

## BEHAVIORAL ECONOMICS OF RELIGION

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### 1 Introduction

Behavioral economics carves a more realistic image of the extant man, in contrast to the neoclassical school's abstract painting of a cold and calculative *homo oeconomicus*. The recent decades have spun many behavioral research papers reporting deviations of actual human behavior from the benchmark predictions theoretically derived with neoclassical analysis and assumptions. The interesting bit then follows: explaining the economics of such behavior for example by invoking alternative assumptions on preferences, or by applying alternative models of decision making. Behavioral economics has largely been inspired and informed by empirically founded psychological insights, in particular work on cognitions (Neisser, 1967), group dynamics (Brown, 2000), individual differences and personality (McAdams, 2006; Tyler, 1947). Prominent examples include theories of risk preferences (e.g. Kahneman and Tversky, 1979), social preferences (e.g. Fehr and Schmidt, 1999; Bolton and Ockenfels, 2000), and group identity (Akerlof and Kranton, 2000). A nascent branch of research considers these behavioral economics themes in the context of religion.

This chapter concerns the behavioral economics of religion. Consistent with the focus of the Handbook, I focus on Christianity. The main themes considered here include how religion potentially shapes individual preferences, the possible implications of religious affiliation for interaction within and between social groups, and the religious institution as a unit of the economy at large. This chapter is written with three main purposes in mind. The first is to consider different ways by which religion and economic behavior are potentially related. Religious people are subject to doctrinal instruction and are thus motivated. This argument is built on the foundational premise that God desires the trust and obedience of men, who have been called according to His purpose (Romans 8:28), and that the deviations thereof is sin (a theme originating from Genesis 3). We ask how the religious man should conduct himself before God and unto others, in view of the interplay between moral, ethical, and social dimensions of Christian living. This chapter therefore discusses economic behavior

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in relations to the Christian as a religious economic agent, and then in relations to the agent when embedded in a religious commune and the economic implications thereof.

The second purpose of this chapter is to consider the research methods employed to answer this variety of research questions. I shall outline the procedures of these methods, discuss related issues regarding the identification of motives, and in turn the interpretation of results. Particularly because of the “clean” nature of such data, the domain of a study’s validity is sensitive to the chosen method and also depends largely on experimental parameters. Methods discussed include the measurement of religiosity and psychological priming of religious mindsets or group belonging, which are typically used in experimental laboratory studies. I also discuss field experiments conducted in selected natural settings. Behavioral economics does not rely exclusively on experimental tools; I also consider non-experimental studies that employ ethnographic methods, and survey or happenstance data. The relationship between religion and economic behavior has been evidenced in various empirical studies, for example relations to beliefs and economic growth (Barro and McLary, 2003) and positive economic attitudes (Guiso et al., 2003), church attendance and crime rates (Lipford et al., 1993), religious affiliation and trade patterns (Guiso et al., 2009). These relationships can be microfounded and the foundations further tested and understood by obtaining controlled data at the level of the decision making unit. Experimental data and survey data can thus mutually complement. Hoffmann (2011) provides a comprehensive survey on the experimental economics of religion. This chapter mainly differs in that it focuses interpretively on how Christian theology relates to behavioral theory and evidence.

I propose that a well-defined research question on the relationship between religion and economic behavior should be clear on *at least* three respects: define “religion,” specify “behavior” and state the (likely) relationship between “religion” and “behavior.” This is crucial for research efforts attempting to establish the relationship between religion and economic behavior. For example, what constitutes “prosocial behavior” in the context of Christian living? This chapter urges the researcher to carefully select measures of religiosity and behavior that best fit the research objective at hand – a recommendation that is also generalizable to research on how individual differences and behavior relate. Sharper measurement tools do not merely imply quantitative precision; they can also be used to seek deeper qualitative relationships that are elusive at surface level. For example, how do different motives that are relevant in a social interaction relate with different dimensions of religiosity and what are the respective effects as we vary the strength of these dimensions?

This brings us to the third purpose of this chapter, which is to contemplate the relevance and significance of results from behavioral studies in terms of what they mean for economic theory and religious practice. I discuss ways by which different dimensions of religious background, such as religiosity and religious affiliation, relate to pro-sociality and group processes. To reiterate, because methods are often specific to the research objective, and in turn intertwined with the results and significance thereof, the discussion to follow will be thematically organized.

## **2 The Religious Agent**

How religious are you? A direct method of testing if some religious variable is related to some behavioral variable is to establish if there is a statistical relationship between measures of the two. First, one must measure how religious a person is. Next, one must then match this statistic against the same person's behavior – which is experimentally or empirically observable and thus measurable.

