Where is God in the Game?

The relation between religion and cooperation

Jarl Mooyaart
Stud. nr. 3400522
Supervisor:
Antonie Knigge
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Abstract

This research examines the relation between religion and cooperation. In this study a model is introduced indicating the possible relationship between religion and cooperation. The model assumes that religion has an indirect effect on cooperation with social preferences and social embeddedness as mediators. For testing the relationship data from a computerized public goods experiment, supplemented with a religion survey, were used. Results do not confirm the model. An interesting finding of this research is that Christians contribute less to the public good compared to both religious people belonging to other denominations as unreligious people.

Introduction

In the Netherlands there has been a significant decline in the percentage of religious people. CBS statistics show that in 1900, 9 out of 10 were religious while in 2010 not even 6 out of 10 are religious (CBS, 2010). These statistics show that in the Netherlands there has been a trend towards secularization. One could wonder whether this is alarming. The social function of religion has been at much debate in society and in social sciences. Religion has been much associated with violence. According to some a world without religion would be a more peaceful place. One could see secularization as progress that people are liberated from the power of the church. Moreover, secularization could be seen as a result of rationalization (in a Weberian sense). In this sense people that are less inclined to follow their beliefs are more rational and thus secularization could be seen as progress.

On the other hand, secularization has been described as a process which makes people lose their morality, moral standards, social values and a process that causes individualization. Scientists such as Durkheim have claimed that religion guides people to live with each other peacefully, the glue of society. Religion could in this sense help to foster cooperation. It is commonly held that Christians perform more voluntary work and are more charitable than atheists, which could indicate that they are more cooperative as well. This paper tries to add to the debate of the function of religion in modern society by examining the relationship between religion and cooperation.

But what exactly is cooperation and what is the related social problem? The cooperation problem, or social dilemma, refers to the situation in which cooperation would lead to positive outcomes on the group level, but that this cooperation is not realized because it requires investment on the individual level. Cooperating by contributing to a public good has a cost for the individual, since the best outcome for each individual is to free ride on the cooperation of others. The individual is therefore confronted with a social dilemma, because if all choose to defect everyone will profit less compared to when they would have cooperated. Take for instance a project for making a playground for children. If you do have children you may think that it is a good idea to create such a space and therefore help to create this playground. However it would be economically most profitable to watch other parents do all the work and let your children play when the playground is finished. If all the parents take such a stance the playground will of course never be built. So if all people would be selfish, this form of cooperation would never succeed. Yet in real life people do contribute to the public good. This may mean that some people are not plain selfish or that in certain social contexts cooperation may be induced. The first object of this paper is to examined if religious people are indeed more prone to cooperate. If this were true than it would mean that religion has got a function in modern society, being that it helps to mobilize people and makes them contribute to the public good and therefore the welfare of the state.

Some research has been performed on the relation between religion and cooperation. Most of the studies use experiments and in particular the public goods game. Research on the topic of religion and cooperation can be characterized in three branches, being social embeddedness, social preferences and punishing effects of religion. Regarding social embeddedness, or in other words, the effect of the social context, Johanson-Stenman, Mahmud and Martinson (2005) performed a trust experiment with Hindu and Muslim subjects in rural Bangladesh and afterwards let them fill in a survey related to social distance (between social groups). When the results from the experiment were compared with answers given in

the survey surprisingly Johanson-Stenman, Mahmud and Martinson (2005) did not find any differences in trust between the two groups in the trust experiment, while they did find it in the survey. Another research by Ahmed (2009) compared students on a religious Muslim school (for aspiring clergy) with non-religious students in a public goods game. The subjects were separated in a sense that there were two experiment sites, one at the Muslim school with the Muslim students and one at a public university with the non-religious students. The two groups therefore only played the game with people of their own group. Ahmed (2009) found that among the clergy students the cooperation rate was higher than among the non-religious students. Thus, Muslim students cooperated more in their embedded situation than non-religious in theirs, which indicates that there may be another mechanism at hand. Which brings us to the second branch of research on the relation between religion and cooperation, which is whether religious people have social preferences that are prosocial, in favour of cooperation, also outside their own group. Tan (2006) examined this relationship. Tan (2006) conducted an experiment in two phases doing a dictator game and an ultimatum game with 47 subjects. The survey included questions about religiosity. Tan (2006) found that religiosity does not have a significant influence on social preferences. He subsequently came with a multidimensional model for religiosity including belief, ritual and experience. Belief was significantly and positively correlated while participation (part of the ritual dimension) had a strong significant negative correlation only in the dictator game. Tan (2006) states that due to counterweighing effects of the different elements of religiosity an overall null effect was found.

Other studies also do not find an effect of religion on cooperation. Anderson and Mellor (2008) recruited 64 subjects over age 50 containing people of several denominations and found that Protestants on average contributed slightly more to the public good than non-religious people. The other denominations, however, contributed less than the non-religious people. They also controlled for attending church services, but this effect did not prove to be significant. Anderson and Mellor (2008) did find that for Protestants the decline in contributions to the public good is smaller than for non-religious people. Moreover, Anderson, Mellor and Milyo (2005) performed trust and public goods experiments among undergraduates and found no evidence between self-identified religious affiliation in either the trust or the public goods game. They do not find that religious people are more trusting or trustworthy. Anderson, Mellor and Milyo (2005) however did find a positive correlation between attending religious services and contributions in the public goods game.

The last branch of research regards the effect of religion on the use of punishment. It could be possible that religious people use punishment opportunities more often, because religious people have more prosocial preferences. Although they prefer cooperation, they only cooperate if punishment opportunities are available so that they can convince others to cooperate as well by punishing defecting behavior. McKay *et al.* (2010) however has already tested this relationship and did they do not find that religious people use punish opportunities more than atheists.

Previous research does not provide a clear indication whether religion has an effect on cooperation. One reason could be that priming is required to view effects of religious prosociality. It has been argued that persons may have certain prosocial preferences, but that people need to have been made aware of them shortly before the experiment in order to establish higher levels of cooperation. This application of cognitive awareness is called priming. Sharif and Norenzenyan (2007) found that when people are primed with religious concepts this can foster cooperation among religious people. One must, however, also consider the relevance of these findings. Priming may frequently take place within the own social circles, but it is highly questionable if religious people are primed in daily life situations. As Norenzenyan *et al.* (2009) note: In a Good Samaritan experiment religious people were not found to be more helpful than atheists. Moreover, McKay *et al.* (2010) used religious primes in their public goods experiment, but still did not find differences between religious and unreligious people in levels of cooperation. Furthermore Ahmed & Salas (2011) found that the effect of religious primes are not correlated with self-reported religiosity. Religious primes could perhaps serve as a moral wake up call for everyone and not for religious people only. A second explanation of why no results were found, is that in general research groups have been small, usually around 50 subjects. Larger samples could perhaps show a significant effect of religion on cooperation.

