

Generosity and trustworthiness

A survey data analysis of the relation between generosity and trustworthiness

Abstract

The present study focuses on the relation between generosity and trustworthiness. This relation previously found in experimental research is tested through survey data analysis. Religious commitment is introduced as a potential explanatory factor. Analysis of General Social Survey data showed that generosity and the measurement of trustworthiness are positively related. This study found that generosity increases with religious commitment. The measurement of trust decreases with religious commitment. Religious commitment has no effect on the relation between generosity and trustworthiness.

Keywords: generosity, trustworthiness, religious commitment

Introduction

For decades there has been extensive research on the act of giving, especially on the act of giving towards people unrelated to oneself or with no personal gain. This is also called an altruistic act, more specifically defined by Trivers (1971) as: “Behavior that benefits another organism, not closely related, while being apparently detrimental to the organism performing the behavior”. Economic theory argues that humans will not act altruistically if they cannot acquire any personal gain from it. When an individual is faced with the choice to be generous towards someone, without the chance of a second interaction and thus future repercussions, this human being will always choose selfishly (Henrich et al., 2005). However, the prediction derived from these theories and the actual behavior in experimental settings do not match. Scientific experiments provide proof that human beings often act generously even though there is no economical explanation for it (McCabe, Rigdon, & Smith, 2003).

Further research provides proof that people who donated money are more likely to receive money in a follow-up situation. Individuals are more likely to “selflessly” donate money when there is a chance they could profit from it later on (Milinski, Semmann, & Krambeck, 2002). These findings suggest people who behave altruistically in interaction with others are likely to benefit from this. Barclay (2004) later on successfully demonstrated the existence of competitive altruism, individuals attempt to be more generous than the next person. The reason for this is that individuals are influenced by someone’s generosity. People are more inclined to trust someone who has shown to be more generous than others. Particularly when individuals have no other point of reference for determining someone’s trustworthiness, they tend to refer to an individual’s generosity (Elfenbein, Fisman, & McManus, 2012).

As found by Gambetta and Przepiorka (2014) it is actually reasonable to judge someone’s trustworthiness based on their generosity. People who act more generous in a first game experiment, end up being more trustworthy in a second truster-trustee game. According to these game-based experiments, generous people are indeed more trustworthy. Nonetheless these results are accompanied by some inherent limitations. Experiments attempt to replicate real life situations closely but ultimately they are still artificially constructed. The respondents are aware the experimental situation does not fundamentally affect their life. Consequently, experimental research can lack external validity. Furthermore, their subject pool is often limited in size and not as randomly selected as larger scale analysis. (Fehr, Fischbacher, von Rosenbladt, Schupp, & Wagner, 2002). Therefore a valuable contribution to this research would be to test the relation between generosity and trustworthiness through survey data analysis. Using survey data allows for a more randomly selected, and greater sample of subjects to be examined. The present study attempts to answer the following question using survey data analysis: *Does the positive relation between generosity and trustworthiness hold up in a broader population and outside of an experimental setting?*

However, answering this question with use of survey data poses some methodological challenges as well. One of the main challenges of working with survey data is the possible imprecisions. The collection of data is less controlled when gathered through surveys than in experimental settings. Moreover, it is harder to disentangle the motives of certain behavior. Subjects have opportunity to give desirable answers to certain questions, especially when answering questions about generosity and trustworthiness people are likely to make it sound more positive than it is in reality. Lastly, conducting a survey lacks monetary incentive,

someone can easily state they would pay X euros in a given situation, however this is different from actually paying X euros in an experiment.

Based on existing theory, this study will derive a hypothesis on the research question posed. Survey data from the General Social Survey will be used to perform SPSS analysis. Keeping the methodological limitations in mind, this thesis will attempt to create insight on the possible relationship between generosity and trustworthiness. If this relation indeed exists valuable information can be obtained from the display of generous acts. These results would create a new dimension in how people understand generous acts and their value. The relation between the two can demonstrate that policy, whether it be national or corporate, should highlight generosity, because useful lessons can be learned from it.

Theory

To say something about trustworthiness, the concept of trust needs to be examined generally. As defined by Coleman, (1990) trust occurs when an individual (the investor) places resources into someone else's hands (the trustee) without them being legally bound to each other. At the base of an act of trust lies the assumption that the investor will benefit from placing this trust with the trustee. So, when the investor trusts someone with resources, he or she expects to benefit from it. The investor has a goal in mind when choosing to trust someone and hopes to get closer to this goal by the act of trusting. However for the investor to benefit, the trustee needs to be trustworthy. If the trustee chooses to be trustworthy, the investor will gain from it. However, if the trustee chooses selfishly, not trustworthy, the investor will suffer from it.

