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STUDIES ON THE EFFECTS OF SYMPATHY AND RELIGIOUS EDUCATION ON  
INCOME REDISTRIBUTION PREFERENCES, CHARITABLE DONATIONS, AND  
LAW-ABIDING BEHAVIOR

BY

ROBERTA DA SILVA CALVET

A Dissertation Submitted in Partial Fulfillment  
of the Requirements for the Degree  
of  
Doctor of Philosophy in Economics  
in the  
Andrew Young School of Policy Studies  
of  
Georgia State University

GEORGIA STATE UNIVERSITY

2011

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## ACCEPTANCE

This dissertation was prepared under the direction of the candidate's Dissertation Committee. It has been approved and accepted by all members of that committee, and it has been accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Economics in the Andrew Young School of Policy Studies of Georgia State University.

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August 2011

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## ABSTRACT

### STUDIES ON THE EFFECTS OF SYMPATHY AND RELIGIOUS EDUCATION ON INCOME DISTRIBUTION PREFERENCES, CHARITABLE DONATIONS, AND LAW-ABIDING BEHAVIOR

By

ROBERTA DA SILVA CALVET

August, 2011

Committee Chair: Dr. James R. Alm  
Major Department: Economics

The purpose of this dissertation is to identify the impact of moral emotions (sympathy and empathy) and religious education on individual behavior. This dissertation is divided into three main chapters. The first chapter examines the effect of sympathy and empathy on tax compliance. We run a series of experiments in which we employ methods such as priming, the Davis Empathic Concern scale, and questions about frequency of prosocial behaviors in the past year in order to promote and to identify empathy and sympathy in subjects. We observe the subjects' decisions in a series of one-shot tax compliance game presented at once and with no immediate feedback. Our results suggest that the presence and/or the promotion of sympathy in most cases encourage tax compliance. The second chapter takes into consideration religious schooling as a way of helping the development of religiosity or morality on individuals. Our intent is to investigate the effect of religious education on charitable donations in adulthood. Our empirical analysis is based on data from the Panel Study of Income Dynamics dataset. Our estimation results indicate that there is a positive effect of religious education on donations to secular and religious organizations. The third chapter explores the

hypothesis that sympathetic individuals are more likely to support income redistribution because they believe that the poor may benefit from this policy. We use data from the General Social Survey to estimate support for income distribution. Our results suggest that some measures of sympathy have a positive effect on support for redistribution.

Across all three main chapters, we find that sympathy has mostly small and positive effects on the types of behavior examined in this dissertation, although we are not able to determine the impact of religious education on charitable donations. Despite the sometimes weak results of this research caused by the limitations of the available data and the complexity of the issues studied, we believe that the development of these moral emotions is likely to generate benefits to society.

## INTRODUCTION

Human beings have a system of personal norms in their consciousness giving them ability to distinguish in many cases between the right and wrong behaviors for a given course of action. This system is called morality. Economists are recognizing more and more that an individual's morality tends to influence an individual's decisions. For example, there are some individuals who return anonymously large amounts of money lost by a stranger and others who spend more to buy green products. Even though there could be other reasons motivating these behaviors, morality may be important in the process of decision making for those behaviors.

The purpose of this dissertation is to identify the impact of morality on individual behavior. We acknowledge that morality is a complex issue, and we are not able to cover all of its aspects. Instead, we focus on three factors related to morality: empathy, sympathy, and religious education. "Empathy" is an affective state of "putting yourself in someone else's shoes," identifying what the other person is feeling and responding to it. It can be to feel the same or a similar emotion as the other person. "Sympathy" is considered an emotional response of sorrow or concern for another's wellbeing caused by the other's emotional state, a response that is not identical to the other's emotion. These two moral emotions, empathy and sympathy, are believed to motivate moral behavior and to play a role in moral character according to psychology literature (Eisenberg, 2000; Hoffman, 1998). In addition, religious education may help to develop these moral emotions, and may influence positively moral character regardless of the religious beliefs held.

This dissertation is divided into three main chapters. These chapters analyze the effects of the moral emotions of sympathy and empathy on tax compliance behavior, their effects on preferences for income redistribution, and the relationship between religious education and charitable donations.

The first chapter examines the effect of sympathy and empathy on tax compliance. We run a series of experiments in which we employ methods such as priming, the Davis Empathic Concern scale, and questions about frequency of prosocial behaviors in the past year in order to promote and to identify empathy and sympathy on subjects. We observe the subjects' decisions in a series of one-shot tax compliance game presented at once and with no immediate feedback. Our results suggest that the presence and/or the promotion of sympathy in most cases encourage tax compliance. We also investigate the priming effect of eliciting empathy on tax compliance. According to our results, priming empathy has a positive impact on tax compliance under some circumstances (e.g., if the individual is not Protestant, not a volunteer, or belongs to the group of donors who have given money to the homeless in the past year). These results reinforce the inclusion of noneconomic factors in the analysis of tax compliance behavior, and, more broadly, they support the creation of a new education policy focusing on the development of these types of moral emotions.

The second chapter takes into consideration religious schooling as a way of helping the development of religiosity or morality on individuals. Some studies on charitable giving show evidence that religious individuals are more likely to donate more time and money compared to a nonreligious group (Brooks, 2004; Wuthnow, 1991) when religiosity is measured based on religious beliefs and church attendance. As Hand (2004)



states, however, religious teachings can provide moral education to children regardless of religious beliefs they may hold. Our intent is to investigate the effect of religious education on charitable donations in adulthood, using data from the publicly available Panel Study of Income Dynamics. Our estimation results indicate that there is a positive effect of religious education on donations to secular and religious organizations. We also find that attending Catholic schools is more likely to increase secular donations, while attending other religious schools tends to raise religious donations. Another important result is that individuals with religious education are more sensitive to the price of giving, thus income tax policies can have an impact on their giving behavior. Unfortunately, these estimation results are unable to control for any potential selection bias that may be present in our model. Even so, this chapter provides some evidence to support a new policy to increase voluntary contributions based on moral education.

Sympathy can influence individuals to help other people in distress as well as to inhibit behavior that could hurt others since sympathy implies caring about another person's welfare. The third chapter explores the hypothesis that sympathetic individuals are more likely to support income redistribution because they believe that the poor may benefit from this policy. In this chapter, we acknowledge that there is a problem of self-selection (since there could be intrinsic values or characteristics that are related to more sympathy and to more support for income redistribution) and that we are not able to correct this problem due to limitations of the dataset and the complexity of the issue. We use data from the General Social Survey to estimate support for income redistribution, using as measures of sympathy: the Davis Empathic Concern Scale (Davis, 1980); the importance that they give to personally assisting someone in need; the frequency with

which they feel a selfless caring for others; and some prosocial behaviors as proxies for sympathy. We observe that some measures of sympathy have a positive effect on support for redistribution. As with our estimation results in Chapter two, we are unable to control for any potential selection bias that may exist. Given our restricted analysis, we cannot definitively support the importance of including this noneconomic factor in the analysis of redistribution preferences.

We conclude that promoting empathy does not seem to affect tax compliance behavior overall. One possible reason for this outcome is that the method used in our experiment may not be effective in changing taxpayers' attitudes. Another factor may be that our priming method may affect attitudes but that the change in attitudes is too small. Finally, these attitudes may not be related to compliance behavior. With respect to sympathy, there are inconsistent results for the effect of this moral emotion on tax compliance and on income redistribution. These results may occur because our sympathy measures may be imperfect proxies for this moral emotion, although it is difficult to identify which sympathy measure is not adequate. Religious education seems to be positively related to money and time donations. Nevertheless, perhaps due to our inability to address the potential selection issue, the effect of religious education could not be separated from other effects.

In sum, across all three main chapters we find that sympathy has mostly small and positive effects on the types of behavior examined in this dissertation. We are not able, however, to determine the impact of religious education on charitable donations. Despite the sometimes weak results of this research caused by the limitations of the available data

and the complexity of the issues studied, we believe that the development of these moral emotions is likely to generate benefits to society.

## **ESSAY 1: THE ROLE OF EMPATHY AND SYMPATHY IN TAX COMPLIANCE: AN EXPERIMENTAL INVESTIGATION**

### **Introduction**

One intriguing issue about tax compliance is why there seems to be so much compliance. Even though there are very strong incentives to evade in most countries due to low probabilities of audit and small penalties, taxpayer compliance is higher than standard economic theory predicts (Webley et al., 1991; Alm, McClelland & Schulze, 1992; Alm, Sanchez & De Juan, 1995). The standard economic model of tax compliance developed by Allingham and Sandmo (1972) does not seem to provide an answer for this high rate of honesty since the model suggests that self-interested individuals would choose to evade when the probability of audit and the fine rate are small.

Some researchers have given noneconomic arguments for this compliance behavior. One is related to the fact that individuals tend to overestimate the probability of being detected and the penalty amount. Indeed, there is some evidence in experiments that some individuals perceive probabilities higher than they actually are (Alm, McClelland & Schulze, 1992). Another important noneconomic explanation is tax morale. Tax morale is usually defined as “an individual’s intrinsic willingness to pay taxes” (Alm & Torgler, 2006, p. 224). Feld and Frey (2007) describe a more complex meaning for tax morale, as part of a psychological contract between taxpayers and the government. In their words, the core of tax morale consists of “loyalties and emotional ties that go well beyond transaction exchanges” (p. 103) between taxpayers and the government, and hence positively influence tax compliance.

Another important issue is that tax morale and tax compliance seem to be affected by morality. As Alm and Torgler (2011) argue, it is crucial to consider ethical aspects of

individuals in order to understand tax compliance. There are many ways of incorporating ethics or morality in a tax compliance decision. For example, Gordon (1989) adds an individual's "honesty characteristic" which acts as a private psychic cost and which affects evasion negatively; however, some small evaders belonging to the honest group may evade more if tax rates increase. Erard and Feinstein (1994) offer a model with one's moral sentiments of guilt and shame when evasion happens. They find that, when they use their more realistically constrained models, the effects of guilt and shame diminish the extent of tax evasion.

Guilt is the most common moral emotion used in research, and is always considered a psychic cost in the mathematical formulations. Indeed, if an individual evades taxes, she may feel guilty for betraying the psychological tax contract –assuming she values tax morale –or for free-riding on public services. Nevertheless, this emotion may be a result of not behaving according to one's own ideal behavior. In other words, an individual may have an ideal behavior that she praises, and, when her actual behavior deviates from this ideal, she feels guilty. In our analysis, we take into account this presence of an ideal behavior influencing decision making, more specifically tax compliance decisions.

According to Akerlof and Kranton (2000), one's ideal behavior is associated with the social category to which an individual belongs.<sup>1</sup> Individuals in different social categories "should" behave differently because they follow mostly different norms or prescriptions in order to preserve their self-image or identity. For instance, using gender as a social category, individuals are classified as either a "man" or a "woman." A simple

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<sup>1</sup> Our definition of "ideal behavior" is the same as Akerlof and Kranton (2010): "exemplary characteristics and behavior associated with a social category" (p. 11).

example of behavior is to wear a dress. Since a dress is a sign of femininity, women wearing dresses are happy for doing it; however, men in dresses may feel discomfort or anxiety for violating the norm of masculinity. Hence, men have an incentive to choose actions that are in accordance with their ideal behavior based on their identity.

In this chapter, we use the idea of a moral identity framework in order to determine its effects on tax compliance. We separate individuals into two groups: moral and amoral. As suggested by Alm and Torgler (2011), we view a moral individual as someone who considers paying taxes as the ethical norm.<sup>2</sup> If she behaves differently, then she may incur a psychic cost. Moreover, she may feel pleased if there is full compliance for doing “the right thing.” On the other hand, an amoral individual has an ideal behavior that may not be to comply fully with taxes. As stated in the case of a moral individual, an amoral individual may feel happy (anxious) if she follows (does not follow) her prescribed behavior.

We acknowledge that morality is a complex issue, and that we do not intend to cover all of its aspects. Instead, we focus on two moral emotions that have not been explored in Economics: sympathy and empathy. Many psychologists argue that sympathy and empathy motivate moral behavior and play an important part in morality (Eisenberg, 2000). “Empathy” is an affective state of “putting yourself in someone else’s shoes,” identifying what the other person is feeling and responding to it. It can be to feel the same or a similar emotion as the other person. “Sympathy” is considered an emotional response of sorrow or concern for another’s wellbeing caused by the other’s emotional state, a response that is not identical to the other’s emotion. Usually “altruism,” “empathy” and

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<sup>2</sup> We acknowledge that there are other issues such as satisfaction with the government that we do not consider.

“sympathy” are considered overlapping terms across different disciplines. In economics, “altruism” is interpreted as a concern for other that would be included in an altruistic individual’s utility as other agents’ wellbeing or monetary payoffs. Thus, it is a type of preference, indicating that a selfish individual would never act altruistically unless she changes her preference type over time. We define “altruism” as any generous behavior towards others, unconditional on rewards or punishments, that can be motivated by social norms or by moral emotions such as empathy or sympathy.<sup>3</sup>

Eisenberg and Miller (1987) demonstrate that there seems to be a positive relationship between some measurements of empathy and prosocial behavior, defined as voluntary behavior that benefits another.<sup>4</sup> In another study, Miller and Eisenberg (1988) also argue that empathic and sympathetic responding are moderately and negatively associated with aggressive and antisocial behavior depending on the method used to measure empathy. These findings in psychology literature are reasonable if we consider that one’s empathy can produce either personal distress, i.e., “self-oriented feelings such as anxiety and worry regarding one’s own welfare” (Eisenberg & Miller, 1987, p. 92), or sympathy for the other person’s emotional state (Batson & Coke, 1981). In both cases, an individual with empathy may be inclined to help another person in distress either because she wants to get away as quickly as possible from the uncomfortable situation due to the personal distress she is experiencing or because she is concerned about the other’s welfare due to the feeling of sympathy. Similarly, by empathizing, an individual may choose to not commit an aggressive or an antisocial behavior because it would not cause

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<sup>3</sup> According to our theory, these moral emotions influence decisions by changing the importance someone gives to her moral identity; however, she does not gain utility for feeling empathy or sympathy and her utility does not depend on other individuals’ utility or payoffs. Rather, utility depends on her actual behavior compared to her morally ideal behavior.

<sup>4</sup> Altruistic behavior is a type of prosocial behavior when there is no expectation of personal gains.

negative emotional arousal if she is concerned about her own welfare or because she is concerned about the other person's wellbeing.

In sum, we expect that empathy and sympathy will encourage positive behavior and will inhibit negative conduct. More specifically in the context of this chapter (i.e., a tax setting), we expect that paying taxes can increase the welfare of others by increasing public services or government transfers, whereas evading taxes may have the opposite results. Therefore, we expect that individuals influenced by these moral emotions will have a higher rate of tax compliance than others.

More specifically, we include the concepts of sympathy and empathy as tools to identify and to increase the importance of an individual's moral identity. An important characteristic of the identity utility model is that preferences can be changed or manipulated by modifying identities (or their norms) through advertisement or education, for example (Akerlof & Kranton, 2000). We apply this idea to our model, using the same definitions of empathy and sympathy presented by Eisenberg and Miller (1987). In this chapter, we have different methods to elicit empathy or sympathy. Our goal is to investigate whether the presence of these moral emotions has any influence on tax compliance.

For this, we create a theoretical model including a moral self-perception component that is affected by those two moral emotions, and we analyze theoretically how these influence individual behavior in paying taxes. In order to test the main hypothesis from our theory, we then run a series of experiments in which we use methods such as priming, the Davis Empathic Concern scale, and questions about the frequency of prosocial behaviors in the past year, in order to promote and to identify empathy and



sympathy on subjects. All subjects play a tax compliance game that consists of six independent one-shot decisions without immediate feedback from other players' responses. We believe that those moral emotions may affect individual behavior in a tax setting.

### Theoretical Background

First, we present the standard expected utility model and its predictions about the behavior of taxpayers. Second, we introduce a model that includes sympathy and empathy in an individual's decision making process. In both sections, we separate the model analyses into two parts, according to the absence or presence of a public good.

#### *The Standard Expected Utility Model*

We consider the model created by Yitzhaki (1974), which was based on Allingham and Sandmo's (1972) work. An individual taxpayer receives an income  $I_i$  that is known to him or her but not to the Tax Authority. The taxpayer chooses an income amount to declare to the Tax Authority,  $D_i$ . He faces a tax rate,  $t$ , and a probability of being audited,  $p$ . If evasion is detected, a fine,  $f$ , based on the evaded tax has to be paid. The taxpayer chooses  $D_i$  so as to maximize a von Neumann-Morgenstern utility function defined as:

$$\max_{\{D_i\}} E[U] = (1 - p)U(I_i - tD_i) + pU(I_i - tD_i - f[t(I_i - D_i)]) \quad (1)$$

where  $f[t(I_i - D_i)]$  is the total penalty paid when evasion is detected. For convenience, we define  $I_{NC}$  (after-tax income if not caught) and  $I_C$  (after-tax income if cheating is discovered), or:  $I_{NC} = I_i - tD_i$ , and  $I_C = I_i - tD_i - f[t(I_i - D_i)]$ .

The first-order condition from this maximization (1) is given by:

$$-t\{(1 - p)U'(I_{NC}) - p(f - 1)U'(I_C)\} = 0 \quad (2)$$

Assuming that the utility function is concave, we have as a second-order condition (S) that:

$$S = t^2\{(1-p)U''(I_{NC}) + p(f-1)^2U''(I_C)\} \leq 0. \quad (3)$$

In order to have an interior solution, the marginal expected utility has to be positive when the declared income is equal to zero ( $D_i = 0$ ), and negative when the amount declared is equal to true income ( $D_i = I_i$ ). These conditions are respectively:

$$pf > p + (1-p) \frac{U'(I)}{U'(I-ftI)} \quad (4)$$

and

$$pf < 1. \quad (5)$$

If the conditions (4) and (5) hold, then there is a positive amount of evasion. In the first condition, the right-hand side of the inequality is positive and less than one. The second condition indicates that evasion will occur when the product of the audit probability and the fine rate is less than one. Thus, these conditions indicate some required restrictions on the parameters for cheating on taxes.

The main analysis of this model is to observe the effects of changes of some parameters on declared income. We focus on two important ones: the fine rate and the probability of getting caught. These effects are given by:

$$\frac{\partial D^*}{\partial p} = - \frac{t[U'(I_{NC}) + (f-1)U'(I_C)]}{S} > 0 \quad (6)$$

and

$$\frac{\partial D^*}{\partial f} = - \frac{tp[U'(I_C) - t(f-1)(I-D)U''(I_C)]}{S} > 0 \quad (7)$$

These comparative statistics results indicate that the effects of the penalty rate and the audit probability on the level of declared income are the same: if either one increases, a taxpayer's amount of income declared to the Tax Authority also increases.

When we introduce a public good, a taxpayer's expected utility incorporates the amount received from tax payments of all taxpayers. We assume that a taxpayer takes the actions of others as given (Cournot-Nash behavior), and that there is only one period (thus, no reason for positive or negative reciprocity). Expected utility becomes:

$$\max_{\{D_i\}} E[U] = (1 - p)U(I_i - tD_i + \frac{k}{n}(G + tD_i)) + pU(I_i - tD_i - f[t(I_i - D_i) + knG + tD_i]) \quad (8)$$

where  $n$  is the number of members in the group,  $k$  is the public good multiplier<sup>5</sup>, and  $G$  is the part of the public good originating from taxes paid by all other members of the group to which individual  $i$  belongs.

With the presence of a public good, the first- and second-order conditions of equation (8) become respectively:

$$-t\{(1 - p)\left(1 - \frac{k}{n}\right)U'(I_{NC}) + p\left(1 - f - \frac{k}{n}\right)U'(I_C)\} = 0 \quad (9)$$

and

$$S = t^2\{(1 - p)\left(1 - \frac{k}{n}\right)^2 U''(I_{NC}) + p\left(1 - f - \frac{k}{n}\right)^2 U''(I_C)\} \leq 0. \quad (10)$$

In addition, the required conditions to have an interior solution in a public good case are:

$$\frac{U'\left(I + \frac{k}{n}G\right)}{U'\left(I - ftI + \frac{k}{n}G\right)} < -\frac{p\left(1 - f - \frac{k}{n}\right)}{(1 - p)\left(1 - \frac{k}{n}\right)} \quad (11)$$

and

---

<sup>5</sup> The multiplier is a feature regularly used in the analysis of public goods. In the context of taxes, after original tax payments are collected, they are summed up, multiplied by this number, and then returned to taxpayers.

$$pf + \frac{k}{n} < 1. \quad (12)$$

Therefore, in the conditions (11) and (12), the public good multiplier and the number of individuals in the group are important factors affecting a taxpayer's decision on the amount of income declared.

The effects of changes of the main parameters (the audit probability, the fine rate and the number of taxpayers in a group) for our analysis are:

$$\frac{\partial D^*}{\partial p} = - \frac{t[(1-\frac{k}{n})U'(I_{NC}) - (1-f-\frac{k}{n})U'(I_C)]}{S} > 0 \quad (13)$$

$$\frac{\partial D^*}{\partial f} = - \frac{tp[U'(I_C) + t(1-f-\frac{k}{n})(I-D)U''(I_C)]}{S} > 0 \quad (14)$$

$$\begin{aligned} & \frac{\partial D^*}{\partial n} \\ &= - \frac{t \frac{k}{n^2} \{ (1-p) \left[ \left(1-\frac{k}{n}\right) (G + tD)U''(I_{NC}) - U'(I_{NC}) \right] + p \left[ \left(1-f-\frac{k}{n}\right) (G + tD)U''(I_C) - U'(I_C) \right] \}}{S} \\ &< 0 \end{aligned} \quad (15)$$

where the denominator S is defined via the modified maximization that includes the public good.

We can observe that the fine rate and the audit probability have a positive effect on the declared level of income, which increasing the number of taxpayers in a group decreases the amount of declared income. These are important results for our analysis.

### *Our Model*

Our theory is based on the idea that every individual has two different components to consider in her utility when making a decision about taxes. The first part is the concern about her own monetary payoff. The second part is called the “identity utility” (Akerlof & Kranton, 2000), which is the gains or losses in utility from

conforming or not to her ideal behavior. This ideal behavior is based on the category that the individual belongs to: either moral or amoral.

Our model is a convex combination of the basic model of tax compliance by Yitzhaki (1974) and the identity utility by Akerlof and Kranton (2000). We assume that these two parts are separable in the utility. The individual is assumed to maximize the following function:

$$U_i^T = U_i(I_i) - \theta_i(\bar{D} - D_i) \quad (16)$$

where  $U_i^T$  is the total utility of individual  $i$ ,  $U_i$  is the utility she gets from her own income,  $I_i$  represents the level of income,  $\theta_i$  is the moral preference coefficient,  $D_i$  represents the declared income and  $\bar{D}$  is the ideal behavior that individual  $i$  wants to follow. This ideal behavior ( $\bar{D}$ ) is equal to  $I_i$  (i.e., full income) for moral individuals, and less than  $I_i$  for amoral individuals.

The moral identity utility is a function of the difference between what she considers her ideal behavior and her actual behavior  $D_i$ . Thus, if she does less than her morally ideal behavior, then her moral identity and her utility are affected negatively. This negative effect can be considered the feeling of guilt or frustration (independently of tax evasion being detected). On the other hand, if her actual behavior approaches her morally ideal behavior, then she may feel happy for doing what she thinks it is right.

The utility part that is a function of her own income depends on how much she declares and whether she is caught or not. In order to analyze how much income she reports, we consider the probability of an audit to occur. We calculate the expected utility of (16), which is given by:

$$EU_i^T = EU_i(I_i) - \theta_i(\bar{D} - D_i) \quad (17)$$

where  $EU_i(I_i) = (1 - p)U(I_{NC}) + pU(I_C)$ , and  $p$  is the probability of getting caught.

With respect to the moral identity utility, we assume that a moral individual has higher levels of empathy and sympathy since these emotions are related to morality (thus, her moral coefficient has a higher value than an amoral individual). In addition, as stated earlier, one of the characteristics of the identity utility is that identity can be changed or manipulated by a third party. Here, we consider that eliciting empathy can affect one's moral identity by increasing the importance of the moral identity in the utility function (i.e., affecting the moral coefficient  $\theta_i$ ), hence changing an amoral individual's ideal behavior to a moral individual's level (i.e., fully complying with taxes).

Therefore, sympathy and empathy are supposed to increase the utility impact of morality( $\theta_i$ ) at a decreasing rate. Then, the moral coefficient  $\theta$  is determined by:

$$\theta = \theta_i(\varepsilon_i, \sigma_i) \quad (18)$$

where  $\varepsilon_i$  is the level of empathy and  $\sigma_i$  represents the degree of sympathy.

