

Hackl, Franz; Halla, Martin; Pruckner, Gerald J.

**Working Paper**

## Volunteering and the State

Working Paper, No. 0901

**Provided in Cooperation with:**

Johannes Kepler University of Linz, Department of Economics

*Suggested Citation:* Hackl, Franz; Halla, Martin; Pruckner, Gerald J. (2009) : Volunteering and the State, Working Paper, No. 0901, Johannes Kepler University of Linz, Department of Economics, Linz

This Version is available at:

<https://hdl.handle.net/10419/73613>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*



**Volunteering and the State**

by

Franz Hackl, Martin Halla, Gerald J. Pruckner

Working Paper No. 0901

February 2009

---

**Johannes Kepler University of Linz  
Department of Economics  
Altenberger Strasse 69  
A-4040 Linz - Auhof, Austria  
[www.econ.jku.at](http://www.econ.jku.at)**

franz.hackl@jku.at  
phone +43 (0)70 2468 -8333, -28333 (fax)  
martin.halla@jku.at  
phone +43 (0)70 2468 -8219, -28219 (fax)  
gerald.pruckner@jku.at  
phone +43 (0)70 2468 -8213, -8209 (fax)

# Volunteering and the State\*

FRANZ HACKL      MARTIN HALLA      GERALD J. PRUCKNER  
University of Linz    University of Linz & IZA      University of Linz

October 14, 2009

## Abstract

This paper explores the capability of the state to affect the individual's decision to work for free. For this purpose we combine individual-level data from the European and World Values Survey with macroeconomic and political variables for OECD member countries. Empirically we identify three channels for crowding out of voluntary labor. Firstly, an increase in public social expenditure decreases the probability that the individual will volunteer (*fiscal crowding out*). Secondly, a political consensus between individuals and the government also induces volunteers to reduce their unsalaried activities (*consensual crowding out*). And finally, the more a government supports democratization, the lower is the individual's engagement (*participatory crowding out*). Religiosity and a more unequal income distribution in a country increase individuals' willingness to volunteer.

*JEL Classification:* H41, H44, H31, J22, I38, H11, D30, D64.

*Keywords:* Volunteering, voluntary labor supply, private provision of public goods, public social expenditure, political consensus, democratization.

---

\*Corresponding author: Gerald J. Pruckner, Johannes Kepler University of Linz, Department of Economics, Altenbergerstr. 69, A-4040 Linz, tel.: +43 70 2468 8213, fax: +43 70 2468 8209, email: gerald.pruckner@jku.at. For helpful discussions and comments we would like to thank Ralph Bayer, Eddy Bekkers, René Böheim, Johann K. Brunner, Karin Mayr, Rudolf Winter-Ebmer and participants at the Annual Conference 2009 of the European Society for Population Economics in Seville and at the Annual Conference 2009 of the European Association of Labour Economists in Tallinn. The usual disclaimer applies. This paper was partly written during Martin Halla's visiting scholarship at the Center for Labor Economics at the University of California, Berkeley. He would like to thank for the stimulating academic environment and hospitality there.

# 1 Introduction

Volunteering is a widespread economic phenomenon with high relevance for society. Organizations that benefit from this manpower offer social and health services, education and youth work, rescue, culture, recreation, and religious services, among other things. From society's point of view, volunteering is a highly desirable leisure activity, and volunteers contribute significantly to the economic welfare that would otherwise require paid resources.<sup>1</sup> As an example, in 2006 87% of US fire departments were predominantly operated by volunteers and protected 38% of the population. In Austria only the six biggest cities have a professional fire brigade. As a consequence, voluntary firefighters serve at least 70% of the Austrian population; their responsibilities include putting out hazardous fires, rescuing people from car accidents, and providing other technical rescue services. The German Red Cross covers 40% of emergency treatment, 60% of patient transport, and 70% of medical assistance services in Germany, and volunteers make up 80% of its paramedics.<sup>2</sup>

The share of the population offering voluntary labor varies considerably from country to country (see column 1 of Table 1). Sweden exhibits the highest participation rate among OECD member countries with a share of 56% of all adults who supply voluntary labor, followed by the Slovak Republic (54%), USA (50%), Canada (48%), and the Netherlands (44%). The group of countries with the lowest participation rates with values between 14% and 16% consists of Poland, Japan, Spain and Hungary.

In order to explain the motivation to volunteer, the economic literature has focused on determinants on an individual level. There are three basic explanations for volunteering: Menchik and Weisbrod (1987) suggest in their seminal paper that volunteering can either be treated as an ordinary consumption good (*consumption hypothesis*) or as a way of increasing an individual's income on the paid labor market over time (*investment hypothesis*). Freeman (1997) argues that organizations looking for productive volunteers address people with high human capital. This strategy is successful since volunteering is something that people feel morally obligated to do when asked (*conscience good hypothesis*). Empirical papers (see Hackl, Halla and Pruckner, 2007, and references therein) analyzing these three motives identify a robust relationship between certain economic and socio-demographic characteristics and voluntary engagement. The typical volunteer is employed, highly educated, married with children and has a high household income.<sup>3</sup> This evidence suggests that people with high opportunity costs of time are those who are willing to work

---

<sup>1</sup>Voluntary labor output is not considered in the System of National Accounts. For valuation techniques of voluntary labor output, see Pho (2008).

<sup>2</sup>Sources: <http://www.usfa.dhs.gov>, <http://www.feuerwehr.at>, and <http://www.drk.de>.

<sup>3</sup>Moreover, Meier and Stutzer (2008) provide convincing evidence that volunteers are more satisfied with their life than non-volunteers.

for free.

However, the large variation in participation rates across countries can only be partly explained by variation in the individual characteristics of the population. Although working for free is an individual decision, we argue in this paper that citizens from different countries face different environments, so participation in volunteer activities may also depend on living conditions, the cultural environment, institutional arrangements, (economic) policy measures and the ‘state of society’ in general.

Figure 1 shows that even after controlling for a comprehensive set of individual characteristics, a large variation in participation rates in volunteering among countries remains. This graph is based on a logit estimation of the participation in volunteering based on almost 38,000 respondents from the *European and World Values Survey*, with age, sex, family status, number of children, household income, education, size of place of residence, and labor market status as explanatory variables. The dots represent the distribution of individuals’ propensity to volunteer, the diamonds show the country-specific predicted means of these distributions, and the x-symbols indicate the corresponding 25% and 75% confidence intervals. Predicted participation rates can directly be compared with countries’ actual participation rates represented by triangles. This comparison shows that individual-level variables can only partly explain the pattern of volunteer behavior. The unexplained remainder is substantial – the actual participation rate does not lie within the 25 and 75 confidence interval of predicted values in more than half of all countries. For instance, the predicted participation rate for the United States based on individual characteristics is 32.8% whereas the actual participation rate runs up to 50%. Similarly large differences can be observed for Canada, Greece, the Slovak Republic or Sweden where actual rates are underestimated. For countries such as Hungary, Japan, Poland, Portugal or Spain, the actual participation rates are clearly overestimated.

These results indicate that the analysis of the motivation to volunteer has to be extended to a wider context including the social, economic and political environment in which individuals live. In this paper we focus on the role of the state and examine its potential to influence the individual’s decision to volunteer. Why should the state be interested in volunteering activities? Firstly, collective action can serve as a substitute for the state (see Durlauf and Fafchamps, 2005, p. 1648). When tax revenues and/or the organizational capacity of a state to provide a public good are limited, voluntary participation by people may be essential. Similarly, it might be cheaper for the state to advance structures on a macro and micro level for the promotion of voluntary work than to purchase these activities on the markets (cost efficiency argument). Moreover, it is often argued that the services and functions provided by volunteers represent goods with merit characteristics. As a consequence,

volunteering is appreciated as a worthwhile activity per se. And finally, volunteering obviously contributes to a society's social capital that is seen as a prerequisite for economic growth and well-being.<sup>4</sup>

Controlling for potential endogeneity with an instrumental variable approach, we examine crowding in/out of volunteering by governmental activities through three different channels: (i) Allocation and distribution: public social expenditure is hypothesized to crowd in/out volunteer activities (*fiscal crowding in/out*). (ii) Political consensus: we hypothesize that the individuals' correspondence with the ideological orientation of the government may influence the willingness to volunteer (*consensual crowding in/out*). (iii) Degree of democratization: finally, we consider an effect of the degree of political rights and the possibilities of active participation on the individual's propensity to volunteer (*participatory crowding in/out*).

The paper is structured as follows: the next section summarizes the literature on the crowding effects of governmental actions and derives testable hypotheses to explore the role of the state. In Section 3, we present the data and our estimation strategy. Section 4 provides the results of our estimations. Potential policy implications are discussed in the concluding Section 5.

## 2 Crowding effects of governmental action

The variety of services provided by volunteers (social and health services, education, youth work, family support, rescue activities, culture, recreation, religious services, and others) makes an unambiguous economic classification of these goods impossible. Some of them are clearly private, some represent public goods or club goods with collective characteristics and others share characteristics of mixed goods. In general, these goods and services can either be provided by the state through public (social) expenditure, via private markets or by residents' voluntary activities. Even though a clear-cut categorization of voluntary services is difficult, the majority of services exhibit public good characteristics. We therefore interpret volunteering as the private contribution to the public good. Since volunteering exhibits similarities with private monetary contributions to public goods, the debate about volunteering can refer to a huge body of public economics literature.

---

<sup>4</sup>For a comprehensive discussion and critical acclaim, see e.g. Putnam, Leonardi and Nanetti (1993); Knack and Keefer (1997); Durlauf and Fafchamps (2005).

## 2.1 Fiscal crowding in/out of money donations

We focus on crowding out effects of volunteering (=private provision of time). The literature on private money donations to a public good is therefore a natural starting point. In their seminal paper, Bergstrom, Blume and Varian (1986) provide a model in which individuals are concerned about their consumption of a private good and the total provision of a public good. Based on Nash equilibria they show the extent to which the government provision of a public good may crowd out private voluntary contribution. Since government-provided quantities of the public good are paid for with tax revenues in this model, it is crucial whether the taxes are borne in the group of private contributors and/or among non-contributing consumers. The authors argue that whenever the set of contributing consumers is only a subset of the taxpaying population, partial crowding out effects of government provision will result. Andreoni (1990) extends the analysis by explicitly assuming impure altruism (warm glow) where both the public good and the individual contribution to it are arguments in an individual's utility function. This author confirms the finding that there is a partial crowding out effect of governmental public goods provision on private contributions.

