, 2012) is mainly unresolved in the economic literature. Additionally, experimental literature considering a temporal horizon in pro-social choices is scant. Given that people regard time as an important factor in economic decisions (Frederick et al., 2002), it is important to know how time affects the maximization of pro-social utility. This is even more important, should subjects social behavior be saturated by good deeds. The question then is: how long is a possible saturation reset time span? Or, in other words: when do individuals want to do good again?

In this paper, I provide new insights into the dynamic structure of warm glow and address the question as to whether individuals' preferences for social activities decline over time when faced with multiple possibilities of doing good.

In detail, subjects are given the possibility to undertake a good deed by giving to one of three real public goods in two sessions. One group of subjects ran through the two sessions within one day (same day treatment (SDT)). The other group was re-treated one week later (one week treatment (OWT)).

The results of this paper provide important information for everyday situations, charitable fundraisers, and economists alike. I find that average giving diminishes over time but the diminishing effect is higher the shorter the time span between the deeds. Additionally, the findings indicate that the length of the time passed between good deeds remedies this effect. Furthermore, mimicking a repeated giving pledge by the same charity has no effect on donations in time 2. When it comes to behaving socially, an additional good deed performed a short while after the first yields less warm glow utility than the initial social act.

The remainder of this paper is organized as follows: Section 1.2 reviews the literature. Section 1.3 describes the experimental design and procedure. In section 1.4, the experimental results are presented. Section 1.5 concludes.

1.2 Related Literature

Regardless of economic models, empirical and experimental studies, only little evidence about the temporal dynamics of social preferences exists.

van Boven and Gilovich (2003) find that the satisfaction received in form of happiness is greater when people purchase experience goods rather than material goods. They define experience purchases as those that are made with the intention of having a life experience whereas material goods are tangible goods that are possessed. In a mood experiment, subjects had to state their feelings about purchases. A week afterwards, the decision was pondered. Although their experience purchase was further back in time subjects who had to ponder their experience purchase decision were happier than those who re-evaluated the material purchase.

Lyubomirsky et al. (2004) find that good deeds such as donating blood, helping a friend, or visiting elderly relatives increase a subject's well being. Over a period of 6 weeks they asked students to perform five of those kind acts, or similar acts, within one week. Subjects had the possibility to perform those acts either within one day or to spread the deeds all over course of the week. Lyubomirsky et al. find an increase in a subject's well being only for those subjects who performed the social activities all in one day. A possible explanation might be that the deeds all had a small impact and that spreading them across different days might not have an ensuing effect on personal happiness, since they might have been less distinguishable from a subject's habitual behavior.

Another strand of psychological literature points in a different direction: good deeds in a previous situation make people behave more selfishly in later situations (Khan and Dhar, 2006, Sachdeva et al., 2009, Mazar and Zhong, 2010, Chiou et al., 2011, Clot et al., 2011). Khan and Dhar (2006) for instance showed that people who contribute to a charity in a first stage are more likely to consume luxury products in a second stage. Chiou et al. (2011) showed that smokers tend to smoke more when taking a dietary supplement that does not prevent lung cancer but has other purposes (to loose weight). This effect of people misbehaving after actually doing something good or healthy is called a licensing effect. After having done something good for themselves or others, people give themselves the moral licence-, or in other words, the permission - to behave more selfishly.

Clot et al. (2011), for example, showed in a classroom experiment that licensing is strongly dependent on the motivation of individuals. Intrinsically motivated individuals tend to donate more to an environmental charity after a voluntary virtuous act (one hour per week for one month in an environmental program), whereas non-intrinsically motivated students donated more after a mandatory virtuous act (one hour per week for one month in an environmental program). However, the authors use a classroom experiment in which only one student received payment, making the cost of the donation relatively low as the expected pay-off was only one Euro.¹

There is scant economic literature on time dependent social preferences. Brosig et al. (2007) find that subjects tend to behave more selfishly over time. Sass and Weiman (2012) find similar results of declining social preferences in a repeated (weekly turns) trust game experiment. Their results however, hint that these preferences might "recharge" over time.² To further investigate how repeated interaction might cause a diminishing or increasing willingness to contribute to charitable causes, a laboratory experiment is most suitable, since decisions over time are hard to tackle in the field. In the laboratory, decisions can be tracked in a controlled environment. In addition, appropriate monetary incentives are applied and the same subjects are re-treated over time, facing simple donation declarations that yield warm glow returns. Unlike Sass and Weiman (2012), where participants played trust games with varying partners, recipients of monetary gifts remained the same in this experiment.

Thus, this experiment helps to fill that void by examining whether social preferences are time dependent. Furthermore, the question as to whether repeated good deeds decrease or increase marginal warm glow utility can be answered.

1.3 Experimental Design and Procedure

I conducted a multi-session donation experiment with a total of ten sessions between early December 2011 and late February 2012. Subjects (240) were recruited from the University of Hamburg Experimental Lab and were randomly divided into two groups.³

¹In a class of 30 students one student received a price of 30 Euro.

 $^{^{2}}$ Also, Landry et al. (2010) conduct a field experiment, in which they solicit donations from the same households that had been approached in Landry et al. (2006). However, time dependence is not the issue in Landry et al. (2010).

³The University of Hamburg uses the ORSEE Software by Greiner (2004) to recruit subjects. The experiment was programmed and conducted with the software z-Tree (Fischbacher, 2007).

Each of the subjects attended two experimental sessions at different points in time where no session lasted no longer than 35 minutes. One group was asked to attend two sessions within one day (4 hour gap between sessions). I call this the "same day treatment" (SDT). The other group was re-treated in weekly turns exactly 7 days after they attended the first session. This is called the "one week treatment" (OWT). In each session, subjects played a dictator game and were offered to make one donation decision. This setting was chosen in order to identify effects of social behavior over time.

In the first session, subjects had to accomplish the real effort slider task by Gill and Prowse (2011) to earn an initial endowment of 20 Euro.⁴ The task of pushing sliders was introduced to impart the feeling of actively working for the money and give subjects a sense of legitimacy over their endowment.

The money was equally distributed over the two sessions. Each subject had 10 Euro in each session. All subjects had to fulfill the task of pushing sliders to avoid crowding out of social preferences through competition (Frey and Jegen, 2001). To ensure that all subjects could accomplish the task they had to push the minimum average sliders (22) in Gill and Prowse's experiment. Further, subjects had 240 seconds to complete the task, which was twice as much as in Gill and Prowse (2011).

In the first session that subjects attended, they were asked to divide the money (in increments of 50 cents) between one of three different charities and themselves. Individual payments were made after the second session.

Every subject's individual contributions were wired online to the respective charities immediately after each session to ensure that subjects can track their individual donations. The first session's individual payments were stored, in presence of the subjects, in an envelope. Subjects received an individual tracking number that was also written on the envelope. After the second session the envelope was, together with the earnings of the second session, handed out to the subjects. There might be a concern, that subjects discounted their future payments and adjusted their giving behavior accordingly. However, a Wilcoxon ranksum test for differences of donation behavior in the first session between SDT and OWT shows non significant results (z=0.891,p=0.37,N=240).

By providing a choice set of charitable organizations with different causes, I eradicate the possibility that subjects are generally willing to contribute but do not, due to a lack of support for the offered charitable organization in general. Furthermore, I limited the choice set to three different charities to avoid a choice overload effect (Kamenica,

⁴Subjects had to push sliders ranging from a value of 0 to a value of 100, exactly to the middle. When pushing the slider, the value of the slider bar only appeared when it stopped, so it was not obvious, where the slider comes to stop. Computer mouses were calibrated at the same sensitivity, so that it was equally difficult for every subject.

2008, Sheena and Kamenica, 2010). Following Reinstein (2007), I choose charities that mimic certain causes. The causes were "basic needs" (Caritas), "health" (Red Cross), and "environment" (Greenpeace). In addition to providing the choice set, subjects received information about the organizations. The information was neutrally phrased, only stating the charities' area of activity.

After the first session, subjects received an individual ID, which allowed to track their decision in session one. At the beginning of the second session, subjects had to enter their individual IDs.⁵

Subjects were divided into two groups by their individual IDs. In this way, I implemented a 2x2 treatment design. In the first session options to give were the same for every subject in all treatments (all three charities from the choice set). However, the groups differ by the possibility to donate in the second session. Subjects in one treatment group could freely give to all three charities, regardless of their previous choice in session 1 (3-charity treatment). This treatment is denoted "same day 3 treatment" (SD_3) for subjects re-treated on the same day. It is denoted "one week 3 treatment" (OW_3) for subjects re-treated in weekly turns. Another group of subjects had, in session 2, the possibility to only give to the same charity as in session 1. This treatment is labeled "same day 1 treatment" (SD_1) for subjects in the daily treatment. It is called "one week 1 treatment" (OW_1) for subjects re-treated in weekly turns.

Thus, subjects who, in the SD_1 or OW_1 treatment, donated to the "Red Cross", for example, only had the possibility of giving to the "Red Cross" again. This setting is chosen because it is closest to the VCM (simply ask for money mechanism). In the SD_3 and OW_3 group, subjects had the possibility to give to all three charities again (see table 1.1 for the denotation of treatments). Those subjects who did not donate at all in the first session also had the possibility to give to all three charitable organizations, regardless of which group they were in. This variation of choice was selected to investigate whether the presence of an additional giving option increases or reduces giving.

This setting of between subjects design with within subject variation allows for the controlling of individuals' decisions over time as well as for the controlling of varying responses due to subjects' being tested over different time periods (SDT and OWT). I am able to check as to whether subjects are more willing to donate within one day or when the time that has passed between the donation decisions is larger. Further, I investigate whether an implicit demand for a certain charity leads to more donations,

⁵The ID was similar to the payment ID. To avoid that another person entered the second time with that ID, Identification cards were shown to a staff member of the experimental laboratory.

⁶ In session 1, subjects did not know about the design of the experiment in session 2. They only received the information, that they will have to attend a second time.

both within one day as well as within one week. Furthermore, since the subjects had to fill in a questionnaire after the second session, I can include socio-economic variables into the analysis.

1.4 Experimental Results

Table 1.2 presents summary statistics of the experiment.

Table 1.2 about here

About 44% of the subjects were re-treated daily and 56% attended again after an interval of one week. SD 1 and SD 3 are variables summarizing the percentage of subjects in the 1 charity and in the 3 charity treatment on the same day. The variables OW 1 and OW 3 show the percentages of subjects in the OWT. The variables Caritas, Red Cross and Greenpeace show the average gift to the respective charitable organizations over the two time periods. Male is a dummy variable equal to 0 if the subject is female and 1 if the subject is male. The average subject was 24 years old, with participants aged from 18 years to 43 years. Net Income is a variable describing the self reported net income of a subject. Socially Active is a dummy variable indicating whether a subject is a voluntary member of some welfare organization. DonBCh 1week and DonBStr 1week are dummy variables indicating that a subject's last donation to a charity (DonBCh 1week) or on the street (DonBStr 1week) was within one week before the experiment. The variables DonBStr 1Never and DonBStr Never indicate that subjects never donated to a charity or on the street (i.e. to a tramp) before the experiment. ChChange No indicates how many subjects changed from giving to a charity in session 1 to not giving at all in session 2. In total 36 subjects who gave in session 1 did change to not donate at all. From these, 4 subjects were previously giving to the Caritas (Caritas No), 22 subjects gave to the Red Cross (Red Cross No) and 10 subjects to Greenpeace (Greenpeace No).⁷ The variable LateDonors Donation T2 describes the mean donation of subjects that switched from not giving in session 1 to giving in session 2. Only 4 subjects decided to do so and gave on average 1 Euro.

The dataset is sufficiently rich to examine the issue of dynamic, time dependent, warm glow utility. A first result emerges:

⁷Only 4 subjects changed from not giving in session 1 to giving in session 2. One subject decided to give 1 Euro to the Red Cross and 3 subjects switched from not giving to giving to Greenpeace in session 2. Their average gift was 1 Euro (Min 0.5, Max 2).

<u>Result 1</u>: Donations diminish over time. Warm glow giving is significantly higher, the longer it has been since the last good deed.

Preliminary evidence for this result is shown in table 1.2. DonDiff is a variable defining the donation difference between time 0 and time 1, which relate to the first session and the second session. In total 96 or 40% of the subjects changed their donation either upwards or downwards but the overall effect shows a downward adjustment of donations. The donation difference is -0.60 Euro for all subjects and -0.90 Euro for early donors.

The variables All_Donations_T1 and All_Donations_T2 are variables depicting the mean donation of all subjects in session 1 and 2 (1.86 Euro and 1.25 Euro respectively). Further, the variables Positive_Donations_T1 and Positive_Donations_T2 are the equivalent variables displaying the mean of donations only for subjects that give (2.72 Euro and 2.26 Euro).

Further evidence for result 1 is provided in figure 1.1.

Figure 1.1 about here

In detail, the figure highlights mean donations in both sessions (time 1 and time 2) as well as the difference in donations between the sessions for all subjects (top part of the figure) and early donors (bottom part of the figure). Early donors are those subjects who already gave in session 1 (time 1). The figure highlights donations by treatments. In the SDT giving diminishes further than in the OWT. This holds for all subjects as well as for early donors. Giving in time 1 of the SDT was 1.63 Euro (SD_1) and 2.28 Euro (SD_3) for all subjects and 2.44 Euro and 3.14 Euro for early donors in the same treatments. In time 2, the second session giving decreases by 0.84 Euro in the SD_1 treatment and by 1.10 Euro in the SD_3 treatment for all subjects. For early donors, giving decreases by 1.32 Euro (SD_1) and 1.54 Euro (SD_3).

In the OWT the effects are smaller. For all subjects giving decreases from 1.73 Euro by 0.23 Euro to 1.49 Euro in the OW_1 treatment. In the OW_3 treatment the effect is larger. Donations decrease by 0.39 Euro from 1.81 Euro to 1.42 Euro. For early donors, the effect is similar. Giving in session 2 is lower than in session 1. In the OW_1 treatment, giving is reduced by 0.36 Euro. Falling from 2.57 Euro to 2.21 Euro. In the OW_3 treatment, giving is reduced by 0.56 Euro. In session 1, early donors give on average 2.70 Euro. In session 2, their average gift is 2.12 Euro.

A two-sample Mann-Whitney test provides statistical evidence for result 1. Donations in time 2 in the OWT are significantly higher than in the SDT for early donors (z=2.517,p=0.01,N=164). Donations in session 2 significantly differ between the OW_1 and SD_1 treatment for early donors (z=2.450,p=0.01,N=77) as well as for all subjects (z=1.761,p=0.8,N=115).⁸

In addition to the non-parametric tests, I present results from ordinary least squares regressions with heteroskedastic robust standard errors (White, 1980) in table 1.3. The results mirror these of the non-parametric test. The difference in donations in session 2 is significantly (at the 1% level) smaller in the OWT than in the SDT. ⁹ Regressions from OLS and Tobit yield similar results with no significant variation in coefficients.

Table 1.3 about here

The dependent variable of the regressions is donation in time 2. To account for the initial donation in the first session, the variable Donation1 (giving in the first session) is included. OWT is a dummy variable, indicating whether a subject is in the weekly treatment. Don1*OWT is an interaction term capturing subjects' donation in session 1 in the OWT. Similarly, the variables OW_1 and OW_3 are dummies indicating whether subjects are in the 1-charity and 3-charity treatment. Don1*OW_1 and Don1*OW_3 are interaction variables for these treatments with the initial donation in the first session. The variable SameCh is a dummy variable, indicating whether subjects gave to the same charity in session 2. The variable ChChangeOther is a variable equal to one if subjects changed their initial giving behavior from one charity to another. The offset variable is changing to no donation.¹⁰

The first three regressions show results for the difference in SDT and OWT. In the fourth and fifth regression, effects for the SD_1 and OW_1 treatment only are presented. The last three columns present regression results for the SD_3 and OW_3 treatment.

Giving in session 1 has a robust and significant positive effect on giving in session 2 (significant at the 1% level). For every Euro contributed in session 1 the donation in session 2 increases by about 0.70 Euro (see column 2). This holds for the 1-charity and 3-charity treatments (see column 5 and column 8). The main treatment effect is captured by the variable OWT. Giving in the weekly treatment is significantly (at the 1% level) higher than in the daily treatment (about 0.43 Euro). In the OW_1 treatment

⁸See table 1.7 for all test results. See also table 1.4, table 1.5 and table 1.6, presenting Wilcoxon signed-rank tests, Mann-Whitney test and OLS and Tobit regressions that highlight these results.

⁹Likewise, tobit regressions for censored data as robustness checks are presented in table 1.10 (Tobin, 1958). Further robustness checks can be found in table 1.11. These robustness checks include also regressions for DonDiff directly. The coefficients for OWT, OW_1 and, OW_3 are positive and significant, indicating a smaller difference in donations between time 1 and time 2 for the OWT treatments. To eradicate the possibility that results are mainly driven by those subjects, that did not give at all, table 1.12 shows regressions restricted to early donors. Results with respect to treatment effects are robust.

¹⁰ Note that, due to a high correlation with age (r=0.2529, p<0.01) the variable for self reported income of subjects (Net Income) is not included into the regression (see Pearson Correlation matrix. Table 1.15).

donations in session 2 are about 0.60 Euro higher than in the SD_1 treatment (column 5). Giving in session 2 is about 0.50 Euro higher in the OW_3 treatment than in the SD_3 treatment (column 8). However, when including both, the interaction terms between treatment and donation in time 1 and the treatment (OWT), the coefficient for the treatment is negative and significant (exept for OW_3). However, the treatment effect is then captured in the interaction term (Don1*OW_1 or Don1*OW_3). The effect is positive and significantly higher than the negative treatment dummy. Thus, regardless of the specification, donations in time 2 are significantly higher in the OWT (and the sub-treatments OW_1 and OW_3) than in the SDT.

The socio-economic variables are non-significant, indicating that result 1 is robust regardless of gender, age and whether or not one is a socially active person. The variables for giving behavior prior to the experiment are also not significant. However, the coefficients are, as expected, negative for the 1 week controls.¹¹

The coefficients of the variables SameCh and ChChangeOther in table 1.3 give rise to result 2:

<u>Result 2</u>: Offering additional choices does not significantly change the dynamic structure of warm glow preferences.

The variables are positive and significant. They show that subjects that give, contribute significantly more than subjects that do not give. However, these variables are included to control for different giving behavior of subjects that decide to change donations to another charity in session 2. The coefficients are not different comparing the OWT and SDT treatment (Wald test: F(1,228)=0.04,p=0.85). This also holds comparing the coefficients of these variables in the SD_3 and the OW_3 treatment (Wald test: F(1,113)=0.48,p=0.49).

Further evidence for this result is presented by a series of Mann Whitney tests (see table 1.5). The results show that there is no significant treatment effect for difference in donations within one day (SD_1 and SD_3) and within one week (OW_1 and OW_3).

¹¹Further evidence for the result is presented in table 1.13. Table 1.13 shows random effects GLS and Tobit regressions. Hausman test as well as Breusch Pagan lagrange multiplier tests for random effects support random effects estimation. P-value after Hausman test: 0.4933. Thus the hypothesis that both, fixed effects and random effects estimation yield similar coefficients can not be rejected (Hausman, 1978). Breusch Pagan test statistics are significant (p-value < 0.01). Thus, the hypothesis that the variance across entities is zero can be rejected (Breusch and Pagan, 1979). Fixed effects LSDV (Least Squares Dummy Variable Regressions) regressions are presented as further robustness checks in table 1.14. However, since including time variant and time invariant variables into the same regression when fixed effects are considered might lead to biased results of time invariant variables, the fixed effects regressions are presented with time variant variables only (Chatelain and Ralf, 2010, Hsiao, 2003). Individual fixed effects are omitted. Results are robust to regression techniques.

Thus, offering more or less choice does not affect the giving behavior. This is highlighted by the fact that only 24 subjects out of 125 subjects in the 3-charity treatment switch in giving to another charity in session 2.¹² Thus, an amount of three charities does not lead to a choice overload effect. A critical mass as stated in Kamenica (2008) and Sheena and Kamenica (2010) that potentially reduces giving further to a situation of only one choice is not reached with three organizations. Neither, however, did the extra options increase individual gifts to a charity.

1.5 Conclusion

The experiment gives interesting insights into human social behavior in general and into donation behavior with repeated, time varying choices in particular. First and foremost, result 1 is consistent with a diminishing marginal warm glow effect of voluntary giving. When subjects are given two opportunities to contribute to a charitable cause, giving in the second round is significantly lower than when the subjects first decides if she wants to give. This diminishing effect, however, is higher the shorter the period of time between the social decisions. Time passed remedies the diminishing effect.

Secondly, result 2 shows, that there is no difference in giving, when subjects have multiple options in the second giving session. Regardless whether there is one possibility to give or three, donations within the daily treatment and within the weekly treatment are not statistically different from another. This indicates, that creating a demand effect by a charitable organization which could be understood as frequent soliciting does not have a significant impact on giving behavior.

I interpret the results as follows: when individuals are faced with subsequent decisions of doing good, they satisfy most of their demand for doing good (warm glow preferences) with the first good deed. The second good deed yields less warm glow utility. However, as time passes, the demand for doing good recharges and a second good deed yields more utility the greater the time difference between the social acts. Thus, the saying "One good deed a day" does not only encourage people to do good once, but the results of this experiment imply that after having done a good deed, subjects do not feel the need for a second good deed. If anything, a performed good deed leads to more selfish behavior when the opportunity for a second benevolent act arises.

The findings are important for everyday life, charitable fundraisers and researchers

¹²In detail, 2 subjects changed from giving to Caritas to giving to the Red Cross. One subject switched from giving to the Red Cross to contributing to Caritas and 9 subjects decided to rather donate to Greenpeace instead. In total 13 subjects decided to not give to Greenpeace in session 2 anymore. Seven of the 13 gave to the Red Cross instead and 4 subjects gave to Caritas.

alike. Asking friends for help frequently reduces the benefit they receive from helping us. Thus, they might be less willing to offer their assistance.

Since soliciting is costly, fundraisers should keep in mind that pleading a second time reduces giving. Therefore, in order to receive more contributions, the second appeal should not be timed too soon after the first.

The results of the experiment are also of value to researchers. When modeling social preferences, monotonicity is not an issue. An additional good deed does not increase warm glow utility. Quite the contrary, it reduces warm glow utility. However, the length of time, passed between good deeds, diminishes this effect. Therefore, theorists should incorporate these findings into their models, allowing for the possibility of moral saturation. When conducting experiments on charitable giving, researchers should control for the fact that previous good deeds might significantly influence decision behavior in the lab.

However, the results of the paper are only first insights into the time dependence of social preferences. Further experiments should in depth examine the issue to find the optimal interval to address subjects a second time. More precisely, further experimental research should concentrate on the recharge effect of warm glow to find out when subjects demand for doing good is reset to the initial level.

1.6 Appendix

1.6.1 Tables and Graphs

Table 1.1: Denotation of Treatments

# of choices in session 2	Same Day (SDT)	One Week (OWT)
1 charity	SD_1	OW_1
3 charities	SD_3	OW_3

	mean	sd	min	max	Ν
Subject	120.5	69.35371	1	240	480
Time	.5	.5005216	0	1	480
SDT	.4416667	.4971037	0	1	480
OWT	.5583333	.4971037	0	1	480
SD_1	.2125	.4095035	0	1	480
SD_3	.2291667	.4207352	0	1	480
OW_1	.2666667	.442678	0	1	480
OW_3	.2916667	.4550039	0	1	480
Red Cross	.3104167	.4631469	0	1	480
All Donations	1.554167	2.010459	0	10	480
Positive Donations	2.26372	2.076104	0	10	328
Don $T\overline{1}$.6833333	.4656615	0	1	480
All Donations T1	1.858333	2.108147	0	10	240
All Donation T2	1.25	1.862985	0	10	240
Positive Donation T1	2.719512	2.039634	.5	10	164
Positive Donation T2	2.255639	1.999637	.5	10	133
Caritas	1.878049	1.649926	.5	8	41
Red Cross	2.647651	2.124903	.5	10	149
Greenpeace	2.541667	2.008306	.5	10	108
LateDonors Donation T2	1	.7071068	.5	2	4
DonDiff	6083333	1.315634	-8	5	240
DonDiff Early Donors	9054878	1.489812	-8	5	164
Age	24.6	4.103871	18	43	480
Age2	621.9667	225.7927	324	1849	480
Male	.5166667	.5002435	0	1	480
NetIncome	615.8675	296.0112	60	1500	468
SociallyActive	.1875	.3907196	0	1	480
DonBCh 1week	.0583333	.2346172	0	1	480
DonBStr 1week	.1208333	.3262735	0	1	480
DonBCh Never	.25	.4334645	0	1	480
DonBStr Never	.1458333	.3533073	0	1	480
ChChange No					36
Caritas No					4
Red Cross No					22
Greenpeace No					10

Table 1.2: Summary Statistics

One Good Deed a Day? Experimental Testing of Pro-social Saturation



Figure 1.1: Mean Donations in Time 1 and Time 2 and Donation Difference for all Subjects and early Donors

Treatment	SDT OWT	SDT OWT	SDT OWT	SD 1 OW 1	SD 1 OW 1	SD 1 OW 1	SD 2 OW 2	SD 2 OW 2	SD 2 OW 2
Dependent Variable	Donation2	Donation2	Donation2	Donation2	Donation2	Donation2	Donation2	Donation2	Donation2
Donation1	0.702***	Donations	0.477***	0.754***	Donation2	0.359**	0.645***	Donations	0.516***
	(0.0585)		(0.0087)	(0.103)		(0.157)	(0.0773)		(0.0804)
OWT	$\begin{array}{c} 0.443^{***} \\ (0.132) \end{array}$		-0.255^{**} (0.118)						
Don1*OWT		0.700^{***} (0.0665)	0.383^{***} (0.0835)						
OW_1				0.608^{***} (0.213)		-0.392** (0.194)			
Don1*OW_1					0.840^{***} (0.0599)	0.600^{***} (0.163)			
OW_3							0.500^{**} (0.241)		-0.0245 (0.255)
Don1*OW_3								0.576^{***} (0.111)	0.247^{**} (0.120)
SameCh	1.468^{***} (0.203)	0.988^{***} (0.161)	1.367^{***} (0.179)				1.416^{***} (0.242)	1.075^{***} (0.232)	1.416^{***} (0.242)
ChChangeOther	1.515^{***} (0.308)	1.718^{***} (0.335)	1.457^{***} (0.292)				1.621^{***} (0.338)	1.918^{***} (0.365)	1.605^{***} (0.341)
Male	$0.0466 \\ (0.114)$	$0.151 \\ (0.151)$	0.0363 (0.109)	-0.114 (0.169)	-0.244 (0.216)	-0.230 (0.165)	$0.160 \\ (0.171)$	0.433^{*} (0.230)	$0.185 \\ (0.167)$
Age	0.0120 (0.0192)	0.0224 (0.0180)	$0.0135 \\ (0.0158)$	0.0111 (0.0337)	$\begin{array}{c} 0.0107 \\ (0.0192) \end{array}$	0.00702 (0.0227)	$0.0166 \\ (0.0324)$	$0.0384 \\ (0.0387)$	0.0216 (0.0317)
Socially Active	$0.142 \\ (0.182)$	0.640^{**} (0.253)	0.298^{*} (0.173)	$0.104 \\ (0.249)$	0.619 (0.373)	$0.378 \\ (0.268)$	$0.139 \\ (0.291)$	$0.562 \\ (0.349)$	0.211 (0.268)
DonBCh_1week	-0.0479 (0.209)	-0.258 (0.196)	-0.108 (0.152)	-0.556 (0.516)	-0.491^{**} (0.221)	-0.612^{*} (0.328)	0.0335 (0.198)	-0.269 (0.324)	0.00467 (0.180)
$DonBStr_1week$	-0.0453 (0.118)	$0.103 \\ (0.265)$	$\begin{array}{c} 0.0318 \\ (0.138) \end{array}$	$0.152 \\ (0.173)$	$\begin{array}{c} 0.00401 \\ (0.278) \end{array}$	$0.0685 \\ (0.196)$	-0.0810 (0.216)	$0.212 \\ (0.451)$	$0.0481 \\ (0.218)$
$DonBCh_Never$	-0.348^{**} (0.168)	-0.192 (0.185)	-0.283^{*} (0.147)	-0.113 (0.284)	-0.0818 (0.201)	-0.161 (0.202)	-0.486^{*} (0.261)	-0.202 (0.298)	-0.351 (0.259)
$DonBStr_Never$	$0.0218 \\ (0.221)$	-0.296 (0.235)	-0.0180 (0.207)	$\begin{array}{c} 0.0721 \\ (0.155) \end{array}$	-0.361^{**} (0.163)	$0.163 \\ (0.130)$	$0.208 \\ (0.368)$	-0.115 (0.356)	0.0807 (0.363)
Constant	-1.809*** (0.491)	-1.005^{**} (0.476)	-1.374^{***} (0.442)	-0.622 (0.903)	0.233 (0.442)	0.164 (0.663)	-1.902** (0.818)	-1.493 (0.985)	-1.765^{**} (0.783)
N	240	240	240	115	115	115	125	125	125
R ² F	$0.732 \\ 26.97$	$0.595 \\ 26.19$	$0.776 \\ 40.78$	$0.733 \\ 17.54$	$0.732 \\ 34.84$	$0.827 \\ 63.74$	$0.683 \\ 13.18$	$0.480 \\ 11.13$	$0.701 \\ 15.75$

Table 1.3: OLS Regressions Donation in Time 2

r20.3120.1340.1511.0404.0Robust standard errors in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01

$Donations_T1 = Donations_T2$	All Subjects	Early Donors
No Rest.	7.806***	8.081***
SDT	6.642^{***}	6.849^{***}
OWT	4.182^{***}	4.245^{***}
SD_1	4.406***	4.615***
SD 3	4.992***	5.070^{***}
OW 1	3.062^{***}	3.393^{***}
_OW_3	2.939***	2.815**

Table 1.4: Wilcoxon Signed Rank Test: Donations in Time 1 and Time 2 $% \left({{\left({{{{\rm{T}}}} \right)}} \right)$

Z-Values, * p < 0.1, ** p < 0.05, *** p < 0.01

Table 1.5: Wilcoxon-Mann-Whitney-Test: Donation Difference over Time

DonDiff	All Subjects	Early Donors
SDT-OWT	-3.974***	-4.518***
SD_1-SD_3	-0.948	-0.825
OW_1-OW_3	-0.694	-0.676
SD_1-OW_1	-2.845^{***}	-3.422***
SD_3-OW_3	-2.821***	-3.016***
Z-Values; * $p < 0$	0.1, ** p < 0.05	, *** $p < 0.01$

1.6.2 Robustness Checks

	OLS	Tobit	OLS	Tobit
Treatment	OW_1-OW_3	OW_1-OW_3	SD_1-SD_3	SD_1-SD_3
Dependent Variable	Donation2	Donation2	Donation2	Donation2
Donation1	0.880***	0.899***	0.444***	0.444^{***}
	(0.0511)	(0.0570)	(0.0860)	(0.0823)
0.001	0.0545	0.0500		
Ow_1	0.0545	0.0596		
	(0.168)	(0.165)		
SD 1			0.0761	0.0761
SD_1			-0.0701	-0.0701
			(0.241)	(0.230)
Male	0.274*	0.292*	-0.270	-0.270
Willie	(0.153)	(0.153)	(0.204)	(0.195)
	(01100)	(01100)	(0.201)	(01100)
Age	0.0156	0.0170	0.00153	0.00153
	(0.0219)	(0.0214)	(0.0345)	(0.0330)
	(/	()	()	()
Socially Active	0.420*	0.411*	0.406	0.406
0	(0.250)	(0.241)	(0.289)	(0.276)
DonBCh 1week	0.237	0.250	-0.507	-0.507
—	(0.188)	(0.183)	(0.359)	(0.343)
DonBStr 1week	0.0792	0.0804	0.201	0.201
—	(0.133)	(0.134)	(0.321)	(0.307)
DonBCh_Never	-0.317	-0.307	-0.0202	-0.0202
	(0.210)	(0.208)	(0.268)	(0.256)
DonBStr_Never	0.271	0.266	-0.133	-0.133
	(0.349)	(0.338)	(0.226)	(0.217)
Constant	-0.691	-0.761	0.202	0.202
	(0.559)	(0.550)	(0.923)	(0.883)
Sigma		0.961***		1.032***
N	194	(0.121)	106	(0.0942)
D2	104	104	100	100
	0.801	0.971	0.480	0.104
rseudo K ⁻	47 00	0.371	F 14F	0.184
F	47.33	36.78	5.145	5.628
Log Pseudolikelihood		-184.0		-103.8

Table 1.6: OLS and Tobit Regressions Donation in Time 2 within SDT and OWT

 $\frac{2 \log 1 \log 1}{\text{Robust standard errors in parentheses; * } p < 0.1, ** p < 0.05, *** p < 0.01$

Donations in T2	All Subjects	Early Donors
SDT-OWT	-1.508	-2.517***
SD_1-SD_3	-1.259	-1.278
OW_1-OW_3	0.72	0.163
SD_1-OW_1	-1.761*	-2.450***
SD_3-OW_3	-0.438	-1.235
Z-Values, * $p < 0$.	1, ** p < 0.05,	*** $p < 0.01$

Table 1.7: Wilcoxon-Mann-Whitney Test: Donations in Time 2

Table 1.8: Wilcoxon Signed Rank Test: Donations to Organizations Time 1 and Time 2 $\,$

DonationsT1 = DonationsT2	SDT	OWT						
Caritas	2.351**	1.728*						
Red Cross	3.525^{***}	1.776^{*}						
Greenpeace	2.204^{**}	1.365						
Z-Values, * $p < 0.1$, ** $p < 0.$	Z-Values, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$							

Table 1.9: Wilcoxon-Mann-Whitney-Test: Donation Difference by Charities

DonDiff (SDT-OWT)	All Subjects	Early Donors
Caritas	-1.754*	-1.869*
Red Cross	-2.871^{***}	-2.023**
Greenpeace	-2.735***	-1.724*
Z-Values, * $p < 0.1$, **	p < 0.05, *** p	0 < 0.01



Figure 1.2: Mean Donations in Time 1 and Time 2 to Organizations for all Subjects and Early Donors

One Good Deed a Day? Experimental Testing of Pro-social Saturation

Treatment	SDT-OWT	SDT-OWT	SDT-OWT	SD 1-0W 1	SD 1-0W 1	SD 1-0W 1	SD 3-0W 3	3 SD 3-OW 3	SD 3-0W 3
DV	Donation2	Donation2	Donation2	Donation2	Donation2	Donation2	Donation2	Donation2	Donation2
Donation1	0.710^{***} (0.0606)		0.478^{***} (0.0670)	0.766^{***} (0.105)		0.359^{**} (0.150)	0.651^{***} (0.0780)		0.516^{***} (0.0762)
OWT	0.450^{***} (0.130)		-0.275^{**} (0.119)						
Don1*OWT		0.717^{***} (0.0724)	0.399^{***} (0.0857)						
OW_1				0.617^{***} (0.208)		-0.418^{**} (0.189)			
Don1*OW_1					0.861^{***} (0.0682)	0.622^{***} (0.159)			
OW_3							0.506^{**} (0.233)		-0.0439 (0.248)
Don1*OW_3								0.587^{***} (0.115)	0.259^{**} (0.122)
SameCh	1.473^{***} (0.201)	0.987^{***} (0.160)	1.371^{***} (0.176)				1.422^{***} (0.233)	1.078^{***} (0.225)	1.422^{***} (0.233)
ChChangeOther	1.507^{***} (0.304)	1.702^{***} (0.333)	1.443^{***} (0.288)				1.616^{***} (0.325)	1.911^{***} (0.354)	1.598^{***} (0.327)
Male	$\begin{array}{c} 0.0519 \\ (0.113) \end{array}$	$\begin{array}{c} 0.161 \\ (0.150) \end{array}$	$\begin{array}{c} 0.0430 \\ (0.108) \end{array}$	-0.106 (0.164)	-0.237 (0.210)	-0.224 (0.158)	$0.164 \\ (0.165)$	0.441^{*} (0.224)	$0.190 \\ (0.160)$
Age	$\begin{array}{c} 0.0123 \\ (0.0189) \end{array}$	$\begin{array}{c} 0.0229 \\ (0.0177) \end{array}$	$\begin{array}{c} 0.0140 \\ (0.0154) \end{array}$	$\begin{array}{c} 0.0110 \\ (0.0328) \end{array}$	$\begin{array}{c} 0.0106 \\ (0.0187) \end{array}$	$\begin{array}{c} 0.00681 \\ (0.0218) \end{array}$	$\begin{array}{c} 0.0175 \\ (0.0311) \end{array}$	$0.0399 \\ (0.0377)$	$\begin{array}{c} 0.0230 \\ (0.0304) \end{array}$
Socially Active	$\begin{array}{c} 0.133 \\ (0.179) \end{array}$	0.637^{**} (0.248)	0.294^{*} (0.168)	$\begin{array}{c} 0.0932 \\ (0.241) \end{array}$	0.617^{*} (0.362)	$\begin{array}{c} 0.375 \\ (0.256) \end{array}$	$\begin{array}{c} 0.131 \\ (0.279) \end{array}$	0.557^{*} (0.333)	$0.205 \\ (0.253)$
$DonBCh_1week$	-0.0431 (0.206)	-0.253 (0.192)	-0.104 (0.148)	-0.548 (0.502)	-0.476^{**} (0.214)	-0.603* (0.315)	$\begin{array}{c} 0.0354 \\ (0.189) \end{array}$	-0.269 (0.309)	0.00553 (0.169)
$DonBStr_1week$	-0.0472 (0.115)	$\begin{array}{c} 0.105 \\ (0.261) \end{array}$	$\begin{array}{c} 0.0325 \\ (0.135) \end{array}$	$\begin{array}{c} 0.153 \\ (0.169) \end{array}$	$\begin{array}{c} 0.00385 \\ (0.271) \end{array}$	$\begin{array}{c} 0.0669 \\ (0.191) \end{array}$	-0.0859 (0.207)	$\begin{array}{c} 0.212 \\ (0.432) \end{array}$	0.0485 (0.207)
${\rm DonBCh_Never}$	-0.348^{**} (0.167)	-0.189 (0.184)	-0.280^{*} (0.145)	-0.106 (0.279)	-0.0711 (0.201)	-0.154 (0.197)	-0.491^{*} (0.252)	-0.205 (0.287)	-0.351 (0.247)
$DonBStr_Never$	$0.0239 \\ (0.217)$	-0.295 (0.230)	-0.0169 (0.202)	$0.0804 \\ (0.151)$	-0.356^{**} (0.157)	$0.178 \\ (0.127)$	$\begin{array}{c} 0.210 \\ (0.352) \end{array}$	-0.116 (0.341)	$0.0758 \\ (0.344)$
Constant	-1.835^{***} (0.487)	-1.032^{**} (0.472)	-1.391^{***} (0.434)	-0.645 (0.879)	0.217 (0.430)	$0.162 \\ (0.635)$	-1.936^{**} (0.796)	-1.539 (0.966)	-1.801^{**} (0.754)
Sigma	0.974***	1.196***	0.890***	1.010***	1.011***	0.812***	1.018***	1.304***	0.988***
Ν	(0.0816) 240	(0.0989) 240	(0.0790) 240	(0.152) 115	(0.142) 115	(0.0914) 115	(0.115) 125	(0.131) 125	(0.118) 125
Pseudo R ²	0.3198	0.2223	0.3657	0.3153	0.3178	0.4226	0.2854	0.1637	0.3010
F Log Pseudolikelihood	$26.36 \\ -334.8$	23.87 -382.8	$36.13 \\ -312.2$	$17.57 \\ -164.5$	28.50 -163.9	$45.35 \\ -138.7$	$13.73 \\ -179.7$	11.36 -210.3	16.18 -175.8

Table 1.10: Tobit Regressions for Donations in Time 2

Robust standard errors in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01

Donation1	0.702^{***} (0.0583)	$\frac{\text{Donation2}}{0.695^{***}}$ (0.0584)	$\frac{\text{Donation2}}{0.703^{***}}$ (0.0616)	Donation2	DonDiff -0.306*** (0.0586)	DonDiff	Donation2	$\frac{\text{DonDiff}}{-0.246^{**}}$ (0.103)	DonDiff	DonDiff -0.339*** (0.0744)	DonDiff	DonDiff -0.355*** (0.0773)	DonDiff
OWT	0.443*** (0.132)	0.426^{***} (0.135)	0.633*** (0.153)	$0.324 \\ (0.213)$	0.426^{***} (0.135)	0.491^{***} (0.166)							
OW_{-1}							0.766^{**} (0.347)	0.608^{***} (0.213)	0.557^{**} (0.236)				
OW_3										0.694^{***} (0.264)	0.870^{***} (0.292)	0.500^{**} (0.241)	0.649^{**} (0.282)
SameCh	$1.468^{***} \\ (0.203)$	1.458^{***} (0.200)		1.317^{**} (0.160)	1.459^{***} (0.201)	1.529^{***} (0.285)						1.416^{***} (0.242)	1.526^{***} (0.353)
ChChangeOther	1.515^{***} (0.308)	1.537^{**} (0.316)		2.581^{***} (0.311)	1.557^{**} (0.314)	1.059*** (0.370)						1.621^{***} (0.338)	$\frac{1.141^{***}}{(0.421)}$
Male	0.0466 (0.114)	0.0665 (0.118)	0.0628 (0.135)	$\begin{array}{c} 0.281 \\ (0.225) \end{array}$	0.0665 (0.118)	-0.0500 (0.151)	0.0843 (0.360)	-0.114 (0.169)	-0.178 (0.195)	$0.164 \\ (0.204)$	$0.0919 \\ (0.244)$	$\begin{array}{c} 0.160 \\ (0.171) \end{array}$	0.00663 (0.219)
Age	$\begin{array}{c} 0.0120 \\ (0.0192) \end{array}$		$0.00945 \\ (0.0235)$	0.0338 (0.0276)	0.00996 (0.0198)	$0.00122 \\ (0.0261)$	$0.0284 \\ (0.0335)$	$\begin{array}{c} 0.0111\\ (0.0337) \end{array}$	$0.00544 \\ (0.0418)$	0.00557 (0.0348)	-0.00170 (0.0382)	0.0166 (0.0324)	-0.0000542 (0.0359)
Net Income		$\begin{array}{c} 0.000231 \\ (0.000267) \end{array}$			$\begin{array}{c} 0.000196 \\ (0.000275) \end{array}$	$\begin{array}{c} 0.0000821 \\ (0.000279) \end{array}$							
Socially Active	0.142 (0.182)	0.142 (0.193)	$0.224 \\ (0.194)$	0.415 (0.316)	$\begin{array}{c} 0.140 \\ (0.193) \end{array}$	$0.0244 \\ (0.207)$	$0.325 \\ (0.447)$	$0.104 \\ (0.249)$	0.0316 (0.238)	0.336 (0.284)	$0.240 \\ (0.321)$	$\begin{array}{c} 0.139 \\ (0.291) \end{array}$	$\begin{array}{c} 0.00336 \\ (0.320) \end{array}$
DonBCh_1week	-0.0479 (0.209)	-0.0329 (0.217)	-0.147 (0.272)	-0.494^{*} (0.263)	-0.0423 (0.221)	$0.155 \\ (0.314)$	-0.816^{***} (0.286)	-0.556 (0.516)	-0.472 (0.663)	$\begin{array}{c} 0.191 \\ (0.197) \end{array}$	0.555** (0.218)	0.0335 (0.198)	0.270 (0.203)
$\rm DonBStr_1week$	-0.0453 (0.118)	-0.0283 (0.121)	$\begin{array}{c} 0.105 \\ (0.150) \end{array}$	-0.341 (0.309)	-0.0418 (0.122)	0.0842 (0.163)	-0.312 (0.343)	0.152 (0.173)	0.303 (0.274)	-0.00760 (0.262)	0.0165 (0.270)	-0.0810 (0.216)	0.00343 (0.206)
DonBCh_Never	-0.348^{**} (0.168)	-0.349**(0.164)	-0.306 (0.190)	-0.246 (0.262)	-0.340^{**} (0.170)	-0.388* (0.222)	-0.0575 (0.428)	-0.113 (0.284)	-0.131 (0.343)	-0.523^{*} (0.286)	-0.591 (0.358)	-0.486^{*} (0.261)	-0.587*(0.344)
DonBStr_Never	0.0218 (0.221)	0.0328 (0.224)	$\begin{array}{c} 0.194 \\ (0.217) \end{array}$	-0.734^{**} (0.300)	0.0179 (0.231)	0.336 (0.266)	-1.344^{***} (0.355)	0.0721 (0.155)	0.533^{**} (0.218)	0.380 (0.350)	$0.582 \\ (0.417)$	0.208 (0.368)	0.475 (0.424)
Constant	-1.809*** (0.491)	-1.644^{***} (0.275)	-0.672 (0.598)	-0.981 (0.682)	-1.865^{**} (0.497)	-2.172^{***} (0.623)	$0.191 \\ (0.837)$	-0.622 (0.903)	-0.887 (1.037)	-0.628 (0.838)	-1.227 (0.941)	-1.902^{**} (0.818)	-2.237^{**} (0.966)
${ m R}^2$	$240 \\ 0.732 \\ 26.97$	$234 \\ 0.728 \\ 26.34$	$240 \\ 0.656 \\ 20.97$	$240 \\ 0.158 \\ 13.29$	$234 \\ 0.466 \\ 9.655$	$234 \\ 0.253 \\ 5.167$	$115 \\ 0.0979 \\ 3.708$	115 0.281 3.080	$\begin{array}{c} 115\\ 0.100\\ 2.247\end{array}$	$125 \\ 0.361 \\ 5.128$	$125 \\ 0.127 \\ 3.285$	125 0.496 10.60	$125 \\ 0.263 \\ 6.068$

