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ABSTRACT

Donations and Unpaid Activities*

Donations and unpaid working are two important forms of non-market activities that are usually considered separately in the literature. The purpose of this paper is to empirically test hypotheses on determinants of giving to organizations. In particular, the importance of voluntary work for giving behavior is examined in comparison to other unpaid activities. In addition, the aim is to find out whether mutual dependencies exist and to what extent benefits, measured by satisfaction, can be derived from both forms.

Estimates using data from the Socio-Economic Panel for the years 2019/2020 lead to the following results for Germany:

- Personality traits and individual assessment, under which conditions a society is judged to be just, are important for donation behavior. These two aspects are widely neglected in the literature.
- If honorary offices are exercised as a major activity, a clear positive donation effect is derived in contrast to a secondary activity.
- Participation in citizens' initiatives shows a similar correlation. In contrast, unpaid overtime in professional life shows a negative link.
- No effect can be discerned, based on an honorary office, for payments to unrelated individuals.
- Donations to organizations and voluntary work show mutual dependencies.
- Life satisfaction is increased both by donating and by doing voluntary work.

JEL Classification: D64, D91, I30, J30

Keywords: citizens' initiative, donations, life satisfaction, personality traits, unpaid work, volunteering

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1 Introduction

Donations and unpaid work are two activities that are usually observed as complementary to free-market activities, which come into greater play when extraordinary events such as wars, disasters, catastrophes or large movements of refugees have occurred, to which normal economic activity reacts inadequately or too late. Ukraine War 2022, flood catastrophe 2021 in Rhineland-Palatinate and North Rhine-Westphalia, Fukushima 2011, Tsunami South-East Asia 2004 and Chernobyl disaster 1986 are examples. But also annual fundraising appeals of Red Cross, Bread for the World, UN World Food Program, WWF, UNICEF, Doctors without Borders or Greenpeace lead to an increasing donation amount. Furthermore, donations to churches, sports clubs and political parties should be mentioned.

However, donations and the willingness to take on honorary offices are driven by individual attitudes and behavior, by experiences and assessments. Academic discussions focus either on studies, why and to what extent donations are made or on the effects of various forms of non-remunerated activities – see Section 2. Apinunmahkul et al. 2009, Hill 2012 and Turcotte 2015 present both aspects. However, hardly any theoretical and empirical connections between these areas are in the center of the discussion. This is astonishing. There are many compounds that describe substitutes or complements. Help can come in the form of time support, the provision of goods and in the form of money. Every individual can decide whether to transfer money to organizations or persons - usually without specifying the purpose - or whether to participate in the distribution of relief goods and sacrifice time for it. Giving money or time are alternatives that are not mutually exclusive. In addition to contractually agreed contributions, someone can voluntarily donate more money to sport clubs or church, and they can also agree to take on an honorary position in the club, in society. There are various motives for this. For example, he/she wants to be involved in the proper use of funds or he/she believes that he/she can best help a good cause through his/her commitment. The latter can also be done without monetary participation. The decision for an either-or rather than a both-and depends on personality traits. Those on low incomes are often left with no choice. If they have the necessary skills or if they are senior experts, they will only be available for voluntary work.

The objective of this empirical paper is to work out central individual determinants of donations. Seven groups of explanations are distinguished. The importance of voluntary offices is analyzed and in comparison that of other forms of unpaid work. It is asked whether donations and unpaid work influence each other and whether they affect the life satisfaction. From the main empirical result a recommendation for individual willingness to voluntary offices is possible. To the best of our knowledge the only contribution to the relationship between satisfaction, volunteering and donating is that of Krasnozhon/Levendis (2020). They estimate an ordered logit model and find that the standard economic variables are more important than giving or donating. Income is positively associated with happiness, while unemployment in the past ten years is negatively associated with happiness.

2 Related literature, extensions, hypotheses, and modelling

There is a general interest in finding out why people donate money. Theoretical and empirical contributions to this topic are provided by Bekkers/Wiepking (2011), Dvorak/Toubman (2013), Feldman

(2010), Giusta/Jewell (2021), Gricevic et al. (2020), Kang et al. (2016), List (2011), Paque (1982), Priller/Schupp (2011), Steinberg (1987). Konrath and Handy (2017) explore the following questions:

(i) What are the main reasons for donating money?

(ii) Do these reasons depend on demographic characteristics and personal attributes?

(iii) Are these determinants overlaid on decisions about whether people take up voluntary positions?

(iv) How stable are the relationships between these decisions and personal giving behavior?

Model-theoretical studies of giving behavior have been conducted by Feldman (2010), Kang et al. (2016) and Steinberg (1987). Overall, there is a broad spectrum of theoretical explanations as to why people donate. In principle, a distinction must be made as to whether donations are selfishly motivated or whether altruistic considerations dominate (Andreoni 1990). In the first case, it is about expected personal advantages through tax benefits or positive public perception, about reputation. In the second case, donations are made for the benefit of others. These two reasons need not be mutually exclusive. In addition, people donate because they recognize a failure in the free-market system and believe that donation organizations distribute their funds in the spirit of social justice. List (2011) emphasizes the interplay between individuals, politics and social, cultural, non-profit and charitable organizations when it comes to giving. Policy primarily influences giving behavior through taxation of donors and relief for recipients of donations. The main drivers for the organizations are certainly the donors. If too few donate, ongoing projects are not continued. If too much is donated, funds are likely to be wasted (Mazodier et al. 2021).

Beckers and Wiebking (2011) identify eight mechanisms as drivers of giving, but these are not very suitable for empirical studies due to a lack of operationalization. Taking age and income into account, Dvorak and Touman (2013) show that women are more likely than men to donate but smaller amounts. This is confirmed by Gricevic et al. (2020) for Germany, whereby other control variables such as region, migration background, religious affiliation and education are also included. While religious affiliation and high income are associated with a higher propensity to donate, eastern Germans and migrants show a lower propensity. We test the following hypothesis:

Hypothesis 1: Women are more likely to donate than men. However, the amounts are smaller.

Control of further determinants is necessary. An extension to the literature is helpful. Individual donations are mainly determined by individual assessments and personal traits. We test:

Hypothesis 2: Assessments what a society makes just, Big 5 characteristics and local of control are influential for donation behavior.

Numerous studies on unpaid activities can be found in the literature, especially as far as they relate to honorary offices. To be mentioned here are: Berbee et al (2021), Brown/Langford (1992), Davies (2004), Day/Devlin (1998), Ehrlinghagen (2000), Ehrlinghagen/Hank (2008), Freeman (1997), Frey/Goette (1999), Guista/Jewell (2021), Govekar/Govekar (2002), Hill (2012), Holmes (2003), Konrath/Handy (2027),

Kühnemund/Schupp (2007), Lockstone-Binney et al. (2015), Moschner (2002), Prouteau/Wolff (2006, 2008), Roy/Ziemek (2000) and Xu et al. (2021). Connections are seen between theories of public goods, private consumption and investment (Ziemek 2006). Questions are primarily aimed at why people take on honorary offices. Very similar considerations as for donations can be found here. Altruistic justified and personal advantages can be derived from honorary offices just as much as an exchange.

Dissatisfaction with one's job, greater time flexibility can be motives for voluntary work, as can the need for social inclusion, strengthening of self-esteem, search for learning opportunities, adventure, work abroad with religious charitable institutions or the precursor to paid work. Traditionally, voluntary work is mainly found in charities, churches, political parties, trade unions and sports clubs. Here there is a tendency towards a decrease. Newer forms of participation are neighborhood help, citizens' initiatives, activities at food banks and barter exchanges. Taking on voluntary work can also be guided by the goal of supporting group-specific interests that are not sufficiently taken care of by the state, such as those of children, older and sick people, women, the poor and migrants. It is often about correcting unsatisfactory market outcomes. Personality traits and one's own experiences shape the choice of voluntary work. Unpaid activities, usually unnoticed by others, can also be the result of unfulfilled time and professional norms. It remains open what these activities have in common with honorary offices. The characteristic "unpaid" is not mandatory. Unpaid overtime (Bell/Hart 1999, Hübler 2002, Pannenberg 2005, Zapf 2015) may already be compensated by a high basic salary and honorary offices may be compensated in the form of non-monetary privileges. In some occupations unpaid overtime is "involuntarily" voluntary.

