Have You Paid Your Dues?
On the Impact of the German Church Tax on Private Charitable Contributions

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Abstract

Considerable empirical research exists on donations in the US and their determinants. By contrast, less is known for the determinants of countries with an extensive welfare state. We address this deficiency by studying one of the possible drivers of charitable giving in Germany, a country with a highly developed welfare state. We take a close look at a special feature of the German income tax system: the church tax which is obligatory for people belonging to the Catholic or Protestant Church, and the Jewish Community. It is an open question whether people regard church tax payments as a substitute for charitable contributions or not.

We apply various random effects estimation techniques and first, we check whether paying church tax affects the decision to donate at all by estimating a probit model. Second, we examine in how far the sum of individual church tax payments affects the amount of individual charitable contributions. The use of tax return data allows controlling for further variables which have been shown to affect charitable contributions. Our results show that religious people are more likely to donate at all, but their amount of contributions is negatively affected by church tax payments.

Keywords: charitable contributions, church tax, random effects, religiosity

JEL: H24, H41, Z12

1. Introduction

Economic approaches to explain voluntary giving are usually based on the assumption that donors have an interest in the provision of public goods financed by the benefited charities.[1] This perspective is particularly well motivated for countries like the US with a strong tradition of donor financed private provision of social services, education and the like. For countries with a larger public sector and an extensive welfare state this assumption may be less appealing given that the government provides a much wider range of public goods financed through coercive taxation. Hence, the strong preoccupation of the empirical literature with US data and the scarcity of studies for countries with large welfare states is a significant shortcoming.

Moreover, it has long been an issue how religiosity affects charitable contributions which are directed to various nonprofit organizations. Besides the differences in giving behaviour between the various Christian denominations it has been of great concern in how far religious and nonreligious givers differ.

We add to the literature by studying the drivers of giving in Germany, a country with a strong welfare state tradition.[2] Moreover, we make use of the German institution of a *church tax*. This tax is collected by the state and distributed to certain religious communities, among them the Catholic and Protestant Churches. Members of these communities are obliged to pay the tax and may only avoid it by leaving the community. Hence, it is not clear how these payments influence the decision to make charitable contributions.

We use data from the German Taxpayer Panel and employ this panel's currently available waves for the years 2001 to 2003. We apply a Probit random effects estimation technique as well as a linear random effects estimation procedure to identify among other determinants the impact of the church tax on charitable contributions. We find that church tax payers are more likely to donate at all, but that the amount of charitable contributions is negatively affected by the sum of church tax payments. This indicates both that religious individuals are more likely to give, but that taxpayers may regard church tax and donations as substitutes.

Our article is organized as follows: First, we offer a literature survey in Section 2, followed by a neat description of the institutional setting in Germany in Section 3. Subsequently, the

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[1] The classic model of the private provision of public goods with altruistic individuals was substantially shaped by Warr (1982, 1983) and Bergstrom et al. (1986). Andreoni (1990) added the notion of "warm glow". Crumpler and Grossman (2008) show in an experiment that warm glow plays a substantial role in the decision to donate.
[2] Borgloh (2008) estimates income and price elasticities of private donations in Germany and does not find significantly different elasticities from those in the US.

fourth and fifth sections describe the data set and explicate the estimation method. At the end, we present the results of our estimation in section 6 and conclude with an outlook.

2. Religion and Charitable Contributions

All important world religions promote the virtue of helping others and thus encourage private philanthropy. Some of the Christian denominations, for example, demand that their members *tithe*, which means that they give ten percent of their income or wealth to the church or other charitable causes. Hence, one may presume that religion plays an important role for the decisions whether and how much to donate.

Accordingly, various surveys have tried to illustrate the interrelation of religion and charitable contributions. Several authors examined the difference in giving between Catholics and Protestants. Zaleski and Zech (1992), Hoge and Yang (1994) as well as Wilhelm et al. (2007) find that Protestants make higher charitable contributions than Catholics do in the US, whereas Berger (2006) confirms the result for Canada. Moreover, Bowen (1999) shows that in Canada the average annual charitable donation is higher for weekly service attendants ($551) than for non-attendants ($126). A survey by the Independent Sector (2002) revealed that religious givers are more generous than nonreligious givers. Religious givers are those that contribute to religious congregations, such as churches, temples, and mosques as opposed to secular organizations. Interestingly, donors who give to both religious congregations and secular organizations make higher donations to secular organizations than those who give only to secular organizations. This means that giving to religious causes does not interfere negatively with financial support to other nonprofit organizations. Eckel and Grossman (2004), however, do not find significant differences in the level of giving of religious and nonreligious individuals. Summing up, there is a strong preoccupation of the literature with the institutional setting in the US. The only study which looks at the connection between religion and charitable contributions in a European country, i.e. the Netherlands, is Bekkers and Schuyt (2008).