The aim of this research is to investigate whether there is an effect of religion on cooperation and punishing in encounters with strangers, or in other words in an anonymous situation. More specifically this research tries to establish whether there is an effect of religion on cooperation via social preferences, without the use of priming. The main research question therefore is:

Is there a positive effect of religion on cooperation in anonymous situations?

Although results of previous research has not clearly indicated an effect of religion on social preferences, this research has some advantages in reference to other studies, which could make a difference in finding an effect of religion on cooperation. Contrary to most previous research the sample is relatively large, including 50 religious people in a total group of 150 participants. For establishing the relationship between religion and cooperation a public goods experiment was conducted. Subjects played public goods games with and without punishing and rewarding opportunities. Subsequently this research introduces an overarching model of the effect of religion on cooperation, including the social preferences, social embeddedness and punishing effects of religion. Previous research often lacked a clear theoretical model behind their assumptions. The model presented in this research supposes an indirect effect of religion on cooperation via social preferences. The model assumes two possible effects of religion on social preferences, being a norm content and a norm exposure effect. The content concerns with the theology of religion and its relation to prosociality, cooperative behaviour, while the exposure is about how much the individual is exposed to religious values. Social preferences are in turn affecting the levels of cooperation and the use punishment opportunities. In this research there will also be examined whether differences between religions in their effects on social preferences and cooperation can be established.

Firstly, this study will briefly indicate under which conditions cooperation may occur. Then the relation between religion and social preferences is examined and hypotheses will be derived from this discussion. Then a comprehensive model will be presented showing the relations between religion, social preferences, social embeddedness, punishing and cooperation. In the data and methods part there will be a description of the public goods experiment and the included survey regarding religion. We then turn to the analyses and finally the results are presented and the model will be discussed.

Theory

The problem of cooperation has long troubled social scientists. Cooperation can be modeled in what is called a Prisoners Dilemma (PD). The term comes from a hypothetical dilemma of two criminals who are interrogated separately by the police. The criminals have the option to remain silent or betray the partner. However, the outcome depends on the choices of both criminals. If both criminals remain silent their prison sentence will be, say 3 years, as the police lacks evidence to incarcerate them longer. In this situation, remaining silent (so not cooperating with the police) is seen as cooperating as both criminals help each other in

receiving a lower prison sentence. However if one remains silent, the betrayer is rewarded; he only gets, say a probation sentence, while his criminal partner has to serve, say 10 years. If both criminals betray each other they are worse off than if they had remained silent as both now have to serve a longer sentence. Say a reduced sentence 5 years, because of their cooperation with the police. The pay-offs are presented in the table below.

Table 1: *Example Prisoners Dilemma*

	C	D
C	-3,-3	-10,0
D	0,-10	-5,-5

C=cooperating D=defecting

By assigning the pay-offs it is assumed that for each criminal the 0 year prison sentence is most desirable and the 10 year one is the least desirable. This model does not take into account possible other influences, such as having a troubled conscience or a criminal code that prevents criminals from betraying one another. In other words it is assumed that individuals will act rationally, in their own interest. Furthermore it should be stressed that there is no communication possible between the criminals and that the game is only played once. They only have one shot.

When these considerations are taken into account, it is interesting that for both criminals the best option is to betray the other criminal, whatever the other criminal does. Table 1 shows that if player 1 cooperates he receives either -3 when player 2 cooperates and -10 when player 2 defects. Whereas player 1 receives respectively 0 or -5 if he chooses to defect. One would argue that in this situation defecting is a dominant strategy. This form of pay-off construction is a standard feature of all PD games. If both players defect however, the pay-offs for both players will be lower than if both had cooperated. These games confront people with what is called a social dilemma as rational decisions made on the individual level cause an irrational outcome on the collective level.

To summarize, the standard model considers a one-shot game in which it is assumed that players will act rationally and that because the pay-offs are constructed in a way that defecting is the most profitable strategy for the individual, cooperation will never occur. In the introduction the example of the playground was mentioned. This example can perfectly be framed into one-shot prisoners dilemma. What logically follows is that it is expected that the playground will never be built. However, in society there are many examples of people

cooperating, such as building a playground. This means that under certain conditions cooperation does occur.

Conditions for cooperation

There are certain conditions in which even selfish people are expected cooperate. In the above mentioned example the game is only played once, but it can also be played more than once. What repeated games do provide is a shadow of the future, meaning that as the game is repeated there is always an opportunity for a player to take revenge on the action of the other player by defecting in the next round(s). The more rounds are played the smaller the short term gain of defecting is and the larger the loss in the long-term, because of ruining the opportunity to cooperate in subsequent rounds. The shadow of the future is of the essence. The longer the shadow of the future, the more likely it is that individuals start to cooperate as they view that cooperation may give them more profit in the long run. Dal Bo (2005) indeed finds that individuals cooperate more when there is a higher probability of a next round (larger shadow of the future).

What repeated games also provide is a way of starting to know each other. One can claim that the players who play the repeated PD are embedded in a social group. This social embeddedness has an important influence on decisions made by the players. Weesie and Buskens (2000) consider the process of *learning*. Individuals may learn from past encounters with another individual and that this attained knowledge may influence individuals' decisions later in the game. They may learn that the other is cooperative or selfish and adjust their game strategy according to that knowledge (Weesie and Buskens, 2000). In real life a person is more likely to cooperate with someone they know and trust than with a stranger. Learning however does require that the necessary information is available, meaning that information of how each subject played is available after each round. Cooperation might be opted in fear of losing a good reputation. Defecting may lead to a bad reputation for the player, which may have the consequence that no one wishes to cooperate with this player (Weesie and Buskens, 2000).

It is very likely that religion can have a social embeddedness effect. Tan & Zizzo (2008) indicate that group identity can help to foster cooperation. Religious institutions can bring people together and thereby create a social group. There are however many other institutions that bring people together such as sportclubs, unions etc. From a social embeddedness perspective it is therefore expected that religion will have the same effect as any other intermediary group. Moreover, based on the social embeddedness argument, there is

no reason to believe that religious people will cooperate more outside the embeddedness of their religious group. The social embeddedness effect is therefore not of much value in this research as we try to establish whether religious people also cooperate more often compared to non-religious people in anonymous situations.