Based on these theoretical models, there is a list of papers analyzing the effects of public expenditure on private money donations empirically: discussing the pre-1991 literature Steinberg (1991) summarizes that relatively small crowding out effects are observable for private donations. Abrams and Schmitz (1978, 1984), Kingma (1989), Payne (1998), Chan, Godby, Mestelman and Muller (2002), Ribar and Wilhelm (2002), and Crumpler and Grossman (2008) provide empirical and experimental evidence for partial crowding out and emphasize the importance of the warm glow effect. Roberts (1984) presents evidence for a 'dollar for dollar' crowding-out phenomenon. Only Khanna, Posnett and Sandler (1995) do not find evidence of crowding out of private money donations by governmental expenditure.

There is also empirical evidence of crowding in of governmental actions on money donations: controlling for potential endogeneity of government grants, Khanna and Sandler (2000) find crowding in effects for the United Kingdom. Borgonovi (2006) reports evidence of an inverted U-shape of the crowding out effect. At least for low levels of public support, a crowding in effect of private donations can be observed, whereas at higher levels public expenditure displaces private donations. Summarizing the literature on charitable money giving, there is more evidence of the partial crowding out hypothesis, although the picture is not clear-cut and requires further research.

## 2.2 Fiscal crowding in/out of time donations

It is a priori not clear whether the results on financial donations can be transferred directly to voluntary labor supply (charitable time giving). There are good reasons to presume considerably lower crowding out or even crowding in compared to the results on money donations: the direct involvement of the donor in the volunteering process might increase the warm glow effect compared to more impersonal money donations. Furthermore, people are willing to donate their time, but not before the necessary (capital-intensive) infrastructure (e. g. expensive fire engines, ambulances) is provided by the government. Personal income restrictions might prohibit the private provision of an adequate infrastructure. From a psychological perspective, one can argue that the governmental provision of infrastructure is an important signal for the acknowledgment and the importance of certain volunteering activities.

Only a few (empirical) papers address the relationship between government spending and volunteering.<sup>5</sup> Duncan (1999) extends the theoretical analysis of crowding out to a public good model where individuals contribute both money and time (volunteering) and does not find empirical support for the crowding out hypothesis in the National Study of Philanthropy from 1974. Simmons and Emanuele (2004) find small crowding out for the US and justify the minor effect with the argument that governmental expenditure emphasizes the ideals of volunteering and makes volunteering more attractive. Van Oorschot and Arts (2005) explore the crowding out hypothesis with data from the third wave of the *European Values Survey* for 23 European countries. They do not find evidence to support the crowding out hypothesis of public expenditure on social capital that includes volunteering. Information on volunteering behavior is based on the same survey question that we use in our study. However, the authors employ the rather unspecific variable of ‘annual total public expenditure as a percentage of GDP’ as the explaining variable to identify crowding out. Day and Devlin (1996) find, for Canada, a positive impact of government expenditure on the decision to volunteer but not on the number of hours donated.

Summarizing theoretical and empirical evidence, it remains open whether total public expenditure crowds out or crowds in voluntary activities. Even though the effect of total expenditure aggregates on volunteering is interesting per se, our analysis with public *social* expenditure is more revealing due to the correspondence of social expenditure and the fields of volunteering activities. Both complementary and

---

<sup>5</sup>A related topic is the impact of tax deductions on private money or time donations: Feldman (2008) analyzes the effect of different tax treatments of monetary donations on the decision to donate money and time to volunteering institutions. It is shown that more favorable tax deductions will not only lead to an expected increase in money donations but also increase time donations: the negative direct substitution effect on the voluntary labor supply is overcompensated since those who donate more money are more likely to be asked to volunteer.



substitutive relationships between volunteering and different types of expenditure categories can be expected. The knowledge of this relationship is crucial for the public sector in its endeavor to promote volunteering activities.

### **2.3 Consensual crowding in/out of time donations**

Focusing on the crowding out effect of the amount of money spent by the government is too narrow-minded a strategy. It is not only the *amount* of money that matters; the question is also for *what purpose* the money is spent. In that respect, concurring political ideologies of individuals with the ruling decision makers may also be decisive, and the individuals' correspondence with the ideological orientation of the government can be expected to influence the willingness to volunteer.

In 'Democracy in America', de Tocqueville (1835) argued back in the 19<sup>th</sup> century that 'political association singularly strengthens and improves commitment for civil purposes'. Referring to the example that the state sets by its actions, de Tocqueville presumed a crowding in effect of political consensus on volunteering. However, this is not the only plausible hypothesis; a crowding out effect can be expected as well if the ideology of the ruling powers is used as a predictor for future governmental action. People may tend to reduce their collective efforts if they think that the state will behave according to their political preferences. If the political positions of individuals and the government do not coincide, voters can be expected to take matters into their own hands and increase their voluntary labor supply in areas presumably neglected by the state. Political consensus (coincidence of individual and governmental ideological positions) may therefore crowd out voluntary labor supply.

In the empirical political science literature, this political consensus with the ruling power is predominantly operationalized by 'confidence in the government': Brooks and Lewis (2001) and Brooks (2004) measure the political consensus via 'trust in the government' and examine whether low confidence in the federal government encourages or discourages contributions of time and money. Their findings point to crowding out due to political consensus.

### **2.4 Participatory crowding in/out of time donations**

Frey (1992, 1997) argues for crowding out based on a moral motivation: if a governmental measure is perceived as controlling, we might expect crowding out; however, when individuals feel acknowledged by the governmental contribution, crowding in could also be expected. He postulates a change in preferences arising from an external intervention. Benabou and Tirole (2000) model the influence of extrinsic factors

on the crowding effect via their impact as a signal on given preferences.<sup>6</sup> From a socio-political perspective, extensive political rights and a high degree of democratization represent such motivating interventions that can crowd in private provision of voluntary labor. Countries that guarantee high degrees of personal freedom and political rights allow their citizens to actively participate in the political process and to engage in volunteering organizations.

On the other hand, an increase in personal freedom might be accompanied by more individualism (egoism) and lead to reduced solidarity among people. As a consequence, volunteering may decrease if the government fosters the degree of democratization. In line with this argument, we refer again to the notion of crowding out indicating that the governmental promotion of democratization has a detrimental effect on volunteering behavior. Beyond that, several volunteering associations advocate personal freedom and human rights. Their efforts in this area represent a substitute to governmental endeavors to promote personal liberties. This substitutional relationship further strengthens the crowding out hypothesis of voluntary activities by civil rights and the degree of democratization.

### 3 Data and estimation strategy

In order to test our hypotheses on crowding effects, we combine data from different sources.<sup>7</sup> Most importantly, we observe individual data for OECD member countries from the *European and World Values Survey (E/WVS)*. The *E/WVS* is an ongoing academic project organized as a network of social scientists coordinated by a central body, the *World Values Survey Association*. The survey provides data from representative national samples (based on face-to-face interviews) of more than 80 countries. To date, four waves have been conducted: in 1981 – 1984, 1990 – 1993, 1995 – 1997, and 1999 – 2004. Each wave contains information on socio-economic characteristics, basic attitudes, beliefs and human values covering religion, morality, politics, work and leisure.

In particular, respondents were asked whether they do unpaid voluntary work for any organization. We use a sample of almost 38,000 respondents from 24 OECD member countries for the time span from 1981 to 2000 (see Table 2). In our sample, approximately one third of the adult population does unpaid work for at least one organization. Volunteers operate in different types of organization. About 16% of all volunteering activities (multiple voting possible) are provided for religious and church organizations followed by associations for sports or recreation (14.2%) and

---

<sup>6</sup>For a survey on motivation crowding, see Frey and Jegen (2001).

<sup>7</sup>The Data appendix includes detailed information on all variable definitions and data sources.

education, arts, music or cultural activities (10.7%). For a complete list of shares of voluntary activities across organizations, see Figure 2.

We estimate a linear probability model<sup>8</sup> for the volunteering decision of individual  $i$ , in country  $c$ , and in year  $t$ ,

$$volunteering_{ict} = \alpha + \beta_1 pse_{ct} + \beta_2 pc_{ict} + \beta_3 di_{ct} + \Gamma \mathbf{C}_{ct} + \Theta \mathbf{I}_{ict} + \zeta_c + \eta_t + \varepsilon_{ict},$$

where the dependent variable is equal to one if the respondent does unpaid voluntary work for any organization, and zero otherwise. As variables of primary interest (to be explained in detail below) we include public social expenditure as a percentage of GDP ( $pse$ ), a measure of political consensus ( $pc$ ) and an index of democratization ( $di$ ). The set of country-level control variables  $\mathbf{C}_{ct}$  comprises three groups: tax variables and public deficits, other macroeconomic variables (GDP per capita, GDP deflator, unemployment rate and the population size) and political variables (prime minister's political position). The set of individual-level controls  $\mathbf{I}_{ict}$  consists of two groups: socio-economic variables (age, sex, family status, number of children, education, labor market status, household income and size of hometown) and political variables (individual's political position).

In order to test our hypotheses on crowding effects, controlling for unobserved country- and time-invariant heterogeneity is indispensable.<sup>9</sup> We therefore control for country fixed-effects  $\zeta_c$  and year fixed-effects  $\eta_t$ . If not all relevant control variables are included, an estimation without country fixed effects would be less convincing, since unobservable factors may be correlated with the variables of primary interest.

To identify complementary or substitutive relationships between government spending and voluntary labor supply, we would like to confine public expenditure to fields where volunteers provide their services. As a proxy for government provision of public goods we use information on public social expenditure. In particular, we have retrieved our data from the *OECD Social Expenditure Database*. Public social expenditure contains information on public spending along nine core social policy areas: old age, survivors, incapacity-related benefits, health, family, active labor market policies (ALMP), unemployment, housing and other social policy areas. These data are adequate for our analysis for the following reasons: (i) we observe a high correspondence between components of public social expenditure and the voluntary fields

---

<sup>8</sup>Since the qualitative results of a logit estimation (discussed below) are equivalent, we will – for ease of presentation – focus on the linear probability model throughout the paper. As pointed out by Ai and Norton (2003); Norton, Wang and Ai (2004) the interpretation of nonlinear models is quite cumbersome and not fully demonstrative.