In this paper, we exploit the German specific of a church tax to examine the interrelation of religion and charitable contributions. The situation of the nonprofit sector in Germany is somewhat particular in that we observe an oligopoly of charities which provide a wide range of social services and receive substantial financial support from the state. Some of these charities are organizations closely connected to the Catholic or Protestant Church, and the Jewish Community respectively. Moreover, in Germany, members of several religious

communities are obliged to pay the church tax. Part of the church tax revenues go to those charities which are affiliated with the respective religious community. Hence, not only religious worship organizations are supported by church tax payments, but several social services as well.

This is why it is not clear, how private charitable contributions are related to the church tax. If individuals are aware that several social services are financed by their church tax payments, they may regard these as a substitute for charitable contributions. On the other hand, Bekkers and Schuyt (2008) mention two reasons why religious people may be encouraged to give more. *Conviction* means that religious people have a greater sense for what is right and wrong and have a greater sense of responsibility for the needy. This is immediately linked to the obligation of making donations several religions impose on their members. *Community*, on the other hand, describes the social context which motivates people to donate more and the greater number of opportunities a parish offers individuals to give or to volunteer.

In the following, we try to establish whether church tax payments have a positive or a negative impact on charitable contributions in Germany.

3. The institutional setting in Germany

Before examining the effects of the church tax on charitable contributions in Germany, we necessarily have to take a look at the German institutional setting. We focus on the German Income Tax Law (ITL) and the Church Tax Law (CTL). As our data set covers the years 2001 to 2003 we display the tax regulations that were valid at this time and do not enlarge upon the current situation.

3.1 The German Income Tax Law (ITL)

In Germany, incomes of individuals are taxed according to the ITL. The simplified scheme for the calculation of the tax to be paid is as follows:

> Income from seven different categories of income[3]
> --
> = **Total income**
> - Reliefs for the elderly and farmers
> --
> = **Gross amount of income**
> - Loss deduction

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[3] This includes income from agriculture and forestry, income from business, income from independent work, income from dependent work, capital income, income from rent and lease, and other income.

> - Special expenses (including church tax and charitable giving)
> - Extraordinary expenses
> --
> = **Income**
> - Personal allowances
> --
> = **Taxable income**

The tax rate that is applied to taxable income is derived from the income tax scale. After the application of the tax rate and the subtraction of various tax abatements one obtains the income tax to be paid.

The German income tax scale is progressive, which means that the average tax rate strictly increases with income. The tax scale for the years 2001 to 2003 is basically the same with only very slight variations in the size of income that is freed of income tax payments. The illustration of the marginal tax rates (figure 1) shows that the German income tax scale consists of three "zones". In 2001 taxable incomes of up to 7,206 Euros per year were tax-exempted, whereas in 2002 and 2003 this amount increased to 7,235 Euros per year. The second zone, called *progressive zone*, ranges from taxable incomes of 7,206/7,236 Euros (2001/2002 and 2003) to taxable incomes of 54,998/55,007 Euros per year. All taxable income above 54,998/55,007 Euros per year falls into the *proportional zone* where the marginal tax rate is 48.5%.