Maximizing equation (17) gives the following first order conditions, the first when there is not public good and the second in the presence of a public good:

$$\frac{\partial EU^T}{\partial D} = -t(1 - p) \frac{\partial U}{\partial I_N} - tp(1 - f) \frac{\partial U}{\partial I_C} + \theta = 0 \quad (19)$$

$$\frac{\partial EU^T}{\partial D} = -t(1 - p) \left(1 - \frac{k}{n}\right) \frac{\partial U}{\partial I_N} - tp \left(1 - f - \frac{k}{n}\right) \frac{\partial U}{\partial I_C} + \theta = 0 \quad (19')$$

The second-order conditions of equation (17) are given respectively by:

$$\frac{\partial^2 EU^T}{\partial D^2} = t^2(1 - p) \frac{\partial^2 U}{\partial I_N^2} + pt^2(1 - f)^2 \frac{\partial^2 U}{\partial I_C^2} < 0 \quad (20)$$

$$\frac{\partial^2 EU^T}{\partial D^2} = t^2(1 - p) \left(1 - \frac{k}{n}\right)^2 \frac{\partial^2 U}{\partial I_N^2} + pt^2 \left(1 - f - \frac{k}{n}\right)^2 \frac{\partial^2 U}{\partial I_C^2} < 0 \quad (20')$$

These conditions are satisfied since, by assumption:  $\frac{\partial^2 U}{\partial I^2} < 0$ .

Now the conditions for an interior solution, considering for brevity only the case without public goods, are given by:

$$\left. \frac{\partial EU^T}{\partial D} \right|_{D=0} = -t(1-p)U'(I) - pt(1-f)U'[I(1-ft)] + \theta > 0 \quad (21)$$

and

$$\left. \frac{\partial EU^T}{\partial D} \right|_{D=I} = -t(1-pf)U'[I(1-t)] + \theta < 0 \quad (22)$$

These equations can be rewritten as:

$$\theta > t\{(1-p)U'(I) + p(1-f)U'[I(1-ft)]\} \quad (21')$$

and

$$\theta < t(1-pf)U'[I(1-t)] \quad (22')$$

In words, the individual chooses an interior solution if conditions (21') and (22') hold.

Equation (21') says that she declares more than zero if her moral coefficient is higher than the marginal utility of income for declaring zero income. On the other hand, equation (22') states that she declares less than full income if her moral coefficient is lower than her marginal utility of income for declaring full income.

Now we examine how reported income is affected by the level of sympathy and empathy. Again, we consider only the case without public goods. The first-order condition in equation (19) changes slightly in order to account for the fact that the moral coefficient is a function of sympathy and empathy, or:

$$\frac{\partial EU^T}{\partial D} = -t(1-p)\frac{\partial U}{\partial I_N} - tp(1-f)\frac{\partial U}{\partial I_C} + \theta(\varepsilon, \sigma) = 0 \quad (23)$$

Using the implicit function theorem, we have:

$$\frac{\partial D^*}{\partial \varepsilon} = - \frac{\frac{\partial \theta}{\partial \varepsilon}}{t^2(1-p)\frac{\partial^2 U}{\partial I_N^2} + pt^2(1-f)^2\frac{\partial^2 U}{\partial I_C^2}} \quad (24)$$

We know that the denominator, which is the second-order condition reported in equation (20), is negative. The numerator is positive because its terms are all positive. Thus,  $\frac{\partial D^*}{\partial \varepsilon} > 0$ , meaning that an increase in the degree of empathy leads to an increase in reported income. A similar result can be derived for the level of sympathy, by replacing  $\frac{\partial \theta}{\partial \varepsilon}$  with  $\frac{\partial \theta}{\partial \sigma}$ , which is also positive.

This theoretical framework provides the basis for our experimental tests. Specifically, we test the hypothesis that an increase in the level of empathy (or that a higher level of sympathy) encourages more tax compliance from individuals. As our theory predicts, increasing these moral emotions leads to higher levels of the moral coefficient, which in turn will increase compliance.

### **Experimental Work**

We use experimental methods to study how these moral emotions affect tax compliance behavior. Alm and McKee (1998) state that experiments may help examine factors that field data are not able to. Indeed, for our investigation of emotions, we need a controlled environment that only experimental procedures are able to offer. In addition, we consider the tax compliance decisions of undergraduate students due to their availability and their easy access for experimental research centers. The use of undergraduate students as subjects in tax compliance experiments is valid since there is evidence that their responses are not different from the responses of other types of subjects in experiments (Plott, 1987).

### **Experimental Design**

The experiment is conducted in four sessions involving different groups of subjects. A summary of the sessions can be seen in Table 1. In the two last sessions, we



investigate the effect of promoting empathy on tax compliance. One session has a priming activity before the tax compliance game with the purpose to elicit empathy on participants; another session does not have this preliminary activity in order to serve as a control group. In all four sessions, subjects have to complete the Davis Empathic Concern Scale and to answer how often they have participated in prosocial behaviors in the past 12 months in their questionnaires. The instructions with the questionnaire are available in the Appendix A.

### *Empathy and Sympathy*

The experiment is designed to promote and identify the moral emotions of empathy and sympathy on participants and to observe their behavior towards paying income taxes in different scenarios. There are three main methods used to gather their information about sympathy and empathy: Davis Empathic Concern Scale (DECS), frequency of prosocial behaviors and priming. The Davis Empathic Concern Scale measures someone's ability to feel sympathy. The frequency of prosocial behaviors works as a proxy for the measurement of sympathy. In addition, we promote empathy with the use of priming. More details are given throughout this section.

One measure of sympathy is based on the Davis Empathic Concern Scale. All participants are asked to respond to the DECS in their questionnaire after all decision tasks. The DECS is a subset of the Interpersonal Reactivity Index (IRI) developed by Davis (1983). The entire scale has the goal of assessing the empathy of the individual, defined as the degree at which the individual puts himself or herself in the position of someone who is more "unfortunate."

For the purpose of this research, we are primarily interested in evaluating how much someone is concerned about other people in need. The subset of the IRI, the Davis

Empathic Concern Scale, measures this factor. It evaluates the propensity of an individual to experience feelings of sympathy for unfortunate people. This scale consists of seven items. For example, one of the items is “I often have tender, concerned feelings for people less fortunate than me.” The respondents are asked to specify if these items describe them well or not, with values –ranging from 0 (“does not describe me very well”) to 4 (“describes me very well”). The scale is very simple and has internal and test-retest reliability (Davis, 1980).<sup>6</sup>

In the questionnaire, there are also questions about the frequency of prosocial behaviors in the past year. Subjects are asked to answer how many times they have donated blood, given money or food to a homeless person, given money to charity, and/or done volunteer work in the past 12 months. We create one dummy variable for each type of prosocial behavior, where one means that the individual has done the activity at least once in the past year. These variables can be also considered as an approximation for one’s level of sympathy.

For empathy, we use another technique: “priming.” Many psychologists have used different tasks to elicit attitudes or values explicitly or implicitly –i.e., to “prime.” According to Bargh and Chartrand (2000, p. 258), “priming studies are concerned with the temporary activation states of an individual’s mental representations and how these internal readiness interact with environmental information to produce perceptions, evaluations, and even motivations and social behavior.” Our purpose is to promote empathy in a group of subjects before they face tax compliance decisions. In one session,

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<sup>6</sup> Internal reliability refers to how consistent a measure is within itself. Usually questions that measure the same concept (e.g., empathy) are divided into groups, and asked to the same participant. If the responses for these groups of questions provide similar results, then there is internal reliability. Test-retest reliability occurs if the same participant has similar results when she takes the same test again after a period of time.

we ask subjects to write in their own words the definition of the Golden Rule after reading versions of the same moral rule in six different religions. In another session, for comparison, a control group of subjects do not complete the priming task.

### *Tax Compliance Game*

In all sessions, the basic game is six independent one-shot tax compliance games with different settings of audit probabilities, of penalties and of returns from the tax amount paid. The design for this part of the experiment is summarized in Table 2. These decisions are presented at the same time and are made without any feedback about other participants' decisions.

In the tax compliance game, all subjects receive an income of ten dollars. They know they are in a group of four and that they all face the same decision. Subjects are told that they should pay taxes on their income and that they must decide how much of their income they want to declare to a Tax Authority. The instructions indicate that there is a possibility of an audit, meaning that their declared incomes could be checked. If they are audited (or checked), then they are told that all undeclared taxes will be discovered and that they will have to pay taxes on their undeclared income plus a penalty equal to a multiple of that value. Whether or not an audit occurs is determined by the draw of a ball from a box that contains a total of ten red and white balls. If a red ball is drawn, everybody is audited; if a white ball is drawn, there is no audit. The tax rate is the same for all decisions: 30 percent. The audit and fine rates vary throughout the session.

There is also a public fund for most decisions. When there is a public fund, the original amount of taxes collected in each group is doubled and called the "public fund." This public fund does not include tax and penalties paid due to failure to comply with

taxes. In most cases, the public fund is returned fully to the group, divided equally among its members. In one scenario, the public fund is divided equally between the group and a set of charities chosen by its members; in this case, each member gets half of the amount they would receive if the public fund returned in full to the group. In one setting there is no public fund.

There are several reasons to have a tax compliance game designed as six independent one-shot games. First, we want to have information about one's behavior under different values of the main parameters that can affect decisions in a tax setting: audit probability, penalty rate, and returns from tax payments. The manner by which the game was designed allows us to isolate the separate effect of variations in each parameter. Second, by not providing feedback about others' decisions, there is no chance of potentially confounding negative or positive reciprocity effects among players. Third, even though there are reasons to have many rounds for tax compliance game such as learning through experience, we believe that collecting the same amount of information about the effects of those main parameters within subjects could make the experimental sessions exhausting for them, and so we limit the number of decisions to six.

Before their actual decisions are made in the tax compliance game, we require that subjects write their decisions and their respective payoffs with and without an audit in two practice examples that are similar to the real ones. The purpose of the practice examples is to check subjects' understanding of the task. After they complete the practice examples, we distribute the decision sheet containing all of the six scenarios as presented in Table 2. During the completion of the practice examples and of the real tasks, each participant is able to consult a computer that presents in a protected excel spreadsheet the

calculations for each type of decision. In some excel worksheets, there is a cell in which they can enter their expectations about how much they think someone else in the group would declare. This information is important in order to provide more accurate numbers for the returns of the public fund in the decisions in which this fund is available.

### **Experimental Procedures**

The experiment is conducted in the Experimental Economics Center (EXCEN) at Georgia State University. Over one hundred participants overall are recruited from the pool of undergraduate and graduate students at GSU, and they can participate only once. No subjects have previously participated in any tax compliance experiments. The group is formed by 61 females and 57 African-Americans. In addition, in all sessions, we retain an additional participant who volunteers to be a monitor whose function is to verify that the experiment is conducted according to the instructions. Each monitor is paid based on the average of the highest payoff possible in each session.

This is a hand-run experiment with computer assistance for calculations. Upon arrival at the laboratory, participants are assigned to a computer station. General instructions for the experiment are given at the beginning of each session, telling subjects the structure of the experiment and the way in which payoffs are determined. Subjects know how many parts and how many decisions they will face; however, they are not yet aware of the specific nature of the decisions. Only when the instructions for each part are distributed do they have access to this information. After the general instructions, the instructions for the first part are distributed. Once they complete this part, the instructions are collected. Then, the following instructions are distributed and collected after

completion. This process goes on until all parts of the experiment, including the questionnaire, are done. All subjects have reasonable time to complete each part.

In all sessions, no communication among the participants is allowed. If the subjects have any questions, the experimenter comes to them and answers the question in private. If the experimenter believes that the question is one that most of them will benefit from, then the explanation is given to the entire group. Also, the experiment follows a double-blind procedure; that is, subjects can only be identified by their key numbers (only they know that number), and the subject payoffs are distributed through the use of mailboxes. Thus, neither the subjects nor the experimenters can associate a specific person with her decisions, keeping privacy and anonymity in the course of the experiment. At the end of each session, each subject can collect her payoff using her key to open her mailbox, inside which is an envelope containing her earnings.

All decisions in the experiment, excluding the priming activity, are numbered successively. The final payoffs are determined by the draw of a numbered ball from a cage containing all the numbers of decisions. There are only six balls representing the six decisions all subjects face in each session. Participants are paid only for the decision randomly chosen. We follow Goeree, Holt and Laury (2002) who argue that paying for only one decision stimulates subjects to think more clearly about each individual decision and the consequences that each decision may have on their future payoffs compared to paying for all decisions.

In addition to the earnings for the decision selected, participants are paid a \$5 show-up fee, and they receive \$1 for completing each of the two examples, \$5 for the priming activity, and \$8 for the questionnaire. They do not know in advance how much

they will receive for each of these items. Earnings range between \$23.50 and \$33, with an average payoff of \$27.35. The sessions last about two hours, including the time for subject payment.

### **Experimental Results**

We separate the results into summary statistics showing the effect of sympathy and empathy variables on the average individual compliance rates and regression results in which those effects are better isolated.

#### **Summary Statistics**

The summary statistics of all variables are available in Table 3. In Tables 4 and 5, we show the average individual compliance rates disaggregated across sessions and groups by treatment for each decision because it becomes easier with the disaggregate data to observe the effect of the sympathy and empathy variables on compliance rates. The individual compliance rate is calculated by dividing the tax reported by the tax owed for each subject, and the average compliance rate is calculated as a simple average across all subjects within each group. Table 4 presents the average individual compliance rates by session. Table 5 shows the average individual compliance rates among different sympathy variables: for a high or low Davis Empathic Concern scale value and among prosocial behaviors.

In session S3, subjects receive a priming activity to elicit empathy. As can be seen in Table 4, for decisions 2, 3 and 4, subjects of session S3 have a higher average individual compliance rate than the other sessions. The difference between the average individual compliance rates in session S3 and in the control group (or session S4), are statistically significant at 10 percent for two of these decisions (2 and 3) based on a t-test.

However, we fail to reject the null hypotheses that the means of these two groups are the same in the other decisions.

Some information used to construct Table 5 is collected in the post-experiment questionnaire. For the Davis Empathic Concern Scale, the subjects are divided into two groups: the *High DECS Score Group* is composed of individuals who obtain the median (a score of 21) or higher value in the DECS, and the *Low DECS Score Group* is composed of those who have less than 21 points. With respect to prosocial behaviors, based on their answers in the survey, the subjects who have donated blood or money to charities or homeless people at least once in the past year are grouped as *Donors* and the subjects who had been done volunteer work are grouped as *Volunteers* while those who have not participated in these types of activity are grouped as *Nondonors* and *Nonvolunteers*, respectively.

The *High DECS Score Group* has a higher individual compliance rate than the *Low DECS Score Group*, a difference that is statistically significant at 5 percent level in decision 4 based on t-test as can be seen in Table 5. The *High DECS Score Group* has an average compliance rate of 0.58 while the *Low DECS Score Group* had an average of 0.4. In addition, *Volunteers* seem to be more likely to comply with taxes on average compared to *Nonvolunteers*. In decision 1, the *Volunteers* have an average of 0.75 and *Nonvolunteers*, 0.61. The difference has statistical significance of 10 percent on a t-test.

### **Regression Results**

Econometric results are shown in Table 6 through Table 9. We use Tobit estimations in all models since the dependent variable, *Individual Compliance Rate*, is bounded from 0 to 1. Also, we report marginal effects instead of coefficients. We first



examine the control variables and their effects on individual compliance rate. Then, we focus on the variables of empathy and sympathy.

Consider regression (1) in Table 6. This regression omits sympathy or empathy variables, and is called the basic model from now on. As expected, the audit and the penalty rates are positive and statistically significant at 1 percent level. According to our results, increasing the audit rate by 100 percent increases the individual compliance rate by 30 percent, and increasing the penalty rate by 100 percent increases the individual compliance rate by 2 percent. Being a graduate student (versus being a sophomore) also tends to increase the tax compliance rate, by 5 percent at the 5 percent significance level. White individuals are more likely to have higher compliance rates. The audit rate has the highest economic significance of all the independent variables, thus suggesting that a policy change in the probability of being audited is possibly sufficient to increase tax compliance. Nevertheless, Alm, McClelland and Schulze (1992) point out that this relationship tends to be nonlinear and that the effect of a higher audit rate decreases eventually.

Of most interest are the effects of the empathy and sympathy variables. We examine primarily the effects of the empathy variable, *Priming*, and the sympathy variables *High DECS Score Group*, and the prosocial behaviors (*Blood Donor*, *Giving to Homeless*, *Giving to Charity*, and *Volunteer*) in two settings: without the basic model (Table 7) and with the basic model (Table 8) in the regressions. Table 9 shows some results with various interaction terms between the sympathy and empathy variables as well as a few control variables. In order to make the analysis simpler, we consider each table separately.

Table 7 shows the marginal effects of sympathy variables when each is the only independent variable taken into account when explaining changes in tax compliance. We observe that *Giving to Homeless* and *Giving to Charity* are not statistically significant in this setting. Only being in the *High DECS Score Group* (at the 10 percent significance level), being a *Blood Donor* (at the 10 percent significance level), or being a *Volunteer* (at 5 percent level) matter in explaining individual tax compliance. The individual coefficients on these variables are positive and around 0.02, meaning that in each case compliance increases by 2 percent, which is small if compared to the effect of the audit rate but similar to the effect of the fine rate on the individual compliance rate. Thus, a policy of promoting sympathy could have a similar effect to a policy of increasing the fine rate by 100 percent.

In Table 8, when we include some control variables, the results change to some extent. Most sympathy variables are not statistically significant in this setting. The effect of *Volunteer* on *Individual Compliance Rate* is still positive, about 0.04, and statistically significant at the 10 percent level. However, *Giving to Charity* is now associated with greater tax evasion (by 0.02). These are interesting results. We expect to see sympathy variables affecting tax compliance in the same way since they represent the same concept in our study. Nevertheless, they seem to have different effects. This indicates that some of our variables may not be good proxies for sympathy.

In sum, sympathy has somewhat variable effects on compliance. The ability to feel sympathy and being a *Blood Donor* or a *Volunteer* in the past 12 months is positively associated with tax compliance. These findings are in accordance with the prediction of our theory, which states that more sympathy implies a higher level of reported income.

Nevertheless, *Giving to Charity* increases tax evasion. This result may not be so surprising if we separate the prosocial behaviors into two groups by differences in effort (or cost) involved in the activity. The group with a higher cost is formed by being a volunteer or a blood donor. Because these activities require time and commuting, they require a higher disposition to help compared to simply giving money to the homeless or to a charity. Also, this higher disposition implies a higher self-control over desires (e.g., choosing to spend time on donating blood rather than on the beach), which may lead to a higher tendency to obey rules.

Overall, attempts to promote empathy do not seem to affect tax compliance. In Tables 7 and 8, the marginal effect of *Priming* is not statistically significant. However, our theory predicts that empathy increases the level of declared income. Perhaps encouraging empathy on individuals by other methods such as reading a compelling story involving empathy is more effective than reading a few religious statements about the Golden Rule. Another issue is that promoting empathy may need more time to be established, thus lectures about empathy for a week or more may be a better alternative for priming. Also, there are other possible factors whose effects may overcome the effects of empathy, such as aversion to some religions or to religion per se, given that we present religious statements in our priming activity. These are meaningful points to consider, and we cannot argue that empathy is related to tax compliance based on our results.

Table 9 presents regressions in which we include some interaction terms among the empathy and other independent variables. If we include interaction terms between religion variables and *Priming*, as in regression (14), we observe that *Priming* decreases

the compliance rate of *Protestants* by 20 percent. Although the coefficient of the *Protestants* is not statistically significant, the compliance rate of the *Protestants* without *Priming* is 4 percent higher than the compliance rate of individuals without religion. In regression (17), if we take into consideration the variable *Volunteer*, its impact is also affected by *Priming*. If the subject participated in the priming activity, the effect of volunteering increases the evasion rate by 7 percent; otherwise, this effect on compliance is positive and equal to 9 percent. Priming also influences the effect of another prosocial behavior. The presence of *Priming* increases the compliance rate of blood donors as can be observed in regression (15) in Table 9. Although the variables *Priming* and *Blood donor* are not statistically significant, the interaction term between these two terms is significant, at the 5 percent level. Thus, the individuals who have donated blood in the past and are primed are more likely to comply with taxes. In the case of giving money or food to the homeless at least once in the past year (or regression (16)), if the individual participated in the priming activity, then the effect of giving to homeless on tax compliance is 2 percent; otherwise, it reduces tax compliance by 9 percent.

Therefore, *Priming*, or empathy, has mixed effects on certain groups of individuals, and the results are not consistent overall. For blood donors and for individuals who have given money to the homeless, promoting empathy increases tax compliance. For Protestants and for volunteers, the effect of Priming is the opposite. These mixed results may indicate that either the method used in this experiment is not effective in changing taxpayers' attitudes, or the priming activity affect their attitudes but the change is too small, or these attitudes are not related to compliance behavior.

### Composite Indicator of Sympathy

In this section, we analyze the effect of sympathy on tax compliance by grouping the variables of sympathy used in this study: *Davis Empathic Concern Scale* and the measures of prosocial behavior. After analyzing the summary statistics of sympathy variables from our dataset, we use one statistical method to create a composite index of sympathy: principal components analysis (or factor analysis).

#### *Summary Statistics of Sympathy Variables*

Table 10 shows the percentage of subjects, divided by sympathy groups, that have done one of the prosocial behaviors at least once in the past year. As we can observe in this table, those who are considered to have a higher level of sympathy (either because they had a higher score in the *Davis Empathic Concern Scale* or because they have engaged in a prosocial activity at least once in the past year) are more likely to participate in other prosocial activities. However, it is important to notice that some of those who are considered either nondonors in certain prosocial activities or nonvolunteers may engage in other prosocial behavior. For instance, 15 of 16 blood donors (94 percent) have volunteered in the past year at least once while 53 of 71 subjects who have not donated blood (75 percent) have volunteered in the past year. Moreover, those who have volunteered are more likely to donate money to the homeless and to a charity. About 81 percent of volunteers have given money to the homeless, and about 71% have given money to a charity. This result seems to contradict the idea that students would choose to volunteer more than to donate money because of their lower income levels.

Also, a lower percentage of nonvolunteers have done these two prosocial activities; nevertheless, it corresponds to more than a half of all nonvolunteers. These

results indicate that our sympathy variables are relative, but not absolute measures of sympathy. Therefore, grouping sympathy variables could lead to a better measure of sympathy since it takes into account the possibility of an individual having a higher sympathy level in only one or more of our sympathy variables. The next section discusses a statistical method regularly used to create a composite index.

### *Principal Component Analysis*

This multivariate analysis method examines the underlying relationships for a number of variables (example of variables: test scores and questionnaires responses) and establishes if the information can be summarized in a smaller set of hypothetical variables (Hair, Anderson, Tatham & Black, 1995; Kim & Mueller, 1978). Our goal is to create a sympathy index using the sympathy variables we have in our dataset. These variables are *High DECS Score Group*, and the dummy variables of the prosocial behaviors: *Blood Donor*, *Giving to Homeless*, *Giving to Charity*, and *Volunteer*.

It is important to notice that they all are dummy variables. When there are only dummy variables to be considered in the factor analysis, a specific procedure is required. Because of the limited information available on this type of procedure, we decide to consider the original variables instead. Thus, we use the following variables: *DECS Score* (an ordinal variable varying from 0 to 28) and the frequency of the prosocial behaviors mentioned earlier (*Blood Donation*, *Giving to Homeless*, *Giving to Charity*, and *Volunteering*: values represent the number of times that a subject has performed the activity in the past year, and they range from 0 to 3).

The first step is to examine the correlation among these variables shown in Table 11. As we can observe in this table, the measures of sympathy do not seem to have a very

strong correlation among them. It is important to mention, however, that the Barlett test of sphericity indicates that the correlations among the sympathy variables in general are significant at the 0.01 percent significance level. Also, the measure of sampling adequacy is 0.557, which is acceptable according to Hair, Anderson, Tatham and Black (1995).

Because of the low correlation coefficients between *DECS score* and the prosocial behavior variables (mostly around 0.1) shown in Table 11, we decide to eliminate *DECS score* from our analysis. Among the other sympathy variables, the highest correlation coefficient, 0.33, is between *Volunteering* and *Blood Donation*. The other high coefficients are *Giving to Homeless* and *Giving to Charity* (0.32), and between *Giving to Charity* and *Blood Donation* (0.28). As we expect, all these relationships are positive. Nevertheless, some correlation coefficients indicate a weak negative relationship between some sympathy variables. The coefficient between *Volunteering* and *Giving to Homeless* is about  $-0.015$ . This result may indicate that there are other factors affecting an individual's preferences for a specific prosocial behavior.

One important issue to consider is the difference in the costs of certain prosocial behaviors for example. Some activities are considered high-cost prosocial behavior because they require some cognitive understanding of other people's needs and usually may elicit a cognitive conflict between values, motives and personal needs and desires (e.g. donating blood or volunteering), while low-cost prosocial actions are performed without any cognitive reflection or moral considerations (e.g. helping someone pick up dropped papers) (Miller, Bernzweig, Eisenberg & Fabes, 1997; Eisenberg, Losoya & Guthrie, 1997). Thus, there may be personal traits or other factors affecting the decision to choose one prosocial action over another, perhaps based on the costs associated with

them. This is an important issue to consider when interpreting the results from the principal component analysis that follows.