As explained above, the trustworthiness of the person you interact with is crucial for human and economic interaction. People want the person they interact with to be trustworthy so they can fully benefit from the interaction. Therefore they need cues to determine whether someone is trustworthy. When it comes down to it, whether someone is going to trust or not depends on their willingness to make themselves vulnerable to someone else's action (Hong & Bohnet, 2007). People become more willing to be vulnerable when they see certain assets in the person they are interacting with. If generous acts are cues of someone being cooperative, a generous individual would be a desirable trustee in a trust game situation. (Brown & Moore, 2000).

In a basic trust game two respondents interact with one another. One respondent is given something of value, often a certain amount of money. This person (the truster) can choose to either keep the money or transfer (part of) it back to their opponent (the trustee). The trustee is then given the choice to either keep all of it or give a share back to the truster. If the trustee chooses to give money back, the both benefit equally, the truster more so than before trusting. In case the trustee decides to keep the money, the truster would lose money while the trustee gains money. In this situation handing back money to the truster would be acting trustworthy. Trustworthiness can be defined as responding to trust by cooperation. Cooperation being to respond the way the truster expects of you. If trust is defined as “an individual (the truster) placing resources into someone else’s (the trustee) hands without them being legally bound to each other” (Coleman, 1990), trustworthiness would be for the trustee not to take advantage of the resources handed to him or her by the truster.

In experimental research generosity is often measured through a dictator game. In this case generosity is defined as choosing for an equal distribution (keeping £4,50 and donating £3,50) instead of keeping most of the amount (keeping £7 and donating £1). This paper will not examine generosity through experimental data, therefore it is necessary to elaborate on the theoretical definition of generosity. When examining other survey based articles researching generosity, it is defined by acts of giving. To be generous is to voluntarily give something which you possess to others. Whether this is giving money to a fund, giving your time through volunteering or giving blood through donation, these are all considered generous acts (Barraza & Zak, 2009; Steinberg & Rooney, 2005; Will & Cochran, 1995).

One cannot argue that a generous act is always an altruistic act as well. As defined before, altruism is “Behavior that benefits another organism, not closely related, while being apparently detrimental to the organism performing the behavior” (Trivers, 1971). So, solely when one is generous towards someone they have no close relation to, this act is also regarded as altruism. In experiments it is key that participants are unrelated and randomly selected. Being generous in one of these experiments would thus always equal being altruistic. However, this study had no information on the condition in which the respondent performed the generous act. The fund they donate to might be related to their own wellbeing and the hours of volunteering might be at an organization which benefits a relative. Therefore, this article will focus on the act of giving, generosity, regardless of the existence of an altruistic background.

Being generous might not be altruistic, however it is definitely a form of pro-social behavior. Pro-social behavior consists of “Voluntary actions undertaken to benefit others, such as sharing, donating, caring, comforting and helping” (Caprara & Alessandri, 2012). As explained above being generous entails multiple of these factors. Using this definition one can argue being trustworthy is a pro-social act as well. Whether someone acts pro-social or not is determined by their Social Value Orientation (SVO). Someone’s SVO is determined by the degree of importance they give to their own welfare and their interaction partner’s welfare, if that welfare would be interdependent (Yamagishi et al., 2013). Pro-socials are either cooperators; individuals whom regard their own and their interaction partner’s welfare as equal, or; altruists individuals whom regard their own welfare as less important than the welfare of their interaction partner (Lange & Kuhlman, 1994). These pro-socials have a preference for responding pro-socially to situations in which their welfare is interdependent to someone else’s. Previous research suggests that behavioral choices reflect the social preference of the actor (Yamagishi et al., 2013). Cooperative behavior can be the result of a psychological propensity to do well to others. (Camerer, 2003)

Before, this study argued that both generosity and trustworthiness are examples of pro-social behavior. Choosing to be generous reflects whether someone’s social preference is to act pro-social and has a propensity to benefit others. Making it highly likely this person will also prefer to act trustworthy. Therefore, the first hypothesis tested in this thesis is: *Someone who displays more acts of generosity will be more trustworthy*. If generosity and trustworthiness indeed stem from the same behavioral preference, it gives reason to think this preference might depend on one factor. If the first hypothesis is confirmed, it would be interesting to provide further insight into this relation.