Social preferences

Game theorists have long believed in the Homo Economicus, an individual that merely serves his own interest and only cooperates when cooperating maximizes the individual's utility. Nowadays, sociologists view this as rather simplistic, since the individual is largely influenced by his social environment, which shapes preferences and beliefs on certain behavior. Fehr and Gintis (2007) claim that individuals, contrary to economic game theory, do not always maximize their own profit. They introduce a model which includes the individual's social preferences. Fehr and Gintis (2007) present what they call the BPC approach (beliefs, preferences and constraints). According to Fehr and Gintis (2007), people have beliefs of what others will do, preferences for a certain strategy, and constraints concerning the set-up of the game. Concerning the preferences, Fehr and Gintis (2007) differentiate two types: free riders and conditional cooperators. The first one is the selfish type that will choose the strategy that maximizes his utility. In a one-shot PD-game these people will always defect, while in repeated interactions they only cooperate if this gives them more profit in the long run. The other group, the conditional cooperators, as the name suggests cooperate when certain conditions are met. They start cooperating in repeated prisoners dilemmas, but when the others start to defect they defect as well. It does not take many free riders though to stop the conditional cooperators cooperating when no opportunity of punishing is available.

Fehr and Gintis (2007) do not go into detail about social preferences. They merely establish that people are not always selfish and that people can be categorized as either free riders or conditional cooperators. Van Lange (1999) comes with an integrative model for social value orientation (SVO). The SVO model is a technique to measure motives in social dilemma's in what they call decomposed games. In a decomposed game people are presented with different options for giving points to oneself and the other (Baillet and Joireman, 2009). The *basic SVO model* categorizes people in three types:

- Prosocials - people who are in favor of cooperation
- Individualists - people who simply serve their own interest
- Competitors - people who want to win most, compared to others

The *integrative model for SVO* of Van Lange (1999) however takes into account the different aspects of behaving prosocially, claiming that, contrary to the basic SVO-model presented above, prosocials do not always cooperate. This depends on different beliefs of fairness. One could believe that it is fair when one chooses the option where the joint outcome is the highest (MaxJoint) or one could believe that it is more fair to choose the option where the differences in outcomes are minimal (MaxEquality). The first is more cooperative while the latter is more egalitarian (Van Lange, 1999). One could say that the SVO model complements the BPC model in a way that it indicates that even unselfish people may be tempted to defect in certain situations. Namely, prosocial people who have egalitarian views.

Religion could be viewed as the basis for morality and therefore promote prosocial behavior such as cooperating. Orbell *et al.* (1992) claimed that religious people are indeed more prosocial than non-religious people. Norenzenyan *et al.* (2009) state from an evolutionary perspective that religious beliefs could have been the facilitator of prosocial behaviour in humans, and that it taught people to cooperate with genetically unrelated people via social learning mechanisms. Anderson and Mellor (2008) believe that religion teaches people to be other-regarding and therefore more cooperative. Also, religious participation might be inherently social in nature and therefore foster cooperation (Anderson and Mellor, 2008). It is therefore expected that:

1. Religious people are more prosocial than non-religious people and therefore more cooperative

There may however be some differences among religious people of the same religious group, regarding religiosity and socialization. Tan (2006) examines the effect of religiousness on social preferences. He claims that the core dimensions of religiosity are belief, ritual and experience. In this paper a distinction is made between *norm content* and *norm exposure* effects. How much a certain religion contributes to prosocial behavior of course depends in what Tan (2006) calls the belief dimension, which in this paper will be referred as the norm content of a religion. When people are in touch with their religion, these people are also expected to live more according to the moral standards of the religion, in which religious norms are expected to promote prosociality. One could argue that the more someone is in touch with his religion, the more the person beliefs in the content of the religion, or the more

religious this person is. Furthermore people who attend church and pray frequently are also more likely to be in touch with their religion. It is therefore expected that:

2. The more an individual is religious, attends church and prays, the more prosocial this person will be, resulting in higher levels of cooperation

There is also another aspect in how religion could influence social preferences, which is the amount to which individuals are exposed to religious norms. Tan (2006) high lightens the element of participation in his ritual dimension. Religion is not only believing, but also participating in organizations of a religion. Anderson, Mellor and Milyo (2005) state that it may be due to their social environment that religious people give more to charity. An exposure of norms regarding the religion will therefore also influence the social preferences. People who participate in religious organisations may be unconsciously exposed to religious norms. Moreover, a history of exposure to religious norms, such as being raised or socialized according to religious norms, can influence the social preferences the person has later in life. It is therefore expected that there is a behavioural component next to the cognitive component of religiosity:

3. The more an individual is socialized by religious norms and/or participates in religious organizations, the more likely this person will be prosocial and the more cooperative this person will be

The two different effects that are proposed here may also account for differences between religions. Some religions may have stricter norms regarding prosocial behavior than other religions. Furthermore religions may differ in their levels of organization. Religions could possibly differ in their ability to group people together and form a community. Indicating how religions would score on these two elements would require extensive research into religions, which goes beyond the scope of this research. It is expected though that differences can be found in social preferences and levels of cooperation between religions.

Punishment

Cooperation can also be fostered if certain elements are added to the game, such as punishment. If there are punishment options available in the game cooperating becomes even more likely as defecting may give the individual lower pay-offs than cooperating, because of

the 'fine' that can be given out by the other player. Selfish players may now choose to cooperate in fear of punishment. Moreover individualists may start cooperating after having lost points due to punishment. For punishment however also applies that the option of punishment is more likely to be used in games where the shadow of the future is high as punishing then becomes quite profitable for a player, as it can foster cooperation in the long run. If the game is only played a couple of times, punishing may cost more than it yields.
Fehr and Gintis (2007) state that if the game has punishment opportunities free riders only cooperate if the punishment for their defecting behavior will reduce their profits under the level as when they would have cooperated. Selfish rational players will however never use punishment options themselves. Punishment is costly and no reward is attached to successful punishment of norm violating behavior, which constitutes to what is called the second-order public goods problem (Coleman, 1990). Fehr and Gintis (2007) claim however that the conditional cooperatiors will punish the free riders, even if it is not in their interest to punish them, but because of motivational forces such as inequity aversion and reciprocal fairness, they feel the act of defecting cannot remain unpunished (Fehr and Gintis, 2007).

As mentioned above, the setting of the game is also important; do payoffs provide MaxJoint or MaxEqual outcomes? A person is as described by Van Lange (1999) prosocial if that person prefers MaxJoint and/or MaxEqual outcomes. If someone defects while others cooperate this works against both MaxJoint and MaxEqual outcomes, as there will be less profit from the group contribution and the defecting player also will individually have a much higher profit than the rest of the group. Because of the inequity aversion of prosocials they may use punishment opportunities to counter 'unfair' behavior. Furthermore Norenzenyan *et al.* (2009) state that many religions are centered around a God figure that interferes with the morality of humans, using their supernatural power to punish those who act immoral. People who follow these religions may therefore be more likely to punish unfair behavior as they believe it is contrary to the moral of God and therefore worth punishing. It is therefore expected that:

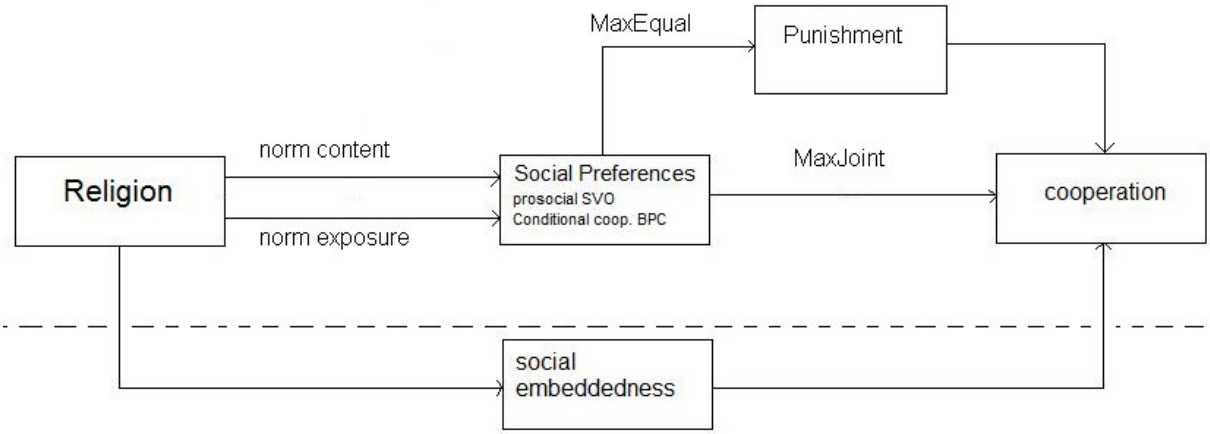
4. Religious people will punish more than non-religious people

The full model

All these hypotheses can be summarized in the model below. The model assumes that because religious people tend to have more prosocial preferences, religious people are more likely to

cooperate. Two separate effects of *norm content* and *norm exposure* are expected to influence social preferences. Social preferences in turn influence the level of cooperation, in which prosocial people are more likely to cooperate and to punish. People who use punishment in turn are more likely to cooperate, since punishment would be futile if not used as an instrument to foster cooperation. It is expected though that prosocial people with MaxEqual preferences are more likely to punish than prosocial people with MaxJoint preferences, because MaxEqual persons have more inequity aversion. Prosocials with MaxEqual preferences may on the other hand be less likely than prosocials with MaxJoint preferences to cooperate as prosocials with MaxJoint preferences may tolerate more defection. In embedded situations, social embeddedness plays a role, in which it is expected that religious people will cooperate more within the own group than outside the own group. The model above the dotted line shows the mechanism in anonymous situations, which we are interested in, in this research. The full model is presented here below:

Figure 1: Model for the effect of religion on cooperation



Data & Methods

Data

In this research data from the Miltenburg 2011 public goods experiment is used. This contains data from computerized public goods experiment using z-Tree software[1]. A total of 10 experimental sessions, containing 12 to 20 subjects, were conducted in April 2011 at the ELSE laboratory of Utrecht University. Subjects were recruited using the Online Recruiting System for Economic Experiments (ORSEE)[2]. The dataset contained 184 people of which 54 currently belonged to a religion. Of these 54 religious people, 19 were Protestant, 12 were Catholic, 4 were Muslims and 19 belonged to another denomination. Women were overrepresented in the data as 105 of the respondent were female and 59 male. The data contained mostly students, though age ranges from 17 to 67. Furthermore, the dataset contained a fair number of foreigners, 41 compared to 143 Dutch participants. Of all respondents 87 were already familiar with game theory. The design of the public goods experiment is presented below.

Public goods game

For testing the hypotheses stated above a questionnaire was added to a computerized public goods experiment conducted by Miltenburg in 2011 (unpublished). In general in a Public Good Game (PGG) subjects get an amount of tokens which they are able to keep or spend as a public good. The tokens that are spend on the public good are multiplied by a factor higher than 1.0 and lower than the number of subject playing the game, so $1 < m < N$. In this experiment multiplication factor is m=1.6, N=4, thus participants played in groups of four. This means that if all member contribute 1 point to the public good all will get 1.6 point in return. However the highest pay-off for the individual is established if the other three players cooperate while the individual defects in this case the return per point will be 2.2 while for the others the return is 1.2. This is still higher than if all would defect as each player would than only get 1.0, but if two players defect the pay-off for the cooperators is 0.8. This way on a macro level cooperating will result in a larger pay-off compared to defecting, but on the individual level defecting is a dominant strategy. All participants receive 20 points to spend per round in this experiment.

Notes: [1] more detailed description of the software in Fishbacher (2007)

[2] more detailed description of the ORSEE in Greiner (2004)

Participants are randomly matched after each round. The experiment consists four parts. In the first part only one round is played in which individuals are given the option to contribute a maximum of 20 to the public good, this is the unconditional cooperation part. In the second part the same game is played as in part one only this time the game is repeated ten times. After each round the individuals get feedback on what the other players did during that round. In the third part participants have the option to punish defection. After each round players receive feedback about the behaviour of others in the previous round and are given the opportunity to punish people. Punishing costs 2 points and 6 points are subtracted from the person that is being punished. In this part also ten rounds are played. In part four individuals have the opportunity to reward cooperation. The setup is the same as in the previous part only that in this part players can reward others, adding 6 points to the player that is rewarded and subtracting 2 points from the player that rewards.

Dependent variables

For the analysis only the first game of each round is selected. Contributions to the public good in the first round are most likely to be based on prosocial preferences, whereas contributions in later rounds may be made out of fear for punishment. The dependent variables therefore are the contributions in the first round of each part, being the contribution in the unconditional cooperation part (*contribution 1*), the first contribution in the repeated PGG (*contribution 2*), the first contribution in repeated PGG with punishment conditions (*contribution 3*) and the first contribution in the PGG with rewarding conditions (*contribution 4).*

Social Preferences, Punishment and Rewarding

For constructing items regarding social preferences the conditional cooperation variables were used. In the conditional cooperation section respondents had to indicate how much they would contribute to the public good if they knew the mean contribution of the other players was a certain number. The section contained 21 of these questions in which the mean contribution was raised with one in the next question. Thus the respondents were first asked to indicate how much they would contribute if the mean contribution was zero and in the next question if the mean contribution was 1 and so on, until a mean contribution of 20. Prosocials were expected to contribute at least the mean contribution. In this research a differentiation was made between people with MaxEqual and MaxJoint prosocial preferences. *MaxEqual* was coded in a way that respondents who indicated in more than 5 of the 21 items that they would contribute the exact mean contribution were considered people with MaxEqual preferences.