The principal component analysis identifies the underlying structure among variables (called “factors”) and creates a new set of variables based on that. Table 12 presents the information about four possible factors and their relative explanatory power shown by their “eigenvalues.”<sup>7</sup> A high eigenvalue means that the factor contributes a lot to the explanation of variances in the variables, and a low eigenvalue means the opposite. The most commonly used method to select the factors to keep in the principal components analysis (latent root criterion) is to consider only the factors whose eigenvalue is greater than 1.<sup>8</sup> Based on this criterion and on the eigenvalues shown in Table 12, there are two factors that summarize the original set of observed prosocial behavior variables: *factor1* and *factor2*.

In Table 13, it is possible to visualize the “factor loadings” (i.e., correlation between the original variables and the “factors”). *Factor1* has a high correlation coefficient with *Volunteering* and *Blood Donation* whereas *Factor2* is strongly correlated to *Giving to Homeless* and *Giving to Charity*. This result suggests that we can separate the prosocial behaviors into two groups. We decide to separate them based on the cost of performing the activity as explained earlier in this section. We believe that volunteering and donating blood would require more effort (in terms of time and disposition) than giving money to charity or to the homeless. We have *factor1* representing the high-cost

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<sup>7</sup>Definitions come from Hair, Anderson, Tatham, and Black (1995): factor-underlying structures, which summarize the original set of observed variables; and eigenvalues, or the amount of variance in all the variables accounted for by a factor.

<sup>8</sup> It is possible to restrict the number of factors extracted from the principal components analysis. When we limit the extraction to only one factor that could group the original variables to one variable of “sympathy,” we do not find statistically significant results. Thus, we follow the latent root criterion and it gives some significant results.



prosocial actions (*Volunteering* and *Blood Donation*) and *factor2* indicating the low-cost prosocial actions (*Giving to Homeless* and *Giving to Charity*).

The effects of *factor1* (high-cost) and *factor2* (low-cost) on tax compliance can be seen in Table 14. The coefficients of these variables are statistically significant in some occasions. First, when these variables are the only ones explaining tax compliance, we observe that *factor1* (or high-cost prosocial behaviors) has a positive effect on tax compliance. When other control variables are included, participating in low-cost prosocial behaviors (or *factor2*) decreases tax compliance. In sum, the two types of prosocial behaviors seem to be affecting tax compliance in opposite ways. One possible explanation for this result may be that individuals involved in high-cost prosocial behaviors are more likely to follow rules since they may make more use of self-control as when deciding to participate in high-cost prosocial behaviors. However, these mixed results reinforce the notion that some of the sympathy variables may not be good proxies for this moral emotion.

Moreover, *priming* has a positive effect on the individuals participating in low-cost prosocial behaviors (*factor2*). As seen in Table 14, the coefficient for *factor2* is equal to -0.072, meaning that an increase in participation in low-cost prosocial behaviors is related to a less tax compliance. This result indicates that some exposure to moral instruction may change the inclination to a negative behavior such as tax evasion. Nevertheless, *priming* does not seem to reinforce the positive behavior from the participants of high-cost prosocial behavior (*factor1*) since none of the coefficients are statistically significant. Again, this result may indicate that our *priming* activity does not

seem to cause changes in taxpayers' attitudes, or that this change is too small to affect behavior.

### **Conclusion**

The portfolio model of tax compliance does not adequately explain why there is so much tax compliance even when the rates of detection and penalties are small. Many researchers emphasize that there are noneconomic reasons that may influence this decision. In this chapter, we investigate the moral aspect of the tax compliance decision by considering the roles of two moral emotions in tax compliance: sympathy and empathy. In our theoretical model, we observe that, with higher levels of sympathy and empathy, the moral preference coefficient increases and tax evasion then decreases. In order to test this prediction, we run an experiment with features that allow us to collect information about one's level of sympathy and also with a priming activity that has the purpose of eliciting empathy on subjects.

We consider two types of variables to measure one's level of sympathy. First, from a post-experiment survey, we gather subject responses to a scale used in psychology to measure an individual's level of sympathy, called the Davis Empathic Concern Scale (DECS). The scores range from 0 to 28, and we separate the sample into high score and low score groups based on the median value, 21. The second group of sympathy variables is also based on the subjects' answers to the questionnaire section on giving or prosocial behaviors. These questions are about the frequency that the individual has donated blood, given money or food to a homeless person, given money to charity and/or done volunteer work in the past year. We separate the sample into donors and nondonors, based on the criterion of whether one has done the activity at least once in the past twelve months.

With this information, we observe the subjects' decisions in a series of one-shot tax compliance games presented with no immediate feedback. In these decisions, subjects had to choose how much income to declare to a tax authority. Based on the results generated in our experiment, we argue that in most cases sympathy is associated with more tax compliance. The group of individuals with a high DECS score also seems to have higher compliance rates. With respect to giving behaviors, depending on the type of activity, we observe a positive relationship with tax compliance; that is, those who have donated blood or done volunteer work at least once in the past year are less inclined to evade taxes than those who have not. Somewhat surprisingly, giving money to a charity at least once in the past twelve months tends to increase tax evasion as well as giving money or food to a homeless at least once in the past year but only if the individuals who have done the latter do not receive any type of moral support as a priming activity.

We also investigate the effect of using priming, by eliciting empathy, on tax compliance. In one of the sessions, subjects have to read a few statements of the Golden Rule in different religions and to explain with their words this moral term; in another session, another group does not have to perform this activity. According to our results, priming has a positive impact on tax compliance if the individual is not Protestant, not a volunteer or is a donor who has given money to homeless. These different results may indicate that either the method used in this experiment is not effective in changing taxpayers' attitudes, or the priming activity affect their attitudes, but the change is too small, or these attitudes are not related to compliance behavior.

Even though most of the effects of sympathy and empathy on tax compliance reported in this study are not very large, many of them are statistically significant and

help to explain tax compliance. These results reinforce the idea that noneconomic factors should be taken into consideration not only in tax compliance but also in many individual decisions. Although morality and moral aspects have not yet gained much attention from economists, increasing evidence rejects the assumption of individual self-interest present in much standard economic theory. Rather, the evidence suggests that individuals are also influenced by morality, social norms, and a sense of fairness.

Alm and Torgler (2010) suggest three different methods that governments can use to reduce tax evasion. In addition to “enforcement” and “services,” they add a “trust” paradigm in which policymakers acknowledge the importance of intrinsic characteristics such as morality and reinforce tax compliance by showing through the media that paying taxes is “the right thing to do” or that tax payments return to society through the form of public services. Additionally, we can include policy on education of empathy and sympathy. These are emotions that can be nurtured in children very easily. As Brody (2010) mentions, creating a healthy self-esteem and a habit of reading stories that have examples of empathic behavior encourages children to behave with empathy. This paper reinforces the use of moral education for being beneficial to society since our experiment results demonstrate that inducing empathy on subjects and that observing higher levels of sympathy are associated with individual law-abiding behavior, or more specifically, higher levels of tax compliance.

For future work, some projects could help to increase our understanding of the effects of moral emotions on tax compliance behavior. An interesting idea is to study the duration of the effect of eliciting these moral emotions on an individual’s law-abiding behavior. Moreover, extending the analysis of moral emotions to a different sample of

subjects consisting of older individuals who have experienced the decision of complying with taxes outside the laboratory can be beneficial for our understanding as well.

Table 1. The design of each session of the experiment

Sessions	Games / Activities	
S1	–	Tax compliance game
S2	–	Tax compliance game
S3	Priming activity	Tax compliance game
S4	–	Tax compliance game

Table 2. The design of the one-shot tax compliance games

Decision	Tax rate	Audit rate	Fine rate	Public fund multiplier	Public fund	Individual share (public fund)
1	30%	30%	3	-	No	-
2	30%	30%	3	2	Fully returned	1/4
3	30%	50%	3	2	Fully returned	1/4
4	30%	10%	3	2	Fully returned	1/4
5	30%	30%	5	2	Fully returned	1/4
6	30%	30%	3	2	Partially returned: 50% goes to the charities chosen by the group; 50% returns to the group.	1/8

Table 3. Summary statistics

Variable	Definition	Observations	Mean	Standard Deviation	Minimum	Maximum
Priming	<i>Dummy variable equal to 1 if the subject has the priming activity at the beginning of the session and 0 otherwise</i>	48	0.500	0.505	0	1
High DECS score group	<i>Dummy variable equal to 1 if the subject got 21 or more in the Davis Empathic Concern Scale (0 to 28) and 0 otherwise</i>	99	0.505	0.503	0	1
Blood donor	<i>Dummy variable equal to 1 if the subject has donated blood during the past 12 months and 0 otherwise</i>	94	0.181	0.387	0	1
Giving to homeless	<i>Dummy variable equal to 1 if the subject has given food or money to a homeless person during the past 12 months and 0 otherwise</i>	96	0.792	0.408	0	1
Volunteer	<i>Dummy variable equal to 1 if the subject has done volunteer work during the past 12 months and 0 otherwise</i>	91	0.791	0.409	0	1
Giving to charity	<i>Dummy variable equal to 1 if the subject has given money to a charity during the past 12 months and 0 otherwise</i>	89	0.685	0.467	0	1
Declared Income	<i>Income declared to the Tax Authority</i>	600	7.937	3.378	0	10
Individual compliance rate	<i>Individual Tax paid/tax owed</i>	600	0.794	0.338	0	1
Audit rate	<i>Probability of an audit</i>	600	0.332	0.125	0.1	0.5
Penalty rate	<i>Fine rate paid if audited and evaded taxes</i>	600	3.253	0.666	3	5
Public fund	<i>Dummy variable equal to 1 if there is a public fund and 0 otherwise</i>	600	0.833	0.373	0	1
Public fund to Charity	<i>Dummy variable equal to 1 if the public fund goes partially to charities chosen by the group and 0 otherwise</i>	600	0.127	0.333	0	1



Table 3. *Continued*

Variable	Definition	Observations	Mean	Standard Deviation	Minimum	Maximum
Experienced	<i>Dummy variable equal to 1 if the subject is familiar with economic experiments (other than tax compliance games)</i>	99	0.869	0.339	0	1
Times of experience	<i>Number of times the subject has participated in economics experiments if experienced</i>	86	4.430	2.822	1	17
Sophomore	<i>Dummy variable equal to 1 if the subject is a sophomore and 0 otherwise</i>	99	0.162	0.370	0	1
Junior	<i>Dummy variable equal to 1 if the subject is a junior and 0 otherwise</i>	99	0.343	0.477	0	1
Senior	<i>Dummy variable equal to 1 if the subject is a senior and 0 otherwise</i>	99	0.384	0.489	0	1
Graduate	<i>Dummy variable equal to 1 if the subject is a graduate student and 0 otherwise</i>	99	0.111	0.316	0	1
Economics major	<i>Dummy variable equal to 1 if the subject is an economics, finance or business major and 0 otherwise</i>	98	0.286	0.454	0	1
Age	<i>Age of the subject</i>	99	21.768	3.738	17	44
Female	<i>Dummy variable equal to 1 if the subject's gender is female and 0 if male</i>	99	0.616	0.489	0	1
White	<i>Dummy variable equal to 1 if the subject's race is white and 0 otherwise</i>	98	0.235	0.426	0	1
Black	<i>Dummy variable equal to 1 if the subject's race is black and 0 otherwise</i>	98	0.582	0.496	0	1
Asian	<i>Dummy variable equal to 1 if the subject's race is Asian and 0 otherwise</i>	98	0.133	0.341	0	1
Born	<i>Dummy variable equal to 1 if the subject was born in the U.S. and 0 otherwise</i>	99	0.828	0.379	0	1
Protestant	<i>Dummy variable equal to 1 if the subject is protestant and 0 otherwise</i>	99	0.303	0.462	0	1

Table 3. *Continued*

<b>Variable</b>	<b>Definition</b>	<b>Observations</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Maximum</b>
Catholic	<i>Dummy variable equal to 1 if the subject is catholic and 0 otherwise</i>	99	0.121	0.328	0	1
Christian	<i>Dummy variable equal to 1 if the subject is Christian without any denomination (neither protestant nor catholic) and 0 otherwise</i>	99	0.242	0.431	0	1
Eastern religions	<i>Dummy variable equal to 1 if the subject's religion is one of the following: Islam, Buddhism or Hinduism and 0 otherwise</i>	99	0.091	0.289	0	1
Spiritual	<i>Dummy variable equal to 1 if the subject does not follow any religion, but has spiritual beliefs and 0 otherwise</i>	99	0.111	0.316	0	1
Church attendance	<i>How often the subject has attended religious services last year</i>	95	1.779	1.400	0	4

Table 4. Average Compliance Rates per session by decisions

Decision	Tax rate	Audit rate	Fine rate	Public fund multiplier	Public fund	Average Compliance Rate			
						S1	S2	S3	S4
1	30%	30%	3	-	No	0.67	0.76	0.75	0.77
2	30%	30%	3	2	Yes	0.88	0.78	0.91*	0.78*
3	30%	50%	3	2	Yes	0.96	0.94	0.97*	0.89*
4	30%	10%	3	2	Yes	0.52	0.42	0.56	0.46
5	30%	30%	5	2	Yes	0.93	0.90	0.89	0.91
6	30%	30%	3	2	Partially returned: 50% to charities; 50% to the group.	0.84	0.78	0.87	0.91
Number of subjects						28	24	24	24

T-test: \*significant at 10%.

Table 5. Average Compliance Rates per variables of sympathy

Decision	Average Compliance Rate								Volunteers	Non volunteers
	High DECS	Low DECS	Donors (blood)	Non donors (blood)	Donors (homeless)	Non donors (homeless)	Donors (charity)	Non donors (charity)		
1	0.77	0.70	0.76	0.73	0.71	0.79	0.75	0.73	0.75*	0.61*
2	0.83	0.85	0.81	0.84	0.82	0.90	0.83	0.87	0.83	0.83
3	0.94	0.94	0.93	0.94	0.94	0.94	0.95	0.93	0.94	0.94
4	0.58**	0.40**	0.60	0.47	0.49	0.46	0.53	0.47	0.49	0.43
5	0.92	0.90	0.93	0.90	0.91	0.90	0.90	0.93	0.91	0.85
6	0.85	0.85	0.92	0.83	0.83	0.89	0.83	0.85	0.85	0.83
<b>Number of subjects</b>	<i>50</i>	<i>49</i>	<i>17</i>	<i>77</i>	<i>76</i>	<i>20</i>	<i>61</i>	<i>28</i>	<i>72</i>	<i>19</i>

T-test:  $H_0$ : mean(nondonor) – mean(donor) = 0

\*\*significant at 5% ; \*significant at 10%.

Table 6. Tobit analysis of Individual Compliance Rate (*Basic Model*)

Selected independent variables	(1)
	Marginal effects
Audit rate	0.303*** (0.048)
Penalty rate	0.023*** (0.008)
Graduate	0.049** (0.021)
Public fund to charity	0.026* (0.015)
White	0.057*** (0.018)
Black	0.026 (0.018)
Born	0.019 (0.018)
Church attendance	0.007 (0.004)
Observations	558
Log Likelihood	-445.7
LR $\chi^2$	87.07

Standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

*Reference group*: sophomore; not Economics major; male; other race; not born in the U.S.; no religion; not experienced; Session S4.

This regression also includes a public fund dummy (equal to 1 if there is a public fund in the decision and 0 otherwise), experiment session dummies, *Experienced* (equal to 1 if the subject has participated in other (non-compliance) experiments and 0 otherwise), *Age*, gender, *Economics Major* (equal to 1 if the subject is Economics major and 0 otherwise), religion affiliations.

Table 7. Tobit analysis of Individual Compliance Rate (*only Empathy and Sympathy Variables in regressions*)

Independent variables	(2) Marginal effects	(3) Marginal effects	(4) Marginal effects	(5) Marginal effects	(6) Marginal effects	(7) Marginal effects
Priming	0.019 (0.013)					
High DECS score group		0.015* (0.008)				
Blood donor			0.022* (0.011)			
Giving to homeless				-0.012 (0.010)		
Giving to charity					-0.004 (0.010)	
Volunteer						0.020** (0.010)
Observations	288	594	564	576	534	546
Log Likelihood	-244.6	-522.5	-496.1	-512.06	-467.25	-486.0
LR $\chi^2$	2.26	3.01	3.68	1.34	0.16	3.94

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 8. Tobit analysis of Individual Compliance Rate (*Regressions include control variables of the basic model*)

Independent variables	(8) Marginal effects	(9) Marginal effects	(10) Marginal effects	(11) Marginal effects	(12) Marginal effects	(13) Marginal effects
Priming	0.017 (0.020)					
High DECS score group		0.017 (0.012)				
Blood donor			0.016 (0.014)			
Giving to homeless				-0.014 (0.013)		
Giving to charity					-0.023* (0.012)	
Volunteer						0.035* (0.015)
Observations	264	558	528	540	498	510
Log Likelihood	-180.9	-444.8	-424.2	-434.5	-394.6	-409.8
LR $\chi^2$	83.52	89.04	78.19	87.22	75.90	87.36

Standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

Each regression includes *Audit Rate*, *Penalty Rate*, a public fund dummy (equal to 1 if there is a public fund in the decision and 0 otherwise), experiment session dummies, *Experienced* (equal to 1 if the subject has participated in other (non-compliance) experiments and 0 otherwise), *Age*, gender, race, college year, *Economics Major* (equal to 1 if the subject is Economics major and 0 otherwise), *Born in the U.S.* (equal to 1 if the subject was born in the U.S. and 0 otherwise), religion affiliations, *Church Attendance*.

Table 9. Tobit analysis of Individual Compliance Rate (*Models with interaction terms*)

Independent variables	(14) Marginal effects	(15) Marginal effects	(16) Marginal effects	(17) Marginal effects
Priming	0.151** (0.068)	-0.002 (0.023)	-0.084 (0.052)	0.145*** (0.050)
Blood donor		-0.066 (0.052)		
Giving to homeless			-0.089** (0.044)	
Volunteer				0.094** (0.046)
Protestant	0.040 (0.042)			
Priming x Protestant	-0.249*** (0.085)			
Priming x Blood donor		0.112** (0.044)		
Priming x Giving to homeless			0.109** (0.053)	
Priming x Volunteer				-0.160*** (0.055)
Observations	264	252	258	246
Log Likelihood	-347.4	-167.5	-176.3	-164.3
LR $\chi^2$	82.3	83.01	86.25	90.38

Standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

Each regression includes *Audit Rate*, *Penalty Rate*, a public fund dummy (equal to 1 if there is a public fund in the decision and 0 otherwise), experiment session dummies, *Experienced* (equal to 1 if the subject has participated in other (non-compliance) experiments and 0 otherwise), *Age*, gender, race, college year, *Economics Major* (equal to 1 if the subject is Economics major and 0 otherwise), *Born in the U.S.* (equal to 1 if the subject was born in the U.S. and 0 otherwise), religion affiliations, *Church Attendance*.



Table 10. Number and percentage of subjects that have participated in each prosocial behavior at least once in the past 12 months by sympathy groups

	<b>Blood donation</b>		<b>Giving to the Homeless</b>		<b>Giving to Charity</b>		<b>Volunteering</b>	
	<i>Total</i>	<i>Percentage</i>	<i>Total</i>	<i>Percentage</i>	<i>Total</i>	<i>Percentage</i>	<i>Total</i>	<i>Percentage</i>
High DECS	9	19%	41	84%	36	75%	39	85%
Low DECS	8	17%	35	74%	25	61%	8	17%
Donors (blood)			13	76%	15	88%	15	94%
Non donors (blood)			59	79%	44	64%	53	75%
Donors (homeless)	13	18%			53	78%	57	81%
Non donors (homeless)	4	20%			7	35%	13	68%
Donors (charity)	15	25%	53	88%			47	82%
Non donors (charity)	2	7%	15	54%			19	70%
Volunteers	15	22%	57	81%	47	71%		
Non volunteers	1	5%	13	68%	10	56%		

Table 11. Correlation matrix with sympathy variables

	<b>DECS Score</b>	<b>Blood Donation</b>	<b>Giving to Homeless</b>	<b>Volunteering</b>	<b>Giving to Charity</b>
<i>DECS Score</i>	1				
<i>Blood Donation</i>	-0.0148	1			
<i>Giving to Homeless</i>	0.1922*	0.0589	1		
<i>Volunteering</i>	0.1366*	0.3318*	-0.0144	1	
<i>Giving to Charity</i>	0.1625*	0.2788*	0.3158*	0.1453*	1

\* Significant at the .01 level.

Table 12. Results for the extraction of component factors

<b>Factor</b>	<b>Eigenvalue</b>	<b>Difference</b>	<b>Proportion</b>	<b>Cumulative</b>
<i>Factor1</i>	1.588	0.487	0.397	0.397
<i>Factor2</i>	1.102	0.395	0.275	0.673
<i>Factor3</i>	0.706	0.103	0.177	0.849
<i>Factor4</i>	0.604	.	0.151	1

Table 13. Pattern matrix (rotated factor loadings)

	<i>Factor1</i>	<i>Factor2</i>	<i>Uniqueness</i> <sup>†</sup>
<i>Blood Donation</i>	0.730	0.163	0.395
<i>Giving to Homeless</i>	-0.199	0.881	0.250
<i>Volunteering</i>	0.837	-0.181	0.324
<i>Giving to Charity</i>	0.280	0.711	0.341

<sup>†</sup>Uniqueness is related to the proportion of variance of the variable that is not accounted for by all of the factors considered. If the uniqueness value is high, it indicates that the importance of the variable in the principal components analysis model is low.

Table 14. Tobit analysis of Individual Compliance Rate (*Models with factor scores from principal components analysis*)

Independent variables	(18) Marginal effects	(19) <sup>†</sup> Marginal effects	(20) Marginal effects	(21) <sup>†</sup> Marginal effects
Factor1 (High-cost)	0.009** (0.005)	0.008 (0.006)	-0.021 (0.015)	0.014 (0.034)
Factor2 (Low-cost)	-0.006 (0.005)	-0.017*** (0.006)	0.008 (0.014)	-0.072*** (0.025)
Priming			0.005 (0.025)	-0.022 (0.027)
Priming x Factor1 (High-cost)				-0.034 (0.039)
Priming x Factor2 (Low-cost)				0.126*** (0.032)
Observations	480	444	204	204
Log Likelihood	-420.5	-350.1	-130.1	-122.0
LR $\chi^2$	5.21	77.11	63.48	79.85

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

<sup>†</sup> These regressions include *Audit Rate*, *Penalty Rate*, a public fund dummy (equal to 1 if there is a public fund in the decision and 0 otherwise), experiment session dummies, *Experienced* (equal to 1 if the subject has participated in other (non-compliance) experiments and 0 otherwise), *Age*, gender, race, college year, *Economics Major* (equal to 1 if the subject is Economics major and 0 otherwise), *Born in the U.S.* (equal to 1 if the subject was born in the U.S. and 0 otherwise), religion affiliations, *Church Attendance*.

## **ESSAY 2: DOES RELIGIOUS EDUCATION INFLUENCE MONEY AND TIME DONATIONS IN ADULTHOOD?**

### **Introduction**

Understanding giving behavior is very important for policymakers. One main reason is that this private provision can be a replacement for publicly provided goods and services. Consequently, for decades, several social scientists have investigated the factors that help to explain philanthropy. Many economists have considered the effects of public policy instruments such as income taxes and government spending as their main focus (Clotfelter, 1985). However, more recently, some researchers have become interested in the motivations of giving such as altruism or reciprocity, in the context of experiments (Fehr & Schmidt, 2006). Many sociologists and psychologists have examined the role of social characteristics, personality traits and participation in associations (Smith, 1994). Within this last group, many studies have emphasized the important part of religiosity in philanthropic activities (Jackson, Bachmeier, Wood & Craft, 1995; Putnam, 2000; Brooks, 2004; Lam, 2002; Ruiter & De Graaf, 2006).

Religious individuals are more likely to donate their time or money not only because of their faith or convictions, but also because volunteering time or donating cash to religious congregations become an important tool of their involvement in the religious community, a way of having benefits in return either by the services offered to the community, by the skills developed during a volunteer work or by the enhanced enlightenment derived from giving per se, or warm glow (Wuthnow, 1990; Wilson & Janoski, 1995; Clotfelter, 1985; Ziemek, 2006; Brooks, 2004; Andreoni, 2006). Other possible explanation for giving is altruism which means giving with no selfish motives. As Clotfelter (1985) states, altruistic behavior can be founded on sympathetic feelings for

others while Wuthnow (1991) argues that most people give importance to compassion because they have been taught to through their religions. Thus, religious teachings could be relevant in explaining philanthropic activities by affecting one's level of sympathy since one of their main teachings is to be compassionate.

The focus of this paper is on religious education and its effects on time and cash donations in adulthood. Differently from previous research that has measured religiosity based on church attendance and religious affiliation, our main contribution is to take the contact to religious teachings through religious schools into consideration instead. If there is evidence that attending a religious school is associated with higher levels of charitable donation, then religious or moral education may be a good tool to promote generosity. Also, this possible result is important for policymakers since it produces benefits to the society, and it may lead to reduction in criminal activity.