Historically, religion has proven to promote pro-social behavior; e.g. helping the poor and human solitude (Regnerus, Smith, & Sikkink, 1998). Research by Will and Cochran (1995) suggests that someone’s religious affiliation influences their generosity towards the poor. Furthermore, there is reason to believe more frequent attendance of religious ceremonies predict a higher level of social trust (Welch et al., 2004). As Durkheim (1897) theorized, someone who is more integrated into a certain social group, is more likely to conform to its norms. This social integration theory distinguishes different types of integration: familial, political and religious. Religion provides a setting in which people interact and influence each other. The present study assumes that religious groups conform to the norms of their religion. If religion promotes pro-social behavior, religious groups conform to pro-social behavior

norms. Therefore this study expects greater entrenchment into ones religion to promote pro-social behavior preferences. This pro-social preference, promotes generous behavior and responding to trust by cooperation. In this case being more committed to religion would relate to being more generous and trustworthy. Religious commitment would be the explaining factor, influencing both trustworthiness and generosity. Consequently the second hypothesis examined in this paper is the following: *Someone who is more integrated into their religious group is likely to have stronger pro-social preferences and therefore will behave more generous (a), and will be more trustworthy (b)*

Data

The dataset used to conduct the analysis of this paper was gathered through the General Social Survey (2014). It focuses on the social structure and development of American society and contains demographic, behavioral and attitudinal questions. The respondents are exclusively American citizens, whom are randomly selected to participate. For many years varying aspects of generosity have been part of the GSS. Multiple questions on charitable giving, volunteer work and other types of donation are included in the survey. Furthermore one of the prime foci of the GSS is measuring respondent's attitudes. There is considerable amount of experience behind the questions formulated, therefore it lends itself particularly well for attitudinal questions on trust.

Majority of the data are gathered through face-to-face interviews, on rare occasions some interviews are conducted through telephone. As mentioned in the introduction survey data are always sensitive to social desirability. Face to face interviews have been proven to lead to less socially desirable answers than interviews conducted through telephone (Holbrook et al., 2003). Nevertheless both interviewing methods are sensitive to social desirability. Even though the questions in the GSS are formulated to trigger the respondent as little as possible, this limitation will be kept in mind.

The GSS data of 2014 consisted of 2803 respondents. This sample was almost equally divided in gender (54,5% female, 45,5% male). The youngest respondent was 18 years old at the time of data-gathering and the oldest participant over 89 years old. After considering the missing values of this sample, a great number of respondents were excluded from the analysis. This however, resulted in significantly big sample size of 761 respondents. The eventual sample was almost equally divided in gender as well (53,3% female, 46,7 male). The age at the time of data gathering varied from 18 to 89 or older.

Methods

Dependent variable

The dependent variable; trustworthiness, “responding to trust by cooperation”, is hard to measure through surveys. However research from Glaeser et al. provides proof that survey questions which measure trusting behavior correlate with an individual’s trustworthiness (2000). In this research questions similar to ones formulated in the GSS were combined with experimental data. As a result they found that trustworthy behavior in the experimental data overlapped with indicators of trusting behavior in survey data. These findings find support in varying literature. According to research by Putnam, people who believe they are untrustworthy are less trusting towards others as well (2000). This outcome is in line with literature of the false consensus effect (Ross, Greene, & House, 1976). This effect describes the tendency of people to assume their preferences are the ones of the masses. Therefore it is likely that people who are inclined to be trustworthy, are under the impression that the majority of people are trustworthy as well.

In the research mentioned before, by Gleaser et al. (2000), the question ‘Generally speaking, would you say that most people can be trusted or that you can’t be too careful in dealing with people?’ was tested as well. They found the answer to this question correlated with trustworthiness. Therefore, this question measuring trust was used as a proxy variable for trustworthiness. The respondents were given three choices ‘cannot trust people’, ‘can trust people’ and ‘depends’. The answer ‘depends’ is a neutral value and moreover was seldom answered by the respondents compared to the two extremes. After some consideration this variable was coded as a binary variable, in which cannot trust people was (0) and can trust people was (1). The value ‘depends’ was coded as a missing value, to be excluded from the analysis later on. The model could be more precisely tested without a neutral category.