Table 1.11: OLS Regressions for Donations in Time 2 and Donation Difference

26

One Good Deed a Day? Experimental Testing of Pro-social Saturation

One Good Deed a Day? Experimental Testing of Pro-social Saturation

Treatment	SDT-OWT	SDT-OWT	SDT-OWT	SD 1-OW 1	SD 1-OW 1	SD 1-OW 1	SD 3-OW 3	SD 3-OW 3	SD 3-OW 3
DV	Donation2	Donation2	Donation2	Donation2	Donation2	Donation2	Donation2	Donation2	Donation2
Donation1	0.685^{***} (0.0744)		0.429^{***} (0.0897)	0.822^{***} (0.106)		0.370^{*} (0.187)	0.584^{***} (0.115)		0.466^{***} (0.113)
OWT	0.734^{***} (0.194)		-0.403 (0.260)						
Don1*OWT		0.593^{***} (0.0825)	0.417^{***} (0.107)						
OW_1				1.059^{***} (0.322)		-0.585 (0.370)			
Don1*OW_1					0.816^{***} (0.0721)	0.647^{***} (0.194)			
OW_3							0.693^{**} (0.306)		0.0413 (0.502)
Don1*OW_3								0.419^{***} (0.145)	$0.222 \\ (0.181)$
SameCh	1.508^{***} (0.231)	1.478^{***} (0.203)	1.502^{***} (0.207)				1.637^{***} (0.292)	1.862^{***} (0.322)	1.672^{***} (0.292)
ChChangeOther	1.548^{***} (0.324)	1.828^{***} (0.337)	1.525^{***} (0.311)				1.738^{***} (0.361)	2.033^{***} (0.365)	1.738^{***} (0.363)
Male	$\begin{array}{c} 0.0576 \\ (0.170) \end{array}$	$0.295 \\ (0.211)$	0.0558 (0.167)	-0.364 (0.242)	-0.317 (0.309)	-0.453* (0.246)	$0.285 \\ (0.265)$	0.642^{*} (0.325)	$0.313 \\ (0.264)$
Age	$\begin{array}{c} 0.00662\\ (0.0257) \end{array}$	$\begin{array}{c} 0.0104 \\ (0.0243) \end{array}$	$\begin{array}{c} 0.00685 \\ (0.0219) \end{array}$	-0.0198 (0.0451)	-0.00483 (0.0283)	-0.0188 (0.0305)	$\begin{array}{c} 0.000903 \\ (0.0457) \end{array}$	-0.0291 (0.0492)	$\begin{array}{c} 0.000493 \\ (0.0446) \end{array}$
Socially Active	$\begin{array}{c} 0.317 \\ (0.250) \end{array}$	0.701^{**} (0.317)	$\begin{array}{c} 0.395 \\ (0.245) \end{array}$	$\begin{array}{c} 0.429 \\ (0.321) \end{array}$	$0.709 \\ (0.469)$	0.558 (0.338)	$0.289 \\ (0.400)$	$0.762 \\ (0.461)$	$0.337 \\ (0.376)$
DonBCh_1week	-0.0494 (0.282)	-0.411 (0.265)	-0.149 (0.212)	-0.674 (0.735)	-0.747^{**} (0.351)	-0.889* (0.497)	-0.121 (0.332)	-0.831 (0.535)	-0.152 (0.334)
DonBStr_1week	-0.00829 (0.165)	$\begin{array}{c} 0.00879 \\ (0.332) \end{array}$	$\begin{array}{c} 0.0329 \\ (0.196) \end{array}$	$\begin{array}{c} 0.282 \\ (0.311) \end{array}$	-0.000994 (0.436)	$\begin{array}{c} 0.0814 \\ (0.315) \end{array}$	-0.0811 (0.279)	$\begin{array}{c} 0.0494 \\ (0.528) \end{array}$	$\begin{array}{c} 0.0129 \\ (0.288) \end{array}$
DonBCh_Never	-0.460^{*} (0.257)	-0.127 (0.264)	-0.337 (0.232)	-0.358 (0.477)	-0.0460 (0.339)	-0.216 (0.316)	-0.571 (0.385)	-0.241 (0.396)	-0.445 (0.396)
DonBStr_Never	-0.00774 (0.451)	-0.190 (0.446)	$\begin{array}{c} 0.00947 \\ (0.442) \end{array}$	-0.0444 (0.232)	-0.423* (0.218)	0.318 (0.196)	$\begin{array}{c} 0.122 \\ (0.569) \end{array}$	-0.198 (0.567)	0.0333 (0.576)
Constant	-1.807*** (0.680)	-0.735 (0.632)	-1.129* (0.635)	-0.252 (1.203)	0.775 (0.662)	0.868 (0.936)	-1.571 (1.256)	0.179 (1.277)	-1.256 (1.155)
N - 2	164	164	164	77	77	77	87	87	87
к- F	$0.693 \\ 19.99$	$0.578 \\ 23.87$	$0.735 \\ 31.25$	$0.728 \\ 14.58$	$0.701 \\ 21.83$	$0.814 \\ 64.86$	$0.625 \\ 11.45$	$0.483 \\ 12.67$	$0.636 \\ 12.10$

Table 1.12: OLS Regressions Donations in Time 2–Early Donors

Robust standard errors in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01
Table 1.13: Random Effects GLS and Tobit Regressions

Regression Treatment Dependent Variable Time	GLS-RE SDT-OWT Donation -0.976*** (0.150)	GLS RE SDT-OWT Donation -0.976*** (0.150)	Tobit RE SDT-OWT Donation -0.976*** (0.124)	Tobit RE SDT-OWT ? Donation -0.976*** (0.124)	GLS RE SD 1-OW 1 Donation -0.843***	Tobit RE [SD_1-OW_1 Donation -0.843*** (0.159)	GLS RE SD_3-OW_3 Donation -1.100*** (0.203)	GLS RE SD_3-OW_3 Donation -1.100*** (0.204)	Tobit RE SD 3-OW 3 Donation -1.100*** (0.186)	Tobit RE SD 3-OW 3 Donation -1.100*** (0.186)
TWO	-0.216 (0.267)	-0.252 (0.265)	-0.202 (0.260)	-0.239 (0.256)	~	~	~	~	~	~
OWT*Time	0.659^{**} (0.175)	0.659^{**} (0.175)	0.657^{**} (0.166)	0.657^{***} (0.166)						
ow_1					$\begin{array}{c} 0.184 \\ (0.391) \end{array}$	0.207 (0.384)				
OW_1^*Time					0.609^{**} (0.238)	0.606^{**} (0.214)				
ow_3							-0.438 (0.397)	-0.449 (0.404)	-0.428 (0.358)	-0.441 (0.347)
OW_{-}^{3*Time}							0.707^{**} (0.258)	0.707^{**} (0.259)	0.706^{**} (0.249)	0.706^{***} (0.249)
Male	0.171 (0.242)	0.307 (0.234)	0.188 (0.247)	0.323 (0.242)	0.173 (0.361)	0.193 (0.377)	0.259 (0.340)	0.437 (0.320)	0.271 (0.332)	0.447 (0.318)
Age	0.0202 (0.0294)	0.0324 (0.0292)	0.0213 (0.0301)	0.0333 (0.0292)	0.0257 (0.0343)	0.0261 (0.0384)	0.0206 (0.0549)	0.0468 (0.0549)	0.0229 (0.0498)	0.0490 (0.0474)
Socially Active	0.407 (0.320)	0.402 (0.311)	$0.396 \\ (0.321)$	$0.392 \\ (0.311)$	0.309 (0.415)	0.296 (0.485)	$0.401 \\ (0.476)$	0.383 (0.472)	$0.391 \\ (0.428)$	0.373 (0.409)
$DonBCh_1week$	-0.786***(0.304)	-0.565° (0.318)	-0.786 (0.534)	-0.564 (0.518)	-0.580 (0.424)	-0.572 (0.780)	-0.796^{*} (0.444)	-0.532 (0.460)	-0.798 (0.722)	-0.535 (0.692)
${\rm DonBStr}_{-}{\rm 1week}$	-0.270 (0.341)	-0.381 (0.336)	-0.280 (0.382)	-0.391 (0.371)	-0.463 (0.400)	-0.474 (0.540)	-0.0628 (0.537)	-0.236 (0.517)	-0.0755 (0.538)	-0.248 (0.509)
DonBCh_Never	-0.0860 (0.290)	-0.0501 (0.285)	-0.0827 (0.291)	-0.0474 (0.281)	$0.00791 \\ (0.441)$	0.0230 (0.429)	-0.0967 (0.395)	-0.0104 (0.376)	-0.104 (0.397)	-0.0173 (0.374)
DonBStr_Never	-0.704^{**} (0.294)	-0.905*** (0.283)	-0.717^{**} (0.358)	-0.918^{***} (0.350)	-1.611^{***} (0.345)	-1.636^{***} (0.584)	-0.304 (0.443)	-0.516 (0.431)	-0.309 (0.459)	-0.521 (0.436)
SameCh		0.551^{**} (0.216)		$0.559 \\ (0.340)$				0.455 (0.308)		0.461 (0.443)
ChChangeOther		2.050^{***} (0.322)		2.055^{***} (0.503)				1.923^{***} (0.366)		1.928^{***} (0.536)
Constant	1.520^{**} (0.731)	0.587 (0.746)	1.490^{*} (0.772)	0.553 (0.795)	$1.056 \\ (0.876)$	1.037 (1.040)	$1.702 \\ (1.320)$	$0.376 \\ (1.364)$	1.646 (1.212)	$0.321 \\ (1.211)$
sigma_u sigma_e			1.765*** (0.0931) 0.901*** (0.0412)	1.695*** (0.0904) (0.901*** (0.01***) (0.01***) (0.011***) (0.011***) (0.011***) (0.011***) (0.0111) (0.0111) (0.0111) (0.0111) (0.0111) (0.0111) (0.0111) (0.0111) (0.0111) (0.0111) (0.0111) (0.0111) (0.0111) (0.01111) (0.01111) (0.011111) (0.011111) (0.011111) (0.0111111) (0.0111111) (0.0111111) (0.01111111) (0.01111111) (0.011111111) (0.011111111111111111111111111111111111		1.816^{***} (0.135) 0.804^{***} (0.0531)			1.663*** (0.126) 0.976*** (0.0618)	1.550*** (0.120) 0.976^{**} (0.0617)
$N \\ \mathbb{R}^2$	480 0.2279	480 0 2270	480	480	230 0.2121	230	250 0 2456	250 0 2456	250	250
Chi ² Chi ² Log Likelihood	81.94	143.5	79.89 -886.9	97.84 -878.5	58.09	41.95 - 412.9	42.50	91.09	44.35 - 467.5	60.28 -460.2
Robust standard en	ors in pare	n theses; * p	< 0.1, ** p	0 < 0.05, ***	p < 0.01					

One Good Deed a Day? Experimental Testing of Pro-social Saturation

Regression	FE	Tobit LSDV	FE	Tobit LSDV	FE	Tobit LSDV
Treatment	SDT-OWT	SDT-OWT	SD 1-OW 1	SD 1-OW 1	SD 3-OW 3	SD 3-OW 3
Dependent Variable	Donation	Donation	Donation	Donation	Donation	Donation
Time	-0.976***	-0.976***	-0.843***	-0.843***	-1.100***	-1.100***
	(0.148)	(0.0878)	(0.221)	(0.113)	(0.200)	(0.132)
OWT*Time	0.659***	0.652***				
	(0.173)	(0.118)				
OW 1*Time			0.609**	0.601***		
			(0.233)	(0.153)		
OW 3*Time					0.707***	0.701***
-					(0.254)	(0.177)
Constant	1.858***	0.988**	1.683***	0.922**	2.020***	0.550
	(0.0412)	(0.454)	(0.0533)	(0.408)	(0.0622)	(0.494)
sigma u		3.82e-18		5.33e-19		5.30e-18
_		(0.0294)		(0.0380)		(0.0439)
sigma e		0.639***		0.571***		0.692***
		(0.0208)		(0.0269)		(0.0311)
N	480	480	230	230	250	250
R^2	0.228		0.212		0.246	
Chi^2		3201.0		1796.2		1485.5
Log Likelihood	-463.6	-460.6	-195.7	-194.2	-261.8	-260.6
FIxed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Table 1.14: Fixed Effects (LSDV) Regressions for Donations over Time

Robust standard errors in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01

1 1 geOther -(0 0 0 0 0 0 0 0 0 0 0 0 0	amecu v 0000 0000 1357 0029 1357 029 029 1357 1357 1357 1357 1357 1357 1369 1369 1360 1360 1360 1360 1360 1360 1357 1360 1360 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 1357 13577 13577 13577 13577 13577 13577 1357	n.ChangeOther 1.0000 -0.1551 (0.007) -0.1099 -0.1099 -0.1099 -0.1051 (0.0213) -0.0116 (0.3629) -0.0008	Male 1.0000 0.0480 0.0540 0.0540 0.0540 0.02372 (0.2372) 0.0380 0.0380	Age 1.0000 0.9925 0.0885 0.0526 0.2529	Age2 30 1.0000 0.0881 0.0539 0.2358	2014/10 Active	Net Income D.	on B Ch. 1 we	ek DonBStr	week DonBCh	Never DonBStr	1949r
ek 0 (0 (0) (0) (0)	0.6334) 0.0159 0.7279) 0.0301	(0.9868) -0.0791 (0.0835) 0.0151	(0.4117) (0.4117) (0.0117) (0.0117) (-0.0252)	$\begin{pmatrix} 0.0000 \\ 0.0937 \\ 0.0402 \end{pmatrix}$ $0.0892 \\ 0.0892 \end{pmatrix}$	$\begin{array}{c} (0.0000)\\ 0.1165\\ (0.0106)\\ 0.0873\\ 0.0873\\ \end{array}$	$\begin{pmatrix} (0.1130) \\ 0.1082 \\ (0.0177) \\ -0.0143 \end{pmatrix}$	-0.0294 (0.5255) -0.0246	1.0000	1.0000			
er (0 (0 0	(.5105) (.0562) (.2191)	(0.7408) -0.0167 (0.7156)	(0.5825) (0.0385 (0.3999) ((0.0509) -0.1033 (0.0236)	$(0.0559) \\ -0.1029 \\ (0.0242)$	(0.7542) -0.1048 (0.0217)	(0.5960) - 0.0386 (0.4042)	(0.0057) -0.1437 (0.0016)	-0.0959 (0.0356)	1.000	0	
ver 0 (0	0.0402). 0.3793)	0.0733 (0.1087)	0.0925 (0.0427) (0.0662 (0.1474)	0.0766 (0.0938)	0.1342 (0.0032)	-0.0288 (0.5342)	-0.0021 (0.9634)	-0.1532 (0.0008)	0.170 (0.000	4 1.0000 2)	

Table 1.15: Cross-Correlation Table

One Good Deed a Day? Experimental Testing of Pro-social Saturation

Figure 1.3: Experimental Instructions Part 1 (Translated from German)-1

General Instructions for Participants

Welcome to the experimental laboratory!

Today you are participating in an economic experiment. Depending on your decisions you can earn a particular amount of money. It is therefore important that you read the following instructions carefully. The instructions you received are your private information. During the experiment, there is an absolute prohibition on communication. If you have any questions, please raise your hand: an experimenter will come to you to answer the question. Failure to follow this rule will result in expulsion from the experiment and from all payments. The decisions you make in the experiment are **anonymous**. Only the experimenter learns your identity. Your information is confidential and the decisions cannot be assigned to your identity.

The experiment consists of two parts. The first part takes place now, the second part on the ...(same day/one week later) at ... (4 hours later/same time as today) o'clock. These instructions only describe the first part of the experiment.

In this part of the experiment, you primarily have the task of building up an endowment of 20 Euro by pushing sliders. This 20 Euro will be divided equally between the first and second part of the experiment. So you have 10 Euro available in any part of the experiment. Your payment will be made based on your decisions. You will be paid in cash at the end of the experiment (i. e. after the second part).

Your task in this part of the experiment is to place a slider on a scale ranging from 0 to 100 in the middle, exactly at a value of 50. For each slider placed at a value of 50, you get one point. Overall, you have to move 22 sliders and reach 22 points. All participants must complete this task. For fulfilling the task, every participant receives the same reward of 20 Euro. 10 Euro of the 20 Euro will be your endowment in this part of the experiment.

Figure 1.4: Experimental Instructions Part 1 (Translated from German)-2

After completing the slider task to earn your endowment you can make a decision. You have the option of dividing the entire 10 Euro (in increments of 0.50 Euro) between yourself and one of the three charities listed below:

Caritas: Caritas is Germany's largest Catholic charity. It offers help for people in need in Germany and around the World.

Red Cross: The Red Cross saves lives, helps in emergencies, supports the poor and needy, and monitors international humanitarian law.

Greenpeace: Greenpeace is an environmental organization. The work of Greenpeace focuses on global issues such as global warming, deforestation, overfishing, commercial whaling, and the anti-nuclear movement.

If you decide to split up your endowment, please select only one charity and enter the corresponding amount (in increments of 0.50 Euro) in the appropriate field. You can enter any amount between 0 Euro and 10 Euro in increments of 0.50 Euro.

If, for example, you decide to give 3.50 Euro to Caritas, mark the charity box and enter 3.50 (please separate the values with points, not commas) in the "amount you want to give to the organization" field. Thereafter enter the corresponding complementary amount of 6.50 in the "amount you want to keep" field. An example of this decision is illustrated below. If you do not want to split the money, do not mark a charity box and enter the full amount into the field: "amount you want to keep".

Periode	
1	Verbleibende Zeit (sec): 41
In dieser Runde können Sie entscheiden, wie Sie Ihr Vermögen von 10 Euro aufteilen wollen. T	Fragen Sie dazu bitte den entsprechenden Betrag in die
vorgesehenen Kästchen ein. Bitte beachten Sie, dass Sie nur eine der Organisationen und sich Schritten von 0.50 Euro aufteilen können.	i selbst wählen können und, dass Sie Ihr Vermögen nur in
Vermögen = 10	
Cari	tas 🔽
Rotes Kre	euz 🗆
Greenpea	ace 🗆
Summe, die Sie der Organisation geben möcht-	en: 3.5
Summe, die Sie behalten möcht-	en: 6.5
- Hilfa	UK
Drücken Sie "OK", um weiterzufahren.	

Your contributions to the organization will be wired online directly after the experiment. If you want to, you can witness the wiring of your individual contribution. After you make your decision, the experimenter will call you up individually and you will receive a voucher with a

One Good Deed a Day? Experimental Testing of Pro-social Saturation

Figure 1.5: Experimental Instructions Part 1 (Translated from German)-3

5-digit number. The amount you keep in this part of the experiment will be put in an envelope. You can oversee that the correct amount is put in the envelope. The 5-digit number will be written on your personal envelope and this envelope will be handed out to you after the second part of the experiment. Therefore, it is important that you keep your individual voucher and bring it to the second session, as it is of importance for your individual payments.

If you have any further questions, please raise your hand and an experimenter will come to your assistance.

Figure 1.6: Experimental Instructions Part 2 (Translated from German)-1

General Instructions for Participants

Welcome to the experimental laboratory!

Today you are participating in an economic experiment. Depending on your decisions you can earn a particular amount of money. It is therefore important that you read the following instructions carefully. The instructions you received are your private information. During the experiment, there is an absolute prohibition on communication. If you have any questions, please raise your hand: an experimenter will come to you to answer the question. Failure to follow this rule will result in expulsion from the experiment and from all payments. The decisions you make in the experiment are **anonymous**. Only the experimenter learns your identity. Your information is confidential and the decisions cannot be assigned to your identity.

The experiment consists of two parts. The first part took place on the ... (same day/one week ago) at ... (4 hours earlier/same time as today). This is the second part of the experiment. These instructions only describe this part of the experiment.

To participate in this part of the experiment, the voucher with the 5-digit number is important. This entitles you to participate in the experiment and is important for the subsequent disbursement.

In a few moments, you will be asked to enter the 5-digit number into the system. Please make sure to enter the correct number. After you have entered the number, the second part of the experiment will start.

By solving a task in the first part of the experiment you have earned your endowment of 20 Euro. In this part of the experiment you again have 10 Euro at your disposal. Your payment will be based on your decisions. You will be paid in cash after this part of the experiment.

In this part of the experiment, you can again make a decision to divide your 10 Euro (in increments of 0.50 Euro) between yourself and a charitable organization.

*SD*_1/*OW*_1 (this information was given in the 1-charity treatments) Information about the organization will be given on the computer screen. If you want to split your endowment, you can give to the same charity as in the first part of the experiment. Figure 1.7: Experimental Instructions Part 2 (Translated from German)-2

 SD_3/OW_3 (this information was given in the 3-charity treatments)

You can again choose to divide your endowment between yourself and one of the organizations from the first part. The organizations are Caritas, the Red Cross and Greenpeace.

Your contributions to the organization will be wired online directly after the experiment. If you want to, you can witness the wiring of your individual contribution.

After having made your decision, you must fill out a questionnaire. When you have completed the questionnaire you will be called up individually to receive your payment in cash.

If you have any further questions, please rise your hand and an experimenter will come to your assistance.

Chapter 2

Inter-Charity Competition for Individuals' Contributions- Experimental Testing of Substitution-, Complementary-, and Crowding Out Effects*

Abstract This paper addresses two questions mainly unresolved in the literature on charitable giving: The question as to whether charities that operate in different regions but serve the same cause are complements or substitutes? And the question as to how other persons' donations affects individual giving? Due to a lack of observational data and independent price variations, I experimentally implement a donation dictator game in multiple periods and investigate the individuals' willingness to donate to different beneficiaries. By adding various matching and grouping mechanisms, I test for possible substitution or complementary effects between charities as well as for crowding out effects due to the personal giving of others. While charities are perceived as normal goods that satisfy demand for doing good when giving is equally expensive, the local charity is favored over the other charities. Since total giving rises when an additional charity enters the choice set, I find support for an "unpacking" effect. When relative prices change, cross price elasticities of demand are positive between the local and international charity and vice versa. However, they are close to zero between local and national organizations and positive again between national and international charities. In this regard, intrinsically motivated subjects are less responsive to matching mechanisms.

Keywords

Experimental Economics Warm Glow Charitable Giving Social Preferences

JEL Classification C91, D03, H41

2.1 Introduction

Charitable organizations solicit for pecuniary and non-pecuniary gifts. The competition between these organizations is tough. According to the Internal Revenue Service $(IRS)^1$ the sheer amount of 822929 welfare organizations are eligible to receive tax deductible contributions in 2013 in the U.S.² Many more charity organizations exist that do not fulfil the condition of tax deductibility but participate in campaigning for contributions. Attracting donations is costly and fundraisers are increasingly creative to boost giving to their organization. Techniques developed by economists and psychologists like gift exchanges, matching, seed money, lotteries and the provision of social information have further gained importance in pledging for donations. These methods deviate from "simply ask for money" mechanisms (so called voluntary contributing mechanisms (VCM) (Landry et al., 2006, 2010)) and respond to human behavioral characteristics such as i.e. utility maximization, reciprocity, reputation concerns and inequity aversion. Experimental evidence shows that mechanisms deviating from such altruistic or impure altruistic appeals (so called warm glow motives (Andreoni, 1989, 1990)) can increase giving (Falk, 2007, Fehr and Gächter, 2001, Fehr et al., 2001, Fehr and Schmidt, 1999, Shang and Croson, 2006, 2009). Nevertheless, according to the organization Charityfacts, initial fundraising achieves only 50% to 70% return on the investment. However, long term relationships can pay-off up to 500% of the invested fundraising cost.³ Therefore, it is essential to know, whether and to what extend charities are complements or substitutes to each other. This allows philanthropic organizations to adapt strategies to reduce cost of fundraising and establish long term relationships. Furthermore, the question as to whether subjects perceive different charities as complements or substitutes is interesting since after the terrorist attack of September 11, 2001 on the World Trade Center in New York,⁴ the Indian Ocean Tsunami and various natural catastrophes, possible crowding out of personal donations has sparked interest among charitable fundraisers and economists alike.

In this regard, local and national fundraisers are especially concerned with the fact that internationally occurring events reduce national giving and funnel funds into charities dealing with international issues (cf. Martinez 2006). On the other hand, natural catastrophes like Hurricane Sandy that hit the shores of New Jersey, New York and Connecticut (Barron, 2012) increase fundraising to local organizations (O'Neal and Otis,

¹ The IRS is the U. S. government agency responsible for tax collection and tax law enforcement.

²http://www.irs.gov/Charities-&-Non-Profits/Search-for-Charities. May 21, 2013

 $^{^3\,\}rm http://www.charityfacts.org/fundraising/fundraisingcosts/index.html. May 19, 2013$

 $^{^4\,\}mathrm{http://www.sptimes.com/2002/09/04/911/Sept}$ 11 donations swa.shtml. May 20, 2013

2012) and possibly reduce donations to international organizations who support victims in the Caribbean where the storm hit first (Pierre-Pierre, 2012).

Not only natural and humanitarian catastrophes might shift giving in either direction. Since the European Court of Justice decided that gifts to charitable bodies outside of the European countries' natural territory are equally tax deductible (European Court of Justice, 2009), competition between charitable organizations in Europe increased even further. The judgement of the ECJ reduces the relative price of giving to international organizations, if these organizations meet the same standards as in their counterparts in the national territory.

Little research has been conducted addressing the question as to how subjects substitute between different organizations. This might be due to the fact that there is a lack of observational data, capturing independent price variation and only few observable shocks exist that can be claimed to increase (or reduce) giving to one specific organization (Reinstein, 2007).

In this paper I run a series of laboratory experiments to estimate and describe to what extent charitable organizations are substitutes or complements, and to what extent other individuals' contribution to one charity displaces subjects donations. Using a donation dictator game in multiple periods, I investigate the individuals' willingness to donate to different beneficiaries. In 10 rounds subjects divide 100 token (equivalent to 10 Euro) between themselves and up to three randomly appearing charities that contribute to the same cause, but which operate in different geographical regions (local, national and, international). By adding various matching and grouping mechanisms, I test for possible substitution or complementary effects between charities are perceived as normal goods that satisfy demand for doing good when giving is equally expensive, the local charity is favored over the other charities. When relative prices change, cross price elasticities of demand are positive between the local and international charity and vice versa. However, they are close to zero between local and national organizations and positive again between national and international charities.

Furthermore, I find that intrinsically motivated subjects are less sensitive to price of giving changes. Compared to extrinsically motivated subjects, they give more to unmatched charities. Additionally, males contribute more to the local cause.

The remainder of the paper is organized as follows: Section 2.2 reviews the literature. In section 2.3, I explain the experimental design. Section 2.4 describes the data. In section 2.5 the results are presented and section 2.6 concludes.

2.2 Theoretical Background and Related Literature

This paper addresses two questions mainly unresolved in the literature on charitable giving: The question as to whether charities that operate in different regions but serve the same cause are complements or substitutes. And the question as to how other persons' donations affects individual giving. Little research has been conducted on whether individuals perceive different charities as substitutes or complements i.e. how donations to one charity crowd out or crowd in donations to another.

In classic models of altruism, individuals derive their utility from their own consumption and the utility of others. These models predict that third party contributions (governmental contributions) totally crowd out individuals' own contribution to a public good (Becker, 1974, Warr, 1982, Roberts, 1984). Andreoni (1989, 1990) extends the model of altruism by allowing for 'impure altruism'. Impure altruism reflects the 'warm glow' feeling by doing good. His model results in incomplete crowding out of donations. The increase in one person's contributions does not result in a correspondingly equal decrease of another's contributions. This literature suggests that contributions to a public good made by others decrease the incentive to contribute.

In this respect, economists model philanthropic giving by typically investigating two main effects: the crowding out of private charity by government grants (Warr, 1982, Bergstrom et al., 1986, Bernheim, 1986) and the influence of various tax regimes on overall charitable contribution (Auten and Rudney, 1986, Clotfelter and Schmalbeck, 1996). Especially the theoretical results of complete crowding out conflict with empirical evidence on private charitable donations (White, 1989). White (1989) finds that ninety percent of Americans claim to donate, regardless of governmental contributions. Other studies show that crowding out appears only partially (Steinberg, 1986).

Another strand of literature considers contributions of others' to be positively linked with ones own donations. Sugden (1984), for example models, by applying the reciprocity principle that social information about average donations of others can affect individuals' donations positively. Other studies predict that individuals care about status and prestige and therefore give if others give (Bernheim, 1994, Harbaugh, 1998b,a). Glazer and Konrad (1996) show in a model that contributions to a charity signal wealth. Furthermore, Vesterlund (2003) claims that individuals use contributions to certain charities to signal the recipients qualities.

To further analyse the question whether contributions of others displace own donations, researchers conducted various field and laboratory experiments involving charitable giving. Fischbacher and Gächter (2006) run a series of combined linear public good games

with random matching of subjects. They show that the majority (55 percent) of subjects are conditional contributors, who link their own contributions to the contributions of others. Shang and Croson (2006) find in a field experiment involving contributions to a public radio station that information about contributions of previous callers have an impact on giving. Through social comparisons, individuals tend to match or beat previous bids. Shang and Croson (2009) find in their between subjects field setting of contributions to a radio station that donations by others are merely complements to ones own donation than substitutes. In their setting the treatment group was informed about contributions by previous members. Social information increased donation by approximately 12%. These increased contributions did not crowd out donations. Additionally, Croson and Shang (2008) find that individuals change their contribution in the direction of social information. Thus, if the average contribution is above their previous (last years) contributions they give more and if it is lower, they adopt downwards. Frey and Meier (2004) find in a large field experiment evidence on conditional pro-social behavior. Martin and Randal (2005) have similar findings using a field experiment at an art exhibition where previous donations are manipulated and made visible to some participants. Weimann (1994) supports this by his findings from a linear public good experiment where individuals also adapt their contributions conditional on the previous players. In a sequential dictator game Cason and Mui (1998) find that social information influence the decisions of the second dictator who learns the decision of the previous one and becomes less "self-regarding".

Eckel and Grossman (1996, 1998, 2003, 2005) and Crumpler and Grossman (2008) conduct a series of laboratory experiments including charitable giving. In their setting the contribution to the public good goes directly to non-profit organizations. In contrast to Hoffman et al. (1996), who claim that "fairness alone could not be an explanation for anomalous behavior in ultimatum games" but reciprocity should play a role too, Eckel and Grossman (1996) argue that fairness and altruism motivates behavior which is strongly "context" related.

In this regard, other experimental studies focus on the difference between local and global public goods provision (Buchan et al., 2009, Fellner and Lünser, 2008, Güth and Sääksvuori, 2012, Blackwell and McKee, 2003) and social interaction effects of subjects in similar sized groups (Falk et al., 2010). in a series of experiments Buchan et al. (2009) find that "globalized" individuals are more likely to forward the provision of global public goods. While Fellner and Lünser (2008) find in a multiple public goods experiment that cooperation in the global group is not stable and subjects prefer to cooperate locally. Güth and Sääksvuori (2012) support these findings by highlighting individuals' prefer-

ences for local cooperation in a multi level public goods experiment. On the other hand, Blackwell and McKee (2003) find in a local and global public goods experiment that subjects contribute more to the global public good when the average per capita return to the global group exceeds the average per capita returns of the local goods. In this setting however, subjects keep their contributions to the local public good at a constant level. Bernasconi et al. (2009) support this "unpacking" effect when, in their experiment, subjects were able to donate to two similar public goods. They find that the existence of two similar public goods increases overall donations to either one. On the contrary, Cha and Neilson (2001) analyze in a spatial model with variable fundraising costs and a fixed yield, how increasing competition among charities leads to less provision of public goods. Rose-Ackerman (1982) models, keeping fundraising costs fixed and yield variable that unlimited entry causes the cost of marginal giving to equal the amount of that donation. This causes excessive fundraising.

Arrow (1972) illustrates individuals motivations for giving blood are partly driven by insurance motives. Transferred to real "outside" public goods such as charitable organizations, individuals' MPCR is higher for local giving than for national and international giving. Since one might think for example that distributing food reduces criminality due to improved welfare, the individual return is higher if a charity operates on the local level.

An experiment conducted by Winterich et al. (2009) addresses the question of gender differences in local and international giving. They find that males are more likely to donate to a local cause since they perceive the community closer to their residence more as an in-group. However, Winterich et al. (2009) do not test for substitution and complementary effects between charities. Reinstein (2007) finds evidence for "expenditure substitution" in the laboratory environment. He runs a series of experiments during which subjects have to choose between donating to one of three charities and keeping their money. He finds that different charitable organizations that originate from different sectors are substitutes but that substitution is stronger when they serve similar purposes. In detail, he finds in his experiment a substitution coefficient of 37% when gifts to one charity increase and a crowding out effect of 0.80 for every dollar spend when gifts to both charities remain positive. However, Reinstein (2007) concentrates on the effects of different philanthropic purposes partly operating in the same regions.⁵ Furthermore, Reinstein (2006) shows by using the Panel Study of Income Dynamics (PSID), in conjunction with the Center on Philanthropy Panel Study (COPPS) further support for

 $^{^{5}}$ Reinstein (2007) uses the charities "Care USA" (to mimic basic needs), "Medical Research charities" (to represent health) and "Scholarship America" (to express education).

charities of different goals being substitutes.

Duffy and Kornienko (2010) look at competition from another angle. In their laboratory experiment, subjects give more when they are in a generosity tournament rather than in an earnings tournament. They argue that giving behavior is driven by competition motives of donors. Reyniers and Bhalla (2013) support these results as they show in the laboratory environment that peer pressure affects donations positively. DellaVigna et al. (2012) find further support for social pressure being a driving motive in giving behavior. In their door-to-door solicitation field experiment they find an estimated social pressure cost of declining a solicitor of \$3.80 for an in state charity and \$1.40 for an out state charity.

2.3 Experimental Design and Procedure

Subjects (199) were recruited from the University of Hamburg experimental lab. The experiment was conducted in March and April 2012. Participants of the experiment were undergraduate students and graduate students of various disciplines from the University of Hamburg. Decisions were made in 10 rounds during which the individual outcome of each round was realized with equal probability $(\frac{1}{10})$.⁶ This setting of randomized payments is well established in economics and permits within-subject comparison without wealth effects. Individuals that meet with standard economic assumptions will decide independently from the decisions of the previous round and maximize their utility in every stage.

I apply a within subjects design with some between subject variation to reduce variance, and to control for both individual idiosyncrasies and time and learning effects (Cassar and Friedman, 2005, Friedman and Sunder, 1994).

Selected charities for the experiment were the "Hamburger Tafel e. V. (Food Bank Hamburg)" to represent the local charity. They collect food and distribute it to people in need.⁷ The national charity was the "Tafel Deutschland e. V. (German Food Bank)".⁸ "The European Federation of Food Banks" represents the international charity. The European Food Bank supports European projects to fight hunger.⁹ In general these charities serve the same purpose: fighting hunger and feed the poor. This aim was

⁶ The University of Hamburg uses the ORSEE software by Greiner (2004) to recruit subjects. The experiment was programmed and conducted with the software z-Tree (Fischbacher, 2007).

⁷ http://www.hamburg.de/spenden-menschen-hamburg/4346/hamburger-tafel-e-v.html. March, 5, 2012

⁸ http://www.tafel.de/. March, 5, 2012

⁹ http://www.eurofoodbank.eu/portail/index.php?lang=en. March, 5, 2012

chosen, since it is unanimously accepted that fighting hunger is worthy of support.¹⁰ The charities were chosen in order to provide a general set of choices (charities) with homogeneous recipients. This holds for the charities as they serve the same cause as well as for the beneficiaries in the population. Since wealth differences within Europe are less severe than between Germany and other regions of the world (i.e. Africa).

In every of the 10 rounds, individuals decided to divide their period endowment of 100 token (equivalent to 10 Euro) between up to three charities and themselves.¹¹ Subjects were paid in cash directly after the experiment. Their donations were immediately transferred (via online wiring) to the selected charities.¹² The different variations of charities or treatments are called choices in this paper. In total there were seven periods with random variations of the charity choices and an additional three periods of a fixed charity combination. Table 2.1 highlights, in detail, the composition of the experiment.

Table 2.1 about here

In the first seven periods every charity appeared randomly in the choice set. Either on its own, or in combination with one or two other charities. Every possible combination of charities appeared randomly only once for every subject. This design was chosen to minimize order effects.¹³ Additionally, the design of randomized choices with fixed prices of giving provides information about how subjects allocate their endowment among organizations. Thus, it gives insights into whether more choices generally increase or reduce giving. Randomly adding one or two charities to the choice set mimics competition for donations when giving is equally expensive. Moreover, it addresses the question as to whether charities are perceived as normal goods that satisfy warm glow demand. Another way of thinking about this situation is the following: since subjects were aware of the general possibility to donate to all three charities, situations where only one charity is in the choice set increases the price of giving to the other two charities to infinity. Consequently, if two charities are in the choice set, the price of giving to the missing charity is set to infinity.¹⁴

In economic terms, two goods are substitutes, when cross price elasticities between the goods are positive. Goods are complements, when the cross price elasticities are negative. If cross price elasticities of demand are close to zero, goods are independent (Mas-Colell

¹⁰This might not be the fact when organizations support animal rights or deal with environmental concerns.

 $^{^{11}\}operatorname{Subjects}$ were able to split the endowment in increments of 5 token, ranging from 0 to 100.

 $^{^{12}\}operatorname{Subjects}$ had the possibility to observe the process of wiring the money.

 $^{^{13}}$ Pairwise Wilcoxon signed rank tests for individual and total donations by period showed no significant period effects. Further, the choices were almost uniformly distributed over periods .

 $^{^{14}}$ This, analysis is covered in section 2.5.2.

et al., 1995). More precisely, if the price of one good rises and consumption of another good diminishes, the two goods are complements (negative cross price elasticities). If, however, the price of a good rises and consumption of another good rises, the goods are substitutes (positive cross price elasticities). Therefore, the order of the charities was fixed in the last three periods of the experiment and a price of giving variation was implemented. In period 8 (choice LNI–20) all three charities were in the choice set and a 20% matching mechanism was applied to one of the charities. In period 9 (choice LNI–50) a 50% matching mechanism was utilized.

For this purpose subjects were randomly assigned into three treatment groups. One third of the subjects experienced the local treatment (a price of giving change for the local organization). Another third of the subjects was in the national treatment where giving to the national charity was cheaper. The last third of the subjects was in the international treatment group where donations to this charity were matched by the experimenter.

In period 10 (choice LNI–SI) subjects learned about the average donation of other subjects in the same session to either charity in period 1-7 to test for possible crowding out of individual donations by private contributions of others. In other words, an additional social information treatment was added in period 10. Hereby, the identity of the other subjects stayed concealed.¹⁵

Immediately after the 10th round, subjects were asked to fill in a questionnaire, asking for their age, net income, gender, country of origin, permanent residence, where they grew up and, if they plan to stay in Hamburg after finishing their tertiary education. Further, subjects were asked for their individual valuation of the charities. This gives rise to estimate how intrinsically motivated subjects might be affected by price of giving changes. It might as well be that decisions of foreigners and relocated subjects to Hamburg differ significantly from decisions of locals. Locals might be home biased, favoring the local public good (Coval and Moskowitz, 1999). Further, since subjects that care more for efficiency might favour the local organization due to lower redistribution cost, subjects were asked to what extend they care for efficiency. Finally, subjects had to state their general willingness to share with others.

 $^{^{15}\,{\}rm For}$ reasons of simplicity the variations of charities are henceforth denoted as choice L to choice LNI–SI. See table 2.1 for a detailed description.

2.4 Descriptive Statistics

This section describes the data generated in the experiment. In total 199 subjects participated in a total of 7 sessions that lasted on average 40 minutes. Due to the design of randomized choice sets, 10 observations for each subject were created. Table 2.2 shows detailed summary statistics of the data.

Table 2.2 about here

The variable Treatment (Local,National and, Int.) describes the percentage of subjects in either treatment (about one third). Subjects keep on average 78.24 token and donate 22.86 token of their endowment (100 token). This is in line with the results of other dictator games where the average gift of a subject is 20% of her endowment (see Levitt and List (2007) for an overview). However, in these dictator games about 60% of the subjects contribute while in this experiment 85% of the subjects gave at least in one period. Of the three organizations, the average gift to the local charity is highest with 8.97 token. Giving to the national charity and international charity is (on average) almost on the same level with 6.86 and 7.04 token respectively.¹⁶ The variables ln_Local, ln_National and ln_International describe the logarithm of the variables Local, National and International.

The average subject was 24 years old ranging from an age of 18 to 47. Net Income describes the self reported monthly income of participants. About 48% of the subjects were males and 52% females. Born is a variable indicating the place of birth. Where a value of 1 indicates a place of birth outside the European Union and a value of 4 (Hamburg) represents the highest affiliation by birth with the local charity. The variable Future HH indicates the self reported likelihood of spending the future life in Hamburg. Ranging from 1 (not at all) to 7 (very likely). The variable Charity Known indicates whether subjects knew either of the charities before the experiment. Value Local (National and Int.) describes how well subjects value the single organizations. Efficiency is a variable indicating subjects self reported ability to solve tasks efficiently. It is used as a proxy to measure preferences for efficient allocations of funds. The variable shares indicates subjects' self reported willingness to share with others. Ranging from 1 (not at all) to 7 (very willingly).

¹⁶Comparing the means of donations to the organizations highlights this finding. Wilcoxon signed rank tests (table 2.3 in section 2.7.1) show significant differences (at the 1% level) between the mean of donations to the local charity and mean giving to the national organization (z=4.36, p<0.01, N=199) as well as to mean donations to the international charity (z=3.47, p<0.01, N=199). Mean donations to the national charity are statistically not different from mean donations to the international charity (z=1.07, p=0.29, N=199).

2.5 Experimental Results

In this section, experimental results are presented. The data described in the previous section gives rise to various questions: Does giving increase or decrease when an additional charity enters the choice set? Are there different degrees of substitutability between charities? Or do subjects even perceive the geographical dimensions as complementary to each other? How does social information about other subjects' giving affect individual donation behavior? Further, do any individual characteristics like i.e. place of birth drive giving behavior in a certain direction?

These questions should be addressed from various angles. Firstly, general results on giving behavior as well as an analysis how an additional charity in the choice set affects total giving are presented in section 2.5.1. Secondly, choice LNI is regarded as a baseline control for choice LNI–20 and choice LNI–50 to uncover treatment effects. This analysis is covered in section 2.5.2. Thirdly, tests for intrinsic and extrinsic motivation of subjects are presented in section 2.5.3. Lastly, to determine the effect of the social information treatment, giving without information in choice LNI is compared to giving with information in choice LNI–SI in section 2.5.4.