In the past, honorary offices have been held more by women than by men. On the one hand, this is due to the fact that women had less paid employment and often only part-time jobs. And on the other hand, honorary offices are increasingly located in the social sphere. Women have a tendency to honorary offices as they have a preference to become active there or if they plan re-entering to the labor market in the near future. They want to repair or augment market-oriented human capital Mueller (1975).

Hypothesis 3: Women are more likely to do voluntary work than men.

Einolf (2011) finds that sex differences in the institutional helping behaviors of volunteering and charitable giving are small and explains this that men have more resources and more social capital than women, which compensates for their lower level of motivation. The data show partial support for these hypotheses, as men score higher on measures of income and education. However, women have broader social networks through religious participation.

For women, however, there is a tendency away from voluntary work due to increasing paid full-time work. At least less time is spent on it. In addition, demands are being made in social institutions for paid work from previously unpaid activities. At least a crediting of insurance years for the exercise of honorary offices is being discussed (Thomsen 2013). And recently, in August 2022, the German Minister of Interior, Nancy Faeser, has suggested and thought about allowing people who have spent their entire lives in an honorary position for the benefit of the population to retire earlier, for example for one year. Commercialization of social institutions can be observed in the course of the demand to reduce income gaps of women compared to men. This leads us to

Hypothesis 4: The willingness of women and men to take on voluntary work has become more equal.

As gender but also other determinants are relevant for donations and volunteering, a simultaneous consideration seems necessary. However, this aspect has received comparatively little attention. A brief overview is provided by Hill (2012). The central question is whether the relationship between donations D and voluntary work V is more complementary or substitutive. In terms of model theory, utility functions W are usually assumed. Either volunteering is in the foreground in connection with public goods (Steinberg 1987). Or links are examined between donations in the form of monetary gifts and the exercise of voluntary office as a gift of time (Brown/Lankford 1992, Feldman 2010, Freeman 1997, Roy/Ziemek 2000).

Both together supplemented by earnings Y can be modelled as a double Cobb-Douglas function with variable partial elasticities, where utility can be represented as life satisfaction S

(1) $S = cY^{\beta} * W^{(1-\beta)} = cY^{\beta} * (V^{\alpha} D^{1-\alpha})^{1-\beta}$.

Neglecting income as determinant of life-satisfaction and as a proxy for assets would lead to biased estimates of donations and honorary offices. The assumption of a double Cobb-Douglas function allows the modelling variable systematic coefficients of our two major determinants. After logarithmization, it follows

(2) $\ln S = \ln c + \beta \ln Y + (1-\beta)\ln W = \ln c + \beta \ln Y + (1-\beta)[\alpha \ln V + (1-\alpha)\ln D]$.

The partial elasticities α and β are modelled by linear functions, supplemented by a disturbance term u_1 or u_2

(3) $\alpha = \gamma_0 + \gamma_1 X_1 + u_1$

(4) $\beta = \delta_0 + \delta_1 X_2 + u_2$.

The idea of (3) and (4) is that the elasticities are varying due to individual or group-specific characteristics X_1 and X_2. Under using of (3) and (4), we obtain

(5) $\ln S = b_0 + b_1 \ln Y + b_2 X_2 \ln Y + b_3 \ln V + b_4 X_1 \ln V + b_5 X_2 \ln V + b_6 X_1 X_2 \ln V + b_7 \ln D + b_8 X_1 \ln D + b_9 X_2 \ln D +$

$b_{10} X_1 X_2 \ln D + u$,

where u is a mixture of u_1 and u_2. Specific cases arise if we assume that the coefficients of donations do not vary systematically ($b_8=0$, $b_9=0$ and $b_{10}=0$)

(6) $\ln S = b_0 + b_1 \ln Y + b_2 X_2 \ln Y + b_3 \ln V + b_4 X_1 \ln V + b_5 X_2 \ln V + b_6 X_1 X_2 \ln V + b_7 \ln D + u$

or if additionally $b_6=0$. An even more restricted case follows if the elasticities do not vary systematically ($\gamma_1=0$ and $\delta_1=0$) or if they are constant

(7) $\ln S = b_0 + b_1 \ln Y + b_3 \ln V + b_7 \ln D + u$.

We test

Hypothesis 5: Life satisfaction increases the more often a voluntary work is held.

This can be explained by the idea that voluntary activities are less subject to external constraints than market activities and that more self-determined action is possible. It should be noted, however, that these activities do not entail any monetary remuneration. In this respect, $b_3<0$ cannot be excluded a priori.

Hypothesis 6: Life satisfaction increases with increasing donation activity.

This result is to be expected above all when donations are made from altruistic motives. Personal benefits may arise from donations if their public reputation increases as a result. An opposite effect arises from the fact that funds for private consumption are withdrawn. This speaks for the fact that $b_7<0$.

3 Data and descriptive statistics

In Germany, in 2018, the proportion of men, who volunteered, was 16.9 percent compared to 18.3 percent for women. In 2021, the percentage of volunteering women was lower than for men, although among the population are more women than men (VaMA 2022). The statistics show that the number of volunteer positions is increasing. Between 2017 and 2020 there was an increase of 2.22 million. In 2021, the number of people doing voluntary work in Germany was 16.24 million (IfD Allensbach 2021). An increase cannot be observed for all types of unpaid activities. For example, the number of federal volunteers has decreased since 2017, while from 2012-2014, there was an increase (BMFSFJ 2021).

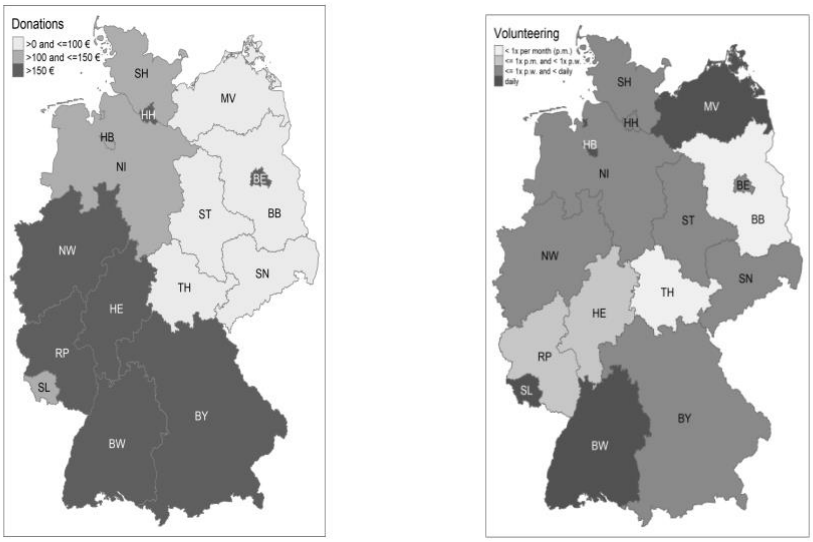
Official statistics on voluntary work (and more generally on unpaid activities) usually publish not more than three distinguishing features. However, it is necessary to have a broad spectrum of personal determinants of voluntary work available. Only a few individual data sets are available for this purpose.

The Socio-Economic Panel (SOEP) provides aperiodic data on the participation of persons aged 17 and over in voluntary work in Germany (Burkhardt/Schupp 2019). It is recorded whether a person volunteers daily, at least once a week, once a month or less or not at all. Information on donations is also included in the SOEP survey (Gricevic et al. 2020, Priller/Schupp 2011). It is asked whether and, if so, how much is donated. The survey on volunteering is available for 2009, 2011, 2013, 2015, 2017, 2019 and 2020. For donations, data for 2010, 2015, 2018 and 2020 can be used. Empirical analyses that take into account donations or the exercise of volunteering do not consider a joint estimation but present annual statistics of one of these two features.

The following study focusses on 2019 and 2020. An initial insight is provided by the frequency distribution of donations and the exercise of honorary offices in Table 1a and 1b. About a little more than a quarter of all respondents donate nothing or at most 100 € or between 100 and 500 €. In 2020, according to the SOEP survey, the maximum individual donation was 20,000 € - cf. Table A1. Descriptive statistics for control variables are also shown there. While 16 percent of respondents did not do any voluntary work in 2019, 25 percent did it at least 1 time a month, but only 7.5 percent did it daily.