Independent variable

Earlier, generosity was defined as the act of giving something you possess to others (Barraza & Zak, 2009; Steinberg & Rooney, 2005; Will & Cochran, 1995). The GSS gathered data on the respondents giving behavior. The questions asked started with ‘How often in the last 12 months have you...’ followed by the following variations ‘given money to a charity’, ‘donated blood’ and ‘given food or money to a homeless person’. All questions could be answered with a range of frequencies starting with ‘more than once a week’(1), followed by

‘once a week’ (2), ‘once a month’ (3), ‘at least 2 or 3 times in the past year’ (4), ‘once in the past year’ (5) and ‘not at all in the past year’ (6). If an individual is generous by giving something which is his or hers to others, the more often this person gives, the more generous he or she is. Therefore, the frequency in which respondents give money to charity or donate blood for example, determines how generous they are. Respondents who have performed these acts of giving more frequent, are considered to be more generous. A new variable was constructed in which the values were coded the other way around. Starting with ‘not at all in the past year’ (1) to ‘once a week’ (6).

Subsequently, a Cronbach’s alpha analysis revealed a score of .26, which indicates the items are not consistent with each other. In other words, it indicates low scale reliability. However, the three questions used to measure generosity were not designed to measure the exact same aspect. They are a measurement of behavior rather than a latent variable. Therefore the low Cronbach’s alpha score is not troublesome. A sum variable of these three items measured the frequency of generous behavior, which is precisely the definition as established earlier. The values range from ‘least generous’ (1) to ‘most generous’ (18).

The dataset contained several questions on religion. This allowed for the measurement of the second independent variable; religious commitment. One of them was ‘How often do you attend a religious service?’ Which could be answered with ‘Never’ (0) ‘Less than once a year’ (1) ‘about once or twice a year’ (2) ‘Several times a year’ (3) ‘About once a month a year’ (4) ‘2-3 times a month’ (5) ‘Nearly every week’ (6) ‘Every week’ (7) ‘Several times a week’ (8). The assumption made is; the more often someone attends a religious service, the more integrated they are into their religious group. Therefore, a higher scores mean high level of commitment.

Control variables

This study controlled for several variables; Gender with values ‘male’ (0) and ‘female’ (1), age at time of the interview and years of education. The respondent’s income was taken into account as well. If a generous person would have a low income, the lack of donation to charity would not automatically mean a lack of generosity. The GSS measured income by asking the respondents whether they received an income the previous year from the occupation named earlier. The item was divided into 12 income categories, starting with ‘lower than \$1000’ (1) and the highest value being ‘\$25000 or more’ (12). One of the values was ‘not applicable’ (0), this means the respondent had no job the previous year at which he

or she could earn an income. However, this study chose to include income to control for the someone's financial capital. Therefore, whether or not someone had an income the previous year is highly interesting for this study. Further examination of the variable showed the distribution among the income categories was not spread equally. A total of 270 respondents answered to have no income the previous year, 308 respondent said to have an income of over \$25000, the remaining 183 respondents were scattered across other categories. Therefore three dummy variables were created noincome consisting of 'had income last year' (0) and 'no income last year' (1), medincome with the categories 'no or high income last year' (0) and 'income till \$25000 last year' (1) and highincome which consisted of 'income below \$25000 last year' (0) and 'income above \$25000 last year' (1). The summary statistics are showed in Table 1

Table 1

Summary statistics of variables included in the analyses (N = 761) from the General Social Survey (2014)

	M	SD	Min	Max
Trust	.333		0	1
Generosity	8.267	4.139	3	18
Religious commitment	4.43	2.873	0	8
No income	.355	.479	0	1
Med income	.241	.428	0	1
High income	.405	.491	0	1
Years of education	13.69	3.039	0	20
Age	48.88	17.123	19	89*
Gender	.55		0	1

Source: General Social Survey (2014)

* 89 means '89 or older'

Analysis

A bivariate correlation was measured to get first insight into the relation between generosity and trust. First, a logistic regression model provided a more accurate estimate of the relation between generosity and trust, including the control variables. This allowed for the testing of the first hypothesis. Subsequently, the relation between religious commitment and generosity was tested in an ordinary least squared regression model. This revealed whether religious commitment was indeed positively related to generosity. Finally, the second logistic regression model measured the relation between religious commitment and trust, to test the second hypothesis.