To analyse the data, Wilcoxson signed rank test and a series of random effects and subject and period fixed effects log-linear regressions with White heteroskedastic consistent robust standard errors (White, 1980) are performed. This is done to estimate how percentage changes in donations to all charities and to the single charities are affected when another charity enters the choice set or, when the price of giving to one charity decreases compared to the price of giving to the other two charities.

The method of log-linear regressions directly displays elasticities of demand for the charities. Performing Hausman tests for each regression, the hypotheses that both, fixed and random effects estimators yield similar consistent coefficients (Hausman, 1978) can not be rejected (p values of 0.09 or higher). Thus, the presented tables are regression results after random effects estimation. This allows for including time invariant coefficients such as socio–economic data from the questionnaire. Nonetheless, due to the within design, I also present fixed effects regressions are useful to interpret the direct effects of altering choice sets on giving. These regressions are presented without time invariant socio–economic data since coefficients of these variables are potentially biased when subject fixed effects or least square dummy variables (LSDV) are applied (Chatelain and Ralf, 2010, Hsiao, 2003). Due to a subject pool of 199 different individuals and insignificant period effects, coefficients for subjects and periods are omitted in the tables. Period

effects were neither significant for TD, nor for giving to individual charities.¹⁷

2.5.1 General Results

In this part of the paper, I present general results on giving behavior. The analysis of treatment effects is covered in the subsequent sections. However, some conclusions can already be drawn when analysing giving patterns without price changes or social information.

Total Giving

Figure 2.1 shows the donations to the charities as well as total donations. The top part graphically displays donations with the matched amounts. The bottom part of the figure highlights donations without the matched amounts. In both parts of the figure no treatment specification was applied. Thus, average donations over all treatments in choice LNI–20 to choice LNI–SI are presented.

Figure 2.1 about here

The figure shows that in the first three choices, total giving equals giving to the individual charities. From choice L to choice LN and from choice L to choice LN, mean total giving significantly increases from 19.25 token to 22.26 token (z=4.14,p<0.01,N=199; and z=6.6,p<0.01,N=199).¹⁸ Compared to the single charity case, average total giving significantly increases to an amount of 22.94 token when the local and international charity are combined (choice L to choice LI: z=4.77,p<0.01,N=199; choice I to choice LI: z=8.07,p<0.01,N=199). Compared to the situation in choice N or choice I, average total giving significantly increases to an amount of 20.55 token (choice N to choice NI: z=4.35,p<0.01,N=199) and choice I to choice NI: z=6.07,p<0.01,N=199). When all the charities are jointly in the choice set (choice LNI), average total giving significantly increases compared to all single and combined charity choices and amounts to 25 token.¹⁹ In choice LNI–20 and choice LNI–50 (the 20% and 50% matching choice) total giving

¹⁷In the robustness checks section of the appendix, further linear regressions tables and Wilcoxon signed rank test are presented. This is done to highlight the validity of the results presented in the main part of the paper. I further performed Tobit regressions and random effects Tobit regressions. These regressions are not presented in the paper but yield similar results as GLS and OLS regressions. Additionally, further information, such as experimental instructions, and supplementary tests can be found in section 2.7.3 of the article.

 $^{^{18}}$ Z-values, p-values and N(number of observations) are, if not otherwise stated, results from Wilcoxon signed rank test.

¹⁹ Choice L to choice LNI: z=6.65, p<0.01, N=199; choice N to choice LNI: z=8.9, p<0.01, N=199; choice I to choice LNI: z=8.81, p<0.01, N=199. See table 2.14 for more details.

increases further, if matched amounts are considered (to 26.13 token in choice LNI– 20 (z=6.43,p<0.01,N=199) and 33.62 token in choice LNI–50 (z=8.57,p<0.01,N=199)). Without matched amounts, average total donations remain on a similar level (23.44 token in choice LNI–20 and 22.41 token in choice LNI–50 respectively). Thus, if matched amounts are not regarded, total giving does not increase significantly. Quite the contrary, compared to choice LNI where average total giving is 25 token, total donations decrease in choice LNI–20 (z=-4.56,p<0.01,N=199) and choice LNI–50 (z=-4.03,p<0.01,N=199).²⁰ From this analysis, result 1 emerges:

<u>Result 1</u>: Total donations increase, if another charity enters the choice set and peaks in the full choice set (choice LNI). An "unpacking" effect arises, even though charities are not entirely similar.

Table 2.4 about here

Further evidence for result 1 is presented in the regression table 2.4.²¹. The table shows a series of log-linear random effects (GLS) regressions with robust standard errors over all periods.²²

On the one hand, TD (in percentage terms) decreases when comparing giving to the local charity in choice L to giving to the other charities in choice N and choice I. On the other hand, if charities are combined to pairs or triples, total giving significantly increases. Thus, a bundle of charity choices increases giving. This is in line with the "unpacking" effect found by Bernasconi et al. (2009). It also holds when charities are not entirely similar but vary by geographical characteristics. Subjects have a desire for doing good that cannot be entirely satisfied by giving to one charity alone. They diversify among charities and split their donations in order to yield higher warm glow returns.

 $^{^{20}}$ Table 2.28 gives detailed information about average giving by choice. Note that there were a total of 10 rounds and 7 possibilities of giving to either charity. Therefore, the table depicts 10 times TD and 7 times giving to either charity.

 $^{^{21}}$ The first three regressions are log-linear GLS regressions for total donations (ln_TD). Note that the baseline differs according to the choice set. The first regression shows the percentage changes of TD starting from donations to the local charity (choice L). The second regression considers choice N as the reference choice (giving to the national charity). The third regression uses choice I (international charity) as a baseline.

 $^{^{22}}$ Robustness checks with fixed effects and linear regressions are presented in section 2.7.2 of the appendix. Furthermore, since there is quite some multicollinearity in the socio–economic data from the questionnaire (see Pearson correlation table 2.29 in section 2.7.3) not all socio–economic variables are included jointly. Regression results of table 2.4 are robust to the change in specification (see table 2.19 in section 2.7.2).

Giving to individual Charities

Giving to the distinct charities is highest, when they appear on their own in the choice sets (choice L–I). More precisely, giving to the local charity peaks in choice set L, when the local organization is the only possible recipient (19.25 token). The same holds for giving to the national charity (17.79 token) and international charity (16.23 token) in choice N and choice I respectively. Donations to the single charities decrease when another charity enters the choice set. These findings are depicted in figure 2.1. This figure shows preliminary evidence for result 2:

<u>Result 2</u>: Charities are normal goods that are used to satisfy the demand for doing good. Subjects consider the local charity to better satisfy this demand.

Additional evidence for result 2 is given by a series of Wilcoxon signed rank tests. Wilcoxon signed rank test for differences in donations in altering choice sets show that total donations in every choice set are significantly higher at the 1% level than the donations to either charity alone. Thus, there is no charity that exclusively receives the most of the total donations. Giving to the other charities matters for the whole amount and increases TD significantly. Nevertheless, giving to the local charity is always significantly higher than giving to the national or international charity. Between the national and the international organization however, no significant difference in donations exists.²³

More precisely, when the local charity is combined with the national charity, average local giving significantly decreases from 19.25 token in choice L to 12.79 token in choice LN (z=-7.61,p<0.01,N=199). The mean of national giving significantly shrinks from 17.79 token in choice N to 9.47 token in choice LN (z=-8.40,p<0.01,N=199). A similar picture is painted for the combination of the local and the international charity (choice LI). Average giving to the local cause significantly decreases by about 6.5 token compared to choice L (z=-8.09,p<0.01,N=199). Average giving to the international charity significantly shrinks from 16.23 token in choice I to 10 token in choice LI (z=-8.05,p<0.01,N=199). When the national and the international organization are jointly in the choice set (choice NI) giving behavior is similar. Average giving to the national organization shrinks compared to choice N (to an amount of 10.38 token (z=-8.19,p<0.01,N=199)). The average gift to the international charity is also significantly reduced. To an average of 10.17 token (z=-7.31,p<0.01,N=199)).²⁴

 $^{^{23}}$ See table 2.17 for a detailed analysis.

 $^{^{24}}$ Tables 2.11,2.12,2.13 show Wilcoxon signed rank test with significance levels for the aforementioned results.

Even so, when matched amounts are not embodied, giving to the individual charities increases in the various treatments.²⁵ These results support the crowding out hypothesis. When charities are matched, the absolute (unmatched) amount of giving to the organization increases but total giving decreases. Subjects shift their donations towards the matched charity and reduce giving to the unmatched charities.

To provide further proof for result 2, regressions presented in table 2.4 are regarded.²⁶ In detail, I find no statistical difference between the decrease of donations to the local charity, when the national (by 47%) or the international charity (by 37%) enters the choice set (choice LN and choice LI; p-value of 0.63 after Wald test on the null hypothesis that the difference in coefficients is zero). However, when all charities are in the set, giving to the local decreases significantly (by 72%) compared to the two charities case in choice LN and choice LI (p<0.01 for both Wald tests). A similar story is told for giving to the national and international charity. Giving in choice LN (choice LI for the international charity) is not significantly lower than in choice NI.²⁷

In conclusion, the analysis emphasizes that the local charity is favoured over the other two to satisfy demand for giving. This is highlighted by the fact that subjects always give more to the local charity. Moreover, when charities are combined to bundles of two or three, giving nationally and giving internationally is further reduced than giving locally. This higher drop in donations highlights the special role of the local charity and supports the idea that giving locally yields higher individual utility.

Socio-economic variables such as gende, age and income are also included into regressions in table 2.4. Analysing these variables yields result 3:

<u>Result 3</u>: Males give significantly more to the local charity than females. They also give more to the local charity than to the other organizations.

Evidence for this result is given by the coefficient for the male dummy variable. The coefficient is significant (at the 10% level). Males give more to the local charity (about

 $^{^{25}}$ See table2.16.

²⁶Since there is no treatment specification included, I do not interpret choice LNI–20 to choice LNI–SI. Further, since the regressions are log-linear regressions, the results can not be interpreted directly. I have to take the exponential of the coefficients of the choice variables (dummies) and continuous variables to get interpretable results.

 $^{^{27}}$ In the robustness checks section, I also include the variable TD in the regressions. This variable is included into the regressions for the single charities to depict (over all choices), how, in percentage terms, giving to either charity changes when total giving increases. Further, there are robustness checks, including giving to the other than the dependent variable charity. This is done to tackle the donations to other charities directly (see table 2.20). However, since a lot of the effects are captured in these variables, I rather present the mere "choice set" effects in the main part of the paper. This allows for a immediate interpretation of the tables according to what happens to donations when the choice set is altered. Results are robust to these specifications.

20%) than females. This is in line with the findings by Winterich et al. (2009) who also find a preference of males to support a local cause rather than an international. Furthermore, it can be observed that older subjects give significantly (at the 5% level) more to the local and national organization. These findings are robust to directly including TD and giving to the other than dependent variable charities into the regressions (see table 2.20 in section 2.7.2).

2.5.2 Complements or Substitutes?

Figure 2.2 graphically highlights the treatment effects for each charity. The figure consist of three parts. The top part of the figure depicts giving to the local charity, the middle part indicates giving to the national charity and the bottom part of the figure highlights giving to the international organization.

Figure 2.2 about here

Interestingly enough, two main effects can be observed: Firstly, competition, in terms of an additional charity, increases overall giving but reduces giving to the single charities. An incentive to give to one charity rather than giving to another one does, in parts, mitigate the negative effect of competition for the matched charities. Thus a significant increase in giving for every charity that is matched can be seen. This holds regardless of including or excluding the matched amounts.²⁸

A second interesting result depicted in the figure is that donations in choice LNI–20 and choice LNI–50 almost always decrease significantly compared to choice LNI, when giving to another charity is cheaper. Thus, reducing the price of giving to one charity relative to the other charities, increases giving to that organization. However, this increase comes at an expense to the other non-matched charities whose relative prices to each other remain the same. In other words, matching to one charity increases giving to this charity and reduces giving to the other organizations. The only exemption from this substitution effect is shown in the top part of the figure. Giving to the local charity in choice LNI–20 and choice LNI–50 remains on the same level as in choice LNI, when giving to the national charity gets comparably cheaper.²⁹ In detail, giving locally in is 0.03 token higher than in choice LNI (z=0.75, p=0.40, N=66). In choice LNI–50 giving to the local charity was 8.94 token in the national treatment. This reduction is not significant (z=1.19, p=0.23, N=66). These findings provide evidence for result 4:

 $^{^{28}\}mbox{See}$ table 2.16 and table 2.18 in section 2.7.2 for Wilcoxon signed rank test.

 $^{^{29}\,\}mathrm{See}$ table 2.18, table 2.23 and, table 2.5 for a detailed analysis.

<u>Result 4</u>: Subjects substitute between local and international giving and between national and international giving. These effects hold in both directions. Subjects do not substitute between giving locally and giving nationally.

Further evidence for result 4 is given by the following analysis in table 2.5. In detail, cross price elasticities between the charities are positive. When giving to one charity gets cheaper, giving to the other charities declines and gifts to the comparably cheaper charity increase. Thus, charities are substitutes. An exemption is giving between the local and the national charity. Here, gifts to the local organization do not change when the national charity is matched. This implies that the local charity is perceived as an independent good to the national charity in order to satisfy demand of doing good. The special role of the local charity is highlighted by the level of substitution. Giving to the national and international charity decreases further when the local charity is matched.

Table 2.5 about here

Regressions in table 2.5 show that substitution between the national and local charity in choice LNI–20 is 75% and 94% in choice LNI–50. Between giving to the international charity and the local charity in the same treatment the effects are 20% in choice LNI– 20 and 36% in choice LNI–50. Giving to the local charity, if the local organization is matched by 20%, increases by 143%. In choice set choice LNI–50, the 50% matching mechanism was applied and giving locally increased by 206%.

There is no substitution of giving from the local to the national charity in the national treatment. In this treatment, giving to the international charity is reduced by 18% in choice LNI–20 and by 25% in choice LNI–50. Donations to the national charity increased by 80% in choice LNI–20 and by 145% in the 50% matching choice.

In the international treatment, local giving is reduced by 40% in choice LNI–20 and 43% in choice LNI–50. The substitution from giving to the national charity to giving to the international charity is 51% in choice LNI–20 and 63% in choice LNI–50. Giving to the international charity however only increases by 43% in choice LNI–20 and 93% in choice LNI–50. These results are robust and also hold for unmatched amounts (see table 2.27).³⁰

³⁰To further validate these findings, a series of robustness checks is presented in table 2.18, table 2.23, table 2.25, table 2.26, table 2.7 and, table 2.8. As can be seen, including total donations in table 2.25 and giving to the other than dependent variable charities in table 2.26 does not significantly affect the results. The tables 2.21 and 2.22 show Wilcoxon Mann-Whitney tests for the differences of donations between treatments. These test are performed to tackle the between subjects design and explain how donations vary over treatments. National donations equally substitute local and international donations, whereas local donations only substitute international donations. Giving internationally is also reduced in the non-international treatments.

Table 2.6 about here

To complement the analysis, table 2.6 emphasizes the substitution effects and highlights the robustness of the results from table 2.5 to further specifications. The table shows log-linear random effects regression results over all choices with baseline of choice LNI.³¹ These regressions account for the fact that in the first seven choices the price of the charities that are not in the choice sets is set to infinity. Giving was not possible. However, subjects were aware of the fact that in other choice sets giving was, in principal, possible to all charities. The effects for the treatment periods are similar to the results presented in table 2.5. In addition, giving to all charities rises when the price of an other charity is infinitely high. This holds for all charities. The effect is highest for giving to the organizations, when only one charity is in the choice set. Giving locally increases in both cases, when giving to the national charity was not possible and giving to the international impossible, i.e. giving to these organizations was unaffordable. Giving internationally also significantly increases in choice LI and choice NI compared to choice LNI. When giving to the local or national charity is too expensive, subject's substitute towards the international organization. I find the same results for giving nationally. When, both, the local and international organization are not in the choice set, giving to the national charity significantly increases. Thus, although, there is no substitution from local to national in the treatment periods, when giving to the local charity gets too expensive (impossible) substitution sets in.

Tu sum up, subjects substitute between giving to the local and international charity and vice versa. Giving to the national charity is also reduced when giving locally is cheaper. However, this substitution effect is one sided and does not hold when giving to the national charity is incentivized.

2.5.3 Motivation of Subjects and Socio–Economic Effects

To further investigate subjects decisions, the variables Fut_HH (indicating the probability of staying in the local area) and individuals' valuations of the charities are included into the regressions in table 2.5. The effects of these variables give rise to result 5:

<u>Result 5</u>: Intrinsically motivated subjects give more to non-matched charities than extrinsically motivated subjects. Extrinsically motivated subjects are more responsive to monetary incentives.

³¹Note that fixed effects regressions yield similar results.

Interestingly enough, ones own future does not have an impact on donations. However, being extrinsically or intrinsically motivated does. Regressions including individual valuation of charities provide (to some extend) external validity of the above mentioned results. Intrinsic motivated subjects give significantly more to the charities, when charities are not matched. Extrinsic motivated subjects give more, when the charity is matched. These subjects are more sensitive to monetary incentives than intrinsic motivated individuals. This is highly significant for giving to the local charity over all treatments. For the international charity this is true in the national treatment and for the national charity, this holds in the international treatment.

When controlling for the place of birth, the willingness of subjects to share and the self reported efficiency in table 2.7, I find no prevailing birth bias.³² Further, efficient subjects seem to give less to the international organization, when the local charity is matched and vice versa. This result however does not hold for the national charity. Subjects, that are generally more willing to share give significantly more. Coefficients of choice variables and treatment effects stay robust to specifications.

Gender, age and net income were included in some regressions presented in table 2.8. Again, the mere treatment effects are robust. Further, the regressions support the findings from the previous section. Males give significantly more to the local charity than to the more geographically remote charities. However, this only holds without treatment specifications. Between treatments, there is no significant difference. Furthermore, older subjects tend to give more to either charity.

2.5.4 Social information

Subjects were given the information about other participants' mean social behavior in choice L to choice LNI in their session. To analyse this effect, I compare decisions in choice LNI to the individual giving behavior in choice LNI–SI. In the latter case, subjects had the information about average giving of others in the first seven choices. Thus, they might adjust their decision upwards or downwards compared to the baseline case of choice LNI. Result 6 arises from this analysis.

 $^{^{32}}$ The variables are included jointly into the regressions, despite the fact that the variables Born and Efficiency are correlated at the 5% significance level. However, the correlation is small -0.049. Thus, coefficients of these variables are only biased to a negligible amount.

<u>Result 6</u>: Donations in choice LNI–SI did not significantly change compared to choice LNI. Social information had no significant effect on giving to geographically distinct charities.

Evidence to this result is presented in table 2.5. In detail, since all charities are in the choice set in the social information treatment, I analyse whether the information on average giving influenced giving in choice LNI–SI compared to giving in choice LNI. Table 2.5 shows that without treatment specification donations in choice LNI–SI are not significantly different from donations in choice LNI.³³ Thus, since donations did not significantly decrease compared to choice LNI, social information had no negative or positive effect.³⁴

2.6 Discussion

The analysis has shown several important facts about charitable giving. The findings provide valuable insights into donation behavior of individuals and have important implications for further research, fundraisers and policymakers alike.

Charitable organizations compete for monetary funds to the highest regard. However, many charities generally serve the same cause but differ only by the region in where they operate. The issue as to whether organizations that serve the same cause and face competition with similar charities are complements or substitutes has so far not been resolved. This paper helps to explain giving patterns of individuals in this case.

I show, that to some extend charities that serve the same cause are substitutes. However, with no changes in prices, they are perceived as normal goods that help to satisfy demand for total giving. When the price of giving changes, i.e. giving to one charity is relatively cheaper than to two other charities, the story changes. The local charity and the international charity have positive cross price elasticities between each other. As the price of giving locally shrinks, giving to the international organization is reduced and local giving increases and vice versa. The same is true for the national and the international charity. However, the local charity is identified as having a special role. When

 $^{^{33}\}mathrm{See}$ also table 2.23.

 $^{^{34}}$ However, there is a negative effect of social information when comparing decisions in choice LNI– SI to the average of choice L to choice LNI. This effect is highlighted by figure 2.3, table 2.9 and table 2.10. This finding contradicts the explanation of Croson and Shang (2008) who claim that, when average giving of others is higher than own donations, subjects should adjust their donations upwards. A possible reasoning for this might be that subjects assume that others will contribute to the causes and develop a tendency to reduce their own contributions accordingly. By learning about the average contribution, subjects assume that others will contribute "enough" so they can reduce their own gifts. Nevertheless, the more appropriate finding is that of result 6.

giving to the national charity is cheap, donations to the local charity are not affected. The cross price elasticity from local to national giving is close to zero. This effect does not persist in the other direction. Donations to the national charity are reduced whenever giving to either of the other charities is relatively less costly. This might be due to international solidarity. Subjects switch from giving to the local charity and national charity to giving to the international charity, since they want to support the international cause. When giving to the national charity gets comparably cheaper than giving to the other two organizations, subjects do not reduce their gifts to the local organization since they do not perceive the national organization as extraordinary worthy of support. The local charity has a special role and a reduction in prices crowds in donations from the other charities.

This might be due to social identification with the local charity. Subjects see the national charity and local charity as less substitutable than the international charity. Giving to the national charity might be a detriment to the local area so subjects might want to keep contributions to the local high because they do not want to "lose out" on the local scale. This fear of "losing out" does not apply for giving internationally, since the international charity is perceived as being more different to the local organization than the national charity. These findings are robust, when prices are not too high.

The findings also suggest, that if subjects have the opportunity to give to multiple beneficiaries, information about the average gift of other individuals' does not influence personal donations. Giving in choice LNI–SI is unchanged compared to giving in choice LNI.

Charitable organizations that are substitutes face more severe consequences from competition. Thus, fundraisers should take this into account when advertising projects. Often, it is the case that within one organization many projects are eligible for support.³⁵ Thus, promoting one project might reduce contributions to other projects. This could be an obstacle. Keeping in mind that changing prices does not necessarily increase the total (unmatched) amount given, but reduces giving to other charities, an incentive to donate to specific charities could simply lead to a shift in donations. However, incentives to donate nationally do not only increase the total amount of donations but would most likely not reduce giving to the local cause when the causes are similar and the incentive is not too big.³⁶

Furthermore, knowing about the donors intrinsic valuation of charitable organizations

 $^{^{35}\}mathrm{See}$ for example the Sierra Club (http://www.sierraclub.org. June 16, 2012) or the Red Cross (http://www.redcross.org. June 16, 2012).

 $^{^{36} \}rm Since$ the data suggests that when incentives are to high, substitution from local to national will set in.

might, as the experiment shows, be of importance when pledging for monetary gifts.

Therefore, policymakers could take advantage of the findings by offering tax benefits to increase donations in some regions. If implemented wisely, no reduction in private provision of public goods in other regions might occur. Further, such mechanisms could be applied to reduce government spending and substitute official aid by private donations.

Researchers might make use of these findings and validate results in the field. Further, the results should be considered when modelling philanthropic giving. In addition, these findings are of great interest for researchers who conduct laboratory experiments with multiple charitable organizations. Results of experimental research might be significantly driven by choosing charitable organizations that are substitutes to one another.

2.7 Appendix

2.7.1 Tables and Graphs

Table 2.1: Choice Sets

Choice Set	Charity	Period	Treatment	Subjects
L	Local	Random 1-7	_	199
Ν	National	Random 1-7	—	199
Ι	International	Random 1-7	—	199
LN	Local–National	Random 1-7	_	199
\mathbf{LI}	Local–International	Random 1-7	—	199
NI	National–International	Random 1-7	—	199
LNI	Local–National–International	Random 1-7	—	199
LNI–20	Local–National–International	8	Matching 20%	64
LNI-50	Local–National–International	9	Matching 50%	66
LNI–SI	Local–National–International	10	Social Info.	69

Table 2.2: Summary Statistics

Variable	Observations	Mean	Std. Deviation	Min	Max
Subject	1990	100	57.46007	1	199
Period	1990	5.5	2.873003	1	10
Choice	1990	5.5	2.873003	1	10
Session	1990	4.085427	1.974635	1	7
Treatment Local	1990	.321608	.4672109	0	1
Treatment National	1990	.3316583	.4709273	0	1
Treatment Int.	1990	.3467337	.4760497	0	1
Keep	1990	78.23618	22.57838	0	100
Total Donations (TD)	1990	22.8603	24.14171	0	150
Local	1990	8.969347	15.02381	0	150
National	1990	6.857789	12.94752	0	150
International	1990	7.038191	13.61662	0	150
ln_Local	1990	2.698757	.7628855	0	5.010635
ln_National	1990	2.562997	.739075	0	5.010635
ln International	1990	2.568815	.7629171	0	5.010635
Age	1990	24.02513	3.939509	18	47
Age2	1990	592.7186	227.9591	324	2209
NetIncome	1990	263.6482	160.9763	0	1200
Male	1990	.4824121	.4998162	0	1
Born	1990	2.969849	.8620806	1	4
Future HH	1990	4.256281	1.169259	1	7
Charity Known	1990	5.352113	.491405	0	1
Value Local	1420	5.477387	1.483749	1	7
Value National	1330	4.827068	1.474699	1	7
Value International	1390	4.482014	1.765001	1	7
Efficiency	1990	5.356784	1.172992	2	7
Shares	1990	5.155779	1.224377	1	7

Table 2.5. Wheokon bighed-frank rest. Subjects mean Donation	Table 2.3: Wilcoxor	Signed-Rank Test:	Subjects'	Mean Donations
--------------------------------------------------------------	---------------------	-------------------	-----------	----------------

	mean TD	mean Local	mean National	mean International
mean TD	-			
mean Local	11.916^{***}	-		
mean National	11.916^{***}	4.355^{***}	-	
mean International	11.897^{***}	3.474^{***}	1.067	-
Z-Values; * $p < 0.1$,	** $p < 0.05, 3$	*** $p < 0.01$		

Baseline	L	Ν	Ι	L	Ν	Ι
Dependent Variable:	\ln_{TD}	\ln_{TD}	\ln_{TD}	\ln_Local	ln_National	$ln_{International}$
N	-0.0912**					
	(0.0394)					
	0 1 0 0 * *					
1	-0.122**	-0.0353				
	(0.0507)	(0.0557)				
LN	0 0890***	0 181***	0 219***	-0.389***	-0 515***	
	(0.0333)	(0.0431)	(0.0517)	(0.0408)	(0.0527)	
	(0.0000)	(010101)	(010011)	(010100)	(0.0021)	
LI	0.166^{***}	0.256^{***}	0.294^{***}	-0.316***		-0.422***
	(0.0353)	(0.0453)	(0.0444)	(0.0407)		(0.0455)
NI	0.0678	0.159^{***}	0.198^{***}		-0.377***	-0.407***
	(0.0426)	(0.0432)	(0.0412)		(0.0528)	(0.0450)
INI	0.969***	0.959***	0 200***	0 545***	0 691***	0 550***
LINI	(0.203)	(0.0425)	(0.0440)	(0.0454)	(0.0544)	(0.0517)
	(0.0303)	(0.0420)	(0.0440)	(0.0404)	(0.0344)	(0.0017)
LNI-20	0.338^{***}	0.446^{***}	0.499^{***}	-0.291***	-0.529***	-0.586***
	(0.0527)	(0.0614)	(0.0636)	(0.0760)	(0.0887)	(0.0824)
	()	()	()	()		
LNI-50	0.510^{***}	0.618^{***}	0.671^{***}	-0.203**	-0.352***	-0.469***
	(0.0534)	(0.0602)	(0.0623)	(0.0855)	(0.101)	(0.0968)
INI CI	0.000***	0.200***	0.250***	0 = 10***	0 670***	0 679***
LINI-51	(0.202^{+11})	(0.0614)	(0.0657)	-0.348	$(0.079^{-0.0})$	-0.075
	(0.0554)	(0.0014)	(0.0057)	(0.0707)	(0.0742)	(0.0748)
Male	0.105	0.103	0.0931	0.186^{*}	0.0250	0.00255
	(0.119)	(0.119)	(0.120)	(0.108)	(0.101)	(0.114)
	()	()	()	()	()	(-)
Age	0.0245^{*}	0.0241^{*}	0.0237	0.0287^{**}	0.0288^{**}	0.0119
	(0.0149)	(0.0150)	(0.0149)	(0.0123)	(0.0124)	(0.0184)
NT - T	0.0000.40	0.000070	0.000000	0.0000115	0.000070	0.000000
NetIncome	(0.000249)	0.000273	(0.000332)	0.0000117	0.0000370	0.000386
	(0.000351)	(0.000357)	(0.000364)	(0.000289)	(0.000336)	(0.000329)
Constant	2.208***	2.106***	2.051***	2.168***	2.265^{***}	2.586***
	(0.389)	(0.387)	(0.384)	(0.319)	(0.340)	(0.445)
N	1484	1339	1204	895	787	787
\mathbb{R}^2	0.29	0.30	0.31	0.19	0.25	0.24
Chi^2	479.2	464.6	397.8	200.3	248.5	189.5
Subject Fixed Effects	No	No	No	No	No	No
Period Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Robust Standard error	s in parenthes	es; $* p < 0.1$,	** $p < 0.05, *$	*** $p < 0.01$		

Table 2.4: Random Effects Log-Linear GLS Regression-All Choices



Figure 2.1: Mean Donations by Choice



Figure 2.2: Donations to Organizations - Treatment Effects

		Tab	le 2.5: Ranc	lom Effec	ts Log-Line	ear Regree	ssions-Tree	utment Ef	fects			
Treatment DV	(No) In Local	(Local) ln Local l	(Local) n National	(Local) ln Int. l	n National	(Nat.) In Local I	(Nat.) n National	(Nat.) In Int.	(No) In Int.	(Int.) In Local In	(Int.) National	(Int.) In Int.
LNI-20	0.271^{***} (0.0685)	0.618^{***} (0.143)	-0.681^{***} (0.192)	-0.277* (0.142)	$\overline{0.1415^{**}}$ (0.0621)	$-\overline{0.103}$ (0.369)	0.118^{*} (0.0654)	-0.169^{**} (0.0751)	0.0513 (0.0614)	-0.862^{***} (0.216)	-0.876^{*} (0.455)	0.331^{***} (0.106)
LNI-50	0.356^{***} (0.0804)	0.908^{***} (0.124)	-0.740^{***} (0.196)	-0.311^{**} (0.144)	0.312^{***} (0.0759)	-0.260 (0.363)	0.470^{***} (0.0678)	-0.238^{**} (0.111)	0.163^{**} (0.0795)	-0.892^{***} (0.213)	-0.961^{**} (0.448)	0.590^{**} (0.115)
INI-NI	0.0185 (0.0395)	-0.484^{***} (0.178)	-0.026 (0.138)	-0.229^{*} (0.124)	0.037 (0.0417)	0.218 (0.360)	-0.297^{***} (0.0791)	-0.0927 (0.0823)	-0.0644 (0.0414)	-0.642^{***} (0.214)	-0.634 (0.449)	-0.0375 (0.0681)
ValueLocal	0.100^{**} (0.0378)	-0.0392 (0.0563)				0.360^{***} (0.0545)				0.289^{***} (0.0624)		
ValueNational			-0.0024 (0.092)		0.0447 (0.0472)		0.0425 (0.106)				0.138^{*} (0.0830)	
ValueInt				$0.101 \\ (0.0615)$				0.173^{***} (0.0590)	0.0915^{**} (0.0452)			0.0324 (0.0951)
${\rm Fut}_{-}{\rm HH}$	-0.0208 (0.0475)	-0.0313 (0.0824)	0.0958 (0.141)	-0.000843 (0.111)	0.0325 (0.0534)	-0.0344 (0.146)	-0.00720 (0.119)	-0.0261 (0.110)	-0.00922 (0.0595)	-0.0280 (0.0831)	-0.0898 (0.104)	0.00357 (0.0911)
Constant	2.010***	2.609***	1.210*	2.023***	1.949^{***}	-0.150	2.423***	1.749***	2.014***	0.903*	1.750^{***}	2.206***
\mathbb{R}^2	$342 \\ 0.1247$	208 0.2618	$176 \\ 0.2152$	$184 \\ 0.1780$	$342 \\ 0.1017$	$140 \\ 0.2434$	$157 \\ 0.1927$	$188 \\ 0.2027$	$342 \\ 0.0812$	$160 \\ 0.2434$	$156 \\ 0.1679$	$139 \\ 0.3905$
Chi^2	32.24	90.66	118.0	115.1	20.38	22.47	70.08	86.06	27.55	48.52	38.74	72.49
Subject Fixed Effects Period Fixed Effects	$_{ m Vo}^{ m No}$	$_{ m Yes}$	$_{ m Ves}^{ m No}$	$_{ m Yes}^{ m No}$	$_{ m Yes}^{ m No}$	$_{ m Yes}^{ m No}$	$_{ m Yes}^{ m No}$	$_{ m Ves}^{ m No}$	$_{ m Yes}^{ m No}$	$_{ m Yes}^{ m No}$	$_{ m Yes}^{ m No}$	$_{ m Yes}^{ m No}$
Robust Standard erro	rs in pare	ntheses; *	p < 0.1, ** p	0 < 0.05, *	** $p < 0.01$							

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Baseline	LNI	LNI	LNI	LNI	LNI	LNI	LNI
Treatment	No	No	Local	No	National	No	Int.
DV:	$\ln_{\rm TD}$	\ln_Local	ln_Local l	n_National	ln_National ln_	International ln	International
L	-0.264***	0.546^{***}	0.559^{***}				
	(0.0383)	(0.0454)	(0.0454)				
Ν	-0.355***			0.684^{***}	0.689***		
	(0.0423)			(0.0543)	(0.0537)		
т	0.206***					0 560***	0 564***
1	(0.0427)					(0.0516)	(0.0516)
	(0.0457)					(0.0510)	(0.0310)
LN	-0.175***	0.155***	0.161***	0.168***	0.172***		
	(0.0355)	(0.0416)	(0.0416)	(0.0514)	(0.0512)		
	(0.0000)	(010 0)	(0.0120)	(0.002-)	(0.000)		
LI	-0.0979***	0.229***	0.233***			0.137***	0.145^{***}
	(0.0288)	(0.0415)	(0.0415)			(0.0416)	(0.0416)
	. ,	. ,	. ,			. ,	. ,
NI	-0.196***			0.307^{***}	0.308^{***}	0.152^{***}	0.158^{***}
	(0.0285)			(0.0450)	(0.0449)	(0.0418)	(0.0419)
I NI 20	0.0726*	0.059***	0 690***	0 156**	0 100***	0.020	0 220***
LINI-20	(0.0730°)	(0.255)	(0.080)	(0.130^{-1})	(0.400)	(0.050)	(0.330)
	(0.0394)	(0.0754)	(0.0641)	(0.0795)	(0.101)	(0.0579)	(0.107)
LNI-50	0.247***	0.340***	0.948***	0.332***	0.858***	0.148**	0.580***
	(0.0406)	(0.0839)	(0.0973)	(0.0917)	(0.109)	(0.076)	(0.112)
	. ,	` ´	. ,	. ,	. ,	. ,	. ,
LNI–SI	-0.0619	-0.00481	-0.0192	0.00628	0.00320	-0.056	-0.0380
	(0.0413)	(0.0603)	(0.0602)	(0.0654)	(0.0652)	(0.028)	(0.0632)
Constant	0 177***	0 109***	0 205***	0 000***	0 000***	0 417***	0 200***
Constant	(0.0712)	(0.0799)	(0.0708)	(0.0778)	(0.0780)	(0.0770)	(0.0701)
λτ	(0.0713)	(0.0722)	(0.0708)	(0.0778)	(0.0769)	(0.0119)	(0.0791)
R ²	1484	0.10	090	0.25	0.34	101	101
Chi ²	0.29 468 4	100 /	258.0	0.20 208 3	0.54 945 1	176.8	0.50
Period Fived Effects	400.4 Voc	150.4 Voc	200.0 Voc	230.5 Vec	240.1 Voc	Vec	201.1 Voc
Tenou Fixed Effects	105	105	105	105	105	105	105

Table 2.6: Random Effects Log-Linear Regressions–Choice LNI to Treatments

Robust Standard errors in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01
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	Tal	ble 2.7: $\mathbf{R}_{\mathbf{\ell}}$	andom Effe	cts Log-L	inear Reg	ression–Bo	rn, Efficier	ncy and Sl	nareswill	ingly		
Treatment:	No Local	Local	Local Notional	Local	No	National	National Notional	National	No Ist	Int.	Int. Mational	Int.
LNI-20	$\frac{11}{0.256^{***}}$ (0.0648)	$\frac{111}{0.233}$ (0.169)	$\frac{111}{-0.565^{***}}$ (0.145)	$\frac{1}{-0.497^{**}}$ (0.221)	$\frac{1}{0.142^{**}}$ (0.0624)	$\frac{1111}{-0.452}$ (0.396)	$\frac{11}{0.276*}$ (0.164)	-0.146 (0.130) (0.0277 - (0.0579)	$\frac{11}{0.335***}$	1.000000000000000000000000000000000000	$\frac{111}{0.524^{***}}$ (0.122)
LNI-50	0.341^{***} (0.0758)	0.496^{***} (0.168)	-0.664^{***} (0.147)	-0.611^{**} (0.247)	0.313^{***} (0.0767)	-0.535 (0.376)	0.588^{**} (0.171)	-0.210^{*} (0.126)	0.146^{*} - (0.0758)	0.361^{***} (0.110)	-0.701^{***} (0.152)	0.807^{**} (0.151)
LNI–SI	0.0132 (0.0424)	-0.675^{***} (0.165)	-0.0538 (0.0995)	-0.377^{*} (0.194)	0.009 (0.0400)	-0.176 (0.392)	-0.491^{***} (0.158)	-0.0616 (0.122) (-0.0495 (0.0377)	-0.158^{*} (0.0856)	-0.533^{***} (0.138)	-0.0169 (0.0643)
shareswillingly	0.0869^{*} (0.0467)	0.271^{***} (0.0937)	0.274^{***} (0.0810)	$0.172 \\ (0.110)$	0.0578 (0.0471)	0.315^{***} (0.0890)	0.166^{**} (0.0842)	0.0440 (0.0754)	0.0888^{*} (0.0483)	0.313^{***} (0.0954)	0.131^{**} (0.0667)	0.402^{***} (0.0958)
efficient	-0.0458 (0.0505)	0.0557 (0.0912)	0.0676 (0.0803)	-0.202^{**} (0.102)	-0.0195 (0.0410)	-0.0136 (0.0957)	$\begin{array}{c} 0.0119 \\ (0.0852) \end{array}$	0.00974 (0.0823)	-0.0556 (0.0504)	-0.221^{*} (0.117)	-0.0342 (0.0554)	-0.0263 (0.107)
Born	0.111^{**} (0.0547)	-0.143 (0.0946)	-0.360^{***} (0.121)	-0.0247 (0.0747)	0.0532 (0.0562)	0.0561 (0.137)	0.101 (0.108)	0.173^{**} (0.0873) (0.0873)	(0.0497)	0.209 (0.176)	0.0541 (0.113)	-0.0869 (0.158)
Constant	1.915^{***} (0.398)	0.981 (0.719)	0.602 (0.733)	2.881^{***} (1.010)	1.954^{***} (0.379)	0.0899 (0.985)	0.689 (0.668)	1.675^{***} (0.572)	(0.445)	$0.322 \\ (1.075)$	2.049^{***} (0.518)	-0.365 (1.001)
${ m N}{ m R}^2$	$478 \\ 0.11$	$256 \\ 0.27$	$256 \\ 0.19$	$256 \\ 0.22$	$408 \\ 0.10$	$264 \\ 0.16$	$264 \\ 0.23$	$264 \\ 0.11$	$417 \\ 0.09$	$276 \\ 0.15$	$276 \\ 0.14$	$276 \\ 0.20$
Chi ² Gli i i i i i i me	36.85	74.69	48.89	1774.5	19.84	55.26	58.89 M	51.02	22.87	31.39	41.99	70.13
Period Fixed Effects	$_{ m Yes}$	Yes	Yes	No Yes	Yes	No Yes	No Yes	$_{\rm Yes}$	No Yes	No Yes	No Yes	No Yes
Robust Standard erro	rs in pare	entheses; *	p < 0.1, **	p < 0.05,	*** $p < 0.0$)1						

	M	T 1	1 1		- M	N-45-00	N-4:1	Matteral	M	14	1-4	14
Ireatment: DV:	no In Local	ln Local	Local In National	ln Int.	ln National	In Local	In National In National	In Int.	In Int.	In Local l	n National	In Int.
LNI-20	0.254^{***} (0.0647)	0.656^{***} (0.101)	-0.565^{***} (0.145)	-0.512^{**} (0.217)	0.140^{**} (0.0622)	-0.0731 (0.102)	0.141^{**} (0.0601)	-0.138^{**} (0.0681)	0.0299 (0.0581)	-1.276^{***} (0.156)	$\frac{-1.218^{***}}{(0.281)}$	0.344^{***} (0.101)
LNI-50	0.341^{***} (0.0755)	0.874^{***} (0.108)	-0.664^{**} (0.147)	-0.624^{**} (0.243)	0.313^{***} (0.0761)	-0.110 (0.0936)	0.460^{***} (0.0640)	-0.200^{**} (0.0942)	$\begin{array}{c} 0.144^{*} \\ (0.0753) \end{array}$	-1.301^{***} (0.154)	-1.289^{***} (0.276)	0.637^{***} (0.106)
IS-IN1	$\begin{array}{c} 0.0160 \\ (0.0423) \end{array}$	0.122 (0.0770)	-0.0538 (0.0995)	-0.395^{**} (0.187)	0.008 (0.0398)	-0.102 (0.0626)	-0.291^{***} (0.0700)	-0.0559 (0.0693)	-0.0499 (0.0377)	-1.098^{**} (0.160)	-0.877*** (0.282)	-0.0178 (0.0648)
Male	0.220^{**} (0.105)	$\begin{array}{c} 0.273 \\ (0.175) \end{array}$	-0.564^{**} (0.246)	$0.292 \\ (0.215)$	-0.105 (0.103)	0.0132 (0.199)	$0.0766 \\ (0.174)$	-0.152 (0.200)	$0.0264 \\ (0.122)$	-0.159 (0.229)	-0.169 (0.197)	-0.0103 (0.219)
Age	0.0275^{**} (0.0115)	0.0136 (0.0290)	0.0650 (0.0398)	-0.0455 (0.0348)	0.0311** (0.0129)	0.0295^{*} (0.0170)	0.0187 (0.0229)	0.0155 (0.0169)	$\begin{array}{c} 0.0161 \\ (0.0192) \end{array}$	$\begin{array}{c} 0.0340 \\ (0.0259) \end{array}$	$\begin{array}{c} 0.0127 \\ (0.0184) \end{array}$	0.0404^{*} (0.0232)
NetIncome	(0.0000879) (0.000306)	$\begin{array}{c} 0.0000541 \\ (0.000647) \end{array}$	-0.000416 (0.000642)	$\begin{array}{c} 0.000201 \\ (0.000961) \end{array}$	$0.000144 \\ (0.000356)$	0.000570 (0.000739)	0.000247 (0.000554)	$\begin{array}{c} 0.000443 \\ (0.000729) \end{array}$	0.000387 (0.000363)	0.000399 (0.000566)	0.0000623 (0.000543)	0.000431 (0.000510)
Constant	1.678*** (0.285)	$1.851^{***} \\ (0.618)$	0.222 (0.963)	3.551^{***} (0.801)	1.571^{***} (0.333)	1.723^{***} (0.503)	2.061 * * * (0.583)	2.015^{**} (0.433)	1.912^{***} (0.464)	1.430^{**} (0.605)	1.671^{***} (0.503)	1.238^{**} (0.600)
$^N_{ m R}{}^2$	408 0.13	256 0.24	$256 \\ 0.14$	$256 \\ 0.14$	408 0.09	$264 \\ 0.04$	$264 \\ 0.15$	$264 \\ 0.09$	408 0.04	276 0.21	276 0.23	$276 \\ 0.15$
Chi ²	34.96	79.96	38.44	213.7	27.21	6.802	86.04	8.709	10.69	80.37	141.2	53.72
Subject Fixed Effect: Period Fixed Effects	s No Yes	$_{\rm Yes}^{\rm No}$	$_{\rm Ves}^{\rm No}$	$_{\rm Ves}^{\rm No}$	$_{\rm Yes}^{\rm No}$	$_{\rm Yes}^{\rm No}$	$_{\rm Ves}^{\rm No}$	$_{\rm Ves}^{\rm No}$	$_{\rm Ves}^{\rm No}$	$_{ m Yes}^{ m No}$	$_{\rm Yes}^{\rm No}$	$_{ m Yes}^{ m No}$
Robust Standard err	ors in paren	theses ; $* p$	< 0.1, ** p.	< 0.05, ***	p < 0.01							