The regional distribution of our two main variables reveals marked differences but the Figures do not show a link between the amount of donations and the frequency of volunteering. While donation activities are high in the southern states and low in the east, no systematic distribution of volunteering can be recognized except that in a small band from south-west to north-east volunteering is less spread than in the other regions.

Figure 1: Donations and Volunteering by German States



This impression changes if correlations are considered. The simple Pearson's correlation coefficient between donation amount and volunteering frequency is 0.17 and significant at α=0.01 (Table 2). This is a first hint that the two variables are linked complementary character. The more frequently someone does voluntary work, the higher the amount they donate annually. Also more generally, those who make themselves available for honorary offices also have a tendency to donate money to social, ecclesiastical, cultural, non-profit or charitable institutions. This result follows for Kendall's tau=0.2685 as an association indicator for ordinal-scaled variables, a coefficient of rank correlation, where the asymptotic standard error is ASE=0.014 (Agresti 1984, p.163). The higher tau, the stronger is the association.

A more detailed correlation table between the two characteristics of our main interest (donations and volunteering) and several determinants, e.g. individual assessments of when a state is acting fairly, personality traits (Big 5, LoC) and a gender variable, is presented in Table A2. In this paper 'fair' and 'just' are considered as synonymous. Other association indicators than the correlation coefficient do not lead to qualitative other results. We find that nearly all associations are statistically significant. Insofar, an extended analysis with these variables seems fruitful. Among others, Tables 2 and A2 do not provide a clear message for hypothesis 1 and reject hypothesis 3. When we compare the correlation between the gender variable (male=1) and the willingness to volunteer for 2009 (r=0.0189; insignificant) with that of 2020 (r= 0.0391*; significant at α=0.05), this outcome also does not support hypothesis 4.

4 Empirical approach and methods

The starting point is the empirical literature to date. The aim is to compare whether older results from other countries are also maintained by more recent developments in Germany or whether systematic changes can be identified. Similar specifications are therefore used. We call this the standard model (Table A3, column 1). The focus is on analyses for 2019/2020. First, the influence of various determinants on donation behavior is examined.

Cluster robust standard errors are preferable to classical standard errors (Hübler 2014). Furthermore, a distinction must be made between estimates based on whether donations are made at all and how much. The usual probit and classical regression estimates (Table 3, A3-A6) provide the field of the investigation. Both aspects can be analyzed together using Tobit estimates (Table A5a). Previously used specifications normally neglect a number of potential influencing factors - see section 5. In a first step, we uncover in which extent we obtain significant effects by adding further areas of influence. The problem is that this procedure results in a large number of possible influencing factors and there is no independence between them. Selection procedures such as LASSO and LARS approaches as well as stepwise selection procedures (Belloni et al. 2012, Efron et al. 2004) serve to limit the analysis to statistically relevant variables (Table A7). In addition to traditional giving to charities, it is also examined whether cash transfers to individuals are relevant (Table A5, column 1).

Since not only an honorary office can be significant for donation behavior, but also, conversely, individual donations can be the reason for applying for and exercising an (associated) honorary office, instrumental variable estimates should be preferred. Here, Lewbel (2012) is followed (Table 5).

As with donation activities, there are different forms of unpaid activities – c.f. Section 6, which also need to be included for robustness considerations. This can be done by inserting these activities in the form of dummies as regressors in the donation functions and testing for significance (Table 4). Furthermore, we work out for comparison reasons the importance of the determinants for another form of donations than that to organization (Table A8).

Finally, we follow the model consideration to the life satisfaction function in section 2 and test whether the more general model with systematically varying partial elasticities is preferred or the restricted models (Table 6). The estimates can show whether life satisfaction reacts stronger to changes of donations or to the frequency of volunteering.

5 What does it depend on whether and how much someone donates?

In addition to the central determinants of giving mentioned in the literature and empirically investigated - cf. section 2 -, the extent to which other explanatory blocks are significant for giving is first examined separately. A distinction is made between the following specifications where in parentheses the variables are enumerated that are used in the empirical analysis:

- standard model, which is some sense a replication of estimates in the literature – Table A3, column (1);

- personality traits (Big 5, internal and external locus of control (LoC) - Table A3, column (2);

- characteristics developed in adolescence (whether parents take care of children, conflicts with father, conflicts with mother, sports and music activities in adolescence, number of siblings, number of years in school, school-leaving grades, military service, voluntary social year – Table A3, column (3);

- parental characteristics (whether mother is Christian, father is non-denominational, whether father is Moslem, whether mother belongs to another religion, mother's years of schooling, whether father has German citizenship) – Table A3, column (4);

- features of professional life (company size, public service, tenure, overtime, gross income, test correct assignment of symbols-numbers, test incorrect assignment of symbols-numbers, number of memorized terms from a previously mentioned list – Table A3, column (5);

- forms of unpaid work (voluntary work, member of a civic initiative, unpaid overtime) – Table 3, column (1);

- assessments what a society makes just (A-when people who work hard earn more than others (hard work), B-when people from respected families have advantages in life (inheritance), C-when the society takes care of the weak and needy (poverty); D-when income and wealth are equally distributed among all people (equal distribution): 1-disagree completely, …, 7-agree completely) – Table 3, column (2).

When trying to replicate approaches from the literature (standard model), i.e. probit estimates for the probability of someone donating, only two determinants turn out to be significant, namely age and full-time employment - cf. Table A3, column (1). In the first case, a positive sign emerged. This confirms the result of Dvorak/Toubman (2013) and Priller/Schupp (2011). No clear confirmation is found with regard to gender. No significant correlation is shown, although the sign corresponds to expectations. In the second case, the significant negative influence corresponds to the result in Priller/Schupp (2011) only in terms of the sign. It should be mentioned that the specification used does not fully correspond to the approaches used in the literature.

From a significance point of view, the Big 5 characteristics are clearly more significant for whether someone donates money - cf. Table A3, column (2). Overall, however, the explanatory power is by no means greater. This applies more to the third and fifth partial approaches (columns (3) and (5)), if characteristics that developed in adolescence and those that are significant for working life are taken into account. Some obvious parental influences are not reflected in the estimates if they are already accounted for by other characteristics as proxies - cf. Table A3, column (4). Further determinants that are characteristics of parents like income or IQ are not available in the data set.

It should be emphasized at this point that among the unpaid activities recorded, only voluntary work is of significance for donation behavior. No statistically significant correlation between participation in citizens' initiatives and unpaid overtime, respectively, and donation is revealed - cf. Table 3, column (1).

The results to the link between the assessment, under which conditions the society is fair, and donation behavior are remarkable - cf. column (2), Table 3. Four different positions (a)-(d) are distinguished. Only

two positions show a clear result. First, those who believe that it is fair that those who work hard should also earn more (position (a)) have a lower willingness to donate than others. And second, those who believe that a society is only just if it takes care of the weak and needy (position (b)) are individually more inclined to donate than others. In contrast, the opinion that equal income, but also equal wealth, holds fair (position (c)) does not seem to have any significance. Finally, no connection can be found between donations and the assumption that it is just when respected families have advantages in life (position (d)).

The estimation results presented in Table 3 and Table A3 should not be overestimated. After all, the various characteristics are correlated. In order to gain insight into this, different partial approaches are combined in a next step. Results can be found in Table A4. In column (1) all characteristics of Table A3 are simply combined into one approach, while in (2) and (3) a priori restrictions are imposed. In particular, only those characteristics are considered that are significant in Table A3. Column (2) in Table A4 also includes the significant regressor of column (1) in Table 3 that is suppressed in column (3) while column (4) is extended by the significant regressors of column (2) of Table 3. For Table A6 the selection procedure starts with all significant or all regressors without restriction of Table 3 and A3. Then those variables are considered that the machine learning approach Lasso has selected.