Results

The bivariate correlation displayed that generosity and trustworthiness correlated significantly with each other ($r = .17, p < .000$). The three regression models which were measured are shown in Table 2. The relation between generosity and trust, controlled for by other factors is measured in Model 1. This model tests the first hypothesis and significantly predicts whether someone trusts or not (LR $\chi^2(5) = 113.25, p < .000$). Model 2 demonstrates a significant relation between generosity and trust at level 10%, when controlled for other factors such as income ($B = .039, p = .067$). Though this significance is not as strong as expected ($p = .05$), based on the evidence of the correlation this study will not fully discard these results. Moreover, years of education ($B = .228, p < .000$), having no income ($B = .555, p < .05$) and having a high income ($B = .649, p < .01$) do significantly predict the likeliness of being trustful.

Table 2

Results of OLS regression model on generosity and logit regression on trust (N = 761)

Variable	Model 1 Logit (trust)		Model 2 OLS (generosity)		Model 3 Logit (trust)	
	B	p	B	p	B	p
Generosity	.039	.067	-	-	.053	.015*
Religious commitment	-	-	.341	.000***	-.083	.008**
No income	.555	.032*	.390	.321	.566	.029*
High income	.649	.007**	.891	.017*	.632	.009**
Years of education	.218	.000***	.287	.000***	.215	.000***
Age	.020	.000***	.046	.000***	.021	.000***
Gender	-.431	.023*	.119	.679	-.314	.070
Constant	-4.990	.000***	-7.606	.000***	-5.006	.000***
Adjusted R ²	-	-	-	.154	-	-
LR Chi-square	113.246	.000***	-	-	120.448	.000***
df	6					

Note: Generosity and religious commitment were centered at the median

* $p < .05$ ** $p < .01$ *** $p < .001$

Model 2, is an ordinary least squares regression which measures the relation between religious commitment and generosity. It tests part (a) of the second hypothesis. This model shows that the religious commitment and generosity are positively related to each other. An increase of one on the scale of religious commitment, means an increase of .352 on the scale of generosity ($B = .352, p < .000$). Thus, someone who is more committed to their religion is likely to be more generous. So far, this confirms part (a) of the second hypothesis.

In Model 3 religious commitment is added to the analysis. It shows a significant improvement of the model of fit (LR χ^2 (6) = 7.202, $p < .000$) compared to Model 1. While there was no significant relation between generosity and trust in the last model at level 5%, this model demonstrates a significant positive relation between these two variables ($B = .053$, $p < .05$). After religious commitment was added, trust was estimated to increase with .053 when the value of generosity increased with one. Interestingly, religious commitment is negatively related to trust, which decreases with .083 when religious commitment increases with one ($B = -.083$, $p < .01$). This implies that someone who is more religiously committed is likely to be less trusting. Model 3 does not provide proof to confirm part (b) of the second hypotheses. However, it provides some intriguing insights into the relation between generosity and trust.

Table 3
Results of logit regression on trust (N = 761)

	Model 4	
Variable	B	<i>p</i>
Religious*generosity	-.004	.559
Generosity	.056	.013*
Religious commitment	-.083	.008**
No income	.564	.030*
High income	.628	.009**
Years of education	.215	.000***
Age	.021	.000***
Gender	-.317	.068
Constant	- 4,973	.000***
LR Chi-square	120,789	.000***
df	8	

Note: Generosity and religious commitment were centered at the median

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 3 displays the outcomes of Model 4, which tested the interaction effect of religious commitment on the relation between generosity and trust. This last model is exploratory, it was not part of the planned method for this study. However, model 3 provided unforeseen results which raised interesting questions. To clarify whether religious commitment had an effect on the question central to this paper, a last logistic regression model was tested. This model included the same factors as Model 3, except an interaction variable of religious commitment and generosity was added to the analysis. It allowed for more detailed implications, which will be discussed in the conclusion and discussion section.

The interaction effect of religious commitment on the relation between generosity and trust was not significant ($B = -.004$, $p = .559$). These outcomes imply that religious commitment does not influence the relation between generosity and trust.

