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Sharing the pie: the Lutheran is neither opportunistic nor generous

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Sharing the Pie: the Lutheran is neither Opportunistic nor Generous

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Abstract

This paper studies how individual religiosity affects people's behaviour. In particular here I study the behaviour of the second players in a standard trust game. They have the possibility of sharing some resources between themselves and their game mates. It results that more religious people tend to choose an even allocation of these resources, whilst the less religious participants are either opportunistic or generous.

Keywords: religiosity, distribution of resources, inequity aversion

JEL Codes: C93, D30, Z12

1. Introduction

Religions teach particular rules and values to theirs members. One of the most important precepts of Christ's teaching is charity: the good Christian cares about the others' situation and is concerned about sharing his/her resources with the poor. In the Gospel this idea is generally equalitarian: it is presented as an equal division of the resources among the members of a group (Wallis, 2005). I aim at checking whether religious people apply this moral rule in economic decisions.

Religion is found to affect relevant economic decisions of the individuals. An important consequence of this at a macro level is that more religious countries attain higher growth (Barro and McClearly, 2003). At the micro level Iannaccone (1994) stresses that affiliation to a certain confession rather than to another is likely to drive people towards higher saving rates and higher wages. Iannaccone (1995) provides also evidence of how religious beliefs are important in household production. Keister (2003) relates the accumulation of financial assets in early adulthood to religious affiliation and participation. However, so far little attention has been paid by the economists or religion to the possible effects of religiosity on individual pro-social attitudes.

According to Holm and Danielson (2005) the decisions of the players in experimental games are driven also by unconditional distribution preferences: donations in a dictator game and shares returned in a trust game are significantly correlated. The existence of a moral norm (equal sharing in the case of Christians) followed by the players could be an explanation. Indeed Anderson and Mellor (2009) find that religiosity may sustain cooperation in a public good game. Using a trust game (see Berg et al., 1995) I find that more religious (namely Lutherans²) people tend to split the pie equally, rather than behaving in an opportunistic or other-rewarding way.

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¹ Luke, 3:11; Acts, 4:32. See also Harrington et al. (2005).

² Although I did not ask of which religious denomination the responder was member, I assume that the large majority of the participants to the experiment were lutheran, mirroring the Norwegian population.

2. Methodology

In this paper I use a basic trust game. This involves couples of people, playing non simultaneously. The first member of the couple (the first to play) is endowed with some money: he/she has to decide how much to pass to the game mate (who has no endowment). The experimenter triples this amount and gives it to the second player, who must decide how much of the received sum he/she wishes to pass back to the first player. This decision ends the game. Both the players have complete information about the rules of the game, and full anonymity is ensured. An ultimatum or a dictator game (for designs see Camerer, 2003) could also be employed, but a trust game is more suitable for this type of study. In fact, the second mover may receive some money from the endowment of the partner, and this may stimulate some sentiments³ to play a role, thus strengthening the impulse to pass back some positive sum. To look for the presence of this positive stimulus is useful for my inquiry: if religiosity makes the player's choice to converge towards even sharing rather than to one of the other two possible outcomes (especially the generous one; see below), this would mean that among religious people the sense of equal splitting prevails.. It might also be possible that the presence of the stimulus induces the more religious people to prefer the intermediate outcome to the others. In other words I am hypothesizing that equal sharing is the way followed by religious people to "reciprocate". Also in this case, however, if the choice of equal redistribution prevails on the others within religious people, this would clearly highlight an influence of religion on people's decision process.

The existent literature typically measures the individual religious attitude through personal beliefs and/or participation to the services. I adopt a stricter measure of individual religiosity: the time that a person spends weekly within religious voluntary associations. Participation to these groups requires both a religious belief and a positive intention to devote some spare time within an association, among whose goals the propagation of religious values plays a central role. Hence these people show a strong religious attitude, which I assume to be stronger and stronger as the time devoted to the association increases.