The extent to which the selection of regressors by Lasso differs from other selection methods is examined in Table A7. Lasso, Lars and Stepwise Regression are applied. The sign of the coefficients and significance hardly differ for these three approaches for the variable of particular interest, "voluntary work". By and large, the estimates for the other independent variables provide robust results, too. Therefore, the analysis can be limited to Lasso. Only for column (1) do the results for individual regressors deviate significantly from those of columns (2) or (3). Sign changes are only observed for insignificant regressors. Importantly, the influence of honorary positions on donation activity is quite similar. The result of Table 2 is confirmed. Those who hold voluntary positions are more inclined than others to make donations to organizations. Characteristics that have so far been neglected in empirical analyses prove to be significant for donation behavior. Big 5 characteristics and the assessment of the extent to which someone can influence outcomes themselves (LoC) are worth highlighting. It is also noteworthy that ideas about justice in a society and donation behavior are not independent of each other. Our empirical analysis shows – cf. Table A6 - that

- extraverted, sociable people have a relatively low tendency to donate, as do effective workers;

- people who do not believe they can make a difference, who have little motivation to influence the outcome of a situation themselves, who place a high value on chance as to how an outcome turns out (external locus of control), are less likely than others to donate money;

- those who see it as fair when people who work hard earn more than others are less willing to donate. The opposite was found for those who see it as fair when poor people are supported.

It would therefore be mistaken to believe that general appeals for donations can increase individual willingness to donate, but groups must be specifically targeted. This, however, says little about the volume of donations.

It can make a significant difference whether donations and volunteering are only recorded as (0; 1) information or whether the annual amount donated and the frequency with which volunteering is carried out are considered. So far, only the first form has been used. Now, we investigate the latter using conventional regressions. Table A5 provides initial results for three specifications. The more frequently an honorary office is exercised, the higher are the donation amounts. This is a modified confirmation of the statements in Tables A3 and A4. The same applies to the significance of the personality trait "extraversion". Ideas of justice as a reason to donate higher or lower amounts are not expressed here. In general, it must be said that the amount of donations in Table A5 can be explained less well than the willingness to donate in Table 6a, that there are only a few significant correlations.

An econometric alternative is offered by Tobit estimates. Results can be found in Table A5a. There are no fundamental differences compared to Table A5. The importance of voluntary work is slightly higher, while it is lower compared to Table 3 and A6. The extent of donations to individuals (Table A8) and to organizations goes in the same direction. For the "local of control" - regardless of whether it is "external" or "internal" - there are no indications that there are links with the level of donations – cf. Table A5. Similarly, participation in citizens' initiatives, completion of a voluntary social year and unpaid overtime do not seem to be significant for the individual donation volume. The same applies to personal assessments of when a state is considered fair in its actions.

6 Types of unpaid activities

Not only volunteering work as main and single job is usually an unpaid activity. Our data set contains the following possibilities, namely voluntary work as a main occupation, voluntary work as a secondary occupation, the participation in citizens' initiatives, federal voluntary service (Bufdis) and unpaid overtime. Table 4 provides us answers to the question, whether they are assessed differently with respect to donations.

The estimates show that voluntary work in a secondary occupation does not increase donations, in contrast to volunteering as the main or single job. The decisive factor may be that the consideration of part-time work already absorbs this effect. Participation in citizens' initiatives is definitely linked to higher individual donations, whereas unpaid overtime has the opposite effect. It is worth emphasizing that a full-time honorary position by no means also entails more donations to individuals (Table A8).

7 Do donations and unpaid work influence each other and do they have an effect on life satisfaction?

7.1 Does donation behavior influence the propensity to volunteer?

Supported by the approach in the literature, it is quite obvious to initially only investigate whether volunteering influences donation behavior. However, caution is required when interpreting the direction of the effect. There is also some evidence for reverse causality. Those who were dissatisfied with the use of their own donations in the past may feel called upon to change this for the future. Taking on an honorary position connected with the distribution of funds could be the consequence. This becomes particularly relevant when donations are high.

There is no comprehensive data available. The cases in which voluntary positions are held in the very area for which the donation was made are likely to be in the minority. In this case, however, the argument, that when I donate, I also want to influence that the funds end up in the right place, is hardly sustainable. Indirectly, however, a general effect of donating on the decision to do voluntary work is plausible. Experience with donations leads to the attitude that people who have a neutral attitude towards the object of donation or are guided by altruistic motives that see the social benefit of donating in the foreground are better suited for a voluntary office than those who are driven by self-interest. An honorary office in this sense should be held by someone who acts as an impartial spectator in the sense of Adam Smith.

It is tested whether the hypothesis of an exogenous influence of an honorary office on the donation activity (H_0) should be rejected. The Wu-Hausman tests lead to rejection in the majority of cases. Therefore, IV estimators are preferable. Natural instruments are not found or not available in our data set like volunteering of parents or siblings. Therefore, we follow the Lewbel (2012) who proposes artificially derived instruments from the data. We use three different instruments:

(i) averages of volunteering from the industries;

(ii) German federal states as dummies and nationality dummy (=1 if German; = 0 otherwise);

(iii) the combination of (i) and (ii).

The basic results in Table 5 compared with those from previous conventional regressions are robust. In particular, volunteering continues to be positively associated with giving. The negative sign expressing the influence of extraverted personalities on donation behavior also remains. The instrumental variables estimators in columns (2)-(4) in Table 5 show significant associations between donations and volunteering. These coefficients are higher than that in column (1).

7.2 Life satisfaction, donations and voluntary work

Due to the rejection of the exogeneity assumption in Table 5 and the positive correlation between the amount of donations and the volunteering frequency – cf. Table 2 - within a given time interval, it seems reasonable to investigate the joint influence of donations and volunteering activities on the individual utility. The model consideration in section 2 is followed. Utility is operationalized by life satisfaction. Estimates can be found in Table 6. Column (1) is based on specification (5) of the life satisfaction model in section 2. In column (2) we follow model (6). In column (3), we additionally assume $b_5=0$. And finally, column (4) is based on model (7).

The estimates for model (5) in section 2, reproduced in column (1) of Table 6, indicate that the full interaction model is oversized. Things look better for the restricted models in columns (2) - (4). A complete omission of interaction effects in column (4) is not advisable, as F-tests show. Accordingly, of the four specifications in Table 6, column (2) is preferable.

Column (4) first makes statements about the volunteering elasticity of satisfaction ($\eta_{V,S} = 0.131$), the donation elasticity of satisfaction ($\eta_{D,S} = 0.035$) and the income elasticity of satisfaction ($\eta_{Y,S} = 0.040$)

based on the estimated coefficients. Thus, the satisfaction of volunteering increases more than that of donating. The basic result does not change if the preferred estimation in column (2) is used.

It is assumed that, on the one hand, donation behavior is shaped early on in youth. On the other hand, experiences in working life play a role. In the first case, it is assumed that the life satisfaction with respect to volunteering is affected by where someone grew up in a large city or in the countryside (X_1=large city size, middle large size, small city size, village). In the countryside, the village community is formative for one's own behavior. Cohesion and mutual support also influence individual giving behavior and the resulting satisfaction. Interaction effects between X_1 and donations D should also be characterizing for satisfaction. In the big city, anonymity and self-interest are more pronounced. However, there are more opportunities to choose an honorary office and to exercise the one that leads to higher satisfaction. Here, interactions between X_1 and voluntary work V are to be examined in terms of life satisfaction.

In the second case, the importance of the length of working hours is recorded (X_2=overtime work). Those who work overtime earn more and this leads to more satisfaction. This is contrasted with less leisure time. Whether the income effect or the substitution effect predominates is not clear a priori. Both effects must be recorded separately. Interactions between X_2 and V as well as between X_2 and D are included in the empirical investigation.

Life satisfaction may be affected by further determinants and if this is neglected biased estimates can be the consequence. We test, whether care activities for relatives (X_3) and childcare (X_4) induce such a result – see Table A9. The extension of model (1) – (4) in Table 6 to (1a) - (4a) in Table A9 shows that both variables are relevant for life satisfaction but the influence of the other determinants is only slightly changed. Life satisfaction decreases with X_3 but increases with X_4. In Tables A10-A12 further control variables are considered. Here, I follow Krasnozhon/Levendis (2020) and Einolf (2011). Their major point is on the one hand that neither volunteer work nor charitable donation is strongly associated with happiness, whereas employment history and income are strongly associated with happiness (Krasnozhon/Levendis 2020, p.10). On the other hand it is argued and empirically shown that sex differences in the institutional helping behavior of volunteering and charitable giving are small or underestimated because men have more resources and more social capital than women, which compensates for their lower level of motivation. To test this, Einolf (2011) considers income, education, trust, and secular social networks because he expects that men score higher on these items. But he stresses too that women have broader social networks through religious participation. This variable is incorporated.