An economic agent can be religious in a few ways. He can have strong beliefs in the sense that they closely conform to the religion's theology. This concerns, for example, the existence and nature of the divine being, what this divine being desires and how humans fit into this master plan, and what he has to do to satisfy the divine master. The religious agent can also be religious in a ritualistic sense: spending time in meetings of fellowship, worship and praise with fellow devotees, tithing, and private devotion by prayer and the study of scriptures. The agent can also be religious in the sense of experience, for example the degrees to which one has encountered and been moved by the divine, and the degrees of perceptions of salvation, sin, closeness to and fear for the Divine. There are also dimensions such as religious knowledge, and social attitudes and morality that are related to religiosity, arguably in a peripheral way.

Hill and Hood (1999) provide a comprehensive collection and solid review of many different religiosity measures used to measure an individual's degree of religious beliefs and practices (Brown and Lowe, 1951; Heist and Yonge, 1968), attitudes (McCullough and Worthington, 1993), commitment (Altemeyer, 1988), maturity and orientation (Dudley and Cruise, 1990; Allport and Ross, 1967), experience (Hood, 1970), spirituality (Kass et al., 1991), and fundamentalism (Altemeyer and Hunbsberger, 1992). The model of multi-dimensional religiosity is a popular approach to characterizing and measuring the degree to which an individual is "religious" because it is a comprehensive measure which allows the researcher to simultaneously consider the relationship of behavior with different aspects of

religiosity. This description of religiosity is multi-dimensional in nature, and there is evidence in support of its validity (e.g., Stark and Glock, 1968, and; De Jong et al., 1976).

This approach of measuring religiosity is consistent with the fact that there exist many facets of religion which are interrelated. It is ideal, then, if the measurement method takes this into account. Measurements made on a multi-dimensional level provide a more comprehensive and fine-grained capture of a person's religiosity. It accommodates the heterogeneity of types with respects to the relative weights different individuals place across components, and gives them due respect. The measure of overall religiosity derived from the combination of dimensions is therefore more reliable. It also helps us home in on the relationship between specific aspects of religiosity and behavior.

Gorsuch (1974) argues that the weight placed on participation in religious activities varies across denominations. Biased measures of religiosity will therefore result if the researcher relies solely on religious participation in subject pools with denominational-cum-participatory heterogeneity. Variables such as "religious affiliation" can lose also their predictive value because of the acculturation of norms in matured religious societies, rendering a lack of variance by causality (e.g. workers apply the same work ethic regardless of religious affiliation). This implies that religious affiliation does not necessarily equate with religiosity: the former is at best a proxy for general religiosity, i.e. the effect of religion. More importantly, it does not provide data that allows us to specifically test the various possible relationships that economic behavior might have with different dimensions of religiosity.

### *2.1 Charity and Giving*

Charity is consistent with the Christian tradition. Gifts should be made out of generosity not out of grudging obligation, "for God loves a cheerful giver" (2 Corinthians 9:6-7). Blessings abound for givers (see also Psalms 41:1 and Matthew 6:4), such that they will have abundance for every good work, and the giver is therefore an administrator of God's righteousness (2 Corinthians, 9:8-9). Indeed, charity (or love) is classed above the other virtues, faith and hope (1 Corinthians 13:13). Mere giving without love, however, does not spiritually profit the giver, as pointed out in 1 Corinthians 13:3, "And though I bestow all my goods to feed the poor, and though I give my body to be burned, and hath not charity, it profiteth me nothing." On this note, it is important for researchers to carefully translate the notion of charity as mentioned in doctrine to its practical implications in economic settings.

In behavioral economics, generosity has commonly been experimentally measured using the dictator game, which is due to Forsythe et al. (1994). In the dictator game, Player 1

is a proposer who has to decide how to divide a surplus,  $S$ , passing  $x_2$  to Player 2 and keeping the remainder  $x_1 = S - x_2$ . Assuming perfect self-interest, nothing will be passed, so  $x_2 > 0$  implies altruism in the broad sense. Deviations in actions therefore imply deviations from self-interest, i.e. generosity. Broadly defined, altruism motivates acts of kindness, where others' welfare matter. Inequity aversion theories (e.g. Fehr and Schmidt, 1999; Bolton and Ockenfels, 2000) specify utility functions that suffers losses from guilt and envy when one is of a better or poorer standing relative to others, respectively. Thus, welfare differences matter. In relations to fairness, altruism can be narrowly defined as the concern for another's welfare regardless of relative positioning (Tan and Bolle, 2006).