<sup>9</sup>In principle, one would prefer to control for unobserved individual time-invariant heterogeneity. However, to the best of our knowledge, there are no cross-country individual-level panel data on volunteering available.

of action reported in the *E/WVS*, indicating that volunteers are predominantly active in the social area (charitable services of religious organizations, social welfare activities for the elderly and disabled, youth work, local community action for poverty, employment and housing . . .). (ii) Moreover, the *OECD Social Expenditure Database* provides widely accepted, internationally comparable statistics on social expenditure at programme level. In contrast, the international comparability is not fully guaranteed for expenditure aggregates from the System of National Accounts which prove inadequate for the analysis of public social policy, as pointed out by OECD (2007). Column 2 in Table 1 shows average aggregate public social expenditure as a percentage of GDP across countries. Public social expenditure is highest in Sweden, Denmark, Belgium and France and is relatively low in Japan and Anglo-Saxon countries. Table 8 shows that old age, health, incapacity-related and family benefits are the quantitatively most important functional categories of aggregate public social expenditure.<sup>10</sup>

Our measure of political consensus (*pc*) is equal to one if the respondent's political position corresponds with the prime minister's political position and zero otherwise. For a categorization of the parties we rely on the stated political positions in the respective party's entry in the free encyclopedia *Wikipedia*.<sup>11</sup> This procedure results in a list of twelve political positions for parties: far left, left, liberal left, green left, center left, center, center right, green right, liberal right, right, far right, vote for other party. Details are provided in the Data appendix. To construct a variable on the respondent's political position we use the following question from the *E/WVS*: 'If there were a national election tomorrow, for which party on this list would you vote?' We start with an aggregated classification of political positions (with the values left-wing, right-wing and other). That means that in our baseline specification we distinguish between respondents and prime ministers who are classified as either left-wing, right-wing or other. Non-voters are included in the residual group. They have by definition no political consensus with their prime minister. Column 3 in Table 1 provides summary statistics of average political consensus across countries. It varies from 0.26 in Hungary to 0.86 in Norway. In a next step we use the whole scale of political positions to test the sensitivity of our results.

To differentiate between more and less democratic systems we use the Vanhanen democratization index that measures the degree of democratization. This index (see Vanhanen (2003)) is formed by multiplying a competition and a participation variable. The political competition variable reflects the percentage of votes gained by the smaller parties in national elections. The political participation variable indicates

---

<sup>10</sup>We will analyze the disaggregated social expenditure in Section 4.6.

<sup>11</sup>We presume that each party has a strong interest in ensuring that its entry in *Wikipedia* includes correct information (on its political position) and therefore maintains its entry with great care.

the percentage of the total population who actually vote in elections. Whereas competition means that individuals are free to organize themselves and groups are equally free to compete for power, participation in decision-making indicates the relative number of people who take part in politics in general. The higher either component, the higher is the degree of democratization.<sup>12</sup> As can be seen in column 4 of Table 1, Belgium (79.48), Italy (78.67), Norway (76.81) and Denmark (74.92) show the highest democracy scores whereas the United States (33.33) is found at the bottom of this list behind Poland (43.85), Hungary (47.23), and Canada (48.64).

### Reversed causality

One might be concerned about potential endogeneity of the main variables of interest. For instance, citizens may not adjust their volunteering behavior in response to public government (social) spending, whereas the government could be expected to adapt social spending according to citizens' willingness to volunteer.

To show that our estimates are not biased by reversed causality we need exogenous variation in public social spending. Therefore, we suggest an instrumental variable approach based on the political budget cycle (PBC) according to which incumbent politicians use fiscal policy measures in order to increase the likelihood of their re-election.<sup>13</sup> The identifying assumption is that the timing of the election has no direct impact on the decision to volunteer. We argue that after excluding volunteers of political parties and unions this is a reasonable assumption. Implementing our identification strategy we distinguish between observations with a first order election in the preceding, in the current, or in the subsequent year. The information on elections is provided by *Pippa Norris, Democracy Timeseries Dataset, 2009*.

For consensual and participatory crowding in/out we are not concerned about endogeneity, since after partialing out unobserved country- and time-variant heterogeneity reversed causality seems in both cases unlikely. It is implausible to assume that individuals systematically reverse their political ideology once they change their volunteering behavior. The formula of the Vanhanen democratization index does not include the incidence of volunteering.

---

<sup>12</sup>Even though Vanhanen emphasizes that there is no natural index level for differentiating between democracies and non-democracies, he argues that a country must cross a threshold value for competition of 30% and a value for participation of 10 – 20% if it is to be classified as a democracy.

<sup>13</sup>Assuming myopic voters political budget cycle models predict increasing government expenditure before elections and budget consolidation thereafter. Surveys from Mueller (2003, chap. 19) or Shi and Svensson (2003) provide empirical evidence for the validity of different types of PBC models.

## 4 Empirical results

This section presents our estimation results in the following way: first, we discuss the findings on the crowding hypotheses and provide results for different groups of controls (Table 3 and 4). We find empirical evidence for crowding out of volunteering by governmental activities through three different channels. In a second step, robustness checks are presented (Tables 5 and 6). Subsequently, we investigate the relation between crowding effects and income distribution (Table 7). Finally, estimations of crowding effects by disaggregated public social expenditure data are discussed (Table 9).

### 4.1 Crowding effects

*Fiscal crowding in/out:* Table 3 shows that depending on the specification, an increase in public social expenditure by 1 percentage point of GDP decreases the individual's probability of volunteering by 1.7 up to 2.9 percentage points. As is shown by the different specifications, the crowding out effects tend to be higher if more control variables are being used.

In order to make sure that the estimated effect is causal, we present instrumental variable estimations in Table 4.<sup>14</sup> To capture the exogenous variation in public social spending by the political budget cycle as precise as possible we distinguish between observations with a first order election in the first and second half of the preceding, of the current, and of the subsequent year with six binary variables. The first stage estimation is very strong: the F-statistic for the excluded instruments is – depending on the specification – at least 11.12. The signs of the statistically significant binary variables capturing the timing of the elections correspond mainly with political budget cycle models assuming myopic voters: we observe an increase in government social expenditure before elections and budget consolidation thereafter.

Most importantly, the second stage results confirm our findings based on the linear probability model. The estimated effects of the instrumental variable estimation for the full models are similar in size (compare columns (III)-(V) of Tables 3 and 4). We therefore conclude that reversed causality is not a concern for fiscal crowding, and single equation methods seem to be sufficient for unbiased estimates.

*Consensual crowding in/out:* Furthermore, we find support for the crowding out hypothesis due to political consensus. In column (II) of Table 3 and 4 the estimation is extended by individuals' ideological positions (left-wing voter, right-wing voter, other

---

<sup>14</sup>These estimations exclude observations for volunteers of political parties (1,221) and unions (892).

voter). Column (III) adds in both tables the political orientation of the prime minister (left prime minister).<sup>15</sup> Based on these two variables, we estimate the effect of political consensus in columns (IV) and (V). Individuals whose ideological positions coincide with the orientation of the prime minister decrease their volunteering efforts. A political consensus reduces the probability of volunteering by about 2 percentage points. An individual can be expected to reduce her voluntary effort as she believes that those who are in political power behave in her spirit. Non-monetary government action such as enacting laws and regulations, guaranteeing minority rights, or promoting or limiting access to education and medical service leads those individuals who are in line with the government to volunteer less.

As compared to the baseline group of non-voters, left-wing, right-wing and voters of other parties have a higher propensity to volunteer. Obviously, voters indicate a stronger social responsibility than non-voters. For right-wing voters (left-wing voters, voters for other parties) the probabilities of volunteering based on the linear probability model in Table 3 are 7.8 (6.3, 4.6) percentage points higher compared to non-voters (column (II)).<sup>16</sup> Although specifications (III) and (IV) show that the probability of volunteering for countries with left-wing premiers is approximately 6 percentage points higher compared to countries with right-wing prime ministers, this effect becomes insignificant if we include the Vanhanen democratization index (column (V)).

*Participatory crowding in/out:* we use the Vanhanen index – a measure that indicates a country’s degree of democratization – as a third variable to analyze the relationship between government action and volunteering. It can be seen in column (V) of Table 3 and 4 that an increase in the degree of democratization by one index point decreases the probability of volunteering by about 1.0 percentage point. Given the actual range of the Vanhanen index from 33 to 79, the estimated effect is quantitatively important. This result supports the hypothesis of crowding out: the more a government supports democratization, the lower is the incentive for individuals to be involved in volunteering activities. We ran an analogical regression using the Freedom House civil liberties ratings that cover freedom of expression and belief, personal autonomy, associational and organizational rights, and rule of law on a seven point scale.<sup>17</sup> The results were very similar to those with the Vanhanen index. An increase of civil liberties by one index point reduces the probability of volunteering by 6.8 percentage points.

---

<sup>15</sup>We only observe right- and left-wing prime ministers.

<sup>16</sup>The issue of different willingness to volunteer according to political orientation and religiosity is addressed in detail below.

<sup>17</sup>More details on the Freedom House civil liberties ratings can be found in <http://www.freedomhouse.org>.

The striking result that public government activities influence private collective action to a significantly negative extent and crowd out volunteering is controlled for by two groups of variables: country-level and individual-level characteristics.

## 4.2 Country-level controls

Public social expenditure can be paid for with tax revenues or by public debt. Hence, we control for public revenues and government net lending in the estimations discussed above. In doing so, public revenues are measured by three variables expressed as a percentage of gross domestic product: taxes on goods and services, taxes on income and profits, and the economically less relevant residual tax component, i. e. miscellaneous taxes. With the exception of the residual tax variable, public revenues exert a positive and – in most cases – statistically significant influence on volunteering (see columns (I)-(V) in Table 3 and 4). Apparently, the government affects opportunity costs of volunteering by imposing taxes on income and consumption. An increase in taxes leads to a reduction in labor supply, fewer taxable leisure activities and an increase in volunteering. The coefficient of net government lending is negative and predominantly significant throughout our estimations and specifications. Altogether it can be shown that the evidence of crowding out is preserved if we control for taxes and public deficits.

We also control for inflation (GDP deflator) and unemployment, both of which reduce the probability of volunteering. We conclude that volunteers need a certain level of economic stability for their activities. This argument is supported by results on the individual level where unemployed people show lower probabilities of volunteering (see below). The consumption model of volunteering hypothesizes that the propensity to volunteer increases with income or wealth. Economic wealth, however, is reported to strengthen individualism and can therefore be expected to reduce solidarity among the population. In our regression both the per capita national income (GDP p.c.) and the population size of a country remain mainly insignificant.<sup>18</sup>

## 4.3 Individual-level controls

The final block of controls includes individual characteristics of respondents. Based on our regressions, the typical volunteer is male, employed, well-educated and earns a high income. Moreover, the probability of volunteering increases with the number of children and with age at a decreasing rate. People living in big cities show a lower probability of volunteering, whereas family status remain without significant influence.