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Inter-Charity Competition for Individuals' Contributions- Experimental Testing of Substitution-, Complementary-, and Crowding Out Effects



Figure 2.3: Donations to Organizations L-LNI to Choice LNI-SI

Mean of Donations to International Organization by Session Average Choice L-LNI and Choice LNI-SI



	TD Choice <lni-20 lni-si<="" th="" to=""><th>Local Choice<lni-20 lni-si<="" th="" to=""><th>National Choice<lni-20 lni-s<="" th="" to=""><th>I Int. Choice<lni-20 lni-si<="" th="" to=""></lni-20></th></lni-20></th></lni-20></th></lni-20>	Local Choice <lni-20 lni-si<="" th="" to=""><th>National Choice<lni-20 lni-s<="" th="" to=""><th>I Int. Choice<lni-20 lni-si<="" th="" to=""></lni-20></th></lni-20></th></lni-20>	National Choice <lni-20 lni-s<="" th="" to=""><th>I Int. Choice<lni-20 lni-si<="" th="" to=""></lni-20></th></lni-20>	I Int. Choice <lni-20 lni-si<="" th="" to=""></lni-20>
All Sessions	-8.330***	8.078***	8.963***	8.053***
Session 1	-2.640***	2.810***	4.056***	3.279***
Session 2	-3.219***	3.587***	4.271***	3.681***
Session 3	-3.524***	3.404***	3.164***	2.320***
Session 4	-3.440***	3.904***	2.761***	3.359***
Session 5	-3.401***	2.605***	2.391**	2.479**
Session 6	-3.403***	2.580***	2.964***	3.370***
Session 7	-2.693***	2.729***	3.851***	2.824***
7 17-1	* < 0.1 ** < 0.05 ***			

Table 2.9: Wilcoxon Signed-Rank Test: Mean Donations Pre LNI-20 to LNI-SI

Z-Values; * p < 0.1, ** p < 0.05, *** p < 0.01

Baseline	Av. TD Choice L–LNI	Av. Local Choice L–LNI Av.	. Nat. Choice N–LN	II Av. Int. Choice I–LNI
DV:	\ln_{TD}	\ln_Local	ln_National	\ln _International
LNI–20	0.225***	-1.007***	-1.193***	-1.196***
	(0.105)	(0.105)	(0.0955)	(0.0953)
LNI-50	0.396***	-0.959***	-1.146***	-1.186***
	(0.0593)	(0.109)	(0.103)	(0.101)
LNI-SI	0.104*	-1.146***	-1.165***	-1.127***
	(0.0621)	(0.0944)	(0.0879)	(0.0920)
Constant	3.044***	2.613***	2.407***	2.421***
	(0.0419)	(0.0706)	(0.0637)	(0.0637)
N	796	796	796	796
\mathbb{R}^2	0.142	0.257	0.316	0.312
F	50.07	50.03	69.67	64.00
Subject Fixed Effects	s Yes	Yes	Yes	Yes
Period Fixed Effects	Yes	Yes	Yes	Yes

Table 2.10: Fixed Effects Log-Linear Regression–Average Givinig in Choice L–Choice LNI to Treatments

Robust Standard errors in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01

Inter-Charity Competition for Individuals' Contributions- Experimental Testing of Substitution-, Complementary-, and Crowding Out Effects

	Local 1 (L)	Local 2 (LN)	Local 3 (LI)	Local 4 (LNI)	Local 5 (LNI–20)	Local 6 (LNI–50)	Local 7 (LNI–SI)
Local 1	-						
Local 2	7.614^{***}	-					
Local 3	8.086***	-0.508	-				
Local 4	9.625***	5.309^{***}	6.155^{***}	-			
Local 5	5.626^{***}	0.799	1.546	-1.940*	-		
Local 6	4.197***	0.291	0.954	-1.684^{*}	-3.306***	-	
Local 7	9.517***	5.802***	6.515^{***}	1.977**	3.597***	3.321***	-

Table 2.11: Wilcoxon Signed-Rank Test: Donations to Local Charity by Choice

Z-Values; * p < 0.1, ** p < 0.05, *** p < 0.01

Table 2.12: Wilcoxon Signed-Rank Test: Donations to National Charity by Choice

	National 1 (N)	National 2 (LN)	National 3 (NI)	National 4 (LNI)	National 5 (LNI–20)	National 6 (LNI–50)	National 7 (LNI–SI)
National 1	-						
National 2	8.399^{***}	-					
National 3	8.189^{***}	-1.097	-				
National 4	10.085^{***}	5.235^{***}	6.238^{***}	-			
National 5	7.592^{***}	2.979^{***}	3.438^{***}	-0.706	-		
National 6	6.016^{***}	1.315	1.746^{*}	-1.310	-3.354***	-	
National 7	9.836***	5.659^{***}	6.300***	0.494	0.964	1.336	-

Z-Values; * p < 0.1, ** p < 0.05, *** p < 0.01

Table 2.13: Wilcoxon Signed-Rank Test: Donations to International Charity by Choice

	InterNat 1 (I)	InterNat 2 (LI)	InterNat 3 (NI)	InterNat 4 (LNI)	InterNat 5 (LNI–20)	InterNat 6 (LNI–50)	InterNat 7 (LNI–SI)
International 1	-						
International 2	8.049***	-					
International 3	7.296^{***}	-0.595	-				
International 4	8.171***	3.328^{***}	3.752^{***}	-			
International 5	7.093^{***}	2.796^{***}	2.670^{***}	0.714	-		
International 6	5.354^{***}	2.486^{***}	2.055^{***}	0.643	-2.665^{***}	-	
International 7	9.163^{***}	5.407^{***}	5.498^{***}	2.952^{***}	1.123	0.403	-
	o d www						

Inter-Charity Competition for Individuals' Contributions- Experimental Testing of Substitution-, Complementary-, and Crowding Out Effects

TD 1	TD 2	TD 3	TD 4	TD 5	TD 6	TD 7	TD 8	TD 9
(L)	(N)	(I)	(LN)	(LI)	(NI)	(LNI)	(LNI-20)	(LNI-50)
TD 1 -								
TD 2 3.037***	-							
TD 3 3.707***	1.738*	-						
TD 4 -4.163***	-6.592***	-5.883***	-					
TD 5 -4.766***	-6.592***	-8.075***	-0.424	-				
TD 6 -1.611*	-4.352***	-6.067***	2.726^{***}	3.615^{***}	-			
TD 7 -6.652***	-8.901***	-8.798***	-3.361***	-3.724***	-7.159***	-		
TD 8 -9.385***	-10.508***	-10.423***	-8.605***	-8.409***	-9.335^{***}	-6.432***	-	
TD 9 -10.203***	-10.710***	-10.804***	-9.679***	-9.330***	-10.189***	-8.567***	-8.240***	-
TD 10 -4.443***	-6.828***	-7.272***	-1.319	-0.388	-3.917^{***}	3.408^{***}	8.325^{***}	9.515^{***}
7 1/1 * * < 0.1	** < 0.05 *** < 0.0	1						

Table 2.14: Wilcoxon Signed-Rank Test: TD by Choice

Z-Values; * p < 0.1, ** p < 0.05, *** p < 0.01

Table 2.15: Wilcoxon Signed-Rank Test: Unmatched TD by Choice-Treatment Effects

	TD 7	TD 8
	(LNI)	(LNI-20)
TD 8	4.560^{***}	
Treatment		
Local	1.590	
National	3.728^{***}	
International	2.576^{***}	
TD 9	4.028^{***}	-1.807*
Treatment		
Local	1.523	-2.119**
National	3.207^{***}	-2.105**
International	2.125^{**}	-0.284
Z-Values; $* p <$	< 0.1, ** p	< 0.05, *** p < 0.01

Table 2.16: Wilcoxon Signed-Rank Test: Unmatched Donations by Choice-Treatment Effects

	Local 4	Local 5	1	National 4	National 5	5 Int. 4	Int. 5
	(LNI)	(LNI-20)		(LNI)	(LNI-20)	(LNI)	(LNI-20)
Local 5	-0.777		National 5	0.855		Int. 5 2.279**	
Treatment							
(Local)	-5.435***		(National) -	-4.142***		(Int.) -3.542***	
Local 6	-0.566	-0.73	National 6	0.252	-1.309	Int. 6 1.888*	-0527
Treatment	-						
(Local)	-5.192^{***}	-2.347**	(National) -	-4.947***	-2.936***	(Int.) -3.808***	-2.31**
Z-Values:	* $p < 0.1$. **	p < 0.05, *** $p < 0.01$					

s; * p < 0.1, ** p < 0.05, *** p < 0.05

Table 2.17: Wilcoxon Signed-Rank Test: Donations to Charity by Choice

	TD-Local	TD-Nat.	TD–Int.	Local-Nat.	Local–Int.	NatInt.
LN	10.864^{***}	11.312***	-	3.432***	-	-
LI	10.644^{***}	-	11.058^{***}	-	2.894^{***}	-
NI	-	10.681***	10.567^{***}	-	-	1.307
LNI	11.154***	11.604***	11.304^{***}	4.884^{***}	2.427^{***}	-0.753
LNI-20	0 11.050***	11.411***	11.206^{***}	3.618^{***}	3.120^{***}	0.627
LNI-50	0 10.814***	11.385***	11.298^{***}	2.300^{***}	2.780^{***}	1.025
LNI-SI	[11.061***	11.244^{***}	10.957^{**}	3.348^{***}	2.117^{***}	-0.238
7 Volu	aa + n < 0.1	** ~ < 0.05 *** ~ < 0.01				

2.7.2 Robustness Checks

Table 2.18: Wilcoxon Signed-Rank Test: Mean Donations Pre LNI-20 and LNI to within Treatments

	Pre Trea	atment	Within 7	Freatment	
	Pre LNI–20	LNI	TD	Local	National
Local Treatment Matching 20%					
TD	-5.534***	-4.133***	-	-	
Local	-6.474***	-4.077^{***}	5.402^{***}	-	
National	3.561^{***}	4.816^{***}	6.788^{**}	6.508^{***}	-
International	3.169^{***}	5.256^{***}	6.756^{***}	6.386^{***}	0.401
Local Treatment Matching 50%					
TD	-6.709***	-4.968***	-		
Local	-6.709***	-5.034***	4.557***	-	
National	3.410^{***}	4.715^{***}	6.822^{***}	6.372^{***}	-
International	4.704^{***}	6.548^{***}	6.820***	6.524^{***}	1.066
National Treatment Matching 20%					
TD	-5.857***	-4.126***	-		
Local	0.908	0.748	6.803**	-	
National	-5.204***	-3.581***	6.077**	-3.340***	-
International	1.784^{*}	2.890^{***}	6.837^{**}	2.291^{**}	5.690^{***}
National Treatment Matching 50%					
TD	-6.139***	-5.234***	-		
Local	1.845^{*}	1.185	6.873^{***}	-	
National	-6.007***	-5.584^{***}	5.869^{***}	-5.062^{***}	-
International	1.848*	3.068^{***}	6.903^{***}	2.037^{**}	5.913^{***}
International Treatment Matching 20%					
TD	-6.277***	1.651*	-		
Local	0.283	3.038^{***}	6.683^{***}	-	
National	2.153^{**}	4.655^{***}	6.777***	2.841^{***}	-
International	-5.724***	-4.903^{***}	5.413^{***}	-4.008***	-5.250***
International Treatment Matching 50%					
TD	-6.208***	0.944	-		
Local	1.069	3.019^{***}	6.684^{***}	-	
National	2.936^{***}	5.244^{***}	6.821^{***}	2.920^{***}	-
International	-5.886***	-5.264^{***}	5.326^{***}	-4.445***	-5.674^{***}

Baseline DV	LD L	N QT	I DT	Local	National In	I nternational	L LD	In TD	I TD ln	L Local lr	N National In	International
N	-1.485^{*} (0.766)						-0.0948^{**} (0.0394)	1	1	1	1	
Ι	-2.994^{***} (1.112)	-1.530 (0.990)					-0.126^{**} (0.0508)	-0.0354 (0.0557)				
LN	3.004^{***} (0.724)	4.484^{***} (0.925)	6.069^{***} - (1.169)	-6.347^{***} (0.882)	-8.339^{***} (1.040)		0.0901^{***} (0.0333)	$0.186^{**} 0$ (0.0431) ().223***_((0.0518) (0.398^{***}	-0.511^{***} (0.0530)	
LI	3.730^{***} (0.817)	5.182^{***} (0.939)	6.752^{***} - (0.906)	-6.320^{***} (0.847)		-6.153^{***} (0.783)	0.166^{**} (0.0353)	$0.259^{***}0$ (0.0452) ().298*** -((0.0443) (0.331^{**}		-0.429^{***} (0.0453)
IN	$1.321 \\ (0.860)$	2.776^{***} (0.784)	4.364^{***} (0.871)		-7.438^{***} (1.047)	-6.047^{***} (0.874)	0.0662 (0.0427)	$0.161^{***} 0$ (0.0432)	(0.0412)		-0.372^{***} (0.0529)	-0.412^{***} (0.0448)
INI	5.870^{***} (0.867)	7.337^{***} (0.939)	8.862^{***} - (1.041)	-9.569^{***} (1.019)	-10.90^{***} (1.125)	-7.694^{***} (0.920)	0.265^{***} (0.0383)	$0.359^{**} 0$ (0.0424) ().394***-((0.0440) (0.560^{**}	-0.683^{**} (0.0549)	-0.568^{***} (0.0518)
LNI-20	8.207^{***} (1.301)	10.07^{**} (1.581)	11.34^{***} - (1.577)	-7.145^{***} (1.461)	-10.82^{***} (1.879)	-8.242^{***} (1.328)	0.344^{***} (0.0526)	$0.455^{**} 0$ (0.0613) ().506***-((0.0635) (0.0753	-0.518^{***} (0.0900)	-0.602^{***} (0.0831)
LNI-50	13.70^{***} (1.724)	15.56^{**} (1.921)	16.83^{***} - (1.915)	-5.341^{***} (1.594)	-8.863^{***} (2.049)	-6.514^{***} (1.568)	0.515^{***} (0.0534)	$0.627^{***} 0$ (0.0602) ().678*** -((0.0624) (0.224^{***} 0.0851	-0.344^{***} (0.102)	
IS-IN1	2.921^{**} (1.156)	4.782^{***} (1.281)	6.053^{***} - (1.434)	-10.49^{***} (1.487)	-12.24^{***} (1.584)	-8.775^{**} (1.173)	0.203^{***} (0.0553)	$0.313^{***} 0$ (0.0613) ().363*** -((0.0656) (0.0699	-0.668^{***} (0.0756)	-0.686^{***} (0.0752)
Constant	19.92^{***} (0.944)	$\frac{18.06^{***}}{(1.175)}$	16.79^{***} (1.272)	19.36^{***} (1.207)	18.69^{***} (1.443)	16.29^{***} (0.998)	2.980^{***} (0.0444)	2.869^{**2} (0.0528) (2.806*** 3 (0.0561) (0.028***	2.994^{***} (0.0652)	3.046^{***} (0.0631)
N ${ m R}^2$	$1990 \\ 0.207$	$1791 \\ 0.213$	$1592 \\ 0.211$	$1393 \\ 0.102$	1393 0.125	$1393 \\ 0.0840$	$1484 \\ 0.293$	1339 0.309	1204 0.313	$895 \\ 0.195$	787 0.250	787 0.235
Ŀ	11.46	11.49	10.83	9.844	9.509	9.113	31.71	32.81	30.43	16.42	19.97	15.19
Subject Fixed Effects Period Fixed Effects	Yes Yes	$_{ m Yes}^{ m Yes}$	Yes Yes	Yes Yes	$_{ m Yes}^{ m Yes}$	$_{ m Yes}^{ m Yes}$	Yes Yes	Yes Yes	Yes Yes	Yes Yes	$_{ m Yes}^{ m Yes}$	$_{ m Yes}^{ m Yes}$
Robust Standard erro	rs in pare	ntheses; *	p < 0.1,	** p < 0.0	05, *** p <	0.01						

Table 2.19: Fixed Effects Log-Linear and Linear GLS Regression–All Choices

71

Inter-Charity Competition for Individuals' Contributions- Experimental Testing of Substitution-, Complementary-, and Crowding Out Effects

Inter-Charity Competition for Individuals' Contributions- Experimental Testing of Substitution-, Complementary-, and Crowding Out Effects

Baseline	T.	T.	N	N	T	T
DV.	In Local	In Local	In National	In National	In International	In International
LN.	0.462***	0.221***	0.622***	0.201***		
LIN	-0.403	(0.0521)	(0.0427)	-0.381		
	(0.0333)	(0.0521)	(0.0421)	(0.0003)		
LI	-0 414***	-0.0000**			-0.576***	-0.202***
	(0.0352)	(0.0458)			(0.0415)	(0.0613)
	(0.0002)	(0.0400)			(0.0410)	(0.0010)
NI			-0.454***	-0.279***	-0.515***	-0.240***
			(0.0419)	(0.0641)	(0.0392)	(0.0548)
			()	()	()	()
LNI	-0.708***	-0.229***	-0.916^{***}	-0.480 * * *	-0.791^{***}	-0.272***
	(0.0423)	(0.0490)	(0.0399)	(0.0724)	(0.0488)	(0.0622)
	. ,	. ,	. ,	· · · · ·	. ,	. ,
LNI-20	-0.473***	-0.0308	-0.806***	-0.328***	-0.823***	-0.303***
	(0.0686)	(0.0727)	(0.0686)	(0.0968)	(0.0782)	(0.0798)
LNI-50	-0.509***	0.0917	-0.734^{***}	-0.151	-0.819***	-0.166*
	(0.0777)	(0.0850)	(0.0825)	(0.108)	(0.0908)	(0.0929)
LNI-SI	-0.627***	-0.277***	-0.851***	-0.493^{***}	-0.819***	-0.407***
	(0.0579)	(0.0702)	(0.0561)	(0.0868)	(0.0675)	(0.0780)
Male	0.157^{***}	0.129	0.0207	-0.00465	0.000312	-0.0229
	(0.0595)	(0.124)	(0.0528)	(0.110)	(0.0650)	(0.125)
Age	0.0129	0.0310*	0.00450	0.0319**	-0.0102	0.0185
	(0.00794)	(0.0158)	(0.00515)	(0.0142)	(0.00693)	(0.0204)
NT - 1 T	0.000050	0.0000	0.000007	0.0000105	0.000406**	0.000040
NetIncome	-0.0000270	0.0000770	0.0000825	0.0000197	0.000406**	0.000349
	(0.000159)	(0.000352)	(0.000189)	(0.000375)	(0.000188)	(0.000377)
TD	0.0007***		0.0005***		0.0012***	
1D	(0.0227.17)		(0.0225)		(0.00145)	
	(0.00147)		(0.00148)		(0.00145)	
National		0.0137***				0.0191***
Hational		(0.00267)				(0.00266)
		(0.00201)				(0.00200)
International		-0.0182***		-0.00829**		
International		(0.00266)		(0.00352)		
		(0.00200)		(0100002)		
Local				-0.00843***		-0.0134***
				(0.00293)		(0.00253)
				· /		
Constant	1.947^{***}	2.131^{***}	2.263^{***}	2.199 * * *	2.585^{***}	2.433***
	(0.202)	(0.409)	(0.148)	(0.383)	(0.179)	(0.493)
N	895	895	787	787	787	787
\mathbb{R}^2	0.563	0.419	0.615	0.333	0.575	0.364
Chi^2	714.4	322.5	1160.3	269.1	682.4	249.1
Subject Fixed Effects	No	No	No	No	No	No
Period Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Table 2.20: Random	Effects Log-Linear (GLS Regression–All	Choices–TD and	other than DV–Charity

Robust Standard errors in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01

Inter-Charity Competition for Individuals' Contributions- Experimental Testing of Substitution-, Complementary-, and Crowding Out Effects

	Local Treatment to All	Nat. Treatment to All	Int. Treatment to All
Matching 20%			
TD	-1.199	-1.331	2.493**
Local	-6.067***	1.576	4.396***
National	3.430***	-7.464***	4.017***
International	2.958***	1.336	-4.225***
Matching 50%			
TD	-1.109	-1.371	2.444***
Local	-7.022***	2.331***	4.586***
National	3.919***	-8.347***	4.411***
International	4.633***	1.146	-5.680***

Table 2.21: Wilcoxon-Mann-Whitney-Test: Differences between Treatments $\mathbf 1$

Z-Values; * p < 0.1, *
*p < 0.05, ***p < 0.01

Table 2.22	: Wilcoxon	-Mann-	-Whitney	-Test:	Differences	between	Treatments	2

Table 2.2	2: Wilcoxon-Mann-Whitne	ey-Test: Differences betwee	en Treatments 2
	Local Treat to Nat. Treat	Local Treat to int. Treat	Nat. Treat to Int. Treat
Matching 20%			
TD	0.096	-2.143**	-2.153**
Local	-4.386***	-5.999***	-1.661*
National	6.144***	-0.306	-6.414***
International	0.919	4.154***	3.018***
Matching 50%			
TD	0.187	-2.078**	-2.132**
Local	-5.414***	-6.587***	-1.379
National	6.849***	-0.200	-7.114***
International	2.250**	5.854***	3.768**

E		-	-	-						-	-	-
Treatment:	No In Local	Local h Local	Local n National	Local	No National	National 115 I ocal 1	National n National	National 15 Int	No ابر ا	lnt. In Local ly	Int. National	lmt. ابہ ایب
LNI-20	$\frac{111}{0.229***}$	0.893***	-0.565***	-0.194^{**}	$\frac{1}{0.126^{**}}$	0.0912	0.593*	-0.167^{**}	0.0162	<u>-0.335***</u>	-0.414^{***}	0.360***
	(0.0656)	(0.142)	(0.144)	(0.0804)	(0.0637)	(0.144)	(0.306)	(0.0668)	(0.0586)	(0.103)	(0.115)	(0.101)
LNI-50	0.318^{***}	1.120^{***}	-0.664***	-0.307**	0.294^{***}	0.00782	0.905^{***}	-0.229**	0.128^{*}	-0.361^{***}	-0.486^{***}	0.656^{***}
	(0.0770)	(0.140)	(0.146)	(0.123)	(0.077)	(0.163)	(0.287)	(0.0928)	(0.0767)	(0.109)	(0.112)	(0.108)
LNI–SI	0.00419	0.353^{***}	-0.0538	-0.0872	0.005	0.367^{**}	-0.175	-0.0597	-0.0600	-0.158*	-0.0736	-0.0136
	(0.0424)	(0.141)	(0.0989)	(0.0663)	(0.040)	(0.148)	(0.322)	(0.0685)	(0.0379)	(0.0851)	(0.0704)	(0.0645)
Constant	2.510^{***}	2.119^{***}	1.331^{***}	2.369^{***}	2.344^{***}	1.291^{***}	1.598^{***}	2.540^{***}	2.448***	1.326^{***}	1.112^{***}	2.350^{***}
	(0.0390)	(0.130)	(0.0845)	(0.0445)	(0.0345)	(0.135)	(0.289)	(0.0367)	(0.0337)	(0.0631)	(0.0650)	(0.0642)
N	408	256	256	256	408	264	264	264	417	276	276	276
$ m R^2$	0.113	0.568	0.195	0.137	0.09	0.176	0.280	0.0912	0.136	0.0843	0.158	0.418
ц	7.519	19.62	7.990	2.311	5.36	3.093	6.824	2.987	2.991	4.021	6.660	17.35
Subject Fixed Effects	Yes	\mathbf{Yes}	\mathbf{Yes}	\mathbf{Yes}	\mathbf{Yes}	\mathbf{Yes}	\mathbf{Yes}	Yes	\mathbf{Yes}	$\mathbf{Y}_{\mathbf{es}}$	Yes	Yes
Period Fixed Effects	Yes	Yes	\mathbf{Yes}	Yes	\mathbf{Yes}	\mathbf{Yes}	\mathbf{Yes}	Yes	Yes	\mathbf{Yes}	Yes	Yes
Robust Standard erro	rs in pare	intheses ; *	p < 0.1, **	p < 0.05	*** $p < 0.0$	01						

Treatment Effects -uoisac ď Table 2-23. Fived Effects Log-Linear

	Local 563** 1 563** 1 1.090) 367*** 1 1.400) 0.779 0.779 0.778	Local 2.38***	National	Local	No	National	National	National	No	Int.	Int.	Int.
	563** 1 1.090) 367*** 1 1.400) 0.779 0.779	$\frac{2.38^{***}}{(2.699)}$ 8.85 ***		Int.	National	Local	National	Int.	Int.	Local	National	Int.
	367*** 1 1.400) 0.779 0.548)	8.85*** -	(0.869)	-4.740^{***} (0.766)	1.085 (0.909)	4.663 (4.482)	10.01^{***} (3.576)	$\frac{-2.659^{**}}{(1.069)}$	-0.523 (0.989)	-4.141^{***} (0.975)	-3.668^{***} (0.624)	5.432^{**} (2.539)
- 0)	0.779 0.548	(3.516)	.3.425*** (0.861)	-6.146^{***} (0.643)	3.045^{**} (1.203)	3.905 (4.139)	16.45^{***} (3.974)	-2.280 (1.392)	1.206 (1.413)	-4.213^{***} (1.016)	-3.885^{***} (0.668)	11.36^{***} (3.696)
		-0.195 (1.395)	-0.143 (1.033)	-0.287 (1.779)	-0.326 (0.342)	5.345 (4.187)	0.755 (3.833)	-1.219 (1.060)	-1.055^{***} (0.351)	-2.764^{**} (1.242)	-1.639^{*} (0.905)	-1.611 (1.157)
t 9.6	348*** g 0.665)	$.648^{***}$	6.784^{***} (0.586)	8.568^{***} (0.581)	6.78^{***} (0.525)	5.034 (4.102)	6.896^{*} (3.471)	8.568*** (0.797)	8.568^{***} (0.586)	9.648^{***} (0.746)	6.784^{***} (0.489)	8.568^{***} (1.674)
-	796	256	256	256	796	264	264	264	796	276	276	276
0	.0483	0.307	0.122	0.142	0.0376	0.0354	0.307	0.0385	0.00819	0.117	0.177	0.131
Dirod Dffoots	5.037	12.89	0.753	30.78	3.62	0.753	4.451	2.742	4.158	6.869	14.66	11.35
ixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
t 9.0 (((((Fixed Effects 'ixed Effects Standard errors	548*** 9 548*** 9 796 796 0.0483 5.037 Yes Yes Yes in parei	.648*** (1.725) 256 0.307 12.89 Yes Yes Tes	$\begin{array}{c} 6.784^{***}\\ (0.586)\\ \hline 256\\ 0.122\\ 6.753\\ \mathrm{Yes}\\ \mathrm{Yes}\\ \mathrm{Yes}\\ \mathrm{Yes}\\ \end{array}$	$\begin{array}{c} 8.568^{***} \\ (0.581) \\ 256 \\ 0.142 \\ 30.78 \\ Yes \\ Yes \\ Yes \\ Yes \end{array}$	$\begin{array}{c} 6.78^{***} \\ (0.525) \\ 796 \\ 796 \\ 0.0376 \\ 3.62 \\ Yes \\ Yes \\ Yes \\ 0.05, *** _{I} \\ .05, *** _{I} \end{array}$	$\begin{array}{c} 5.034 \\ (4.102) \\ 264 \\ 0.0354 \\ 0.753 \\ Yes \\ Yes \\ Yes \\ \gamma < 0.01 \end{array}$	6.89 (3.47 264 264 4.45 Yes Yes	²	6* 8.568*** 1) (0.797) 1 264 07 0.0385 1 2.742 s Yes s Yes			

2.24: Fixed Effects Linear Regression–Treatment	Effec
2.24: Fixed Effects Linear Regression-	-Treatment
2.24: Fixed Effects Linear	Regression-
2.24: Fixed Effects	Linear
• 2.24: Fixed	Effects
2.24:	Fixed
()	2.24:

		Table 2.	25: Randon	n Effects L	og-Linear	Regression	ı with TD-	Treatmen	tt Effects			
Treatment: DV:	No In Local	Local In Local I	Local n National	Local In Int. I	No n National	National In Local I	National n National	National ln Int.	No In Int.	Int. In Local In	Int. National	Int. In Int.
LNI-20	0.205^{***} (0.0638)	0.492^{***} (0.149)	-0.748^{***} (0.183)	-0.479^{***} (0.0899)	0.104^{*} (0.0633)	-0.236 (0.375)	0.228^{***} (0.0746)	-0.231^{***} (0.0802)	0.00736 (0.0610)	-0.887^{***} (0.215)	$\frac{-0.841^{**}}{(0.408)}$	0.326^{***} (0.0946)
LNI-50	(0.190^{***})	0.649^{***}	-0.873***	-0.535***	0.219^{***}	-0.490	0.447*** (0.650)	-0.410^{***}	0.0197	-0.974^{***}	-0.991**	0.438^{***}
IS-INI-SI	$(0.0390 \\ 0.0390 \\ (0.0341)$	(0.120) -0.455*** (0.173)	(0.130) -0.0172 (0.131)	(0.0312^{***}) -0.312 *** (0.0732)	(0.0970) -0.0970 (0.0807)	$\begin{pmatrix} 0.370 \\ 0.204 \\ (0.365) \end{pmatrix}$	(0.000.0)	(0.0401) -0.0401 (0.0619)	(0.0378)	(0.210) -0.625*** (0.212)	(0.405) -0.549 (0.405)	(0.0685)
TD	0.0184^{***} (0.00181)	(0.0237^{***})	0.0127 (0.00774)	0.0240^{***} (0.00273)	0.0186^{***} (0.00234)	0.0155^{**} (0.00622)	0.0199^{***} (0.00155)	$0.0181^{***}(0.00245)$	0.0208^{***} (0.00156)	$\begin{array}{c} 0.00780 \\ (0.00545) \end{array}$	0.0102^{**} (0.00516)	0.0239^{***} (0.00177)
ValueLocal	$0.0394 \\ (0.0304)$	-0.0222 (0.0346)				0.259^{***} (0.0497)				0.236^{***} (0.0652)		
ValueNational			-0.00790 (0.0866)		0.0394^{*} (0.0239)		0.0508^{*} (0.0287)				$\begin{array}{c} 0.119 \\ (0.0747) \end{array}$	
ValueInt				0.0927^{**} (0.0433)				0.144^{***} (0.0545)	0.0979^{***} (0.0253)			0.0582^{*} (0.0320)
${\rm Fut}_{-}{\rm HH}$	-0.0107 (0.0300)	-0.0434 (0.0549)	0.0875 (0.130)	$0.0550 \\ (0.0504)$	0.0435 (0.0281)	-0.0235 (0.0916)	0.00875 (0.0377)	0.0220 (0.0703)	-0.00640 (0.0372)	-0.0254 (0.0838)	-0.0607 (0.0965)	-0.00598 (0.0479)
Constant	$1.678^{***} (0.206)$	1.883^{**} (0.329)	0.890 (0.689)	$1.089^{***} (0.242)$	1.256^{**} (0.183)	-0.0575 (0.558)	$1.462^{***} (0.176)$	0.978^{***} (0.253)	$\begin{array}{c} 1.240^{***} \\ (0.190) \end{array}$	0.936^{*} (0.524)	$\begin{array}{c} 1.370^{***} \\ (0.513) \end{array}$	$1.320^{***} (0.252)$
N_2	418	208 0 50	176 0.17	95 0 = 1	342 0.91	200 0.3%	157 0.70	108	342 0 = 0	160	156	139
Chi^2	152.2	252.5	30.94	1663.5	78.84	114.0	320.5	136.7	218.4	65.57	68.11	298.9
Subject Fixed Effects	No	No	No	No	No	No	No	No	No	No	No	No
Period Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	\mathbf{Yes}	Yes	Yes	Yes	Yes	Yes
Robust Standard erro	rs in parei	$\frac{1}{1}$ ntheses ; $*_{i}$	p < 0.1, ** p	0 < 0.05, **	p < 0.01							

Inter-Charity Competition for Individuals' Contributions- Experimental Testing of Substitution-, Complementary-, and Crowding Out Effects

$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Treatment: DV·	No In Local	Local In Local	Local In National	Local In Int	n National	National In Local	National In National	National In Int	No In Int	Int.	In National	Int. In Int
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	LNI-20	0.228^{***} (0.0502)	0.441^{***} (0.129)	-0.402** (0.169)	-0.176 (0.135)	0.140** (0.064)	0.0180 (0.378)	0.155* (0.0833)	-0.158* (0.0958)	0.0589 (0.0536)	-0.623 *** (0.220)	-0.915** (0.455)	0.229^{**} (0.107)
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	LNI-50	0.351^{***} (0.0619)	0.697^{***} (0.107)	-0.334^{**} (0.170)	-0.215^{*} (0.130)	0.339^{***} (0.073)	-0.0649 (0.372)	0.473^{***} (0.0859)	-0.238^{**} (0.106)	0.185^{***} (0.0703)	-0.601^{***} (0.228)	-0.970^{**} (0.457)	0.480^{**} (0.115)
	LNI-SI	-0.0176 (0.0401)	-0.524^{***} (0.178)	-0.0166 (0.136)	-0.207^{**} (0.0913)	0.022 (0.044)	0.226 (0.370)	-0.263^{***} (0.0923)	-0.0815 (0.0837)	-0.0699^{*} (0.0420)	-0.602^{***} (0.207)	-0.741 (0.460)	-0.0631 (0.0611)
	Local			-0.0209^{***} (0.00707)	-0.0111 (0.00697)	-0.00646 (0.00553)		-0.0126^{***} (0.00455)	0.0150^{**} (0.00703)	-0.0105^{**} (0.00466)		0.0495^{***} (0.0100)	-0.0266^{***} (0.00791)
	National	-0.0155^{***} (0.00468)	-0.00701 (0.0120)	C	0.0192^{***} (0.00698)		-0.00971^{**} (0.00381)		0.00278 (0.00635)	-0.0124^{**} (0.00496)	0.0687^{***} (0.0119)		-0.00583 (0.00893)
	International	-0.0183^{***} (0.00437)	-0.0217^{***} (0.00552)	-0.00707 (0.0117)		-0.00646 (0.00473)	0.0276^{***} (0.0101)	0.00608 (0.00634)			-0.00458 (0.00378)	-0.00146 (0.00261)	
	ValueLocal	0.133^{***} (0.0463)	-0.0645 (0.0700)				0.377^{***} (0.0538)				0.210^{***} (0.0546)		
	ValueNational			-0.000811 (0.100)		$0.0515 \\ (0.0487)$		0.0492 (0.107)				0.130^{**} (0.0629)	
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	ValueInt				0.0914 (0.0623)				0.195^{***} (0.0650)	0.0832^{*} (0.0458)			0.0402 (0.102)
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Fut_HH	-0.0243 (0.0613)	-0.0217 (0.0973)	0.105 (0.151)	-0.00258 (0.117)	0.0242 (0.0590)	-0.0665 (0.127)	-0.0231 (0.129)	-0.0131 (0.0945)	-0.0182 (0.0636)	0.0222 (0.0665)	-0.0478 (0.0778)	-0.00696 (0.0952)
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Constant	2.164^{***} (0.378)	2.998^{***} (0.477)	1.470^{**} (0.715)	2.017^{**} (0.548)	2.100^{**} (0.368)	-0.251 (0.701)	2.516^{**} (0.666)	$1.354^{***} \\ (0.400)$	2.313^{***} (0.329)	$0.605 \\ (0.440)$	$\begin{array}{c} 1.268^{***} \\ (0.476) \end{array}$	2.506^{**} (0.718)
Chi ² 64.64 168.6 31.13 4120.5 25.95 178.3 85.06 47.87 29.56 181.6 113.1 Subject Fixed Effects No Period Fixed Effects Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye	${ m R}^2$	$418 \\ 0.46$	208 0.53	$176 \\ 0.36$	$95 \\ 0.36$	$342 \\ 0.21$	200 0.30	$157 \\ 0.54$	$108 \\ 0.29$	$342 \\ 0.21$	$160 \\ 0.45$	$156 \\ 0.42$	$139 \\ 0.55$
Period Fixed Effects Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye	Chi ² Subject Fixed Effects	64.64 No	168.6 No	31.13 No	4120.5 No	25.95 No	178.3 No	85.06 No	47.87 No	29.56No	181.6 No	113.1 No	114.0 No
	Period Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Inter-Charity Competition for Individuals' Contributions- Experimental Testing of Substitution-, Complementary-, and Crowding Out Effects

	Table	2.27: Ra	ndom Eff	ects and	Fixed Ef	ects Log-I	linear Regr	ession, Un	matched-	Treatment	Effects	
Treatment DV:	Local In TD	Local In TD	Local In Local	Local In Local	National In TD	National In TD I	National National h	National n National	Int. In TD	Int. In TD Ir	Int. International In	Int. International
LNI-20	-0.0214 (0.0455)	-0.0216 (0.0455)	0.479^{***} (0.101)	0.478^{***} (0.100)	-0.109 * * * (0.0320)	-0.108^{***} (0.0322)	0.249 * * * (0.0866)	0.247 * * (0.0852)	-0.135*** (0.0410)	-0.138*** (0.0412)	0.177*	0.159 (0.0996)
LNI-50	-0.0884 (0.0532)	-0.0896^{*} (0.0533)	$\begin{array}{c} 0.483^{***} \\ (0.108) \end{array}$	0.472^{***} (0.107)	-0.175^{***} (0.0395)	-0.176^{**} (0.0394)	0.355^{***} (0.0906)	0.340^{***} (0.0894)	-0.149^{***} (0.0469)	-0.150^{**} (0.0469)	0.250^{**} (0.108)	0.230^{**} (0.105)
IS-INI-SI	-0.00182	-0.000288	0.123	0.122	-0.131***.	-0.131^{***}	-0.00671	-0.000566	-0.0171	-0.0158	-0.0136	-0.0180
Constant	(0.0330) (0.0330)	(0.0410) 3.156^{***} (0.108)	(0.0671) 2.352^{***} (0.0671)	(0.0998)	(0.0221) 3.306^{***} (0.0221)	(0.103) (0.103)	$\begin{array}{c} (0.0503) \\ 2.354^{***} \\ (0.0503) \end{array}$	(0.0992) 2.320^{***} (0.0992)	(0.0282) (0.0282)	(0.12^{***})	(0.0042) 2.350*** (0.0642)	$\begin{array}{c} (0.0044) \\ 2.327^{***} \\ (0.113) \end{array}$
Ν	212	212	194	194	218	218	185	185	193	193	164	164
${ m R}^2$	0.107	0.110	0.267	0.175	0.110	0.144	0.175	0.105	0.145	0.144	0.105	0.07
Ŀл	3.733		7.912		8.123		5.216		6.702		2.194	
Chi^2		11.82		24.26		24.65		14.79		20.82		6.104
Subject Fixed Effects	\mathbf{Yes}	No	\mathbf{Yes}	N_{O}	$\mathbf{Y}_{\mathbf{es}}$	No	\mathbf{Yes}	No	$\mathbf{Y}_{\mathbf{es}}$	No	Yes	No
Period Fixed Effects	Yes	N_{O}	Yes	No	$\mathbf{Y}_{\mathbf{es}}$	No	\mathbf{Yes}	No	Yes	No	Yes	No
Robust Standard erre	ors in pare	entheses;	p < 0.1,	** $p < 0.0$	35, *** p <	< 0.01						

Inter-Charity Competition for Individuals' Contributions- Experimental Testing of Substitution-, Complementary-, and Crowding Out Effects

2.7.3 Supplementary Tables and Graphs

Variable	Observations	Mean	Std. Deviation	Min	Max	Charity
TD 1	199	19.24623	20.79212	0	100	Local
TD 2	199	17.78894	20.97152	0	100	National
TD 3	199	16.23116	19.10824	0	100	International
TD 4	199	22.26131	22.7267	0	100	Local and National
TD 5	199	22.9397	22.52369	0	100	Local and International
TD 6	199	20.55276	21.38836	0	100	National and International
TD 7	199	25	24.1705	0	100	Local, National and International
TD 8	199	28.12563	26.7429	0	120	Matching 20%
TD 9	199	33.61809	32.5044	0	150	Matching 50%
TD 10	199	22.8392	22.74201	0	100	Social Information
Local 1	199	19.24623	20.79212	0	100	Local
Local 2	199	12.78894	15.096	0	90	Local and National
Local 3	199	12.86432	14.62921	0	70	Local and International
Local 4	199	9.648241	10.92167	0	50	Local, National and International
Local 5	199	12.21106	16.88561	0	120	Matching 20%
Local 6	199	14.01508	20.98252	0	150	Matching 50%
Local 7	199	8.869347	11.1934	0	50	Social Information
National 1	1990	17.78894	20.97152	0	100	National
National 2	199	9.472362	11.32712	0	70	National and Local
National 3	199	10.37688	12.9579	0	50	National and International
National 4	199	6.78392	8.402192	0	45	National, Local and International
National 5	199	7.869347	13.73355	0	120	Matching 20%
National 6	199	9.829146	18.04722	0	150	Matching 50%
National 7	199	6.457286	8.093032	0	40	Social Information
International 1	199	16.23116	19.10824	0	100	International
International 2	199	10.07538	12.90486	0	75	International and Local
International 3	199	10.17588	12.85508	0	65	International and National
International 4	199	8.567839	11.97383	0	85	International, Local and National
International 5	199	8.045226	14.35676	0	120	Matching 20%
International 6	199	9.773869	20.62678	0	150	Matching 60%
International 7	199	7.512563	10.90286	0	85	Social Information

Table 2.28: TD, Local Giving, National Giving and International Giving by Choice

Male																				1.0000	(0.0000)	
NetIncome																		1.0000	(0.0000)	0.0425^{*}	(0.0578)	
Age2																1.0000	(0.0000)	-0.0101	(0.6516)	-0.0264	(0.2386)	
Age														1.0000	(0.000.0)	0.9867***	(0.0000)	-0.0080	(0.7200)	-0.0113	(0.6155)	
Shares												1.0000	(0.0000)	0.1691^{***}	(0.0000)	0.1630^{***}	(0.0000)	-0.1294^{***}	(0.0000)	-0.0654^{***}	(0.0035)	
tion Table Efficiency										1.0000	(0.0000)	0.0558	(0.0128)	0.0633^{***}	(0.0047)	0.0527^{**}	(0.0187)	-0.0486** -	(0.0301)	-0.0965***	(0.0000)	
ss Correls Born								1.0000	(0.0000)	-0.0490**	(0.0288)	0.0187	(0.4034)	-0.1745^{***}	(0.0000)	-0.1438^{***}	(0.0000)	-0.0604^{***}	(0.0070)	0.1038^{***}	(0.0000)	
e 2.29: Crc Fut_HH						1.0000	(0.0000)	0.0077	(0.7324)	-0.0667***	(0.0029)	0.0564^{**}	(0.0119)	0.0597^{***}	(0.0077)	0.0688^{***}	(0.0021)	-0.1245^{***}	(0.0000)	0.0034	(0.8790)	
Table ChKnown				1.0000	(0.0000)	0.0241	(0.2818)	0.0066	(0.7679)	0.0166	(0.4601)	0.1723^{***}	(0.0000)	0.0572^{***}	(0.0107)	0.0459^{**}	(0.0407)	-0.0002	(0.9921)	-0.0803***	(0.0003)	_
ValueInt.			1.0000	(0.0000) 0.1944^{***}	(0.0000)	0.0089	(0.7404)	-0.0785***	(0.0034)	0.0364	(0.1751)	0.3028^{***}	(0.0000)	0.0653^{**}	(0.0149)	0.0679^{**}	(0.0113)	-0.0134	(0.6181)	-0.2516^{***}	(0.0000)	p < 0.0
ValueNat.		1.0000 (0.000)	0.4909^{***}	(0.0000) 0.1933^{***}	(0.0000)	0.0010	(0.9719)	0.0977^{***}	(0.0004)	0.1402^{***}	(0.000.0)	0.2592^{***}	(0.000.0)	0.0561^{**}	(0.0406)	0.0289	(0.2915)	0.0360	(0.1895)	-0.2035***	(0.0000)	p < 0.05, *
ValueLocal	1.0000 (0.0000)	0.5394^{***} (0.0000)	0.1891^{***}	(0.0000) 0.2428^{***}	(0.0000)	0.0387	(0.1446)	0.2822^{***}	(0.0000)	0.1578^{***}	(0.0000)	0.2890^{***}	(0.0000)	0.1703^{***}	(0.0000)	0.1627^{***}	(0.0000)	-0.0255	(0.3363)	-0.1863^{***}	(0.0000)	p < 0.1, **
	ValueLocal	ValueNat.	ValueInt.	ChKnown		Fut_HH	I	Born		Efficiency		Shares		Age		Age2		NetIncome		Male		r-Values; *

Inter-Charity Competition for Individuals' Contributions- Experimental Testing of Substitution-, Complementary-, and Crowding Out Effects

Figure 2.4: Experimental Instructions (Translated from German)-1

General Instructions for Participants

Welcome to the experimental laboratory!