In the recent years, there has been an exciting development in the use of "subtle cues" as an experimental method to tease out the "religious inner being." Shariff and Norenzayan (2007) used scrambled word tasks to prime subjects before experimental game play of a dictator game. Shariff and Norenzayan compared the results of three treatments of the dictator game, one with no priming manipulation, one with a religious prime, and the other with a non-religious prime. They found subjects who had been primed with religious scrambled word tasks gave significantly more in dictator games than those who were not primed and at least as much as with the secular prime. This effect was more pronounced for religious people. Religious cues might have operated through the semantic association with pro-social behavior such as generosity and charity. Alternatively, subtle cues can activate the sense of supernatural monitoring or ideometers of pro-sociality in the subjects. In the words of Shariff and Norenzayan, "God is watching you." The fact that religious priming had a bigger impact on religious subjects hints at relevance of a religiously-motivated pro-social code of conduct or cultural norm that is intrinsic to the religious individual.

The dictator game can be extended *a la* Andreoni and Miller (2002) by varying the price of being nice by multiplying  $x_2$  by a variable factor  $t$ , and varying  $S$ . Andreoni and Miller showed that preferences were rational in the sense of Generalized Axioms of Revealed Preferences. With such data, Tan and Bolle (2006) empirically showed that altruism and fairness can be estimated as separate components to obtain a finer-grained identification of motives. This might be useful when different aspects of religious background relates differently with different types of preference. The measurement of social preferences has been criticized for the restrictive use of test parameters, e.g. in Binmore and Shaked's (2010) words, "slender data." Bolle and Kaehler (2007) alert us to the hazards of restrictive parameters are used in trust experiments. Varying parameters such as budget sets yield richer data sets to analyze – we expand the domain of validity.

Instead of priming, one can combine the use of experimental and religiosity measurement tools to elicit data that can be jointly tested. This method distinguishes itself from that of subtle cues in that it uses data on the naturally occurring variations between subjects, which are then compared to behavioral differences between subjects, whereas subtle cues induce a heightening of religiosity or its effects within subject. Put briefly, subtle cues induce while religiosity questionnaires measure; the two methods can also be used in complement, i.e. interacted. Laboratory research by Tan (2006) applied De Jong et al.'s (1976) multi-dimensional religiosity inventory to elicit individual religiosity and used this data to complement experimental data from the same subjects to a series of dictator and ultimatum games. Tan also used a wider parameter set in both dictator and ultimatum games to help tease out religiosity effects across a wider domain. If doctrine prescribes charity, then measures of individual ritualism imply the degree of indoctrination (e.g. via religious attendance and Bible use) and should in turn be positively related to dictator giving. The positive relationship found in Tan's regression analysis of dictator giving and measures of religiosity dimensions that capture indoctrination lends support.

The data also suggested a substitution effect between participation in religious-related activities with giving. The substitution effect works in an opposite way: giving decreased with the frequency of participation in church-related activities, for example, reminiscent of the trade-off between secular and religious production that Barro and McLeary's (2003) found. Tan further argued that selection effects might find their way into the data through a few ways. For instance, certain religiosity variables such as tithing or sacrifice of time and effort to serve the church or community are at least partly reflective of pro-social preferences. Further, social preferences may carry over from religious to non-religious contexts.

The results on religion and dictator giving are mixed, though. Benjamin et al. (2010a) used Shariff and Norenzayan's (2007) scrambled word task before subjects played the dictator game, but unlike Shariff and Norenzayan, they did not find significant increases in dictator giving. Ahmed and Salas (2011), on the other hand, replicated Shariff and Norenzayan's result, but found no direct relationship between religiosity and dictator giving. Strictly speaking, dictator games allow us to measure generosity to anonymous strangers. To ascertain the relevance of these results, one must understand how subjects frame the decision problem and perceive the significance of generosity in non-religious or religious terms. As Binmore and Shaked (2010) argue, "To say that agents are money-maximizers does not imply that they are selfish. If Mother Teresa (Hitchens (2003)) had been a subject in one of Fehr

and Schmidt's experiments, she would likely have sought to maximize the money she made with a view to distributing it among the poor and needy."

## 2.2 Justice and Forgiving

Forgiveness is salient in the teachings of Christ (Matthew 5:38-39), "You have heard that it was said, 'An eye for an eye and a tooth for a tooth.' But I tell you not to resist an evil person. But whoever slaps you on your right cheek, turn the other to him also." The Lord's Prayer (Matthew 6:9-13) asks God for the forgiveness of sins "as we forgive those who sin against us." Love is also longsuffering, kind, and does not envy (1 Corinthians 13:4).