**Figure 1: Marginal income tax rates in Germany 2002 and 2003**
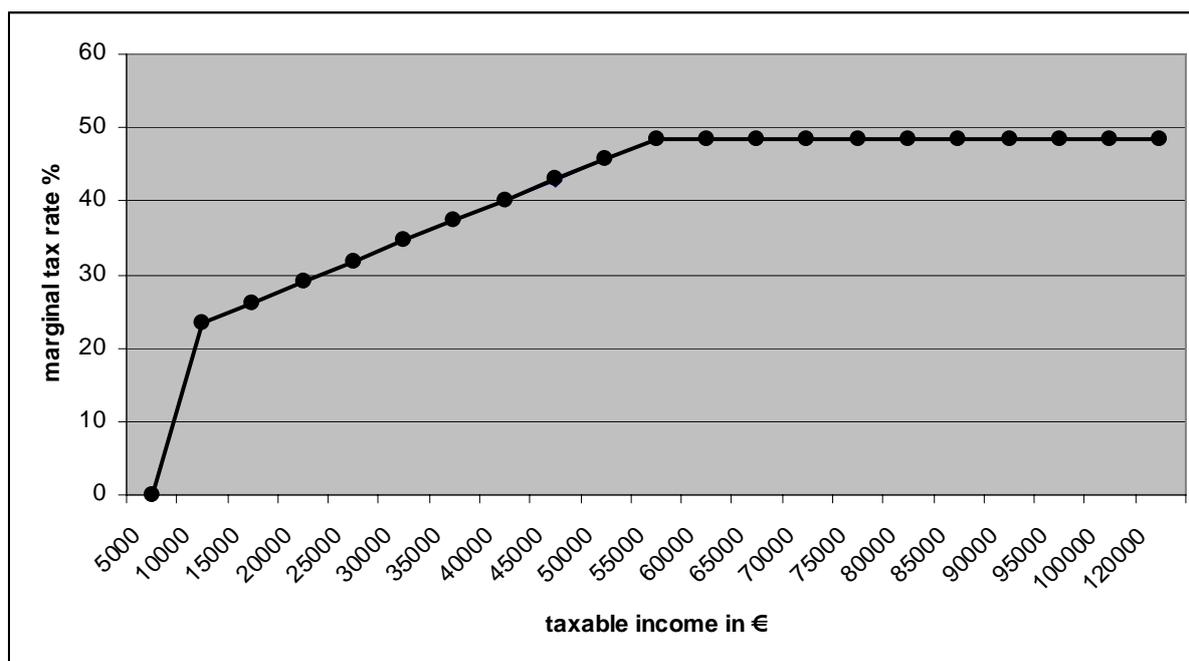
This scale of marginal tax rates leads to the following picture of rising average tax rates (figure 2), implying a highly progressive income tax scale.

To promote married couples and families, the ITL provides the possibility of joint assessment, meaning that husband and wife each pay income tax on half the total of their combined incomes. The savings in tax payments are greater the more diverse the incomes of husband and wife are.

Furthermore, the German ITL contains two regulations which increase effective marginal tax rates. The ITL provides the payment of a solidarity surcharge as high as 5.5% of income tax payments. The main reason for the introduction of this extra charge in 1991 was the cost of the German reunification. All revenues that stem from the solidarity surcharge go to the Federal Government and are not earmarked. Second, in Germany for some religious communities the so-called *church tax* from the communities' members. The church tax will be covered in greater detail in the following.

Figure 2: Average income tax rates in Germany 2002 and 2003
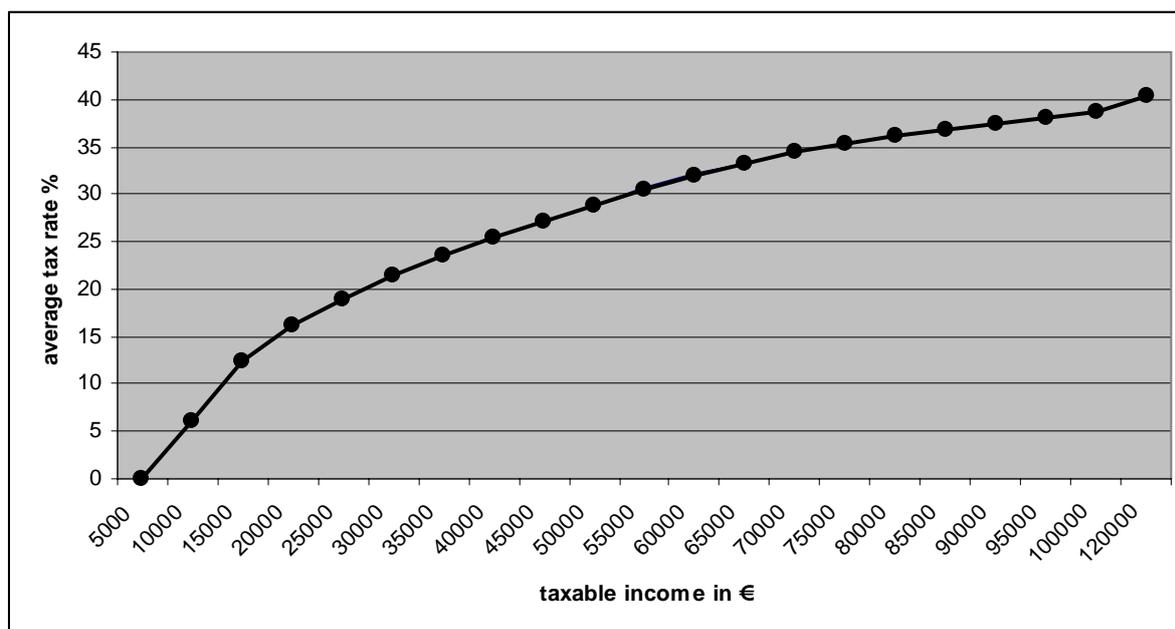
3.2 The Church Tax