---

<sup>18</sup>The coefficient of individual income is, however, positive and highly significant (see below).



Finally, it should be noted that none of the year dummies is significant in our specifications. This is an indication that no long-run trend in voluntary activities exists. Most of the country dummies are, however, statistically significant.

#### 4.4 Robustness checks

To test the robustness of our results we estimate a logit model, control for religiosity and use a more detailed measurement of political orientation.

*Logit estimates – waves:* a logit estimation is carried out based on the same specifications as shown in Table 3. As can be seen in Table 5, the qualitative results do not change. Results remain unchanged as well if we use wave fixed-effects instead of year fixed-effects. Introducing wave fixed-effects accounts for the fact that different waves of the *E/WVS* have been accomplished in different years (results are available upon request).

*Religiosity:* we also test robustness by including individual religiosity as another control variable. Our measure for religiosity is based on the frequency of attending religious services.<sup>19</sup> As can be seen in Table 6, crowding out effects hardly change.

More religious people are more likely to volunteer. Depending on the chosen specification (see columns (I)-(V)), an increase in religiosity by one on the 8-point scale increases the volunteering probability by 3.7 or 3.8 percentage points. Notably, controlling for religiosity reduces the impact of the right-wing political orientation substantially. The statistical difference between right-wing, left-wing and other voters disappears. Each group volunteers with a 5 percentage points higher probability compared to non-voters (see column (V) in Table 6). Hence it is not the political/ideological orientation per se that is responsible for the high coefficient of right-wing respondents in Table 3 but rather the correlation between being right-wing and religious. Furthermore, we observe that including religiosity increases the negative impact of being female from minus 2.9 percentage points in the baseline specification to minus 5 percentage points. Moreover, the negative influence of town size decreases slightly since religiosity is higher in smaller domiciles. And finally, the coefficient for the number of children becomes insignificant in specifications (I) and (V).

*Political attitudes:* in the estimations presented above, political orientation has been measured on a left-right-other scale. This approach is common since a classification of parties into left/right/other seems to be accepted without great opposition. However, our data allow a more detailed measurement of political orientation on the dimensions

---

<sup>19</sup>The religiosity question in the questionnaire reads as ‘Apart from weddings, funerals and christenings, about how often do you attend religious services these days?’ and the possible answers range from ‘more than once a week’ to ‘never, practically never’.

far left, left, liberal left, green left, center left, center, center right, green right, liberal right, right, far right, and vote for other party. This more detailed scale – both for the political orientation of respondents and the political affiliation of the prime minister – makes a more differentiated rating of the political consensus variable possible. Due to the higher measurement accuracy of the political consensus, we expect an ever stronger crowding out effect of this variable on volunteering. Accordingly, if we switch from the 3-point scale to the full scale of party classification we find that the effect of political consensus on the probability of volunteering changes from  $-1.8$  (see columns (IV) and (V) in Table 3) to  $-2.8$  percentage points. Results are available upon request.

One might argue that the political consensus need not necessarily be based on the conformity between individual political orientation and the party of the prime minister. To check robustness with another concept, the consensus variable is set to one if an individual’s preferred party is in power. Based on this definition of political consensus, we reconfirm the crowding out hypothesis with statistically significant negative coefficients for political consensus (compare with columns (IV) and (V) in Table 3) of  $-1.8$  and  $-1.6$  percentage points. Results are available upon request.

Similar to Brooks and Lewis (2001) and Brooks (2004), who find that trust in the federal government discourages volunteering, we include the variable ‘confidence in the parliament’ from the *E/WVS* dataset for another sensitivity analysis. Following the crowding out argumentation, we again expect a negative influence of trust on the propensity to volunteer. Our regression results confirm this expectation. The higher the confidence in the parliament the lower is the probability to volunteer. The coefficients of all other variables (including the political consensus) remain unchanged.<sup>20</sup> We interpret this as further evidence of consensual crowding out.

#### 4.5 Crowding effects and income distribution

Bergstrom, Blume and Varian (1986) argue that in a world of balanced public budgets, an increase in the governmental provision of a public good is equivalent to a redistribution of income and demonstrate that equalizing wealth redistribution will either leave constant or reduce voluntary contributions to the public good. Apart from the material coverage of an individual’s livelihood in absolute terms, one may argue that the distribution of economic well-being is another important determinant of volunteering and that the vertical distribution of income among different social groups therefore influences the provided level of volunteering. Since we expect that income redistribution reduces voluntary labor supply, we include inequality measures as robustness checks in our estimations. If individuals are expected to invest

---

<sup>20</sup>Results are available upon request.

resources to catch up with incomes of others, a more equal income distribution in a country may reduce the incentive to foster one's individual income or wealth. A higher level (probability) of volunteering may follow as a result.

Gini coefficients are natural candidates for empirical implementation of distributional aspects. Our preference is to observe before-tax Ginis and after-tax Ginis. The before-tax Ginis are considered as a measure of the structural (in)equality which can only be influenced indirectly by the state. The difference between the before-tax and the after-tax Gini coefficients can be directly attributed to governmental redistribution through current tax policy. Using only after-tax Ginis, one has to accept that structural redistribution cannot be disentangled from redistribution induced by tax policy. Whereas the availability of before-tax Ginis is limited, two data sources of after-tax Ginis exist: Gini coefficients provided by the OECD and the coefficients published in the *Luxembourg Income Study (LIS)*. Ginis published by the OECD would, however, reduce our sample size substantially since only a few country-years are available in this database. We therefore employ the *LIS* after-tax Gini coefficients measured between 0 and 100.<sup>21</sup>

Table 7 presents estimations including the LIS Gini coefficients. Given that taxes, public social expenditure and net government lending influence the after-tax income distribution<sup>22</sup>, we include only the variable for the Gini measure in a first step (columns (I) to (III)). In line with Bergstrom, Blume and Varian (1986) we find that higher income inequality results in a higher propensity to volunteer. An increase of the Gini coefficient by 1 increases the probability of volunteering by 1 to 1.5 percentage points. We interpret this result as another form of crowding out of volunteering by a more equal income distribution. Compared to previous results, the coefficients for political consensus and for the Vanhanen democratization index remain unchanged. Columns (IV) to (VI) include both the Gini coefficients and the full list of fiscal policy variables. The estimations again confirm the robustness of our results: both the impact of the Gini coefficients and the impact of the other variables of interest do not change. Public social expenditure, the political consensus, and the Vanhanen democratization index keep their negative and significant influence on the propensity to volunteer.

---

<sup>21</sup>It should be noted that the quality of the available Gini coefficients is criticized in the literature (Atkinson and Brandolini, 2001).

<sup>22</sup>Correlation coefficients between the Gini coefficient and taxes on goods and services, taxes on income and profits, public social expenditure and net government lending are -0.54, -0.31, -0.64, and -0.02 respectively.

## 4.6 Disaggregated public social expenditure

In order to see a more detailed picture of the impacts of public social expenditure on volunteering, we present final regression results with disaggregated social expenditure.<sup>23</sup> As can be seen in Table 9, in the majority of the categories we find evidence of the crowding out with the strongest effects for active labor market policy, followed by expenditure for incapacity-related benefits, unemployment, housing and old age. Two groups of public social expenditure, however, indicate crowding in of collective voluntary action. An increase of public expenditure for families and other social policy areas increases the probability of volunteering.

The complementary relationship between ‘family social expenditure’ and the probability of volunteering indicates that individuals are willing to volunteer as soon as the financial protection of their families is being guaranteed. In other words, people are given the opportunity to volunteer through governmental family support. It follows that the promotion of volunteer activities would require government cofinancing through family support measures such as expenditure for child care, maternity, parental leave, parental allowance, etc.

## 5 Conclusions

This paper explores institutional and political factors shaping the citizen’s motivation to work for free. Focusing on the role of the state we find empirical evidence for crowding out of voluntary labor provision on three dimensions. (i) *Fiscal crowding out*: an increase in public social expenditure by 1 percentage point of GDP decreases the individual’s probability of volunteering by about 2 percentage points. (ii) *Consensual crowding out*: a political consensus between the voter and the prime minister reduces the probability of volunteering by 1.8 percentage points. A distinct government ideological orientation leads those individuals who are sympathetic to the government to volunteer less. (iii) *Participatory crowding out*: the more a government supports democratization, the lower is the incentive to volunteer. An increase of Vanhanen’s degree of democratization by one index point decreases the probability of volunteering by 1 percentage point. Similarly, redistribution policies also have negative consequences on the probability of working for free.

For the first time, this paper documents that – apart from individual-level impacts – non-monetary and monetary government activities determine the provision of voluntary labor. What is the social policy implication of these results? Social policy

---

<sup>23</sup>For descriptive statistics of public social expenditure components, see Table 8.

measures and the promotion of democratization are beneficial to society per se. However, negative impacts on volunteering behavior need to be taken into account.

Another striking result of this analysis is the necessity of economic stability as a prerequisite for volunteering engagement. This can be seen both on the micro and the macro level. Lower rates of inflation and unemployment in a country as well as income and employment on the individual level contribute to higher volunteering probabilities. As a consequence, a government can make a contribution to the provision of volunteering activities through macroeconomic stabilization policy. Disaggregated public social expenditure categories indicate a complementary relationship of single components with volunteering. Governmental family support measures promote volunteering activities. This result is another argument in support of the importance of personal economic stability for volunteering.

On the individual political level, we find a higher probability of volunteering for politically motivated people (voters) as compared to non-voters. Right-wing people as compared to their left-wing counterparts show a higher propensity to volunteer. These differences disappear, however, if we control for religiosity.

Finally, our results seem to be relevant for the debate on the measurement of social capital. Generally, the measurement of social capital includes four dimensions: (i) interpersonal trust, (ii) institutional trust (e. g. confidence in parliament), (iii) participation in civil society (e. g. volunteering), (iv) trustworthiness of the respondents themselves. Our results show that increasing confidence in parliament reduces participation in volunteering. The trade-off between increasing institutional trust and participation in civil society complicates the concept of social capital formation considerably and requires a more thorough analysis of the interrelation among the four components.