A total of 207 undergraduate students from the University of Oslo⁴ participated in the game: 105 were first movers and 102 were second movers⁵. I classify the choices of the second movers into three strategies: opportunistic (keeping a payoff higher than the counterpart's), equalitarian (transferring an amount of money such that both players end with the same payoff), or generous

³ Among them we can mention anger, reciprocity or gratefulness, as highlighted by Fehr and Schmidt (1999), Molm et al. (2000), Camerer (2003) and Bouckaert and Dhaene (2004).

⁴ All of them were from the School of Economics, but none had already taken any course in Game Theory or related topics.

⁵ The difference between the number of participants in the two groups reflects the fact that some people in both groups had to be excluded because they violated the requirement of anonymity in filling their forms.

(transferring an amount of money so that the counterpart ends with a payoff higher than the second mover)⁶. As a consequence here I consider only those second movers who got more than ½ of the initial endowment (2,300 NOK) from the first mover⁷. Since the decision of the latter is tripled, those who receive more than 1/4 of the initial endowment can choose one out of the three possible described outcomes. The other second movers have not access to the full set of choices and therefore are not taken into account⁸. Indeed the considered sub-sample is such that, after the first stage of the game and before the second is played, the first mover has a preliminary payoff that is lower than the second mover's. After playing the game, the participants filled in an anonymous questionnaire aimed at collecting socio-demographic data and participation to several different voluntary associations and social networks. At the end of the game two couples were randomly drawn and paid according to their choices. Notice that the high notional endowment ensures a high expected value⁹, whose magnitude constitutes a good incentive to play seriously.

Three dummy variables are constructed, one for each of the three possible outcomes; this allows for estimating the probability of belonging to one of the three groups by the means of a probit analysis. This methodology to analyze the outcomes of a trust game has also been employed in Migheli (2007).

⁶ A long discussion about this "generous" strategy would be possible. The existing experimental literature does not provide a definitive explanation for this behaviour. Apparently more than just generosity justifies it: the original designers of the game talk about reciprocity, others about gratefulness, social paradigms, etc. However here it is neither my intention, nor the aim of the paper, to discuss this point. The etiquette that I attach to this behaviour is purely motivated by practical reasons, and the semantic choice is aimed at driving the attention of the reader intuitively towards the outcome of the choice. I do not intend to participate, by this specific paper, to the discussion about the motivation(s) behind this kind of choice.

A total of 88 subjects are therefore retained.

 $^{^8}$ This can be easily shown. Let S be the initial endowment of the first mover and α the share passed to the second mover. Since the experimenter triples this amount of money, the second mover's endowment is equal to 3α . If $\alpha > \frac{1}{4}S$, then at this stage of the game the first movers keeps less than 3/4S, whilst his/her counterpart is endowed with more than this.

⁹ Equivalent to an hourly income ranging from a minimum of 184 NOK and a maximum of 552 NOK.

3. Results

The graphs depict the frequencies of the amounts passed back to the first player. It is possible to notice that people who are member of religious associations display a behaviour that appears to be more "regular" than non-members' (Figures 4 and 5). In particular the sums passed back by the players who devote some spare time to religious associations are chosen so to split the pie evenly. I will show this in the following econometric analysis. Here it is sufficient to notice that the modal choice for the full sample and for the two gender-based sub-samples is represented by 3,450NOK; moreover, while some males who received 6,900NOK passed back the entire amount (this means that they did not keep any money for themselves), no female player chose it.