One way of testing the degree of forbearance for moral trespasses is by using the ultimatum game, due to Güth et al. (1982), which is an extensively researched bargaining game. Player 1 proposes how to divide  $S$ , offering player 2  $x_2$  and to himself  $x_1=S-x_2$ . Player 2 can accept or reject the offer. If accepted, the pie is split as proposed, but if rejected both walk away with nothing. Money-maximization implies that even miniscule offers will be accepted, because more is better than less. By backward induction, the proposer offers the smallest division possible  $\epsilon$ .

Fehr and Schmidt (1999) and Bolton and Ockenfels (2000) show how fairness concerned responders reject unfair offers because they prefer the equitable (0,0) to a sufficiently inequitable one ( $S-\epsilon,\epsilon$ ). Fehr and Schmidt model the notion of envy as disutility that arises when one's income is lower than the income of others. The likelihood of rejection of unfair offers, *ceteris paribus*, increases with fairness concerns. Fairness increases generosity in the dictator game, but also increases "punishment" in the ultimatum game. Justice driven by fairness concerns spurns anti-social acts (rejection of unfair offers in the ultimatum game), whereas a heart of forgiveness punishes not. Paradoxically, if pro-sociality is defined in terms of social welfare, then "positive" fairness yields negative social outcomes. Altruism, however, reduces the likelihood of rejection – it consistently yields positive social outcomes across both games.

Indeed, Tan's (2006) regression analysis of data on the minimum offers acceptable by responders in ultimatum bargaining suggest that more indoctrinated individuals tend to be willing to accept less, i.e. they are more tolerant and forgiving of unfair behavior. This is in line with how forgiveness is central to Christian psychology (Cohen et al., 2005), as portrayed by the scriptures at the beginning of this subsection. Tan found that more spiritual individuals were more inclined to retaliate. This relates with how people, particularly the young, exact justice as an expression of spirituality (Engebretson, 2002; Chile and Simpson,

2004). There is a cultural interplay between social norms and Christian behavior, for example a religious sense of justice driven by an underlying secular concern for fairness. The bible asserts that it is God's will that justice in society be exercised and administered by human authorities (Wright, 2004), rather than through some individually delivered vendetta.

Evidence of religiously driven punishment is also reported by McKay et al. (2010). They extended the dictator game by allowing the responder to eliminate the proposer's earnings (at a cost) after observing the dictators choice of allocations. They found that by priming subjects with religious concepts, more punishment of unfair behavior was observed. The authors explain that religious priming might have operated through the feeling of being watched by a supernatural agent who would evaluate the subject negatively if punishment was not implemented – although interpersonal punishment for justice conflicts with doctrine as I have previously discussed – or the primes activate cultural norms such as fairness and in turn behavior consistent with such norms. Whereas religion should serve as a constraint to such punishment, via the fallen human nature “righteous intentions” can manifest as violence in the name of religion.

### *2.3 Trust and Responsibility*

The betrayal of Christ leaves a stinging tear on the cheek of the believer, and is a poignant example of abused trust (John 13). Indeed, the aversion to betrayal is expressed in the cries of David (Psalm 41:9), “Even my own familiar friend in whom I trusted, Who ate my bread, Has lifted up his heel against me.” Trustworthiness is consistent with doctrine, which helps inculcate ethical and moral conduct in social interactions (Iannaccone, 1998). Indeed, the parable of the king's ten servants that Jesus told (Luke 19:12-27) admonishes trustworthiness: one is responsible for using wisely so as to fulfill the trust invested in him.

Trust facilitates positive social outcomes such economic growth, because of the lower downside risks, which breeds increased trade amidst reduced transactional costs and default-related loss (Arrow, 1972). The quality of life is high in societies where trust can be vested in the government and the law, and when citizens live without fear of being victim to corruption (La Porta et al., 1997). The investment of trust implies an expectation of return, from the fulfillment of trust, but it opens up the truster to the risk of having trust abused. Successful relationships, be it in the private or professional sphere, are often characterized by trust and reciprocity that yields mutual benefits to the parties involved, such that they are efficiently realized without the need to incur monitoring costs. There is social capital in an environment where one can trust others with the confidence that it will be fulfilled – trust is social capital