Discussion and conclusion

This study aimed to provide further evidence on the relation between generosity and trustworthiness, based on survey data analysis. As an alternative to the experimental methods used before, survey based research allowed for testing the hypotheses on a broader population. By conducting a logistic regression analysis, the present study aimed to shed light on whether the relation found in previous research holds up in a broader population. It provided an estimate of the likeliness that someone is trusting based on the amount to which they behave generously. Evidence in literature led to the use of trust as a proxy measurement of trustworthiness (Glaeser et al., 2000 ;Putnam, 2000; Ross et al., 1976). In addition, a possible predictor of both generosity and trustworthiness was examined. In order to test whether religion influences people's generosity and trustworthiness, the outcomes of a logistic regression and multiple regression were regarded. This process allowed to answer the following research question: *Does the positive relation between generosity and trustworthiness hold up in a broader population and outside of an experimental setting?*

The results imply that someone who behaves generous more frequently is likely to be more trustworthy. This confirms the prediction made; a positive relation between generosity and trustworthiness. The prediction was based on the theory of pro-sociality preferences. Generosity and trustworthiness were expected to be positively related because being generous is pro-social behavior and being trustworthy is responding to trust in a pro-social matter. Though the confirmation of the relation between generosity and trustworthiness support that this theory is indeed the underlying mechanism, further outcomes give reason to readdress this theory as well as the measurement method. When the present study looked into religious commitment as an explanatory factor, the outcomes implied an alternative reason for the relatedness of generosity and the measurement of trustworthiness.

Furthermore, this study found a positive relation between religious commitment and generosity. This is in line with the expectations, based on the theory as mentioned before. It confirms the idea of religion promoting pro-social norms, religious commitment would lead to pro-social preferences. Being generous can be clearly identified as a value promoted by religion (Regnerus et al., 1998) and as pro-social behavior; 'Voluntary actions undertaken to

benefit others, such as sharing, donating, caring, comforting and helping' (Caprara & Alessandri, 2012). In conclusion this leaves little room for discussion. There is considerable evidence to assume that religious commitment leads to generous behavior due to a stronger pro-social preference.

The outcomes of the relation between religious commitment and trustworthiness gave reason to reconsider the applied theory and measurements. While the expectation was a positive relation between religious commitment and trust, the present study found a negative relation between these two variables. This demonstrates that even though there is reason to believe religious commitment leads to pro-social preferences, these preferences do not lead to people being more trustworthy. An explanation for the lack of positive relatedness could be the inaccuracy of the proxy used to measure trustworthiness. Due to the challenge survey data analysis poses in the measurement of trustworthiness, social trust served as a proxy variable for trustworthiness. However, these outcomes show that this measurement is not ideal. Nevertheless, it was the closest this study could get to a measurement of trustworthiness.

What cannot be concluded is that the proxy of trust is not at all a fit measurement for trustworthiness. These results do imply that the theory of pro-sociality is not applicable to the measurement of trustworthiness used in this study. Trustworthiness was defined as responding to trust by cooperation, which is a pro-social response. The proxy of trustworthiness measured respondents' social trust, a general belief on people's trustworthiness. This proxy variable was measured by asking respondents the question: 'Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?'. It makes sense that pro-sociality had no influence on social trust as a proxy variable. It is not a strong theoretical argument that a preference to help others influences a general belief of people's trustworthiness, which is what was measured. Bear in mind, this study does not state that social trust, cannot be a proxy for trustworthiness. What this study does argue is that it cannot be a proxy for trustworthiness which arises from pro-social preferences.

To shed more light on this argument an exploratory analysis was conducted. This analysis tested the interaction effect of religious commitment on the relation between generosity and the measurement of trustworthiness. The results showed no significant effect, in other words religious commitment does not influence the relation between generosity and this study's measurement of trustworthiness. This implies that the relatedness of religious commitment and generosity has no connection to the confirmed relatedness of generosity and

the measurement of trustworthiness. Since this study assumes that religious commitment leads to pro-social preferences, these outcomes suggest that pro-social preferences have no influence on the main relation of this study. This supports the argument that the trustworthiness this study measured does not arise from pro-social preferences.

Based on the findings, this study argues that pro-sociality cannot influence the measurement of trustworthiness as used in this study. Therefore the pro-sociality theory serves no explanatory role in the relatedness of generosity and the measurement of trustworthiness. If pro-sociality has no influence on the proxy of trustworthiness, it cannot explain why these two factors are related to each other. In conclusion, this study was not able to provide an explanatory factor. Furthermore, the present study pointed out that the applied measurement of trustworthiness was not ideal. Previous research provides reason to assume that social trust does in some way measure trustworthiness. However, for this study it did not fit the underlying theory. It is possible that the proxy for trustworthiness still measured a certain aspect of trustworthiness, even though it was not the aspect this study was looking to measure. As a result the conclusions which can be drawn from the established relation between generosity and trustworthiness are limited, nevertheless valuable. What can be stated with certainty is, an individual which behaves more generously has more social trust. This social trust might or might not spill into someone being trustworthy, in the present study there was no significant proof to make claims on this matter.