## References

- Abrams, Burton A. and Mark D. Schmitz (1978), 'The Crowding Out Effect of Government Transfers on Private Charitable Contributions', *Public Choice* **33**, 29–39.
- Abrams, Burton A. and Mark D. Schmitz (1984), 'The Crowding Out Effect of Government Transfers on Private Charitable Contributions: Cross Sectional Evidence', *National Tax Journal* **37**(4), 563–568.
- Ai, Chunrong and Edward C. Norton (2003), 'Interaction Terms in Logit and Probit Models', *Economics Letters* **80**(1), 123–129.
- Andreoni, James (1990), 'Impure Altruism and Donations to Public Goods: A Theory of Warm-Glow Giving', *Economic Journal* **100**(401), 464–477.
- Atkinson, Anthony B. and Andrea Brandolini (2001), 'Promise and Pitfalls in the Use of "Secondary" Data-Sets: Income Inequality in OECD Countries As a Case Study', *Journal of Economic Literature* **39**(3), 771–799.
- Benabou, Roland J. and Jean Tirole (2000), Self-Confidence and Social Interactions, Papers 210, Princeton, Woodrow Wilson School - Public and International Affairs.  
**URL:** <http://ideas.repec.org/p/fth/priwpu/210.html>
- Bergstrom, Theodore, Lawrence Blume and Hal Varian (1986), 'On The Private Provision of Public Goods', *Journal of Public Economics* **29**, 25–49.
- Borgonovi, Francesca (2006), 'Do Public Grants to American Theatres Crowd-out Private Donations?', *Public Choice* **126**, 429–451.
- Brooks, Arthur C. (2004), 'The Effects of Public Policy on Private Charity', *Administration & Society* **36**(2), 166–185.
- Brooks, Arthur C. and Gregory B. Lewis (2001), 'Giving, Volunteering, and Mistrusting Government', *Journal of Policy Analysis and Management* **20**(4), 765–769.
- Chan, Kenneth S., Rob Godby, Stuart Mestelman and R. Andrew Muller (2002), 'Crowding-out Voluntary Contributions to Public Goods', *Journal of Economic Behavior & Organization* **48**, 305–317.
- Crumpler, Heidi and Philip J. Grossman (2008), 'An Experimental Test of Warm Glow Giving', *Journal of Public Economics* **92**, 1011–1021.
- Day, Kathleen M. and Rose A. Devlin (1996), 'Volunteerism and Crowding Out: Canadian Econometric Evidence', *Canadian Journal of Economics* **29**(1), 37–53.
- de Tocqueville, Alexis (1835), *Democracy in America*.  
**URL:** <http://www.gutenberg.org/etext/815> and <http://www.gutenberg.org/etext/816>
- Duncan, Brian (1999), 'Modeling Charitable Contributions of Time and Money', *Journal of Public Economics* **72**(2), 213–242.

- Durlauf, Steven N. and Marcel Fafchamps (2005), Social capital, *in* P.Aghion and S.Durlauf, eds, 'Handbook of Economic Growth', Vol. 1, Elsevier, chapter 26, pp. 1639–1699.
- Feldman, Naomi E. (2008), Time is Money: Choosing Between Charitable Activities, Working paper, Department of Economics, Ben-Gurion University of the Negev.
- Freeman, Richard B. (1997), 'Working for Nothing: the Supply of Volunteer Labor', *Journal of Labor Economics* **15**(1), S140–S166.
- Frey, Bruno S. (1992), *Economics as a Science of Human Behaviour*, Kluwer Academic Publishers, Boston.
- Frey, Bruno S. (1997), 'A Constitution for Knaves Crowds Out Civic Virtues', *Economic Journal* **107**(443), 1043–1053.
- Frey, Bruno S. and Reto Jegen (2001), 'Motivation Crowding Theory', *Journal of Economic Surveys* **15**(5), 589–611.
- Hackl, Franz, Martin Halla and Gerald J. Pruckner (2007), 'Volunteering and Income – The Fallacy of the Good Samaritan?', *Kyklos* **60**(1), 77–104.
- Khanna, Jyoti, John Posnett and Todd Sandler (1995), 'Charity Donations in the UK: New Evidence Based on Panel Data', *Journal of Public Economics* **56**, 257–272.
- Khanna, Jyoti and Todd Sandler (2000), 'Partners in Giving: The Crowding-in Effects of UK Government Grants', *European Economic Review* **44**, 1543–1556.
- Kingma, Bruce Robert (1989), 'An Accurate Measurement of the Crowd-out Effect, Income Effect, and Price Effect for Charitable Contributions', *Journal of Political Economy* **97**(5), 1197–1207.
- Knack, Stephen and Philip Keefer (1997), 'Does Social Capital Have an Economic Payoff? A Cross-country Investigation', *The Quarterly Journal of Economics* **112**(4), 1251–1288.
- Meier, Stephan and Alois Stutzer (2008), 'Is Volunteering Rewarding in Itself?', *Economica* **75**(297), 39–59.
- Menchik, Paul L. and Burton A. Weisbrod (1987), 'Volunteer Labour Supply', *Journal of Public Economics* **32**(2), 159–183.
- Mueller, Dennis C. (2003), *Public Choice III*, Cambridge University Press.
- Norton, Edward C., Hua Wang and Chunrong Ai (2004), 'Computing Interaction Effects and Standard Errors in Logit and Probit Models', *Stata Journal* **4**(2), 154–167.
- OECD (2007), Social Expenditure 1980-2003, Interpretative Guide of SOCX, OECD, Paris.

- Payne, A. Abigail (1998), 'Does the Government Crowd-out Private Donations? New Evidence From a Sample of Non-Profit Firms', *Journal of Public Economics* **69**, 323–345.
- Pho, Yvon H. (2008), 'The Value Of Volunteer Labor And The Factors Influencing Participation: Evidence For The United States From 2002 Through 2005', *Review of Income and Wealth* **54**(2), 220–236.
- Putnam, Robert, Robert Leonardi and Raffaella Y. Nanetti (1993), *Making Democracy Work: Civic Traditions in Modern Italy*, Princeton University Press, Princeton, New Jersey, USA.
- Ribar, David C. and Mark O. Wilhelm (2002), 'Altruistic and Joy-of-Giving Motivations in Charitable Behavior', *Journal of Political Economy* **110**(2), 425–457.
- Roberts, Russell D. (1984), 'A Positive Model of Private Charity and Public Transfers', *Journal of Political Economy* **92**(1), 136–48.
- Shi, Min and Jakob Svensson (2003), 'Political budget cycles: A review of recent developments', *Nordic Journal of Political Economy* **29**, 67–76.
- Simmons, Walter O. and Rosemarie Emanuele (2004), 'Does Government Spending Crowd Out Donations of Time and Money?', *Public Finance Review* **32**(5), 498–511.
- Steinberg, Richard (1991), 'Does Government Spending Crowd Out Donations?', *Annals of Public and Cooperative Economics* **62**(4), 591–612.
- van Oorschot, Wim and Wil Arts (2005), 'The Social Capital of European Welfare States: The Crowding Out Hypothesis Revisited', *Journal of European Social Policy* **15**(1), 5–26.
- Vanhanen, Tatu (2003), *Democratization – A Comparative Analysis*, Routledge Chapman & Hall.
- Vanhanen, Tatu (undated), 'Measures of Democracy 1810–2006'.  
**URL:** [http://www.fsd.uta.fi/aineistot/taustatieto/FSD1289/Introduction\\_2007.pdf](http://www.fsd.uta.fi/aineistot/taustatieto/FSD1289/Introduction_2007.pdf)



## 6 Data appendix

### 6.1 Variables of primary interest

The dependent variable **volunteering** is equal to one if the respondent does unpaid voluntary work and zero otherwise. The data are from the *European and World Values Survey (E/WVS)*. In particular, we use the *European and World Values Survey Four-wave Integrated Data File, 1981-2004*. We include all observations of respondents from OECD member countries for which information on volunteering and all individual-level control variables is available (see below).

As a proxy for government provision of public goods we use data on **public social expenditure** measured as a percentage of GDP from the *OECD Social Expenditure Database*. An expenditure item is classified as social if the benefits are intended to address one or more social purposes, and if programmes regulating the provision involve either inter-personal redistribution, or compulsory participation. The OECD groups benefits with a social purpose into nine policy areas: (i) old age (pensions, early retirement pensions, home-help and residential services for the elderly), (ii) survivors (pensions and funeral payments), (iii) incapacity-related benefits (care services, disability benefits, benefits accruing from occupational injury and accident legislation, employee sickness payments), (iv) health (spending on in- and out-patient care, medical goods, prevention), (v) family (child allowances and credits, child-care support, income support during leave, sole parent payments), (vi) active labor market policies (employment services, training, youth measures, subsidized employment, employment measures for the disabled), (vii) unemployment (unemployment compensation, severance payment, early retirement for labor market reasons), (viii) housing (housing allowances and rent subsidies), and (ix) other social policy areas (non-categorical cash benefits to low-income households, other social services). For further details, refer to OECD (2007).

The variable **political consensus** is equal to one if the respondent's political position corresponds with the prime minister's political position and is zero otherwise. The definitions and sources of the respondents' and the prime ministers' political positions are provided below.

The **Vanhanen democratization index** measures the degree of democratization in different countries. Data on this index – developed by Tatu Vanhanen (Vanhanen (2003)) – are available from the Finnish Social Science Data Archive (<http://www.fsd.uta.fi>). The degree of democratization is formed by multiplying a competition and a participation variable. The political competition variable reflects the percentage of votes gained by the smaller parties in national elections. It is calculated by subtracting the percentage of votes won by the party with most votes from 100. The political participation variable indicates the voting turnout in each election and is calculated as the percentage of the total population who actually vote in elections. The higher either component, the higher is the degree of democratization. In our data sample, the degree of democratization varies between 79.48 (Belgium) and 33.33 (United States). For further details, refer to Vanhanen (undated).

## 6.2 Country-level control variables

The **tax control variables** comprise a set of variables capturing tax revenues as a percentage of GDP and government net lending. Data on tax revenues as a percentage of GDP are from the *OECD Factbook 2007*. This distinguishes between taxes on goods and services and taxes on income and profits. Taxes on goods and services cover all taxes levied on the production, extraction, sale, transfer, leasing or delivery of goods, and the rendering of services, or on the use of goods or permission to use goods or to perform activities. They consist mainly of value added and sales taxes. Taxes on incomes and profits cover taxes levied on the net income or profits (gross income minus allowable tax reliefs) of individuals and enterprises. They also cover taxes levied on the capital gains of individuals and enterprises, and gains from gambling. Since the sum of taxes on goods and services and taxes on income and profits do not equal total tax revenues, we base taxes on residual categories that also include payments by employers and employees made under compulsory social security schemes as well as payroll taxes, taxes related to the ownership and transfer of property, and other taxes. For further details, refer to the *OECD Factbook 2007*.

The data on government net lending are from the *OECD Factbook 2007* according to the *1993 System of National Accounts*. It is equal to the difference between total revenue and total expenditure, including capital expenditure (in particular, gross fixed capital formation). A negative figure indicates a deficit.