Today, you are participating in an economic experiment. Depending on your decisions you can earn a particular amount of money. Therefore, it is important that you read the following instructions carefully. The instructions you received are your private information. During the experiment, there is an absolute prohibition of communication. If you have any questions, please raise your hand. An experimenter will come to you, to answer the question. Failure to follow this rule will result in expulsion from the experiment and from all payments. The decisions you make in the experiment are anonymous. Only the experimenter learns your identity. Your information is confidential and the decisions cannot be assigned to your identity.

In every round of this experiment, you have a total of 100 Token available. For your payment, the token will be converted in Euro. The following conversion rate is applied:

1 Token = 10 Euro Cent

Accordingly, 10 Token are worth one Euro and the full 100 Token correspond to a monetary value of 10 Euros. The experiment consists of 10 rounds in which each of you can decide to divide your 100 Token/Round in increments of 5 Token between yourselves and up to three charities. In each round, you have the full amount of 100 Token available. At the end of the experiment, one of the 10 rounds will be randomly selected for your personal payment. Each round will be selected with equal probability. Payments are made in cash immediately after the experiment. You can arbitrarily divide your Token between yourself and the organizations. The number of organizations that you can choose from will vary, depending on the round. After 7 rounds additional information will be provided on the screen. Once you have made all your decisions, you will be asked to fill in a questionnaire. Subsequently, payments are made in cash. The amount you distribute to the organizations immediately after the experiment. After all personal payments are made, you have the opportunity to oversee the transfers to the organizations.

Figure 2.5: Experimental Instructions (Translated from German)-2

The organizations, which you can choose from, are the local charity "Tafel Hamburg", the national charity "Tafel Germany", and the international charity "European Food Bank."

Tafel Hamburg:

The Hamburger Tafel supplies people in need in Hamburg with what is left over due to overproduction of the community. Before useable food is thrown away, the Hamburger Tafel distributes it through a network of social services to the needy people in the city.

Tafel Germany:

The Tafel Germany creates a bridge between abundance and scarcity: It collects impeccable quality food that would otherwise end up in the garbage, and distributes it across Germany to socially and economically disadvantaged people.

The European Food Bank:

The European Food Bank collects surplus food and donations. Before impeccable quality food is to be thrown away, it is distributed through partner organizations to needy people throughout Europe.

If you have any further questions, please raise your hand and an experimenter will come to your assistance.

Chapter 3

Moral Courage in the Lab – Experimental Testing of Solidarity^{*}

Abstract

We conduct an experiment in which helping involves a risk as the costs of helping depend on other subjects' decisions to help. We introduce a novel experimental design (the moral courage game) in which we test an individuals' willingness to support a member of her group who lost her whole period endowment. We investigate how the helping decision depends on the group size as well as how social norms of helping are carried over from small to big groups. Furthermore, we focus on the impact of a shared group identity in the past on the decision to help. We find that individuals cooperate more in big groups when they have previously been in small groups. Experienced solidarity (positive and negative) in small groups has a significant impact on subsequent behavior in big groups. Further, we find that past experiences drive the decision to help. Subjects show more pro–social behavior, if they experienced solidarity themselves and vice versa. This effect is strengthened when the helper and the loser have a shared group identity in the past.

Keywords Experimental Economics Reciprocity Shared Effort Social Preferences Solidarity

JEL Classification C91, D03, H41

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3.1 Introduction and Related Literature

Imagine that a friend of yours needs to move to a new apartment. Besides you she contacts several other friends in order to fulfil her plan. Each of her friends, including you, feels the urge to help but, at the same time, he or she wants to avoid the hard work. Everybody is also aware of the risk of having to do a big share of the work. This risk stems from an uncertainty about the number of people who will help. If you are the only one who is involved, you will still suffer from the tough work. However, with every additional helper, the expected physical effort, both for you and the other helpers, decreases. If the whole group of friends works together, the job will more easily be accomplished.

This incentive structure can also be found in workplace environments where teamwork has positive scale effects. If one employee is given a task shortly before the end of the work day, his leisure time will be massively reduced. If his colleagues decided to help, each employee would only suffer a bit. International political affairs often require solidarity between countries, e.g. after catastrophes, in armed conflicts. Differing technological standards usually lead to the efficient outcome in which a multitude of countries stands together, however, this efficient outcome is not always reached.

All of the above mentioned examples have one thing in common: in each case there is a need for someone to get involved and take the risk of a loss in order to improve someone else's condition. The situations require moral courage. Vesilind (2004) defines moral courage as "the courage to take action for moral reasons despite the risk of adverse consequences." We take this situation into the lab by designing a corresponding game in which subjects decisions to help others are afflicted with monetary cost. More precisely, in our "moral courage game", a randomly chosen subject loses her endowment. Then other members of her group can decide to help. Helping is always costly, but the costs of helping decline in the number of helpers. We chose this novel experimental approach to costly cooperation based on the observation of two main features of the game: first, the situation resembles a social dilemma which occurs when defection is the dominant strategy for all players resulting in a deficient equilibrium (Dawes, 1974, 1980, Diekmann, 1985)¹ Second, there is risk attached to the decision to help. This risk, on the one hand, is determined by nature, e.g. difficulty of the task. On the other hand, potential helpers face the risk that they will be the only helper or one of only a few helpers. The more people that are involved, the less costly it is to help. Some people might be willing to help at moderate cost but reluctant to do so at high cost. Thus, they face a coordination game

¹ More precisely, (Dawes, 1974) claim that in a social dilemma all individual utilities are higher when the players cooperate. According to the structure of our moral courage game we perceive a social dilemma, if cooperation increases overall group utility.

which for pro–socially motivated subjects has multiple equilibria: either zero cooperation or full cooperation.

When combining two independent groups to one we expect to find social interaction effects among groups which can easily be observed due to the existence of multiple equilibria. These social interaction effects are usually revealed in multiple group membership settings. While most existing economic literature concentrates on simultaneous group membership our design captures the evolution of norms in a within group membership design. In our treatment, the same subjects play the moral courage game sequentially in groups of different size. In detail, two groups of four subjects are randomly combined to a group of eight in the last part of the experiment. By combining two more "familiar" groups to a big, "societal" group we investigate whether these moral norms that are often pronounced in small societies, groups and clans are transferable to larger groups. A study by Feld and Torgler (2007) addresses this social learning question already in the field and investigates tax moral of German citizens after the reunification of West and East Germany. In this quasi natural field experiment, two societies that share different norms were combined to a big society. In this setting, Feld and Torgler provide evidence on a higher tax morale in East Germany than in West Germany. However, after nine years of reunification, tax morale values strongly converged to the Western German level. Thus, Feld and Torgler (2007) show that group norms are, in principle, transferable and influence each other. In this case, the comparably more pronounced norm of non-compliance in West Germany influenced the former obedience norm existing in East Germany (Feld et al., 2008).

In the simultaneous group setting Falk et al. (2010) find evidence that people adapt their behavior to the respective norm-behavior in each group across different independent games. In Fellner and Lünser (2008) subjects simultaneously act in a local and in a global group. They decide about a distribution of their investments in a public good in each of both groups. As anonymity is higher in the big group, cooperation can easier be reached in the small group. As opposed to these attempts in our experiment subjects are not acting in different groups simultaneously. We test which of the norms established in the repeated game in a small group of four persist when two groups of four are combined to one big group of eight. By this we can observe discrimination by group membership on the individual level. However, the decision to help is disentangled from strategic considerations as both in – and out – group members now are merged into an identical group. In this group, subjects that are in need of help, can be identified by their ID and helpers know whether they were in the same group before, or not. A shared group identity turned out to be one of the main enhancements for cooperation. Dawes et al. (1988) find that in an assurance game cooperation is enhanced if a higher degree of group identity is generated by allowing the subjects to discuss the game before playing (see also Isaac and Walker, 1988a). In the field it is proven that social ties evolve between randomly assigned groups within short time (Goette et al., 2006). In our design group identity is generated by implementing an incentivised quiz that was solved in joint work of all group members prior to the moral courage game. While solving the quiz subjects were allowed to communicate via chat. Thus, they were able to discuss the game in advance but not explicitly asked to do so. As opposed to other studies we are able to control for the strength of the social ties evolving in the small group. Group identity consolidates over the first rounds of the game creating either a positive or a negative morale in the group.

We conduct a control treatment in which we form groups of eight that remain at this size from the beginning until the end of the experiment. Payoffs are kept identical. By this, we can test for differences in behavior between groups of different size. Findings on public good experiments suggest that the size of the group is non-trivial. Isaac and Walker (1988b) find that free-riding in a public good game increases in the size of the group. Our approach mostly resembles a Volunteer's Dilemma game in which a group needs one or several volunteers to assure the provision of a public good (Diekmann, 1985). In a field experiment, Latane et al. (1968) find that if one volunteer is required, subjects who were aware of the presence of other potential volunteers but unable to coordinate waited three times longer to call help than subjects who thought they were the only person facing an emergency situation. In a laboratory experiment Dana et al. (2007) expand the moral wiggle room for the decision to give or not by implementing two dictators. The choice of socially desirable outcomes becomes significantly less likely if the responsibility for the potential loss of the recipients is shared by two dictators. Other studies, as e.g. Piliavin et al. (1969), can't find strong evidence for a decline in help in the number of bystanders, however, a meta-study by Latané et al. (1981) shows that the effect is present. This effect somehow is natural, as the necessity to help decreases, if there are more observers and helping is costly. In laboratory environments one would expect this effect to be reinforced when the probability of being the loser decreases in bigger groups.

The moral courage game we invent tests solidarity under risk which both are elements of the so called solidarity game (Selten and Ockenfels, 1998). However, risk in the solidarity game is exogenous. In the solidarity game, before being informed whether they are winners or losers, subjects are asked how much they will give to losers in their group if they obtain a fixed amount of money. In this game subjects reveal their strategy for all potential outcomes of a random draw. In our design uncertainty stems from the interaction with others and subjects make only one decision according to their pro–social attitude and beliefs about group members' actions.

We find that individuals cooperate more in big groups when they have previously been in small groups. Experienced solidarity (positive and negative) in small groups has a significant impact on subsequent behavior in big groups. Further, we find that past experiences drive the decision to help. Subjects show more pro–social behavior, if they experienced solidarity themselves and vice versa. This effect is strengthened when the helper and the loser have a shared group identity in the past.

The remainder of the paper is organized as follows: in section 3.2 we explain the experimental design. In section 3.3 we introduce the data generated in the experiment. In section 3.4 we present experimental results. Section 3.5 discusses the results.

3.2 Experimental Design and Procedure

A total of 192 Subjects (undergraduate students and graduate students from the University of Hamburg) participated in the 8 sessions of the experiment. The experiment was programmed in z-tree (Fischbacher, 2007) and carried out between June 5th and July 12th in the University of Hamburg Experimental Laboratory.². A session lasted on average 69 minutes and each session 24 subjects participated. The mean payment was 12.24 Euro. The experiment consists of a baseline control group and a treatment group. In half of the sessions the treatment was realized. In the treatment group subjects played for 10 periods in small groups of four and afterwards for 10 periods in groups of eight. In the baseline treatment, the group size stayed constant at eight players. The experiment consisted of two parts, part A and B. Part A was a quiz and the first ten periods of the moral courage game. Part B contained the second 10 periods of the moral courage game and a questionnaire. The procedure was similar for treatment and baseline groups. According to whether the subjects were in the baseline or the treatment group of the experiment, the group size in the first 10 periods differed. Instructions were given in two stages. The first part of the instructions were handed out and read to the participants before the experiment. They set out the main procedure and the information needed for the quiz and the first ten periods. After the 10th period, the experiment was stopped and new instructions for the last ten periods were provided. In total, two pay-periods were drawn, one pay-period for the first ten rounds and one for the last. For this, one participant was selected at random to pick a number between 1 and 10 and one partici-

² The University of Hamburg uses the ORSEE software by Greiner (2004) to recruit subjects

pant was randomly selected to pick a number between 11 and 20. These numbers were entered into z-tree by different participants under supervision of one experimenter. This procedure was chosen, to secure the highest degree of transparency and ensure that the experimenter was not able to manipulate the payment periods.

In the experiment, the subjects were randomly selected into groups. Four players were in the treatment group and eight players in the baseline group. Each player learned his own player ID and was given information about the other group members' player IDs. To build a group identity, these players solved a quiz consisting of 20 questions within a time constraint of 10 minutes (Hugh-Jones and Leroch, 2011). During the quiz, the subjects had the opportunity to chat with one another to help each other to solve the questions and obtain a higher score. For each group, the scores of the individuals were summed up and the allocated points were compared over the groups. The winning group received an extra payout of 25 tokens (1 Euro) after the experiment. To avoid grief, envy and income effects in the subsequent parts, the subjects were told about their group performance in the quiz after the main part of the experiment and before the questionnaire. After the quiz, the group remained the same and subjects played the moral courage game for ten periods. All subjects received an initial endowment of 100 tokens for the experiment with monetary value of 4 Euro. In each period, one of the four (eight in the baseline group) players of each group was randomly chosen to lose his whole endowment of 100 tokens. The other three (seven in the baseline treatment) players were told which player had lost his endowment and were then able to choose between two options (option A and option B). If the players chose Option A, they supported the "loser" with their own endowment. If players chose Option B, they did nothing to support the loser and kept their whole endowment. The pay-off if option A was chosen depended on the number of players who chose this option. If only one player chose option A, the loser and the "helper" both received 30 tokens. If two players chose option A, all three received 60 tokens and if 3 players (in the group of eight, a minimum of three players) chose option A, the helpers and the loser received 90 tokens. The pay-off structure of the moral courage game is highlighted in table 3.1.

Table 3.1 about here

Thus, the subjects faced individual losses in any case but could, through joint interaction, increase the total welfare of the group. In this setting only one subgame perfect equilibrium exists: selfish individuals would never help. If, however, subjects include the benefit of others into their utility, they will support the loser. After each period, the subjects could see their earnings in case this period was chosen. After 10 periods, new instructions were handed out, stating that the group size had changed (it remained the same in the baseline case) and that the previous group of four had been extended to a group of eight. The players stayed in their groups so that two groups of four were randomly combined to make a big group of eight. The rules of the game remained the same.³

3.3 Descriptive Statistics

In this section we present the data generated in the experiment. Table 3.2 presents summary statistics.

Table 3.2 about here

The variable yes indicates that a subject chose to support the losing subject with her endowment. Over all periods and treatments, about 65% of the subjects chose to help. The variable yes_small_firstten indicates the overall decision of subjects in the treatment (small) groups in the first ten periods. Yes_big_firstten indicates the decision of subjects in the control (big) groups. On average 77% of the subjects in the small groups helped and 64% of the subjects in the big groups decided to support the loser. The variables yes_small_lastten and yes_big_lastten indicate the averages for the same decision in the last ten periods.

The variable suff_yes is a dummy variable stating whether help was sufficient to reach a groups optimal welfare. Thus, a value of 1 indicates that at least 3 subjects decided to cooperate, while a value of 0 indicates any level of cooperation below 3 subjects. The annex small and big to this variable describes the sufficient help in the treatment and control group respectively. The annex _first(last)ten depicts the average for the first (last) 10 periods.

The variable samegroup is a dummy variable indicating that a subject who lost her endowment is from the same group in the last ten periods. The variable accloser describes, accumulated by period, how many times a subject has lost her endowment. To capture the ratio between the times of losing the endowment and receiving the optimal amount of help, we generate the variable ratio_accsuff_yes/accloser.

Lowsol is a dummy variable indicating that the cooperation in the first ten periods was low (mean of sumyes smaller than one). The variable fullsol indicates that subjects experienced full solidarity in the first ten periods, i.e. the mean of sumyes was higher or

³Experimental instructions are provided in section 3.6.3.

equal to three. The variable group_points_quiz indicates the average group points in the quiz part of the experiment. Subjects were on average 24.5 years old, ranging from 19 years to 45 years. About 48% of the subjects were males. Finally, subjects had to report their monthly net income. The average was 613 Euro.

3.4 Experimental Results

The experimental results are split in two parts: at first, we present results from individual decisions to help other group members. Second, we investigate under which conditions subjects choose to change their cooperative behavior to a non-cooperative behavior. In our analysis, we concentrate on the last ten periods since we are not particularly interested in whether cooperation is higher in small groups than in big, but rather whether subjects experiences made in small groups or big groups, affect pro-social behavior.

Decision to Help

Figure 3.1 highlights subjects decisions depending on their individual history (group 4 to 8 (treatment) vs. group 8 to 8 (control)). The top part shows a bar chart, comparing the mean of the sum of pro-social decisions (sumyes), the mean sufficient pro-social decisions (suff_yes) and the mean of individual pro-social decisions (yes) by control group (big to big group) and treatment group (small to big group) in the second ten periods. Further, subjects average helping decision by period is depicted in the middle part of the figure. A two tailed Wilcoxon–Mann–Whitney test shows that, for this time span, the mean individual decision to help is significantly higher in the treatment group than in the control group (z=1.713,p=0.088,N=24). As shown in the bottom part of the figure, the sufficient level of help, does not differ significantly between the treatment group and the control group (z=-0.28,p=0.779,N=96). ⁴</sup>

Figure 3.1 about here

Figure 3.1 and the Wilcoxon–Mann–Whitney test give preliminary evidence for result 1:

<u>Result 1</u>: A subject's group history has a significant influence on cooperation behavior in the last ten periods. Subjects stemming from small groups in the first ten periods help significantly more than subjects from big groups.

⁴Table 3.6 shows results from Wilcoxon Mann-Whitney test for every of the last ten periods.

Although, individuals in the treatment groups are more likely to cooperate, the sufficient cooperation condition to maintain a group's maximum welfare was not significantly more often reached in the treatment than in the control groups. Thus, we cannot state that combining small groups that were previously more likely to cooperate yields significantly higher group outcomes when it comes to cooperation.⁵ Running regressions on average group helping and the sufficiency of help by group validates these findings.⁶ Yet, this somewhat conservative analysis shows that learning how to cooperate in small groups has a significant influence on the likelihood of cooperation in big groups in the last ten periods of the experiment.

In table 3.3 we apply a series of random effects GLS regressions to account for the panel structure of the data set and analyse the likelihood of a subject to help according to her experience.⁷

Table 3.3 about here

To test for differences between treatment and control group, we include the variable treatment in the first two regression specifications. We find support for result 1. In detail, we show that in the treatment groups, subjects are generally more likely to cooperate in the last ten periods. We interpret this as follows: relying more on others in small groups in the first ten periods leads to a generally higher willingness to maintain this cooperation. Even though, the group is of twice the size and subjects could more easily diffuse responsibility towards others. This finding is in line with the results presented in figure 3.1 and table 3.6.

Since we have shown that the mere fact that subjects have been in small groups increases cooperation in part B of the experiment, we include variables that specify whether this experienced social behavior within small groups was positive or negative. For this purpose, we include variables representing group solidarity and group identity into some regressions. For group identity, we include the variable samegroup. Samegroup

 $^{^5\,{\}rm This}$ might be due to the fact, that only 3 members of a group were necessary to obtain this optimal level.

 $^{^{6}}$ See table 3.5 in section 3.6.2. Also difference in difference estimations for both dependent variables presented in table 3.5 yield similar results.

⁷Although, some Hausman specification tests support fixed effects regression ($Chi^2=40.72, p<0.01$) we present random effects in the main part of the paper. Firstly, because coefficients do not differ in significance levels. Secondly, this allows us to include socio–economic variables such as age, gender and income into the regressions. Coefficients of these time invariant socio–economic variables are potentially biased when subject fixed effects or least square dummy variables (LSDV) are applied (Chatelain and Ralf, 2010, Hsiao, 2003). Moreover, we are generally interested in the between subject effects. Robustness checks are presented in the section robustness checks in the appendix. In detail, we present fixed effects and logistic regressions to check for robustness of our results. The coefficients are robust to regression methods. Further results are robust to clustering of standard errors on the group level.

is a dummy variable indicating whether the loser stems from the same group in the first ten periods. Subjects willingness to help others from the own group is by 12% higher than the likelihood of helping a subject from the other group. We also interact this variable with the points a group jointly received in the quiz part of the experiment to control for initial ability to coordinate (samegroup*quiz). This initial ability to coordinate is also significant to all specifications. For group history, we generate variables representing the received solidarity within a group. The variable lowsol is a dummy variable and takes values of one when a group's average solidarity in the first ten periods was below or equal to one. More precisely, we identify a groups average solidarity (mean of sumyes) in the first ten periods and generate dichotomous variables accordingly. In this respect, we also generate the variable fullsol. This variable indicates full solidarity in the first ten periods. Being one when the mean of sumyes by group was three. To control for further specifications, we interact these variables with the variables samegroup and samegroup*quiz. The significance of these variables gives rise to result 2.

<u>Result 2</u>: Subjects stemming from a group with high solidarity in the first ten periods are more likely to help others coming from the same group. Subjects from a group with low solidarity are more likely to help subjects coming from the other group in the first ten periods.

In detail, we find that subjects stemming from a group with low solidarity are by about 36% less willing to help others. These subjects are by about 11% more likely to help subjects from other groups than subjects from the own old group. Subjects that have experienced a high rate of solidarity and originate from groups that are able to coordinate well are by 21% more likely to cooperate than those subjects that experienced a not that high solidarity. In addition, these subjects cooperate more, if the loser is from their old group (by about 16%).

We introduce this variables to, in part, capture contagion effects of norms. We show that there is not only a significant size effect but also that there exists a significant influence of a subject's experienced solidarity within a group. Solidarity norms as well as non-solidarity norms are transferred from the small groups into the big groups. Interestingly enough, result 2 also shows that subjects from low-solidarity groups cooperate more when the loser is from another group. Result 2 shows that subjects generally reciprocate more (positive and negative) towards subjects with whom they have a shared history. The result also highlights that new subjects receive a 'fair' chance in proving their solidarity. That said, the question arises whether not only group experience matters for the decision to help. More precisely, since subjects were randomly chosen to being loser and could observe whether the received help was sufficient to minimize the cost of losing in the moral courage game, we test whether individual experience matters. The variable accloser describes, how often (accumulated by period) a subject lost her endowment i.e. the value is one if a subject is loser for the first time and changes to two, if a subjects loses her endowment another time and so on. From the significant effect of the variable accloser, we derive result 3.

<u>Result 3</u>: The accumulated effect of losing the endowment reduces the willingness to help others significantly. This effect is mitigated by an additional time of having received the full amount of support from others.

Further evidence for result 3 is presented by the significance of the variable ratio accsuff yes/accloser. This variable describes the ratio, accumulated by period, of support received by group members to the accumulated amount of actually losing the endowment. Thus, the variable depicts the accumulated amount of receiving sufficient help from others, divided by the accumulated amount of being loser. The variable is 1, if a subject is loser for the first time and receives the sufficient amount of support in that period. If that is not the case the second time a subject is loser, the variable changes to 0.5 (1 time suff yes/2 times loser). Subjects that lost their endowment did observe as to whether the helping behavior of others was sufficient or not. Thus, this information diffusion might have an impact on general willingness to support others. As stated in the experimental design section of the paper, there is only one sub-game perfect equilibrium in this setting: Rich subjects should never help. However, existing social preferences might alter this decision. According to Fehr and Schmidt (1999), reciprocity is a driving factor of social preferences. Therefore, we are interested in how the observed behavior of others (sufficient or non sufficient helping) influences a subject's individual decision to forgo parts of the earnings and split up their endowment? For this purpose, we also include the variable preperiod loser, indicating whether a subject was loser in the previous period and the variable preperiod loser*suff yes to control for immediately received solidarity. The variable preperiod loser*suff yes is a interaction variable indicating whether a subject was loser in the previous period (preperiod loser) and whether helping in that period was sufficient (suff yes).

We find that the immediate effect is not significant but that the accumulated effect of losing the endowment reduces the willingness to help others significantly. This result is robust to all specifications. However, the coefficient of the ratio of received help to being a loser is positive and significant. Results are robust for all periods and for subjects in the small groups, that were later combined to a big group. An additional time of being a loser reduces a subject's willingness to help others by roughly 8% but an additional time of having received the full amount of support increases the willingness to help by about 21% for subjects in the treatment groups. The effect is by 11% when all subjects are considered. Thus, there is no immediate contagion effect. But having experienced kind treatment over time increases the likelihood of helping others, too.

Change of Behavior: From Helping to Not-helping

In the following, we examine individuals behavior why subjects change their behavior from cooperating to not-cooperating. For this purpose, we present several random effects regression in table 3.4.

Table 3.4 about here

Table 3.4 presents regression results restricted to subjects that have helped in the previous round and have generally the possibility to contribute i.e. are not loser. We include the same variables into this regressions as in the previous analysis. However, we exclude the variables preperiod_loser and preperiod_loser*suff_yes since subjects that have lost their endowment in the previous period are not included into the analysis. To substitute for this, and since subjects that cooperate are able to observe as to whether the group solidarity reached the sufficient threshold, we include the variable preperiod_suff_yes instead.

The table shows regressions for subjects in both, treatment and control group, over all periods (column two and column three). Regressions for all subjects in the first ten periods are presented in column four and five. Column six and column seven show regression results for subjects in all groups in the last ten periods. In column eight, we present results for subjects in the 8 to 8 (big) groups in the last ten periods. The remainder columns, column nine to column fifteen, show regression results for subjects decision to change their behavior in the treatment (4 to 8) groups. These regressions provide evidence for result 4:

<u>Result 4</u>: Observing low cost of helping reduced the willingness to change behavior from helping to not helping.

This is in line with our predictions from section 3.1. If the cost of helping are relatively low and therefore the risk of losing great shares of the own endowment is also reduced, subjects are more likely to continue this pro-social behavior. Evidence to result 4 is shown by the significance of the variable preperiod _suff_yes. The immediate experienced solidarity of others has an impact on the change of behavior. Having observed that all involved subjects received the group efficient payment, leads to a reduced willingness to change behavior. The effect is significantly negative at the 1% level and robust to all specifications. Further, we find that the likelihood of changing from cooperating to not-cooperating is significantly reduced in the treatment groups. This effect holds for all periods. Therefore, we can state, that there is no diffusion of responsibility in this experimental setting. Observing a maximum required level of help in the previous period reduces the likelihood of not helping subsequently by about 33%.

In the regressions restricted to the treatment groups, we again test for experienced solidarity and group identity during the first ten periods. We find that subjects are generally less likely to change their behavior, when the losing subject is from the same group. This effect is significant and robust to most specifications and in line with result 2. However, interacting the variable samegroup with experienced solidarity does not yield significant effects.

Unlike the previous analysis, we find significant age effects. When all subjects and the big groups are regarded, older subjects are less likely to change their behavior. The effect does not persist in the small groups. The variable accloser (the accumulated amount of losing the endowment) has a significant and positive impact on changing the behavior from supporting to not supporting others. When all groups are considered, the ratio of getting efficient help to being loser has a positive and significant impact. However, this result is not robust to group and period specifications.

3.5 Discussion and Conclusion

The results presented in this experiment give important implications for many economic and everyday life situations. Often, people depend on the decisions of others. These decisions sometimes entail individual costs. These cost might be different for every individual and strongly context related. If we consider the house-moving example from the beginning of the paper, these cost might, on the one hand depend on the outside option, i.e. what would one do instead? On the other hand, these cost depend on how many others attend the house-moving. A third factor that might influence the individual cost afflicted with this sort of decision is how pronounced social preferences of the potential helper are. People that act generally more pro-socially, might perceive the cost of helping differently than less pro-social individuals. However, the amount of potential helpers might also influence an individual's decision. People that might behave pro-social and support others, when only few people are present, might behave entirely different in bigger groups, in which there are more others that could potentially step into the breach. In this experiment, we were especially interested in subjects' helping behavior arising in big groups after subjects were able to experience this behavior in small groups.

Constructing a cooperation situation with observable individual costs of helping, on the one hand we show, how the individually received solidarity affects the likelihood of helping others. Observing a high level of cooperation results in a reduced concern of facing high cost for helping and, thus, leads to higher cooperation. Experience matters! On the other hand, we can transfer the questions posed in this paper to a more societal context, namely, whether subjects learn from their family (small groups) or from society (big groups) and whether this experience is transferred from the small, familiar level to the big, societal level. We find, due to the relatively cheap cooperation cost, that there generally is no significant difference in group solidarity. However, the group size and the experienced solidarity in small groups have an impact on individual's willingness to act pro-socially and help others. That said, we indeed find that subjects learn from their "family", the small groups, and transfer their behavior according to their experience to the "society", the big groups. Most interestingly, subjects that experienced a high level of solidarity are more likely to support others in later stages of the experiment while subjects who experienced a low level of solidarity are less likely to support others. Nevertheless, these subjects are more likely to support subjects stemming from other groups than their own in the second ten periods.

These results are important for team leaders in organizations as the results introduce and lay foundations of costly cooperation in sequentially different sized groups. These findings can improve situations at the workplace in many areas. Assembling teams of workers in smaller groups and combine these groups in situations that require more team members can result in a higher cooperation among team members. In our experiment, we highlight that individuals behave more socially in similar situations. Furthermore, the experiment gives insights into how to increase cooperation when small groups do not cooperate. Combining a small group that did not cooperate with another group did not increase cooperation towards old group members but the new group members receive a "fair" chance. Subjects aim for a new start with new group members..

Further research should be conducted addressing the question posed in this experiment with higher costs of helping. Moreover, it would be interesting to investigate the reverse effect: splitting a big group into small groups.

3.6 Appendix

3.6.1 Tables and Graphs

Table 3.1: Period Payoffs: Depending on Subjects Decision

# Players Option	A Payoff: Victim P	ayoff: Option	A Payoff: Option B 7	Cotal Payoff Group of	4 Total Payoff Group of 8
0	0	-	100	300	700
1	30	30	100	260	630
2	60	60	100	280	680
3 +	90	90	100	360	720-760

Variable	Mean	Std. Dev.	Min	Max	Ν
groups	12.5	6.923088	1	24	3840
id	96.5	55.43209	1	192	3840
Period	10.5	5.767032	1	20	3840
Session	4.5	2.291586	1	8	3840
Treatment	.5	.5000651	0	1	3840
IsRich	.84375	.3631395	0	1	3840
yes	.6475309	.4778128	0	1	3240
yes_small_firstten	.7680556	.4223671	0	1	720
yes_big_firstten	.6357143	.481516	0	1	840
yes_small_lastten	.6333333	.4821815	0	1	840
yes big lastten	.5702381	.495337	0	1	840
sumyes	3.809375	1.822014	0	7	3840
suff yes	.809375	.3928451	0	1	3840
suff_yes_small_firstten	.6708333	.4701555	0	1	960
suff yes big firstten	.9083333	.2887052	0	1	960
suff yes small lastten	.8166667	.3871412	0	1	960
suff yes big lastten	.8416667	.3928451	0	1	960
group_points_quiz	79.49844	31.35121	34	126	3840
samegroup	.375	.4843753	0	1	960
accloser	1.796875	1.575367	0	8	3840
ratio accsuff yes/accloser	.6224721	.470336	0	1	3840
lowsol	.1666667	.3727751	0	1	1920
fullsol	.6666667	.4715273	0	1	1920
age	24.55729	3.997505	19	45	3840
male	.484375	.4998209	0	1	3840
net income	613.8333	384.7247	0	3500	3840

Table 3.2: Summary Statistics



Figure 3.1: Mean Sumyes, yes suffyes by Period- Treatment Effects

Decision in Group Dependent Variable	All	All yes	8 to 8 yes	4 to 8 yes	4 to 8 yes	4 to 8 yes	4 to 8 yes	4 to 8 yes	4 to 8 yes	4 to 8 yes
netincome	-0.0000322 (0.0000722)	-0.0000405 (0.0000692)	-0.000116^{*} (0.0000647)	$\begin{array}{c} 0.000124 \\ (0.000107) \end{array}$	0.0000886 (0.0000951)	0.0000939 (0.0000949)	0.0000623 (0.0000892)	0.0000626 (0.0000891)	0.0000566 (0.0000929)	0.0000646 (0.0000927)
age a	$0.00564 \\ (0.00645)$	$\begin{array}{c} 0.00546 \\ (0.00617) \end{array}$	0.00756 (0.0122)	0.00305 (0.00756)	$\begin{array}{c} 0.00198 \\ (0.00687) \end{array}$	$\begin{array}{c} 0.00183 \\ (0.00685) \end{array}$	$\begin{array}{c} 0.000374 \\ (0.00625) \end{array}$	0.000340 (0.00624)	$\begin{array}{c} 0.00144 \\ (0.00677) \end{array}$	0.00127 (0.00676)
male	-0.0150 (0.0539)	-0.0147 (0.0524)	-0.0696 (0.0724)	0.0588 (0.0795)	0.0586 (0.0723)	0.0596 (0.0720)	$0.0992 \\ (0.0719)$	$0.0991 \\ (0.0720)$	$0.0554 \\ (0.0721)$	0.0562 (0.0718)
accloser	-0.0913^{***} (0.0121)	-0.0950*** (0.0118)	-0.0975^{***} (0.0185)	-0.0841^{***} (0.0171)	-0.0830^{***} (0.0154)	-0.0828^{***} (0.0154)	-0.0723*** (0.0155)	-0.0713^{***} (0.0155)	-0.0752^{***} (0.0154)	-0.0754^{***} (0.0153)
ratio_accsuff_yes/accloser		0.118^{*} (0.0617)	0.0265 (0.0717)		0.216^{**} (0.103)	0.208^{**} (0.103)				
preperiod_loser	-0.0133 (0.0257)	-0.0885 (0.0543)	-0.132 (0.0910)	0.00310 (0.0338)	-0.0778 (0.0656)	-0.0792 (0.0657)	-0.0723 (0.0613)	-0.0735 (0.0613)	-0.0579 (0.0648)	-0.0572 (0.0657)
preperiod_loser*suff_yes		0.0867 (0.0595)	$0.0905 \\ (0.0976)$		0.0946 (0.0734)	0.0957 (0.0734)	0.0867 (0.0688)	$\begin{array}{c} 0.0883 \\ (0.0687) \end{array}$	0.0680 (0.0720)	0.0683 (0.0724)
treatment	0.164^{***} (0.0527)	0.185^{***} (0.0508)								
samegroup				0.121^{***} (0.0360)	0.118^{***} (0.0361)		0.142^{***} (0.0413)	0.143*** (0.0412)	-0.00261 (0.0434)	-0.0190 (0.0446)
samegroup*quiz						0.00251 * * * (0.000668)				
lowsol							-0.361^{***} (0.104)	-0.362^{***} (0.104)		
samegroup*lowsol							-0.116^{*} (0.0645)			
samegroup*lowsol*quiz								-0.00255* (0.00131)		
fullsol									0.216^{**} (0.0852)	0.206** (0.0843)
samegroup*fullsol									0.169^{***} (0.0629)	
samegroup*fullsol*quiz										0.00369*** (0.00108)
Constant	0.573^{***} (0.157)	0.493^{***} (0.152)	0.598^{**} (0.300)	0.595^{***} (0.197)	0.495^{**} (0.179)	0.496^{**} (0.178)	0.701^{***} (0.162)	0.698^{**} (0.162)	0.506^{**} (0.174)	0.511^{***} (0.173)
${ m R}^2$ ${ m Chi}^2$	1819 0.049 61.98	1819 0.042 81.16	917 0.059 37.96	902 0.078 42.43	902 0.106 62.75	902 0.108 66.91	902 0.180 70.05	902 0.182 69.43	902 0.120 70.75	902 0.125 72.72
Robust standard errors i	n parentheses	; * p < 0.1, *	p < 0.05, **	* $p < 0.01$						

Moral Courage in the Lab – Experimental Testing of Solidarity
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Periods Decision in Group Denendent Variable	All All V-v	All All V-n	$\substack{1-10\\\mathrm{All}\\\mathrm{All}\\\mathrm{V-n}$	$_{\rm All}^{\rm 1-10}$	11–20 All v-n	$\begin{array}{c} 11-20\\ \mathrm{All}\\ \mathrm{V-n} \end{array}$	11-20 8 to 8 v-v	$\begin{array}{c} 11-20\\ 4 \text{ to } 8\\ \text{v-n} \end{array}$	11-20 4 to 8 v-v	11-20 4 to 8 v-v	11-20 4 to 8 v-n	11-20 4 to 8 v-n	11-20 4 to 8 v-n	$\begin{array}{c} 11-20\\ 4 \text{ to } 8\\ \text{v-n} \end{array}$
effect 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 00000** 0000** 0000** 0000** 0000** 0000** 0000** 0000** 0000** 0000** 0000** 0000** 0000** 0000** 0000** 0000** 0000** 0000** 0000** 0000** 0000** 0000** 0000** 0000** 0000** 0000** 0000** 000** 000** 000** 000** 000*** 000*** 000*** 000*** 000*** 000*** 000*** 000*** 000*** 000*** 000*** 000*** 000*** <	netincome	$\begin{array}{c} 0.0000421 \\ (0.0000409) \end{array}$	$\begin{array}{c} 0.0000318 \\ (0.0000404) \end{array}$	$\begin{array}{c} 0.00000759 \\ (0.0000486) \end{array}$	$\begin{array}{c} 5 \\ 0.0000145 \\ (0.0000483) \end{array}$	$\frac{5}{0.0000512}$ (0.0000599)	0.0000468 (0.0000589)	0.0000376 (0.0000615)	-0.0000541 (0.0000715)	-0.0000621 (0.0000696)	-0.0000703 (0.0000700)	-0.0000546 (0.0000718)	$\frac{5}{-0.0000542}$ (0.0000718)	-0.0000482 (0.0000723)	$\frac{5}{10000524}$ (0.0000731)
	age	-0.00600** (0.00273)	-0.00597** (0.00296)	-0.00670^{**} (0.00291)	-0.00648^{**} (0.00302)	-0.00775^{*} (0.00412)	-0.00772^{*} (0.00412)	-0.00974^{**} (0.00420)	-0.00569 (0.00390)	-0.00587 (0.00389)	-0.00578 (0.00392)	-0.00569 (0.00389)	-0.00569 (0.00390)	-0.00569 (0.00395)	-0.00562 (0.00400)
	male	$\begin{array}{c} 0.0150 \\ (0.0300) \end{array}$	$\begin{array}{c} 0.0117 \\ (0.0315) \end{array}$	$\begin{array}{c} 0.0317 \\ (0.0325) \end{array}$	0.0288 (0.0333)	-0.0112 (0.0462)	-0.0121 (0.0463)	-0.0250 (0.0466)	-0.0765 (0.0575)	-0.0791 (0.0578)	-0.0784 (0.0574)	-0.0765 (0.0577)	-0.0767 (0.0578)	-0.0710 (0.0582)	-0.0694 (0.0578)
	accloser	0.0598^{***} (0.00912)	0.0308^{**} (0.00923)	0.184^{***} (0.0188)	0.148^{***} (0.0305)	0.0854^{***} (0.0129)	$\begin{array}{c} 0.0817^{***} \\ (0.0134) \end{array}$	0.0664^{***} (0.0132)	0.0665^{**} (0.0146)	0.0649^{***} (0.0151)	0.0637^{***} (0.0152)	0.0665^{***} (0.0147)	0.0667^{***} (0.0147)	0.0658^{***} (0.0148)	0.0660^{***} (0.0149)
	ratio_accsuff_yes/accl		0.200^{***} (0.0320)		0.104^{**} (0.0509)		0.0609 (0.0624)	$0.0890 \\ (0.0614)$		$0.0584 \\ (0.0767)$	0.0669 (0.0773)				
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	preperiod_suff_yes	-0.308*** (0.0480)	-0.335*** (0.0491)	-0.263*** (0.0536)	-0.300^{***} (0.0610)	-0.314^{***} (0.0786)	-0.323^{***} (0.0787)	-0.328^{***} (0.0779)	-0.333^{***} (0.109)	-0.344^{***} (0.109)	-0.344^{***} (0.108)	-0.333*** (0.109)	-0.333*** (0.109)	-0.330^{***} (0.111)	-0.328^{***} (0.110)
$ \ \ \ \ \ \ \ \ \ \ \ \ \ $	treatment	-0.105^{**} (0.0304)	-0.0821^{**} (0.0320)	-0.115^{**} (0.0330)	-0.111^{***} (0.0344)	-0.164^{***} (0.0453)	-0.156^{***} (0.0459)								
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	samegroup								-0.186^{***} (0.0390)	-0.188^{***} (0.0395)		-0.185^{**} (0.0407)	-0.185^{***} (0.0407)	-0.0816 (0.0748)	-0.0448 (0.0735)
	same_group*quiz										-0.00378*** (0.000714)				
	samegroup*lowsol											-0.0132 (0.115)			
	samegroup*lowsol*quiz												-0.000119 (0.00273)		
$\label{eq:constant} \begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	samegroup*fullsol													-0.124 (0.0846)	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	samegroup*fullsol*quiz														-0.00322^{**} (0.00144)
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Constant	0.664^{***} (0.0815)	0.601^{***} (0.0826)	0.572^{***} (0.0832)	0.573^{***} (0.0860)	0.665^{***} (0.132)	0.633^{***} (0.134)	0.634^{***} (0.136)	0.688^{**} (0.167)	0.670^{***} (0.171)	0.673^{***} (0.172)	0.688^{***} (0.167)	0.687^{***} (0.167)	0.682^{***} (0.169)	0.680^{***} (0.170)
${ m K}^{2}$ 0.1br 0.107 0.107 0.258 0.236 0.074 0.073 0.079 0.114 0.100 0.104 0.114 0.114 0.110 0.113 ${ m Chi}^{2}$	N 2 - 2	2040	2040	994	994	1046	1046	1046	553	553	553	553	553	553	553
	к ⁻ Chi ²	107.5	136.5	148.4	0.230 190.6	0.074 74.70	0.075 74.89	0.079 58.79	$0.114 \\ 68.08$	001.0	72.62	0.114 70.45	0.114 69.88	0.110 69.92	0.113

3.6.2 Robustness Checks

Table 3.5: OLS Regressions – Group Decisions on Mean-Helping and Suff_yes – Second ten Periods

Groups	All	4 to 8	4 to 8	All	4 to 8	4 to 8
Dependent Variable	meanyes	meanyes	meanyes	$suff_yes$	suff_yes	suff_yes
treatment	0.0542^{*}			-0.0250		
	(0.0298)			(0.0488)		
fullsol		0.203^{***} (0.0578)			0.171^{*} (0.0897)	
samegroup		-0.173^{***} (0.0648)	$0.0149 \\ (0.0458)$		-0.250^{*} (0.143)	$0.0338 \\ (0.0561)$
$same group^* full sol$		0.173^{**} (0.0834)			0.266^{*} (0.156)	
lowsol			-0.297***			-0.309**
			(0.0717)			(0.135)
samegroup*lowsol			-0.107			-0.234
			(0.0937)			(0.190)
Constant	0.503^{***} (0.0175)	0.465^{***} (0.0436)	0.639^{***} (0.0301)	0.842^{***} (0.0335)	0.750^{***} (0.0779)	0.909^{***} (0.0394)
N	240	120	120	240	120	120
\mathbb{R}^2	0.0137	0.289	0.337	0.00110	0.157	0.241
F	3.308	17.68	21.58	0.263	5.142	7.191