Germany is one of the very few countries which have introduced a church tax.[4] Religious communities which are recognized as public law corporations are allowed to collect church tax payments. The federal states collect these payments and pass them on to the respective

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[4] Other countries with a church tax system are Denmark, Finland, Sweden, and Switzerland. In Austria the churches collect the payments themselves. In Italy and Spain taxpayers are free to choose whether to make a contribution to the church or to other charitable causes.

community. Currently, the various denominations of the Protestant Church and the Catholic Church as well as the Jewish Community make use of the opportunity to have the tax collected by the state. All other religious communities do not raise a church tax, but depend on membership fees. Every federal state has its own CTL, the regulations differ mainly with regard to the amount of church tax payments: The tax amounts to 8% (in the Southern federal states of Bavaria and Baden-Wuerttemberg) or 9% (in all other federal states) of individual income tax payments respectively, depending on the federal state an individual lives in. For members of these religious communities, the payment of the tax is obligatory and the only possibility to avoid it is to leave the community officially. Church tax payments, however, are regarded as a special expense and therefore tax deductible after §10 I No. 4 ITL.

3.3 The tax treatment of charitable contributions in Germany

In Germany, private donations to charities fall into the category of *expenses for tax-privileged purposes* after §10b ITL.[5] As is the case in many other countries, these expenses are tax-deductible and include both private donations and membership-fees. When assessing the income tax, these expenditures may be deducted from the gross amount of income, which results in a reduction of taxable income. The application of the tax rate to taxable income yields the income tax to be paid. Thus, the deduction of private donations reduces the gross amount of income and therefore taxable income and lowers the tax bill.

Until 2006, donations were tax-deductible if they were given to benevolent, parochial, religious, scientific or especially eligible charitable purposes up to an amount of five percent of gross income. For donations to benevolent, scientific and especially eligible cultural purposes the upper limit of deductibility increased by additional five percentage points to even ten percent of gross income.[6] The classification of purposes that was *especially eligible* could be found in the executive order to the ITL. The same rules applied to the tax-deductibility of membership-fees with the restriction that fees paid to sport clubs, some cultural clubs, local history clubs and some others[7] could not be considered. Moreover, donations and fees were deductible only if the donee was either a domestic public corporation or an institution that serves benevolent, parochial or charitable purposes. Besides, the German ITL provided the opportunity to deduct donations to foundations up to a sum of 20,450 Euros from income when assessing the income tax. These foundations had to be either public bodies

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[5] The prerequisite is that the donee organization is recognized as charitable as defined below.
[6] In 2007, a new bill that is to promote civil society passed both German chambers. It is supposed to enhance private giving by raising the upper limit for tax deductible donations to 20 percent of income.
[7] These restrictions are defined in §52 II No. 4 Fiscal Code.

or had to be recognized as exclusively and directly serving charitable, benevolent or parochial scopes.