The primary source of the **other macroeconomic control variables** (GDP per capita, GDP deflator, unemployment rate and population size) is the *OECD Factbook 2007*. Some missing values have been supplemented with data from various issues of the *OECD Economic Outlook*. Gini coefficients are taken from the *Luxembourg Income Study* (<http://www.lisproject.org>).

The **country-level political control variables** capture the political position of the prime minister's party. The information is collected from the free encyclopedia *Wikipedia*. In order to categorize the parties we rely on the political positions of parties as presented in *Wikipedia*, see e.g. [http://en.wikipedia.org/wiki/Democratic\\_Party\\_\(United\\_States\)](http://en.wikipedia.org/wiki/Democratic_Party_(United_States)). We presume that each party has a strong interest in ensuring that its entry in *Wikipedia* provides correct information (on its political position) and therefore maintains its entry with great care. This procedure results in the following categorization of political positions for parties: far left, left, liberal left, green left, center left, center, center right, green right, liberal right, right, far right and other. In a simplified version we use an aggregated classification of political positions with the values left-wing (comprising far left, left, liberal left, green left and center left), right-wing (comprising center, center right, green right, liberal right, right and far right) and other. The prime ministers are accordingly classified as left-wing prime minister, right-wing prime minister and other prime minister.

Information on **dates of elections** in different countries is provided by *Pippa Norris, Democracy Timeseries Dataset, 2009*.

### 6.3 Individual-level control variables

The information on **socio-economic control variables** such as age, sex, marital status (married or not), number of children, household income (measured on a ten-point scale), education, size of hometown (measured on a three-point scale), employment status (employed, self-employed, unemployed and out of the labor force) and religiosity is from the *E/WVS*. The *E/WVS* includes two questions on education: (i) ‘What is the highest educational level that you have attained?’ and (ii) ‘At what age did you (or will you) complete your full time education?’ While the former question would be preferable to measure the level of education, it involves considerably more missing answers compared to the latter one. In order to exploit all the available information on education and to retain as much data as possible, we construct a variable capturing the actual or the regular school-leaving age. In particular, if information on the second question is available we use it. In the cases where the answer to the second question was missing but information on the first question was available, we have imputed the regular school-leaving age of the respective educational level. We distinguish two cases: (i) If there is information on both questions for other respondents from the same country and year available, we impute the average school-leaving age among those with the same highest educational level attained. (ii) If there were no respondents from the same country and year available with information on both questions, we imputed the regular school-leaving age of the respective educational level. The *E/WVS* question on religiosity reads as follows: ‘Apart from weddings, funerals and christenings, about how often do you attend religious services these days?’ The possible answers are: ‘More than once a week’ (8), ‘Once a week’ (7), ‘Once a month’ (6), ‘Only on special holy days/Christmas/Easter days’ (5), ‘Other specific holy days’ (4), ‘Once a year’ (3), ‘Less often’ (2), ‘Never, practically never’ (1). In the *E/WVS* dataset our trust variable is captured by the question ‘Could you tell me how much confidence you have in the parliament?’. The following answers were offered: ‘None at all’ (1), ‘Not very much confidence’ (2), ‘Quite a lot of confidence’ (3), and ‘A great deal of confidence’ (4).

The **individual-level political control variables** are based on the *E/WVS* and *Wikipedia*. To construct a variable on the respondents’ political position (e. g. left-wing voter, right-wing voter and other voter) we use the following question from the *E/WVS*: ‘If there were a national election tomorrow, for which party on this list would you vote?’ In order to categorize the parties on this list we rely on the political positions of the parties as provided in *Wikipedia* (for details, see the information on the definition of the variable for the prime minister).

## 7 Table appendix

**Table 1: Mean of variables of primary interest<sup>a</sup>**

	Participation rate in volunteering <sup>b</sup>	Public social expend. as % of GDP <sup>c</sup>	Political consensus <sup>d</sup>	Vanhanen democrat. index <sup>e</sup>
Austria	0.29	24.63	0.50	68.37
Belgium	0.37	25.33	0.56	79.48
Canada	0.48	17.40	0.50	48.64
Czech Republic	0.34	20.01	0.35	72.95
Denmark	0.34	26.13	0.42	74.92
Finland	0.42	21.32	0.41	66.14
France	0.27	25.29	0.57	59.11
Germany	0.28	24.42	0.42	63.57
Great Britain	0.32	18.06	0.48	58.35
Greece	0.43	21.38	0.42	70.36
Hungary	0.16	21.64	0.26	47.23
Iceland	0.34	15.45	0.45	67.13
Ireland	0.29	15.52	0.74	51.90
Italy	0.26	20.85	0.31	78.67
Japan	0.16	13.68	0.42	49.29
Luxembourg	0.32	21.74	0.28	54.07
Netherlands	0.44	22.13	0.57	71.68
Norway	0.38	22.61	0.86	76.81
Poland	0.14	22.23	0.32	43.85
Portugal	0.19	13.67	0.41	52.23
Slovak Republic	0.54	18.76	0.60	62.91
Spain	0.16	20.23	0.46	63.54
Sweden	0.56	30.06	0.70	70.03
United States	0.50	13.97	0.53	33.33
	0.33	20.69	0.48	61.86

<sup>a</sup> These figures give the values for the years listed in Table 2. In cases where more than one year per country is available, we have calculated an average for these years. <sup>b</sup> Share of the adult population that does unpaid voluntary work. Source: *E/WVS*. <sup>c</sup> Source: *OECD Social Expenditure Database*. For details, refer to the Data appendix. <sup>d</sup> Share of adult population that would vote for the current prime minister's party in a hypothetical national election at the time of the survey. Source: *E/WVS*. <sup>e</sup> Vanhanen's democratization index is calculated by multiplying the percentage of votes gained by all parties but the one with most votes and the percentage of the total population who actually vote in elections. Source: *Finnish Social Science Data Archive*.

**Table 2: Number of available observations per country and year**

	1981	1982	1990	1999	2000	
Austria	0	0	1,014	942	0	1,956
Belgium	100 <sup>a</sup>	0	1,203	1,127	0	2,430
Canada	0	156	1,088	0	1,323	2,567
Czech Republic	0	0	0	1,421	0	1,421
Denmark	0	0	746	749	0	1,495
Finland	0	0	0	0	712	712
France	156	0	578	1,000	0	1,734
Germany	0	0	2,775	1,301	0	4,076
Great Britain	122	0	936	551	0	1,609
Greece	0	0	0	705	0	705
Hungary	0	0	0	748	0	748
Iceland	0	0	0	720	0	720
Ireland	60 <sup>a</sup>	0	767	670	0	1,497
Italy	198 <sup>a</sup>	0	932	1,055	0	2,185
Japan	0	0	612	0	966	1,578
Luxembourg	0	0	0	459	0	459
Netherlands	0	0	666	832	0	1,498
Norway	0	0	829	0	0	829
Poland	0	0	0	892	0	892
Portugal	0	0	832	0	0	832
Slovak Republic	0	0	0	1,059	0	1,059
Spain	0	0	1,410	547	706	2,663
Sweden	0	0	0	532	0	532
United States	0	1,309	1,409	1,044	0	3,762
	636	1,465	15,797	16,354	3,707	37,959

<sup>a</sup> Observations for Belgium 1981, Ireland 1981 and Italy 1981 cannot be used for the disaggregated analysis presented in Table 9 since the *OECD Social Expenditure Database* does not include figures for public social expenditure for active labor market policies for these country-years.

Table 3: Linear probability model of the determinants of voluntary work<sup>a</sup>

	(I)	(II)	(III)	(IV)	(V)
Public social expend. as % of GDP	-0.018** (0.007)	-0.017** (0.007)	-0.027*** (0.007)	-0.029*** (0.008)	-0.025*** (0.007)
Political consensus				-0.018*** (0.007)	-0.018*** (0.007)
Vanhanen democratization index					-0.010*** (0.003)
COUNTRY-LEVEL CONTROL VARIABLES					
<i>Tax control variables</i>					
Net government lending	-0.004* (0.002)	-0.004 (0.002)	-0.015*** (0.005)	-0.015*** (0.005)	-0.009 (0.006)
Taxes on goods and services as % of GDP	0.034* (0.019)	0.036** (0.017)	0.016 (0.020)	0.016 (0.020)	0.040*** (0.013)
Taxes on income and profits as % of GDP	0.008 (0.006)	0.006 (0.006)	0.026*** (0.009)	0.026*** (0.009)	0.016 (0.011)
Taxes on misc. as % of GDP	-0.024** (0.011)	-0.024** (0.011)	0.002 (0.012)	0.002 (0.012)	0.001 (0.017)
<i>Other macroeconomic control variables</i>					
GDP p.c. (in \$ 1,000)	0.029 (0.017)	0.031* (0.017)	0.008 (0.016)	0.009 (0.016)	0.011 (0.013)
GDP deflator	-0.016** (0.007)	-0.016** (0.007)	-0.025*** (0.008)	-0.025*** (0.009)	-0.015*** (0.005)
Unemployment rate	-0.005 (0.011)	-0.004 (0.011)	-0.028** (0.012)	-0.026** (0.012)	-0.023* (0.013)
Population size (in millions)	-0.001 (0.002)	-0.001 (0.002)	0.001 (0.002)	0.000 (0.002)	0.001 (0.001)
<i>Political control variables</i>					
Left prime minister			0.059*** (0.021)	0.062*** (0.022)	-0.003 (0.031)
INDIVIDUAL-LEVEL CONTROL VARIABLES					
<i>Socio-economic control variables</i>					
Age	0.008*** (0.001)	0.008*** (0.001)	0.008*** (0.001)	0.008*** (0.001)	0.008*** (0.001)
Age <sup>2</sup>	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Female	-0.029*** (0.009)	-0.029*** (0.009)	-0.029*** (0.009)	-0.029*** (0.009)	-0.029*** (0.009)
Married	0.013* (0.007)	0.011 (0.007)	0.011 (0.007)	0.011 (0.007)	0.011 (0.007)
No. of children	0.007*** (0.002)	0.007*** (0.002)	0.007*** (0.002)	0.007*** (0.002)	0.007*** (0.002)
Income	0.013*** (0.002)	0.012*** (0.002)	0.012*** (0.002)	0.012*** (0.002)	0.012*** (0.002)
School leaving age	0.010*** (0.001)	0.010*** (0.001)	0.010*** (0.001)	0.010*** (0.001)	0.010*** (0.001)
Town size	-0.023*** (0.005)	-0.022*** (0.005)	-0.022*** (0.005)	-0.023*** (0.005)	-0.022*** (0.005)
Out of labor force	-0.035*** (0.008)	-0.036*** (0.008)	-0.036*** (0.008)	-0.036*** (0.008)	-0.036*** (0.007)
Unemployed	-0.084*** (0.015)	-0.081*** (0.015)	-0.081*** (0.014)	-0.081*** (0.014)	-0.080*** (0.014)
Self-employed	0.011 (0.012)	0.009 (0.012)	0.009 (0.012)	0.009 (0.012)	0.008 (0.012)
<i>Political control variables</i>					
Left-wing voter		0.046*** (0.011)	0.045*** (0.011)	0.054*** (0.011)	0.052*** (0.011)
Right-wing voter		0.078*** (0.011)	0.077*** (0.011)	0.087*** (0.012)	0.086*** (0.011)
Other voter		0.063*** (0.019)	0.062*** (0.019)	0.063*** (0.019)	0.059*** (0.018)
Constant	0.308 (0.423)	0.282 (0.423)	-0.005 (0.422)	0.002 (0.425)	0.057 (0.408)
FIXED-EFFECTS					
<i>Country fixed-effects</i>	yes	yes	yes	yes	yes
<i>Year fixed-effects</i>	yes	yes	yes	yes	yes
R-squared	0.100	0.102	0.102	0.103	0.103