MaxJoint preferences was coded the same way only then people were considered to have MaxJoint social preferences if they indicated they would contribute more than the mean contribution in 5 or more cases. The data contained 43 people with MaxEqual preferences and 29 people with MaxJoint preferences. The distinction of more than 5 is quite arbitrarily. Preferably one would have used in more than 10 of the 21 cases, as that would be more than of all the cases. However, this would have produced small groups of prosocials, therefore >5 was chosen for both variables. Only 5 respondents scored both on MaxEqual and MaxJoint. A Pearson correlation showed no correlation between MaxEqual and MaxJoint indicating that two types of prosocials do exist. A general measure of prosociality (*prosocial*), however, was also added. This variable was constructed by taking the sum of all deviations from the mean from the 21 items.

Punishing was operationalized as the number of times that the person chose to punish someone in part 3 of the experiment. The same applied for the *rewarding* variable, which was operationalized as the number of times the person had opted to reward someone in part 4 of the experiment. The variables for social preferences (except prosocial), punishing and rewarding were all used as dependents in one model and independents in the other models.

Independent variables

The religion variables were created out of the religion survey items, which consisted of questions from the European Social Survey, supplemented with questions regarding the religion of the parents and religious background of the high school the respondent attended. A general religion measure was created out of the survey question, whether someone belonged to a religious denomination (*religion*). When someone belonged to any religious denomination this person was assigned a "1", whereas someone who did not indicate this was assigned a "0". In order to create the norm content and norm exposure variables the items presented in table 2 were used.

The praying item indicates the frequency of praying, ranging from every day to never on a 7-point scale (coded 0 to 6). The same applies for the church attendance, only regarding the frequency of church attendance. The religiosity item self reporting scale indicating religiosity on a ten point scale ranging from 0 (totally not religious) to 10 (very religious), regarding the religion of the parents and the religious background of the high school the respondent attended, ranging from a non-religious school to a strict religious school.
The religious parents variable was created out of the questions regarding the religion of the

Table 2: *Descriptives of Religion Survey Items*

	N	Min.	Max.	Mean	St. dev.
Religiosity	164	0	9	2.95	2.69
Church Attendence	164	0	6	1.21	1.34
Praying	164	0	5	1.30	1.83
Religious parents	184	0	1	1.33	0.47
Religious school	164	0	2	0.51	0.62

parents. A dummy variable was constructed that respondents with two religious parents were assigned a "1" and respondents with no or only one religious parent were assigned a "0". The religious school item regarded the religious background of the high school the respondent had attended, this was coded, "0" for a school with no religious background, "1" for a school with religious background, though not strict and "2" for a strict religious school. This measure was chosen, because the Netherlands have many schools with a religious backgrounds, but only a few of them have a strict religious background. All these items were included in a factor analysis in order to view if the multidimensional effect of religion could be found. The first three items in table 3 were expected to constitute the norm content dimension and the other two to be part of the norm exposure dimension. The results of the factor analysis are presented in table 3.

Table 3 : *Factor Analysis on Religion Survey Items*

	Factor 1	**Factor 2**
Religious parents		0.681
Religious school		0.508
Praying	0.902	
Church Attendance	0.570	
Religiosity	0.895	

Only factor loadings >.3 are presented
Extraction Method: Principal Axis Factoring. Rotation Method: Promax with Kaiser Normalization.
Pattern Matrix , Rotation converged in 3 iterations.

The results of the factor analysis clearly show the items of religious background of the high school and religion of the parents to load one factor and the items of religiosity, church attendance and praying to load on another. This confirms our model of norm content and

norm exposure effects. However the items loading on the norm exposure dimension do not load as high as the items on the norm content dimension. Using the norm content items a very reliable scale could be constructed (Cronbach's alpha = .857). The reliability of the scale of norm exposure was very poor, with a Cronbach's alpha of .402, therefore the items of religion of the parents (*religious parents*) and religious background of the school (*religious school*) were added separately in the regression analyses, whereas the norm content items were used to create a scale variable (*norm content*).

In order to view if any differences between religions could be found, two dummy variables were constructed, one for Christians (*christian*) and one dummy containing people of the other denominations (*otherdenom*). The Christians constituted a group of 28 people and the other denomination group of 22 people. A more in depth distinction between Protestantism, Catholicism, Islam and other religions would create too small groups.

Lastly controls were added in each regression analysis, containing gender (*female*, 1=woman, 0=man), age of respondents (*age*) and whether respondents were familiar with game theory (*game theory*). All the dependent and independent variables are included in the descriptive table 4

Table 4: *Descriptives of all variables used in the analysis*

	N	Min.	Max.	Mean	St. dev.
Contribution 1	184	0	20	6.82	6.09
Contribution 2	184	0	20	6.77	6.31
Contribution 3	184	0	20	8.42	6.13
Contribution 4	184	0	20	10.16	6.75
Punishing	184	0	3	0.29	0.64
Rewarding	184	0	2	0.10	0.38
MaxJoint	184	0	1	0.16	0.37
MaxEqual	184	0	1	0.25	0.43
Prosocial	184	-210	130	-102	95
Religion	184	0	1	0.29	0.46
Norm content	164	-0.90	2.25	0	0.88
Religious school	164	0	2	0.51	0.62
Religious parents	184	0	1	0.33	0.47
Christian	184	0	1	0.17	0.38
Otherdenom	184	0	1	0.13	0.33
Female	164	0	1	0.64	0.48
Age	164	17	67	22.74	4.95
Game theory	164	0	1	0.53	0.50

Method of Analysis

In the first part of the analysis the relation between religion and social preferences is examined. For testing hypothesis 1 a bivariate analysis (Pearsons correlation) is used in order to establish if a correlation can be found between religion and social preferences. The bivariate analysis includes correlations between the general measure of religion and three measures of social preferences, including the general prosocial variable and the MaxJoint and MaxEqual variables. The general prosocial variable is added to view if religious people are generally more prosocial, whereas the MaxEqual and MaxJoint variables refer to a type of prosociality. To control for spurious relationships or possible suppressor variables an OLS regression is performed using religion in general, adding age, gender and knowledge of game theory as controls. In order to test hypotheses 2 and 3 the same method is repeated for the norm content, norm exposure (consisting of two variables religious parents and religious school). Thus, bivariate analysis is used to establish if social preferences and the norm content and exposure variables are related to social preferences and a regression analysis is performed to check the robustness of the finding. Lastly the same method is also used to differentiate between religions, including the denomination variables in both in a bivariate analysis as in an OLS regression model, with the three variables of social preferences as dependents.

In the second part of the analysis the relation between religion, social preferences and cooperation is examined. Hypotheses 1 to 3 state that the effect of religion on cooperation is expected to be mediated by social preferences. Social preferences are expected to have a positive effect on contribution to the public good in all different conditions. The effect of religion on cooperation is expected to disappear when controlled for these social preferences. Firstly, as an indirect effect of religion is expected, bivariate analysis is used to establish whether religion and cooperation correlate. The four contribution variables are included in the bivariate analysis, being the unconditional contribution and the contribution 2, contribution 3 and contribution 4 variables. Then a OLS regression is performed including the general religion measure, the MaxJoint and MaxEqual variables plus the controls in the regression analysis, to view if indeed a relation between the social preferences and cooperation exists. The four contribution variables are used as dependents. Furthermore the variables punish and reward were added in respectively the regressions with contribution 3 and contribution 4 as dependent, as punishing and rewarding in these conditions are supposed to foster cooperation. The same analyses are then repeated, but then using religious denomination variables instead

of the general religion variable, to provide insight in whether there are differences between religions and cooperation.