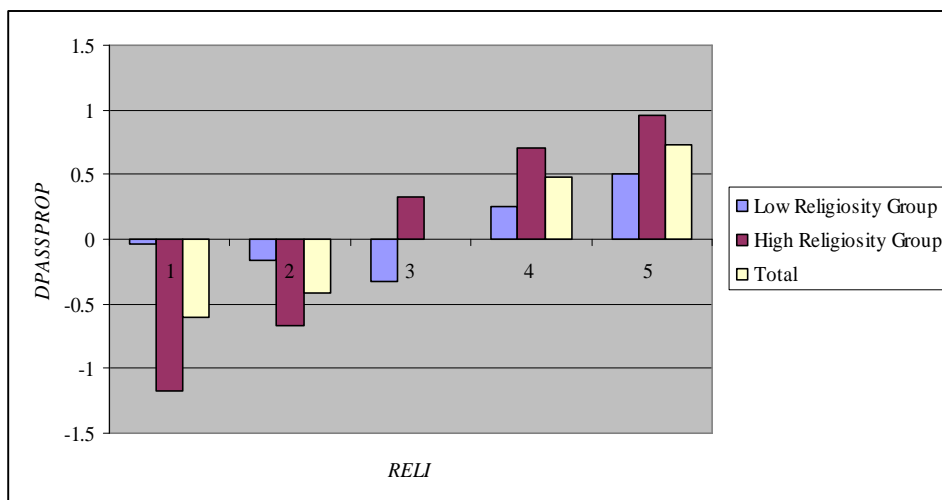


(Glaeser et al., 2000). The investment of trust is driven by the belief of reciprocity (Gneezy et al., 2000; McCabe et al., 2003), and often this belief is based on observable characteristics of potential trustees. Experimental evidence corroborates. Examples of such characteristics include one's skin tone (Eckel, 2006), ethnicity (Fershtman and Gneezy, 2001), and gender (Croson and Buchan, 1999).

Unlike the ultimatum game, in which negative reciprocity could yield as a by-product of religion, there are games in which we can expect religiosity to relate with pro-sociality in an unambiguous direction. The trust game, following Berg and Dickhaut (1995), is an example where religiosity motivates positive reciprocity. Player 1 has  $S$  and for every unit given up, Player 2 gets triple, i.e. if he passes  $S-x_1$ , Player 2 gets  $3(S-x_1)$ . Player 2 then decides how much to return to Player 1 ( $y_1$ ). There is scope for cooperation: both players stand to gain. Alas, because Player 2 will prefer more money to less, so  $y_1=0$  – by backward induction Player 1 will not trust, so  $x_2=0$ . The amount subjects send (return) thus reflect trust (trustworthiness). Altruism, fairness, and reciprocity unambiguously and univocally predict more trust and (positive) reciprocity.

Tan and Vogel (2008) applied a similar experimental procedure used by Tan (2006) to trust games, and extended it by providing religiosity information to opponents. They found that more religious people trust those of high (low) religiosity more (less). More religious trustees were indeed found to be more trustworthy. Tan and Vogel found that trustworthiness increases with religiosity, and regression analysis shows that this is attributable in particular to the dimensions of belief and ritual. These results suggest that the stereotype that more religious people are more cooperative is a legitimate belief, in the sense that trust is indeed fulfilled by those who have been stereotyped in this light. Indeed, trust can be modeled as a decision which banks on the degree of belief that trust will be fulfilled (Dufwenberg and Kirchsteiger, 2004). Tan and Vogel also found that the use of this stereotype increased with the religiosity of the truster (see figure 1). These results are compatible with the psychological literature on how stereotypes are more frequently used by people who are more familiar with the type of social categorization involved (Bruner, 1957). Tan and Vogel argue that “the use of religiosity as a category was perhaps more accessible for the ‘more religious’, because religion is a more central and salient concept in their lives, and is thus used when making decisions.” These results are also consistent with the role that positive social history, i.e. the reputation of cooperativeness of a group or institution based on the history of interaction (Berg et al., 1995), can play in promoting cooperation.

Figure 1: Trust (Proportion of Surplus Entrusted) in Trustees of Varying Religiosity (1-5) by Trusters of Low or High Religiosity (Median Split) from the Data of Tan and Vogel (2008)



Anderson et al. (2010) found, however, no significant relationships between religious affiliation or attendance and trust and reciprocity in their experiments. When we contrast this with the previous results, it seems plausible that this contrast might be due to the different types of religiosity measures used (varying in depth and scope), and other differences such as in experimental design and subject pool. Given the potential sensitivity of experimental results, akin to that reflected in the studies on dictator games, it is useful and important to further consider the topic of religion and trust from a broader perspective and thus across a wider domain of relevance. In the following section, therefore, we further contemplate the issue of religion and trust in communes at the levels of the workplace, society, and global marketplace.