To sharpen the understanding of which private donations and membership-fees are tax-deductible, we are going to define some of the notions of the ITL as they can be found in the German Fiscal Code (*Abgabenordnung*): A corporate body pursues *benevolent* aims if its activities are exclusively and directly geared to helping others in a selfless manner. In this case, the assisted persons have to be in need of help due to physical, mental or psychic handicaps or an outstanding social need has to be concerned. *Parochial* scopes are traced if the corporate body's activities are exclusively and directly aimed at promoting a religious community that is itself a public body. The promotion of *religious* or *scientific* scopes falls under the category of a corporate body pursuing *charitable* purposes. Both cases are not precisely specified. The Fiscal Code lists more than 20 purposes that are approved as *charitable*.

Furthermore, §10b of the German ITL allowed the deduction of donations to political parties up to 1650 Euros or 3300 Euros respectively in case of joint assessment. This deduction could only be exercised if those donations had not already been asserted as tax abatements after §34g ITL.

We are going to limit our study to the donations and fees described above, which we are going to subsume under the term "donations" for convenience. Thus, we exclude the major part of donations and fees paid to political parties: As there are special regulations (§34g ITL) applying to those, their consideration would unnecessarily complicate our analysis.[8]

4. The Data

For our study we use a sample of the German Taxpayer Panel. The Taxpayer Panel that is derived from the yearly German Income Tax Statistics by the Federal Statistical Office (FSO) currently covers three years from 2001 to 2003 and contains observations on averaged 25 million taxpayers every year. To construct a panel data set, the FSO linked up, where possible, the observations of the single years according to the individual's tax identification number or individual identifiers.[9] The persons that could not be linked up are typically young professionals or retirees, which implies that the average income of the panel is higher than

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[8] Besides, there is no general agreement whether donations to organizations which principally aim at assisting their candidates to secure their political function should be recognized as charitable.
[9] These identifiers include among others place of residence, religious affiliation, sex, and existence of different types of income.

that of the cross-sections. The sample which has been provided to us contains observations on 1,005 income tax returns for each of the three years.

The data set does not only cover various income and tax variables, but it contains also information on some socioeconomic characteristics of the taxpayers. Since variables like sex, age, and religious affiliation are likely to influence giving behaviour, they should be included in an econometric analysis. Furthermore, the data set provides information on the type of tax assessment, i.e. separate assessment and joint assessment, respectively. It is important to point out that in our study the unit of observation is not the single taxpayer, but rather the single tax return. If married couples choose the option of joint assessment, they get the identical tax identification number and are therefore considered as one observation. Moreover, the data set provides information on income, the various sources of income, church tax payments and the amount of donations.[10]

We drop all individuals that reported a non-positive gross amount of income in one or more of the three years. After correcting for non-positive incomes, there remain 995 observations for each of three years, i.e. 2.897 observations in total.

We are not able to distinguish which share of a donation is a membership-fee and which share is a charitable contribution. There may be different motives underlying the various types of donations, but we are not able to estimate their relevance properly. Besides, it should be kept in mind that only those persons that filed an income tax return are included in this data set. So, we have no information about donations by people who do not generate revenues from any of the seven categories of income as defined before.

5. The Model

In the following we conduct a double estimation strategy. We apply, first, a Probit random effects estimation and, second, a linear random effects estimation.

First, we look at the impact of the church tax on the decision whether to donate at all. We generate a dummy variable which is coded as '1' for all the income tax returns which declare a positive amount of donations as defined in §10b ITL and coded as '0' for all non-donors. Second, we estimate a linear model for all income tax returns with positive charitable contributions, to see whether the church tax has an effect on the amount of money which is donated. After excluding all income tax returns with non-positive donations, there remain 980 observations.

We employ the same regressors in the Probit model and in the linear model, and set up two different specifications for each of the models. The specifications differ in the mode we include the church tax variable: In the first specification we include a dummy for church tax payments, and in the second specification we include the amount of church tax paid.

Our specification for both the Probit and the linear model is as follows:

$$G_{it} = \mu + \beta_1 Y_{it} + \beta_2 P_{it} + \beta_3 C_{it} + \beta_4 X_{it} + v_{it}$$

where $i = 1,...,N$, $t = 1,...,T$, $v_{it} = c_i + u_{it}$.

The act of giving is likely to be influenced by unobserved characteristics, such as the attitude towards private initiatives providing public goods and the approach to helping and supporting others. We remedy this by using advanced panel techniques which are able to control for unobserved heterogeneity. As the sociodemographic variables we include, i.e. age, religious affiliation, and marital status are likely to be time-constant, we employ a random effects estimation technique. If we decided to conduct a fixed effects estimation it would not be possible to distinguish the influences of these variables from the impact of the individual-specific time-constant effect c_i .