In the third part of the analysis the relation between religion, social preferences and punishment is examined. Here also a mediating effect of social preferences on punishment was expected, as stated in hypothesis 4. In order to test hypothesis 4, first bivariate analysis is used to establish whether religious people punish and/or reward more, including the variable religion and the punish and reward variables. Then an OLS regression is performed in which the social preference variables of MaxJoint and MaxEqual plus the controls are added. This analysis is repeated, only then with the denomination variables instead of the general measure of religion, in order to view whether there are differences in punishing and rewarding behaviours between religions.

Results

Religion and social preferences

In this section the relation between religion and social preferences is examined. First hypothesis 1 is tested. Are religious people indeed more prosocial. The results of bivariate analysis are presented in Table 5.

Table 5: *Correlations between religion variables and social preference variables*

	Prosocial	MaxJoint	MaxEqual
Religion	-0.037	-0.082	-0.041
Norm content	0.047	-0.009	0.059
Relgious parents	-0.003	-0.019	-0.060
Religious school	0.076	-0.022	0.116

*p <.1, **p<.05, ***p<.01

The results show that there is no relation between religion and social preferences. The relation between religion and total prosociality is weak and insignificant. Furthermore religion is neither related to MaxJoint nor MaxEqual social preferences. What is interesting is that the signs are all negative, which is contrary to our expectations. This is not very promising, it is very likely that hypothesis 1 will not confirmed by the data. However in order to exclude the possibility of a suppressor a regression analysis is performed. The results of the regression analysis are presented in table 6a. These results do not confirm hypothesis 1 either, as religion

is not found to have a significant effect on any of the social preferences. The signs also remain negative in the regression analysis. Furthermore the explained variance in the model however is low, with an R^2 that does not exceed .05, indicating that less than 5% of the variation has been explained by the model.

For testing hypotheses 2 and 3 we first view table 4. The results show that there is no indication that one of the two processes of norm content and norm exposure is correlated with total prosociality. Furthermore no relation is found between the norm content and exposure variables and either MaxJoint or MaxEqual prosocial preferences. Norm content and religious school have positive effects in all the regressions, whereas religion parents have only negative effects, though all of these effects are insignificant. The regression analysis shown in table 6b also does not confirm hypotheses 2 and 3. Also in this case the signs remain the same and the R^2 does not exceed .05.

Table 6a: *Regression of social preferences and religion*

	Social Preferences		
	Prosocial	MaxEqual	MaxJoint
Constant	-109.559	0.399	-0.184
	(73.225)	(0.340)	(0.278)
Religion	-8.187	-0.027	-0.076
	(15.920)	(0.074)	(0.060)
Female	-15.689	-0.034	0.000
	(16.440)	(0.076)	(0.062)
Age[a]	1.600	-0.005	0.017
	(3.041)	(0.014)	(0.012)
Game theory	-31.501*	-0.009	-0.044
	(16.123)	(0.075)	(0.061)
R^2	0.034	0.003	0.033
N	161	161	161

Standard error in parentheses
[a] Outliers were removed out of the age variable, a positive significant effect on prosocial was found with the original age variable
*p <.1, **p<.05, ***p<.01

There are also no significant differences found between religions in social preferences as shown in table 6c. Christians have negative, but insignificant, effect on MaxJoint and

prosocial and a null effect on MaxEqual, whereas other denominations only show very weak effects on all social preferences. Thus, no clear differentiation can be made between religions and their social preferences. It is therefore futile to compare religions on their relation to norm content and exposure.

Table 6b: *Regression of social preferences and norm content and exposure*

	Social Preferences		
	Prosocial	MaxEqual	MaxJoint
Constant	-127.153**	0.314	-0.227
	(73.591)	(0.340)	(0.282)
Norm content	-4,996	0.057	-0.007
	(10,154)	(0.047)	(0.039)
Religious parents	-21,313	-0.125	-0.064
	(18,861)	(0.087)	(0.072)
Religious school	17,770	0.088	0.015
	(12.532)	(0.058)	(0.048)
Female	-14,965	-0.030	0.002
	(16.380)	(0.076)	(0.063)
Age[a]	2,240	-0.002	0.019
	(3.081)	(0.019)	(0.012)
Game theory	-33,441**	-0.019	-0.052
	(16.060)	(0.074)	(0.062)
R^2	0.049	0.031	0.029
N	161	161	161

Standard error in parentheses
[a] Outliers were removed out of the age variable, a positive significant effect on prosocial was found with the original age variable
*p <.1, **p<.05, ***p<.01

What is clear from the analysis is that the results do not confirm hypotheses 1 to 3. Religion is not found to be related with prosociality, thus not confirming hypothesis 1. Moreover, there do not seem to be distinguishing effects of religion in the form of either a norm content effect or a norm exposure effect, therefore not confirming hypotheses 2 and 3.
It is however still meaningful to examine possible effects of religion on cooperation. Perhaps the relation between religion and cooperation is more complex than proposed in the model, it

is therefore still worthwhile if any effect of religion on cooperation can be established. In the next part it is examined whether religion has a direct effect on contributions to the public good.

Table 6c *Regression of social preferences and denominations*

	Social Preferences		
	Prosocial	MaxEqual	MaxJoint
Constant	-105.609	0.391	-0.176
	(72.940)	(0.341)	(0.279)
Christian[b]	-24.498	0.006	-0.109
	(19.016)	(0.089)	(0.073)
Otherdenom[b]	-16.545	-0.078	-0.026
	(22.474)	(0.105)	(0.086)
Female	-13.252	-0.039	0.004
	(16.441)	(0.077)	(0.063)
Age[a]	1.412	-0.005	0.017
	(3.030)	(0.014)	(0.012)
Game theory	-33,436**	-0.003	-0.049
	(16.161)	(0.075)	(0.062)
R^2	0.049	0.006	0.037
N	161	161	161

Standard error in parentheses
[b] Unreligious people used as reference category
[a] Outliers were removed out of the age variable, a positive significant effect on prosocial was found with the original age variable
*p <.1, **p<.05, ***p<.01

Religion, Social Preferences and Cooperation

In this section the mediating effect of social preferences is examined. In table 7 the results of the bivariate analyses are presented.