### 3. The Religious Commue

#### 3.1 Responsibility at Work

The workplace is one common application of trust and reciprocity, between employer and employee (Fehr et al., 1997), because of the risk of shirking and costly monitoring that can be circumvented. Fehr et al., for example, showed that by paying a fair wage in excess of equilibrium wages engenders reciprocity in terms of high quality work from reciprocating employees. In Ephesians 6:5-8, Paul the Apostle instructs “servants” to obey their “masters,” not to please men but to fulfill God’s will, and that this be done from the heart even in the absence of monitoring.

There is non-experimental evidence on the impact of religion on trust in labor relations and economic consequences; these studies also use religiosity measures. Users of large survey data sets such as the General Social Survey (GSS) or the German Socio-Economic Panel Study (SOEP) will find entries on religiosity variables spanning at least the dimensions of belief and practice. The set of questions found in such surveys have been shown to work quite well. With this approach, religious values, particularly those of Christianity, have been found to promote the practice of fine work ethics (Guiso et al., 2003). This finding is in line with Max Weber's Protestant Ethic. Using a large dataset spanning across a panel of countries and religions, Barro and McLearly (2003) find that economic growth increases with beliefs, in particular those in the afterlife. They characterize beliefs as outputs of the religious sector, where the prospect of heaven serves as a carrot while the prospect of hell serves as a stick. The admonishment against sloth is contained in the teachings of early Christian times; sloth is found amongst others such as envy and wrath in *The Seven Deadly Sins* of Pope Gregory I (see also *The Divine Comedy* of Dante).

Religion can also yield economically undesirable outcomes when economic resources are shifted from non-religious production to religious production. This is compatible with Matthew 6:24, "No man can serve two masters: for either he will hate the one, and love the other; or else he will hold to the one, and despise the other. Ye cannot serve God and mammon." Lipford and Tollison (2003) found that religious participation and secular income are negatively related, because of the way religion shapes preferences and affects earnings potential. There is a tradeoff between the amount of resources, e.g. time and money, which can be used in alternative modes of production – in our context religious and secular ones. This tradeoff has been modeled as a substitution effect in the seminal work of Azzi and Ehrenberg (1975). Gruber (2004) finds that this result generalizes to church-related activities besides Sunday services and also to non-religious giving. The confluence of complementary and substitution effects are best captured in the work of Barro and McLearly (2003). Whereas beliefs in heaven and hell are religious sector "outputs" that positively relate with economic growth, church attendance are religious sector "inputs" that draw from other forms of production and thus negatively relate with economic growth. Economic growth decreases with church attendance: it functions as inputs into the religious sector, i.e. resources diverted away from other economic modes of production. The Church is, in this light, an economic resource hungry entity.

Joint economic production can also be modeled as interactions where roles are symmetric, i.e. interactions between peers rather than truster-trustee. The public goods game

(Palfrey and Rosenthal, 1984) captures a social dilemma where players can benefit from positive externalities from costly public good contributions. Each player has an endowment  $S$  and for every unit given up by a player, each player gets  $t$ , i.e. if he contributes  $x_1$ , and other players contribute 0, he gets  $S-x_1+tx_1$  and the other players each get  $S+tx_1$ . Because a player will prefer others to bear the cost of contribution, he will contribute nothing, so  $x_1=0$ . If all players reason alike, there will be no public good. This is known as the free-rider problem. This game can be played repeatedly with different co-players (“strangers”) or the same co-players (“partners”).

Anderson and Mellor (2008) and Anderson et al. (2010) found that neither religious affiliation nor church attendance is significantly related to cooperation in the public goods game. Anderson and Mellor, however, found that religiously affiliated subjects decrease their contributions over time at significantly lower rates. Ahmed and Salas (2011) find that religious priming using the scrambled word task (like those used by Shariff and Norenzayan, 2007) induces more cooperation from religious subjects in a prisoner’s dilemma. Benjamin et al. (2010a) found experimental evidence that public good contributions made by Catholic subjects decreased after being religiously primed with a scrambled word task, which in contrast had a positive effect on the public good contributions of Protestant subjects.

Referring to insights from field data, it was reported by Lipford et al. (1993) that “preaching matters” in the sense that religious teachings on pro-social behavior serve as a public good. Communities with more churches have lower rates of socially deviant behavior and crime. Hull and Bold (1995) replicated this result, and further showed that churches have incentives to promote positive behavior via property rights enforcement, as its efficacy attracts an increase in membership. Whether or not religion per se serves the public therefore seems to depend on the context in which contributions are to be made.