Table 1 reports the results of the probit regressions, one for each possible outcome. As usually found in the literature (Camerer, 2003), the received amount affects the decision of the second mover positively: the larger it is, the higher the probability of not behaving opportunistically. The time spent within voluntary religious associations is significantly linked with all the three behaviours, but the association is negative for the opportunistic and the generous outcomes, whilst it is positive for the equalitarian. This supports the initial hypothesis: the more people are endowed with religious capital¹⁰ and the more practice Christian values the more they are prone to share the resources equally, rather than to choose any other allocation. The analysis of the marginal effects suggests that the aversion to an opportunistic behaviour is more significant than to a generous behaviour, when the whole sample is considered (table 1); this finding no longer holds when each of the two non equalitarian outcomes is compared to the equalitarian only (table 2), but in this case the difference between the marginal effects is not significant (so the aversion against either non equalitarian behaviour may be the same). Moreover we can notice that men tend more to be generous rather than opportunistic or equalitarian with respect to women, while working students are rather opportunistic instead of generous or equalitarian, perhaps because they have a utility function of money shifted upwards.

Table 2 shows the results of probit regressions when only a couple of outcomes (i.e. either generous and equalitarian or opportunistic and equalitarian) are analyzed. The previous conclusion gets confirmed.

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¹⁰ For the strong connection between religion and social capital see Smidt (2003).

4. Conclusions

This paper shows that, when allocating resources, the participants to the experiment who spend more time in voluntary religious associations are more prone than the average of the population to opt for an even distribution rather than for an opportunistic or a generous one.

People who spend time in voluntary religious organizations put in practice and very likely teach the fundamental rules of their religion (in Norway, namely Lutheran Christianity). Among these the even sharing of resources plays a crucial role, and this paper shows that the more a person participates in a religious based network, the more probably he/she will apply this social norm. This result is relevant as also when they are required to allocate resources outside the environment of the association, or, in any case, outside a religious environment they may exhibit the same allocation preference. As a conclusion I would highlight that Christian values can affect the behaviour of people charged of managing resources of programmes with (above all) humanitarian or social aims.

References

- Anderson, Lisa R. and Jennifer M. Mellor. 2009. "Religion and Cooperation in a Public Goods Experiment" *Economics Letters*, 105: 58 60.
- Barro, Robert and Rachel M. McClearly. 2003. "Religion and Economic Growth across Countries" *American Sociological Review*, 68(5): pp. 760 781.
- Berg, Joyce E., John Dickhaut and Kevin McCabe. 1995. "Trust, Reciprocity and Social History". *Games and Economic Behavior* 10: 122 142.
- Bouckaert, Jan and Geert Dhaene. 2004. "Inter-Ethnic Trust and Reciprocity: Results of an Experiment with Small Businessmen" *European Journal of Political Economy* November, 20(4): pp. 869 886.
- Camerer, Colin. 2003. *Behavioral Game Theory. Experiments in Strategic Interaction*. Princeton: Princeton University Press.
- Fehr, Ernst and Klaus M. Schmidt. 1999. "A Theory of Fairness, Competition, and Cooperation" *The Quarterly Journal of Economics*, 114(3): 817 868.
- Harrington, Daniel J. S.J. and James F. Keenan S.J. 2005. *Jesus and Virtues Ethics: Building Bridges between New Testament Studies and Moral Theology*, Maryland: Rowman and Litterfield.
- Holm, Håkan J. and Anders Danielson. 2005. "Tropic Trust versus Nordic Trust: Experimental Evidence form Tanzania and Sweden" *The Economic Journal*, 115(503): 505 532.
- Iannaccone, Laurence. 1994. "Progress in the Economics of Religion" *Journal of Institutional and Theoretical Economics*, 150(4): pp. 737 744.
- Iannaccone, Laurence. 1995. "Household Production, Human Capital and the Economics of Religion" in *The New Economics of Human Behaviour*, edited by Mariano Tommasi and Kathryn Ierulli, Cambridge: Cambridge University Press, pp. 172 – 187.
- Keister, Lisa A. 2003. "Religion and Wealth: the Role of Religious Affiliation and Participation in Early Adult Asset Accumulation" *Social Forces*, 82(1): 175 207.
- Migheli, Matteo. 2007. "Trust, Gender and Social Capital: Experimental Evidence form Three Western European Countries", University of Torino (mimeo).
- Molm, Linda; Nobuyuki Takahashi and Gretchen Peterson. 2000. "Risk and Trust in Social Exchange: an Experimental Test of a Classical Proposition" *The American Journal of Sociology*, 105(5): 1396 1427.
- Smidt, Corwin. 2003. *Religion as Social Capital*, Waco: Baylor University Press.
- Wallis, James. 2005. *God's Politics*, San Francisco: Harper Collins Publishers.