More precisely, the variables of our specification are defined as follows:
Giving (G) is the amount of donations after §10b ITL that has been explicated before. As we calculate elasticities we take the logarithm of the donations' value. In about 65 percent of all tax returns no donations are declared. As the logarithm of the number zero is not defined, in these cases we replace zero donations by donations of 1 € This manipulation yields a logarithm of *G* equal to zero. *Income (Y)* is the gross amount of income (see section 3 for its definition). It has been shown that elasticity estimates associated with charitable contributions are quite insensitive to the choice of the income measure. Nevertheless, the gross amount of income seems the proper choice as compared to taxable income because it is strictly exogenous with regard to the regressand. Moreover, it is the appropriate measure of

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[10] The data set does not provide any information on the purpose that the donations go to, so we are not able to distinguish, for example, donations to environmental organizations from those to museums.

disposable income as we assume that asserting the tax deductibility of special expenses is the outcome of a taxpayer's personal consumption choice.[11]

The tax-determined *price (P)* of giving is customarily defined as *(1-m)*, with m being the marginal tax rate that the taxpayer faces. This is quite straightforward due to the tax deductibility of donations. Defined in this way, *P* measures the taxpayer's opportunity cost of giving in terms of foregone personal consumption. If we take into account the progressivity of the German income tax system, this implies that earners of high incomes face a considerably lower price of giving than earners of low incomes do. To ensure the exogeneity of *P*, we use the so-called "first-dollar price of giving". This means that we define *m* as the marginal rate relevant if no donations were made. If we calculated *m* as the marginal tax rate applicable after donations are deducted from income, we would introduce spurious correlation between *G* and *P*.[12] To obtain the marginal tax rate we apply the tax scales of the years 2001 to 2003 to taxable income. First, we calculate the income tax to be paid providing for the deduction of donations. In a second step, we compute the tax liability under the no-contribution assumption and apply the tax rate to the measure *taxable income plus donations*.[13] The first-dollar marginal tax rates are obtained by dividing the difference between the tax liabilities by the sum of donations.

C is the *church tax variable* which is included as a dummy variable as well as a linear effect. As church tax payments are tax deductible as special expenses, we substract the repayments from the church tax which has originally been collected.

Furthermore, we include several *socioeconomic variables (X)* in our specification. The Taxpayer Panel provides information on sex, age, religious affiliation, and type of assessment. Due to the possibility of joint assessment, the variable *sex* has no clear gender interpretation in this context. The value of the variable complies with the sex of the individual that generates the principal income, which, in most cases, is the husband. If we used the variable *sex*, we would observe only those females that are not married. It is likely that these women dispose of less income than their married counterparts, which, in turn, would lead to estimates of donations that are biased downward. Therefore, we get back to the variable of *single or joint assessment,* use a dummy for joint assessment and drop the sex variable.

It is likely that the *religious affiliation* has a certain influence on giving behaviour. People that are affiliated to a certain denomination, first of all, may rather give donations to charities that

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[11] As mentioned before, we have to exclude all observations in which non-positive incomes are declared.

[12] A higher amount of donations would reduce taxable income and thereby raise the price of giving. Thus, the price elasticity would be biased towards zero.

pursue religious or parochial aims while people that do not belong to any denomination may rather give to scientific or secular purposes in general. In the context of this study, we are not able to account for such differences because we cannot distinguish the purposes people make their donations for. Nevertheless, it seems important to include *religious affiliation* in our estimations to see whether this variable has any influence on the sum that is donated. We may distinguish between Catholics, Protestants, and people belonging to other confessions or having no confession. We include dummies for individuals being Catholic and Protestant. It may be that taxpayers belonging to a certain denomination regard the church taxes they pay as a substitute for donations to other charities.[14]

It is very likely that *age* plays an important role as a determinant of charitable donations. Several studies have shown that the amount of donations increases with age, it may be that considerations about how to avoid the inheritance tax are involved. We assume, however, a linear relationship between the years of age and private donations.

6. Results

For the 2,897 and 980 observations respectively in this data set we calculated the descriptive statistics as shown in table 1.