Table 7: *Correlations between religion and the contribution variables*

	Contribution 1	Contribution 2	Contribution 3	Contribution 4
Religion	-0.105	-0.106	-0.085	-0.214**

*p <.1, **p<.05, ***p<.01

Religion is only significantly related to contribution 4 (r=-.214, p<.05), whereas the correlations to the other contributions are. These findings do not confirm hypothesis 1, as these results seem to suggest no effect of religion on cooperation, but also that if there would be an effect, it would more likely be negative effect than a positive effect.

Table 8a shows the result of the regression analyses. Results in the first model are quite in line with what has been expected. Prosocial preferences have a positive effect on contribution to the public good. People with MaxJoint preferences, however, do not seem to be more prone to contribute to the public than people with MaxEqual preferences. People with MaxEqual preferences are found to contribute more in the unconditional cooperation part

Table 8a *Regression of cooperation and religion*

	Contributions to the public good (cooperation)			
	Contribution 1	Contribution 2	Contribution 3	Contribution 4
Constant	-0.375	3.835	9.866**	19.713***
	(4.296)	(4.733)	(4.824)	(5.138)
Religion	-0.936	-1.366	-1.167	-3.068***
	(0.935)	(1.030)	(1.049)	(1.118)
MaxJoint[c]	4.391***	4.218***	1.814	1.488
	(1.239)	(1.365)	(1.391)	(1.481)
MaxEqual[c]	5.323***	3.138***	1.601	2.433**
	(1.014)	(1.117)	(1.139)	(1.213)
Female	0.587	-1.748*	-2.030*	-2.104*
	(0.960)	(1.058)	(1.078)	(1.148)
Age	0.202	0.121	-0.008	-0.338
	(0.179)	(0.197)	(0.201)	(0.214)
Game theory	1.158	0.849	-0.327	-0.837
	(0.943)	(1.038)	(1.058)	(1.127)
R^2	0.210	0.131	0.052	0.103
N	161	161	161	161

Standard error in parentheses
[c] Individualsists as reference category
*p <.1, **p<.05, ***p<.01

and in the final part. In the first prosocials with MaxEqual preferences contribute on average 5.3 points more than individualists (p<.01), whereas prosocials with MaxJoint preferences

contribute on average 4.4 points more to the public good (p<.01). In the final part prosocials with MaxEqual contribute 2.5 points more (p<.05), whereas prosocials with MaxJoint preferences are not found to contribute more than individualists (though sign is positive). Prosocials with MaxJoint preferences, however, contribute more in part 2 (b=4.2, p=<.01) compared to prosocials with MaxEqual preferences (b=3.1, p<.01). Furthermore the beta is higher for prosocials with MaxJoint preferences compared to those with MaxEqual preferences in part 3, though both type of prosocials are not significantly contributing more to the public good than individualists. Thus, the part that prosocials cooperate more is confirmed for hypotheses 1 to 3.

When the religion variable is examined in the regression analysis of table 8a an overall insignificant effect of religion in general is found on cooperation. This is according to the expectations, although a religious effect was of course expected to be indirect via social preferences, but this, as mentioned above, has not been found. Surprisingly, when religion is found to be significant, which is in the fourth part, the sign is negative as in the bivariate analysis. Religious people contributed on average 3.1 points less than unreligious people (p<.01). Moreover, the sign is also negative in all the other parts. This suggests that if there is an effect of religion on cooperation, it is more likely to be a negative effect than a positive one, which is contrary to our expectation.

When the general religion variable is replaced for the denomination dummy variables the results are even more striking. The results of the regression analysis with the denomination variables is presented in table 8b. Christians are found to be less cooperative compared people belonging to other denominations and to non-believers. Christians contribute on average 2 points less to the public good compared to non-believers, but effect was only weakly significant (p<.01). A strong effect negative of Christianity was found in the second (b=-3.1, p<.05) and a somewhat weaker effect in the third part (b=-2.5, p<.1). For the other denominations no significant effect is found in the first three parts. Religious people belonging to another denomination are not found to contribute more to the public good than unreligious people. Though unlike for Christians the sign is positive, indicating a higher contribution instead of a lower. However in the third part a strong negative effect of other denominations is found (b=-3.9, p<.05). The effects of the MaxJoint and MaxEqual variables remain relatively the same.

The results from this section and the previous seem to suggest that there is no positive effect of religion (in general) on cooperation. One could argue that the evidence perhaps even

suggests the contrary. However the evidence for a negative effect is not solid and therefore it has to be stated that hypotheses 1 to 3 are not confirmed by the results.

Table 8b: *Regression of cooperation and denominations*

	Contributions to the public good (cooperation)			
	Contribution 1	Contribution 2	Contribution 3	Contribution 4
Constant	-0.160	4.160	10.107**	19.609***
	(4.264)	(4.650)	(4.788)	(5.147)
Christian[b]	-2.081*	-3.098**	-2.451*	-2.514***
	(1.114)	(1.215)	(1.251)	(1.345)
Otherdenom[b]	0.780	1.231	0.756	-3.899**
	1.310	(1.429)	(1.471)	(1.581)
MaxJoint[c]	4.255***	4.012***	1.661	1.554
	(1.231)	(1.343)	(1.382)	(1.486)
MaxEqual[c]	5.411***	3.271***	1.700	2.391**
	(1.014)	(1.098)	(1.131)	(1.216)
Female	0.760	-1.487	-1.836*	-2.188*
	(0.957)	(1.058)	(1.075)	(1.155)
Age	0.191	0.105	-0.020	-0.333
	(0.177)	(0.194)	(0.199)	(0.214)
Game theory	0.948	0.531	-0.562	-0.735
	(0.942)	(1.027)	(1.058)	(1.137)
R^2	0.210	0.131	0.052	0.103
N	161	161	161	161

Standard error in parentheses
[b] Unreligious people used as reference category
[c] Individualsists as reference category
*p <.1, **p<.05, ***p<.01

Religion, social preferences and punishment

In the last section hypothesis 4 is tested. An indirect effect of religion on punishing, with social preferences as a mediator, was expected. The results of the bivariate analyses are presented in table 9.

Table 9: *Correlations between religion and punishing plus rewarding*

	Punishing	Rewarding
Religion	-0.125	-0.130

*p <.1, **p<.05, ***p<.01

The bivariate analyses show no significant correlations between religion and either punishing or rewarding. The signs are however negative, indicating that religious people would punish less, which contradicts hypothesis 4. Results from the regression analysis are shown in table 10 a.