Figure 1. Amounts passed back to the first player (whole sample)

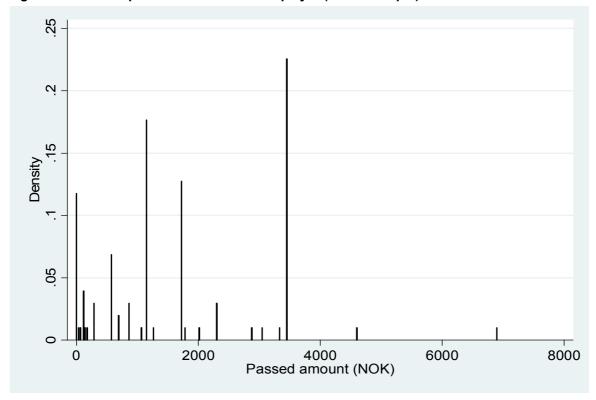


Figure 2. Amounts passed back to the first player (male players)

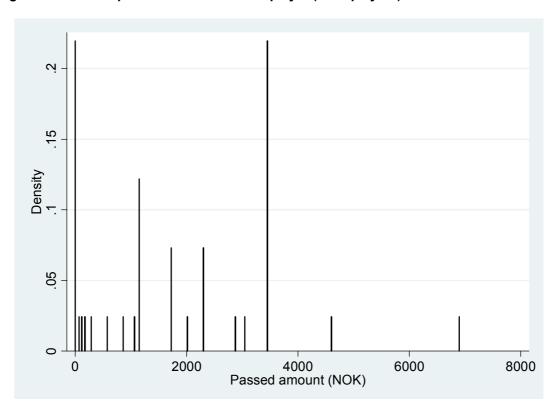


Figure 3. Amounts passed back to the first player (female players)

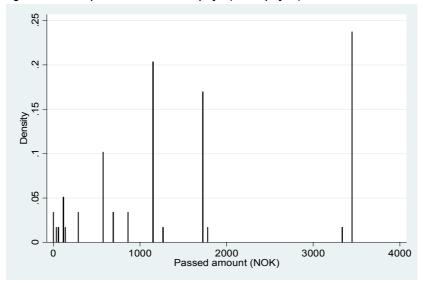


Figure 4. Amounts passed back to the first player (subsample of those participants who are not members of religious associations)

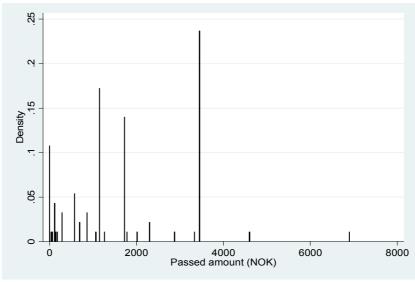
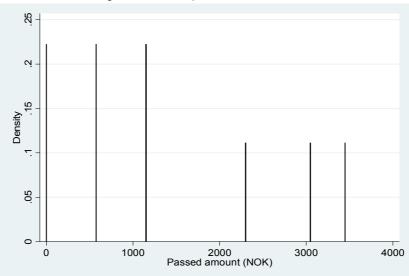


Figure 5. Amounts passed back to the first player (subsample of those participants who are members of religious associations)