<sup>a</sup> The dependent variable is equal to one if the respondent does unpaid voluntary work and zero otherwise. The number of observations is equal to 37,959. Estimation method: ordinary least squares. Robust standard errors (allowing for clustering by country-year and heteroscedasticity of unknown form) in parentheses. \*, \*\* and \*\*\* indicate statistical significance at the 10-percent level, 5-percent level, and 1-percent level respectively.

Table 4: Instrumental variable approach to identify determinants of voluntary work<sup>a</sup>

	(I)	(II)	(III)	(IV)	(V)
<b>SECOND STAGE REGRESSION</b>					
Public social expend. as % of GDP	-0.046*** (0.013)	-0.044*** (0.013)	-0.024*** (0.008)	-0.026*** (0.008)	-0.023*** (0.006)
Political consensus				-0.019*** (0.006)	-0.020*** (0.006)
Vanhanen democratization index					-0.010*** (0.003)
COUNTRY-LEVEL CONTROL VARIABLES					
<i>Tax control variables</i>					
Net government lending	-0.012** (0.005)	-0.011** (0.005)	-0.014*** (0.005)	-0.015*** (0.005)	-0.009* (0.005)
Taxes on goods and services as % of GDP	0.011 (0.027)	0.013 (0.026)	0.004 (0.020)	0.004 (0.021)	0.025* (0.015)
Taxes on income and profits as % of GDP	0.014* (0.008)	0.012 (0.008)	0.024*** (0.008)	0.025*** (0.008)	0.016* (0.009)
Taxes on misc. as % of GDP	-0.016 (0.016)	-0.017 (0.016)	0.002 (0.011)	0.001 (0.011)	0.001 (0.014)
<i>Other macroeconomic control variables</i>					
GDP p.c. (in \$ 1,000)	0.033* (0.019)	0.035* (0.019)	0.008 (0.013)	0.009 (0.013)	0.010 (0.011)
GDP deflator	-0.023*** (0.009)	-0.023** (0.009)	-0.027*** (0.008)	-0.027*** (0.008)	-0.018*** (0.006)
Unemployment rate	0.011 (0.013)	0.012 (0.013)	-0.025*** (0.010)	-0.024** (0.010)	-0.021* (0.011)
Population size (in millions)	0.00005	-0.0002 (0.002)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)
<i>Political control variables</i>					
Left prime minister			0.061*** (0.020)	0.065*** (0.020)	0.010 (0.026)
INDIVIDUAL-LEVEL CONTROL VARIABLES					
<i>Socio-economic control variables</i>					
<i>Political control variables</i>					
Left-wing voter	yes	yes	yes	yes	yes
Right-wing voter					
Other voter					
<i>Country and Year fixed-effects</i>					
	yes	yes	yes	yes	yes
R-squared	0.089	0.092	0.093	0.094	0.094
<b>FIRST STAGE REGRESSION</b>					
Election in year $t - 1$ , 1 <sup>st</sup> half-year	-1.831*** (0.687)	-1.828*** (0.686)	-3.286*** (0.262)	-3.281*** (0.260)	-4.682*** (0.729)
Election in year $t - 1$ , 2 <sup>nd</sup> half-year	0.848 (0.794)	0.852 (0.793)	-0.844*** (0.311)	-0.841*** (0.310)	-2.929*** (0.919)
Election in year $t$ , 1 <sup>st</sup> half-year	0.130 (1.119)	0.141 (1.117)	-0.037 (0.407)	-0.035 (0.405)	-0.011 (0.357)
Election in year $t$ , 2 <sup>nd</sup> half-year	-1.402*** (0.488)	-1.400*** (0.488)	-1.294*** (0.267)	-1.289*** (0.267)	-0.039 (0.637)
Election in year $t + 1$ , 1 <sup>st</sup> half-year	-0.201 (1.005)	-0.195 (1.003)	0.879** (0.360)	0.880** (0.359)	-1.737 (1.225)
Election in year $t + 1$ , 2 <sup>nd</sup> half-year	1.784** (0.859)	1.792** (0.858)	2.008*** (0.362)	2.006*** (0.361)	3.641*** (0.608)
Other second stage variables	yes	yes	yes	yes	yes
P-value of F-statistic	<0.001	<0.001	<0.001	<0.001	<0.001

<sup>a</sup> The dependent variables in the second stage regressions are equal to one if the respondent does unpaid voluntary work and zero otherwise. Public social expend. as % of GDP are instrumented with dates of first order elections. The number of observations is equal to 35,846. Estimation method: two stage least squares. Robust standard errors (allowing for clustering by country-year and heteroscedasticity of unknown form) in parentheses. \*, \*\* and \*\*\* indicate statistical significance at the 10-percent level, 5-percent level, and 1-percent level respectively.

Table 5: Logit model of the determinants of voluntary work<sup>a</sup>

	(I)	(II)	(III)	(IV)	(V)
Public social expend. as% of GDP	-0.086** (0.034)	-0.079** (0.033)	-0.118*** (0.039)	-0.127*** (0.040)	-0.105*** (0.035)
Political consensus				-0.084*** (0.030)	-0.085*** (0.031)
Vanhanen democratization index					-0.045*** (0.017)
COUNTRY-LEVEL CONTROL VARIABLES					
<i>Tax control variables</i>					
Net government lending	-0.023* (0.012)	-0.018 (0.012)	-0.065** (0.026)	-0.066** (0.026)	-0.040 (0.030)
Taxes on goods and services as % of GDP	0.186* (0.096)	0.195** (0.089)	0.096 (0.108)	0.097 (0.111)	0.204*** (0.070)
Taxes on income and profits as % of GDP	0.058* (0.032)	0.048 (0.031)	0.129*** (0.048)	0.133*** (0.048)	0.095 (0.058)
Taxes on misc. as % of GDP	-0.107** (0.053)	-0.106** (0.053)	0.001 (0.067)	0.001 (0.067)	0.011 (0.095)
<i>Other macroeconomic control variables</i>					
GDP p.c. (in \$ 1,000)	0.093 (0.094)	0.098 (0.089)	0.011 (0.081)	0.014 (0.081)	0.021 (0.065)
GDP deflator	-0.081** (0.033)	-0.082** (0.033)	-0.120*** (0.044)	-0.122*** (0.045)	-0.074*** (0.026)
Unemployment rate	-0.063 (0.064)	-0.062 (0.061)	-0.155** (0.061)	-0.150** (0.061)	-0.142** (0.065)
Population size (in millions)	-0.004 (0.008)	-0.005 (0.008)	0.003 (0.008)	0.002 (0.008)	0.006 (0.007)
<i>Political control variables</i>					
Left prime minister			0.250** (0.125)	0.265** (0.127)	-0.004 (0.152)
INDIVIDUAL-LEVEL CONTROL VARIABLES					
<i>Socio-economic control variables</i>					
Age	0.040*** (0.006)	0.040*** (0.006)	0.040*** (0.006)	0.040*** (0.006)	0.040*** (0.006)
Age <sup>2</sup>	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Female	-0.150*** (0.045)	-0.149*** (0.045)	-0.149*** (0.045)	-0.149*** (0.045)	-0.149*** (0.045)
Married	0.061* (0.035)	0.053 (0.034)	0.053 (0.034)	0.052 (0.034)	0.053 (0.034)
No. of children	0.035*** (0.011)	0.035*** (0.011)	0.035*** (0.011)	0.035*** (0.011)	0.035*** (0.011)
Income	0.061*** (0.009)	0.058*** (0.009)	0.058*** (0.009)	0.058*** (0.009)	0.057*** (0.009)
School leaving age	0.050*** (0.007)	0.049*** (0.006)	0.050*** (0.007)	0.050*** (0.007)	0.049*** (0.007)
Town size	-0.115*** (0.024)	-0.109*** (0.024)	-0.110*** (0.024)	-0.111*** (0.024)	-0.111*** (0.024)
Out of labor force	-0.171*** (0.039)	-0.175*** (0.038)	-0.175*** (0.038)	-0.175*** (0.038)	-0.173*** (0.038)
Unemployed	-0.441*** (0.078)	-0.433*** (0.078)	-0.431*** (0.077)	-0.430*** (0.077)	-0.427*** (0.076)
Self-employed	0.062 (0.059)	0.050 (0.058)	0.051 (0.058)	0.051 (0.058)	0.048 (0.058)
<i>Political control variables</i>					
Left-wing voter		0.274*** (0.059)	0.270*** (0.059)	0.315*** (0.060)	0.303*** (0.060)
Right-wing voter		0.432*** (0.057)	0.427*** (0.057)	0.476*** (0.059)	0.469*** (0.059)
Other voter		0.355*** (0.095)	0.352*** (0.095)	0.353*** (0.095)	0.336*** (0.091)
Constant	-0.711 (1.868)	-0.826 (1.859)	-2.122 (1.957)	-2.090 (1.973)	-2.075 (2.153)
FIXED-EFFECTS					
<i>Country fixed-effects</i>	yes	yes	yes	yes	yes
<i>Year fixed-effects</i>	yes	yes	yes	yes	yes
McFadden's Pseudo R-squared	0.082	0.083	0.084	0.084	0.084

<sup>a</sup> The dependent variable is equal to one if the respondent does unpaid voluntary work and zero otherwise. The number of observations is equal to 37,959. Estimation method: logit model. Robust standard errors (allowing for clustering by country-year) in parentheses. \*, \*\* and \*\*\* indicate statistical significance at the 10-percent level, 5-percent level, and 1-percent level respectively.