Table 10a: *Regression of punishing, rewarding and religion*

	Punishing	Rewarding
Constant	1.258***	0.728***
	(0.475)	(0.259)
Religion	-0.190*	-0.091
	(0.103)	(0.056)
MaxJoint[c]	0.068	0.064
	(0.137)	(0.075)
MaxEqual[c]	0.117	0.059
	(0.112)	(0.061)
Female	-0.248**	-0.104*
	(0.106)	(0.058)
Age	-0.037*	-0.024**
	(0.020)	(0.011)
Game theory	0.003	-0.065
	(0.104)	(0.057)
R^2	0.078	0.070
N	161	161

Standard error in parentheses
[b] Individualsists as reference category
*p <.1, **p<.05, ***p<.01

No significant effects are found of the social preference variables MaxJoint and MaxEqual on either punishing or rewarding and the explained variance does not exceed a R^2 of 0.10. The

betas of the religion variables are slightly negative, whereas the social preferences are positive, which is in line with our previous findings. Religion is however found to be negatively correlated with punishment (b=-.190, p<.1), indicating that religious people punish less. Hypothesis 4 is clearly not confirmed and may even have to be rejected.

Table 10b shows the results of the regression analysis when the religion variable is substituted with the denomination variables.

Table 10b: *Regression of punishing, rewarding and denominations*

	Punishing	Rewarding
Constant	1.258***	0.731***
	(0.477)	(0.259)
Christian[b]	- 0.192	-0.109
	(0.125)	(0.068)
Otherdenom[b]	-0.187	-0.065
	(0.146)	(0.080)
MaxJoint[c]	0.068	0.062
	(0.137)	(0.075)
MaxEqual[c]	0.117	0.061
	(0.113)	(0.061)
Female	- 0.248**	-0.101*
	(0.107)	(0.058)
Age	- 0.037*	-0.024**
	(0.020)	(0.011)
Game theory	0.003	-0.069
	(0.104)	(0.057)
R^2	0.078	0.071
N	161	161

Standard error in parentheses
[b] Unreligious people used as reference category
[c] Individualsists as reference category
*p <.1, **p<.05, ***p<.01

MaxEqual and MaxJoint social preferences are again insignificant. Furthermore Christians and people belonging to other denominations are not found to punish or reward less, although for both the betas are negative. We therefore end this results section with the observation that none of the hypotheses have been confirmed.

Conclusion & Discussion

The central idea of this research was to give more insight regarding our main question: *Is there a positive effect of religion on cooperation in anonymous situations?* A positive answer to this question would indicate that religion has a function in modern society.

In answering this question a model is presented to provide an overview of mechanisms, which might be at work in the relation between religion on cooperation. The model states that religion has an indirect effect on cooperation. Religion has an effect on social preferences through believing and socializing processes making religious people more prosocial. Social preferences in turn influence outcomes in the cooperation games. Next to social preferences the model also states that social embeddedness is an important mediator. Members of religious groups may learn people certain prosocial norms and values and also control people in behaving according to these norms. These processes may however only be at work in intragroup encounters. The experiment however provided an anonymous setting and therefore the model expected only a religious influence through social preferences. The results have, however, almost completely rejected the model as religion is not found to have a positive relation with prosocial preferences. Tan (2006) found no relation between religiosity and social preferences, but claimed that possibly no results were found due to counterweighing effects. This research eliminated the possibility of counterweighing effects as both norm content and norm exposure were not correlated with social preferences. Furthermore no effect of religion has been found on average contribution or the use of punishment or reward. This research shows a strong negative effect of Christianity on contributions to the public good. This seems to be contradictory to Anderson and Mellor (2008) who find that Protestants are giving more to the public good than non-religious people. Anderson and Mellor (2008) however do find a negative effect of Catholicism on contributions to the public good. In this research the group of Protestants was too small to analyse separately, but a positive effect of Protestantism on contributions to the public good, in this study, seems highly unlikely. Anderson, Mellor and Milyo (2005) found that there is a positive correlation between church attendance and contributions in the public goods games. This finding is also not supported by this research.

This research could not provide an explanation for the finding that Christians contribute less to the public good compared to other religious people and atheists, as Christians were not found to have less prosocial preferences. One explanation may be that Christians are ‘overembedded’ in their own group. Welch, Sikkink and Loveland (2007)

believe that social embeddedness may also have a negative influence in trusting people outside the own group. They state that the more someone is embedded in a social group the more chance that suspicion will rise towards outgroup members. It could be that Christians are embedded so much in their own group that they get suspicious towards other groups in society. Perhaps Ahmed (2009) finds higher levels of cooperation in the Muslim group, because Muslims may have prosocial preferences, even towards strangers, whereas Christians have not. Possibly Muslims do not suffer from outgroup fear as much as Christians.

Future research should try to find out whether there is a social embeddedness effect by conducting experiments with religious people letting them play in both an embedded and an anonymous situation and compare the results. Furthermore research is needed to compare world religions with one another in their effect on cooperation. Research so far has only had small samples of religious people, making it difficult to compare. Lastly, there should be international research on multiple locations. Perhaps Protestants in the Netherlands are less cooperative, because the Netherlands is a highly secularized country and therefore Protestants experience more outgroup fear, whereas in the U.S.A. Protestants would not have these fears as they form the majority. What this research has shown is that a general effect of religion on cooperation is unlikely. More plausible is that different religions may have different effects on the level of cooperation. In conclusion there is probably no general effect of religion on cooperation. However, people of different religions in dissimilar settings are likely to differ in their levels of cooperation.

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Appendix A
Questions on religion

1a)Do you consider yourself as belonging to any particular religion or denomination?
Yes/No

1b) If yes, which:
Protestant
Catholic
Islam (Muslim)
Hinduism
Buddhism
Confucianism
Other

2a) Have you *ever* considered yourself as belonging to any particular religion or denomination?
Yes/No

2b) If yes, which:
Protestant
Catholic
Islam (Muslim)
Hinduism
Buddhism
Confucianism
Other

3) Do you consider one or both of your parents as belonging to any particular religion or denomination?

3a) Mother:
Yes/No

3b) If yes, which:
Protestant
Catholic
Islam (Muslim)
Hinduism
Buddhism
Confucianism
Other

3c) Father:
Yes/No

3d) If yes, which:
Protestant
Catholic
Islam (Muslim)
Hinduism
Buddhism
Confucianism
Other

4)Regardless of whether you belong to a particular religion, how religious would you say you are?
0 Not at all religious
…
10 Very religious

5) Regardless of whether you belong to a particular religion, how important is religion to you?
0 Extremely unimportant
…
10 Extremely important

6) Apart from when you are at religious services, how often, if at all, do you pray?
1 Every day
2 More than once a week
3 Once a week
4 At least once a month
5 Only on special holy days
6 Less often
7 Never

7) Apart from special occasions such as weddings and funerals, about how often do you attend religious services nowadays?
1 Every day
2 More than once a week
3 Once a week
4 At least once a month
5 Only on special holy days
6 Less often
7 Never

8) Have you ever attended a religious high school or a high school with a religious background?
1 No
2 Yes, though not a strict religious school, having only a religious background
3 Yes, a strict religious school with for instance a mandatory dress code, required church membership etc.