## **Literature Review**

### *Religion and Charitable Giving*

Many papers have found a positive relationship between religious variables and giving. Jackson, Bachmeier, Wood and Craft (1995) create four variables of religious participation based on church attendance, belonging to a group within a congregation, encouragement of the church to activities that help others, and whether the individual has a favorite religious TV show. Their results show that only association in a church group is statistically significant in the analysis. Brooks (2004) consider religiosity in two ways: religious affiliation and church attendance. By using a more appropriate model than previous studies on religion and charitable donations, he finds that being religious, defined as attending church once a week or more, has a positive and statistically

significant effect on giving and volunteering while secular individuals, who have attended church less than a few times a year or have no religion, are likely to donate less of their money and time. According to his results, religious denominations have small effects on donations. Lam (2002) examines if four different dimensions of religiosity affect participation in voluntary associations. The dimensions are participation (based on church attendance and being a member in a religious group, for example), devotional (based on religion importance, and frequencies of prayer and religious readings), affiliation (based on religious denominations), and belief (based on their opinions about the church responsibilities in social issues). His conclusion is that these four dimensions affect positively volunteering.

These are a few examples of studies connecting some religiosity measures to charitable donations. As expected, they find a positive relationship between their measures of religiosity and time and cash giving. This paper presents a different measure that may affect one's religiosity or morality, which is religious education.

### *Religious Education*

Although there are many examples of research on the relationship between religiosity and donations, no work on the relationship between religious education and donations can be found. The main topic in the literature about religious education has been the difference in academic performances between students from Catholic schools and those from public schools.<sup>9</sup> Some studies find that there is a positive relationship between attending Catholic schools and academic performance. For example, Sander and Krautmann (1995) and Altonji, Elder, and Taber (2005a) show that students from

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<sup>9</sup> The literature about religious education has focused mostly on Catholic schools due to the underrepresentation of other religious schools in the datasets studied.



Catholic schools have a higher chance of graduating from high school and of attending college whereas Neal (1997) finds some mixed results in this relationship.

Another area of research is related to the effect of attending Catholic schools on non-academic outcomes such as risky behavior (e.g., drug use or suicide attempts). Mocan, Scafidi and Tekin (2002) argue that, if students in Catholic schools have better academic outcomes, they would be more likely to have more favorable non-academic outcomes as well. One reason is that the opportunity cost of engaging in criminal activity for example is higher for those who are likely to have higher labor market earnings as a consequence of better education achievement (Figlio & Ludwig, 2000). Also, Catholic schools tend to reinforce more discipline and have religious instruction. Both characteristics help to discourage bad behavior. Although Mocan, Scafidi and Tekin (2002) do not find any significant result, Figlio and Ludwig (2000) find a negative relationship between attending a Catholic school and risky behavior such as drug use and teen sexual activity.

This paper investigates the effect of attending a religious school on another non-academic outcome: charitable donations. As stated earlier, religious schools typically have religious education in their curriculum, which may develop or reinforce their students' levels of generosity. According to Hand (2004), "the study of religion is thought to be capable of serving a morally educative function regardless of whether or not pupils hold religious beliefs" (p. 152). Therefore, it is reasonable to suppose that there religious education leads to higher levels of donations because one of their main teachings is to care for others. According to this possible result, society benefits from moral education since there is more generosity.

One important issue that needs to be taken into account when analyzing the effect of religious schools is the potential for selectivity bias. Some individual and household characteristics may play a role in the choice of attending a religious school and in generosity. For instance, religious parents are more likely to enroll their children in religious schools. Also, if this is the case, children may be more likely to be generous because of the presence of religion in the household. These factors are related to a higher level of generosity that is beyond the effect of attending a religious school. On the other hand, some parents may place their troublemaking children to religious schools in order to fix their disruptive behavior. In this case, a lower level of generosity is expected due to an individual's characteristics. Therefore, it is important to deal with this potential selection problem in when analyzing the effect of attending religious schools.

Although we acknowledge the issue of selection in this research, we do not control for this effect due to limitations of the publicly available PSID dataset. In order to correct this problem, the use of instruments in the analysis is necessary. However, most of the instrumental variables used are related to some geographic information, such as the number of Catholic schools in the neighborhood or the proportion of Catholic population in the area of residence in the past (Kim, 2011). The publicly available PSID dataset only provides information on the state of residence and the size of the city. Thus, without more specific information on a respondent's residence, it is not possible to have instruments on geographic information.

In addition, another instrument that has been in the literature is Catholic religion (Evans & Schwab, 1995; Neal, 1997). Nonetheless, there have been some criticisms about the use of Catholic religion as an instrument when analyzing the effects of

attending Catholic schools (Altonji, Elder & Taber, 2005b). The reason is that Catholic religion may be correlated to the outcome that is taken into consideration in the study. For instance, we expect that religious individuals are likely to be more generous than nonreligious individuals. Therefore, a religion is not only influencing the choice of attending a religious school, but also affecting the level of donations (which is our dependent variable). As a result of the lack of available instruments, our paper conducts a limited analysis of the effect of attending a religious school on donations.

### *Government and Charitable Giving*

Mostly economists have examined charitable giving by focusing on the influence of marginal tax rates over an individual's decision on donations. Clotfelter (1985) argues that "the income tax deduction is the most important single tax policy affecting the vitality of the nonprofit sector in the United States" (p. 25). The reason is that charitable giving can be deducted from income taxes, thus decreasing the price of donating money to charities. Thus, price and income elasticities have gained importance in the economic literature since they are both affected by taxes.

There is a lot of discussion on the methods used in the calculation of price of giving. In terms of price, there are many aspects of the income tax that should be taken into account for a precise measure of this variable. Thus, a complete calculation becomes very complex. An easier method is to calculate the first-dollar price that is used in our paper. Feldstein (1975) was the first to implement it. It was created based on the existence of a correlation between the price of giving and the amount donated through the marginal tax rate that accounts for these contributions. The first-dollar price uses the marginal tax rate calculated as no donations were made, thus eliminating any dependence

between the price of giving and the amount contributed. As Clotfelter (1985) points out, the first-dollar price may be a poor measure of the price of giving in some cases; nevertheless, there is evidence that it is a probably a very close estimate of the price in most cases.

In addition, the type of income to consider has been also an issue. Some studies have used adjusted gross income while others have calculated permanent income or relative income. Permanent income is based on Friedman's (1957) idea of consumption depends on permanent income instead of real income in a given year. Some researchers have calculated the average of income for a number of years as a measure of permanent income. Others have taken into consideration the disposable income level of other individuals and created a measure of relative income. In this study, we choose to use the adjusted gross income as our measure, knowing that it is not the best representation of income for not considering relevant sources of income.<sup>10</sup>

Another important issue involving the government and donations is the possibility of a crowding-out effect of government spending on private donations. If we assume interdependence<sup>11</sup> in utility functions, the government spending on programs that improve the situation of those in need may reduce private contributions or provision of goods and services. Hence, in order to evaluate this effect, it is necessary to examine whether the public services and the private services are substitutable and the factors that affect one's utility. This issue is not analyzed in this paper, but it will be a future extension of this work.

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<sup>10</sup> After creating a permanent income variable based on two-year average of family income, we find very similar results as when AGI is considered. Moreover, when permanent income is in the analysis, the number of observations drops.

<sup>11</sup> In other words, one's utility depends on the welfare of the others.

### *Volunteering*

An individual can donate either money or time. Thus, some researchers have analyzed the relationship between these two goods: whether they are complements or substitutes. Menchik and Weisbrod (1987), by analyzing volunteer labor supply using the National Survey on Philanthropy of 1974, find that cash donations and volunteering time are complements. However, Duncan's (1999) results, using the same dataset, failed to reject the hypothesis that they are perfectly substitutable. Andreoni (2006) states that this issue has not been answered yet by the published literature.

Another important factor in volunteering is the wage rate. Menchik and Weisbrod (1987) include in their analysis a net wage rate which can indicate the opportunity cost of volunteering. Nevertheless, due to the use of this variable and to the limitations of their dataset, they have to reduce their sample to working individuals in single-earner households, thus excluding women from their analysis. To overcome the problem of ignoring women's decisions, an alternative given by Clotfelter (1985) is a model in which the time allocation decisions are sequential. In other words, the volunteering decision follows the decision of being in the labor force. Based on this idea, Brown and Lankford (1992) use available time as an exogenous variable in their regressions of donations. In this paper, we use the same approach since we do not want to restrict our sample to working individuals who have information about wage rate available in our dataset.

### **Hypothesis**

Religious schools by and large provide religious education in their curriculum. This type of instruction aims to develop moral character on students. Although some religious schools still rely on the traditional religious classes based “on the notion of faith

as received truth,” many religious schools focus on personal development of main social values such as compassion, tolerance and justice (Bryk, Lee & Holland, 1993, p. 113). These are important values to develop because it may generate more generosity and less violence in society. As stated by Milbrath (1989), a society in which most people give importance to these values would have less crime and terrorism.

One important characteristic of most Catholic schools for example is the religious activities, which involve community service programs. According to Bryk, Lee and Holland (1993), a large proportion of students participate in these programs. Some examples of activities are to visit a nursing home to talk to patients and to work in a soup kitchen to feed the poor. Although these activities are not restricted to students from Catholic schools (some students from public schools may have similar type of volunteering experience), these activities could reinforce the effect of religious teachings of values mentioned earlier.

Mocan, Scafidi and Tekin (2002) argue that “behavioral change may also be accomplished by education if education can alter tastes towards *risky behavior*, or if education can provide information regarding future costs of *risky behavior*” (p. 5). A similar statement can be made with respect to positive behavior such as charitable donations. The religious education may change the preferences towards charitable donations or it may show future benefits to the individual (e.g., “going to heaven vs. going to hell”) or to the society associated with an individual’s generous behavior. Preferences can be also affected by the presence of role models in the religious teachings or of religious figures currently working in the religious school (e.g. priests or nuns).

These are examples of factors that can change tastes of individuals who attend religious schools.

This argument suggests that religious education can influence tastes for donations; therefore, it can affect an individual's demand for charitable donations. Our hypothesis is that religious education acquired through a religious school affects an individual's demand for charitable donations.

### Empirical Model<sup>12</sup>

Based on the empirical models shown in Clotfelter (1985), in Menchik and Weisbrod (1987), and in Freeman (1997), we have an individual's demands for monetary and time contributions are specified as:<sup>13</sup>

$$G_{jt} = f_j(P_t, Y_t, T_t, Wealth_t, Z_t, Z, releduc) \quad (1)$$

where

- $j = 1$  (money),  $2$  (time).
- $G_t$  measures contributions (i.e.,  $G_t = D_t$  if monetary giving is considered, and  $G_t = H_t^V$  if volunteering is taken into account)
- $P_t$  is the first-dollar price of monetary contributions. For nonitemizers, it is equal to one. For itemizers, it is equal to one minus the marginal tax rate<sup>14</sup> (calculated based on setting charitable contributions to be zero).
- $Y_t$  is the adjusted gross income (AGI).
- $T_t$  is the amount of available hours (sixteen hours minus hours of paid market work).

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<sup>12</sup> In this section, we suppress the individual-specific index  $i$  in order to have simpler notations.

<sup>13</sup> In this paper, we do not explore a joint decision between time and cash donations.

<sup>14</sup> The marginal tax rates were calculated with the help of TAXSIM model which is available on the internet (<http://www.nber.org/taxsim>). Based on the information of each individual about income, state of residence, number of children, marital status and deductions collected from our dataset, the TAXSIM model provided the tax liabilities and marginal tax rates.

- $Z_t$  contains sociodemographic variables that change over time, and  $Z$  has time-constant sociodemographic variables.
- The dummy variable *releduc* is equal to one if the individual had attended religious schools when she was younger and equals zero otherwise.

For estimation purposes of calculation of price and income elasticities, we transform the demands for contributions into the logarithmic functional form:

$$\ln G_{jt} = \beta_1 + \beta_2 \ln P_t + \beta_3 \ln Y_t + \beta_4 \ln T_t + \beta_5 \ln Wealth_t + \beta_6 Z_t + \beta_7 Z + \beta_8 releduc + c + u_t \quad (2)$$

where  $c$  is the individual heterogeneity factor and  $u_t$  is the idiosyncratic error term.

Clotfelter (1985) points out that the main assumption for the use of logarithmic forms is that the income and price elasticities are constants. However, this assumption may not be credible if proportional changes in any variable turn out to be excessively large. This can happen with the logarithmic function if its value is close to one. As a consequence of the steepness of this function at the vicinity of one, some studies such as Boskin and Feldstein (1977) have used some alternative forms by adding one or ten dollars to each contribution value. In mathematical language, for example, the term  $\ln D_t$  becomes  $\ln(D_t + 10)$  if we add ten dollars. Even though Clotfelter (1985) argues that there is no greater difference in the coefficients for those with lower contribution values in these alternative settings, we add a value of ten dollars to all monetary donations and two hours<sup>15</sup> to volunteering time. We choose to increase by an insignificant value based on average of the dependent variables.

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<sup>15</sup> Two hours is the smallest integral number of time that would not cause STATA problems in the regressions such as missing standard errors.



Since our variable of interest is constant over time, we choose to analyze the data as panel data and as cross-sectional data (considering only the last years of data available, i.e., 2007 for monetary giving and 2005 for volunteering). As a panel, we estimate the effect of religious education using four methods<sup>16</sup> of regressions: pooled ordinary least squares (Pooled OLS), fixed effects (FE), random effects (RE), and Hausman-Taylor (1981) (HT). As a cross-sectional data, we run OLS and tobit regressions.

We have to consider that pooled OLS are biased and inconsistent in a panel data setting. By using pooled OLS, we ignore the existence of individual heterogeneity ( $c$  in our model) and put it in the error term. In the case of random effects, we assume that this factor of heterogeneity is uncorrelated with each independent variable. Thus, if there is endogeneity caused by the existence of individual heterogeneity, then the RE estimates are biased and inconsistent. Thus, the estimates of pooled OLS and RE should be interpreted with caution.

In our analysis, assuming that some explanatory variables are not correlated to the individual heterogeneity factor may be too strong. One reason for this is that the religiosity or religious education may be correlated with either the individual's tendency to religiosity (or morality) or the level of religiosity in the environment where the individual grew up (parents' tendencies to religiosity, for example). These factors are not possible to quantify. Hence, they are included in the individual heterogeneity term and the endogeneity is very likely to exist. This theory reinforces the argument that the pooled OLS and RE are not good estimates.

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<sup>16</sup> Even though some techniques may not be appropriate due to the fact that their assumptions may be too strong for our dataset or our model, they may be useful in terms of comparison of the magnitudes of the effects.

An alternative, the Hausman-Taylor (1981) estimation, could be considered. They propose an instrumental variable estimator that can be more efficient than fixed effects (FE) estimator if in the model there are at least as many time-varying exogenous variables as there are individual time-invariant variables (Baltagi, Bresson & Pirotte, 2003). Another alternative is the FE estimator. However, this type of regression method eliminates the time-constant variables. Therefore, in our analysis, the effect of religious education *releduc* is analyzed by separating the sample into two groups: individuals who have had religious education background and others who had not.

Because of the limitations of some regression methods employed, different groups of sociodemographic variables are included in the regressions. In the fixed effects estimation, we include only variables that change or may change over time: *age*, *age-squared*, *childs* (number of children in the household), *married* and *unemployed* dummy variables. In the other estimation techniques, other important sociodemographic information such as education, gender and religious affiliation is added.

### **Data**

Our dataset is from the Panel Study of Income Dynamics (PSID) conducted by the Survey Research Center, University of Michigan. It consists of a longitudinal study of a representative sample of the U.S. population and the household in which they live. The use of this dataset in our analysis is very suitable because it provides information about taxes, income, wealth, time and monetary contributions besides other socio-demographic and economic factors.

More importantly, our variable of religious education is available in the wave of 1995 and it is based on three questions asking whether the respondent had attended a

private school and if it was a religious school (either Catholic or other religious school) or not. From this information, we create four dummy variables based on the type of school attended: i) private non-religious; ii) Catholic; iii) other religious; iv) public. We do not take into consideration individuals who spend equal time in two or more types of school.

In addition, our main dependent variables of time and monetary donations are collected based on several questions asking whether the respondent donated money or volunteered to certain types of organization and the amount of the donation. We combine the types of organizations into two groups: secular and religious. The reasons for that are the large amount of donations given to the latter and the “not clearly philanthropic” nature<sup>17</sup> of religious giving (Schwartz, 1970; Clotfelter, 1985). Moreover, the total amount of time and cash given is considered in our regressions. Therefore, we have in total six dependent variables, more specifically three for monetary giving and other three for volunteering. They are based on total, secular and religious giving. These variables are measured in terms of annual dollars for monetary giving and of annual hours for volunteering.

One important characteristic of the PSID dataset is the possibility of having information about all members of the household. However, for the questions considered in our analysis, we have to restrict the examination to heads and wives and those who were respondents since some of the questions were asked only to them. In addition, our dataset consists of four waves (2001, 2003, 2005 and 2007) for monetary giving and two

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<sup>17</sup> A large part of religious donations covers the expenses of the congregations, thus limiting the amount received by the needy.

waves (2003 and 2005) for volunteering when the questions about philanthropy were asked.

Table 15 shows the summary statistics of the variables used in this study. We have approximately 50,000 observations with the four waves (an average of about 14,000 unique ID's per wave). From this sample, twenty-two percent is female, sixty percent is married and fifteen percent single, sixty-six percent employed and sixteen percent retired. The weighted mean of age is forty-nine years and of schooling is thirteen years. About eighty percent is white, and eleven percent is black. Also, eighty-eight percent has a religion denomination, and from this group, fifty-six percent declares to be Protestant and twenty-five, Catholic. With respect to the important information for our analysis (religious education), eighty-one percent of respondents had attended a public school, eleven percent had attended a Catholic school, five percent had attended other religious school and three percent had attended a private non-religious school. These proportions are close to the percentages we see for the entire U.S. population. According to U.S. department of education, in 2007, taking into account all students from pre-kindergarten to 12<sup>th</sup> grade, 89 percent of them attended public schools, 4 percent attended Catholic schools, 4 percent attended other religious schools and 2 percent attended nonsectarian schools.

In Figure 1, we have a couple of graphs presenting the weighted mean of contributions by type of donation (time or money), by type of organization receiving the donations (secular or religious), and by type of school attended. The graph on the left is related to monetary donations, and the one on the right side contains information on volunteering. It includes all types of individuals. Moreover, in each graph, we have three

groups of bars and each bar represents a type of school. The first group indicates donations to secular organizations, the second group to religious institutions, and the last group is the total amount of donations.

As we can see in the graph on the left, showing all individuals, individuals who had attended public schools have donated money equally among religious and secular organizations on average. Overall, they are the ones who have given money the most in the comparison of the means. The individuals who went to private non-religious schools come in second in average of total amount of cash donations. They tend to donate more to religious institutions. The contrary is true to the respondents who attended Catholic schools. They donated more to secular than to religious organizations and they are third in average of total cash donations. Those who attended other religious schools are the ones who donated the least mean amount of money. Thus, in terms of average total cash donations, religious education does not seem to have a greater impact on contributions given that the individuals who attended non-religious schools are bigger donors in this setting.

In terms of volunteering, except for those who went to other religious school, individuals have volunteered more to secular than to religious organizations on average. This can be seen in the graph on the right for time donations. All individuals have volunteered on average between fifty and seventy annual hours when we consider total volunteering. The ones who went to Catholic schools have the highest average of sixty-seven annual hours. Private non-religious schools come in second with sixty-five annual hours. The ones who have volunteered the least on average are the ones who attended public schools and other religious schools. Therefore, we can observe that those who

attended religious schools may have preference for volunteering because they have higher or equal (lower) mean values of volunteering (of cash donations) than non-religious schools. Nonetheless, a more rigorous analysis is necessary to facilitate the understanding of the effect of religious education on preferences and on contributions.

## **Results**

As we indicated earlier, we estimate the effect of religious education using a panel and a cross-sectional data. This section is divided into the regression methods used.

### **Panel Data Results**

#### *Monetary Giving*

In Table 16, we present the results of pooled OLS, RE and HT regressions. The coefficients for *Attended Catholic school* and *Attended other religious school* are positive and statistically significant in most of the regressions. According to our pooled OLS and RE estimation results, attending a Catholic school increases secular monetary giving by about fifteen percent, religious giving by about twenty percent, and total monetary giving by twenty-five percent. Attending other religious schools seems to have a larger effect (eighty percent) mostly on religious giving. This difference in focus of donation between those who attended Catholic schools and those who attended other religious schools may be explained by the fact that many of the last group may be from Protestant families, and Protestants tend to volunteer and to donate money more to religious than to secular causes.

The HT estimates for religious education are also positive and statistically significant at one percent level. However, the coefficients and the standard errors are very large. For example, by attending other religious schools, the amount donated to secular

organizations increase by thirteen hundred percent. Thus, we could assume that the effect of religious education on monetary contributions to secular or religious organizations or both is positive. Nevertheless, we need caution when interpreting these results since there is heterogeneity bias in the pooled OLS and RE estimations, and possible collinearity of the instrumental variables used in the HT estimation.

One important characteristic of HT regressions is that the price elasticities are close to the usual values found in previous literature. As Clotfelter (1985) reports, the consensus is that the price elasticity stays around negative one and three tenths. The HT estimates for secular and religious giving are close to this estimate. For total giving, the elasticity changes to negative one and eight tenths. On the other hand, income elasticities are usually around seven tenths (Clotfelter, 1985). The HT estimates of income elasticities are lower than this number. They are about eighteen hundredths in two regressions, but still indicating that monetary contributions are a luxury good.

Another option of analyzing the effect of religious education is by separating the sample into the individuals who had attended religious schools and those who had not. Using this method, Table 17 shows the consistent FE estimates of the smaller version of our model<sup>18</sup>. According to these results, the income elasticities are positive and statistically significant at five and ten percent levels. Nonetheless, the coefficients are smaller than one in most regressions, thus becoming a necessity good mostly for individuals without religious education or for all individuals. In addition, the demand for contributions for individuals who had attended religious schools is more price elastic than the ones with no religious education. Therefore, the individuals from religious schools tend to respond more, by changing their amount of monetary contributions, to changes in

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<sup>18</sup> As we stated earlier, the FE regressions eliminates the individual time-constant variables.

prices than the other individuals. The coefficients for price elasticity are negative and statistically significant at one percent level in most regressions. As we can see, these results are the same for secular and religious organizations.

Some consistent results are the effect of age and wealth. Younger and older individuals are less likely to give money to charity as we can infer from the statistically significant inverted U-shaped effect of age on monetary giving for all types of organizations. The existing literature typically finds that money donations increase with age. Also, for secular and religious organizations, an increase of one percent in wealth seems to increase the monetary donations by less than one percent for individuals without religious education and for all individuals. This effect increases slightly for individuals with religious education when donating to religious organizations. In the existing literature, greater wealth is also associated with higher levels of money donations.

Having children and getting married also seems to increase donations of individuals without religious education. For them, one additional child increases donations by five percent to secular organizations and by thirteen percent to religious organizations. Getting married increases donations only to religious organizations by thirteen percent as well. Thus, religious institutions seem to benefit more from individuals without religious education when they start or increase their families. Another surprising result for religious organizations is the effect of available time in individuals with religious education. One additional hour of available time in a year increases donations to religious institutions by a little less than one percent. These results are surprising since we expect that the larger families would lead to higher living costs, as well as more free time means less labor income for the individual. Thus, there would be



less money available for donations overall. However, this positive effect could be due to a possible increase in church attendance in these situations.

### *Volunteering*

Table 18 shows the results of pooled OLS, RE and HT regressions on volunteering. Once more, we observe positive and statistically significant effect of religious education on annual number of volunteering hours. Attending Catholic schools increases secular and total volunteering time by twenty percent, while attending other religious schools tends to increase religious and total volunteering time by thirty-five percent and twenty percent, respectively. Here, we observe an interesting pattern: those who attend Catholic schools are more likely to volunteer for secular organizations whereas those from other religious schools are more likely to volunteer for religious organizations. These results suggest that those who attended Catholic schools may prefer money donations to volunteering in religious organizations, and those who attended other religious schools may prefer to donate money and time to religious organizations.

The cross-price elasticities given by the price of monetary giving are negative and statistically significant mostly for religious volunteering, indicating that monetary and time contributions are complements. This finding is similar to that of Menchik and Weisbord (1987) and Brown and Lankford (1992). Income does not have a clear effect on volunteering. In volunteering for religious organizations, the income elasticity is statistically significant in pooled OLS and HT regressions; nevertheless, it is negative in the first and positive in the latter. This inconsistent result may be a consequence of the issues with these estimations mentioned in the previous section.

An important variable for volunteering is the available time. In most regressions, this variable has a positive and statistically significant effect on volunteering. This result indicates that increasing work hours reduces volunteering time. For example, if an individual decides to enter the labor force to work full time, then there is a reduction of approximately fourteen percent of secular volunteering time. This reduction is lower for religious organizations, about seven percent. Another factor that has a positive effect on volunteering for secular organizations seems to be wealth. The coefficients are statistically significant at one percent level, showing that a one percent increase in wealth increases the number of volunteering hours by a little less than one-tenth of one percent.

The FE estimates are in Table 19. The results show that the cross-price and income elasticities are not statistically significant. For individuals without religious education, age has a statistically significant inverted U-shaped effect on volunteering mainly with secular organizations. When considering all individuals, the same effect of age can be observed when volunteering for either secular or religious organizations or both. Previous work on volunteering generally finds similar results. One explanation is that middle-aged individuals are more strongly involved with work and family than younger and older people (Wilson, 2000). Moreover, considering only individuals without religious education, more available time and wealth have positive and statistically significant impacts on time donations for secular and religious organizations, respectively, as seen in previous estimations.