Dependent variable:	Opportunistic behaviour		Equalitaria	Equalitarian behaviour		Generous behaviour	
•	Coefficient	Marginal effect	Coefficient	Marginal effect	Coefficient	Marginal effect	
Received amount (for each 10€)	0.055	-0.002	0.056	0.002	-0.003	-0.0005	
	(0.013)***	(4*10 ⁻⁴)***	(0.012)***	(5*10 ⁻⁴)***	(0.011)	(0.002)	
Male	0.462	0.164	-0.753	-0.283	0.873	0.150	
	(0.366)	(0.136)	(0.426)*	(0.149)*	(0.406)**	(0.078)**	
Time spent within:							
religious associations	-0.385	-0.134	0.595	0.233	-0.460	-0.068	
	(0.209)*	(0.071)*	(0.194)***	(0.076)***	(0.216)**	(0.032)**	
sports associations	-0.043	-0.015	0.014	0.006	0.039	0.006	
	(0.068)	(0.024)	(0.046)	(0.018)	(0.047)	(800.0)	
cultural associations	0.124	0.043	-0.203	-0.079	0.158	0.023	
	(880.0)	(0.029)	(0.044)**	(0.037)**	(0.084)*	(0.014)*	
political associations	-0.222	-0.077	0.153	0.060	-0.084	-0.012	
	(0.137)*	(0.045)*	(0.115)	(0.046)	(0.077)	(0.012)	
Time spent in communications through							
telephone	0.010	0.004	-0.138	-0.054	0.223	0.033	
	(0.117)	(0.041)	(0.100)	(0.039)	(0.111)**	(0.018)**	
text messages	0.005	0.002	-0.004	-0.001	-0.003	-0.0004	
	(0.004)	(0.001)	(0.004)	(0.002)	(0.004)	(0.0005)	
the Internet	-0.038	-0.013	0.123	0.048	-0.185	-0.027	
	(0.041)	(0.014)	(0.037)***	(0.014)***	(0.064)***	(0.001)***	
Having a job	1.025	0.311	0.243	0.094	-1.587	-0.344	
	(0.414)**	(0.100)***	(0.353)	(0.135)	(0.391)***	(0.103)***	
Ethnicity ¹	0.071	0.025	-0.264	-0.103	0.355	0.052	
	(0.205)	(0.071)	(0.201)	(0.079)	(0.263)	(0.040)	
Constant	0.896		-2.160		-0.629		
	(0.716)		(0.750)***		(1.014)		
Pr(y = 1)		0.301		0.423		0.079	

1 Ethnicity takes values 0, 1, 2, 3 according to the answer of the player to the following question: "Do you feel: 0) from my own region; 1) Norwegian; 2) European; 3) nationality is not important at all. Number of observations:

85

85

85

Pseudo-R²

0.374

0.361

0.302

Table 2. Probit regression for adopting a		tic behaviour	<u> </u>		behaviour
	Coefficient	Marginal effect		Coefficient	Marginal effect
Received amount (for each 10€)	-0.006	-0.002		-0.003	-7*10 ⁻⁴
()	(0.001)***	(5*10 ⁻⁴)***		(0.001)*	(3*10 ⁻⁴)*
Male	0.805	0.243		1.773	0.431
maio	(0.469)*	(0.113)**		(0.646)***	(0.159)***
Time spent within:	(====)	(******)		(51515)	(*****)
religious associations	-0.421	-0.159		-0.953	-0.230
3	(0.169)***	(0.064)***		(0.312)***	(0.081)***
sports associations	-0.032	`-0.012		0.040	0.008
·	(0.067)	(0.025)		(0.057)	(0.012)
cultural associations	0.190	0.072		0.306	0.065
	(0.087)**	(0.034)**		(0.191)	(0.043)
political associations	-0.296	-0.112		-0.146	-0.031
	(0.139)**	(0.053)**		(0.135)	(0.028)
Time spent in communications through					
telephone	0.080	0.030		0.290	0.062
	(0.114)	(0.044)		(0.198)	(0.042)
text messages	0.006	0.002		0.005	0.001
	(0.003)*	(0.001)*		(0.010)	(0.002)
the Internet	-0.072	-0.027		-0.288	-0.061
	(0.039)*	(0.015)*		(0.100)***	(0.022)***
Having a job	0.386	0.152		-1.661	-0.391
	(0.486)	(0.188)		(0.491)***	(0.125)***
Ethnicity ¹	0.268	0.101		0.407	0.087
	(0.236)	(0.086)		(0.364)	(0.081)
Constant	1.151	, ,		0.567	, ,
	(0.783)			(1.246)	
Pr(y = 1)	0.409			0.123	
Number of observations:	73			52	
Pseudo-R ²	0.438			0.434	