Robust standard errors in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01

Period	11	12	13	14	15	16	17	18	19	20
yes										
\mathbf{Z}	4.661***	4.937***	3.174***	3.332***	1.272	4.695***	0.849	2.125^{**}	0.422	-0.925
р	0.000	0.000	0.000	0.000	0.203	0.000	0.395	0.033	0.672	0.355
Ν	192	192	192	192	192	192	192	192	192	192
suff_yes										
z	-1	0	0	-0.604	0	-0.604	-1	-0.604	-1.072	-1.072
р	0.317	1	1	0.545	0.317	0.545	0.317	0.545	0.283	0.283
Ν	24	24	24	24	24	24	24	24	24	24

Table 3.6: Wilcoxon-Mann-Whitney Test: Yes and suff_yes, Second ten Periods

Positive z-values indicate higher ranks in the treatment group. * p < 0.1, ** p < 0.05, *** p < 0.01

Decision in Group Dependent Variable	8 to 8 ves	4 to 8 ves	4 to 8 ves	4 to 8 ves	4 to 8 ves	4 to 8 ves	4 to 8 ves	4 to 8 ves
accloser	-0.114^{***} (0.0237)	-0.165^{***} (0.0270)	-0.154^{***} (0.0275)	-0.153*** (0.0276)	-0.164^{***} (0.0279)	-0.164^{***} (0.0280)	-0.162^{***} (0.0281)	-0.161^{***} (0.0281)
ratio_accsuff_yes/accloser	-0.0332 (0.0860)	-0.293^{*} (0.161)	-0.295* (0.157)	-0.296* (0.157)				
preperiod_loser	-0.119 (0.0949)	-0.0448 (0.0664)	-0.0587 (0.0650)	-0.0601 (0.0652)	-0.0554 (0.0649)	-0.0556 (0.0649)	-0.0452 (0.0654)	-0.0440 (0.0662)
preperiod_loser*suff_yes	$0.0686 \\ (0.101)$	0.0717 (0.0753)	$\begin{array}{c} 0.0761 \\ (0.0738) \end{array}$	$0.0774 \\ (0.0739)$	$0.0714 \\ (0.0736)$	0.0717 (0.0737)	$0.0582 \\ (0.0741)$	$0.0574 \\ (0.0744)$
samegroup			0.113^{***} (0.0357)		0.126^{**} (0.0410)	0.126^{***} (0.0409)	$0.0234 \\ (0.0444)$	0.00463 (0.0452)
samegroup*quiz				0.00236^{**} (0.000663)				
samegroup*lowsol					-0.0779 (0.0677)			
samegroup*lowsol*quiz						-0.00175 (0.00137)		
${\rm samegroup}^{*}{\rm fullsol}$							0.128^{**} (0.0633)	
samegroup*fullsol*quiz								0.00297^{***} (0.00109)
Constant	0.757*** (0.0722)	1.282^{***} (0.120)	1.208^{***} (0.123)	1.203^{***} (0.123)	1.039^{***} (0.0945)	1.038^{***} (0.0946)	1.030^{***} (0.0951)	1.027^{***} (0.0948)
${ m R}^2$	917 0.0360	902 0.0728	902 0.0915	902 0.0947	902 0.0884	902 0.0885	902 0.0922	902 0.0954
F Subject Fixed Effects Period Fixed Effects	7.441 Yes Ves	$^{13.06}_{ m Yes}$	$_{ m Yes}^{ m 13.70}$	$_{ m Yes}^{ m 14.25}$	$^{12.42}_{ m Yes}$	12.34 Yes Yes	12.17 Yes Yes	$_{ m Yes}^{ m 12.54}$

	D			0						
Decision in Group Dependent Variable	All yes	All yes	8 to 8 yes	4 to 8 yes	4 to 8 yes	4 to 8 yes	4 to 8 yes	4 to 8 yes	4 to 8 yes	4 to 8 yes
netincome	-0.000232 (0.000478)	-0.000285 (0.000459)	-0.000765 (0.000617)	0.000821 (0.000776)	0.000568 (0.000702)	0.000608 (0.000703)	0.000355 (0.000694)	0.000357 (0.000695)	0.000316 (0.000720)	0.000372 (0.000720)
9 20 20	0.0344 (0.0473)	0.0341 (0.0454)	0.0259 (0.0889)	0.0265 (0.0573)	0.0192 (0.0514)	$\begin{array}{c} 0.0172 \\ (0.0514) \end{array}$	0.00578 (0.0505)	0.00577 (0.0505)	$\begin{array}{c} 0.0150 \\ (0.0521) \end{array}$	0.0126 (0.0521)
male	-0.0917 (0.374)	-0.0939 (0.359)	-0.474 (0.512)	$0.395 \\ (0.551)$	$0.385 \\ (0.495)$	$0.396 \\ (0.495)$	0.655 (0.491)	0.655 (0.491)	$0.371 \\ (0.502)$	0.382 (0.502)
accloser	-0.633^{**} (0.0955)	-0.659^{***} (0.0958)	-0.678*** (0.142)	-0.594^{***} (0.137)	-0.593*** (0.132)	-0.590^{**} (0.132)	-0.519^{***} (0.129)	-0.520^{***} (0.129)	-0.551^{***} (0.131)	-0.551^{***} (0.131)
preperiod_loser	-0.115 (0.180)	-0.822 (0.559)	-1.027 (0.891)	$\begin{array}{c} 0.00605 \\ (0.245) \end{array}$	-0.773 (0.726)	-0.784 (0.728)	-0.743 (0.734)	-0.746 (0.734)	-0.600 (0.731)	-0.596 (0.733)
treatment	1.107^{***} (0.390)	1.246^{***} (0.381)								
ratio_accsuff_yes/accloser		0.843^{**} (0.367)	$\begin{array}{c} 0.172 \\ (0.534) \end{array}$		1.432^{***} (0.501)	$1.397^{**}(0.501)$				
preperiod_loser*suff_yes		$0.785 \\ (0.584)$	$0.694 \\ (0.934)$		0.870 (0.758)	0.877 (0.759)	0.818 (0.766)	0.822 (0.766)	$0.641 \\ (0.765)$	0.635 (0.767)
samegroup				0.906^{**} (0.212)	0.879^{***} (0.211)		1.001^{***} (0.227)	1.002^{***} (0.227)	0.0125 (0.410)	-0.164 (0.390)
samegroup*quiz						0.0186^{**} (0.00410)				
lowsol							-2.723^{***} (0.741)	-2.731^{***} (0.737)		
samegroup*lowsol							-0.690 (0.620)			
samegroup*lowsol*quiz								-0.0150 (0.0132)		
fullsol									1.573^{***} (0.560)	1.484^{***} (0.557)
${ m samegroup}^{ m *}{ m fullsol}$									1.148^{**} (0.478)	
samegroup*fullsol*quiz										0.0268^{***} (0.00868)
Constant	0.461 (1.136)	-0.127 (1.118)	1.145 (2.128)	0.380 (1.473)	-0.238 (1.338)	-0.227 (1.338)	$1.260 \\ (1.325)$	1.259 (1.326)	-0.169 (1.355)	-0.0935 (1.354)
NLog Likelihood	1819 -957.5	1819 -953.9	917 -473.9	902 -470.8	902 -466.1	902 -464.3	902-459.7	902 - 459.6	902-460.5	902-458.6
Chi ² AIC	45.61 1931.1	52.58 1927.8	27.71 965.8	37.90 957.5	45.58 952.3	48.27 948.6	51.76 941.3	51.77 941.3	51.51 943.1	54.00 939.2
Standard errors in parenthe	ses; $* p < 0.1$,	** $p < 0.05, **$	** $p < 0.01$							

Table 3.8: Marginal Effects from RE Logit Regression: Individual Decisions in the Second ten Periods

Moral Courage in the Lab – Experimental Testing of Solidarity

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Table

Periods Decision in Group Dependent Variable netincome	$\begin{array}{c} \text{All} \\ \text{All} \\ \text{All} \\ \text{y-n} \\ 0.000166 \\ (0.000222) \end{array}$	$\begin{array}{c} All \\ All \\ All \\ y-n \\ 0.000166 \\ (0.000222) \end{array}$	$\begin{array}{c} 1-10 \\ \mathrm{All} \\ \mathrm{y-n} \\ 0.0000117 \\ (0.000267) \end{array}$	$\begin{array}{c} 1-10 \\ \mathrm{All} \\ \mathrm{y-n} \\ 0.0000625 \\ (0.000278) \end{array}$	$\begin{array}{c} 11-20\\ \mathrm{All}\\ \mathrm{y-n}\\ 0.000209\\ (0.000337) \end{array}$	$\begin{array}{c} 11-20\\ \mathrm{All}\\ \mathrm{y-n}\\ 0.000185\\ (0.000337) (\end{array}$	$\begin{array}{c} 11-20\\ 8\ {\rm to}\ 8\\ {\rm y-n}\\ 0.000132\\ (0.000335)\end{array}$	$\begin{array}{c} 11-20\\ 4\ {\rm to}\ 8\\ {\rm y-n}\\ -0.000385\\ (0.0004111)\end{array}$	$\begin{array}{c} 11-20\\ 4\ {\rm to}\ 8\\ {\rm y-n}\\ -0.000412)\end{array}$	$\begin{array}{c} 11-20\\ 4 \text{ to } 8\\ y-n\\ -0.000464\\ (0.000413)\end{array}$	$\begin{array}{c} 11-20\\ 4\ {\rm to}\ 8\\ {\rm y-n}\\ -0.000388\\ (0.000411)\end{array}$	$\begin{array}{c} 11-20\\ 4\ {\rm to}\ 8\\ {\rm y-n}\\ -0.000386\\ (0.000411)\end{array}$	$\begin{array}{c} 11-20\\ 4\ \mathrm{to}\ 8\\ \mathrm{y-n}\\ -0.000362\\ (0.000419) (\end{array}$	$\begin{array}{c} 11-20\\ 4 \text{ to } 8\\ y-n\\ -0.000374\\ 0.000423 \end{array}$
age	-0.0289 (0.0186)	-0.0289 (0.0186)	-0.0410^{*} (0.0227)	-0.0397^{*} (0.0233)	-0.0394 (0.0286)	-0.0389 (0.0284)	-0.0459 (0.0285)	-0.0341 (0.0287)	-0.0346 (0.0286)	-0.0340 (0.0286)	-0.0341 (0.0287)	-0.0341 (0.0287)	-0.0345 (0.0293)	-0.0341 (0.0297)
male	0.0601 (0.153)	0.0601 (0.153)	$\begin{array}{c} 0.207 \\ (0.178) \end{array}$	$\begin{array}{c} 0.204 \\ (0.186) \end{array}$	-0.0369 (0.240)	-0.0406 (0.239)	-0.112 (0.239)	-0.278 (0.290)	-0.287 (0.289)	-0.280 (0.289)	-0.278 (0.290)	-0.278 (0.290)	-0.270 (0.296)	-0.256 (0.300)
accloser	0.313^{**} (0.0423)	0.313^{***} (0.0423)	0.991^{***} (0.103)	0.786^{**} (0.126)	0.379^{***} (0.0827)	0.357^{***} (0.0842)	0.276^{***} (0.0773)	0.267^{***} (0.0920)	0.258^{***} (0.0917)	0.250^{***} (0.0914)	0.268^{***} (0.0921)	0.267^{***} (0.0921)	0.272^{***} (0.0939)	0.271^{***} (0.0944)
lsuff_yes	-1.532^{***} (0.227)	-1.532^{***} (0.227)	-1.480^{**} (0.294)	-1.842^{***} (0.336)	-1.700*** (0.372)	-1.781^{***} (0.379)	-1.799^{***} (0.377)	-1.635^{***} (0.487)	-1.723^{***} (0.498)	-1.716^{***} (0.498)	-1.638^{***} (0.487)	-1.636^{***} (0.487)	-1.610^{***} (0.489)	-1.583^{**} (0.490)
treatment	-0.499^{***} (0.159)	-0.499^{***} (0.159)	-0.648^{**} (0.196)	-0.638^{**} (0.203)	-0.768^{***} (0.259)	-0.719^{***} (0.261)								
ratio_accsuff_yes/accloser				0.715^{**} (0.272)		$\begin{array}{c} 0.358 \\ (0.321) \end{array}$	$\begin{array}{c} 0.506 \\ (0.319) \end{array}$		$\begin{array}{c} 0.303 \\ (0.381) \end{array}$	$\begin{array}{c} 0.341 \\ (0.380) \end{array}$				
samegroup								$^{-1.187***}_{(0.261)}$	-1.207^{***} (0.262)		-1.178^{***} (0.268)	-1.184^{***} (0.268)	-0.672 (0.556)	-0.340 (0.496)
samegroup*quiz									·	-0.0249*** (0.00512)				
samegroup*lowsol											-0.133 (0.959)			
samegroup*lowsol*quiz												-0.000840 (0.0203)		
samegroup*fullsol													-0.625 (0.612)	
samegroup*fullsol*quiz														-0.0201^{*} (0.0106)
Constant	0.738 (0.500)	0.738 (0.500)	$0.550 \\ (0.608)$	$0.564 \\ (0.626)$	$0.954 \\ (0.784)$	0.776 (0.796)	$0.740 \\ (0.797)$	$1.220 \\ (0.884)$	$1.140 \\ (0.885)$	$1.151 \\ (0.885)$	1.223 (0.883)	$1.220 \\ (0.884)$	$1.176 \\ (0.898)$	$1.145 \\ (0.905)$
N Log_Likelihood	2040 -1122.0	2040 -1122.0	994 -506.2	$994 \\ -502.5$	1046 -571.5	1046 -570.9	1046 -574.9	553 -284.9	553 -284.5	553 -282.8	553 -284.8	553 -284.9	553 -284.4	553 -283.1
Chi ² AIC	89.77 2260.0	89.77 2260.0	103.2 1028.5	101.6 1023.0	40.28 1159.1	$41.40 \\ 1159.8$	36.46 1165.8	34.83 585.7	35.85 587.1	37.85 583.6	34.90 587.7	34.85 587.7	34.92 586.7	35.74 584.2
Standard errors in parenth	ses; $* p < 0$	0.1, ** p <	0.05, *** 1	p < 0.01										

Period	1-10	1-10	11-20	11-20	11-20	11-20	11-20	11-20	11-20	11-20
Decision in Group	8 t0 8	4 to 8	8 to 8	4 to 8	4 to 8	4 to 8	4 to 8	4 to 8	4 to 8	4 t0 8
Dependent Variable	\mathbf{y}^{-n}	${\rm y-n}$	$\mathbf{y}_{-\mathbf{n}}$	y^{-n}	$\mathbf{y}^{-\mathbf{n}}$	y-n	y^{-n}	y^{-n}	v^{-n}	$\rm h^{-n}$
accloser	0.191^{**} (0.0937)	0.126^{**} (0.0493)	0.164^{***} (0.0421)	0.243^{***} (0.0355)	0.229*** (0.0330)	0.228^{***} (0.0329)	0.242^{***} (0.0306)	0.242^{***} (0.0306)	0.239^{***} (0.0305)	0.237^{***} (0.0304)
ratio_accsuff_yes/accloser	0.143 (0.118)	0.237^{***} (0.0803)	0.243^{**} (0.105)	0.207 (0.134)	0.216^{*} (0.118)	0.219^{*} (0.118)				
L.suff_yes	-0.202 (0.125)	-0.0401 (0.0942)	-0.224^{*} (0.128)	-0.296^{**} (0.118)	-0.308^{**} (0.120)	-0.309^{**} (0.119)	-0.305^{**} (0.123)	-0.304^{**} (0.123)	-0.312^{**} (0.125)	-0.312^{**} (0.124)
samegroup					-0.177^{***} (0.0398)		-0.178^{***} (0.0417)	-0.177^{***} (0.0416)	-0.0515 (0.0795)	-0.0240 (0.0777)
samegroup*quiz						-0.00358^{***} (0.000736)				
samegroup*lowsol							0.0289 (0.142)			
samegroup*lowsol*quiz								0.000334 (0.00319)		
samegroup*fullsol									-0.153 (0.0919)	
samegroup*fullsol*quiz										-0.00358^{**} (0.00161)
Constant	0.267^{**} (0.125)	$0.0191 \\ (0.0980)$	0.0301 (0.152)	-0.377** (0.168)	-0.265 (0.168)	-0.258 (0.167)	-0.134 (0.164)	-0.135 (0.164)	-0.114 (0.164)	-0.109 (0.164)
N R ² Subject Fixed Effects Period Fixed Effects	490 0.132	504 0.126	493 0.0730	553 0.125	553 0.164	553 0.169	553 0.162	553 0.162	553 0.166	553 0.170
Robust standard errors in p	arentheses; *	p < 0.1, **	p < 0.05, **	p < 0.01						

Table 3.10: Linear Probability Models: Fixed Effects Regression – Individual Decisions to Change Behavior

Groups	All	4 to 8	4 to 8	All	4 to 8	4 to 8
Dependent Variable	meanyes	meanyes	meanyes	$suff_yes$	$suff_yes$	$suff_yes$
treatment	0.275^{***}			0.1000		
	(0.0481)			(0.0885)		
fullsol		0.283^{***}			-0.0226	
		(0.0493)			(0.0878)	
samegroup		-0.0376	-0.0250		-0.00802	0.0473
		(0.0417)	(0.0358)		(0.0890)	(0.0557)
******		0.0005			0.0405	
samegroup [∗] fullsol		0.0235			0.0485	
		(0.0586)			(0.110)	
loweal			0.20/***			0.0262
IOWSOI			(0.0483)			(0.0303)
			(0.0403)			(0.0889)
samegroup*lowsol			0.00644			-0.0895
samegroup tousor			(0.0561)			(0.130)
			(010001)			(0.100)
Constant	0.668^{***}	0.692***	0.980***	1.029***	1.103^{***}	1.080***
	(0.0440)	(0.0425)	(0.0425)	(0.0852)	(0.0703)	(0.0757)
N	240	120	120	240	120	120
\mathbb{R}^2	0.760	0.796	0.796	0.638	0.682	0.683
F	44.23	34.09	35.18	18.97	17.46	17.88
Group Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Period fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Table 3.11: LSDV OLS Regressions – Group Decisions on Mean-Helping and Suff_yes – Second ten $\operatorname{Periods}$

Robust standard errors in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01

3.6.3 Experimental Instructions

Figure 3.2: Experimental Instructions: Treatment Part A (Translated from German)-1

General Explanations for the Participants

Welcome to the experimental laboratory!

You now take part in an economic experiment. Depending on your decisions and those of your teammates you can earn a considerable amount of money. Therefore, it is important that the following statements are read accurately.

The instructions that you receive from us are for your personal information. **During the** experiment, communication is strictly forbidden. If you have any questions, put your hand up and an experimenter will come and answer the questions. Non-compliance with this rule leads to the exclusion from the experiment and from all payments.

You make your decisions in the experiment **anonymously**. Only the experimenter knows your identity, but your information is confidential and the decisions cannot be assigned to your identity.

For participation in the experiment, you will receive a show up fee of 5 EUR. Additional payments will be made based on your decisions. During the experiment your payout is calculated in tokens. The total number of tokens earned during the experiment will be converted into Euros and it holds that,

1 token = 4 cent,

and then paid out to you in cash. To do so, please wait on your seat until we ask you to collect your payment. Please bring all the documents you have received from us, when you will be paid out after the experiment.

Figure 3.3: Experimental Instructions: Treatment Part A (Translated from German)-2

The participants are divided into groups of four. Please note that you as well as the other participants make your decisions anonymously. Other group members cannot exactly observe your decisions.

The entire experiment is composed of the following four parts:

1) First, you have to solve a quiz in order to gain your initial endowment of tokens. You make the decisions about the answers on your own. However, you have the possibility to communicate with the members of your group via a chat. For each correct answer of a group member, one point goes to the group score. At the end of the experiment each of the members of the group with the most points receives an additional payment of 1 EUR. Whether your group scored most points you will come to know when the payment is made.

2) After completion of the quiz you remain in the same group. You interact with the members of that group for 10 periods. The explanation of the game in the first 10 periods will be given to you in detail in the next section.

3) Then we will ask you to make decisions for another 10 periods. You will receive an explanation about the second 10 periods after the first 10 periods.

4) At the end of the experiment, we will ask you some general questions. Afterwards all your gained tokens will be transferred to euros and added to the show up fee of 5 EUR and to the 1 EUR, if you were in the best group in the quiz, and paid out in cash. All payments will be made in privacy, so that none of the other participants will see what you have earned.

Figure 3.4: Experimental Instructions: Treatment Part A (Translated from German)-3

The participants are divided into groups of 4. So you interact with 3 other participants. These 3 participants are the same, with whom you can chat in the quiz. The composition of your group of 4 will remain unchanged over all 10 periods.

At the end of the experiment one of the ten periods will be paid out to you in Euro. The period that is paid out is determined by chance. Thus, each period is relevant to the payout for you.

At the beginning of each period, each of the 4 players in the group receives 100 tokens. Then one player is randomly determined to have set his endowment for this period from 100 tokens to 0 tokens. This player doesn't make a decision in this period. His payoff depends on the decisions of the other 3 players. The other 3 players are all facing the same decision problem. They have to choose between the following two options:



If you choose **option A**, you lose your 100 tokens. Instead, you and all further players who choose option A and also the player without a decision receive the same payout. This payout is

30 tokens,	if you are the only one of the 3 other players who chooses option A.
60 tokens,	if you and one more player of the 3 other players choose option A.
90 tokens,	if you and two more players, thus, all 3 other players choose option A

If no player chooses option B, the player without decision will receive 0 tokens.



If you choose **option B**, you keep your 100 tokens and you do not impact the other players' payouts. Thus, your payout for this period is 100 tokens.

Figure 3.5: Experimental Instructions: Treatment Part B (Translated from German)

General Explanations for the Participants

Your group of 4 from the first 10 periods is now combined with another randomly selected group of 4 to a group of 8. So, now you interact with 7 other people. 3 of them are the same participants with whom you have already played in the first 10 periods. With the other 4 members you have not previously interacted. The composition of your group remains unchanged over all 10 periods. At the end of the experiment, you will also get paid out one of these ten periods in Euros. The period that is paid out will be randomly drawn. Thus, each period is relevant to the payout for you.

At the beginning of each period, each of the 8 players in the group receives 100 tokens. Then one player is randomly determined to have set his endowment for this period from 100 tokens to 0 tokens. This player doesn't make a decision in this period. His payoff depends on the decisions of the other 7 players. The other 7 players are all facing the same decision problem. They have to choose between the following two options:



If you choose **option A**, you lose your 100 tokens. Instead, you and all further players who choose option A and also the player without a decision receive the same payout. This payout is

30 tokens,	if you are the only one of the 7 other players who chooses option A.
60 tokens,	if you and one more player of the 7 other players choose option A.
90 tokens,	if you and at least two more players of the 7 other players choose option A.

If no player chooses option B, the player without decision will receive 0 tokens.



If you choose **option B**, you keep your 100 tokens and you do not impact the other players' payouts. Thus, your payout for this period is 100 tokens.

Figure 3.6: Experimental Instructions: Control Part A (Translated from German)-1

General Explanations for the Participants

Welcome to the experimental laboratory!

You now take part in an economic experiment. Depending on your decisions and those of your teammates you can earn a considerable amount of money. Therefore, it is important that the following statements are read accurately.

The instructions that you receive from us are for your personal information. **During the experiment, communication is strictly forbidden.** If you have any questions, put your hand up and an experimenter will come and answer the questions. Non-compliance with this rule leads to the exclusion from the experiment and from all payments.

You make your decisions in the experiment **anonymously**. Only the experimenter knows your identity, but your information is confidential and the decisions cannot be assigned to your identity.

For participation in the experiment, you will receive a show up fee of 5 EUR. Additional payments will be made based on your decisions. During the experiment your payout is calculated in tokens. The total number of tokens earned during the experiment will be converted into Euros and it holds that,

1 token = 4 cent,

and then paid out to you in cash. To do so, please wait on your seat until we ask you to collect your payment. Please bring all the documents you have received from us, when you will be paid out after the experiment

Figure 3.7: Experimental Instructions: Control Part A (Translated from German)-2

The participants are divided into groups of four. Please note that you as well as the other participants make your decisions anonymously. Other group members cannot exactly observe your decisions.

The entire experiment is composed of the following four parts:

1) First, you have to solve a quiz in order to gain your initial endowment of tokens. You make the decisions about the answers on your own. However, you have the possibility to communicate with the members of your group via a chat. For each correct answer of a group member, one point goes to the group score. At the end of the experiment each of the members of the group with the most points receives an additional payment of 1 EUR. Whether your group scored most points you will come to know when the payment is made.

2) After completion of the quiz you remain in the same group. You interact with the members of that group for 10 periods. The explanation of the game in the first 10 periods will be given to you in detail in the next section.

3) Then we will ask you to make decisions for another 10 periods. You will receive an explanation about the second 10 periods after the first 10 periods.

4) At the end of the experiment, we will ask you some general questions. Afterwards all your gained tokens will be transferred to euros and added to the show up fee of 5 EUR and to the 1 EUR, if you were in the best group in the quiz, and paid out in cash. All payments will be made in privacy, so that none of the other participants will see what you have earned.

Figure 3.8: Experimental Instructions: Control Part A (Translated from German)-3

The participants are divided into groups of 8. So you interact with 7 other participants. These 7 participants are the same, with whom you can chat in the quiz. The composition of your group of 8 will remain unchanged over all 10 periods.

At the end of the experiment one of the ten periods will be paid out to you in Euro. The period that is paid out is determined by chance. Thus, each period is relevant to the payout for you.

At the beginning of each period, each of the 8 players in the group receives 100 tokens. Then one player is randomly determined to have set his endowment for this period from 100 tokens to 0 tokens. This player doesn't make a decision in this period. His payoff depends on the decisions of the other 7 players. The other 7 players are all facing the same decision problem. They have to choose between the following two options:



If you choose **option A**, you lose your 100 tokens. Instead, you and all further players who choose option A and also the player without a decision receive the same payout. This payout is:

30 tokens,	if you are the only one of the 7 other players who chooses option A.
60 tokens,	if you and one more player of the 7 other players choose option A.
90 tokens,	if you and at least two more players of the 7 other players choose option A.

If no player chooses option B, the player without decision will receive 0 tokens.



If you choose **option B**, you keep your 100 tokens and you do not impact the other players' payouts. Thus, your payout for this period is 100 tokens.

Figure 3.9: Experimental Instructions: Control Part B (Translated from German)

General Explanations for the Participants

In the following 10 periods, you are still in the same Group of 8 as before. So You interact with the same 7 other participants as in the first 10 periods. The composition of your group of eight remains unchanged over all 10 periods. At the end of the experiment, you will also get paid out one of these ten periods in Euros. The period that is paid out will be randomly drawn. Thus, each period is relevant to the payout for you.

The decision problem you face is the same as in the first 10 periods. Thus, payouts can still be found in the explanations of the first 10 periods.

Chapter 4 Corporate Social Responsibility: A Microeconomic Review of the Literature*

Abstract This paper provides a review of the theoretical and empirical literature on Corporate Social Responsibility. Depending on whether an individual can be considered as selfish, or whether she has also social preferences, motives for Corporate Social Responsibility can be explained in different ways. Furthermore, we explicitly highlight the influence of different Corporate Governance System on Corporate Social Responsibility as well as the relationship between firms' size and social commitment. Since it is difficult to distinguish between different theories in empirical studies, we argue that an experimental approach might be suitable to test theories of Corporate Social Responsibility.

Keywords

Corporate Social Responsibility Social Preferences Experimental Economics

JEL Classification D21, D22, H40

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Corporate Social Responsibility: A Microeconomic Review of the Literature

4.1 Introduction

In recent years the so-called welfare-oriented corporate goals are increasingly drawing attention to the public interest. This voluntary commitment for (prima facie) non-economic goals going beyond legal requirements is called Corporate Social Responsibility (CSR). Companies have responded to this trend in different ways. They present themselves more and more as "Corporate Citizens" supporting schools, hospitals and sports clubs by donations in form of money, equipment or services.

Despite positive evaluations of the general public, economists asses this commitment differently. First of all, it is natural that companies foremost must pursue profit-oriented objectives to assure their survival in the market. At the same time, however, several company representatives postulate that the goal of maximizing profits increasingly looses importance. Instead, they proclaim a new balance of economic, environmental and social goals (see for example in the case of BMW AG, Milberg 2002)

This commitment for the common good automatically raises the question of the decision makers' motivation: Do companies follow independent goals that go along with lower profits when making welfare-oriented investments? Or are these investments only the continuation of profit-oriented politics by other means?¹ Does the new interest in CSR reflect changing values in the companies themselves or in society as a whole? Or is it a new form of marketing presenting companies' social investments to a larger part of the public? How can we evaluate Corporate Social Responsibility from an economic perspective?

In spite of the increasing importance of the CSR, apart from Kitzmueller and Shimshack (2012), there exists no systematic classification of the topic in economics. However, Kitzmueller and Shimshack (2012) focus more on the welfare aspects of CSR and leave out important issues such as CSR and firm size, or the impact of different Corporate Government (CG) systems on CSR. Another survey by Bénabou and Tirole (2010) provides an overview of the topic, but their work lacks a systematic classification of the literature.

This work aims to fill this void and provide a sound basis for the current debate in the social sciences. We will classify the theoretical and empirical literature highlighting the motivation of individuals to invest in welfare-oriented projects. Then we will point out open research questions focusing especially on CSR in small and medium enterprises and preferences of corporate decision makers.

¹ In this context it is interesting to notice that various companies connect their social commitment with the decision to buy a certain product.

The remainder of the paper is organized as follows. In section 4.2, we shortly give an overview of the determinants of human behavior in order to classify the theoretical literature presented in section 4.3. Section 4.4 deals with the empirical evidence and section 4.5 will point out open research questions.

4.2 Methodological Background

The explanation for CSR activities of companies discussed in section 4.3 will differ according to the assumptions on the personal motivation of the individuals - whether an individual is purely self-interested or whether also social consideration play a role in his decision making (Kirchgässner, 1991).

The standard economic model to describe economic behavior is the homo economicus. This term refers to a rational individual, that based on his preferences, maximizes his utility with respect to certain external constraints. In spite of the fact that this definition could also include non-egoistic preferences, economic scientists mainly use the concept of homo economicus as a purely selfish motivated individual.

From the perspective of homo economicus, investments in CSR would be exclusively motivated by the self-interest of the representatives of a company. Consequently, these investments would primary serve to increase profits. Positive spillovers to society as a whole would be side effects of self-interest motivated CSR.

However, recent empirical and experimental studies have shown some systematic deviations from the predicted behavior of homo economicus. In particular they have questioned the assumption of pure selfishness. Several studies document that individuals indeed act mainly selfish, but that they systematically include the utility of other actors into their preferences, in other words: they exhibit social preferences (Fehr and Schmidt, 1999).

Transferred to the context of CSR, this would imply a possibility of non-selfish investments in social causes that are detached from mainly profit oriented goals.

4.3 Theoretical Explanations for Corporate Social Responsibility

Based on the preliminary methodological discussion in section 4.2 we will systematically present and discuss theoretical explanations for CSR in this section.

A first strand of theoretical literature (see section 4.3.1) argues that companies' social responsible activities only serve the goal of maximizing profits. These companies here-

inafter will be referred to as profit maximizing companies.² Within this first strand of literature we can distinguish between two approaches. First (see subsection 4.3.1), CSR activities are based on the behavioral model of the homo economicus. Hence all stake-holders of a company are supposed to be selfish, utility maximizing individuals. A second approach (see also subsection 4.3.1) extends the behavioral model of homo economicus. Papers based on this approach restrict the assumption of sole utility maximization of stakeholders, but stick with the assumption of homo economicus for decision makers within companies and corporations. Hence, those papers on CSR assume an asymmetric structure of social preferences.³

A second strand of the theoretical literature (see subsection 4.3.2) considers corporate social responsibility as detached from the goal of profit maximization. Social and environmental activities in this context are independent objectives of corporate decision makers or managers, that is to say they have also social preferences. Those independent objectives could lead to a trade-off between social and profit oriented goals. we will define companies providing public goods unrelated to maximizing profits as welfare oriented companies.

4.3.1 Profit Maximizing Companies

Stakeholder without Social Preferences

According to the assumption that neither corporations nor stakeholder have social preferences and are driven only by their self interest (profit and utility maximization), we can consider social commitment of firms in three different ways. First to attract the consumers' attention, if the consumers do not have a general overview over the market. Second, as a way to inform consumers over certain qualities of the firm or their products. Third, CSR activities may help corporations to avoid or forestall legal obligations as well as governmental regulations.

 $^{^{2}}$ Alternatively, in this context CSR sometimes is referred to as "Strategic CSR" (Baron, 2001). Baron (2009) additionally introduced a distinction between "Corporate Social Responsibility" and "Corporate Social Performance" (CSP). For him, CSR is a social investment due to social preferences, whereas CSP is defined as a social investment by a firm out of social or selfish monetary reasons. We will not follow this definition here but use the term CSR for social investments regardless of the motivation of decision makers.

 $^{^{3}}$ Under the generic term of social preferences are subsumed all cases in which the individuals consider other individuals preference relations into their own utility maximization problem.

Corporate Social Responsibility: A Microeconomic Review of the Literature

CSR as a Communication Instrument

Search models proceed from a situation in which consumers do not possess a perfect overview over enterprises (or supplied products) in the market. Within such a framework, consumers could, on the one hand, apply search costs in order to improve their status of information and widen their market overview. On the other hand it is also conceivable that enterprises try actively to steer the attention of consumers on themselves - e.g. by advertisement. Different authors interpreted CSR activities as means of profit oriented enterprises, to direct the public interest on themselves. Goyal (2006) discusses this for example on the basis of the market entrance of large, multinational enterprises in developing countries.

CSR as a Signaling Instrument

Other authors understand corporate commitment to social cases as a communication instrument within the framework of signaling models.

Based on Spence (1973), the essential observation of many (if not most) economic relations are characterized by asymmetrical information. Not all contract parties will have access to the same set of information. For example, the seller of a good is usually better informed about the quality of the good than a potential buyer (Akerlof, 1970).

CSR activities could possibly communicate relevant information over an enterprise to an uninformed actor, because they are afflicted with cost. Jones and Murrel (2001) illustrate this on the basis of the relationship of a firm with an uninformed investor. Since an investor fears to lose repayments of his credit or future dividends, she will only invest into a firm if she estimates the profitability high enough. Therefore, an investor will use all possible information available, beyond historical accounting data, to draw conclusions about the future development of a company. Economically healthy corporations, which estimate their own profitability high in the future, will be more eager to invest in actually profit diminishing activities than firms with low profit perspectives. Thus ,CSR activities can serve a firm as a signal for unobservable profitability and lead to better financing conditions. By high CSR expenditures a profitable company separates itself form lessprofitable companies that cannot afford CSR activities.⁴

In a somewhat differently stored model, Fisman et al. (2006) argue that CSR activities can also serve an enterprise as a signal for high product quality. They proceed thereby from a situation in which there exists, apart from the profit oriented firm, other public

 $^{^{4}}$ In accord with Porter and Kramer (2002) many firms are more interested in publishing their commitment to social causes than in the commitment itself.

interested or welfare oriented firms. Consumers (or other stakeholders) cannot observe directly which goals an enterprise actually pursues. Fisman et al. (2006) assume that welfare oriented companies supply with higher probability goods of better quality, since such enterprises attach great importance on environmental protection and treatment of their coworkers. If consumers understand investments in CSR as a signal for an entrepreneur with social preferences, they will conclude that companies with high commitment to CSR provide products with superior quality. Fisman et al. (2006) finally use these considerations in order to analyze more closely in which industries one can expect higher investments in CSR activities. From this point of view, it could be worthwhile for profit oriented companies to invest in CSR to be noticed as firms that offer high quality goods. They argue that CSR investments in sectors with asymmetric information about the product quality should be higher than in sectors with very little information asymmetry.⁵ Referring to Fisman et al. (2006) we would expect producers of search goods to accomplish CSR activities to attract consumers with social preferences. The situation with producers of experience goods is different. Here producers use CSR as an additional signal for product quality.

CSR to avoid Governmental Regulations

The starting point of regulation models is the observation that even in a free-market economy, governments limit the actions of individual companies or whole branches by governmental regulations or legal obligations. These restrictions of corporate actions may reduce profits (Stigler, 2003).

Maxwell et al. (2000) present an adjustment model in which a reduction of emissions below the measure required by law lowers the probability of stricter regulations in the future. Central assumption of their model is that it is costly for the firm and for citizens to engage in the political process. Under this assumption citizens will only engage themselves against environmental pollution, if the life damage caused by this pollution exceeds a certain level. Thus an enterprise can apply CSR activities to prevent both, a sharper regulation and lobbying cost (Maxwell et al., 2000).

The argument presented by Maxwell et al. (2000) can be applied into a competitive market as well. By lowering emissions below relevant limits, pressure on competitors can be developed (Baron, 2008). By forestalling regulations with more pollution free manufacturing plants, enterprises intensify at the same time the public pressure on their

 $^{^{5}}$ Goods that reveal their surplus after the act of buying, so called experience goods vs. goods of daily use, so called search goods. See also Siegel and Vitalino (2007).

Corporate Social Responsibility: A Microeconomic Review of the Literature

competitors. Those may still produce with more environmental harmful technologies and for them a conversion to less polluting technologies may be connected with higher costs.

Another argument is introduced by Andries (2008). He argues that new laws and regulations are simply a response to negative events. Social Responsible enterprises can then simply be the ones with higher risk aversion to deterioration of the "state of the world".

CSR as a response to government failure or heterogeneous preferences

Some authors define CSR as the creation of public goods or the curtailment of public bads (Gathak and Besley, 2007). In this context, CSR is regarded as a substitute for the investments of elected governments into public goods. Hence, it could be rational to pressure companies to invest in CSR if the government fails to provide public goods (Bénabou and Tirole, 2010). These Government failures could have various origins, for example the capturing of decisions by lobbies or interest groups, the territoriality of jurisdiction (it is impossible to rule for pollution standards in foreign countries) or the comparative disadvantage in providing public goods in policing minor nuisances such as a lack of respect to employers (Gathak and Besley, 2007). Additionally, also governments without failure could not reflect the preferences of citizens. In the case of heterogeneous preferences of agents, it is inevitable that some citizens' values are not shared by lawmakers. Pressuring firms to invest in CSR might be the only chance of certain agents to achieve their goals (Bénabou and Tirole, 2010).

Stakeholder with Social Preferences

In the following, social preferences of individual stakeholder groups will be considered. Thus, stakeholders consider the utility of other individuals into their preference relations. It is shown that in this case some further reasons for investments in CSR exist for a profit maximizing enterprise. First, we regard the case of consumers with social preferences. Then, we examine social preferences of investors. Finally, we take social preferences of prospective and existing employees into account.

Consumers with Social Preferences

Enterprises can possibly use the preferences of customers by investments in CSR to their own advantage. Consumers with social preferences are generally willing to recompense CSR by a higher purchase price (Baron, 2008). Also a customer indirectly transacts a social investment himself by his decision for the product of an enterprise with expenditures for CSR. Siegel and Vitalino (2007) argue that the need of many consumers to enjoy a high reputation within a social group could be a reason for buying goods of enterprises with a high visibility of social or environmental commitment. Consumers with social preferences possibly do abstain to buy a certain good produced by a firm behaving unethically (Fernández-Kranz and Santaló, 2008). Rather neutral consumers could follow such a boycott in order to pretend to be ethically and morally engaged. By modern means of communication such as the Internet, firm specific behavior gets more transparent than in the past, so that those considerations are taken more into account. CSR activities could thus be an instrument to forestall consumer boycotts (Glazer et al., 2008). Glazer et al. (2008) furthermore argue that in markets with higher product market competition more CSR activities are to be expected. Given a rising number of consumers paying attention to the methods of manufacturing products CSR is, under these circumstances, a suitable possibility to evade the increasing number of consumer boycotts and to set the own company apart from competitors.

Investors with Social Preferences

Now, we consider the case in which potential investors have social preferences. An enterprise with a high capital requirement particularly has an interest to gain financial sources. If financial investors are characterized by a special preference for social or environmental objectives, enterprises with CSR activities can appear attractive for groups of such investors. However, it is not clear why an investor should try to satisfy her social preferences indirectly throughout the firm into which she invests.⁶ Baron (2008) argues that such a detour can be meaningful. If an investor should have wanted to satisfy her social preferences and engage in social causes she could, in principle, donate a part of her income personally to welfare organizations. So the investor would not necessarily detour over CSR. This basic idea is the fundament of Milton Friedman's (1970) famous article "The Social Responsibility of Business is to of Increase its Profits". If an investor would like to engage in social causes, she should do that on her own. This is not the task of an enterprise (Friedman, 1970). However, one can argue against Friedman (1970) that investors' private donations result in transaction costs, since each individual investor must find a suitable project into which she socially invests. Alternatively it could be favorable for investors to only invest in enterprises which engage in CSR. The firm transacts the social investments for the investor for whom no transaction cost result.

⁶The same argument could be adapted for consumers with social preferences.

Thus a social investor becomes a partner of a social responsible firm, forgoes a part of his rent but does not need to invest in social causes herself.⁷ Kotchen (2006) contributes to this strand of literature with a theoretical model. He shows that, if private and public good consumption are gross complements or, if an economy is sufficiently large, introducing or improving an impure public good⁸ will crowd out all direct donations, yet always increase the level of provision.⁹ Furthermore, CSR might be a means to especially attract foreign investors (Ward, 2004). CSR might then be understood as a signaling instrument (see section 4.3.1). Particularly, firms in developing countries can, by engaging in CSR activities attract foreign investors with social preferences from developed countries (Gugler and Shi, 2009).

Employees with Social Preferences

If existing or potential new employees have social preferences, there exists a number of reasons for profit oriented companies to invest in CSR. The first two approaches, which are to be discussed in the following, are based on the image that employees have or would like to have of themselves. The third approach reverts to the already discussed signaling model. The first approach introduced here is based on the Social Identity Theory from the field of social psychology. According to the Social Identity Theory individuals classify themselves into certain social categories. Whereby the social category to which one feels associated is considerably influenced by the employer (Dutton et al., 1994). The self image of an individual therefore is affected by the affiliation to the enterprise for which she works (Ashfort and Mael, 1989). Corporate behavior that leads to a damage of the firms image, therefore damages also the self image of the persons employed (Dutton and Dukerich, 1991). Symmetrically, the reputation of employees working for enterprises rises, the more CSR activities of a firm are recognized in the public (Turban and Greening, 1997). According to the Social Identity Theory CSR increases the work morale of employees. By this effect, costly CSR activities may be worthwhile for the enterprise. Following a similar argumentation chain, enterprises that exhibit a higher degree of CSR activities can possibly select their employees from a larger pool of applicants, since they are perceived as more attractive employers than firms with lower CSR (Brekke and Nyborg, 2007).¹⁰ Another advantage of attracting moral employees for firms may also consist in lower wages. Brekke and Nyborg (2010) argue that enterprises

⁷Graff Zivin and Small (2005) develop a similar argument.

 $^{^{8}\}mathrm{A}$ public good that satisfies also private consumption.

⁹ This theoretically also holds for consumers with social preferences.