An interesting result of the FE regressions is the effect of getting married on volunteering for secular organizations. The coefficient is negative and statistically significant at five percent level. Getting married reduces annual hours of volunteering by

seventy percent if the individual had attended a religious school. This number is lower for the ones without religious education, about twenty-three percent. If getting married can increase monetary donations to religious organizations, at the same time it can decrease the number of hours of volunteer work to secular organizations. Therefore, it seems that individuals change behavior when they get married from volunteering for secular organizations to donating cash to religious institutions. This trade-off should be taken into consideration when promoting marriage among individuals.

### **Cross-sectional Data Results**

#### *Monetary Giving*

As can be examined in Table 20, the OLS and Tobit estimates are very similar for secular, religious and total giving. Attending Catholic schools has a positive and statistically significant impact on monetary giving at ten percent for secular organizations, at five percent for religious organizations, and at one percent for total giving. Attending this type of school increases secular giving by twenty-two percent, religious giving by thirty-five percent, and total giving by thirty-eight percent. Attending other religious school only increases religious giving by eighty percent at one percent significance level. Thus, these results of year 2007 confirm that religious education affects monetary giving in the adulthood and attending Catholic schools is more likely to increase giving to secular and religious organizations.

The income elasticities are about four tenths for secular and total giving, and one tenth for religious giving. The low income elasticity is not unexpected. It may happen due to the fact that religious donations are less important for individuals with higher income as reported by Clotfelter (1985). On the other hand, price elasticities are too high, around

negative two and four tenths for secular donations and negative two and six tenths for religious giving. Therefore, most individuals respond more to changes in price of giving by decreasing their donations, thus taxes could affect secular and religious donations.

Age is also an important factor for religious giving. As seen in Table 20, age has a U-shaped effect on religious donations, significant at the one percent level; that is, younger and older individuals tend to give more than others at middle age. Previous work finds that donations increase with age; however, with a quadratic term, the relationship tends to be an inverted U-shaped effect. Similar to previous research on monetary giving, being married, education, wealth, and religion affiliations increase monetary giving. Other statistically significant variables that affect religious donations are being unemployed or in other work status and being white or black. Except for unemployment (which decreases donations by sixty percent), the other factors increase donations, as expected. Hence, religious organizations can benefit from promoting families, from education, from their religion, and from an aging population.

For secular causes, most of the variables mentioned earlier seem to have similar effects on giving. Being married affects secular giving positively while being separated decreases this type of donations. Furthermore, *other work status* increases giving to both organizations by seventy-five percent whereas one additional year of schooling increases secular giving by a little more than religious giving about twelve percent in the first case and ten percent in the last. Wealth also has a higher elasticity for secular giving than for religious giving. Its coefficients are all statistically significant at one percent. On the other hand, one surprising result, given that white and black races have a positive effect on religious giving, is the effect of Asian race on secular donations, which is negative and

significant at ten percent level. We have to consider that other religions are important for secular giving too and this variable includes all Asian religions. Therefore, unless the individual is Asian and does not have a religion or is Catholic or Protestant, the effect of being Asian on secular donations may be reduced by the effect of religious affiliation. In addition, women are more likely to donate to secular organizations. Being a female increases secular donations by thirty-three percent at the one percent significance level.

### *Volunteering*

The effects of religious education on volunteering can be seen in Table 21. Attending Catholic schools increases total volunteering time by twenty-three percent whereas attending other religious schools has a greater positive effect only on religious volunteering of forty percent. Again, we observe that those who attended other religious schools prefer religious organizations when volunteering. These results support the argument that religious education may increase donations, in this case, time donations.

With respect to cross-price and income elasticities, these coefficients are only statistically significant on religious volunteering. We find a negative income elasticity of five hundredths at ten percent significance level. Thus, religious volunteering can be seen as an inferior good in this case. It can be a reflection of less importance given to religious donations by individuals with higher income or the higher value of time they have compared to lower income individuals. The cross-price elasticity is equal to negative sixty-six hundredths for religious volunteering, and seventy-six hundredths for total volunteering. This reinforces the idea that time and monetary donations are seen as complements.

If we consider only religious volunteering, we can observe that age, differently from previous research, has a U-shaped effect on volunteer time, and other factors have negative and statistically significant effects. These variables with negative effect are being divorced (decreases volunteering by eighteen hundredths percent), being unemployed or disabled (decreases time donations by approximately forty percent each), and *other work status* also affects negatively religious volunteering by thirty percent. Some studies find that employed individuals (the omitted category in our estimations) tend to participate more in volunteer work. On the other hand, religious volunteering increases with level of education and being Protestant. These results are similar to the ones found in the existing literature.

Having an additional child increases time donations in secular and religious organizations. Economic theory suggests that the value of time is greater as the number of members in the family increases, hence increasing the cost of volunteering. However, we have to take into consideration the fact that some parents may volunteer in order to provide services to their own children or to others. This is the direct benefit cause of volunteering explained in a previous section. In addition, a mother may decide to leave the job market or reduce the employment time in order to take care of her children.

As expected, wealth and education play a role in increasing volunteering. The elasticity of wealth is equal to six hundredths at five percent significance level and education has a positive and statistically significant effect on secular volunteering. One year of schooling increases secular volunteering time by seventeen percent which is larger than the effect of schooling on religious volunteering. Thus, we can argue that

more educated people are likely to volunteer more time for secular than for religious causes. This is similar to the result of the effect of education on monetary donations.

Other relevant variables in explaining secular volunteering are being widowed and being black, which have negative and statistically significant effects on secular volunteering. Being widowed decreases the volunteering time by ninety percent, and being black reduces time donations by sixty percent. These are large effects that should be taken into consideration. In terms of marital status, married individuals are more likely to get involved in volunteering, but Ruiter and De Graaf (2006) argue that singles are similarly active in volunteering. (Recall that single is the base category in our estimations.) Also, some studies report racial differences in volunteering (e.g., whites tend to volunteer more than minorities). However, the existence of these differences depends on the estimation methods used (Mesch, Rooney, Steinberg, & Denton, 2006). In other studies in which education and income are controlled for, no racial difference is found.

### **Conclusion**

Religious schools in general offer religious education in their curriculum as well as religious activities such as community service programs. These activities together seem to help the development of important values (e.g., compassion, tolerance and justice) that may generate more generosity and less violence in society. As stated by Milbrath (1989), a society in which most people give importance to these values would have less crime and terrorism. We argue that religious education may change the preferences towards behavior (more specifically, charitable donations). Our assumption is that religious teachings like religions can provide moral education to children regardless

of religious beliefs they may hold (Hand, 2004). This moral education can enhance one's religiosity or care for others as many religions teach.

This study examines the effect of religious education on donations during the adulthood. With this purpose on mind, we collect data from the Panel Study of Income Dynamics (PSID) from 2001 to 2007. This dataset also provides information about an individual's educational background (whether she had attended a public school, a Catholic school, or other religious school) in the individual dataset of year 1995. By gathering the main variables together, we have four years (or four waves) to analyze monetary giving and two years (or two waves) for volunteer work. We decide to study each type of giving separately and in two manners, as a panel data and as a cross-sectional data, due to the limitations of analysis of a time-constant variable in a panel data setting.

One important issue to consider when studying the effect of attending a religious school on donations is selection bias. For instance, religious parents are more likely to enroll their children in religious schools, and religion (or being a religious person) is associated with higher levels of donations. Although we acknowledge the issue of selection in this research, we do not control for this problem due to limitations of our dataset. The limited geographic information of the residence of the respondents does not allow us to create reliable instruments that have sometimes been used in the literature. Thus, we acknowledge that our analysis is limited at some extent.

Based on our analysis, religious education has a positive and statistically significant effect on monetary giving and volunteering. Attending Catholic schools is more likely to increase secular or total volunteering and attending other religious schools



is related to higher religious volunteering. A similar result is found in terms of monetary giving. The difference is that attending Catholic schools also increases religious donations at lower degree if compared to the effect of attending other religious schools. Therefore, the analysis of our data confirms our hypothesis that religious education is related to higher contributions of either cash or time.

Other interesting results are related to the price of giving and income. Our results show some difference in price and income elasticities between the individuals with religious education and the other who had not attended religious schools. We learn that, for individuals with religious schooling, monetary donations are a luxury good, while the others have them as necessities given the results of higher income elasticity for secular giving. In addition, individuals who attended religious schools respond more to changes in price of giving than the ones without religious education due to the higher price elasticities for secular, religious and total giving that the first group has. However, when we analyze the entire sample of respondents, the price elasticities are greater than two in absolute value, thus indicating that more price elastic demand for monetary donations. In the results for volunteering, we find that the cross-price elasticity is negative and lower than one in absolute value. This result implies complementarity between time and cash donations.

Other relevant factor affecting donations is age. In examining the panel data in a fixed effects estimation, we observe that age has an inverted U-shape effect on monetary contributions for all types of individuals and on secular and total volunteering for individuals who had not attended religious schools. This effect means that donations increase up to a certain age, then decreases. This result is similar to the findings in the

existing literature. When we analyze the cross-sectional data (considering only the last year of available data for cash and time donations), we find the opposite effect, a U-shaped form. In other words, the donations decrease as an individual gets older and after a certain point they rise again. As Clotfelter reports (1985), using data from Gallup organization, volunteering reaches its maximum in the 35-44 age group and monetary giving rises with age but at a decreasing rate. We believe that an event must have occurred that affected the level of donations of each age group in the last years examined in the cross-sectional data analysis (2007 for monetary giving and 2005 for volunteering).

Some other variables also play an important role in explaining donations such as education, number of children and marriage. Level of schooling affects donations positively and its effect is greater when dealing with cash and time donations to secular organizations. Having an additional child increases monetary donations. Surprisingly, it also stimulates volunteering and one of the explanations for that is the possibility of a direct benefit. In other words, parents may volunteer to offer services to their own children or to others. Being married also causes an increase in monetary giving for secular and religious organizations. Nevertheless, it affects negatively the number of volunteer work hours for secular organizations.

In conclusion, this paper suggests a new idea of possible policy for policy-makers: moral education. A lot of debate has emerged recently about changing the public school curriculum. One of the main issues is to implement some form of religious education or civic instruction in order to increase tolerance and understanding of key problems faced nowadays such as terrorism. This paper suggests that religious education may also affect positively charitable donations since our results show that religious

education may be related to higher contributions of time and cash. This positive effect represents benefits to society as well, thus it is an important factor to be considered by policymakers. However, we need to take into consideration the limitation of our analysis due to the selection bias that is present in our model. Besides the correction of the selection problem, more interesting information such as local public expenditures and poverty rates will be added in the analysis in the future.

Table 15. Summary statistics

<b>Variable</b>	<b>Description</b>	<b>Observations</b>	<b>Weighted mean</b>	<b>Standard Error</b>	<b>Minimum</b>	<b>Maximum</b>
Secular giving	<i>Annual amount of dollars donated to secular organizations</i>	56,494	924,702.60	65,508.0	0	400,000,000
Religious giving	<i>Annual amount of dollars donated to religious organizations</i>	55,702	456,519.60	36,197.8	0	100,000,000
Total giving	<i>Total annual amount donated to organizations</i>	56,494	1,381,222.00	86,489.8	0	500,000,000
Secular volunteering	<i>Annual number of volunteering hours in secular organizations</i>	24,365	33.9	1.4	0	5,840
Religious volunteering	<i>Annual number of volunteering hours in religious organizations</i>	24,344	20.4	0.9	0	5,475
Total volunteering	<i>Total annual number of volunteering hours</i>	24,365	54.4	1.7	0	5,876
Attended public school	<i>Dummy variable equal to 1 if respondent had attended public school and 0 otherwise</i>	22,592	0.81	0.003	0	1
Attended private non-religious school	<i>Dummy variable equal to 1 if respondent had attended private non-religious school and 0 otherwise</i>	22,563	0.03	0.001	0	1
Attended Catholic school	<i>Dummy variable equal to 1 if respondent had attended Catholic school and 0 otherwise</i>	22,563	0.11	0.003	0	1
Attended other religious school	<i>Dummy variable equal to 1 if respondent had attended other religious school and 0 otherwise</i>	22,563	0.05	0.002	0	1
Price of giving	<i>First-dollar price of monetary giving. For nonitemizers, it is equal to one. For itemizers, it is equal to one minus the marginal tax rate</i>	49,251	0.90	0.001	0.42	1.40
Wealth	<i>Wealth of respondent in dollars (includes home equity)</i>	57,614	322,869.60	6,597.1	-2,699,990	50,500,000

Table 15. *Continued*

<b>Variable</b>	<b>Description</b>	<b>Observations</b>	<b>Weighted mean</b>	<b>Standard Error</b>	<b>Minimum</b>	<b>Maximum</b>
AGI	<i>Adjusted Gross Income</i>	57,614	62,164.55	492.2	-23,000	3,660,000
Available time	<i>Annual number of available hours (16 h x 365 days minus annual number of work hours)</i>	49,901	4,418	6.3	16	5,840
Age	<i>Age of respondent</i>	50,258	49.06	0.10	16	101
Female	<i>Dummy variable equal to 1 if the respondent's gender is female and 0 if male</i>	57,614	0.22	0.002	0	1
Childs	<i>Number of children in the household</i>	57,614	0.69	0.01	0	9
Adults	<i>Number of people in the household excluding children, and head of the household.</i>	57,614	1.10	0.005	0	11
Single	<i>Dummy variable equal to 1 if the respondent's marital status is single and 0 otherwise</i>	57,614	0.15	0.002	0	1
Married	<i>Dummy variable equal to 1 if the respondent's marital status is married and 0 otherwise</i>	57,614	0.61	0.003	0	1
Widowed	<i>Dummy variable equal to 1 if the respondent's marital status is widowed and 0 otherwise</i>	57,614	0.08	0.002	0	1
Divorced	<i>Dummy variable equal to 1 if the respondent's marital status is divorced and 0 otherwise</i>	57,614	0.13	0.002	0	1
Separated	<i>Dummy variable equal to 1 if the respondent's marital status is separated and 0 otherwise</i>	57,614	0.03	0.001	0	1
Employed	<i>Dummy variable equal to 1 if the respondent is currently employed and 0 otherwise</i>	49,847	0.66	0.003	0	1

Table 15. *Continued*

<b>Variable</b>	<b>Description</b>	<b>Observations</b>	<b>Weighted mean</b>	<b>Standard Error</b>	<b>Minimum</b>	<b>Maximum</b>
Unemployed	<i>Dummy variable equal to 1 if the respondent is currently unemployed and 0 otherwise</i>	49,847	0.03	0.001	0	1
Retired	<i>Dummy variable equal to 1 if the respondent is retired and 0 otherwise</i>	49,847	0.16	0.002	0	1
Disabled	<i>Dummy variable equal to 1 if the respondent is disabled and 0 otherwise</i>	49,847	0.03	0.001	0	1
Housekeeper	<i>Dummy variable equal to 1 if the respondent is a housekeeper and 0 otherwise</i>	49,847	0.09	0.002	0	1
Other work status	<i>Dummy variable equal to 1 if the respondent has other work status and 0 otherwise</i>	49,847	0.02	0.0007	0	1
Northeast	<i>Dummy variable equal to 1 if the respondent's current region is Northeast and 0 otherwise</i>	57,609	0.19	0.002	0	1
North central	<i>Dummy variable equal to 1 if the respondent's current region is North Central and 0 otherwise</i>	57,609	0.27	0.002	0	1
West	<i>Dummy variable equal to 1 if the respondent's current region is West and 0 otherwise</i>	57,609	0.21	0.002	0	1
South	<i>Dummy variable equal to 1 if the respondent's current region is South and 0 otherwise</i>	57,609	0.32	0.002	0	1
Alaska or Hawaii	<i>Dummy variable equal to 1 if the respondent's current state is Alaska or Hawaii and 0 otherwise</i>	57,609	0.00	0.0003	0	1

Table 15. *Continued*

Variable	Description	Observations	Weighted mean	Standard Error	Minimum	Maximum
Foreign country	<i>Dummy variable equal to 1 if the respondent's current region is a foreign country and 0 otherwise</i>	57,609	0.00	0.0004	0	1
Education	<i>Years of education</i>	46,490	13.11	0.017	1	17
White	<i>Dummy variable equal to 1 if the respondent's race is white and 0 otherwise</i>	49,131	0.81	0.002	0	1
Black	<i>Dummy variable equal to 1 if the respondent's race is black and 0 otherwise</i>	49,131	0.11	0.002	0	1
Asian	<i>Dummy variable equal to 1 if the respondent's race is Asian and 0 otherwise</i>	49,131	0.02	0.001	0	1
Other race	<i>Dummy variable equal to 1 if the respondent belongs to other race and 0 otherwise</i>	49,131	0.06	0.001	0	1
No religion, atheist, or agnostic	<i>Dummy variable equal to 1 if the respondent does not have a religion or is atheist or agnostic and 0 otherwise</i>	47,877	0.12	0.002	0	1
Religious	<i>Dummy variable equal to 1 if the respondent has a religion and 0 otherwise</i>	47,877	0.88	0.002	0	1
Catholic	<i>Dummy variable equal to 1 if the respondent is Catholic and 0 otherwise</i>	47,877	0.25	0.003	0	1
Protestant	<i>Dummy variable equal to 1 if the respondent is Protestant and 0 otherwise</i>	47,877	0.56	0.003	0	1

Table 15. *Continued*

<b>Variable</b>	<b>Description</b>	<b>Observations</b>	<b>Weighted mean</b>	<b>Standard Error</b>	<b>Minimum</b>	<b>Maximum</b>
Other religion	<i>Dummy variable equal to 1 if the respondent has other religion and 0 otherwise</i>	47,877	0.07	0.001	0	1
y01	<i>Dummy variable equal to 1 if the year of response is 2001 and 0 otherwise</i>	57,614	0.27	0.002	0	1
y03	<i>Dummy variable equal to 1 if the year of response is 2003 and 0 otherwise</i>	57,614	0.26	0.002	0	1
y05	<i>Dummy variable equal to 1 if the year of response is 2005 and 0 otherwise</i>	57,614	0.24	0.002	0	1
y07	<i>Dummy variable equal to 1 if the year of response is 2007 and 0 otherwise</i>	57,614	0.23	0.002	0	1



Table 16. Panel data analysis of monetary giving (Pooled OLS, RE, and HT regressions)

Selected independent variables	Dep. variable: Secular giving [ln(D <sub>sec</sub> +10)]			Dep. variable: Religious giving [ln(D <sub>rel</sub> +10)]			Dep. variable: Total giving [ln(D+10)]		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Pooled OLS <sup>a</sup>	RE	HT	Pooled OLS <sup>a</sup>	RE	HT	Pooled OLS <sup>a</sup>	RE	HT
Attended private non-religious school	0.101 (0.105)	0.073 (0.120)	1.711*** (0.328)	0.026 (0.131)	0.166 (0.171)	1.245*** (0.291)	0.065 (0.124)	0.113 (0.151)	1.826*** (0.358)
Attended Catholic school	0.127* (0.067)	0.194*** (0.073)	7.428*** (1.154)	0.185** (0.073)	0.256** (0.105)	7.821*** (1.066)	0.243*** (0.064)	0.294*** (0.093)	10.425*** (1.274)
Attended other religious school	-0.014 (0.081)	0.022 (0.090)	13.089*** (2.165)	0.827*** (0.097)	0.794*** (0.128)	6.165*** (1.993)	0.438*** (0.089)	0.492*** (0.113)	10.570*** (2.389)
ln(AGI)	0.347*** (0.031)	0.294*** (0.025)	0.184*** (0.035)	0.059* (0.033)	0.124*** (0.028)	0.093*** (0.034)	0.265*** (0.033)	0.261*** (0.029)	0.181*** (0.039)
ln(price)	-2.551*** (0.158)	-2.372*** (0.128)	-1.375*** (0.170)	-2.508*** (0.194)	-1.907*** (0.141)	-1.344*** (0.164)	-3.299*** (0.182)	-2.919*** (0.150)	-1.755*** (0.190)
Age	-0.013 (0.020)	-0.010 (0.020)	0.101*** (0.035)	-0.162*** (0.025)	-0.010 (0.024)	0.049 (0.033)	-0.044* (0.024)	0.026 (0.024)	0.145*** (0.039)
Age squared	0.001* (0.000)	0.000* (0.000)	-0.001 (0.000)	0.003*** (0.000)	0.001 (0.000)	-0.000 (0.000)	0.001*** (0.000)	0.000 (0.000)	-0.002*** (0.001)
Female	0.238*** (0.066)	0.137** (0.058)	0.016 (0.097)	-0.122* (0.071)	-0.031 (0.072)	-0.085 (0.090)	0.125* (0.076)	0.075 (0.071)	-0.045 (0.107)
Childs	0.091*** (0.017)	0.071*** (0.016)	0.039 (0.027)	0.269*** (0.021)	0.148*** (0.020)	0.105*** (0.025)	0.160*** (0.019)	0.099*** (0.020)	0.042 (0.030)
Married	0.008 (0.069)	0.033 (0.061)	0.127 (0.101)	0.555*** (0.080)	0.668*** (0.075)	0.754*** (0.095)	0.440*** (0.081)	0.562*** (0.074)	0.669*** (0.112)

Table 16. *Continued*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Divorced	-0.250*** (0.079)	-0.119* (0.069)	-0.052 (0.118)	0.027 (0.088)	0.265*** (0.086)	0.458*** (0.110)	-0.191** (0.093)	0.075 (0.084)	0.315** (0.130)
Unemployed	-0.146 (0.091)	-0.178** (0.078)	-0.138 (0.099)	-0.445*** (0.124)	-0.197** (0.084)	-0.161* (0.095)	-0.442*** (0.129)	-0.317*** (0.090)	-0.195* (0.110)
Education	0.158*** (0.009)	0.134*** (0.008)	0.033** (0.015)	0.128*** (0.010)	0.111*** (0.010)	0.035** (0.014)	0.183*** (0.010)	0.163*** (0.010)	0.040** (0.017)
ln(Available time)	-0.035 (0.102)	-0.003 (0.073)	-0.123 (0.102)	0.086 (0.105)	0.097 (0.082)	0.082 (0.099)	-0.040 (0.105)	-0.004 (0.086)	-0.103 (0.114)
White	0.359*** (0.134)	0.139 (0.115)	0.319* (0.184)	0.023 (0.165)	-0.176 (0.140)	-0.008 (0.174)	0.174 (0.158)	-0.001 (0.139)	0.242 (0.204)
Black	0.158 (0.145)	-0.077 (0.119)	0.771*** (0.219)	0.054 (0.177)	-0.037 (0.148)	0.694*** (0.205)	-0.046 (0.171)	-0.163 (0.145)	0.858*** (0.243)
Asian	-0.669* (0.358)	-0.289 (0.318)	-0.240 (0.632)	-0.761* (0.433)	-1.139*** (0.433)	-1.653*** (0.584)	-0.595** (0.262)	-0.661* (0.397)	-0.768 (0.696)
Catholic	0.107 (0.069)	0.163** (0.073)	0.622* (0.333)	0.582*** (0.074)	0.460*** (0.101)	0.291 (0.322)	0.191** (0.074)	0.263*** (0.092)	0.632* (0.372)
Protestant	0.010 (0.057)	0.090 (0.058)	0.624*** (0.204)	0.997*** (0.064)	0.864*** (0.078)	0.700*** (0.198)	0.602*** (0.065)	0.632*** (0.072)	0.970*** (0.228)
Other religion	0.337*** (0.100)	0.329*** (0.092)	0.602** (0.239)	0.365*** (0.116)	0.792*** (0.115)	0.902*** (0.231)	0.424*** (0.114)	0.714*** (0.112)	1.118*** (0.267)
ln(Wealth)	0.145*** (0.013)	0.130*** (0.011)	0.053*** (0.016)	0.085*** (0.014)	0.082*** (0.012)	0.046*** (0.015)	0.159*** (0.015)	0.138*** (0.013)	0.068*** (0.017)
y03	0.092* (0.054)			-0.248*** (0.065)			-0.159** (0.064)		
y05	0.183*** (0.056)			-0.231*** (0.067)			-0.071 (0.066)		

Table 16. *Continued*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>y07</i>	0.131** (0.056)			-0.287*** (0.067)			-0.155** (0.066)		
Constant	-4.319*** (1.029)	-2.864*** (0.864)	-2.832* (1.457)	0.166 (1.117)	-2.632*** (1.003)	-2.868** (1.400)	-3.374*** (1.097)	-3.744*** (1.029)	-3.895** (1.625)
<i>Observations</i>	15,065	15,264	15,264	14,887	15,086	15,086	15,065	15,264	15,264
<i>R-squared</i>	0.305	5,293	5,293	0.236	5,278	5,278	0.340	5,293	5,293

Robust standard errors in parentheses

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Region variables included in the regressions.

Reference group: attended public school; male; single; employed; other race; no religion/atheist/agnostic; (1), (4) and (7): year 2001.

<sup>a</sup> Longitudinal family weights of all years are applied.