What this comes down to is the present study was clearly limited by the measurement of trustworthiness. Besides this challenge this study has some other limitation as well. The use of survey data made the analysis susceptible to social desirable answers which could result in somewhat biased results. Especially since being generous as well as the attitudinal question on trust are delicate matters with higher risk of social desirability. Additionally, the sampled used was extracted from the General Social Survey, a survey conducted solely among American citizens, this limits the generalizability of the results. The conclusions made are only applicable to the American population. Furthermore there are more factors to generosity than what this study measured. Giving to a charity or homeless person, or donating blood does not account for the entire concept of generosity. However, these factors of generosity are what this study was able to measure with the use of the GSS.

The present study contributed to the established effect between generosity and trustworthiness. This relation had been confirmed in experimental research, but had never

been exposed to a larger scale analysis. The confirmation illustrates there is an undeniable relatedness between factors connected to generosity and trustworthiness. However, the most intriguing contribution this study provides was revealed by the introduction of religious commitment. The outcomes suggested that the relatedness generosity and the measurement of trustworthiness finds no explanation in the pro-social preference theory. These findings mean that there is an alternative mechanism which could create deeper understanding. Moreover, this research revealed that a more complex understanding of the variable trustworthiness is needed for future research. It shows that there are many factors to a complex phenomenon like trustworthiness, which are hard to capture, especially in survey based data.

Consequently, these results contribute many interesting suggestions for future research. There is an undeniable relatedness between generosity, factors of social trust and trustworthiness. However, explanatory factors of this relationship remain unrevealed. It is useful to know that someone who acts generously is probably more trustworthy as well. But solely when it is clear what causes this tendency, in-depth implications can be made. Further research could continue to develop this concept and shed new light on explanatory factors for the relatedness of generosity and trustworthiness. The measurement of trustworthiness through survey data will always pose a challenge. Therefore, experimental research lends itself best for the measurement of a complex variable like trustworthiness. However, in order to support future outcomes with survey data analysis, experimental research could focus on finding a fit survey measurement, which would lead to a more reliable proxy variable. In addition, the results showed that someone who is more religiously committed scores lower on the measurement of trustworthiness. If we take a look at what was definitely measured, religious commitment leads to less social trust. Further research on this finding could clarify the concept of trust and whether there is reason to assume it spills into trustworthiness.

In conclusion, the present study provides additional proof of generosity being positively related to factors connected to trustworthiness. This shows that the relation does hold up in a broader population. Furthermore, introducing religious commitment shows that generosity increases with religious commitment, however this does not have any influence on the established relation between generosity and the measurement of trustworthiness. Moreover, religious commitment allowed for the examination of the pro-social preference theory as explanatory factor. The lack hereof can encourage future research to develop an explanation of generosity and trustworthiness' positive relation.

Sources

- Barclay, P. (2004). "Trustworthiness and competitive altruism can also solve the "Tragedy of the commons". *Evolution and Human Behavior*, 25(4), 209-20.
- Barraza, J. A. & Zak, P. J. (2009). Empathy toward strangers triggers oxytocin release and subsequent generosity. *Annals of the New York Academy of Sciences*, 1167, 182–189 doi: 10.1111/j.1749-6632.2009.04504.x
- Berggren, N. & Bjornskov, C. (2011). Is the importance of religion in daily life related to social trust? Cross-country and cross-state comparisons. *Journal of Economic Behavior and Organization*, 80(3), 459 – 480.
- Brown, W. M. & Moore, C. (2000). Is prospective altruist-detection an evolved solution to the adaptive problem of subtle cheating in cooperative ventures? Supportive evidence using the Wason selection task. *Evolution and Human Behavior*. 21(1), 25 – 37.
- Camerer, C. F. (2003). *Behavioral game theory*. Princeton, NJ: Princeton University Press.
- Caprara, G. V. & Alessandri, G. (2012). Prosociality: The contribution of traits, values, and self-efficacy beliefs. *Journal of Personality and Social Psychology*, 102(6), 1289 – 1303.
- Coleman, J. (1990). *Foundations of social theory*. The Belknap Press of Harvard University Press.
- Durkheim, E. (1897). *Suicide: A study in sociology*. London: Routledge.
- Elfenbein, D. W., Fisman, R., & McManus, B. (2012). Charity as a substitute for reputation: Evidence from an online marketplace. *Review of Economic Studies*, 79(4), 1441-1468.
- Fehr, E., Fischbacher, U., von Rosenblatt, B., Schupp, J., & Wagner, G. G. (2002). A nation-wide laboratory: Examining trust and trustworthiness by integrating behavioral experiments into representative surveys. *Journal of Applied Social Science Studies*, 122(4), 519-542
- Gambetta, D., & Przepiorka, W. (2014). Natural and strategic generosity as signals of trustworthiness. PLoS ONE, 9(5), 397533. doi:10.1371/journal.pone.0097533
- Glaeser, E. L., Laibson, D. I., Scheinkman, J. A., & Soutter, C. L. (2000) Measuring trust. *The Quarterly Journal of Economics*, 115(3), 811-846.