Table 1: Descriptive statistics

Variable	Mean	Std. Dev.	Minimum	Maximum
Donations (n=980)	1304.19	7909.00	2	157,025
Donations Dummy	0.34	0.47	0	1
Income	44566.29	72993.06	0	1,470,968
Price	0.76	0.15	0.515	1
Church Tax	534.94	7917.86	-62,849	417,192
Church Tax Dummy	0.40	0.49	0	1
Joint Assessment	0.46	0.50	0	1
Catholic	0.28	0.45	0	1
Protestant	0.27	0.45	0	1
Age	45.35	8.97	22	88

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[13] We add the contributions after §10b ITL to taxable income and apply the tax scale. For non-donors we follow the procedure of Barrett (1991) and assume a 100 €contribution that is added to taxable income.

[14] Furthermore, it seems plausible that people who regularly attend church give "nonofficially" during the collection. These donations do not appear in the Income Tax Statistics and cannot be deducted.

As can be seen, our sample covers a wide range of donations and incomes. There is a large number of income tax returns in which zero donations are declared, with the highest amount of donations in a single income tax return of 157,025 Euros. The yearly gross amount of income varies widely, too, ranging from zero to 1,470,968 Euros, taking into account only those returns that report a non-negative income. Accordingly, church tax payments cover values from -62.849 Euros, i.e. a refund, to 417.192 Euros. The price of giving ranges from 0.515 Euros for a donation of 1 Euro for those in the highest income bracket, where the marginal tax rate of 48.5 % applies, to 1 Euro for those who do not pay income tax. Furthermore, we observe individuals – who declare the principal income in the tax return – from 22 to 88 years of age.

Table 2: Estimation results Probit random effects

Variable	(1)	(2)
Income	0.000*** (0.000)	0.000*** (0.000)
Price	-2.161*** (0.703)	-1.822** (0.721)
Church Tax	**0.000** **(0.000)**	
Church Tax Dummy		**0.364**** **(0.160)**
Joint Assessment	0.617*** (0.202)	0.577*** (0.204)
Catholic	1.096*** (0.225)	0.934*** (0.240)
Protestant	0.795*** (0.227)	0.626*** (0.243)
Age	0.038*** (0.011)	0.038*** (0.011)

Table shows coefficients and standard errors in parentheses for the Probit model. Here, marginal effects at the mean are displayed. Regression shown in column (1) contains assumes a linear relation between church tax payments and the decision whether to donate or not, regression in column (2) contains a dummy variable for church tax payments.
* 10% significance level.
** 5% significance level.
***1% significance level.

First, we display the results of the Probit estimation. Table 2 displays the marginal effects of the Probit regression. Obviously, the amount of the church tax, which has been paid, has no influence on the decision whether to make a charitable contribution at all. The church tax

dummy variable, however, has a significant and positive impact on the giving decision. If a household is obliged to pay church tax, this raises the probability of making a charitable contribution by 36.4%. Hence, if we take the payment of church taxes as an indicator of religiosity, we observe a positive influence of religion on charitable contributions. Interestingly, income has no effect on donations, whereas the price is – as expected – negatively correlated with charitable contributions.

Furthermore, the tendency to give is higher for married couples as compared to single households and rises with age. Moreover, Catholics and Protestants are more likely to give to charities than members of other religious communities. The effects of income, price, and the sociodemographic variables are all significant on the 1%-level.

Table 3: Estimation results random effects

Variable	(1)	(2)
Income	0.054*** (0.002)	0.043*** (0.002)
Price	10591.13*** (1701.73)	7869.58*** (1858.85)
Church Tax	**-0.134*** (0.014)**	
Church Tax Dummy		**-283.98 (513.82)**
Joint Assessment	-1309.13*** (445.85)	-1183.01** (478.78)
Catholic	-914.50* (512.91)	-898.28 (615.63)
Protestant	-796.25 (533.83)	950.07 (634.05)
Age	47.432* (24.88)	58.44** (26.47)

Table shows coefficients and standard errors in parentheses for the random effects model.
* 10% significance level.
** 5% significance level.
***1% significance level.