Table 17. Panel data analysis of monetary giving (FE regressions<sup>b</sup>)

Selected independent variables	Dep. variable: Secular giving [ln(D <sub>sec</sub> +10)]			Dep. variable: Religious giving [ln(D <sub>rel</sub> +10)]			Dep. variable: Total giving [ln(D+10)]		
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Only	Only		Only	Only		Only	Only	
	individuals WITH relig. education	individuals WITHOUT relig. education	All individuals	individuals WITH relig. education	individuals WITHOUT relig. education	All individuals	individuals WITH relig. education	individuals WITHOUT relig. education	All individuals
ln(AGI)	0.155** (0.074)	0.061** (0.031)	0.066** (0.029)	0.016 (0.063)	0.045** (0.022)	0.044** (0.021)	0.101 (0.080)	0.055* (0.031)	0.057* (0.030)
ln(price)	-1.281*** (0.473)	-0.546*** (0.163)	-0.614*** (0.155)	-1.229** (0.542)	-0.529*** (0.127)	-0.588*** (0.125)	-1.862*** (0.581)	-0.805*** (0.161)	-0.899*** (0.156)
Age	0.108 (0.121)	0.198*** (0.023)	0.199*** (0.023)	0.219** (0.100)	0.058*** (0.020)	0.066*** (0.019)	0.257** (0.118)	0.190*** (0.025)	0.193*** (0.024)
Age squared	-0.000 (0.001)	-0.002*** (0.000)	-0.002*** (0.000)	-0.002* (0.001)	-0.001*** (0.000)	-0.001*** (0.000)	-0.003* (0.001)	-0.002*** (0.000)	-0.002*** (0.000)
Childs	0.044 (0.080)	0.055* (0.029)	0.051* (0.028)	0.064 (0.069)	0.133*** (0.028)	0.129*** (0.026)	0.060 (0.076)	0.115*** (0.031)	0.110*** (0.029)
Married	0.387* (0.217)	-0.029 (0.079)	0.007 (0.075)	0.040 (0.189)	0.129** (0.063)	0.127** (0.060)	0.264 (0.212)	0.048 (0.079)	0.070 (0.075)
Education	-0.030 (0.051)	0.014 (0.012)	0.013 (0.012)	0.074* (0.039)	0.007 (0.009)	0.009 (0.009)	0.025 (0.050)	0.012 (0.011)	0.012 (0.011)
ln(Available time)	0.245 (0.415)	-0.112 (0.105)	-0.080 (0.099)	0.644*** (0.179)	0.063 (0.072)	0.115 (0.074)	0.597* (0.336)	-0.008 (0.106)	0.046 (0.098)
ln(Wealth)	-0.040 (0.061)	0.059*** (0.017)	0.054*** (0.016)	0.100* (0.055)	0.039*** (0.014)	0.041*** (0.014)	0.008 (0.056)	0.070*** (0.018)	0.066*** (0.017)
Constant	-2.094 (4.690)	-1.116 (1.154)	-1.435 (1.096)	-7.975*** (2.670)	1.661** (0.800)	0.953 (0.801)	-7.111* (4.017)	-0.252 (1.158)	-0.818 (1.080)

Table 17. *Continued*

	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
<i>Observations</i>	2,113	32,519	34,632	2,096	32,066	34,162	2,113	32,519	34,632
<i>R-squared</i>	0.045	0.013	0.014	0.050	0.008	0.009	0.061	0.016	0.017

Robust standard errors in parentheses

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

<sup>b</sup> Longitudinal family weight of only 2001 is applied.

Table 18. Panel data analysis of volunteering (Pooled OLS, RE, and HT regressions)

Selected independent variables	Dep. variable: Secular volunteering [ln(Vol <sub>sec</sub> +2)]			Dep. variable: Religious volunteering [ln(Vol <sub>rel</sub> +2)]			Dep. variable: Total volunteering [ln(Vol+2)]		
	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
	Pooled OLS <sup>a</sup>	RE	HT	Pooled OLS <sup>a</sup>	RE	HT	Pooled OLS <sup>a</sup>	RE	HT
Attended private non-religious school	0.148 (0.146)	0.065 (0.127)	0.668* (0.342)	0.007 (0.109)	0.054 (0.113)	0.365 (0.278)	0.144 (0.157)	0.087 (0.148)	0.987** (0.463)
Attended Catholic school	0.215** (0.088)	0.143* (0.078)	2.224 (1.509)	0.037 (0.065)	0.005 (0.070)	-1.229 (1.244)	0.202** (0.094)	0.128 (0.091)	1.107 (1.871)
Attended other religious school	-0.097 (0.105)	-0.099 (0.099)	6.671*** (2.369)	0.358*** (0.096)	0.382*** (0.088)	7.176*** (1.940)	0.196* (0.116)	0.232** (0.115)	13.247*** (3.005)
ln(AGI)	0.027 (0.037)	0.018 (0.029)	0.029 (0.037)	-0.063*** (0.023)	-0.007 (0.024)	0.067** (0.031)	-0.002 (0.040)	0.017 (0.033)	0.070 (0.044)
ln(price)	-0.112 (0.198)	-0.358** (0.150)	-0.098 (0.170)	-0.714*** (0.139)	-0.571*** (0.124)	-0.296** (0.141)	-0.522** (0.215)	-0.667*** (0.169)	-0.169 (0.197)
Age	-0.013 (0.028)	-0.017 (0.024)	0.074* (0.043)	-0.050** (0.021)	-0.053** (0.021)	0.000 (0.036)	-0.053* (0.031)	-0.056** (0.028)	0.066 (0.055)
Age squared	0.000 (0.000)	0.000 (0.000)	-0.001 (0.001)	0.001*** (0.000)	0.001*** (0.000)	0.001 (0.000)	0.001** (0.000)	0.001*** (0.000)	-0.000 (0.001)
Female	0.138 (0.084)	0.110* (0.066)	0.117 (0.102)	-0.016 (0.056)	0.038 (0.057)	0.056 (0.084)	0.136 (0.092)	0.117 (0.076)	0.129 (0.127)
Childs	0.225*** (0.022)	0.176*** (0.018)	0.081*** (0.030)	0.158*** (0.018)	0.132*** (0.016)	0.083*** (0.024)	0.289*** (0.024)	0.227*** (0.021)	0.083** (0.037)
Married	-0.205** (0.084)	-0.138** (0.070)	-0.182* (0.110)	0.067 (0.059)	0.122** (0.060)	-0.087 (0.090)	-0.095 (0.093)	-0.013 (0.080)	-0.219 (0.134)

Table 18. *Continued*

	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
Widowed	-0.854*** (0.116)	-0.739** (0.294)	-0.346 (0.427)	0.160 (0.332)	-0.040 (0.252)	-0.277 (0.350)	-0.456 (0.330)	-0.483 (0.337)	-0.476 (0.522)
Unemployed	-0.066 (0.135)	-0.211** (0.091)	-0.180* (0.098)	-0.234*** (0.076)	-0.193*** (0.075)	-0.123 (0.081)	-0.207 (0.141)	-0.315*** (0.102)	-0.266** (0.115)
Disabled	-0.242 (0.242)	-0.208 (0.177)	-0.034 (0.221)	-0.390*** (0.109)	-0.359** (0.148)	-0.096 (0.183)	-0.468* (0.251)	-0.413** (0.200)	-0.033 (0.264)
Housekeeper	0.269** (0.111)	0.151* (0.077)	0.034 (0.091)	0.005 (0.092)	0.011 (0.064)	0.015 (0.075)	0.232* (0.123)	0.108 (0.087)	0.017 (0.107)
Other work status	-0.320** (0.146)	-0.338*** (0.129)	-0.369*** (0.133)	-0.361*** (0.063)	-0.258** (0.104)	-0.181 (0.110)	-0.531*** (0.156)	-0.525*** (0.144)	-0.471*** (0.153)
Education	0.148*** (0.013)	0.144*** (0.011)	0.075** (0.035)	0.098*** (0.009)	0.105*** (0.010)	0.094*** (0.029)	0.191*** (0.014)	0.190*** (0.013)	0.111** (0.047)
ln(Available time)	0.348** (0.137)	0.411*** (0.088)	0.487*** (0.111)	0.145 (0.097)	0.184** (0.073)	0.193** (0.092)	0.329** (0.151)	0.435*** (0.100)	0.504*** (0.126)
Black	-0.357** (0.178)	-0.241* (0.130)	0.068 (0.203)	-0.198 (0.169)	0.008 (0.109)	0.100 (0.168)	-0.325 (0.213)	-0.127 (0.148)	0.275 (0.240)
Asian	-0.228 (0.417)	-0.691** (0.329)	-1.451*** (0.536)	-0.194 (0.488)	-0.607** (0.288)	-0.283 (0.439)	-0.354 (0.527)	-0.992*** (0.381)	-1.656** (0.667)
Protestant	0.145** (0.073)	0.100 (0.064)	0.117 (0.324)	0.407*** (0.050)	0.328*** (0.057)	0.367 (0.270)	0.370*** (0.081)	0.297*** (0.075)	0.204 (0.368)
ln(Wealth)	0.065*** (0.015)	0.066*** (0.012)	0.052*** (0.017)	0.006 (0.010)	0.020* (0.010)	0.020 (0.014)	0.055*** (0.016)	0.066*** (0.014)	0.056*** (0.019)
y05	0.115** (0.046)			0.033 (0.035)			0.141*** (0.051)		
Constant	-5.012*** (1.353)	-5.286*** (1.038)	-7.560*** (1.706)	-0.730 (0.942)	-1.871** (0.875)	-4.517*** (1.413)	-4.749*** (1.489)	-5.802*** (1.180)	-9.353*** (1.994)

Table 18. *Continued*

	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
<i>Observations</i>	7,547	7,664	7,664	7,544	7,660	7,660	7,547	7,664	7,664
<i>R-squared</i>	0.106	4,582	4,582	0.108	4,581	4,581	0.138	4,582	4,582

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Region variables included in the regressions.

Reference group: attended public school; male; single; employed; other race; no religion/atheist/agnostic; (19), (22) and (25): year 2003.

<sup>a</sup> Longitudinal family weights of all years are applied.



Table 19. Panel data analysis of volunteering (FE regressions<sup>c</sup>)

Selected independent variables	Dep. variable: Secular volunteering [ln(Vol <sub>sec</sub> +2)]			Dep. variable: Religious volunteering [ln(Vol <sub>rel</sub> +2)]			Dep. variable: Total volunteering [ln(Vol+2)]		
	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)
	Only individuals	Only individuals		Only individuals	Only individuals		Only individuals	Only individuals	
	WITH relig. education	WITHOUT relig. education	All individuals	WITH relig. education	WITHOUT relig. education	All individuals	WITH relig. education	WITHOUT relig. education	All individuals
ln(AGI)	-0.024 (0.143)	-0.037 (0.034)	-0.037 (0.033)	0.056 (0.092)	0.022 (0.023)	0.023 (0.023)	-0.053 (0.145)	-0.014 (0.034)	-0.018 (0.033)
ln(price)	-0.339 (0.915)	-0.010 (0.180)	-0.037 (0.182)	0.094 (0.399)	-0.101 (0.134)	-0.092 (0.126)	-0.119 (0.932)	-0.031 (0.200)	-0.036 (0.199)
Age	0.331 (0.337)	0.183*** (0.041)	0.184*** (0.040)	0.355 (0.220)	0.039 (0.029)	0.057* (0.030)	0.518 (0.332)	0.208*** (0.043)	0.220*** (0.043)
Age squared	-0.003 (0.004)	-0.001*** (0.000)	-0.001*** (0.000)	-0.004 (0.003)	-0.000 (0.000)	-0.001* (0.000)	-0.005 (0.004)	-0.002*** (0.000)	-0.002*** (0.000)
Childs	0.290 (0.194)	-0.032 (0.049)	-0.005 (0.048)	0.062 (0.086)	0.044 (0.035)	0.047 (0.032)	0.435** (0.168)	-0.024 (0.050)	0.016 (0.048)
Married	-0.698** (0.320)	-0.234** (0.116)	-0.243** (0.109)	-0.082 (0.222)	-0.085 (0.097)	-0.073 (0.088)	-0.698** (0.334)	-0.202 (0.124)	-0.204* (0.117)
Education	-0.310 (0.690)	0.028 (0.114)	0.015 (0.115)	-0.143 (0.146)	0.160 (0.175)	0.145 (0.166)	-0.410 (0.666)	0.058 (0.106)	0.044 (0.108)
ln(Available time)	0.400 (0.480)	0.209* (0.123)	0.226* (0.120)	0.111 (0.290)	0.164 (0.105)	0.162 (0.100)	0.212 (0.489)	0.268* (0.145)	0.272* (0.140)
ln(Wealth)	0.081 (0.080)	0.038 (0.024)	0.040* (0.023)	-0.022 (0.044)	0.040*** (0.013)	0.035*** (0.013)	0.057 (0.079)	0.043* (0.025)	0.043* (0.024)
Constant	-5.402 (11.904)	-5.554*** (2.100)	-5.563*** (2.092)	-5.701 (4.638)	-3.603 (2.558)	-3.884 (2.442)	-5.883 (11.561)	-6.963*** (2.170)	-7.088*** (2.151)

Table 19. *Continued*

	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)
<i>Observations</i>	1,052	16,258	17,310	1,051	16,244	17,295	1,052	16,258	17,310
<i>R-squared</i>	0.035	0.007	0.008	0.020	0.005	0.005	0.051	0.008	0.008

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

<sup>c</sup> Longitudinal family weight of 2001 only is applied.

Table 20. Cross-sectional data analysis of monetary giving - year 2007 (OLS and Tobit regressions)

Selected independent variables	Dep. variable: Secular giving [ln(D <sub>sec</sub> +10)]		Dep. variable: Religious giving [ln(D <sub>rel</sub> +10)]		Dep. variable: Total giving [ln(D+10)]	
	(37)	(38)	(39)	(40)	(41)	(42)
	OLS	Tobit	OLS	Tobit	OLS	Tobit
Attended private non-religious school	-0.087 (0.193)	-0.087 (0.192)	-0.032 (0.233)	-0.032 (0.232)	-0.161 (0.210)	-0.161 (0.209)
Attended Catholic school	0.221* (0.122)	0.221* (0.121)	0.348** (0.146)	0.348** (0.145)	0.379*** (0.116)	0.379*** (0.116)
Attended other religious school	-0.124 (0.157)	-0.124 (0.156)	0.804*** (0.179)	0.804*** (0.178)	0.257 (0.174)	0.257 (0.173)
ln(AGI)	0.368*** (0.062)	0.368*** (0.061)	0.107* (0.061)	0.107* (0.061)	0.334*** (0.061)	0.334*** (0.061)
ln(price)	-2.441*** (0.300)	-2.441*** (0.299)	-2.620*** (0.366)	-2.620*** (0.365)	-3.334*** (0.322)	-3.334*** (0.321)
Age	0.009 (0.035)	0.009 (0.035)	-0.145*** (0.041)	-0.145*** (0.040)	-0.026 (0.038)	-0.026 (0.038)
Age squared	0.000 (0.000)	0.000 (0.000)	0.002*** (0.001)	0.002*** (0.001)	0.001 (0.001)	0.001 (0.001)
Female	0.330*** (0.116)	0.330*** (0.116)	-0.196 (0.132)	-0.196 (0.131)	0.216* (0.131)	0.216* (0.130)
Childs	0.030 (0.033)	0.030 (0.032)	0.199*** (0.039)	0.199*** (0.039)	0.067* (0.035)	0.067* (0.035)
Married	0.221* (0.125)	0.221* (0.124)	0.571*** (0.136)	0.571*** (0.136)	0.580*** (0.135)	0.580*** (0.134)
Separated	-0.530*** (0.193)	-0.530*** (0.192)	-0.246 (0.189)	-0.246 (0.188)	-0.729*** (0.216)	-0.729*** (0.215)

Table 20. *Continued*

	(37)	(38)	(39)	(40)	(41)	(42)
Unemployed	-0.227 (0.158)	-0.227 (0.158)	-0.597*** (0.179)	-0.597*** (0.179)	-0.611*** (0.192)	-0.611*** (0.191)
Other work status	0.759*** (0.261)	0.759*** (0.259)	0.756* (0.436)	0.756* (0.434)	0.906*** (0.339)	0.906*** (0.337)
Education	0.129*** (0.013)	0.129*** (0.013)	0.100*** (0.014)	0.100*** (0.014)	0.152*** (0.014)	0.152*** (0.014)
ln(Available time)	0.087 (0.191)	0.087 (0.190)	0.215 (0.194)	0.215 (0.193)	0.286 (0.193)	0.286 (0.192)
White	0.061 (0.243)	0.061 (0.242)	0.727** (0.285)	0.727** (0.284)	0.518* (0.283)	0.518* (0.282)
Black	-0.176 (0.263)	-0.176 (0.262)	0.731** (0.304)	0.731** (0.303)	0.234 (0.302)	0.234 (0.301)
Asian	-1.351* (0.801)	-1.351* (0.798)	0.178 (0.934)	0.178 (0.930)	-0.179 (0.555)	-0.179 (0.553)
Catholic	0.007 (0.121)	0.007 (0.120)	0.525*** (0.134)	0.525*** (0.134)	0.123 (0.125)	0.123 (0.125)
Protestant	0.047 (0.104)	0.047 (0.103)	1.099*** (0.116)	1.099*** (0.115)	0.699*** (0.110)	0.699*** (0.110)
Other religion	0.348** (0.165)	0.348** (0.164)	0.430** (0.193)	0.430** (0.192)	0.465*** (0.171)	0.465*** (0.171)
ln(Wealth)	0.174*** (0.022)	0.174*** (0.022)	0.075*** (0.026)	0.075*** (0.026)	0.165*** (0.026)	0.165*** (0.025)
Constant	-5.628*** (1.914)	-5.628*** (1.907)	-1.775 (1.968)	-1.775 (1.960)	-7.093*** (1.914)	-7.093*** (1.907)
<i>Observations</i>	<i>4,157</i>	<i>4,157</i>	<i>4,096</i>	<i>4,096</i>	<i>4,157</i>	<i>4,157</i>
<i>R-squared</i>	<i>0.341</i>		<i>0.255</i>		<i>0.402</i>	

Robust standard errors in parentheses

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Region variables included in the regressions.

Reference group: attended public school; male; single; employed; other race; no religion/ atheist/ agnostic.

Table 21. Cross-sectional data analysis of volunteering - year 2005 (OLS and Tobit regressions)

Selected independent variables	Dep. variable: Secular volunteering [ln(Vol <sub>sec</sub> +2)]		Dep. variable: Religious volunteering [ln(Vol <sub>rel</sub> +2)]		Dep. variable: Total volunteering [ln(Vol+2)]	
	(43)	(44)	(45)	(46)	(47)	(48)
	OLS	Tobit	OLS	Tobit	OLS	Tobit
Attended private non-religious school	0.076 (0.200)	0.076 (0.199)	-0.002 (0.142)	-0.002 (0.141)	0.067 (0.213)	0.067 (0.212)
Attended Catholic school	0.207 (0.129)	0.207 (0.128)	0.090 (0.095)	0.090 (0.094)	0.231* (0.138)	0.231* (0.137)
Attended other religious school	-0.123 (0.146)	-0.123 (0.146)	0.403*** (0.130)	0.403*** (0.129)	0.210 (0.159)	0.210 (0.158)
ln(AGI)	-0.016 (0.054)	-0.016 (0.054)	-0.054* (0.032)	-0.054* (0.032)	-0.036 (0.057)	-0.036 (0.057)
ln(price)	-0.378 (0.290)	-0.378 (0.289)	-0.657*** (0.210)	-0.657*** (0.209)	-0.760** (0.317)	-0.760** (0.316)
Age	-0.018 (0.039)	-0.018 (0.039)	-0.066** (0.027)	-0.066** (0.027)	-0.069 (0.043)	-0.069 (0.043)
Age squared	0.000 (0.001)	0.000 (0.001)	0.001*** (0.000)	0.001*** (0.000)	0.001** (0.001)	0.001** (0.001)
Female	0.161 (0.118)	0.161 (0.117)	-0.017 (0.070)	-0.017 (0.070)	0.171 (0.128)	0.171 (0.127)
Childs	0.208*** (0.032)	0.208*** (0.032)	0.183*** (0.025)	0.183*** (0.025)	0.305*** (0.034)	0.305*** (0.034)
Married	-0.049 (0.111)	-0.049 (0.111)	0.128 (0.079)	0.128 (0.078)	0.038 (0.122)	0.038 (0.122)
Widowed	-0.913*** (0.130)	-0.913*** (0.129)	-0.073 (0.257)	-0.073 (0.256)	-0.815*** (0.272)	-0.815*** (0.271)

Table 21. *Continued*

	(43)	(44)	(45)	(46)	(47)	(48)
Divorced	-0.007 (0.140)	-0.007 (0.140)	-0.178** (0.082)	-0.178** (0.081)	-0.097 (0.151)	-0.097 (0.151)
Unemployed	0.188 (0.203)	0.188 (0.203)	-0.374*** (0.076)	-0.374*** (0.076)	-0.039 (0.210)	-0.039 (0.209)
Disabled	-0.277 (0.430)	-0.277 (0.429)	-0.431*** (0.137)	-0.431*** (0.136)	-0.476 (0.449)	-0.476 (0.447)
Other work status	-0.326* (0.198)	-0.326* (0.197)	-0.305*** (0.112)	-0.305*** (0.112)	-0.508** (0.219)	-0.508** (0.218)
Education	0.174*** (0.018)	0.174*** (0.018)	0.083*** (0.013)	0.083*** (0.013)	0.200*** (0.019)	0.200*** (0.019)
Black	-0.603** (0.260)	-0.603** (0.259)	0.081 (0.159)	0.081 (0.159)	-0.445* (0.269)	-0.445* (0.268)
Protestant	0.090 (0.107)	0.090 (0.106)	0.457*** (0.063)	0.457*** (0.063)	0.345*** (0.115)	0.345*** (0.114)
ln(Wealth)	0.056** (0.022)	0.056*** (0.022)	0.008 (0.015)	0.008 (0.015)	0.049** (0.024)	0.049** (0.024)
Constant	-3.550* (2.119)	-3.550* (2.110)	0.084 (1.281)	0.084 (1.275)	-2.848 (2.247)	-2.848 (2.238)
<i>Observations</i>	3,989	3,989	3,988	3,988	3,989	3,989
<i>R-squared</i>	0.109		0.119		0.143	

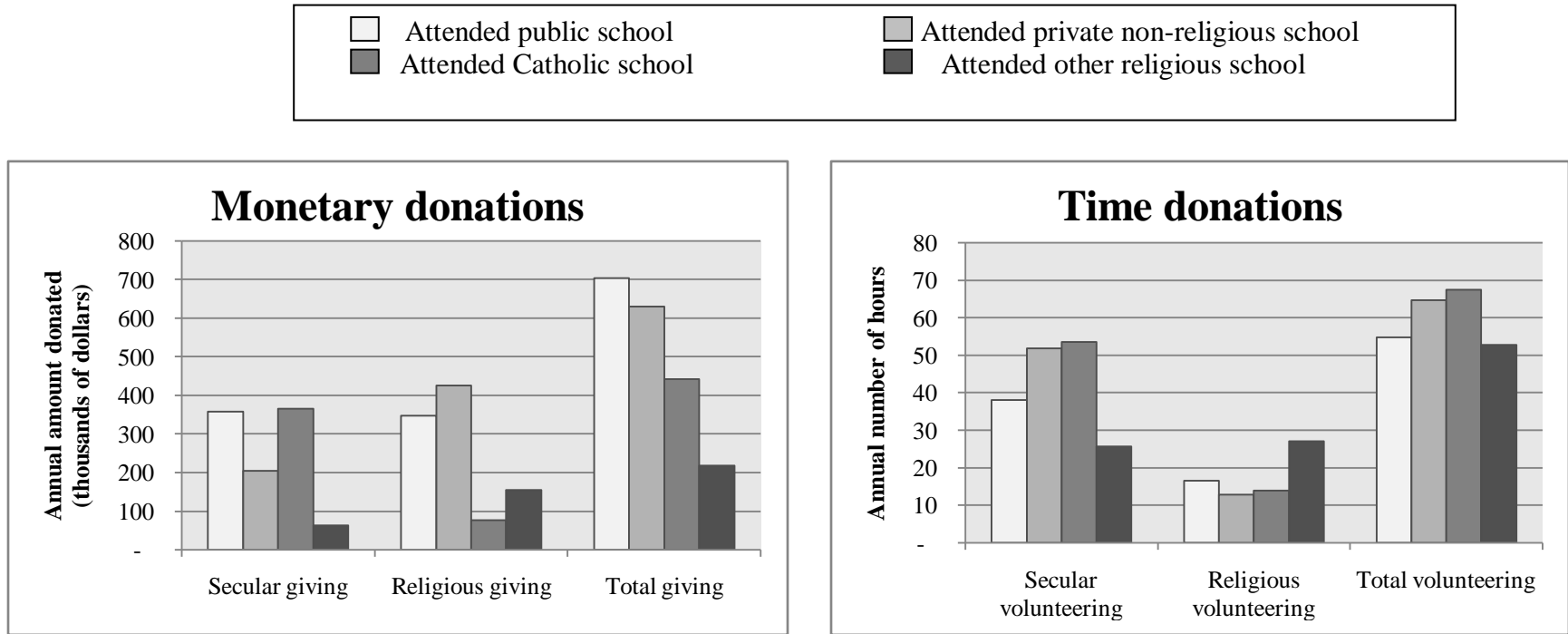
Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Region variables included in the regressions.