### *3.2 Identity and Trade*

Economic growth and trade is consistent with doctrine, as Wright (2004) argues, because it is required for the regeneration and expansion of the human population. Stewardship is involved in handling, distributing, exchanging and trading the resources provided by God. This theme was discussed in Deuteronomy 8 in relations to provisions catered to the needs of the sojourning Israelites in their forty years in the wilderness. Economic transactions, however, can be fraught with moral conflict, as seen in the numerous power struggles documented in the Old Testament (for a start). Contrary to the Lord’s advice to “Love your enemies and pray for those who persecute you,” (Matthew 5:44), there is a dark side of

religion that could manifest in various settings with scope for cooperation. Discrimination that arises from intergroup rivalry is largely attributable to the similarity or dissimilarity between interacting agents in terms of group affiliation (e.g. Sherif et al., 1961; Brown, 2000; Tan and Zizzo, 2008). Tajfel et al. (1971) observed intergroup biases of a rivalry motive after applying a “minimal groups” manipulation where subjects are divided into groups using an arbitrary criterion, e.g. grouping people according to their preference for Kandinsky and Klee paintings.

Beyond minimal groups, discrimination can be well expected amongst naturally occurring groups. Fershtman et al. (2005) observed that Israeli students from an ultraorthodox college in Jerusalem trusted co-players from another ultraorthodox college more than they trusted co-players from a secular university and co-players with unknown academic affiliations. A similar observation was made on students from Flemish and Walloon universities in Belgium, where outsiders were trusted less than insiders or anonymous co-players. In a field experiment, Ruffle and Sosis (2006) observed more cooperation between kibbutz members than with co-players from the city. They argue that based on the premise of successful previous interaction, more cooperation is anticipated from fellow kibbutz members. Similar laboratory evidence on minimal groups has been found by Hargreaves Heap and Zizzo (2009).

Experimental evidence on the positive effects of cultural similarity on cooperation is found both in the laboratory (Ben-Ner et al., 2009) and in the field (Chuah et al., 2007). In a multicultural experiment where subjects from different racial and religious backgrounds participated, Chuah et al. (2011) found that religiously similar subjects were more cooperative to each other in a repeated prisoner’s dilemma, compared to when they were culturally dissimilar or when information on cultural identity was absent. This effect increased with the subject’s religiosity, in particular measures of fundamentalism. As argued by Chuah et al. (2011), the amplification of group biases via religious values is consistent with an interpretation of Akerlof and Kranton’s (2000) identity theory. In terms of identity theory, the cost of deviation from an act that preserves the group, versus one that threatens the value of the group, should increase with the degree to which the individual is embedded in the group. Put differently, the more one identifies with the group, the more one should maintain a cooperative norm that strengthens the group, and the less one would contribute to the strengthening of outsiders. Chen and Xin (2009) experimentally show that subtle cues of group belonging increases group biases. Benjamin et al. (2010b) similarly found that

activities related to group related norms have been shown to increase when subjects were primed with subtle cues.

Cooperation in international trade increases with the degrees to which partners are culturally similar in terms of race and religion (Guiso et al., 2009). Group biases are also evident in non-economic survey data on self-reported prejudicial attitudes to strangers (Gorsuch, 1974) and the willingness to help (Jackson and Esses, 1997). Indeed, scholars such as Altemeyer (2003), Hunsberger and Jackson (2005), Jackson and Hunsberger (1999) have shown us the relationship between prejudice and religiosity or fundamentalism. Gorsuch argues that this result is rather robust, as it holds across samples of students at different locations and church members of different denominations.

### *3.3 Signals of Commitment*

Economic production within a commune is facilitated by a disciplined conformation by its members to “traditions” such as diligence rather than idleness at work (2 Thessalonians 3:6-13). Whereas Orbell et al. (1992) also found that subjects believed that religious people were more cooperative, they found that religious subjects were more cooperative only when matched with those of the same religious affiliation (the Mormons in Logan). A complementary interpretation for the observation that religious people are trusted more by religious people is that religiosity is a hard to fake signal of commitment (Irons, 2001). Individual displays of religious behavior serve as costly signals of commitment to God and group, which promote pro-sociality, for example in the context in the context of trust. Members of religions share a belief and commitment to gods desiring conformation to a set of morals and ethics. Adherence to the corresponding code of behavior *signals* one’s commitment to cooperating with other group members towards its preservation (Irons, 2001). For example, the longevity of religious communes, as compared to secular ones, is attributable to costly signals that maintain an adaptive culture of cooperation (Norenzayan and Shariff, 2008). Reliable signals must be costly; signals easily mimicked by opportunists have no bite.