I investigate whether the effect of volunteering and donating on life satisfaction S is over- or underestimated when socio-economic characteristics like sex, nationality, working hours, locus of control, income, education, nationality, religious participation and regional differences are neglected. A first comparison of column (1) in Table A9 and Table A10 shows that the coefficients of lnV and lnD are lower, when some of these economic variables are included. But this impression changes if further variables are added – see Columns (2)-(4). Nevertheless the correlation with life satisfactions stays significant. Our estimates in Table A11 reveal modified results compared with that of Krasnozhon, Levendis and Einolf:

(i) Einolf's compensating effects of sex differences on lnV transfer to life satisfaction.
(ii) The coefficient of lnV is smaller if the mentioned economic variables are neglected – compare Column (1) with Columns (2)-(4).
(iii) The effect via lnD is only small. Nevertheless the statistical effect stays significant – compare Column (1) and Columns (2)-(4).
(iv) In the simplest model no direct effect of the sex variable can be observed – Column (1) – the strongest link with Einolf's reflections.
(v) Among the other economic variables lnY is most important. The others together seem to have a small dampening influence of lnV and lnD on lnS.

The differences between our approaches and those in Krasnozhon/Levendis (2020) and Einolf (2011) could be due to the use of logarithmic variables in the former and linear measurement in the latter. As a robustness check, the estimates with non-log variables based on linear probability models are shown in Table A12. By and large, the results of lnV are confirmed. By contrast, the association between D and S in Columns (2)-(4) of Table A12 is insignificant.

8 Summary, conclusions and open questions

Volunteering and financial donations are not only linked by the fact that these two activities are primarily located in the non-market sector, but there are also very direct connections between these activities. Those who donate want the money to reach the right place. One way to achieve this is to get involved in the distribution. This is usually done through volunteering. Conversely, those who volunteer gain insight into what is happening in these fields and encourage better achievement of the goals through their own financial support.

Previous research on determinants of donations has identified key determinants and replications confirm their importance. However, there are other influences that have been largely neglected in the past. This paper shows whether and to what extent different life phases, family relationships, personality traits, the individual assessment of when a society is considered just, and taking on volunteering are important for donations. Empirical evidence can be found for each of these explanatory areas. Due to correlations between the items of these areas, they are combined with each other to check robustness. The specifications are determined using alternative selection procedures. Robustness is shown to a large extent. Particular importance is attached to the connection between volunteering and donations.

Those who hold an honorary office also demonstrate a higher willingness to donate than others. The hypothesis of independence is rejected, so that instrumental variable estimators are to be preferred. The basic correlation is not affected. Estimating both, the influence of donations and volunteering, the latter reveals clear positive associations with life satisfaction. The importance of voluntary work is rated higher than that of donations. Although the consideration of interaction effects leads to a shift in relative importance, the basic explanatory pattern remains robust.

The results of our study suggest that more people should be encouraged to volunteer in the future. It should be made clear to them that their life satisfaction can be increased. However, the effects on

donation activity should be considered as a by-product. Only those who do voluntary work as their main activity and not just as a side activity will also be encouraged to do more donating. Those who are mainly employed on the market sector will only make themselves available for voluntary offices to a limited extent in terms of time. This suggests that the donation effect through voluntary work only takes full effect after the end of working life. In this respect, the proposal to reward voluntary work by crediting one year of pension is a positive one. However, the resulting shortening of working life cannot be seen as the actual solution to the problem, because a reduction in income would then reduce donations as a counter-effect. And people who hold a voluntary office want to work longer than others but the crediting of one year of pension would thwart the willingness to work longer.

In future analyses of donations and unpaid work, more attention should be paid to the question of whether specific age-related effects can be identified. Likewise, it is interesting to clarify in more detail in which way schooling and qualifications are important in this context. Alternative data sets that capture observations over a longer period of time are helpful. Confirmation of previous findings would be the goal or a modified view would be the challenge. Possible changed behavior has to be mapped. It would be useful to have more precise information about the activities in voluntary work and what the motives are, in order to be able to work out empirically for which groups of people self-interest is in the foreground and for which altruistic motives dominate.

It should also be investigated whether transitions from unpaid volunteering to paid employment with the same activity can be observed, whether self-interest considerations already play a role in the decision for voluntary work with the perspective of converting unpaid activity into market-remunerated employment. Presently, lack of information in extensive data sets is still a main obstacle to make empirical progress. In times when women's employment in the market-based organized sector is clearly increasing, coupled with less willingness to engage in unpaid activities, an empirical study of this kind would be of interest.

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Appendix:

Table 1a: Frequency distribution of yearly donations

Donations	classified	freq.	percentage	cum.
0	no donations	1,718	26.08	26.08
1	>0 and <=100 €	1,776	26.96	53.04
2	>100 and <=500 €	1,659	25.18	78.22
3	>500 and <=1000 €	662	10.05	88.27
4	>1000 €	773	11.73	100.00
Total		6,588	100.00	

Table 1b: Frequency distribution of voluntary work

Volunteering	classified	freq.	percentage	cum.
0	never	1,081	16.41	16.41
1	rare	433	6.57	22.98
2	once a month or more	1,648	25.02	48.00
3	once a week or more	2,933	44.52	92.52
4	daily	493	7.48	100.00
Total		6,588	100.00	

Table 2: Correlation between donations and voluntary unpaid work (* p<0.05)

	donation amount	volunteering frequency	male
donation amount	1.0000		
volunteering frequency	0.1684*	1.0000	
male	0.0115	0.0391*	1.0000

Table 3: Monetary donations - explained by unpaid activities and assessing of equity

	(1) unpaid activity	(2) equity
volunteering_D	.77350964*	
citizens' initiative_D	-.44695398	
unpaid overtime_D	-.39946905	
hard work		-.24806072***
poverty		.22450128**
equal income		-.0558929
inheritance		-.07779417
_cons	.32562568	1.0842443
N	2227	6454
r^2_pseudo	.07658123	.05139878

Legend: * p<0.05; ** p<0.01; *** p<0.001

Table 4: Effects of voluntary work on monetary donations for organizations

volunteering_D	2.1101817**
volunt.sec.employ	-1.1369656
citizens‘ ini	1.0241491*
unpaid_D	-1.2629928*
hard work	-.23672398
poverty	.14375947
schooling	.35068073*
age	-.01304507
health	.34882377
risk	-.00831596
self-confident	.52701451
firm size	-.11780721
part-time work	.09434388**
schooling_m	.06667701
city size_youth	.44981912**
German_m	.8928003
siblings_N	.10939063
Christian_f	-.30483398
Christian_m	5.627946***
non-denom_m	6.8641522***
parents_care	-.37903783
math_grade	-.10832501
language_grade	.63913115**
conflics_m	-.07268613
sports_youth	.11653045
music_youth	-.42881712

sports_hours	-.54532223
tests_false	.18753184
tests_correct	.24649484***
partner	-.14963393
lnY	.35786814
extra	-.11673294
LoC_int	-.03352396
_cons	-17.242384***
N	1075
r^2_pseudo	.50254731

Legend: * p<0.05; ** p<0.01; *** p<0.001

Table 5: Regression and IV Lewbel estimates of donations with respect to volunteering

	Regress	Lewbel_1	Lewbel_2	Lewbel_3
volunteering	.08650636***	.12964418***	.12629463***	.11930868***
life satisfaction	.05309625**	.05113705**	.05128918**	.05160646**
health	-.03993559	.03776409	-.0379327	-.03828436
risk	.00968052	.01342265	.01313208	.01252606
firm size	-.00743046	-.00558237	-.00572587	-.00602516
public service	-.00544228	.02917792	.0273349	-.02349103
tenure	-.00608819*	-.006937**	-.00687109**	-.00673363**
full-time work	-.0254865***	-.02885361***	-.02859216***	-.02804687***
city size_youth	.09204795***	.08956811***	.08976067***	.09016227***
siblings_N	.00255921	.0057882	.00553748	.00501456
experience	.04095124***	.04519843***	.04486864***	.04418083***
language_grade	.12467229***	.12864881***	.12834005***	.12769607***
sports_youth	.24294547***	.23951682***	.23148188***	.23349463***
music_youth	-.0782274*	-.05868792	-.0620512	-.06336944
tests_correct	.04449702***	.04935057***	.04901252***	.04830749***
tests_false	-.12220035***	-.12308478***	-.12301635***	-.122287364***
test words	.06132186***	.0601998***	.06020408***	.06040034***
extraversion	-.07239084***	-.07437866***	-.07422431***	-.07390239***
conscientiousness	-.01681198	-.01124011	-.01167276	.01257509
LoC_internal	.00098502	.00147274	.00143487	.00135588
LoC_external	-.01198421**	-.0111552**	-.01121987**	-.01135407**
non-denominational	.10480878	.12842951*	.12659542*	.12277016*
_cons	-2.2460889***	-2.4899604***	-2.7410244***	-2.4315306***