Reference group: attended public school; male; single; employed; other race; no religion/ atheist/ agnostic.

Figure 1. Weighted mean of donations per type of school attended





### **ESSAY 3: THE EFFECT OF SYMPATHY ON INCOME REDISTRIBUTION PREFERENCES**

#### **Introduction**

Economists have suggested that financial self-regarding interest could explain the preferences for income redistribution. For instance, according to the median voter model, the demand for redistribution decreases with an increase in personal income (Fong, Bowles & Gintis, 2006). Nonetheless, some researchers have found that personal income weakly predicts the support for income redistribution (Fong, 2001; Gilens, 1999). In fact, it seems that a great percentage of poor people do not support income redistribution while many rich people do (Fong, 2001). Thus, other factors may influence the decision to support or to oppose income redistribution.

Some examples of other factors are explored in the previous literature on income redistribution. Some research finds that beliefs on the causes of poverty (luck vs. lack of hard work) are likely to affect one's support for income redistribution (Fong, 2001). Also, culture is an important factor since some cultures (some European countries for instance) are likely to give more importance to equality than others due to their historical experiences (Alesina & Glaeser, 2004). Besides a country's historical experience, an individual's income mobility experience also seems to contribute to differences in income redistribution preferences (Piketty, 1995).

Another important factor is morality. According to psychology, moral standards may influence individual behavior by self-regulatory emotions such as guilt or pride. In our context, a wealthy individual may feel guilt for having more than others and may become more supportive of income redistribution. However, moral standards may be affected by other moral emotions such as sympathy. Many psychologists argue that

sympathy motivates moral behavior and plays an important part in morality (Eisenberg, 2000). Sympathy is related to other-oriented feelings of compassion and the concern for unfortunate others. Some rich people may feel compassion for the needy because they consider that the poor do not have the opportunity to earn an adequate income. In this research, we observe how sympathy influences preferences over income redistribution.

### **Hypothesis**

This paper has the goal of examining if sympathy contributes in explaining income redistribution preferences. As some psychologists have argued, individuals who feel sympathy have a concern for other's welfare if they are in distress (Eisenberg & Miller, 1987). Another consequence of feeling sympathy would be to avoid causing a distress for others (Miller & Eisenberg, 1988). For example, not paying taxes could affect other's welfare negatively by lowering their income or diminishing the availability of public services to others if there is income redistribution financed by taxes. Thus, we can expect that individuals who have higher levels of sympathy support policies that can benefit the poor, holding other variables constant. Income redistribution policy would be a good choice in this way. Therefore, we test the hypothesis that higher levels of sympathy are related to more support for income redistribution.

### **Data**

We use the General Social Survey (GSS), managed by the National Opinion Research Center (NORC) at the University of Chicago, to observe the relationship between sympathy measures and income redistribution preference. The data consist of a collection of questions regarding demographics, opinions and behaviors of adults selected at random in the U.S.. Each year is an independent cross-sectional data, and many years

of the GSS have on average 2,800 observations. We limit the analysis to GSS waves of 2002 and 2004 since these are the years in which our sympathy measures are available.

### *Dependent Variable of Interest*

Our dependent variable is the demand for income redistribution given by a variable called “EQWLTH.”<sup>19</sup> It asks the respondent if the government should reduce the income differences between the rich and the poor either by increasing the taxes of wealthy households or by offering income assistance to the poor. The answer is based on a scale from 1 = “should” to 7 = “should not.” After reordering this variable in order to show an increase in support for income redistribution (“REDISTR,” assuming values from 1 = “should not” to 7 = “should”), we create a dummy variable showing the “supporters” of income redistribution (“REDISTR” is greater than 4) and nonsupporters (“REDISTR” is lower than 5).

### *Independent Variables of Interest: Sympathy Variables*

In terms of sympathy, we are considering four variables: the Davis Empathic Concern Scale; an individual’s importance of personally assisting people in trouble; the frequency of careless feeling for others; and some prosocial behaviors. The frequency of some behaviors to help unfortunate people is taken into account in order to verify robustness of our results.

The Davis empathic concern scale is a subset of the Interpersonal Reactivity Index (IRI) developed by Davis in 1980s (Davis, 1983). The entire scale has the goal of assessing the “empathy” of the individual, i.e., the degree at which the individual puts himself or herself in unfortunate others’ situations. This scale has been used in psychology as a measure of altruistic personality (e.g., Carlo, Eisenberg, Troyer, Switzer

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<sup>19</sup> This variable was used in previous research (e.g., Alesina and La Ferrara, 2005).

& Speer, 1991) or as a tool to separate degrees of empathy in different groups of people such as prisoners (e.g., Lauterbach & Hosser, 2007).

For the purpose of this research, we are only interested in evaluating how much someone is concerned about other people in need. The subset, the Davis empathic concern scale, gives this idea. It evaluates the propensity of an individual to experience feelings of sympathy for unfortunate people. According to Batson, the source of “true altruism”<sup>20</sup> –i.e., helping exclusively intended to benefit the needy person –is empathic concern (as cited in Davis, 1996, p. 134): “the stronger the feelings of compassion for the target [individual in need], the greater is the motivation to reduce the target’s need.” Therefore, we can expect that a person with a high level of sympathy may try to improve the welfare of someone who is worse-off, perhaps even at the expense of his or her own welfare.

The scale is very simple. In addition, it has acceptable measures of test-retest and internal reliabilities (Davis, 1980) and construct validity (Davis & Franzoi, 1991). It consists of seven items. The respondents are asked to specify if these items describe them well or not –ranging from 0 (does not describe me very well) to 4 (describes me very well). For example, one of the items is “I often have tender, concerned feelings for people less fortunate than me.” The responses to each of those items are summed; therefore, the scores can range from 0 to 28. The sample was divided into two groups by the median of

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<sup>20</sup> Usually “altruism,” “empathy” and “sympathy” are considered overlapping terms across different disciplines. In economics, “altruism” is interpreted as a concern for other that would be included in an altruistic individual’s utility as other agents’ wellbeing or monetary payoffs. We define “altruism” as any generous behavior towards others, unconditional on rewards or punishments, that can be motivated by social norms or by moral emotions such as empathy or sympathy.

the DECS score in the sample (21): “Low-score Group”: the total sum of their responses is between 0 and 20; and “High-score Group”: the total sum is between 21 and 28.

Two other sympathy variables are collected by asking the respondents the importance they give to helping worse-off individuals and the frequency they feel a selfless caring for others. “PEOPTRBL” is related to the question about the importance the respondent gives to personally assisting people in trouble. The respondent has to say if he or she strongly agrees, agrees, neither agrees nor disagrees, disagrees, or strongly disagrees with the statement. We transformed this question into a dummy variable:

“PEOPTRBL *dummy*” = 1 if the respondent strongly agrees or agrees; “PEOPTRBL *dummy*” = 0, otherwise. The other sympathy variable referring to the frequency with which they feel a careless feeling towards others in their daily lives is called “Selfless.”

In order to test for robustness, we use two ways of coding this variable. We use the coding provided in an ascendant order (original coding): “SELFLESS” = 0, if never or almost never; “SELFLESS” = 1, if once in a while; “SELFLESS” = 2, if some days; “SELFLESS” = 3, if most days; “SELFLESS” = 4, if every day; “SELFLESS” = 5, if many times a day.

We also believe that a good estimate of sympathy in individuals would be the actual behavior in favor of unfortunate others. In the survey, there are four prosocial behaviors taken into account: blood donation (“GIVBLOOD”), donation to a homeless person (“GIVHMLSS”), donation to a charity (“GIVCHRTY”), and volunteer work for a charity (“VOLCHRTY”). In all of these cases, we create dummy variables telling if the respondent practiced each prosocial behavior at least once in the past 12 months. We substitute sympathy variables for prosocial behavior variables in some regressions in

order to observe consistency in the effect of sympathy on income redistribution preferences and tax morale.

### **Descriptive Statistics**

Table 22 provides the descriptive statistics of the GSS data without the use of any weight. The highest number of observations per variable is 5,577. In the selected piece of the survey, only socio-demographic questions such as gender, income, age, education, number of children, employment status, race, marital status, religion and region of residence, are asked to the entire set of respondents. Other variables have fewer respondents. For instance, some sympathy variables like the Davis empathic concern scale, “PEOPTRBL” and “SELFLESS” are asked to half of the samples of 2002 and 2004, on average 2,650 observations. Financial satisfaction, confidence in the government, and preferences for income redistribution are asked to about thirty percent of the 2002 and 2004 respondents.

The survey offers many weighting variables. We use “WTSSALL,” which takes into consideration the sub-sampling of non-respondents and the number of adults in the household. This weight variable is used in all of our estimations.

### *Sympathy by Groups*

One of our main objectives is to observe the effect of sympathy variables on income redistribution preferences. Table 23 gives an idea of how these sympathy variables differ across certain groups. The table shows the weighted average of the sympathy variables for all respondents, by age groups, by income levels, by social classes, and by gender.

With respect to the Davis Empathic Concern Scale (“DECS”), which can vary from 1 to 28, we observe that the weighted average among all respondents is almost 21, which is a high score. The weighted average of “PEOPTRBL” variable is almost 4 for all respondents; on average, a respondent would “agree” with the statement that personally assisting people in trouble is important to him or her. Also, on average, all respondents seem to have a selfless caring for others most days.

If we consider the age groups, the “DECS” points tend to increase up to 21.5 when a respondent’s age is between 45 and 55 years; after this point, older respondents have lower averages of “DECS” points. Other sympathy variables have the same tendency. The averages of “PEOPTRBL” and “SELFLESS” variables rise up to the points of 4 and 2.9 when the age of the respondent is in the range 45-55 and 35-45 respectively. After these maximum points, the averages of both variables fall. Although the difference in the averages of a specific sympathy variable across age groups may not be very large, they still indicate some tendency of higher values of sympathy for younger groups, mostly below the age of 55, and of lower values for older groups.

In terms of income level, respondents in the lowest or second income quintile had lower “DECS” point averages compared to higher income quintiles. This result is in accordance with the argument that richer individuals are likely to give more support for income redistribution if this approval depends on their sympathy. On the other hand, “PEOPTRBL” presents greater averages between the second and the fourth income quintiles. The respondents in the lowest and the highest income quintiles have the lowest averages of “PEOPTRBL.” The averages of the other sympathy variable seem to

decrease as the income of respondents rises. Thus, with respect to income level, no unique pattern of the averages of the sympathy variables can be observed.

When we consider difference in gender, we can observe that females seem to have higher averages of sympathy variables compared to males. The greater difference in averages is in “SELFLESS” variable: females have an average 18 percent larger than males.

### **Results**

It should be noted that there is a possible self-selection problem. Individuals who have higher levels of sympathy may have intrinsic values or characteristics that are not easy to quantify and control for. These characteristics may be related to the support for income redistribution as well. Therefore, there may well be a self-selection problem in our analysis. However, due to the limitations of the dataset, we are unable to control for possible selection.

Tables 3 and 4 show the results of regressing preferences for income redistribution on our sympathy measures without (Table 24) and with some control variables (Table 25). The control variables include U.S. region of residence, year dummy variable for 2004 and some standard socioeconomic factors such as race, income, education, gender, marital status, work status and age.

In Tables 24 and 25, some sympathy variables are statistically significant (most at 1 percent level) in explaining changes in income redistribution preferences. Two of them, “High DECS score group” and “PEOPTRBL” are positively correlated with the preferences for income redistribution. If an individual has a high DECS score or gives importance to assisting people in trouble, her probability of being a supporter for income



redistribution increases by 20 percent. However, those who have given money to a charity in the past year are related to less support for income redistribution, or a reduction in the probability of being a supporter of 25 percent (only in Table 24, without control variables in the regression). This difference in the results from measures of attitude towards sympathy (“DECS” and “PEOPTRBL”) and actual behavior (“Giving to charity”) may indicate that sympathy is at some extent related to income redistribution preferences; nevertheless, public provision of benefits to the poor is not a complement for private contributions. Alesina, Glaeser, and Sacerdote (2001) suggest that a smaller public provision of welfare in the U.S. (compared to Europe) does not represent less altruistic characteristics of the Americans since they are more likely to engage in private contributions (time and money donations) than Europeans.

Other individual characteristics are also statistically significant. More educated people, higher family income, some religious denominations (Protestants and Catholics) and the confidence in the federal government are negatively related to income redistribution preferences. On the other hand, being a nonwhite individual is associated with more support for income redistribution. These are standard results from the previous literature on demand for income redistribution. An interesting result, which is different from previous literature, is the effect of age on income redistribution preferences. This effect is U-shaped in age, meaning that age has a negative effect on income redistribution preferences when the individual is younger while there is a positive relationship between these two variables when the individual is older. Being raised religiously, marital status and work status do not have a significant effect on the support for this type of policy.

Overall, it seems that those who are likely to receive more public welfare benefits such as the minorities and the elderly are associated with a higher support for income redistribution. In contrast, those who are less likely to depend on this type of benefits such as the more educated and the rich seem to be related to smaller support for income redistribution policy. This result may reflect that most Americans believe that poverty is caused by laziness and that providing public welfare benefits may discourage the poor to work their way out of poverty.

### **Conclusion**

There are multiple factors that explain income redistribution preferences other than one's level of income. This research focuses on one noneconomic factor that may affect this type of preference: sympathy. The definition of this term is the other-oriented feeling of compassion. In consequence, we can expect that those who have a concern for another person's welfare if the other is in distress will support policies that can benefit the other, holding other variables constant.

Considering that our analysis is limited due to self-selection issues, our results from the General Social Survey indicate that some sympathy measures (two measures of attitude towards sympathy: Davis Empathic Concern Scale and importance of personally assisting people in trouble) are positively related to preference for income redistribution. However, giving money to charity has an opposite effect. This difference in the effects of our measures of sympathy on income redistribution preferences suggests that public provision of welfare benefits is considered a substitute for private contributions. The previous literature suggests that Americans prefer to donate time and money privately, and increases in public provisions may reduce private donations.

These findings are helpful to policymakers since it indicates an important factor that influences the support for income redistribution: sympathy. We suggest that the government takes into consideration that, although sympathy appears to be related to higher support for income redistribution, there seems to be a trade-off between private donations and public provisions to the poor. This crowding out effect may have an impact on the society's acceptability of a welfare reform for example.

Table 22 - Descriptive statistics, General Social Survey (2002 and 2004), Unweighted Data

Variable	Number of observations	Mean <sup>1</sup>	Standard Deviation	Minimum	Maximum	Description
High DECS score group	5,577	0.790	0.407	0	1	Davis Empathic Concern Scale (DECS) score: 21-28
PEOPTRBL dummy	2,691	0.760	0.427	0	1	If R strongly agrees or agrees with the following statement: "Personally assisting people in trouble is very important to me"
SELFLESS	2,632	2.747	1.433	0	5	How often R feels a selfless caring for others in his/her daily life.
REDISTR	1,765	4.280	1.962	1	7	Support for income redistribution.
givblood	2,698	0.163	0.370	0	1	If R donated blood at least once in the past 12 months
givhmlss	2,687	0.639	0.480	0	1	If R donated money to a homeless person at least once in the past 12 months
volchrty	2,697	0.468	0.499	0	1	If R worked as a volunteer for charity at least once in the past 12 months
givchrty	2,692	0.785	0.411	0	1	If R donated money to a charity at least once in the past 12 months
Born	5,570	0.905	0.293	0	1	Born in the U.S.
Female	5,577	0.550	0.498	0	1	
Age	5,554	46.122	17.086	18	89	
Educ	5,563	13.533	2.936	0	20	Highest year school completed
Childs	5,568	1.817	1.652	0	8	Number of children
Maeduc	4,827	11.628	3.493	0	20	Highest year school completed by R's mother
Realinc	4,945	35,933	35,853	294	135,416	Family real income (base 1986)
ln(inc)	4,945	9.999	1.124	6	12	Natural log of family real income (base 1986)

Variable	Number of observations	Mean <sup>1</sup>	Standard Deviation	Minimum	Maximum	Description
Nonwhite	5,577	0.207	0.405	0	1	
Full time	5,576	0.520	0.500	0	1	Employed full-time
Part time	5,576	0.113	0.317	0	1	Employed part-time
On leave	5,576	0.024	0.152	0	1	Temporary absent from work
Unemployed	5,576	0.039	0.195	0	1	
Retired	5,576	0.147	0.354	0	1	
Student	5,576	0.035	0.183	0	1	
Homemaker	5,576	0.096	0.294	0	1	
Other work status	5,576	0.027	0.162	0	1	
Married	5,577	0.493	0.500	0	1	
Widowed	5,577	0.081	0.273	0	1	
Divorced	5,577	0.154	0.361	0	1	
Separated	5,577	0.034	0.182	0	1	
Single	5,577	0.238	0.426	0	1	
Protestant	5,546	0.531	0.499	0	1	
Catholic	5,546	0.240	0.427	0	1	
Jewish	5,546	0.019	0.135	0	1	
Other religions	5,546	0.070	0.255	0	1	
Atheist	5,546	0.141	0.348	0	1	
Raised religiously	5,545	0.924	0.265	0	1	
New England	5,577	0.044	0.205	0	1	
Middle Atlantic	5,577	0.143	0.350	0	1	
East North Central	5,577	0.171	0.377	0	1	
West North Central	5,577	0.076	0.266	0	1	
South Atlantic	5,577	0.197	0.398	0	1	
East South Central	5,577	0.065	0.246	0	1	
West South Central	5,577	0.105	0.306	0	1	

<b>Variable</b>	<b>Number of observations</b>	<b>Mean<sup>1</sup></b>	<b>Standard Deviation</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Description</b>
Mountain	5,577	0.066	0.248	0	1	
Pacific	5,577	0.134	0.340	0	1	
Confed	1,753	0.241	0.428	0	1	Confidence in Federal Government
Satfin	2,704	0.307	0.461	0	1	Financial satisfaction

<sup>1</sup> The calculation of the means does not use weights.

Table 23 - Sympathy Variables, Weighted Data

Sympathy Variables			
	DECS (from 1 to 28)	PEOPTRBL	SELFLESS
<i>All respondents</i>	20.95	3.96	2.73
<b><u>By age group</u></b>			
<i>18 ≤ age &lt; 25</i>	19.83	3.88	2.62
<i>25 ≤ age &lt; 35</i>	20.48	3.95	2.73
<i>35 ≤ age &lt; 45</i>	20.95	3.96	2.85
<i>45 ≤ age &lt; 55</i>	21.52	4.03	2.70
<i>55 ≤ age &lt; 65</i>	21.48	3.99	2.71
<i>age ≥ 65</i>	21.27	3.92	2.74
<b><u>By income level</u></b>			
<i>lowest income quintile</i>	20.61	3.95	2.87
<i>second income quintile</i>	20.46	3.97	2.80
<i>third income quintile</i>	21.27	3.97	2.67
<i>fourth income quintile</i>	21.03	3.97	2.65
<i>highest income quintile</i>	21.16	3.95	2.73
<b><u>By gender</u></b>			
<i>female</i>	22.2	4.02	2.95
<i>male</i>	19.62	3.9	2.51

Table 24 - Probit analysis of being a supporter of income redistribution (*Only sympathy variables in regressions*)

Independent Variables	(1) Marginal Effects	(2) Marginal Effects	(3) Marginal Effects	(4) Marginal Effects	(5) Marginal Effects	(6) Marginal Effects	(7) Marginal Effects
High DECS score group	0.208*** (0.068)						
Important to assist people in trouble (PEOPTRBL dummy)		0.194** (0.079)					
SELFLESS			0.039 (0.024)				
Blood Donor				-0.050 (0.090)			
Giving to Homeless					0.090 (0.071)		
Volunteer						-0.030 (0.067)	
Giving to Charity							-0.257*** (0.082)
Observations	1,765	1,756	1,718	1,759	1,754	1,760	1,755
Log Likelihood	-1,202	-1,199	-1,175	-1,205	-1,201	-1,205	-1,196
LR $\chi^2$	9.392	6.108	2.674	0.312	1.628	0.197	9.737

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1



Table 25 - Probit analysis of being a supporter of income redistribution (*with control variables*)

Independent Variables	(8) Marginal Effects	(9) Marginal Effects	(10) Marginal Effects	(11) Marginal Effects	(12) Marginal Effects	(13) Marginal Effects	(14) Marginal Effects
High DECS score group	0.254*** (0.079)						
Important to assist people in trouble (PEOPTRBL dummy)		0.224** (0.092)					
SELFLESS			0.048 (0.029)				
Blood Donor				0.018 (0.101)			
Giving to Homeless					0.118 (0.082)		
Volunteer						0.094 (0.080)	
Giving to Charity							0.046 (0.109)
Age of respondent	-0.038** (0.016)	-0.037** (0.016)	-0.036** (0.016)	-0.038** (0.016)	-0.036** (0.016)	-0.037** (0.016)	-0.038** (0.016)
Age squared / 100	0.038** (0.016)	0.037** (0.016)	0.036** (0.016)	0.038** (0.016)	0.036** (0.016)	0.037** (0.016)	0.038** (0.016)
Highest year of school completed	-0.027* (0.016)	-0.024 (0.016)	-0.024 (0.016)	-0.025 (0.016)	-0.026* (0.016)	-0.028* (0.016)	-0.026* (0.016)

ln(family real income)	-0.158*** (0.046)	-0.159*** (0.046)	-0.159*** (0.046)	-0.160*** (0.046)	-0.166*** (0.047)	-0.161*** (0.046)	-0.162*** (0.047)
Nonwhite	0.298*** (0.108)	0.304*** (0.108)	0.296*** (0.109)	0.303*** (0.108)	0.282*** (0.109)	0.301*** (0.108)	0.307*** (0.108)
Unemployed	0.018 (0.202)	0.014 (0.203)	-0.038 (0.207)	-0.004 (0.202)	-0.014 (0.203)	0.012 (0.202)	-0.006 (0.202)
Married	0.163 (0.124)	0.150 (0.124)	0.172 (0.125)	0.160 (0.124)	0.167 (0.124)	0.158 (0.124)	0.160 (0.124)
Protestant	-0.317** (0.123)	-0.310** (0.123)	-0.303** (0.123)	-0.301** (0.122)	-0.299** (0.122)	-0.308** (0.122)	-0.301** (0.122)
Catholic	-0.223* (0.133)	-0.206 (0.133)	-0.208 (0.134)	-0.205 (0.132)	-0.210 (0.132)	-0.209 (0.132)	-0.204 (0.132)
Raised religiously	0.103 (0.165)	0.119 (0.165)	0.059 (0.163)	0.128 (0.164)	0.120 (0.163)	0.116 (0.164)	0.125 (0.164)
Year 2004	-0.100 (0.078)	-0.106 (0.078)	-0.154* (0.083)	-0.099 (0.078)	-0.098 (0.078)	-0.099 (0.078)	-0.098 (0.078)
Confidence in Federal Govt.	-0.381*** (0.093)	-0.368*** (0.093)	-0.399*** (0.094)	-0.366*** (0.093)	-0.370*** (0.093)	-0.364*** (0.093)	-0.369*** (0.093)
Financial satisfaction	-0.117 (0.086)	-0.120 (0.086)	-0.108 (0.087)	-0.120 (0.086)	-0.120 (0.086)	-0.123 (0.086)	-0.118 (0.086)
Observations	1,386	1,384	1,361	1,383	1,381	1,384	1,383
Log Likelihood	-868.1	-868.6	-852.0	-871.7	-869.4	-871.2	-871.7
LR $\chi^2$	140.8	139.3	142.0	133.2	134.0	134.5	133.5

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## CONCLUSION

Economics is recognizing to a greater extent the influence of morality on an individual's decisions. The purpose of this dissertation is to identify this effect on different types of decisions: tax compliance, charitable donations and support for income redistribution. Although examining morality is a complex issue, we narrow our analysis to three factors related to morality: empathy, sympathy, and religious education. "Empathy" is an affective state of "putting yourself in someone else's shoes," identifying what the other person is feeling and responding to it. "Sympathy" is considered an emotional response of concern for another's wellbeing caused by the other's emotional state, a response that is not identical to the other's emotion. These two moral emotions, empathy and sympathy, are likely to encourage moral behavior according to psychology literature (Eisenberg, 2000; Hoffman, 1998). Moreover, religious education may play a role in developing these moral emotions and moral character despite the religious beliefs held.

In the first chapter, we analyze how sympathy and empathy affect tax compliance decisions. Using experimental methods, we are able to identify sympathy by the subjects' responses to the Davis Empathic Concern Scale and to the questions about frequency of prosocial behaviors in the past 12 months. In addition, we promote empathy with a priming activity in which subjects read a few statements of the Golden Rule and write its definition in their own words. Then, the subjects face a series of one-shot tax compliance decisions presented at once and with no immediate feedback. According to our results, most of our sympathy measures have a positive and small effect on tax compliance. Nevertheless, in our experiment, promoting empathy does have a statistically significant impact overall. Only under some circumstances (e.g., if the individual is not Protestant,

not a volunteer, or belongs to the group of donors who have given money to the homeless in the past year), priming empathy is related to more compliance. These results suggest that, in spite of the relatively small effects of sympathy and priming empathy on tax compliance, the development of these moral emotions may be beneficial since they are likely to reduce evasion.