 $^{^{10}\,\}mathrm{See}$ also Backhaus et al. (2002).

making their employees feel an additional utility for moral causes can pay wages below marginal profitability because the additional warm glow utility employees receive offset lower payments.¹¹

A further explanation why profit oriented companies invest in CSR arises, on the one hand, because of a possible interest of managers about their image and, on the other hand, because of possibly existing principal agent problems within the company. Managers in particular, as employees and implementing actors in large enterprises, are specially monitored by the public. The managers often act in another context than the actual owners, who remain frequently in secret. Therefore it is not implausible to assume that managers have stronger image motivation concerns than owners. Following this argument Managers are to a higher extent driven by the need to receive acknowledgement of others than the owners of enterprises. Actually, Ariely et al. (2009) show in an economic experiment that individuals derive utility from presenting their achievements to a large public. CSR can serve managers to increase their own reputation and awareness level. With Porter and Kramer (2002) one could argue that many CSR activities reflect the image motivation of managers without necessarily (directly or indirectly) leading to a profit increase (Barnea and Rubin, 2006). If there exists a principal agent problem within the enterprise, for example when the owner (principal) cannot perfectly control the behavior of the manager (agent), the risk arises for the principal that the manager overcompensates CSR activities in order to enhance her self esteem and reputation. This motivation of managers might lead to excessively high investments in CSR from the owner's point of view. In addition, the CSR activities would then stand in contrast to the goal of profit maximization but need not necessarily be due to welfare oriented objectives. Using the 2003 Divided Tax Cut in the US as a quasi-experiment, Cheng et al. (2013) find support for CSR being a result of agency problems. In their analysis they find a decline in CSR when managers ownership of firms increases. Thus, mangers like to do good with other people's money rather than their own.¹² Cespa and Cestone (2007) and Hong et al. (2012) likewise submit a further argument based on principal agent theory. They regard the interest conflicts between managers, shareholder and other stakeholder outside of the enterprise. Managers could possibly use CSR investments in order to secure the support of other stakeholder groups and protect themselves thereby against dismissal.

A third reason why CSR for a profit oriented company can be of sufficient value is

¹¹Gathak and Besley (2005), however, argue that motivated agents may also be associated with lower productivity, because these workers are more conservative and raise the cost of organizational change.

 $^{^{12}\,\}rm{This}$ spending however might as well lead to an increased firm value.

that in the case of employees with social preferences, CSR could be used as a signal for an enterprise to be an attractive employer (Jones and Murrel, 2001). Often applicants with social preferences are attracted by enterprises with which they share common values (Backhaus et al., 2002). Moreover, Montgomery and Ramus (2003) point out that attributes, such as employee welfare service, sustainable economic activity, as well as ethically justifiable products are important criteria for job applicants. An actually profit-oriented enterprise could therefore have an interest to invest just as the welfare oriented company in CSR, in order to appear as an attractive employer.

4.3.2 Welfare Oriented Companies

The following section turns to the case of welfare oriented companies. We define welfare oriented companies not as non-profit organizations or foundations which do not pursue profit objectives. Starting point are rather enterprises that also pursue social goals apart from profit maximization and therefore invest in CSR. In such a case investments in CSR are not means to increase profits but potentially oppose the realization of profits. This is the case if CSR activities primarily create no value for an enterprise.¹³ In fact weighing between social behavior and profit is necessary (Aupperle et al., 1985). Such a voluntary welfare orientation of a firm can result from social preferences of the companies' owners themselves. As discussed in section 4.2 experimental economic research presents numerous evidence for the fact that economical participants are not completely described by the behavioral model of the homo economicus but are also driven by social preferences such as fairness or inequity aversion and are willing to scarify (at least partially) economic profits. Corresponding to that, entrepreneurs may orient themselves from an intrinsic motivation to social goals (so called warm glow preferences). Since the behavioral economic literature is still relatively young, there exists no formal theoretical work that links CSR directly to the preferences of the decision makers. Nevertheless, a set of authors argued in normative oriented works that entrepreneurs should have the obligation to return something to the society by social activities and put out the figure of the entrepreneur as a benefactor.¹⁴ Those works do not, however, treat the question discussed in section 4.3.1 whether CSR could be accomplished also from self interested motives.

 $^{^{13}\}operatorname{However},$ it could well be that such CSR is nonetheless equity value maximizing.

 $^{^{14}}$ See Caroll (1979) and Bowen (1953)

4.3.3 Influence of different Corporate Governance Systems on CSR

In section 4.3.1 and 4.3.2, the basic conditions under which enterprises act were considered. In the next section we will highlight to what extent the corporate governance (CG) system in a national economy influences, with explicit and implicit rules, the CSR activities of enterprises. Tirole (2001) raises the fundamental question whether, from an overall economic perspective, the success of a manager should be linked exclusively with the obtained profit (shareholder oriented CG) or whether it can be meaningful to assign managers additionally with the pursuit of further welfare oriented goals (stakeholder oriented CG). In case of stakeholder oriented CG for example, managers are explicitly assigned to also consider the interest of suppliers or employees (see Schmidt (2006) and Hansmann (1996)). This gives raise to the question, as to whether CSR is perceived as legitimate? In general, this perception depends on the shared consensus between shareholder and other stakeholder groups (such as managers) of a firm (Pava and Krausz, 1997). This common agreement is even more important in shareholder oriented CG systems. If there is no consent on CSR activities between stakeholder groups, managers should not champion their own social motives (Hemingway and Maclagan, 2004) and only invest in CSR if it is of strategic value to the firm (Lantos, 2001, 2002, Drucker, 1984).¹⁵ Which CG system is superior, depends, according to Tirole (2001), on factors like the measurability of the achievement of objectives, the business environment in which negotiations take place, or on the already existing protection of stakeholders e.g. by a flexible job market. An enterprise that already regulates employee rights by participating in the supervisory board, need not necessarily signal its good working conditions by CSR activities. In a system, where all interest of society groups are already protected by law, it may be observed that recognizable private investments in CSR are lower than in other systems where this may not be the case (Gainet, 2010). This could tendentiously be relevant for non-Anglo-American CG systems with high legal standards in social and environmental areas like Germany, France or Japan (Hall and Soskice, 2001).¹⁶

4.3.4 Firm's size and Corporate Social Responsibility

Literature on the relationship between CSR and firm size is scarce and, to our knowledge, no formal theoretical model on the role of firm size and CSR exists. However some heuristic explanations state that, the extend to which firms engage in CSR depends on

¹⁵Contrary, other authors argue, that, due to the institutional relationship of business and society, firms possess a certain degree of responsibility regardless of the underlying CG system.(Wood, 1991, Davis, 1973, Oliver, 1996, Preston and Post, 1975).

¹⁶See Matten and Moon (2008) for detailed examples of CSR in Europe and the US.

various determinants that are influenced by organizational size (Lepoutre and Heene, 2006).¹⁷ Following this line of argumentation, Udayasankar (2008) theoretically highlights an U-shaped relationship between CSR and firm size. The argument here is that larger firms are more visible to the public, hence experience more pressure and possess sufficient resources to engage in CSR. Small firms, who are less visible apply CSR as a marketing instrument to get more attention and access to resources. Medium sized firms have, according to Udayasankar (2008), fewer incentives to undertake CSR activities. Besser (1999) furthermore argues, that small sized firms deeply rely on reputation and are therefore eager to engage in practices that are directly aligned with stakeholders' wishes. In this respect, small business owner/managers are particularly sensitive to activities immediately related to fulfil those wishes (Hornsby et al., 1994, Lahdesmaki, 2005). On the contrary, CSR activities external to the firm are more pronounced in large firms and less likely to occur in small businesses (Tilley, 1999, 2000). However, small firms often lack time and knowledge to engage in those activities (Lepoutre and Heene, 2006). Thus, especially small firms' CSR wild epend on individual characteristics of managers and owners. This however, might result in over- or underinvestment in CSR (see section 4.3.1).

4.4 Empirical Research: Current State of Research

After introducing theoretical explanations for CSR in section 4.3 the following section turns to empirical literature about Corporate Social Responsibility. As will be shown, the empirical literature about CSR is quite extensive. However central questions remain unanswered. In particular, the discrimination of possible theoretical explanations for investments in CSR, e.g. whether or when it is driven by rather profit oriented or welfare oriented objectives is not covered by the existing empirical literature.

4.4.1 CSR and Profit

Theoretical models based on the assumption of profit maximizing corporations forecast a positive connection between the magnitude of CSR activities and the profit of a firm. An exception forms the principal agent theory. The empirical works concerning the connection between investments for social causes and the firm's profit differ in various dimensions. First, the empirical methods to measure the level of CSR activities and

 $^{^{17}}$ These factors are: visibility to the public (Lewis, 2003), access to resources (Johnson and Greening, 1999), the effectiveness of organizations (Donaldson, 2001) and manager/owner characteristics (Lepoutre and Heene, 2006).

the firm's profit vary.¹⁸ Second, different authors imply different causal relations of profit and social investment. Some studies find that the magnitude of CSR activities positively affects the profit. Other authors come to the conclusion that the investment in CSR depends on the level of profit obtained. However, many of these methods have been subject to criticism. For example, empirical studies using screening methods as a measurement of CSR have limited validity and are proximately biased. Empirical research studying CSR and CFP has been vividly criticised for its use of screening measures of corporate social performance (CSP). 19 The screening measures by KLD^{20} is the largest source of CSR available to the public. Many studies measuring CSP that make use of this database for instance, have been harshly criticized (Entine, 2003).²¹ Further, Entine (2003) notes that a positive correlation between CSP and CFP follows from the "flawed" construction of the KLD measures. Other scholars support this argumentation (Shepers and Sethi, 2003, van Oosterhout and Heugens, 2006, Gond and Crane, 2010). van Oosterhout and Heugens (2006) explicitly point to the fact that screening methods underlie a selection bias and ambiguous rules. More precisely, they highlight the selection of above average performing firms into the KLD index. When linking CSR to profit, KLD indexed firms are more likely to financially outperform non KLD indexed firms. Further, KLD measures have been subject to critique for not including all available data into their ratings (Chatterji et al., 2008). In addition, Gond and Crane (2010) notably point out that the existing measurements of CSP have not been developed with reference to theoretical models of social performance by firms. Waddock and Graves (1997) and Waddock (2003) accept the fact of KLD based measures being biased, but highlight the fact that these measures are the best data available.²²

Despite the vast critique on CSR measurement techniques, we will provide a short overview of the empirical literature. Afterwards well-chosen works will be introduced more closely.

In a meta analysis, Margolis et al. (2007) present 167 empirical studies that explored the relationship between financial profit and charitable engagement in the last 35 years. Across all of the effects they coded from these studies, 58% find a nonsignificant relationship, 27% a positive relationship, and 2% a negative relationship between CSP and

¹⁸Many of the emperical papers that study the link between CSR and CFP (Corporate Financial Performance) consider share prices rather than profit directly.

 $^{^{19}\}mathrm{See}$ Wood (2010) for a review of measuring CSP in the literature.

 $^{^{20}\,\}mathrm{The}$ KLD database from KLD Research & Analytics.

²¹ In detail Entine (2003) describes the KLD index as being "anachronistic, contradictory, idiosyncratic and ideologically constructed notions of CSP".

²²Current research however develops new ways of measuring CSP (Walls et al., 2008, Turker, 2009). Hitherto, no alternative measure is generally accepted by researchers.

CFP. An additional 13% did not report sample size, so it was not possible to test for significance. It does not appear that companies suffer financially for their socially responsible investments. The association is strongest for the analysis of the specific dimensions of charitable contributions, revealed misdeeds, and environmental performance.²³ Nevertheless, as will be explained in the following sections, other empirical studies suggest that the connection exists rather from a firm's profit to CSR than in the reverse direction (Margolis et al., 2007, Hong et al., 2012).²⁴

In the following, well chosen works that differ in their data basis and methodology will be presented. Jones and Murrel (2001) conduct an event study and determine a positive effect of investments in CSR on the value of an enterprise. Jones and Murrel (2001) documented abnormal stock price gains for companies rated as family friendly by the Working Mother magazine. A recent event study by Krüger (2009), based on the KLD data base, finds that stock prices fall on average by 1% within a week following a negative announcement in the database. But there have been no abnormal returns after a positive announcement.²⁵

McGuire et al. (1988) find in their questionnaire that profit is positively correlated to CSR. McGuire et al. (1988) imply the possibility that corporate financial success (high profits) influence the level of subsequent investments in CSR. Actually, they find that financial success is a good indicator for subsequent CSR activities. Similarly to Jones and Murrel (2001), McGuire et al. (1988) prove that firms with a relatively low level of CSR activities have a smaller return on equity and a smaller yield on shares than companies with comparably high commitment to social causes.

Aupperle et al. (1985) develop on the basis of Caroll's (1979) definitions of CSR an own indicator for social commitment of corporations. However, Aupperle et al. (1985) were not able to find a statistically significant influence of the orientation to social goals and the profit. ²⁶ Eventually, we consider an interesting topical study of Nelling and Webb (2008) that critically compares the results of different empirical methods on the outcome between CSR and profit. Nelling and Webb (2008) find that different, in the empirical literature often used methods, based on the same source could lead to several results. In particular, they point out that OLS regression with Lag variables could lead

 $^{^{23}}$ See Heal (2005) and Rheinhardt et al. (2008) for further discussions.

 $^{^{24}}$ Hong et al. (2012) for example use the internet bubble of 1996-2000 as an natural experiment and find that CSR is positively related to financial constraints. They further find that CSR is a costly complement to profit.

²⁵Nevertheless, other event studies e.g. Wright and Ferris (1997) find negative correlations between CSR and profits.

²⁶ This CSP measurement technique is subject to the individual perceptions of CSR by evaluators and therefore does not display an objective measure of CSP or CSR (Turker, 2009).

to another result than time course models. They carry out causal tests and show that nor social activities influence the financial success of companies, neither has profit a great influence on the level of CSR. In fact, as it appears to Nelling and Webb (2008), specific variables of enterprises such as social preferences of the management, the sector within a company acts or the market structure determine investments in CSR.

4.4.2 Firm's size and Corporate Social Responsibility

This subsection turns to the relationship between business size and CSR. Empirical work to this question predominantly uses the concept of corporate responsibility developed by Caroll (1979) and the rating system based on Aupperle et al. (1985).²⁷

Burton and Goldsby (2007) document that small and medium size enterprises weight non economic responsibility in Aupperle's et al. (1985) evaluation system higher than large enterprises in earlier studies. This result is judged as particularly remarkable by Burton and Goldsby (2007), since smaller enterprises indicated to consider tradeoffs between social responsibility and profit.²⁸ On the basis of a regression analysis on actual CSR expenditures, Stanwick and Stanwick (1998) come to a result that actually contradicts the work discussed above. Based on data record of companies listed in the Fortune Corporate Reputation Index in the period of 1987-1992 their analysis shows that larger companies transact higher expenditures for CSR than small firms in comparison.

4.4.3 Attraction of new employees and CSR

The question whether higher expenditures for CSR lead to the fact that potential employees are more attracted to a firm has been likewise examined by a set of authors e.g. Backhaus et al. (2002), Turban and Greening (1997), Greening and Turban (2000), Montgomery and Ramus (2003). The company data from the KLD database were used in order to ask students of the field of economics in higher semesters. It was stated that the social behavior of an enterprise seems to play a role with the job choice (Greening

²⁷ These studies show that 30-35 percent of the available points in Aupperle et al. (1985) catalogue are assigned to the economic section. Whereas 60 to 65 percent of the points are assigned to the non economic tasks, manager in leading positions use more time for economic tasks than the lower management (Marz et al., 2003).

²⁸ Earlier studies are e.g. Agle, B. R. and Mitchell, R. K. and Sonnenfeld, J.A. (1999), Aupperle and Simmons (1989) who interviewed CEO's of large enterprises. Other members of the board of directors have been interviewed by Edmonson and Carroll (1999). Supervisory boards have been the target group of Ibrahim and Angelidis (1995), Ibrahim et al. (2000), Ibrahim et al. (2003) as well as O'Neill et al. (2003). Interrogations of students have been carried out by Burton et al. (2000) and Smith et al. (2004). Managers in general have were subjects of investigation for Pinkston and Carroll (1994). Employees in different hierarchical levels have been investigated by Marz et al. (2003).

and Turban (2000), Backhaus et al. (2002)). In addition it shows that companies with higher social commitment attract more applicants than such with lower investment in CSR (Turban and Greening (1997)). Nyborg and Zhang (2010) find evidence for the hypothesis that firms with an high social reputation pay lower wages to employees.²⁹

4.4.4 Public Pressure and CSR

Some empirical studies show to what extent public pressure (e.g. by stakeholders) affect the level of CSR activities of a company. Maxwell et al. (2000) document that the emissions of poisonous substances by companies in a federal state of the U.S. are smaller, the higher the number of Sierra Club members in this state is. Binder and Neumayer (2005), who investigated the emissions of companies in 35 countries, came to the same result. They conclude that emissions in countries with a high number of nongovernmental organizations are relatively lower compared to countries with small numbers of those organizations. Baron et al. (2009) also compare CSR, profit and social pressure of governments or social facilities. Measured by Tobin's q, profit is positively correlated with CSR and negatively with social pressure. Moreover, Baron et al. (2009) observe that social commitment by enterprises rises if social pressure rises. Furthermore they point out that NGO's and other social or environmental activists focus their pressure on companies that have been socially active before. Baron et al. (2009) assume that such companies rather invest in CSR. A further result of Baron et al. (2009) is that nongovernmental organizations seem to build more pressure than government bodies. Kotchen and Moon (2008) finally examine the relationship between positive CSR activities and negative CSR activities (e.g. environmental pollution) subject to firm size, financial structure and return on assets. Result of their investigation is that higher environmental pollution lead to higher CSR activities and this effect is stronger, the stronger the concerned industry is of public interest.

4.4.5 Investors and CSR

Few empirical studies investigate the role of investors and CSR. Monitoring by investors with social preferences might urge firms to adapt CSR strategies (Davis and Thompson, 1994, Campbell, 2006, Ullah and Jamali, 2010). Epstein and Freedman (1994) for example find in a survey of individual investors, strong preferences for social disclosure and auditing of ethical commitment of firms. Contributing to this strand of literature, Wang

 $^{^{29}}$ In a survey by Montgomery and Ramus (2003) 90% of the interviewed MBA-students stated to forgo payments to work for enterprises with good reputation and working atmosphere.

et al. (2011) conduct an event study measuring investor responses to CSR activities. Using the melamine contamination incident 2008 in China as a natural field experiment, they find that institutional investors' post event buying behavior is influenced by at least a minimum of CSR performance. Whereas individual investors are not influenced by this behavior but follow institutional investors' decisions. Supporting Wright and Ferris (1997), they find evidence for a diminishing marginal effect of CSR. Thus, to little CSR and to much CSR displace investments, regardless of investors preferences.

4.4.6 Further selected Aspects

In this subsection selected empirical work is discussed that offers further plausibility referring to different theoretical explanations for CSR presented in section 4.3.

Chatterji and Toffel (2007) examine with respect to the KLD database the connection between the degrees of the reduction of emissions by different companies with risen public consciousness for environmental protection. It shows that the degree of environmental pollution of companies that had relatively small pollution remained constant while companies with a relatively high emission of exhaust fumes reduced their emissions over time.

Fernández-Kranz and Santaló (2008) provide insights concerning the relationship between CSR and the intensity of product market competition. Consistent with the theoretical findings these studies observe higher investments in CSR on markets with higher competition. Furthermore, on these markets CSR is highly correlated with financial return.

Harjoto and Jo (2007) examine to what extent CSR activities are used strategically for the reduction of conflicts between different stakeholder groups. They interpret different Corporate Governance indicators as measure of the quality of internal conflict resolution mechanisms in enterprises. They show that these indicators are positively correlated with CSR activities. From this Harjoto and Jo (2007) draw the conclusion that CSR is utilized to reduce interest conflicts between different stakeholders.

Engelmann (2008) address the impact of regulation on ethical concerns of consumers. In an experimental study, they first show that consumers are willing to pay a higher price for goods produced by a firm paying a minimum salary to employers. If they introduce a government regulation forcing all firms to pay minimum wages, the willingness to pay a higher price is getting smaller. They conclude that government regulation lead to a crowding out of concerns for fairness.

4.5 Conclusion and Open Research Questions

Corporate Social Responsibility, the voluntary commitment for non-economic goals going beyond legal requirements, comes more and more is to the center of public and academic debates. This paper has categorized the different explanations of the existence of Corporate Social Responsibility and reviewed the empirical literature on the topic.

The reason why Corporate Social Responsibility received so much interest in recent times in economics is linked to new results of experimental studies providing evidence that individuals do not act only as homo economicus. In fact, individuals are oftentimes also driven by social preferences including the utility of other individuals into their own utility function.

However, distinguish these explanations empirically is difficult since usually it is not possible to determine the preferences of an individuals that lead to a certain decision. Questionnaires are only a weak substitute for this problem since an individual will always have the incentive to make itself appear more socially responsible than she really is. We can expect that this problem is especially strong when exploring preferences of managers or investors since they can increase the reputation of their company by stating strong social preferences. Furthermore, many of the existing empirical studies lack causality and are merely correlational. Therefore, it would be interesting to conduct experiments with companies' stakeholders such as managers, employees and investors in order to determine social preferences of decision makers.³⁰ This is especially interesting when manager/owner preferences could be linked to firm size. This, might uncover different characteristics of decision makers. Knowing about these potentially different characteristics and a possible self selection might explain different levels and areas of CSR investment by firm size. Some empirical findings are already in line with experimental results. The fact that negative reciprocity usually is stronger than positive reciprocity reflects the empirical result that "negative CSR" is related with lower stock market performance, whereas "positive CSR" has little influence on stock prices.

Another interesting research topic is the aforementioned comparison of small and large enterprises. Whereas many empirical studies rely on data of large enterprises, small enterprises hardly are considered in the literature. Small enterprises are connected more profoundly with regional markets and therefore will have a strong incentive to invest in CSR. Conducting field studies with small enterprises might be another interesting research topic. We suggest an empirical evaluation of CSR relative to firm size.

 $^{^{30}}$ A recent example is the experimental study of Engelmann (2008).

4.6 Appendix

Table 4.1: H	Iypothesis	and I	Empirical	Results	1
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Hypothesis	Empirical Results			
CRS as Marketing				
 Firms entering a new market will increase spending in CRS. The stronger competition, the higher investments in CSR Investments in CRS are higher in markets with high asymmetric information concerning product quality. 	 1. — 2. Higher competition leads to higher spending in CRS (Fernández-Kranz and Santaló, 2008). 3. — 			
CRS as a Signal of High Profits				
Companies with higher profits exhibit higher investments in CRS.	The positive correlation between high profits and the level of CSR investments is driven by companies' profits (Nelling and Webb, 2008)			
CRS as a Signal for	High Product Quality			
Companies producing high quality prod- ucts exhibit higher investments in CRS.				
CRS as a Signal for as a Good Employer				
Companies make job advertisements men- tioning their CSR investments	The attractiveness of employers correlates with their CRS spending (Turban and Greening, 1997)			
CRS to avoid environmental protests				
The more protests, the higher the spend- ing for CSR.	As a response to protests, companies with low pollution levels have not changed the pollution level, whereas companies with high pollution levels have reduced pollution (Chatterji and Toffel, 2007). The presence of non-governmental envi- ronment organizations in a region is neg- atively related to the pollution level of firms (Baron (2009), Binder and Neu- maver (2005)).			

Hypothesis	Empirical Results			
CRS as an Instrument against Government Regulation				
Companies working in sectors strongly af-	Investments in CSR are positively corre-			
fected by regulation or companies threat-	lated with the amount of pollution pro-			
ened by regulation exhibit higher CSR in-	duced by a company (Kotchen and Moon,			
vestments	2008).			
CRS to attract Employees with Social Preferences				
Companies make job advertisements men-	The attractiveness of employers correlates			
tioning their CSR investments	with their CRS spending (Turban and			
	Greening, 1997)			
CRS to attract Investors with Social Preferences				
Individuals invest in companies with high	There are various "ethical" investment			
a high level of CSR invetments	fonds. Investors prefer companies with			
	high CSR-investments (Horehájová and			
	Marosová, 2008).			
CRS to attract consumers with social preferences				
Consumers favor produts of companies ex-	Consumers are willing to pay more for			
hibiting high levels of CSR investments	goods of firms with high CSR investments.			
	This effect is getting smaller, if consumers			
	are aware of the fact that CSR investments			
	are mandatory. (Engelmann, 2008)			
CRS to Achieve a Good Reputation				
CSR activities are higher if the public can	—			
clearly identify the decision maker respon-				
sible for the CSR investments				
CRS to Increase Profits				
Companies with high CSR investments	Empirical study confirm a significant effect			
have higher profits	of "negative CSR", but a an insignificant			
	effect of "positive CSR" (Margolis et al.,			
	2007).			
CRS due to Social Preferences of decision makers				
A company invests in CSR even if these	—			
investments drive down overall profits.				
CRS as a response to government failure				
CSR investments play a larger role in —				
countries with weak governments.				

Table 4.2: Hypothesis and Empirical Results 2
Chapter 5

Behind the Scenes – What determines elections of non-permanent members into the UNSC?– An empirical analysis*

Abstract What criteria are likely to determine elections of non-permanent members to the United Nations Security Council? UNSC membership is highly attractive to both developing and developed countries. Candidates compete within the five country groups and elections are increasingly competitive. Applying generalized estimating equations with a logistic link and cluster-robust standard errors, we investigate whether an average state is more likely to be elected to the UNSC as a non-permanent member. Contributing voluntarily to the financing system, the organizations and suborgans of the UN increases the likelihood of receiving a seat on the council. However, we concentrate on the more competitive elections within the groups of Western European and Others and the Group of Latin American Countries. To exclude cold war strategic voting, this article uses data from 1990-2009 and tests for variables representing state power as well as state conduct within and outside the UN system. For the groups tested, our results support the idea that "embeddedness" in the international community through diplomatic delegates and international organizations affects the chances to win a seat significantly positively. We conclude that informal ties within the international community help achieving the desired membership.

Keywords International Organizations, Elections, Voting, Social Preferences, Social Norms

JEL Classification A12, C33, C87, D03, F50, K10, K33, F13, F53, F59

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5.1 Introduction

The United Nations Security Council (UNSC) can be regarded as the most powerful organ of the international community. The UNSC provides a forum in which national representatives can come together to define common ground through their decisions.¹ It gains further significance in times where problems can no longer be addressed on a national level only but require global solutions. Membership in this council is very attractive and desired. Thus, the competition for non-permanent seats is increasing: While candidatures were more likely to be the outcome of diplomatic arrangements in the past (Malone, 2000), today more states vie for the limited number of available seats. For example, in the election on October 13, 2011, Azerbaijan, Hungary, and Slovenia all indicated that they would run for the single available seat for the Eastern European countries, Mauritania and Morocco announced to pursue the single African seat, while Japan and Pakistan intended to run for the single Asian seat to be filled that year (United Nations, 2009).² But what drives the election outcomes, i.e. which states do the countries of the United Nations General Assembly choose for non-permanent members? In this article, we aim to enrich the understanding of which criteria of state behavior might have an impact. In the literature, Malone (2000) represents the most recently published analysis.³ His insightful case analysis illustrates countries' competitive and effortful "quest for nonpermanent seats."

Although no empirical analysis has yet been published on this subject, there are two differing and profound empirical studies by Dreher and Vreeland (2010) and Iwanami (2010) on the academic market as working papers. Covering the five regions and the long time period from 1946-2007, Dreher and Vreeland (2010) find the selection process to be idiosyncratic.⁴ The investigation by Iwanami (2010) not only looks at the elections but also starts one step earlier with the process of nominating the candidates based on two new data sets hand-coded by the author (1946-2008). She highlights the importance

 $^{^{1}}$ As a rather recent example, the council has recently shown "remarkable unity" with regards to "condemning and isolating the Libyan regime" (The Economist, 2011). Such unity signals a consensus of values to the international public.

 $^{^{2}}$ Even though a country group has more than one seat, not all of these seats might be filled in a given year, see footnote 10 for the exact distribution.

 $^{^{3}}$ Of course, other approaches exist to the broader nexus of the UNSC political economy. For example, Eldar (2008) scrutinizes the issue of vote trading in international institutions, including the UNSC.

⁴"There is evidence that some regions practice norms of rotating seats, of selecting countries committed to peace, and of preferencing [sic] large countries. But there is no single factor that predicts UNSC-selection for all regions across both the Cold War and the Post Cold War periods. Because Security Council participation is consequential – members receive increased foreign aid, for example – the idiosyncratic selection process implies that UNSC membership may be an instrument that scholars can use as a measure of international political importance" (Dreher and Vreeland, 2010, 1).

of ideology and norms. First, she finds evidence for a strong influence of groups on their candidates, i.e. candidates representing the region's interest are more likely to be nominated. Second, however, aggregating over all candidates, she observes that countries whose policy preferences are closer to those of the US will rather win the election. Iwanami interprets that the "electoral system works advantageously to pro-U.S. member states." Moreover, her findings emphasize the importance of norms in that "countries with a reputation for free-riding or transgressing international security norms are less likely to be elected" (Iwanami, 2010, 1).

We are convinced by the findings of the above papers and want to further contribute to the discourse. However, we follow Malone (2000) in the assumption that elections are in principle competitive.⁵ Thus, we exclude the cold war period to avoid distorted voting.⁶ In light of the fundamental political change that many countries experienced over the last 60 years, it is sensible to concentrate on a shorter time span. However, this leaves us with the problem of fewer observations as we will discuss below regarding the descriptive statistics.

We shall not forget to mention that, obviously, behind-the-scenes agreements persist in politics on the world level where direct democratic legitimation is absent and candidate procedures remain non-transparent. Still, both national and international attention concentrates on council members and membership candidates. This gives support to the assumption that *reputational* concerns might play a role for candidate states.

Given a competitive election process, those states with a better reputation should be preferred throughout the election. This argument is supported by O'Shaughnessy and O'Shaughnessy (2000) who claim that nations have reputation capital. Nations could be viewed as brands such as GM, Sony, or Apple. In this respect, nations try to protect a certain image or set of values. This scenario is as well applicable to the election of non permanent members to the UNSC. In this setting, appealing to a feeling of solidarity with other states might help in increasing chances of winning a seat. Therefore, especially the variables of voluntary and mandatory contributions to financing the UN might signal solidarity with others. Signaling can significantly influence purchasing and in that sense also voting decisions (Spence, 1973). Alongside O'Shaughnessy and O'Shaughnessy (2000), three different approaches to reputation can be found in the academic debate on international relations: Goldsmith and Posner (1999, 2005) question the existence of reputation for states, claiming that most interactions between states can be explained by

 $^{^{5}}$ We will explain below that competitiveness varies depending on the respective *regional group*, within which states are nominated and compete for UNSC seats.

⁶Note, that Dreher and Vreeland (2010) run extra regressions only on the post cold war period.

power relations. Downs and Jones (2002) argue for compartmentalized reputation that is sequential and case related, although spillover effects are possible. Finally, Guzman (2008) defends the existence of an overall reputation. Reputation remains a hardly quantifiable concept and conclusions from empirical measures must be drawn with caution. However, reputation as an informal organizing mechanism on the international stage is a very important and controversially discussed topic. We shall keep this reputation argument in mind when interpreting our results.

Our analysis is organized as follows: section 5.2 introduces the UNSC, outlining the attractiveness of non-permanent membership for both developing as well as developed countries. We introduce details on the voting procedures that do not provide clearcut guidelines on which states have to be elected. Rather, the members of the United Nations General Assembly (UNGA) choose on their own. As elections are competitive, we aim to derive a certain code of conduct for state behavior that favors winning the election. However, as the elections in Africa and Asia still follow a non-competitive rotating principle and we have too few observations for Eastern Europe, we focus our analysis on the the whole UN, the Group of Latin Latin American Countries (GRULAC), and the Western European and Others Group (WEOG). Second, we present our data and empirical analysis in section 5.3. Remarkably, we find that embeddedness in the international community through delegates and organizations, i.e. the informal ties with other countries, raise chances to win a UNSC seat. The last section (5.4) concludes and discusses our results.

5.2 United Nations Security Council

5.2.1 About the UNSC

Established after the second World War in 1946, the United Nations Security Council (UNSC) is the most powerful of the principal organs of the United Nations (UN). According to chapter V, art. 23-32, of the UN Charter, the UNSC is charged with the *maintenance of international peace and security*. Its powers are exercised through United Nations Security Council resolutions. They include the establishment of peacekeeping operations, the establishment of international sanctions, and the authorization of military action (see, chapter VII, in particular art. 41 and 43, UN Charter, United Nations 1945). The Security Council consists of fifteen members of the United Nations. Five members are permanent: China, France, Russia, the United Kingdom, and the United States of America. Ten non-permanent members are elected by the United Nations General Assembly (UNGA) by secret ballot. Note that the UNGA is one of the five principal organs of the United Nations and the *only one* in which all member nations have equal representation.

5.2.2 Attractiveness of non-permanent membership

UNSC membership is very attractive. Malone (2000) observes three reasons for intense jockeying for seats. First, UNSC seats provide international prestige. Since the UNSC "may decide on enforcement measures, economic sanctions (such as trade embargoes) or collective military action,"⁷ it can be understood as the most powerful organ of the UN. States that significantly contribute to the UN can more effectively influence the decisions on where to invest their assets as UNSC members (in order to avoid "taxation without representation"). On the contrary, a defeat in the election is likely to result in negative publicity for the state representatives at home. Countries with a strong interest in UN peacekeeping and security can better pursue these interests as UNSC members. Second, Malone highlights states' *positioning* in disputes before the council. According to article 27:3, UN charter, a state that is a "party to a dispute shall abstain from voting." In practice, however, the definition of *dispute* has been hotly debated. Moreover, council members can better influence council debates than nonmembers. Third, states may effectively pursue broader objectives. Although direct effects on the realization of states' objectives through council membership are hard to quantify, the council is definitely an attractive forum for a variety of topics. Bringing up certain issue areas or taking active part in council discussions might well affect their outcome. Malone mentiones Canada's pursuit of its human rights interest as an example (see Malone, 2000, and also Malone, 1997).

But to what extent is membership attractive to less powerful contries, especially for developing countries? O'Neill (1996) highlights the high voting power of permanent UNSC members. However, "power itself is not the goal" (O'Neill, 1996, 219). Rather, the council provides prestige and access to information for all council members. Kuziemko and Werker (2006) and Dreher et al. (2009b,a, 2010) provide illuminating empirical findings on this question. Kuziemko and Werker (2006) Find that developing countries receive 59 percent more development aid from the US while inheriting a seat on the council. Further, regarding the International Monetary Fund (IMF), Dreher et al. (2009b) scrutinize for 197 countries using panel data over the period from 1951 to 2004: Not only participation in IMF programs increases through UNSC membership, it also reduces the number of conditions included in IMF programs. The authors conclude that "IMF loans

⁷See the official UNSC site http://www.un.org/Docs/sc/unsc_background.html., June 2, 2012.

seem to be a mechanism by which the major shareholders of the Fund can win favor with voting members of the Security Council" (Dreher et al., 2009b, 742). In a second article, Dreher et al. (2010) analyze the level of conditionality attached to (a maximum of) 314 IMF arrangements using panel data with 101 countries over the period from 1992 to 2008. They find that council members receive about 30 percent fewer conditions attached to the loans that they receive from the IMF. The authors conclude "that conditionality is softer for these countries because the major shareholders of the IMF desire influence over the Security Council" (Dreher et al., 2010, 1). Second, with respect to the World Bank Dreher et al. (2009a) investigate panel data for 157 countries over the period 1970-2004: Council membership increases the number of World Bank projects a country receives, though it does not affect the size of World Bank loans. In addition to immaterial prestige, council membership apparently materializes in monetary benefits for less developed countries. Thus, membership in the UNSC pays off.⁸

Due to the high attractiveness of council membership, states have a strong interest to increase the possibility to be elected. This, in turn, means that members of the UNGA can reward certain states by giving them their vote. Since the election is held by secret ballot, we can assume some competition in the system. From that angle, states' reputation plays a key role in the election process.

However, it is important to highlight that UNSC elections cannot be compared with, say, national governmental elections. Member states place their candidature strategically. For example, Switzerland is a candidate for 2013/14 but decided in January 2011 to candidate for 2023/24, a period for which no other members contest so far (Swiss Federal Department of Foreign Affairs, 2011). Moreover, general public and UNGA states' attention on candidate states is high, e.g., through official media. This pressure might discipline candidate states concerned about their reputation to behave according to a UN code of conduct.

5.2.3 Elections of Non-Permanent Members

The United Nations General Assembly (UNGA) elects the non-permanent members who are nominated before within five UN Regional Groups. Table 5.2.3 shows an overview of the five groups, the number of states in the groups, the number of permanent seats, as

 $^{^{8}}$ We shall not forget to mention that research by Bueno de Mesquita and Smith (2010) challenges these findings. The authors emphasize that even though governments of non-permanent members might benefit from easier access to money, these benefits might not pass on to the people in the respective countries in terms of welfare (see on this also Bueno de Mesquita and Smith, 2013).

well as the number of non-permanent seats of each group.⁹

				Seats
Group	Abbrev.	States	Permanent	Non-permanent
Western European and Others Group	WEOG	28	3	2
Group of Latin American Countries	GRULAC	33	0	2
African Group	AFG	54	0	3
Asian Group	ASG	53	1	2
Eastern European Group	EEG	23	1	1

Table 5.1: UN Regional Groups and Number of UNSC-Seats

Every year, the UNGA elects five non-permanent members for two year terms.¹⁰ Direct re-election of a non-permanent member is not possible. Following the UNGA's rules of procedure, all UNGA members have equal weight of vote and candidates need a 2/3 majority of the present members in order to win a seat. Indeed, particularly rules 83 and 93 call for an unlimited number of voting rounds until one candidate obtains the necessary majority (United Nations, 2008, 23, 26). This led, for example, to the remarkable deadlock between Cuba and Colombia in 1979: after no winner was elected in 154 rounds of voting lasting over three months, both withdrew and compromise candidate Mexico was elected in round 155 (United Nations Security Council, 2011).

The official criteria for the non-permanent membership are, according to art. 23, UN Charter, "in the first instance to the contribution of members of the United Nations to the maintenance of international peace and security and to the other purposes of the Organization, and also to equitable geographical distribution" (United Nations, 1945).

Although no Charter-specified qualifications for membership exist, the UN states lists factors that are informally taken into account by member states when choosing their candidates: positive factors are troop contributions to UN peacekeeping operations, peacekeeping experience and record; representation of a significant demographic group; experience in international leadership; and financial contributions to the UN budget (United Nations Security Council, 2006, UNelections Campaign, 2012).

Through unobservable diplomatic negotiations some countries might pace their way into the council more than others. Moreover, the council represents itself diplomatic relations. Within their groups, members pay attention that countries have their turn. Such less transparent rotating systems prevail especially in Africa and Asia. These less competitive electoral systems complicate our empirical analysis in that sometimes

 $^{^9 \, {\}rm Since}$ January 1966, the UNSC has ten non-permanent members. From 1946-1964, it consisted of only 11 members, six of which were non-permanent.

¹⁰ To be more precise, in every *uneven* year the AFG countries compete for two seats while the ASG, the EEG, and the GRULAC countries compete for one seat each. In every *even* year, the WEOG countries compete for two seats while the AFG, the ASG, and the GRULAC countries compete for one seat each.

candidates might win an election simply because they are next in line. However, elections within Eastern Europe, the GRULAC, and even more so within the WEOG are more competitive (Malone, 2000, UNelections Campaign, 2012). Unfortunately, we have too few observations for the Eastern Europe group for the time of our analysis. Thus, we have to concentrate our analysis on the GRULAC and the WEOG, introduced by a general analysis of the whole UN.

5.3 Econometric Setting

5.3.1 Data

We test for a variety of variables which can be broadly separated in three fields: A country's power, its activity within the UN system, and outside of the UN system. Table 5.2 summarizes all variables below.

We include two variables to test for *state power*. First, we use GDP per capita at purchasing power parity as a general measure of (economic) power.¹¹ A higher GDP might affect the election probability in a positive way as wealthier countries are economically more active and less wealthy countries might desire to benefit from their wealth. Thus, the straightforward argument is that wealthier countries are able to place economic pressure on UNGA members to vote for them.¹² Second, we include population size in the population variable.¹³ We herewith control for the possibility that countries with greater populations would be elected more frequently than others to the council. Given that the UNSC is the most powerful organ to represent the UN system, a greater population might demand greater representation in this system.

We test for three variables directly related to state behavior *inside the UN system*. Understanding the UN system as an institutional forum in which states can show engagement for common UN interests, this engagement can well be rewarded by a non-permanent

¹¹GDP per capita is a common measure for (economic) power. Based on purchasing power parity (PPP), our measure "PPPpcGDP" is the gross domestic product per capita converted to international dollars using purchasing power parity measured in million US\$. We obtain the data on GDP from which are statistical reports from World Bank data sets on http://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD, July 31, 2011.

¹²In light of the concerns about vote trading (cf. Eldar, 2008, Dreher et al., 2009b), one might be inclined to argue that more powerful states achieve their ends also without a non-permanent seat: wealthier countries donate to less wealthy countries in exchange for votes. However, since our analysis focuses only on two groups within which rather powerful countries compete against each other and not with decidedly less wealthy countries, the vote trading might take place concurrently but does not work against the desire of candidate countries to win their seat. Moreover, wealthier countries' interests might differ and their influence on UNSC decisions is definitely more effective from a non-permanent seat.

 $^{^{13}}$ Population data, in units of 1,000, is taken from World Bank data sets on http://data.worldbank.org/indicator/SP.POP.TOTL, July 31, 2011.

Behind the Scenes – What determines elections of non-permanent members into the UNSC?– An empirical analysis

seat. First, the scale of assessment (SoA) represents the percentage of financial mandatory contributions to the UN. These contributions are determined in advance every third year. They are related to the country's wealth as they are a percentage of a country's GDP.¹⁴ Mandatory contributions are an important source of financing the UN. These assessments are related to the net contributions to the UN and therefore easily observable as the percentage of contributions is communicated to the General Assembly. On the one hand, major contributors to the UN might claim representation in the council in order to decide on how their contributions are spent (again to avoid "taxation without representation", Malone, 2000). On the other hand, UNGA members might reward strong contributors with their vote. Mandatory contributions are measured in the percentage that the respective country contributes to the UN budget. Second, a country can forward its particular interests by elevating the voluntary contributions (ln VolCon) to the UN financing system.¹⁵ This voluntary commitment to the common cause can be seen as a signal of a nation's social behavior towards the whole UN. It emphasizes a nation's appreciation of the UN organs and can be read as a nation's "feeling" of solidarity towards other states. Following the theory of O'Shaughnessy and O'Shaughnessy (2000), nations can incorporate values and this affiliation with others signals their solidarity. Voluntary contributions are measured in units of US\$1,000. They are a strong signal of deliberate willingness to contribute to the UN system.

Finally, by increasing its personnel contributions to UN Security Council Missions per capita,¹⁶ a candidate state might also try to influence the UN by showing generosity to

¹⁴During our period of observation the General Assembly slightly adjusted the "rules of procedure" to appoint the SoA. Those were lastly defined on December 24, 2012 in the UN resolution 67/665 for the years 2013-2016 and before on December 24, 2009 in the UN resolution 64/248 for the years 2010-2012, which are already not included in our dataset (see for the adjustments bullet point 5 on page 2 of the UN resolution 64/248). However, for our analysis it is sufficient to recall that the SoA are related to a country's economic wealth. Two side remarks on the SoA. First, Huefner (2006, 67-77), stresses that this mandatory percentage contribution starts with a fixed *minimum percentage*. Even though this percentage is low, the absolute amount is a high burden for poor developing or emerging countries. Second, Huefner criticizes the poor payment morale of the US. According to the Global Policy Forum, at which Huefner is a senior research fellow, "as of December 31, 2010, the US owed \$736 million (or 80% of all member states debt) to the UN Regular Budget" (Global Policy Forum, 2012).

¹⁵ We gather the data from the following United Nations General Assembly statistical reports on the budgetary and financial situation of the organizations of the United Nations system (note that Huefner 2006, 15-26 critically discusses the quality of this data): The third report (1994): A/49/588, for the years 1991-1993; the fourth report (1996): A/51/505, for the years 1994-1995; the fifth report (1998): A/53/647, for the years 1996-1997; the sixth report (2000): A/55/525, for the years 1998-1999; the seventh report (2002): A/57/265, for the years 2000-2001; and the eleventh report (2010): A/65/187 for the years 2001-2009. Due to a high correlation between absolute voluntary contributions and mandatory contributions to the UN (p-value <0.05) we log the voluntary contributions to remedy the problem of multicollinearity.

¹⁶We were able to take the data from the Department of Peacekeeping Operations of the UN, from the KOF Index of Globalization (Dreher et al., 2008) thanks to the friendly support of professor Axel

the UN. Contributions are measured in units of US\$1,000 and openly communicated in the UN. Using these variables, we test whether states are concerned about the image which is created in the exact same field where the election takes place. Again, UNGA members might reward such behavior.