N	1,777	1,777	1,777	1,777
r^2	.22584241	.22213374	.22268731	.26255867
Wu-Hausman test		9.229	2.169	15.994
H_0: exogen; F(1;9859)		0.002	0.141	0.000

Legend: * p<0.05; ** p<0.01; *** p<0.001; LEWBEL_1 – average values of industrial volunteering, LEWBEL_2 - German federal states as dummies and nationality dummy (=1 if German; = 0 otherwise), LEWBEL_3 - average values of industrial volunteering, German federal states as dummies and nationality dummy.

Table 6: Extended Cobb-Douglas estimates of life satisfaction with respect to earnings, volunteering and donations

	(1)	(2)	(3)	(4)
lnY	.04952438***	.04944523***	.05229597***	.04006718***
X_2*lnY	.00103166	.00142695*	.0017393**	
lnV	.21452356***	.19569053***	.17202743***	.13144725***
X_1*lnV	-.04676249***	-.04023616***	-.02881207***	
X_2*lnV	-.01753241	-.0290991***	-.01275647**	
X_1*X_2*lnV	.00431036	.00811583***		
lnD	.04369204***	.04866431***	.04709887***	.03519266***
X_1*lnD	.0015086			
X_2*lnD	-.00140364			
X_1*X_2*lnD	.00063722			
_cons	1.3166689***	1.3139076***	1.2977004***	1.4169964***
N	1657	1657	1657	2049
aic	-698.79835	-703.31984	-690.99537	-807.20914
bic	-639.25794	-660.01773	-653.10602	-784.70871
r^2	.20008106	.19936699	.19241566	.1415358
hypothesis		(1) vs. (2)	(2) vs. (3)	(2) vs. (4)
F-test |		0.7395	7.193***	59.844***

Notes: * p<0.05; ** p<0.01; *** p<0.001; Y – monthly gross earnings, V – frequency of volunteering (classified: =4 if daily; =3, if one time per week or more; =2, if one time per month or more; =1 if rarely; =0 if never, D – donations, X_1 – city size during the youth (classified: = 1, if large city; =2, if middle large city; =3, if small city; =4, if village), X_2 – overtime hours per month.

Appendix A1: Descriptive statistics

	Obs	Mean	Std. dev.	Min	Max
donations_D	6,576	.7425487	.4372633	0	1
donations	6,588	561.1213	1256.851	0	20000
donations no-relat(ives)_D	6,588	.0379478	.1910845	0	1
donations (to) no(n)-relat(ives)	6,588	17.39375	147.4568	0	3000
volunteering_D	6,588	.8359138	.3703819	0	1
volunteering_classified	6,588	2.200971	1.194334	0	4
volunt(ary) sec(ond) employ.	6,588	.7803582	.4140354	0	1
unpaid overtime_D	2,227	.091154	.2878927	0	1
unpaid overtime hours	2,222	8.021152	10.73797	0	84
citizens‘ ini(tiative)_D	6,588	.7197936	.4491341	0	1
citizens‘ ini(tiative)	6,536	4.535496	.9015641	1	5
** characteristics as an adolescent					
city size_youth	6,587	2.723395	1.176629	1	4
siblings_D	6,588	.896782	.3042665	0	1
siblings_N (NoS)	6,566	.9145599	.9756415	0	8
parents_care	6,438	2.193538	.760903	1	4
conflics_f	6,424	3.722136	1.176275	1	6
conflics_m	6,448	3.57987	.9865598	1	6
German_grade	6,261	2.477719	.795569	1	5
math_grade	6,299	2.615495	.9867918	1	6
(foreign) language_grade	5,669	2.721997	.910019	1	6
sports_youth	6,460	1.344892	.4753697	1	2
music_youth	6,459	1.560149	.4964074	1	2
army	6,588	.2730723	.4455715	0	1

volunteer(ing) soc(ial) year	6,588	.0220097	.1467261	0	1
schooling	6,546	2.810724	1.249139	1	6
** characteristics as an adult					
male	6,588	.5054645	.5000081	0	1
German	6,588	.9918033	.0901708	0	1
Germany_East(ern)	6,588	.0992714	.2990488	0	1
age	6,588	60.82468	13.37413	27	99
partner	6,588	.1161202	.3203933	0	1
health	6,584	2.527643	.8189397	1	5
risk	6,587	5.100197	2.201091	0	10
life satisfaction	6,584	7.971902	1.377859	1	10
self-confident	6,584	2.571841	.5995111	1	3
** features of working life					
earnings (gross monthly - Y)	3,767	3866.93	3928.509	0	50000
firm size	3,719	6.949987	3.36975	1	11
public service	3,225	.3541085	.4783164	0	1
experience	6,588	27.40541	12.76673	.333	55
tenure	3,692	14.56259	12.57743	0	48.583
overtime hours per month	3,030	1.826304	2.632299	0	18.7
full-time work	6,588	23.74305	14.88037	0	55
part-time work	6,588	7.324711	9.49957	0	45.167
** characteristics of the parents					
schooling_f	6,373	1.892829	1.438409	0	6
schooling_m	6,350	1.691024	1.257505	0	6
German_f	6,588	.9506679	.216577	0	1
German_m	6,588	.9471767	.2236976	0	1

Christian_f	6,588	.7880996	.4086857	0	1
Moslem_m	6,588	.0012143	.0348287	0	1
Moslem_f	6,588	.0012143	.0348287	0	1
Moslem_m	6,588	.0012143	.0348287	0	1
non-denom(inational) _f	6,588	.1353977	.3421738	0	1
non-denom(inational) _m	6,588	.0907711	.2873051	0	1
** assessment, what makes a society just					
hard work	5,206	6.107952	1.17722	1	7
poverty	5,228	6.323451	.9931894	1	7
inheritance	5,230	1.933461	1.307323	1	7
equal income/wealth	5,172	2.936195	1.786352	1	7
** personality traits					
tests_c (correct answers)	6,290	9.018283	4.971742	0	92
tests_f (false answers)	6,290	.2300477	.5895848	0	7
test_w (number of words)	4,215	31.57556	2.678895	17	36
LoC_int(ernal) (local of control)	6,482	25.38275	3.154935	14	35
LoC_ext(ernal) (local of control)	6,445	15.6841	4.621772	5	34
open(ness)	5,244	19.98265	3.931354	0	28
extra(version)	5,242	14.68848	2.376436	5	21
consc(ientiousness)	5,244	14.18936	1.813283	4	21
agree(ableness)	5,244	14.05378	2.058872	6	21
neuro(ticism)	5,244	11.29786	2.493736	1	20

Notes: _c – correct, D – dummy, _f – father, _m – mother, _N - number, _w – words, _Y –earnings

Table A2: Correlation between donations, volunteering, equity and personality traits (* p<0.05)

donations	1.0000	
volunteering	0.2685*	1.0000
hard work	-0.1344*	-0.0675*
poverty	0.1348*	0.1248*
inheritance	-0.0740*	-0.0608*
equal income	-0.0260	0.0070
openeness	0.0827*	-0.0121
extraversion	-0.1289*	0.0076
conscientiousness	-0.0860*	-0.0896*
agreeableness	-0.1471*	-0.0823*
neuroticism	-0.1130*	0.0112
LoC_internal	-0.0579*	-0.0467*
LoC_external	-0.1511*	-0.0612*
male	0.0115	0.0391*