If we take a look at the results from the random effects model, we see immediately that there seem to be different mechanisms at work for the decisions whether to donate and how much to donate. Here, we only look at those income tax returns, in which a positive amount of donations is declared. The effect of the church tax is the opposite as compared to the Probit estimation. The church tax dummy variable has a negative but insignificant impact on the

amount of charitable contributions that is declared in an income tax return. The sum of the church tax payments, however, influences donations significantly and negatively. Every Euro of church taxes reduces charitable contributions by 0.13 Euros. This points to a substitution effect between church tax payments and donations to charities.

The amount of charitable contributions is positively affected by income and age, but negatively related to joint assessment. The dummy variables for Catholics and Protestants have no significant impact.

7. Conclusion

Our article contributes to understand what the mechanisms of giving in a highly developed welfare state like Germany are. Here, we concentrate on the German particularity of a church tax which is collected by the state and distributed to the religious communities. Our results hint at two interesting mechanisms: First, the decision whether to make a charitable contribution at all is strongly influenced by a church tax dummy variable. Individuals (or households) who pay church tax are more likely to make charitable contributions, so we observe a positive relation between religion and donations. With regard to the amount of contributions, however, the results hint at a substitution effect between church tax payments and donations. Every Euro of church tax collected by the state reduces charitable contributions significantly.

There are, however, some limits of our study which must be left to further research. First, the time period covered by our panel includes no statutory tax change and provides therefore only limited variation in the data. To remedy this, the model is to be reestimated as soon as the data for 2004 is available. Second, so far the access and programming restrictions mentioned do not yet allow to exploit fully the advantages of the panel data set by the use of all of the 25 million observations for each year. Third, we have to stress that we cannot distinguish the various purposes donations go to, for example environmental groups, cultural activities, and social services. Fourth, by using tax return data we eliminate those individuals with very low incomes and may not come to any conclusions regarding their giving behaviour.

Nevertheless, our results reveal some very interesting new insights into the influence of religiosity on giving.

References

Andreoni, J. (1990), *Impure Altruism and Donations to Public Goods: a Theory of Warm-Glow Giving*, The Economic Journal 100: 464-477.

Barrett, K. (1991), *Panel-Data Estimates of Charitable Giving: A Synthesis of Techniques*, National Tax Journal 44: 365-381.

Bekkers, R. and T. Schuyt (2008), And Who is Your Neighbor? Explaining the Effect of Religion on Charitable Giving and Volunteering, *Review of Religious Research* 50: 74-96.

Berger, I.E. (2006), The Influence of Religion on Philanthropy in Canada, *Voluntas* 17: 115-132.

Bergstrom, L., T. Blume and H. Varian (1986), *On the Private Provision of Public Goods*, Journal of Public Economics 29: 25-49.

Borgloh, S. (2008), *What Drives Giving in Extensive Welfare States? The Case of Germany*, ZEW Discussion Paper No. 08-123, Mannheim.

Bowen, K. (1999), *Religion, Participation, and Charitable Giving: A Report*, Volunteer Canada & The Canadian Centre for Philanthropy, Canada.

Crumpler, H. and P.J. Grossman (2008), *An experimental test of warm glow giving*, Journal of Public Economics 92: 1011-1021.

Eckel, C.C. and P.J. Grossman (2004), Giving to Secular Causes by the Religious and Nonreligious: An Experimental Test of the Responsiveness of Giving to Subsidies, *Nonprofit and Voluntary Sector Quarterly* 33: 271-289.

Hoge, D.R. and F. Yang (1994), Determinants of Religious Giving in American Denominations: Data from Two Nationwide Surveys, *Review of Religious Research* 36: 123-148.

Independent Sector (2002), *Faith and Philanthropy: The Connection Between Charitable Behavior and Giving to Religion*, New York.

Warr, P.G. (1982), *Pareto Optimal Redistribution and Private Charity*, Journal of Public Economics 19: 131-138.

Warr, P.G. (1983), *The Private Provision of a Public Good is Independent of the Distribution of Income*, Economics Letters 13: 207-211.

Wilhelm, M.O., P.M. Rooney and E.R. Tempel (2007), Changes in Religious Giving Reflect Changes in Involvement: Age and Cohort Effects in Religious Giving, Secular Giving, and Attendance, *Journal for the Scientific Study of Religion* 46: 217-232.

Zaleski, P.A. and C.E. Zech (1992), Determinants of Contributions to Religious Organizations. Free Riding and Other Factors, *American Journal of Economics and Sociology* 51: 459-472.