It should then follow that the costlier a signal is, the more trust it should engender. The social capital of trust facilitates exchange/trade, reduces transaction costs, and so enhances welfare – trust and reciprocity are pro-social. Mutual benefits accrue if trust is reciprocated, but trust exposes the truster to the downside risk of opportunism, which can undermine trust: one will not trust given a sufficient risk of abuse. It follows that if costly religious behavior (e.g. avoiding taboos, lifestyle choices and ritualism) signals one’s commitment to cooperate,

then anticipated (i.e. beliefs of) cooperation breeds trust. Ethnographic studies suggest the signaling role of religion, e.g. the East African Orma converted to Islam as a signal of commitment to elicit trade (Ensminger, 1997), as in the trade networks of the Medieval Jewish Maghrebi (Greif, 1993). Norenzayan and Shariff (2008) argue that these results are possibly confounded by the motive of gaining excess to pre-established networks. Empirical studies such as Sosis (2003), Sosis and Alcorta (2003), Sosis and Bressler (2003) find that costly signals correlate with commune longevity, via trust and cooperation. However, trust and cooperation were not measured directly. Further, the direction of causality cannot be determined with such data. Besides the signaling interpretation, such correlations may be resultant of more cooperative people *self-selecting* into religions requiring costlier commitments; also, as argued in the previous section, *indoctrination* may promote pro-sociality.

Seemingly harmless secularization of behaviors may thus be detrimental to the good of the commune. Examples of strict religious codes are found in the bible include Romans 14:21, “It good neither to eat flesh, nor to drink wine, nor *any thing* whereby thy brother stumbleth, or is offended, or is made weak.” Here, a simple mundane act of abstinence serves a higher purpose of preserving the integrity of the commune. From a practitioner’s viewpoint, this is not to say that religious signals should be instrumentally used for economic gain, but should be pursued by the religious agent because they accord with the purpose of God, as captured for example in Proverbs 2:9, “Then shalt thou understand righteousness, and judgment, and equity; yea, every good path.”

#### **4 Conclusion**

Religion could operate through increasing the salience of social norms or by shaping social preferences, i.e. a regard for the welfare of others as a principle of action. It can motivate pro-social behavior via concerns for altruism, equity, efficiency, and positive reciprocity. The dark side of it can motivate anti-social behavior via spite, envy, and negative reciprocity. Our concern is with whether if and if so how social preferences might vary with the *degrees* to which a person is religious. When group membership is salient, social cognitions can yield perception and in turn behavioral biases, i.e. ingroup love versus outgroup hate (Tan and Zizzo, 2008). Religious biases might operate through differentials in social preferences or beliefs and stereotypes of others (Fiske, 1991; 1998), e.g. how trustworthy they are (Tan and Vogel, 2008), depending on whether or not they are in the same group. Adherence to religious codes of publicly observable conduct (e.g. taboo avoidance, lifestyle choices and

ritual) serves as costly signals of one's commitment to cooperating with other members toward group preservation (Irons, 2001). Religion can thus serve to coordinate trade.

Combining the right tools to elicit and measure religiosity and economic motives with a theoretical expectation of how the two sets of variables should relate allows for clearer identification. It also allows for clearer interpretation of results in terms of its relevance and significance. The first step that should be taken in experimental or empirical testing is to (theoretical) relationship between "some" aspect of religion and "some" form of behavior. It tells us what to test and, if the test makes sense such that there is a theoretical link between religion and economic behavior, what to measure such that it allows us to test the empirical link between a specific form of behavior and the degree of involvement in religion along a specific religiosity dimension, e.g. belief, practice, or experience. Alternatively, one can to induce a religious mindset or sense of identity and belonging to a certain group. Data can also be collected in the wild, where certain properties relevant to the test, e.g. the existence of religious groups or certain activities that can be manipulated such that doing so yields testable experimental data, naturally occur.

Specifying behavior precisely and understanding the relevance of such behavior to religion guides the construction of a well-defined research question. The seemingly mixed results on religion and economic behavior found in the literature might thus be attributable to non-overlapping domains of validity across studies. The results of behavioral studies should thus be interpreted with discernment regarding their respective domains of validity. Finally, the significance of these results should be put in the context of how it can advance economic theory in a tractable way from which further progress may extend, and how their implications might be significant to the practitioner. In particular, assuming that testing methods do not deviate from the specified research objectives, are observed deviations of behavior from theory then suggestive of deviations of the human actor from doctrine? The potential difficulty in constructing valid tests that allow lucid identification and interpretation poses a challenge for researchers concerned with the behavioral economics of religion.

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