Based on the assumption that religious teachings can provide moral education to children and help develop their moral character regardless of religious beliefs they may hold, the second chapter investigates the effect of religious education on charitable donations in adulthood. Using the Panel Study of Income Dynamics (PSID), we find that attending religious schools is positively related to donations to secular and religious organizations. Another finding is that attending Catholic schools is more likely to increase secular donations, whereas attending other religious schools tends to raise donations to religious institutions. According to our results, individuals with religious education are more sensitive to the price of giving, thus changing income tax policy may affect their giving behavior at a greater extent. An important issue in our analysis is the possible presence of selection bias. We acknowledge, however, this possibility and the fact that we are not able to control for this problem due to the limitations of the publicly available PSID dataset.

The third chapter examines whether individuals with higher levels of sympathy are more likely to support income redistribution since the poor may benefit from this type of policy. Some of the measures of sympathy are similar to those used in the first chapter: the Davis Empathic Concern Scale, and the frequency of prosocial behaviors performed in the past year. Other measures are: the importance that they give to personally assisting

someone in need, and the frequency with which they feel a selfless caring for others.

Using the General Social Survey, we investigate the relationship between each sympathy measure and the support for income redistribution. We find that some measures of sympathy have a positive effect on support for redistribution. Nonetheless, there may be a problem of self-selection in our analysis (since there could be personal characteristics that are related to both more sympathy and more support for income redistribution), and we are not able to correct this problem due to limitations of the dataset and the complexity of the issue. Since our analysis is restricted, we are not able to identify the degree of importance of sympathy in the analysis of income redistribution preferences.

In conclusion, sympathy seems to affect individual behavior at a small extent. On the other hand, there is inconsistency on the sign of this effect on tax compliance and income redistribution preferences. Therefore, some measures of sympathy used in this research may not be appropriate proxies for this moral emotion; however, it is difficult to determine which ones are the most suitable. In addition, our method of eliciting empathy either does not affect taxpayers' attitudes, or this effect on attitudes is too small. Thus, we are not able to argue that empathy affects individual behavior. Although we find that attending religious schools is related to more money and time donations, we are not able to separate this effect from others due to our inability to address the potential selection issue. Overall, despite the sometimes weak results of this research caused by the limitations of the available data and the complexity of the issues studied, the development of these moral emotions may generate benefits to society.

In order to better understand how choices are made, it is important to take into account intrinsic factors such as "morality" and "emotions" and how they affect

individuals' decisions. For future work, we give a few suggestions on this direction. First, on the selection-bias issue, more complete datasets may offer acceptable instruments for the analysis of morality or religiosity issues. However, it is important to consider the difficulty of separating morality from other religious aspects. Second, it would be interesting to analyze other types of priming methods to elicit emotions on subjects. The use of photographs or videos may be good alternatives for the religious statements of the Golden Rule used in this research and more effective in changing individuals' attitudes.

## APPENDIX A

### *Instructions of sessions S1 and S3*

#### **Session S1:**

#### **GENERAL INSTRUCTIONS**

This is an experiment in decision making under uncertainty. You will receive \$5 for your participation. You may earn an additional amount of money determined by your choice and by the choice of other participants. All your earnings will be paid to you in cash at the end of the experiment.

Please follow the instructions carefully.

#### *No Talking Allowed*

You will not be permitted to speak with anyone during the experiment.

#### *Complete Privacy*

You will never be asked to reveal your identity to anyone during the experiment. Each participant will receive a key with a unique number. This will be your identification number that only you will know. Furthermore, you will be able to collect your earnings with privacy in an adjacent room where you can find a mailbox with your identification number that only your key can open.

#### *A monitor*

One of the persons in this room will be chosen to be the monitor for this experiment. The monitor will be paid \$25 in addition to the participation fee of \$5. He or she will verify that the instructions have been followed as they appear here.

#### *Structure of the experiment*

This experiment is divided into three parts. At the end of the experiment, you will be asked to answer a questionnaire.

#### *How are earnings determined?*

You will be asked to make **8***independent* decisions in the 3 *independent* parts. They are independent because, from one decision to another, your balance will NOT be carried over.

We will calculate your earnings as follows:

After all decision sheets have been collected, we will check if everyone has completed all decisions. Then we will draw a ball numbered from 1 to 8 from a cage. The number of the ball drawn will determine *which one* of your decisions will be your final earnings. *Only this decision chosen randomly will count towards your earnings.* For instance, if we draw the ball with the number 1, you will be paid for “Decision # 1” or your first decision.

Please keep in mind that we numbered the decisions continuously from one part to the other.

In one part of the experiment, you will be assigned to a group of 4. If the decision chosen to be the final earnings belongs to this part, we will randomly assign you to a group of 4. We will do this by drawing numbered balls containing the identifying numbers of all subjects in the room. We will draw 4 balls. The subjects whose identifying numbers correspond to these four draws will be in one group. This would be repeated until all subjects are assigned to a group.

Again, you will only be paid for the decision randomly chosen. If the decision involves a group of 4, you will be paid based on the decisions you and the others in your group make for that decision.



## PART I – INSTRUCTIONS

This part consists of only one decision task. In this task, you will allocate \$10 between yourself and a charity of your choice.

If this is the decision randomly chosen to be the final earnings in the experiment, the experimenter will calculate the total donations to the charities. We will make online donations of these amounts to the respective charities. The monitor will validate these transactions.

- a. **Even if you are NOT sending money**, please select a charity of your choice because this information will be used in another part of the experiment. Pick **one and only one** of the following charities or write in a charity at the bottom:

	<b>American Red Cross</b> Offers blood donation information and services, disaster relief, many helpful educational classes, as well as HIV/AIDS support groups.
	<b>Big Brothers Big Sisters of America</b> Provides one-to-one mentoring for youth and children residing in a one parent family for the purpose of creating caring, confident and competent young adults.
	<b>American Cancer Society</b> Provides many services to cancer patients and their families such as information, medical equipment, transportation to treatment locations, and a support system.
	<b>Doctors without Borders</b> Doctors and nurses volunteer to provide urgent medical care in some 70 countries to civilian victims of war and disaster regardless of race, religion or politics
	<b>Feed The Children</b> Provides food, clothing, medical care, education and emergency relief to children in the United States and overseas.
	<b>UNICEF</b> Works for children's rights, their survival, development and protection.
	<b>Salvation Army</b> Performs social and charitable work, and helps provide disaster relief.
	<b>Humane Society of the United States</b> Is a disaster relief agency for animals: provides direct care for thousands of animals at rescue facilities, wildlife rehabilitation centers, and mobile veterinary clinics
	<b>American Diabetes Association</b> Provides many services people with diabetes and their families, funds research on diabetes, fights for the rights of people with diabetes.
	Other: _____ (The organization must limit its purposes to being charitable, and permanently have its assets committed to charitable purposes and to public benefit. In order words, it must have 501(c)(3) status as defined by the Internal Revenue Service.)

b. Choose how to allocate the \$10 between yourself and the charity of your choice.

**Decision # 1.** Keep \_\_\_\_\_ and send \_\_\_\_\_ to the charity of my choice.  
(The sum of the allocations must be equal to \$10)

## PART II – INSTRUCTIONS

Now, you will make a series of choices in a tax setting. In this part, you have an income of \$10. You are expected to pay tax on your income. Your task will be to decide how much of your income to report to the Tax Authority in different scenarios.

### A Group

You will be randomly assigned to a group of 4 (you plus 3 others).

### The Income

Each member of your group including yourself will receive an income of \$10.

### The Tax

The tax rate is 30% for all participants. Thus, if you declare X, you will pay 30% of X and your after-tax income is \$10 minus 30% of X.

### The Audit

A specific number of red balls and white balls will be placed in a box. These numbers may vary from one decision to another. If a red ball is drawn, then everyone will be audited. If a white ball is drawn, then no one will be audited.

### The Penalty

If you are audited, then any amount of income that you did not report in that period will be detected. Then, you will pay tax on the non reported income plus a penalty proportional to that amount.

### The Public Fund

In some decisions, there may be a public fund. If there is a public fund, after all tax and penalty payments are made, the total amount of taxes originally collected from your group will be summed up and doubled (the “public fund” of your group). *Note that this amount does NOT include additional payments resulting from the failure to comply with the tax if you are audited.*

The public fund will be divided equally among all members of your group. However, in a few decisions, a portion of the public fund may go to charity (i.e., divided equally among the institutions chosen in Part I by the members of your group) and the other portion returns to your group.

## **YOUR DECISION FOR THIS PART:**

Decide how much income you want to declare to the Tax Authority for each scenario.

Examples of choices you will make in this experiment (You will receive \$2 for completing this task.)

Each decision you will make is similar to the following examples. To assist you, we provide an Excel workbook that already contains all calculations. Each example is in one worksheet. In order to be sure that you understand how your earnings will be calculated, you are asked to fill out the blanks. Be sure you are on the right spreadsheet when completing this task.

Your only decision is to choose the amount of income you want to declare to the Tax Authority. In column C of all spreadsheets, you have in intervals of \$0.25 the options of income you can declare. Pick one number and find the values of interest (such as final income without an audit) by being in the same row and moving to the other columns.

For instance, in example 1, if I decide to declare \$8.25, my tax payment will be \$2.48 and my final income may be \$7.53 if there is no audit and \$5.95 if an audit occurs.

In example 2, you will be asked to enter an estimate of how much you think another member of your group would declare. *This is only to illustrate how your earnings are calculated. During the actual experiment, everyone will make their own decisions.*

In examples 1 and 2:

- |                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>▪ You are in a group of 4;</li> <li>▪ Each member has an income of \$10;</li> <li>▪ Each member faces a tax rate of 30%;</li> <li>▪ Public fund = 2 x (total tax payments originally collected from your group);</li> </ul> | <ul style="list-style-type: none"> <li>▪ If audited, you will have to pay both:               <ol style="list-style-type: none"> <li>1. A tax (30% of non reported income);</li> <li>2. A penalty (2 times 30% of non reported income).</li> </ol> </li> </ul> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Example 1 (Go to Worksheet “Example 1”):**

**a. Amount of income you want to declare to the Tax Authority**

(Column C)

**b. Tax payment (Column D)**

---



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If you are NOT audited:

**c. Final income (Column F)**

---

If you ARE audited:

**c'. Total of taxes and penalty to be paid (Column K)**

---

**d'. Final income (Column L)**

---

**Example 2 (Go to Worksheet “Example 2”):**

Now, there is a public fund that will be fully returned to your group.

**a. Amount of income you want to declare to the Tax Authority**

(Column C)

---

**b. Tax payment (Column D)**

---

**c. Your share of the public fund (Column G)**

---

*If you are NOT audited:*

**d. Final income (Column I)**

---

*If you ARE audited:*

**d'. Total of taxes and penalty to be paid (Column N)**

---

**e'. Final income (Column O)**

---

## PART II – DECISION SHEET

Please fill out the blanks for each decision below. Remember:

- You are in a group of 4;
- Each member of your group has an income of \$10;
- Each member faces a tax rate of 30%;
- Public fund = 2 x (total tax payments originally collected from your group);
- If a red ball is drawn, everybody will be audited.
- If audited, you will have to pay both:
  1. A tax (30% of non reported income);
  2. A penalty.

	<b>Audit rate</b>	<b>Penalty rate</b>	<b>Public fund</b>	<b>Amount of income you want to declare to the Tax Authority</b> (Fill out this column)
<b>Decision # 2</b>	30 % (3 red + 7 white balls)	2 times 30% of non reported income	No	
<b>Decision # 3</b>	30 % (3 red + 7 white balls)	2 times 30% of non reported income	Fully returned (you get 1/4 of the public fund)	
<b>Decision # 4</b>	50 % (5 red + 5 white balls)	2 times 30% of non reported income	Fully returned (you get 1/4 of the public fund)	
<b>Decision # 5</b>	10 % (1 red + 9 white balls)	2 times 30% of non reported income	Fully returned (you get 1/4 of the public fund)	
<b>Decision # 6</b>	30 % (3 red + 7 white balls)	4 times 30% of non reported income	Fully returned (you get 1/4 of the public fund)	
<b>Decision # 7</b>	30 % (3 red + 7 white balls)	2 times 30% of non reported income	Partially returned: 50% goes to the charities chosen by your group in part I; 50% returns to your group. (you get 1/8 of the public fund)	

### PART III – INSTRUCTIONS

This part consists of only one decision task. In this task, you will allocate \$10 between yourself and the Georgia State University (either the Georgia State University Foundation or any division of GSU given below).

If this is the decision randomly chosen to be the final earnings in the experiment, the experimenter will calculate contributions to each GSU division. We will make online contributions of these amounts to their respective divisions. The monitor will validate these transactions and sign a form verifying that the experiment was conducted according to these instructions.

- a. If you would like to send some money to the Georgia State University Foundation or any GSU division, please choose an option below. Pick **one and only one** of the following divisions:

	<i>Georgia State University Fund</i>
	<i>Andrew Young School of Policy Studies</i>
	<i>College of Arts and Sciences</i>
	<i>College of Education</i>
	<i>College of Health and Human Sciences</i>
	<i>College of Law</i>
	<i>J. Mack Robinson College of Business</i>
	<i>Athletics – Panther Club</i>
	<i>Georgia State University Library</i>
	Other: _____ (we will give a list of other possible options)
	None

- b. Choose how to allocate the \$10 between yourself and the GSU division of your choice.

**Decision # 8.** Keep \_\_\_\_\_ and send \_\_\_\_\_ to the division of my choice.  
(The sum of the allocations must be equal to \$10)

# **PERSONAL RECORD SHEET**

<b>PART I</b>	<b>Decision #1</b>	Kept:	Sent:
<b>PART II</b>	<b>Decision #2</b>	Reported Income:	
	<b>Decision #3</b>	Reported Income:	
	<b>Decision #4</b>	Reported Income:	
	<b>Decision #5</b>	Reported Income:	
	<b>Decision #6</b>	Reported Income:	
	<b>Decision #7</b>	Reported Income:	
<b>PART III</b>	<b>Decision # 8</b>	Kept:	Sent:



## QUESTIONNAIRE

Thank you for participating in this experiment. Please answer the following questions about the experiment and you. We will pay you \$8 for the completion of the questionnaire.

### Information about the experiment:

1. Have you participated in other Economics experiments?

\_\_\_\_\_ Yes      \_\_\_\_\_ No

*If "Yes", approximately how many other experiments have you been in? \_\_\_\_\_*

2. Were instructions for this experiment clear? \_\_\_\_\_ Yes      \_\_\_\_\_ No

3. During part II, in which you had to determine the amount of income you wanted to report to a Tax Authority, was it difficult to keep track of all the numbers involved?

\_\_\_\_\_ Yes      \_\_\_\_\_ No

### General information:

1. Please tell me for the following statement whether you think it can always be justified, never be justified, or something in between.

Cheating on taxes if you have a chance	<b>1</b> <b>Never</b> <b>justifiable</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b> <b>Always</b> <b>justifiable</b>
----------------------------------------	------------------------------------------------	----------	----------	----------	-------------------------------------------------

2. Thinking about your reasons for paying taxes, please indicate how important each of the reasons below has been in your case:

A sense of duty or moral obligation	<b>1</b> <b>Not at all</b> <b>important</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b> <b>Very</b> <b>important</b>
How tax payments are used by the government	<b>1</b> <b>Not at all</b> <b>important</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b> <b>Very</b> <b>important</b>
Concern about penalties if caught cheating on taxes	<b>1</b> <b>Not at all</b> <b>important</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b> <b>Very</b> <b>important</b>

Other reason:

	<b>1</b> <b>Not at all</b> <b>important</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b> <b>Very</b> <b>important</b>
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**Information about you:**

1. *What year are you at school?*

\_\_\_\_ Freshman    \_\_\_\_ Sophomore    \_\_\_\_ Junior    \_\_\_\_ Senior    \_\_\_\_ Graduate

2. *What is your intended or declared major?*

\_\_\_\_\_

3. *What is your age?* \_\_\_\_\_

4. *What is your gender?*

\_\_\_\_ Female    \_\_\_\_ Male

5. *What is your race?*

\_\_\_\_ White    \_\_\_\_ Black    \_\_\_\_ Asian    \_\_\_\_ Hispanic    \_\_\_\_ Other

6. *Where were you born?*

\_\_\_\_ U.S.A.    \_\_\_\_ Other (Please specify:  
\_\_\_\_\_ )

7. *What is your religion? (Please check the one that you feel best represents your beliefs or religion)*

- ☐ Christian (Which denomination? \_\_\_\_\_ )
- ☐ Jewish
- ☐ Muslim
- ☐ Buddhist
- ☐ Hindu
- ☐ Other (Please specify: \_\_\_\_\_ )
- ☐ I don't follow any specific religion, but I do have spiritual beliefs (for example, you believe there is some other power or force outside yourself which might influence your life).
- ☐ None
- ☐ Prefer not to respond

8. *About how often, if ever, have you attended religious services in the last year?*

- ☐ Once a week or more
- ☐ Two or three times a month
- ☐ Once a month
- ☐ A few times a year or less
- ☐ Never
- ☐ Not applicable

9. Which, if any, of the following do you believe in?

God	<input type="checkbox"/> Yes respond	<input type="checkbox"/> No	<input type="checkbox"/> Prefer not to
Life after death	<input type="checkbox"/> Yes respond	<input type="checkbox"/> No	<input type="checkbox"/> Prefer not to
<input type="checkbox"/> Free will OR <input type="checkbox"/> Predestination respond	Prefer not to		<input type="checkbox"/>
Heaven / Hell	<input type="checkbox"/> Yes respond	<input type="checkbox"/> No	<input type="checkbox"/> Prefer not to
Reincarnation	<input type="checkbox"/> Yes respond	<input type="checkbox"/> No	<input type="checkbox"/> Prefer not to
Judgment of soul after death	<input type="checkbox"/> Yes respond	<input type="checkbox"/> No	<input type="checkbox"/> Prefer not to
If we sow goodness, we will reap goodness; if we sow evil, we will reap evil.	<input type="checkbox"/> Yes respond	<input type="checkbox"/> No	<input type="checkbox"/> Prefer not to

10. Please indicate the degree to which the following statements describe you:

	<i>Does NOT describ e me well</i> <b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<i>Descri bes me very well</i> <b>5</b>
I often have tender, concerned feelings for people less fortunate than me.					
Sometimes I don't feel very sorry for other people when they are having problems.					
When I see someone being taken advantage of, I feel kind of protective towards them.					
Other people's misfortunes do not usually disturb me a great deal.					

When I see someone being treated unfairly, I sometimes don't feel very much pity for them.					
I am often quite touched by things that I see happen.					
I would describe myself as a pretty soft-hearted person.					

11. During the past 12 months, how often have you done each of the following:

a. Donated blood

- ☐ More than 3 times in the past year
- ☐ At least 2 or 3 times in the past year
- ☐ Once in the past year
- ☐ Not at all in the past year
- ☐ Don't know
- ☐ Prefer not to respond

c. Done volunteer work

- ☐ More than 3 times in the past year
- ☐ At least 2 or 3 times in the past year
- ☐ Once in the past year
- ☐ Not at all in the past year
- ☐ Don't know
- ☐ Prefer not to respond

b. Given food or money to a homeless person

- ☐ More than 3 times in the past year
- ☐ At least 2 or 3 times in the past year
- ☐ Once in the past year
- ☐ Not at all in the past year
- ☐ Don't know
- ☐ Prefer not to respond

d. Given money to a charity

- ☐ More than 3 times in the past year
- ☐ At least 2 or 3 times in the past year
- ☐ Once in the past year
- ☐ Not at all in the past year
- ☐ Don't know
- ☐ Prefer not to respond

If you have comments or suggestions about this experiment, please use this space.

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THANK YOU FOR PARTICIPATING!

**Session S3: (Only sections which are different from instructions of Session S1)****GENERAL INSTRUCTIONS**

This is an experiment in decision making under uncertainty. You will receive \$5 for your participation. You may earn an additional amount of money determined by your choice and by the choice of other participants. All your earnings will be paid to you in cash at the end of the experiment.

Please follow the instructions carefully.

**No Talking Allowed**

You will not be permitted to speak with anyone during the experiment.

**Complete Privacy**

You will never be asked to reveal your identity to anyone during the experiment. Each participant will receive a key with a unique number. This will be your identification number that only you will know. Furthermore, you will be able to collect your earnings with privacy in an adjacent room where you can find a mailbox with your identification number that only your key can open.

**A monitor**

One of the persons in this room will be chosen to be the monitor for this experiment. The monitor will be paid \$25 in addition to the participation fee of \$5. He or she will verify that the instructions have been followed as they appear here.

**Structure of the experiment**

This experiment is divided into two parts. At the end of the experiment, you will be asked to answer a questionnaire.

We will first distribute the rules for part I. The instructions for the next part will be distributed later.

## PART I – INSTRUCTIONS

This part consists of only one decision task. We ask you to read the following statements and answer a question. You will receive \$5 for completing this task.

---

“Treat not others in ways that you yourself would find hurtful.”

*The Buddha*, Udana-Varga 5.18

“In everything, do to others as you would have them do to you; for this is the law and the prophets.”

*Jesus*, Matthew 7:12

“One word which sums up the basis of all good conduct: loving-kindness. Do not do to others what you do not want done to yourself.”

*Confucius*, Analects 15.23

“This is the sum of duty: do not do to others what would cause pain if done to you.”

Mahabharata 5:1517

“Not one of you truly believes until you wish for others what you wish for yourself.”

*The Prophet Muhammad*, Hadith

“What is hateful to you, do not do to your neighbour. This is the whole Torah; all the rest is commentary. Go and learn it.”

*Hillel*, Talmud, Shabbath 31a

These are 6 written versions of the Golden Rule. How would you express the Golden Rule in your own words?

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**This question was included in the questionnaire in Session S3 and Session S4:**

*12. For decision #6, please select a charity of your choice. Pick one and only one of the following charities or write in a charity at the bottom:*

	<b>American Red Cross</b> Offers blood donation information and services, disaster relief, many helpful educational classes, as well as HIV/AIDS support groups.
	<b>Big Brothers Big Sisters of America</b> Provides one-to-one mentoring for youth and children residing in a one parent family for the purpose of creating caring, confident and competent young adults.
	<b>American Cancer Society</b> Provides many services to cancer patients and their families such as information, medical equipment, transportation to treatment locations, and a support system.
	<b>Doctors without Borders</b> Doctors and nurses volunteer to provide urgent medical care in some 70 countries to civilian victims of war and disaster regardless of race, religion or politics
	<b>Feed The Children</b> Provides food, clothing, medical care, education and emergency relief to children in the United States and overseas.
	<b>UNICEF</b> Works for children's rights, their survival, development and protection.
	<b>Salvation Army</b> Performs social and charitable work, and helps provide disaster relief.
	<b>Humane Society of the United States</b> Is a disaster relief agency for animals: provides direct care for thousands of animals at rescue facilities, wildlife rehabilitation centers, and mobile veterinary clinics
	Other: _____ <i>(The organization must limit its purposes to being charitable, and permanently have its assets committed to charitable purposes and to public benefit. In other words, it must have 501(c)(3) status as defined by the Internal Revenue Service.)</i>

## **APPENDIX B**

Wording of questions from the General Social Survey used in the Essay 3.

**a. EQWLTH:**

“Some people think that the government in Washington ought to reduce the income differences between the rich and the poor, perhaps by raising the taxes of wealthy families or by giving income assistance to the poor. Others think that the government should not concern itself with reducing this income difference between the rich and the poor. Think of a score of 1 as meaning that the government ought to reduce the income differences between rich and poor, and a score of 7 meaning that the government should not concern itself with reducing income differences. What score between 1 and 7 comes closest to the way you feel?”

**b. Davis Empathic Concern Scale:**

1. I often have tender, concerned feelings for people less fortunate than me.
2. Sometimes I don't feel very sorry for other people when they are having problems. (Reversed)
3. When I see someone being taken advantage of, I feel kind of protective towards them.
4. Other people's misfortunes do not usually disturb me a great deal. (Reversed)
5. When I see someone being treated unfairly, I sometimes don't feel very much pity for them. (Reversed)
6. I am often quite touched by things that I see happen.
7. I would describe myself as a pretty soft-hearted person.

**c. PEOPTRBL:**

“Please tell me whether you strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree with the following statement:

- Personally assisting people in trouble is very important to me”

**d. SELFLESS:**

“The following are things that you may experience in your daily life. Please tell me how often these occur.

- I feel a selfless caring for others.”

**e. Prosocial behaviors:**

“During the past 12 months, how often have you done each of the following things:



- Donated blood. (GIVBLOOD)
- Given food or money to a homeless person. (GIVHMLSS)
- Done volunteer work for a charity. (VOLCHRTY)
- Given money to a charity. (GIVCHRTY)”

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