- Henrich, J., Boyd, R., Bowles, S., Camerer, C., Fehr, E., Gintis, H.,... Tracer, D. (2005). "Economic man" in cross-cultural perspective: behavioral experiments in 15 small-scale societies. *Behavioral and Brain Sciences*, 28, 795-815
- Holbrook, A. L., Green, M. C., & Krosnick, J. A. (2003) Telephone versus face-to-face interviewing of national probability samples with long questionnaires: Comparisons of respondent satisficing and social desirability response bias. *Public Opinion Quarterly*, 67(1), 79-125.
- Hong, K. & Bohnet, I. (2007). Status and distrust: The relevance of inequality and betrayal aversion. *Journal of Economic Psychology*, 28(2), 197 – 213.
- Lange, P. A. M. & Kuhlman, D. M. (1994). Social value orientations and impressions of partner's honesty and intelligence: A test of the might versus morality effect. *Journal of Personality and Social Psychology*, 67(1), 126-141.
- McCabe, K.A., Rigdon, M.L. & Smith, V.L. (2003). Positive reciprocity and intentions in trust games. *Journal of Economic Behavior and Organization*, 52(2), 267-275.
- Milinski, M., Semmann, D.& Krambeck, H. (2002). Reputation helps solve the 'tragedy of the commons'. *Nature*, 415(6870), 425-426.
- Putnam, R. (2000). Reciprocity, honesty and trust. *In Bowling alone: The collapse and revival of American community* (135 - 147). London: Routledge.
- Trivers, R. L. (1971). The evolution of reciprocal altruism. *The Quarterly Review of Biology*, 46(1), 35-57.
- Regnerus, M. D., Smith, C., & Sikkink, D. (1998). Who give to the poor? The influence of religious tradition and political location on the personal generosity of Americans toward the poor. *Journal for the Scientific Study of Religion*, 37(3), 481 – 493.
- Ross, L., Greene, D. & House, P. (1977). The "false consensus effect": An egocentric bias in social perception and attribution processes. *Journal of Experimental Social Psychology*, 13(3), 279 – 301.
- Steinberg, K. S. & Rooney, P. M. (2005). America gives: A survey of Americans' generosity after September 11. *Nonprofit and Voluntary Sector Quarterly*, 34(1), 110-135.

Tan, J. H. W. & Vogel, C. (2008) Religion and trust: An experimental study. *Journal of Economic Psychology*, 29(6), 832-848.

Welch, M. R., Sikkink, D., Sartain, E., & Bond, C. (2004). Trust in god and trust in man: The ambivalent role of religion in shaping dimensions of social trust. *Journal for Scientific Study of Religion*, 43(3), 317 – 343.

Will, J. A. & Cochran, J. K. (1995). God helps those who help themselves?: The effects of religious affiliation, religiosity, and deservedness on generosity toward the poor. *Sociology of Religion*, 56(3), 327 – 338.

Yamagishi, T., Mifune, N., Li, Y., Shinada, M., Hashimoto, H., Horita, Y., Miura, A.,... Simunovic, D. (2013). Is behavioral pro-sociality game-specific? Pro-social preference and expectations of pro-sociality. *Organizational Behavior and Human Decision Processes*, 120(2), 260 – 271.