APPENDIX I: EXPERIMENTAL INSTRUCTIONS

There are two groups of students: A and B (both from the University of...). Each Student A is anonymously and randomly matched to another Student B.

Step 1

Student A receives the notional sum of 200€ and decides how to share this amount between himself and Student B.

Step 2

The amount Student A passed to Student B is tripled; in other words, for each euro that Student A passes, Student B receives 3€. Student B knows that the received sum is determined in this way.

Step 3

Student B decides how to share the received sum between himself and Student A.

Step 4

A couple of students will be randomly drawn and paid according to their decisions. These two students will be separately paid to avoid them to meet.

Warning:

- All the decisions remain totally anonymous.
- These instructions are perfectly identical for all the components of both groups A and B.

You are a student of group... (exactly as all the other students in this classroom).

- Please, write in part A of the attached form how much you want to pass to Student B.
- Then answer the attached questionnaire.
- Take the numbered paper. If your number is drawn, you have to show it in order to be paid.
- Handle back the form and the questionnaire.

The drawn number will be announced during one of the following classes and published on the website.

THANK YOU FOR YOUR COOPERATION!



Part A	
Student A:	
You divide 200€ between yourself and a Student B. Write of sum (between 0 e 200€) that you want to pass to Stude	
€	
Part B	
Student B:	
You receive three times the amount Student A	
gave you. Thus, you receive	
€	
You divide this amount between yourself and Student Write down the sum you pass back to Student A:	t A.

APPENDIX II: QUESTIONNAIRE

Please answer the following questions:

_____ h ____ min

1. Below there is a list of different voluntary associations. Indicate how much time on average (hours and minutes) you spend weekly in each of them. Indicate also the number of associations of the same type you are a member. Moreover explicitly indicate whether you are not a member of some of the listed types.

Associations	Time	Number	Not a member	
Sports associations (including gyms)	h min.			
Religious associations	h min			
Cultural associations (music, theatre, arts,)	h min			
Own Faculty students' associations (i.e)	h min			
Other students' associations	h min			
→ Specify		_		
Environmental associations (WWF, Greenpeace,)	h min			
Associations for animals' rights (es.)	h min			
Political parties/associations	h min			
Youth clubs (Scouts,)	h min			
Social aimed associations (i.e. Red Cross,)				
Other associations	h min			
→ Specify				
2. How much time on average do you spend Skype)? h min	d weekly in phone	talks with	friends (incl	
. How many short text messages do you send to	from your mobile or	n average pe	r week?	
. How much time (hours and minutes) on communications (reading and writing emails h min		pend weekly	in active In	
. How much free time on average do you spen	d weekly with your	friends?		

6.	How many brothers do you have? How many sisters do you have?
7.	Have you a student job currently? □ Yes □ No
8.	Do you live in <i>the city of the university</i> ? (domicile) \square Yes \square No If no, during the week do you live (in a student room/apartment)? \square Yes \square No
9.	Which country and province are you from? Country: Region:
10	Are you the owner of the apartment you live in? ☐ Yes ☐ No If no, please indicate how many crowns per month you pay for the rent of your room/apartment ————
11	To which of the following group do you feel to belong firstly region □ Norwegian □ Scandinavian □ European □ Other (specify):
12	. Gender: \square M \square F

Thank you very much for your cooperation!

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