Table A3: Probit estimates of monetary donations with cluster robust standard errors - different specifications

approach→	(1) standard	(2) big 5	(3) characteristics	(4) parents	(5) work
↓ variable	model	LoC	adolescence	markings	life
male	-.11020876				-.02169504
age	.05328928*				.05133033*
partner	-.06986316				.27700202
life satisfaction	.05683508				-.02998023
lnY	.21581805				
schooling	.03080876		.2595347***		.13243246
German	.99713711				1.2869195
Germany_East	-.14623286				-.21679485
full-time work	-.04315712*				-.04787066*
part-time work	-.01552394				-.02444732
siblings_N	.00243133		.0882549		
Christian_m	.0059198			.04743517	
non-denom_m	.38070487			.01494434	
extraversion		-.08325307*			
neuroticism		-.0177179			
agreeableness		-.09795837*			
conscientiousness		-.09046932*			
openness		.05955825*			
LoC_internal		-.03750458			
LoC_external		-.03965322*			
parents_care			.03830806		
German_grade			-.00337073		

math_grade			-.10572713		
language_grade			.1574374		
conflics_father			-.05702453		
conflics_mother			.0118731		
sports_youth			.3726909*		
music_youth			-.77339648***		
army			-.25567052		
volunt. soc. Year			-.75439111		
schooling_mother				.0267326	
German_father				.3865856	
firm size					-.1097608*
public service					.51980339
tenure					-.00447686
overtime hours					.07017001
earnings					.00005476
tests_correct					.01202303
tests_f alse					.19847071
_cons	-4.4080925***	5.1355263***	.63555585	.1967083	-2.2231358
N	3245	6327	5428	6321	2882
r^2_pseudo	.0945838	.07768486	.1692086	.00292092	.14686975

Legend: * p<0.05; ** p<0.01; *** p<0.001

Table A4: Probit estimates of monetary donations with cluster robust standard errors

- combined explanatory blocks

	(1)	(2)	(3)	(4)
extraversion	-.0113053	-.10596287*	-.11958888**	-.14761026**
neuroticism	.02805569			
agreeableness	-.1139896	-.07430792	-.07074079	-.04696099
conscientiousness	-.19520132**	-.10592701	-.07944976	-.09521001
openness	-.0222353	.03485492	.04961115	.0524605
LoC_internal	-.01105068			
LoC_external	-.06340255	-.05398227*	-.05301688*	-.04749026
siblings_N	.0394192	.02414681	.02782297	-.00511436
parents_care_D	-.13988319			
German_grade	.0636852			
math_grade	-.18026762			
language_grade	.08922397			
conflics_father	-.09917467			
conflics_mother	.15529688			
sports_youth	1.1243153***	.54509548*	.56912328*	.34149204
music_youth	-1.4288808***	-.54375121*	-.39037119	-.45365623*
army	-.86265606*			
volunt.soc.year	-.63989016			
Christian_mother	-.52481466			
non-demon_father	-.00676918			
schooling_mother	.19248652			
German_father	-.48836385			

male	.49595028			
age	.01593027	.02738098*	.02887242*	.02678988*
partner	-.73432052*			
life satisfaction	-.09315068			
schooling	.02201567	.07585744	.04705941	.01116556
Eastern Germany	-.58074281			
full-time work	-.01482754	-.02020694	-.02806418*	-.01833786
part-time work	.00786878			
firm size	-.11063775*	-.0218881	-.02207005	-.0724521*
public service	.47116216			
tenure	-.0099778			
overtime work	.12466633*			
earnings	.00006454*			
tests_correct	-.04837374*			
tests_false	.36580205**			
volunteering		.75548434**		.72778681**
poverty				.17971237
hard work				-.23727533*
_cons	9.3437876***	3.9566484*	2.7241324	4.1244798*
N	2341	3561	3561	3501
r^2_pseudo	.39384164	.1921682	.22749584	.28898242

Table A5: Volume of monetary donations – combined explanatory blocks

	(1)	(2)	(3)
volunteering	.06151506	.16726985*	.29495925*
life satisfaction	.04854989		
schooling	.0327335		
health	-.11152915		
risk	.01993653	-.03403278	-.03359545
self-confident	.1304582	.16527522	.15754334
firm size	.03017286	-.00614203	-.00453595
public service	-.2912242		
overtime hours	-.00568784		
full-time work	.00521999		
Eastern Germany	-.21886101		
city size_youth	.01811901	.00490879	.01453879
siblings_D	.65653642*	.21129017	.13751874
siblings_N	-.09230488	-.02725111	-.03641455
Christian_mother	.41687111		
non-denominational_mother	.35086026		
language_grade	.08087821	.17712486	.19600544
conflics_father	.10593756	.00384131	.02423387
conflics_mother	.00526464	.05922241	.07709165
sports_youth	.32034245	.22566287	.18551566
music_youth	.07741177		
army	-.29852463	-.31166671	-.34361216
volunt.soc.year	-.4740124		
tests_correct	.03484818	.02968572	.03322873

tests_false	-.15014755		
test_words	.0321414	.02142896	.03248763
donations to no-relatives	.00103487***		
partner	-.46293624*		
lnY	-.18996612		
extraversion	-.10452272*	-.12845869*	-.12691782*
neuroticism	-.03401304	.00602977	-.0050047
openness	.06843777*	.03893719	.0416105
LoC_internal	-.01975218		
LoC_external	-.00559013	-.01189998	-.00776638
citizens' initiative		.29172971	.24803931
unpaid_hours		.00889788	.00932837
hard work		.0393997	.05252347
poverty		-.0285015	-.02676714
earnings		.0000904*	.0000925*
schooling_father		-.14162404	-.14941767
schooling_mother		.11271342	.1032398
parents_care		.15505799	.1925427
conscientiousness		-.04173826	-.05574339
volunt.sec.employ.			-.46383151
_cons	-1.042781	-2.2069602	-2.4086013
N	1559	1155	1155
r^2	.34295868	.3044835	.31984792

Table A5a: Volume of monetary donations - combined explanatory blocks – tobit estimates

	(1)	(2)	(3)
volunteering	.10299603	.2309339*	.37390138**
life satisfaction	-.02802473		
schooling	.09283982		
health	-.14819994		
risk	.01276558	-.02403557	-.02133618
self-confident	.29950963*	.15918326	.15898071
firm size	.01351283	-.05466447	-.0512095
public services	-.23719649		
overtime hours	-.01923566		
full time work	.00270218		
Eastern Germany	-.24782668		
city size_youth	.13247538	.12874633	.14667239
siblings_D	1.2209489**	.66969215	.56997674
siblings_N	-.10290046	-.05454672	-.07065432
christian_mother	.69080439*		
non-denominational	.77815791*		
language_grade	.14753994	.28467193	.31385944
conflics_father	.1593825	-.02110834	.00448109
conflics_mother	-.02548929	.06712079	.08605386
sports_youth	.51657159*	.32580539	.25694242
music_youth	-.02702332		
army	-.59664037*	-.70937026*	-.76044913*
volunteer year	-.52742752		
tests_correct	.01877223	.01847501	.02239079

tests_false	-.12206666		
test_words	.10986025*	.12329202*	.13768903*
donations non-relatives	.0011292***		
partner	-.68733967*		
lnY	-.15272624		
extraversion	-.11299917	-.19383557*	-.19762706*
neuroticism	-.01017462	.03629949	.02278012
openness	.10670778**	.05799229	.0613116
LoC_internal	-.03994792		
LoC_external	-.03520807	-.0403900	-.03492484
citizens' initiative		.10446222	.08546099
unpaid_hours		.01124993	.01217134
hard work		.03868553	.06131986
poverty		.02096614	.01388363
Y_gross		.00011998*	.00012104*
schooling_father		-.20102755	-.21351715
schooling_mother		.2099689*	.20302281
parents_care		-.00005225	.05798296
consc		-.06971378	-.08347585
volunt. sec.employ.			-.54448963
_cons	-5.0343547	-4.9011474	-5.2583313
N	1559	1155	1155

Table A6: Monetary donations - combined explanatory blocks via rlasso

	(1)	(2)
extraversion	-.12406889**	-.10273056**
agreeableness	-.04348701	
conscientiousness	-.1032202	
LoC_external	-.04898616*	-.03561307*
sports_youth	.31456105	.09686908
music_youth	-.51132925*	-.55196895***
age	.02796492*	
full-time work	-.01800016	.00554621
firm size	-.07090559*	
volunteering	.72126262**	.9067547***
poverty	.20801152	.15215374*
hard work	-.20479616*	-.12306388
math grade	-.10749212	
army	-.26677588	
Christian_mother	-.02694445	
schooling_mother	.06428137	
citizens's initiative_D	-.61436278***	
_cons	4.5875371**	3.1845988***
N	3565	5927
r^2_pseudo	.28638183	.20581841