Variables that are neither directly linked to the election nor represent state power are represented by *Outside UN* in table 5.2. Here, we test whether voting states are concerned about strengths and weaknesses in other political fields than power and/or UN related areas.

	Table 5.2: List of Variables	
Testing for	Variable	Abbreviation
Power	GDP per capita, PPP (current international \$)	GDPpcPPP
	Population size	Pop
Inside UN	Mandatory Contributions (Scale of Assessment)	SoA
	Voluntary Contributions	\ln_{VolCon}
	UN Peacekeeping Contributions per capita	UN_PK
Outside UN	Trade Openness	TOpen
Embeddedness	Embassies	Embas
	International Organizations	Inter_Org
Control	Political Stability	PolStab
Further Controls	Political Globalization Variables (KOF)	
	Cultural Proximity	CP
	Economic Globalization	EG
	Social Globalization	SG

First, international trade is of highest importance. It is the fundamental material interaction between states and since wealth diffuses through trade to remote parts of the world, we use the openness to trade variable as a mean to measure countries' willingness to cut down their trade barriers. The variable consists of exports plus imports as a percentage of GDP, is measured at current prices in US\$, obtained from the QOG dataset (Teorell et al., 2011).

In order to test for a state's more informal and social *embeddedness* in the world community, we utilize the index of political globalization which is part of the KOF Index of Globalization (Dreher et al., 2008). We test for the number of embassies in a country¹⁷ and the membership in international organizations as the absolute number of international inter-governmental organizations of which a particular state is a member.¹⁸

Dreher.

 $^{^{17}\}rm{This}$ number is in the KOF index taken from the Europa World Yearbook, see for details http://www.europaworld.com/pub/.

¹⁸Here, the KOF index falls back on the CIA World Factbook, see for details https://www.cia.gov/library/publications/the-world-factbook/.

Whereas the previous measures control for more tangible quantitative qualities in interstate relations, these last variables examine the informal ties of a particular country with other countries and what importance it allocates to connections with the international community. While these soft ties might seem weak at first glance, they should not be underestimated. In order to cultivate good international relationships, personal contact in physical institutions might be very valuable as it not only strengthens individual contact but also commits states to cooperate on a personal level. Since Embas and Inter_Org are highly correlated and basically test for the same concept, we decided to include only the variable Inter_Org in our regressions.

Our control variable in all models is political stability¹⁹ since politically unstable countries are rather unlikely to be awarded a politically influential and prestigious international position. In our robustness checks (see appendix), we furthermore include the following controls from the KOF-index: Cultural Proximity (CP), Economic Globalization (EG), and Social Globalization (SG). Including these controls from the KOF index, we can make sure that the the "embeddedness" effect we identify is related to the *political interactions* between countries. We provide summary statistics of all our variables in the appendix (tables 5.4 through 5.6).

5.3.2 Model Choice

We use the method of generalized estimating equations (GEE, see Liang and Zeger, 1986) with a logistic link and cluster-robust standard errors.²⁰ We investigate whether an average state is more likely to get elected into the UNSC as a non-permanent member. Running a Hausman test as well as checking the panel summary statistics tells us to favor a random effects model. However, by correlating the dependent variable (poscan) over time, we find little variation. Therefore, a GEE model with clustered standard errors is appropriate (Cameron and Trivedi, 2009). Further support to use this model is that due to the incidental parameter problem (Chamberlain, 1980) the estimators are not consistent. Thus, we do not include dummy variables for each country to control for country-specific effects (as do Dreher and Vreeland, 2010).

We first run bitests on the probability of winning the election for each state for the different regional groups (see table 5.3). Restricting the binomial probability test to states that actually contest for a seat, we find that a detailed analysis is most sensual for those groups with a relatively low probability to win a candidature, i.e. that elections are

¹⁹ The index ranging from 0 to 1 originates from the World Bank, here obtained from the QOG dataset (Teorell et al., 2011).

²⁰Standard errors are clustered on the country level.

Behind the Scenes – What determines elections of non-permanent members into the UNSC?– An empirical analysis

more competitive. These are the Western European and Others Group (.62), the Group of Latin American Countries (.38) and the Eastern European Group (.6). On the other hand for the AFG and the ASG, we find an approximately 90 percent chance of winning the election when seriously contesting (i.e. receiving more than 3 votes).²¹ This comes along with Malone (2000) and the UN-website www.unsecuritycouncil.org, confirming that both Africa and Asia follow a rotating system allocating UNSC seats. Dividing the UN into two groups, one containing the WEOG, the GRULAC, and the EEG and the other containing the ASG and the AFG and running a Chi square test, we find a significant difference between the distributions of the groups. This further indicates that the competition within the first three groups is stiffer than in the last two. However, since the EEG has too few observations (15 candidatures, only nine elections) within our period of observation, we have to restrict our analysis to the WEOG and the GRULAC.

To avoid numerical instability we divide GDPpcPPP by 10⁷ and Population by 10⁴. Time since last membership might play a role when countries follow a rotating principle, i.e. the longer a country did not have a seat the more it is likely to win the election now. To control for this, we use a variable Time which is 0 when a country is UNSC member or when it enters the UN. Time is 1 in the first year after its membership (increasing by year). Time2 is Time squared and Time3 is Time cubed. While Iwanami (2010) includes all time variables into her regression, we refrain from that since we find time Time2 and Time3 to be highly correlated. Nevertheless, we introduce all time variables in a robustness check. Furthermore, to test for possible reputation driven changes in behavior prior to elections, we generated variables stating the difference between the

1990-2010	Can's	Win's	р
UN	185	100	.54
WEOG	32	20	.62
GRULAC	49	19	.38
EEG	15	9	.60
ASG	25	22	.88
AFG	33	30	.91

Table 5.3: Candidatures, Successful Candidatures, and Probability to Win

²¹ As the elections are all documented in official UNSC documents, election winners are figured out easily. However, it is not always that simple to appoint candidate states, as these are not mentioned in the UNSC documents. Applying the criteria of having received more than 0 votes might mislead as sometimes errors occur in the elections or states of the General Assembly vote out of "protest" for a state that did not really run for a seat. Deciding for more than three votes as an indicator thus seems most appropriate.

value the variable has in the lagged year (1, 2, or 3) and the value in the year of the election. These variables are labeled t1_[VAR], t2_[VAR], and t3_[VAR], where the number refers to the number of years we lagged the variable and [VAR] refers to the respective variable name, for example SoA. These variables indicate the change in, e.g., memberships in international organizations from one (two, or three) years previous to the election to the year of the election.

We use Inter_Org (the membership in international organizations) as a proxy for a state's embeddedness in the international community. We also use Embas (the number of embassies in foreign countries) to mimic this. However, we do not include both Inter_Org and Embas in the same regression, due to the high correlation of the two variables. Moreover, we do not include all time differences at once in light of their high correlation amongst each other. Further, since both Inter_Org and Embas are from the KOF Index, we check as to whether other variables such as the social globalization, economic globalization or cultural proximity from the KOF also have an impact on the probability of winning a seat.

Regarding our model selection criteria for the GEE model, we use the quasi-likelihood under the independence model criterion (QIC, see Pan, 2001), Pan's modification (see also Cui, 2007) to the Akaike Information Criterion (AIC, see Akaike, 1973). Using this criterion of best fit, we choose the model that has the lowest QIC value.

Our analysis is twofold. First, we run regressions for the whole UN. Second, we run regressions for the regional groups of the WEOG and the GRULAC revealing diverging effects for most variables between the whole UN and the two regional groups but robust and significant results for the embeddedness into the international community for both the UN and the two regional groups. Furthermore, we run a series of robustness checks, using a random effects logistic regression for our panel data, a GLS regression, as well as pooled logit and OLS regressions. Our results are robust throughout all these checks.

Note, that the models we use for the regional groups slightly differ from the model for the whole UN. This is due to higher model fits regarding the QIC criterion and originates in regional distinctions.

5.3.3 Regression Results

The Whole UN

Interpreting the results for the whole UN is important to get a general understanding about what is going on behind the scenes of UNSC elections (see table 5.7).²² However, as elections take place within regional groups we have to be cautious: results might be biased by the not competitive elections of those regional groups we do not investigate in our detailed analysis.

Table 5.7

We find a positive, significant, and robust effect for the log of voluntary contributions (ln_VolCon). For the whole UN, contributing voluntarily to the financing system and the sub-organs and organizations of the UN increases the likelihood of getting a seat on the council. In detail, a one percentage increase in giving voluntarily to the UN increases the likelihood of getting elected by 0.27%. However, we cannot observe an effect of increasing contributions in years prior to the respective election. This implies that constant benevolent behavior of states towards the organs of the UN has a positive effect and that this effect cannot be imitated by just recently altered payments.

In fact, despite the time differences not being significant, they also have negative signs. This contradicts the assumption that states may be able to gain reputation for being benevolent in the short run. Further, as can be seen in the robustness table for the UN, these effects persist over different models.

For SoA, we find significant positive and robust effects for models with Inter_Org (a one unit increase leads to a 0.1% increased likelihood of getting a seat). This result is somewhat puzzling in relation to GDPpcPPP. According to Huefner (2006), SoA depends on the wealth of a state. This is exactly represented by our GDPpcPPP variable representing the wealth of a state per inhabitant. However, we find a negative effect for GDPpcPPP. To interpret this we also look at the time difference results for SoA. These are positive and significant for up to two years before the election. Based on these results, we conclude that states might increase their visible mandatory payments to signal financial strength to the UN. However, we have to be cautious as these results might be driven by the states of the WEOG and not represent the actual voting behavior of the UNGA.

 $^{^{22}}$ Note that results are marginal effects after GEE regressions with logistic link and QIC specification. Thus, results cannot be interpreted directly. The coefficients (timed 100) highlight the probability increase of getting elected when the value of the variable increases by 1.

Trade Openness is also positive and significant for models with Inter_Org; it is robust for models including embas. This implies that states that are more engaged in international trade are more likely to win a seat. Moreover, the effects are positive for changes in trade openness in years prior to the election. However, they are not significant. We interpret these findings as that being more open to trade is an indication of being embedded within the international community. We conclude that engaging in trade with other countries strengthens the linkages between nations.

These results are supported by the positive and highly significant effects of Inter_Org and Embas. Regardless of time differences or changes in variables (see robustness checks in the appendix) both are positive. Implying that the amount of Inter_Orgs or Embas significantly increases the chances to win a seat. However, the impact of an additional embassy (0.4%) and an additional membership in international organizations (0.15%) on election outcome is relatively small.²³

We conclude that states may influence the election beforehand, not only by campaigning within the UN but also through ambassadors in other countries and within other international organizations. However, it is not possible to build up short term relationships. The increase in Inter_Org does not show a significant effect up to only three years previous to an election. We conclude that states can build trustworthy relationships but that this takes time.

For Time, we find similar results as Iwanami (2010, see above). Although, we only include the adjusted values for Time. Time is here divided by 10 to avoid numerical instability. We do not, however, include the variables for Time squared and Time cubed since these are highly correlated. Running regressions with the squared and cubed time variables, we receive identical results as Iwanami (2010). However, due to above mentioned reasons we do not present the model here. Time has a positive significant effect on the outcome of an election. The more time has passed between the last time on the council or the longer a state has been member but not yet a seat on the council affects the election positively. This effect is robust over different analytical methods.

Western European and Others Group

For the WEOG as well as for the whole UN, we present several models in this section. Further robustness checks, applying different methods to show the robustness of the results, are presented in the appendix. We find that some of the results for the UN also hold for the WEOG.

²³Note, we run robustness checks with time diff and other models also for the variable Embas. We found the same effects. Therefore, we only report robustness checks for Inter Org.

Behind the Scenes – What determines elections of non-permanent members into the UNSC?– An empirical analysis

Table 5.8 about here

Inter_Org and Embas are positive and highly significant. The WEOG countries can influence the election by other means than contributing to the UN system as required by the UN Charter. Increasing the number of Inter_Orgs and Embas before the election does not have an impact. We therefore conclude that trying to increase the reputation by an increase in Inter_Org, mandatory payments or ln_VolCon do not have an impact. In fact, while ln_Volcon is not significant, SoA shows a positive and robust effect. In detail, we find that a 1% increase in mandatory contributions to the whole UN increases the likelihood of winning a seat by 1.4%. Thus, raising the share of the financial burden compared to other countries and likewise reducing other nations' burden towards the UN by 1% pays off in contesting for a seat.

The results mirror those of the UN. GDP is likewise significant and negative. This reflects the impression that not the most (financially) powerful states are elected but those who most engage within the UN financing and other Inter_Orgs. As above, we find time to be again significant. We decided to present here the best fit model for the WEOG with Inter_Org. For Embas we get similar results.

Group of Latin American Countries

While the results for the WEOG align with those for the whole UN, we find different results for the GRULAC. The best fit model for the GRULAC is the one with the t2 time difference. That is to say that Latin American states can increase the likelihood of winning a seat by increasing visible mandatory payments two years before the election.

Table 5.9 about here

This result is surprising and we cannot fully explain it. Mandatory payments are assessed every third year and the GRULAC candidates are elected every year. As emerging Latin American Countries are not as developed as those of the WEOG, increasing mandatory payments two years rather than one year before the election might signal higher commitment to the UN system.

We find the same stable and robust and small (0.2%) effects for Inter_Org, although they are not significant for all models. However, the coefficients are fairly robust and do not change in value.

5.4 Concluding Remarks and Discussion

Before we conclude, we have to highlight the limitations of our analysis. International relations are highly complex and in-transparent. We cannot guarantee that unmeasurable diplomatic agreements influence the election outcome. However, exactly these behindthe-scenes arrangements support our findings in that such arrangements can best be tailored through informal, soft ties within and between international organizations and diplomats.

In our article, we investigate whether a variety of variables correlates with the chances to win non-permanent seat in the UNSC. We examine the post cold war period (1990-2009) to exclude strategic voting. Our most notable finding is that "embeddedness" in the international community through embassies and international organizations significantly rises chances to win. This holds for the UN in general but also for the Group of Latin American Countries (GRULAC) and the Western European and Others Group (WEOG), the two groups with more competitive elections we especially focus on.

We start with an analysis for the whole UN. Here, we cannot support the argument that economically powerful countries with a large population are more likely to win. Rather, we find positive effects for increasing both mandatory and voluntary contributions to the UN system. Note, that short term increases cannot substitute long term commitment of contributions. Furthermore, we find that time has an effect in that countries which are not in the Council for a longer time are more likely to win a seat.

However, we have to be cautions in generalizing the findings for the UN for the individual country groups. For our chosen period, we find that the elections for Africa and Asia are hardly competitive as candidates win a seat with a probability of 90 per cent. Thus, the findings for the UN might be biased by these two groups. To understand who wins a seat in these groups, investigating the candidacy process is crucial (see Iwanami, 2010). Elections are more competitive in Eastern Europe, Latin America and Western Europe. Due to too few observations for Eastern Europe, we focus our analysis on the GRULAC and the WEOG. Our regression results confirm our key finding is that "embeddedness" is significant for both the GRULAC and the WEOG. However, while countries of the WEOG cannot increase their chances through short-term increases in financial contributions, this seems possible for the GRULAC.

Referring to the question which countries are *chosen* by the member states of the UNGA, we can try to shed light on the question whether reputational effects play a role throughout the elections. Here, we cannot support the hypothesis that *power* dominates the election to the council. With our *inside-UN*-variables, we tested for behavior directly

in the sphere of the UN. Here, the most direct variables that communicate good will to the UN, supporting the organization through voluntary contributions, did reveal significant effects. Most notably, however, we found the strongest positive effects in our *outside*-UN-variables of the KOF index, i.e. through the embeddedness in the international community via embassies in other countries and international organizations.

Our findings are not only valuable to states that consider running for a seat in the future and hesitate about their focus. Probably even more important, the public can convey a better idea of how the in-transparent elections into the UNSC actually proceed.

Two approaches are possible to evaluate the results. On the one hand, embeddedness is a financial and organizational *effort*. Thus, signaling self-integration in - and obedience to - an international code of conduct that emerges democratically is a commitment to the community.

On the other hand, however, embeddedness is networking and obeying the rules that were set – potentially by the permanent members not even exposed to elections. This unpleasant interpretation is backed by Iwanami's (2010) findings that the nomination process is determined by ideology. We cannot conclude for a definite answer. While realists and political economy scholars will favor the second interpretation, the fact that the UNGA can de jure vote anonymously gives rise to the first.

Interpreting the results referring to state reputation, we tackle a concept that is very difficult to quantify. Reputation is entirely immaterial and despite the possible existence of a coherent social reality among states, reputation remains predominantly subjective. Still, our results support the theory of Guzman (2008) for an overall reputation as the significant effects include variables inside but also outside of the UN system, and we find no effects for our power variables. Consequently, we can support his idea that policy fields that are not directly related to an issue area are of vital importance insofar as they seem to play a crucial role in international relations. A good reputation in fields that concern all nation states through the mentioned embeddedness positively influences the outcome in other areas.

5.5 Appendix

In the appendix, we provide summary statistics on our data, the regression tables, and robustness checks for the whole UN, GRULAC, and WEOG.

5.5.1 Summary Statistics

	mean	sd	min	max	N
ln VolCon	7.654765	2.94416	0	14.87634	3218
t1 ln VolCon	.0506989	1.40348	-7.320196	6.994914	2896
t2 ln VolCon	.3037681	1.646962	-8.960382	8.269501	2696
t3 ln VolCon	.4243442	1.862825	-8.947937	7.934991	2509
scale of assesment	.811782	2.952785	.001	25	4063
t2 SoA	0025	.2376447	-3	2.591999	3681
t3_SoA	0012877	.3357534	-3.193	4.923	3490
t1 SoA	0015364	.1602177	-2.844	2.331001	3872
TOpen	88.94785	51.85857	14.94	462.46	3845
t1 TOpen	1.739176	7.60562	-29.50998	49.22	3657
t2 TOpen	3.081571	11.10075	-58.6	56.84	3469
t3 TOpen	4.729486	13.15453	-54.24	79.62	3281
Inter Org	51.93986	11.574	31	96	3602
t1 Inter Org	.7235694	1.893837	-6	9	3398
t2_Inter_Org	1.486906	2.565941	-7	12	3214
t3 Inter Org	1.99418	3.046877	-7	21	3029
embas	53.52376	38.50315	4	185	3952
$t1_embas$.6052376	3.052984	-32	25	3765
t2 embas	1.238603	4.121846	-32	52	3580
t3 embas	1.872939	5.022121	-32	54	3396
UN_PK	2.553579	9.099938	0	102.03	4034
PolStab	035875	.905794	-2.707937	1.576872	2000
Pop	4.867235	15.69613	.0222	131.7885	4220
GDPpcPPP	11.46551	12.44013	.2342648	84.48684	3800
\mathbf{SG}	51.24728	22.3656	7.76507	94.95	3899
EG	60.58053	18.25104	15.31	98.9	3019
CP	37.64976	30.39491	1	97.24	4007
Time Elect	17.61688	16.92323	0	62	5336
can	.0620757	.24141	0	1	4393
poscan	.0387973	.1932052	0	1	4393

Table 5.4: Summary Statistics for the whole UN

	mean	sd	min	max	N
ln_VolCon	10.65229	2.601882	1.098612	14.87634	544
$t1_ln_VolCon$.07045	.9836378	-5.879601	5.841753	514
$t2_ln_VolCon$.1637883	1.158584	-8.960382	8.269501	485
$t3_ln_VolCon$.2671072	1.122566	-8.947937	3.683521	456
$scale_of_assessment$	2.73	4.893628	.014	25	652
$t2$ _SoA	0005687	.2744469	-3	.9075003	567
t3_SoA	0108412	.3700664	-3	.9075003	538
t1_SoA	.0085284	.1234455	-1.107	.5910001	596
TOpen	88.06924	53.47454	23.39	312.54	608
t1 TOpen	1.959052	5.809941	-19.14	29.70999	579
t2 TOpen	2.985024	9.163978	-32.75999	40.42999	550
t3 TOpen	4.302796	11.25199	-31.48	54.48999	521
Inter Org	65.84834	11.81548	38	96	574
t1 Inter Org	.6350711	2.322663	-6	9	539
t2 Inter Org	.7677725	3.037559	-7	9	510
t3 Inter Org	1.075829	3.378353	-7	14	481
embas	87.81991	47.32638	10	185	638
t1 embas	1.033175	3.963385	-32	20	609
t2 embas	2.146919	4.609744	-32	21	580
t3 embas	3.308057	5.299136	-32	22	551
UN PK	2.135308	3.728197	0	19.99	605
$\operatorname{Pol}\overline{\operatorname{Stab}}$.7736844	.72116	-1.760872	1.575929	307
Рор	3.331521	5.932612	.027	30.158	632
GDPpcPPP	28.72252	11.63674	4.927461	84.48684	570
SG	80.73991	9.33653	46.92	94.95	616
EG	80.69393	9.511402	54.92	98.9	550
CP	77.25531	19.85344	33.96	95.58	638
$Time_Elect$	16.0237	19.10907	0	62	665
can _	.07109	.2575863	0	1	665
poscan	.056872	.2321487	0	1	665

Table 5.5: Summary Statistics for the WEOG

	mean	sd	min	max	N
ln VolCon	7.834784	2.740221	.6931472	13.12578	587
t1 ln VolCon	.0690385	1.595517	-4.100575	5.980054	526
t2 ln VolCon	.3943952	1.923821	-6.751101	5.187386	484
t3 ln VolCon	.5416972	2.188565	-6.057954	6.346363	446
scale of assessment	.2192826	.4927052	.001	2.39	780
t2 SoA	.0017391	.1490444	8670001	.7970001	713
t3 SoA	.0095978	.187022	8670001	.9190001	679
t1_SoA	0035652	.1196673	8670001	.7970001	747
TOpen	83.33848	40.63736	14.94	206.63	713
t1 TOpen	1.707228	6.645533	-18.36	49.22	680
t2 TOpen	3.177228	9.637756	-23.01	51.71001	646
t3TOpen	4.457446	11.95996	-33.43001	57.87	612
Inter_Org	48.97283	7.570746	37	71	677
$t1_Inter_Org$.6521739	1.789067	-6	6	640
t2_Inter_Org	1.25	2.331186	-6	8	606
t3_Inter_Org	1.641304	2.605507	-6	9	572
embas	38.3587	22.55998	8	103	747
$t1_embas$.0271739	1.687084	-5	10	714
t2_embas	.0380435	2.274513	-8	11	680
$t3_embas$.1032609	2.926269	-8	17	646
UN_PK	5.055924	17.39569	0	102.03	747
PolStab	1246931	.7068472	-2.086802	1.576872	357
Pop	2.235255	4.184756	.0222	19.012	780
GDPpcPPP	8.007359	6.141106	.973543	36.14919	707
\mathbf{SG}	48.73228	8.387474	16.41	63.64536	745
\mathbf{EG}	61.73203	10.12068	19.86	87.14	569
CP	35.69974	13.69788	1	48.76	745
Time_Elect	21.98913	19.63826	0	62	780
can	.1195652	.3253377	0	1	780
poscan	.0434783	.2044875	0	1	780

Table 5.6: Summary Statistics for the GRULAC

5.5.2 Regression Tables

$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	4) 18) ***)
t1_SoA 0.0131187** (0.00604) t2_SoA 0.0105049*** (0.00375) 0.000000	18) ***)
t2_SoA 0.0105049*** (0.00375) 0.00050	18) **
(0.00010)	18) **)
t3_SoA -0.000591 (0.00486	, **)
$\begin{array}{cccccccccccccccccccccccccccccccccccc$,
t1_ln_VolCon -0.004154 (0.0012)	
t2_ln_VolCon -0.0000764 (0.00198)	
t3_ln_VolCon -0.001461	9
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	
t1_UN_PK -0.0000179 (0.00017) (0.00017) (0.00017))
t2_UN_PK -0.0003362 (0.0004)	
t3_UN_PK -0.000328 (0.00042)	33
Pop -0.0001239 -0.0001977 -0.0000963 -0.0001268 -0.000153 (0.00026) (0.00028) (0.00024) (0.00026) (0.00026	81)
TOpen 0.0001543^{**} 0.0000917 0.0001712^{***} 0.0001261 0.0001633 (0.00008) (0.00007) (0.00007) (0.00007) (0.00007))*)
t1_TOpen 0.0001946 (0.00038)	,
t2_TOpen 0.0004066 (0.00027)	
t3_TOpen 0.000184	1
(0.00029 Inter_Org 0.0015758*** 0.0014005*** 0.0014838*** 0.0015803*) ***
$ \begin{array}{c} (0.00051) & (0.0005) & (0.00054) & (0.00057 \\ t1_Inter_Org & & -0.0025649 \\ & & & (0.00172) \end{array} $)
t2_Inter_Org -0.0009054 (0.0015)	
t3_Inter_Org -0.000606 (0.0013)	52)
Embas 0.0003422*** (0.00012)	,
PolStab 0.0062824 0.0093283 0.0081452 0.009013 0.009163	5
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$) 4*
$\begin{array}{cccccccccccccccccccccccccccccccccccc$) **
(0.00184) (0.00181) (0.00169) (0.00185) (0.00193))
QIC <u>392.826</u> <u>390.666</u> <u>373.175</u> <u>378.216</u> <u>374.515</u>	
Wald Chi ² 86.98 76.6 119.24 106.43 67.66 N 1337 1336 1266 1252 1221	

Table 5.7:	Regression	Results	for	the	whole	UN

WEOG	BestFit	Inter_Org	Embas	T Diff 1	T Diff 2	T Diff 3
SoA t1 SoA	0.0148457*** (-0.00452) -0.0180311	$\begin{array}{c} 0.0158156^{***} \\ (0.0051) \end{array}$	$\begin{array}{c} 0.0092445 \\ (0.00683) \end{array}$	$\begin{array}{c} 0.0110239^{**} \\ (0.00476) \\ -0.0256166 \end{array}$	$\begin{array}{c} 0.0159288^{***} \\ (0.00493) \end{array}$	$\begin{array}{c} 0.0127547^{***} \\ (0.00429) \end{array}$
- t2_SoA	(-0.05336)			(0.04491)	-0.0076281	
					(0.02605)	0.0100050
t3_SoA						-0.0106656 (0.01189)
\ln_{VolCon}	0.0038316	0.0043588	0.0077997	0.0095602	0.0035912	0.0043227
t1_ln_VolCon	(0.00421)	(0.00037)	(0.00812)	(0.00072) - 0.0258153^{**} (0.01335)	(0.00323)	(0.00080)
t2_ln_VolCon				· · · ·	-0.0019226	
t3_ln_VolCon					(0.01031)	-0.0093776
UN_PK		0.0018002 (0.00239)	0.0017473 (0.00265)	0.0016493 (0.00112)	0.0014168 (0.00268)	(0.01002) 0.0009765 (0.00215)
$t1_UN_PK$		(0.00200)	(0.00200)	(0.0011106) (0.00172)	(0.00200)	(0.00210)
$t2_UN_PK$				(0.00175)	-0.0018664	
$t3_{UN_{PK}}$					(0.00227)	-0.001753
Pop	-0.0146215***	-0.0149498***	-0.0103612	-0.0103389*	-0.0147142***	(0.00169) - 0.0113067^{**}
TOpen	(0.00582) 0.0002222	(0.00614) 0.0002297	(0.00723) -0.0000469	(0.00571) 0.000228^*	(0.00621) 0.0002533	(0.00521) 0.000184
t1 TOpen	(0.00019) 0.0005382	(0.00019)	(0.00028)	(0.00013) 0.0004974	(0.00017)	(0.00017)
t2 TOpon	(0.00226)			(0.00134)	0.000071	
t2_10pen					(0.00103)	
t3_TOpen						0.0009754
Inter_Org	0.0041004***	0.0041654***		0.0028156**	0.0040383***	0.0035035***
t1_Inter_Org	(0.00111) - 0.0026721 (0.00507)	(0.00141)		(0.00148) -0.000944 (0.00382)	(0.00138)	(0.00144)
$t2_Inter_Org$	(0.00001)			(0.00002)	0.0001702	
t3_Inter_Org					(0.0047)	-0.0028813
Embas			0.0005371^{*} (0.00033)			(0.00237)
PolStab	0.0078858	0.0041436	0.0273337	0.006935	-0.0001454	0.0045991
GDPpcPPP	(0.01924) -0.0038933***	(0.01909) - 0.0038277^{***}	(0.02493) -0.0030638*	(0.01439) - 0.0035194^{***}	(0.01956) -0.0037297 ***	(0.01479) -0.0036912***
r	(0.0013)	(0.00123)	(0.00172)	(0.00136)	(0.00134)	(0.0012)
Time	0.0136092^{***}	0.0163418^{***}	0.0072394	0.0164188^{***}	0.0144804^{**}	0.0161844^{***}
OIC	<u>(0.00485)</u> 502.003	558 875	449 153	627 836	532 178	558 852
Wald Chi^2	36.99	31.08	22.63	63.85	53.54	28.96
N	193	194	194	193	192	185

Table 5.8: Regression Results for the WEOG

GRULAC	Best Fit	Inter_Org	Embas	T Diff 1	T Diff 2	T Diff 3
SoA	-0.0146984	-0.0013045	-0.0140886	-0.0131334	-0.0064964	-0.018187
	(0.01939)	(0.0142)	(0.01845)	(0.01425)	(0.01328)	(0.01367)
t1 SoA	0.0684568		. ,	0.0842349	. ,	. ,
—	(0.06543)			(0.05881)		
t2 SoA	. ,			. ,	0.0289361^*	
—					(0.01779)	
t3 SoA					. ,	0.05546
—						(0.03953)
ln VolCon	0.0024444	0.0017719	0.0003438	0.0029893	0.00247	0.0033863
—	(0.00448)	(0.00454)	(0.0046)	(0.00442)	(0.00459)	(0.00447)
TOpen	-0.0000451	-0.0000672	0.000069	-0.000137	-0.0000971	-0.0001437
-	(0.00025)	(0.00028)	(0.00033)	(0.00024)	(0.00026)	(0.00024)
Inter Org	0.0024029*	0.0018458**	. ,	0.0016652^{*}	0.0017826**	0.0015765
	(0.00139)	(0.00088)		(0.00103)	(0.00092)	(0.00103)
t1 Inter Org	-0.0050046	. ,		. ,	. ,	. ,
	(0.00364)					
Embas	· · · · ·		0.0011817			
			(0.00079)			
PolStab	0.0098666	0.0133431	0.0135017	0.0122504	0.0131831	0.0116624
	(0.01824)	(0.02086)	(0.01807)	(0.0191)	(0.0202)	(0.01847)
GDPpcPPP	-0.0009642	-0.0011236	-0.0010751	-0.0010149	-0.0010824	-0.0008285
	(0.00148)	(0.00153)	(0.00144)	(0.0015)	(0.00152)	(0.00137)
Time	-0.0014483	-0.0042813	-0.0016743	-0.0039741	-0.0043312	-0.0042056
	(0.00322)	(0.00383)	(0.00441)	(0.00358)	(0.00379)	(0.00365)
QIC	454.691	420.346	545.945	448.56	421.38	464.602
Wald Chi^2	37.02	24.32	22.23	28.08	34.26	39.82
Ν	239	239	239	239	239	239

Table 5.9: Regression Results for the GRULAC

5.5.3 Robustness Checks

Variable	ME, GEE Logit	ME, GEE Logit	ME, GEE Logit	ME, GEE Logit	ME, RE Logit	ME, Logit	RE GLS	OLS
SoA	0.0011961**	0.0010537	0.0003459	0.0005001	0.001227	0.001226	0.0067514***	0.006751
	(0.00057)	(0.00075)	(0.00049)	(0.00053)	(0.00122)	(0.00122)	(0.0012985)	(0.0062111)
t1 SoA	0.0131187**	0.0186786^{***}	0.0118359**	0.0123019**	0.013078	0.013077	0.0606975***	0.060698
-	(0.00604)	(0.00746)	(0.00511)	(0.00537)	(0.01428)	(0.01427)	(0.0249587)	(0.0585378)
ln VolCon	0.0040978^{***}	0.0033179**	0.002923***	0.0028817^{**}	0.0040697^{**}	0.004069^{**}	0.0045745**	0.0045745^{*}
-	(0.00143)	(0.00156)	(0.00124)	(0.00124)	(0.00178)	(0.00178)	(0.0019683)	(0.0027584)
tl ln VolCon	-0.004154	-0.0062353	-0.0032309	-0.0035732	-0.003945	-0.003945	-0.004067	-0.004067
	(0.00412)	(0.00493)	(0.00364)	(0.00377)	(0.00299)	(0.00299)	(0.0036125)	(0.0036885)
UN PK	-0.0005742	-0.000502	-0.000475	-0.0004794	-0.000575	-0.000575	-0.0006172*	-0.0006172*
-	(0.00045)	(0.00054)	(0.00042)	(0.00042)	(0.00063)	(0.00063)	(0.0003252)	(0.0003384)
t1 UN PK	-0.0000179	-0.0001309	-0.0001256	-0.0002239	-0.000020	-0.000020	-0.000203	-0.000203
	(0.00075)	(0.00089)	(0.00068)	(0.00071)	(0.00114)	(0.00114)	(0.0007793)	(0.0007784)
Pop	-0.0000963	-0.0001255	-0.0001775	-0.0000784	-0.000080	-0.00008Ó	-0.000206	-0.000206
-	(0.00024)	(0.00032)	(0.00023)	(0.00023)	(0.00034)	(0.00034)	(0.0004025)	(0.0003007)
TOpen	0.0001712^{***}	0.00013*	0.0001423^{**}	0.0001039	0.0001771**	0.000177 **	0.0001974^{*}	0.000197
-	(0.00007)	(0.00008)	(0.00006)	(0.00007)	(0.00008)	(0.00008)	(0.0001147)	(0.0001553)
t1 TOpen	0.0001946	0.0002326	0.0001688	0.0001762	0.000196	0.000196	0.000173	0.000173
	(0.00038)	(0.00039)	(0.0003)	(0.0003)	(0.00043)	(0.00043)	(0.0004711)	(0.0004486)
Inter Org	0.0014005^{***}	0.0012974^{**}	0.0015656***	0.0014993***	0.0014575***	0.0014574***	0.0018719***	0.0018719* [*]
_ 0	(0.0005)	(0.00061)	(0.00046)	(0.00049)	(0.00049)	(0.00049)	(0.0006853)	(0.0008384)
t1 Inter Org	-0.0025649	-0.003437	-0.0027208	-0.0027148*	-0.002609	-0.002609	-0.004214	-0.004214
0	(0.00172)	(0.00223)	(0.00159)	(0.00161)	(0.00176)	(0.00176)	(0.003052)	(0.0029872)
PolStab	0.0081452	0.0002208	0.0082867	0.0044587	0.008560	0.008559	0.0104397^{*}	0.0104397*
	(0.00619)	(0.00731)	(0.00539)	(0.00514)	(0.00581)	(0.00581)	(0.0059393)	(0.0063511)
GDP PC PPP	-0.0011955*	(0.00102)	(0.00000)	(01000-1)	-0.012359***	-0.0012357***	-0.0011081**	-0.0011081*
	(0.00064)				(0.00048)	(0.00048)	(0.0007378)	(0.0006867)
Time	0.0038169**	0.0018395	0.0017428	0.0017248	0.0047325**	0.0047325**	0.0050597*	0.0050597**
	(0.00169)	(0.00249)	(0.00181)	(0.00186)	(0.00219)	(0.00219)	(0.0026837)	(0.0025554)
EG	(0.00100)	-0.0001989	(0.00101)	(0100100)	(0.00210)	(0.00210)	(0.0020001)	(0.0020001)
20		(0.00039)						
SG		(0.00000)	-0.000656***					
50			(0.00023)					
CP			(0.00020)	-0.0003366**				
01				(0.00018)				
				(0.00010)				
N	1266	1085	1333	1348	1266	1266	1266	
Wald Ch:2	110.94	106.40	150.96	1577	25.02	1200	205 020000	
	119.24	120.42	102.80	107.7	167 508470	110 941660	295.920000	
LL LD CL ·2					-107.308470	-110.841000		
LR Chi-						40.390000		
Pseudo R ²						0.107600		
\mathbb{R}^2							0.210400	0.035600
AIC						0.288000		
BIC						-8601.649		
F								1.86
QIC	373.175	352.997	366.969	372.082				

Table 5.10: Robustness Checks for the whole UN

			Table 5.11: Robu	stness Checks for	the WEOG			
Variable	ME GEE Logit	ME GEE Logit	ME GEE Logit	ME GEE Logit	ME Panel Logit	ME Pooled Logit	GLS RE	Pooled OLS
SoA	0.0148457^{***} (0.00452)	$\begin{array}{c} 0.0151355^{***} \\ (0.00448) \end{array}$	0.0161568^{***} (0.00476)	0.0152582^{***} (0.00455)	0.0126032 (0.01207)	0.0126099* (0.00763)	$\frac{0.0240518^{***}}{(0.0044026)}$	0.0240518^{*} (0.0134529)
$t1_SoA$	-0.0180311 (0.05336)	-0.0214436 (0.05104)	-0.0195177 (0.05727)	-0.0179602 (0.05439)	-0.0421374 (0.06356)	-0.0421462 (0.04806)	-0.1119813 (0.1604572)	-0.1119813 (0.1636963)
ln_VolCon	0.0038316	0.0033342	0.0033188	0.0038722	0.0031558	0.0031572	0.0086471	0.0086471
Pop	(0.00421) - 0.0146215^{***}	(0.00407) - 0.0126336*	(0.00414) - 0.016362^{***}	(0.00435) - 0.0151046^{***}	(0.005939 - 0.0107049)	(0.00647) - 0.0107103	(0.0065646) - 0.0230714^{***}	$(0.0103785) - 0.0230714^{**}$
-	(0.00582)	(0.00691)	(0.00662)	(0.00605)	(0.01354)	(0.0073)	(0.0056788)	(0.0101634)
TOpen	0.0002222 (0.00019)	(0.0000552)	0.0002391 (0.0002)	(0.0002204)	0.0003129 (0.00033)	0.000313 (0.00032)	0.0003314 (0.0003509)	0.0003314 (0.0004348)
$t1_TOpen$	0.0005382	0.0004114	0.000467	0.0004891	0.0006228	0.0006228	0.000492	0.000492
Inter Org	(0.00226) 0.0041004^{***}	(0.0038991^{***})	(0.00224) 0.0043733^{***}	(0.0022) 0.0042562^{***}	(0.00196) 0.0047696^{***}	(0.00179) 0.0047705***	(0.0026102) 0.0074915^{***}	(0.0027049) 0.0074915^{**}
	(0.00111)	(0.00112)	(0.00108)	(0.00121)	(0.00197)	(0.00176)	(0.0020837)	(0.0033289)
${ m t1_Inter_Org}$	-0.0026721	-0.0024549	-0.002982 (0.00400)	-0.0027506 /0.00503)	-0.0006237 /0.00506)	-0.0006236	-0.0002193	-0.0002193
$\operatorname{PolStab}$	0.0078858	0.0062094	0.0087084	(0.0076678)	(0.0243189)	(0.0043124) 0.0243124	0.0172471	0.0172471
	(0.01924)	(0.01826)	(0.02176)	(0.01939)	(0.03762)	(0.02613)	(0.0190956)	(0.0190851)
GDPpcPPP	-0.0038933***	-0.0041169^{***}	-0.0035171^{***}	-0.0037778***	-0.0040334^{**}	-0.0040343^{***}	-0.0059867***	-0.0059867***
Time	(0.00136092^{***})	(0.0160846^{***})	(0.0124839^{**})	(0.0135562^{***})	(0.0226719^{**})	(0.002677***	0.0390698***	(0.0390698**
	(0.00485)	(0.00533)	(0.00566)	(0.00484)	(0.01009)	(0.00872)	(0.011815)	(0.0192646)
EG		0.0014783						
SG			-0.0007077					
			(0.00196)					
CP				-0.0001329 (0.00072)				
Z	193	193	193	193	193	193	193	193
Wald Chi ²	36.99	48.4	48.31	44.55	10.64	22.76	141.66	
QIC	502.003	477.166	522.836	505.592				
LL AIC					-37.85453	-37.854529 0.517		
BIC						-876.838		
Pseudo R ² LR						0.1579 14 196		
${ m R}^2$						0.0T.FT	0.2494	0.0717
Ъ								0.94
Cluster robust	standard errors in J	parentheses; $* p <$	0.1, ** p < 0.05, **	$^{**} p < 0.01$				

Behind the Scenes – What determines elections of non-permanent members into the UNSC?– An empirical analysis

Pooled OLS	0.0049555 (0.0719022)	0.0748194	(0.1106981)	0.00159	(0.007211)	-0.0001318	(0.0003098)	0.0037057	(0.0036249)	0.0241284	(0.0289644)	-0.0013783	(0.0016945)							-0.0050535	(0.003959)	-0.1140292	(0.1359624)	239					0.04			0.86		
RE GLS	0.0049555 (0.0456861)	0.0748194	(0.0763358)	0.00159	(0.0059125)	-0.0001318	(0.0002578)	0.0037057	(0.0022033)	0.0241284	(0.0266207)	-0.0013783	(0.0015561)							-0.0050535	(0.0040028)	-0.1140292	(0.0805293)	239	32.59				0.267					
Pooled Logit	-0.0063837 (0.02255)	0.0290632	(0.02951)	0.0024852	(0.0052)	-0.0000984	(0.00032)	0.0017807	(0.00136)	0.0131083	(0.02082)	-0.0010747	(0.00158)							-0.0042376	(0.00359)			239	11.51	-33.780		0.1189						
ME Panel RE Logit	-0.0063852 (0.01867)	0.0290611	(0.04106)	0.0024854	(0.00377)	-0.0000984	(0.00036)	0.0017809	(0.00178)	0.0131099	(0.01506)	-0.0010748	(0.00279)							-0.0042383	(0.00601)		11	239	8.36	-33.780								
With Cultural Prox	-0.0000496 (0.00159)	0.0010383	(0.00289)	0.0002653	(0.0004)	-0.00004	(0.00007)	0.0000799	(0.0002)	0.0009716	(0.00151)	-0.0001042	(0.0002)					0.0005276	(0.0007)	-0.0003862	(0.0003)		11	239	51.60								4583.119	< 0.05, *** p < 0.01
With SG	-0.0015826 (0.00794)	0.0021809	(0.00842)	0.002805	(0.00177)	-0.0002433	(0.00019)	0.0003663	(0.00045)	0.0011591	(0.00811)	-0.0020576**	(0.00097)			0.002197^{*}	(0.00118)			-0.0027323	(0.00199)			239	48.37								1101.375	* $p < 0.1$, ** p
With EG	0.0020663 (0.01652)	0.0229078	(0.0192)	0.0009984	(0.00559)	-0.0001956	(0.00032)	0.001907*	(0.00103)	0.0151473	(0.02867)	-0.0015224	(0.00176)	0.00088	(0.00104)					-0.0036671	(0.00472)			203	51.74							000 101	421.996	n parentheses;
ME GEE Logit	-0.0064964 (0.01328)	0289361^{*}	(0.01779)	0.00247	(0.00459)	-0.0000971	(0.00026)	0.0017826^{**}	(0.00092)	0.0131831	(0.0202)	-0.0010824	(0.00152)							-0.0043312	(0.00379)			239	34.26								421.380	t standard errors i
Variables	SoA	t2 SoA		$\ln VolCon$		TOpen		InterOrg		$\operatorname{PolStab}$		GDPpcPPP		EG		SG		CP		Time		Cons		Z	Wald Chi ²	LL	LR	Pseudo R ²	\mathbb{R}^2	AIC	BIC	т Г	QIC .	Cluster robus

Table 5.12: Robustness Checks for the GRULAC

Behind the Scenes – What determines elections of non-permanent members into the UNSC?– An empirical analysis

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Eidesstattliche Versicherung

Hiermit erkläre ich, Jan Schmitz, an Eides statt, dass ich die Dissertation mit dem Titel

Essays on Pro-Social Behavior of Individuals, Firms and States

selbstständig und ohne fremde Hilfe verfasst habe.

Andere als die von mir angegebenen Quellen und Hilfsmittel habe ich nicht benutzt. Die den herangezogenen Werken wörtlich oder sinngemäß entnommenen Stellen sind als solche gekennzeichnet.