Table A7: Variable selection estimates

	(1) lasso	(2) lars	(3) stepwise
volunteering_D	1.0295372**	1.2539059***	1.0444402**
schooling	-.38168338*	-.61255282**	-.03014902
male	-.46444799	-.08998926	
age	-.08616492*	-.00521928	.03498133
health	.47468862	.51222309	.28170373
self-confident	-.181652	-.20627227	
firm size	.05770158	.00533085	
tenure	-.04437018	-.04670942*	-.04172687*
overtime hours	.12413614		
unpaid_D	-1.151132**	-.8365324	
full-time work	-.14855344*		
city size_youth	.29279776*	.3321489*	.40342601**
siblings_D	1.2046722		
siblings_N	-.37561236**	-.19497794	-.10326987
experience	.22548314**		
parents_care	-1.2444088***	-1.0857147***	-.72822363***
math_grade	-.62907711***	-.30248694	-.19342843
language_grade	.2070464	.30595288	.40186609*
sports_youth	1.6491881***	1.1301525*	.66809704
music_youth	-1.0024679**	-.94299309*	-1.1283077**
sports_hours	.97174009**		
tests_correct	-.10494576*	-.06596931	-.08036559
tests_false	-1.2437162***	-.88571724**	-.54463559*
test_words	.12492044	.05220753	.13865418**

citizens‘ initiative	-.07379224	-.53335125	-.66351934
partner	-.50027704	-.65514874	
neuroticism		-.17002407**	-.14294931
agreeableness	-.21055476	-.18667874	-.10829722
conscientiousness	.05469855	.12383953	-.06153742
openness	.00224441	.01725024	-.08060437
LoC_internal	-.21880157**	-.14301835	-.09158294
LoC_external	-.07709375*	-.12443526*	-.10162296**
schooling_father	.33148089	.60925292**	.23308317*
German_mother		-.64346433	
Christian_mother	1.1041235*	1.8970976*	-.04390231
life satisfaction		.00219936	
risk		-.08981645	.10971227
public service		-.60467923	
earnings		.00029993*	-.00003283
part-time work		.06336092**	.01754892
Eastern Germany		.55052959	
German_grade		-.57811917*	
conflics_mother		.22942041	
extraversion		-.07014871	
volunteering year		1.3462542	
army		-.17908054	
_cons	11.997366*	9.3933937*	3.6481545
N	6125	6161	10361
r^2_pseudo	.73887737	.71522064	.5349552

Legend: * p<0.05; ** p<0.01; *** p<0.001

Table A8: Effects of voluntary work on monetary donations for non-relatives

volunteering_D	.78230239
life satisfaction	1.6797169*
schooling	.25851127
male	-.63807341
health	2.9518971**
firm size	-.33278487
public service	1.0714533
overtime hours	.20322345*
full-time work	.02907523
city size_youth	.38701649
parents_care	.34202785
language_grade	-.26904291
conflics_mother	-.24601247
sports_youth	.14088255
sports_hours	-.4749158
test_f	.09925914
test_w	.06065089
openness	-.36858751
LoC_ext	-.01089862
_cons	-20.359507*
N	1455
r^2_pseudo	.52354018

Table A9: Extended Cobb-Douglas estimates of life satisfaction with respect to earnings, volunteering, donations, care of relatives and childcare

	(1a)	(2a)	(3a)	(4a)
lnY	.0396924***	.03922474***	.04100961***	.03102612***
X2*lnY	.00024945	.00066056	.00085918	
lnV	.15866249***	.18608755***	.16703987***	.12200074***
X1*lnV	-.03189243*	-.0416108***	-.03282476***	
X2*lnV	.01992122	-.01790954**	-.00494793	
X1*X2*lnV	-.00651844	.00625049**		
lnD	.05000037***	.04462701***	.04335418***	.03220738***
D1*lnD	-.00188523			
X2*lnD	-.00621636*			
X1*X2*lnD	.00225834*			
care of relatives	-.01505324***	-.01395051***	-.0132223**	-.00372045
childcare	.03100067***	.03008926***	.03173699***	.03457518***
_cons	1.3148055***	1.3182792***	1.3001834***	1.3516801***
N	1657	1657	1657	2049
r^2	.23936279	.23692662	.23288994	.18029019

Notes: * p<0.05; ** p<0.01; *** p<0.001; Y – monthly gross earnings, V – frequency of volunteering (classified: =4 if daily; =3, if one time per week or more; =2, if one time per month or more; =1 if rarely; =0 if never, D – donations, X_1 – city size during the youth (classified: = 1, if large city; =2, if middle large city; =3, if small city; =4, if village), X_2 – overtime hours per month.

Table A10: Further extended Cobb-Douglas estimates of life satisfaction by economic variables

	(1)	(2)	(3)	(4)
lnV	.08559027***	.11149274***	.16703806***	.22063451***
lnD	.01916745***	.03079574***	.04254196***	.04498866***
childcare	.02604978***	.03043186***	.02522545***	.0246842***
male	-.02082178*	-.04253397***	-.01438525	-.02783789*
German	.2051424***	-.290782**	-.28007994**	-.3192966***
working hours	.00141623***	-.00083158	-.00403599***	-.00243765**
non-denominational	.00924684	-.00281921		-.02718117
LoC_external	-.0102688***	-.0082064***		-.00836077***
lnY		.04347118***	.09390298***	.06921956***
X2*lnY			.00097247	.00109573
X1*lnV			-.03389624***	-.0483812***
X2*lnV			-.00683039	-.01669674*
X1*X2*lnV			.0036563	.00452611
care of relatives			-.00995171*	.00424908
Eastern Germany			-.05779218***	-.00792826
age			.00081952	.00007372
public service				-.01282145
city size_youth				.01250948
_cons	1.6285497***	1.7408456***	1.2847254***	1.5480398***
N	2167	1940	1653	1617
r^2	.19779722	.20190534	.26830002	.28830188

Legend: * p<0.05; ** p<0.01; *** p<0.001

Table A11: Log life satisfaction estimates with alternative control

	(1)	(2)	(3)	(4)
lnV	.07149700***	.13144725***	.11149274***	.11414013***
lnD	.03053853***	.03519266***	.03079574***	.03093214***
lnY		.04006718***	.04347118***	.03656937***
childcare			.03043186***	.03142771***
male	-0.00493175		-.04253397***	-.04037697***
German			-.290782**	-.26734481**
working hours			-.00083158	-.00048433
non-denominational			-.00281921	-.00382077
LoC_external			-.0082064***	-.00795191***
schooling				.01021532*
_cons	1.8292447***	1.4169964***	1.7408456***	1.7154532***
N	4356	2049	1940	1938
r^2	.07260304	.1415358	.20190534	.20406132

Legend: * p<0.05; ** p<0.01; *** p<0.001

Table A12: Linear probability function estimates of life satisfaction

	(1)	(2)	(3)	(4)
volunteering	.09057459***	.06969267***	.08298194***	.09762919***
donations	.04302789**	.02737856	.02818384	-.00538566
male	-.35181227***	-.24016343***	-.19695292***	-.25926704***
Eastern Germany	-.07102477	-.09835881	-.12540069	-.12375481
German	1.0561848***	1.2761627***	1.2647177***	1.2510723***
working hours	.01450931***	.01347274***	.01311523***	.0102691***
non-denominational	-.48596962***	-.51794737***	-.55340061***	-.53194788***
LoC_external	-.05839882***	-.02595298***	-.02451025***	-.02358532***
care of relatives		-.17701948***	-.18336139***	-.18076404***
childcare		.08976196***	.10320052***	.10817941***
city size_youth			-.13481332***	-.12957053***
income (Y)				.00003276***
_cons	7.1518438***	6.5403874***	6.8229852***	6.7671196***
N	3537	3525	3525	3525
r^2	.1208757	.1504637	.16271592	.16837126

Legend: * p<0.05; ** p<0.01; *** p<0.001