Table 6: Determinants of voluntary work – controlling for religiosity<sup>a</sup>

	(I)	(II)	(III)	(IV)	(V)
Religiosity	0.038*** (0.003)	0.038*** (0.003)	0.037*** (0.003)	0.037*** (0.003)	0.037*** (0.003)
Public social expend. as % of GDP	-0.018*** (0.006)	-0.017*** (0.006)	-0.024*** (0.007)	-0.026*** (0.007)	-0.023*** (0.007)
Political consensus				-0.018** (0.007)	-0.018** (0.007)
Vanhanen democratization index					-0.009*** (0.003)
COUNTRY-LEVEL CONTROL VARIABLES					
<i>Tax control variables</i>					
Net government lending	-0.003 (0.002)	-0.003 (0.002)	-0.012*** (0.004)	-0.012*** (0.004)	-0.006 (0.005)
Taxes on goods and services as % of GDP	0.033* (0.016)	0.034** (0.016)	0.017 (0.018)	0.018 (0.019)	0.039*** (0.013)
Taxes on income and profits as % of GDP	0.007 (0.006)	0.006 (0.006)	0.022*** (0.008)	0.023*** (0.008)	0.014 (0.010)
Taxes on misc. as % of GDP	-0.026** (0.011)	-0.026** (0.010)	-0.005 (0.011)	-0.005 (0.011)	-0.006 (0.015)
<i>Other macroeconomic control variables</i>					
GDP p.c. (in \$ 1,000)	0.025 (0.016)	0.025 (0.015)	0.006 (0.015)	0.007 (0.015)	0.009 (0.012)
GDP deflator	-0.014** (0.006)	-0.014** (0.006)	-0.022*** (0.008)	-0.022*** (0.008)	-0.013** (0.005)
Unemployment rate	-0.006 (0.010)	-0.006 (0.010)	-0.025** (0.010)	-0.024** (0.010)	-0.021* (0.011)
Population size (in millions)	-0.002 (0.002)	-0.002 (0.002)	0.000 (0.002)	0.000 (0.002)	0.000 (0.001)
<i>Political control variables</i>					
Left prime minister			0.047*** (0.019)	0.051** (0.020)	-0.006 (0.029)
INDIVIDUAL-LEVEL CONTROL VARIABLES					
<i>Socio-economic control variables</i>					
Age	0.008*** (0.001)	0.008*** (0.001)	0.008*** (0.001)	0.008*** (0.001)	0.008*** (0.001)
Age <sup>2</sup>	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)	-0.000*** (0.000)
Female	-0.050*** (0.008)	-0.049*** (0.008)	-0.050*** (0.008)	-0.049*** (0.008)	-0.049*** (0.008)
Married	0.001 (0.007)	0.001 (0.007)	0.001 (0.007)	0.001 (0.007)	0.001 (0.007)
No. of children	0.003 (0.002)	0.003* (0.002)	0.003* (0.002)	0.003* (0.002)	0.003 (0.002)
Income	0.013*** (0.002)	0.013*** (0.002)	0.012*** (0.002)	0.012*** (0.002)	0.012*** (0.002)
School leaving age	0.010*** (0.001)	0.010*** (0.001)	0.010*** (0.001)	0.010*** (0.001)	0.010*** (0.001)
Town size	-0.017*** (0.004)	-0.017*** (0.004)	-0.017*** (0.004)	-0.017*** (0.004)	-0.017*** (0.004)
Out of labor force	-0.041*** (0.007)	-0.041*** (0.007)	-0.041*** (0.007)	-0.041*** (0.007)	-0.041*** (0.007)
Unemployed	-0.070*** (0.014)	-0.069*** (0.014)	-0.069*** (0.014)	-0.069*** (0.014)	-0.068*** (0.013)
Self-employed	0.013 (0.012)	0.013 (0.012)	0.013 (0.012)	0.013 (0.012)	0.012 (0.012)
<i>Political control variables</i>					
Left-wing voter		0.045*** (0.010)	0.044*** (0.011)	0.053*** (0.011)	0.050*** (0.011)
Right-wing voter		0.043*** (0.010)	0.042*** (0.010)	0.052*** (0.011)	0.051*** (0.011)
Other voter		0.058*** (0.019)	0.057*** (0.019)	0.058*** (0.019)	0.054*** (0.018)
Constant	0.362 (0.398)	0.342 (0.388)	0.110 (0.387)	0.117 (0.391)	0.165 (0.382)
FIXED-EFFECTS					
<i>Country fixed-effects</i>	yes	yes	yes	yes	yes
<i>Year fixed-effects</i>	yes	yes	yes	yes	yes
R-squared	0.132	0.132	0.132	0.133	0.133

<sup>a</sup> The dependent variable is equal to one if the respondent does unpaid voluntary work and zero otherwise. The number of observations is equal to 37,812. Estimation method: ordinary least squares. Robust standard errors (allowing for clustering by country-year and heteroscedasticity of unknown form) in parentheses. \*, \*\* and \*\*\* indicate statistical significance at the 10-percent level, 5-percent level, and 1-percent level respectively.

Table 7: Income distribution and voluntary work<sup>a</sup>

	(I)	(II)	(III)	(IV)	(V)	(VI)
Gini coefficient <sup>b</sup>	0.010*** (0.004)	0.011*** (0.004)	0.015*** (0.003)	0.012*** (0.001)	0.013*** (0.001)	0.016*** (0.001)
Public social expend. as% of GDP				-0.042*** (0.008)	-0.044*** (0.008)	-0.013*** (0.003)
Political consensus		-0.015** (0.007)	-0.016** (0.007)		-0.016** (0.007)	-0.016** (0.007)
Vanhanen democratization index			-0.008*** (0.002)			-0.004*** (0.001)
COUNTRY-LEVEL CONTROL VARIABLES						
<i>Tax control variables</i>	no	no	no	yes	yes	yes
<i>Other macroeconomic control variables</i>	yes	yes	yes	yes	yes	yes
<i>Political control variables</i>	yes	yes	yes	yes	yes	yes
INDIVIDUAL-LEVEL CONTROL VARIABLES						
<i>Socio-economic control variables</i>	yes	yes	yes	yes	yes	yes
<i>Political control variables</i>	yes	yes	yes	yes	yes	yes
FIXED-EFFECTS						
<i>Country fixed-effects</i>	yes	yes	yes	yes	yes	yes
<i>Year fixed-effects</i>	yes	yes	yes	yes	yes	yes
R-squared	0.104	0.105	0.105	0.105	0.105	0.105

<sup>a</sup> The dependent variable is equal to one if the respondent does unpaid voluntary work and zero otherwise. The number of observations is equal to 27,959. Compared to Table 3 we cannot use the country-years AUT (1999), BEL (1981), CZE (1999), ISL (1999), IRL (1981, 1990), ITA (1981), JPN (1990, 2000), POL (1999), PRT (1990), SVK (1999), GBR (1981) and USA (1982) due to missing information on Gini coefficients. Estimation method: ordinary least squares. Robust standard errors (allowing for clustering by country-year and heteroscedasticity of unknown form) in parentheses. \*, \*\* and \*\*\* indicate statistical significance at the 10-percent level, 5-percent level, and 1-percent level respectively. <sup>b</sup> The Gini coefficients – measured on a scale between 0 and 100 – are derived from the *Luxembourg Income Study Database*.

**Table 8: Composition of public social expenditure<sup>a</sup>**

	Old-age	Sur- vivors	Inca- pacity	Health	Family	ALMP <sup>b</sup>	Unem- ployment	Housing	Other	Total
Austria	11.85	0.50	2.58	5.14	2.71	0.43	0.97	0.10	0.35	24.63
Belgium	6.62	2.65	3.11	6.11	2.68	1.19	2.98	0.00	0.38	25.33
Canada	3.66	0.37	1.06	6.34	0.79	0.42	1.65	0.67	2.44	17.40
Czech Republic	7.77	0.20	2.55	6.05	2.09	0.17	0.66	0.12	0.41	20.01
Denmark	7.36	0.02	3.52	4.93	3.51	1.43	3.66	0.67	1.03	26.13
Finland	5.25	0.61	3.40	5.00	3.06	1.00	2.15	0.36	0.50	21.32
France	9.28	1.71	2.33	6.44	2.86	0.72	1.09	0.71	0.16	25.29
Germany	10.17	0.50	1.79	7.09	1.81	1.15	1.22	0.16	0.53	24.42
Great Britain	5.01	0.80	1.94	5.27	2.27	0.51	0.86	1.01	0.38	18.06
Greece	11.49	0.84	0.98	5.15	1.08	0.21	0.46	0.80	0.36	21.38
Hungary	7.13	1.16	2.69	5.28	3.37	0.40	0.83	0.61	0.18	21.64
Iceland	3.64	0.04	1.93	6.61	2.31	0.07	0.28	0.13	0.45	15.45
Ireland	3.50	1.00	1.77	5.11	1.54	1.15	1.44	0.56	0.32	15.52
Italy	9.18	2.15	1.95	5.62	1.05	0.38	0.65	0.01	0.01	20.85
Japan	5.45	1.06	0.61	5.18	0.50	0.30	0.43	0.00	0.14	13.68
Luxembourg	7.78	0.68	3.62	5.55	3.28	0.23	0.38	0.05	0.18	21.74
Netherlands	5.72	0.66	5.02	5.09	1.51	1.09	1.95	0.36	0.73	22.13
Norway	7.20	0.45	4.77	4.36	2.77	0.92	1.08	0.16	0.91	22.61
Poland	7.61	1.98	5.76	4.16	1.34	0.34	0.61	0.18	0.26	22.23
Portugal	4.39	0.96	2.53	4.05	0.76	0.60	0.33	0.01	0.04	13.67
Slovak Republic	6.57	0.19	2.27	5.17	2.37	0.21	0.81	0.00	1.16	18.76
Spain	7.85	0.70	2.30	5.19	0.66	0.83	2.40	0.17	0.12	20.23
Sweden	9.63	0.65	4.96	6.46	3.48	1.73	1.67	0.72	0.77	30.06
United States	5.37	0.96	1.06	4.87	0.63	0.17	0.47	0.00	0.45	13.97
	7.06	0.87	2.69	5.43	2.02	0.65	1.21	0.31	0.51	20.69

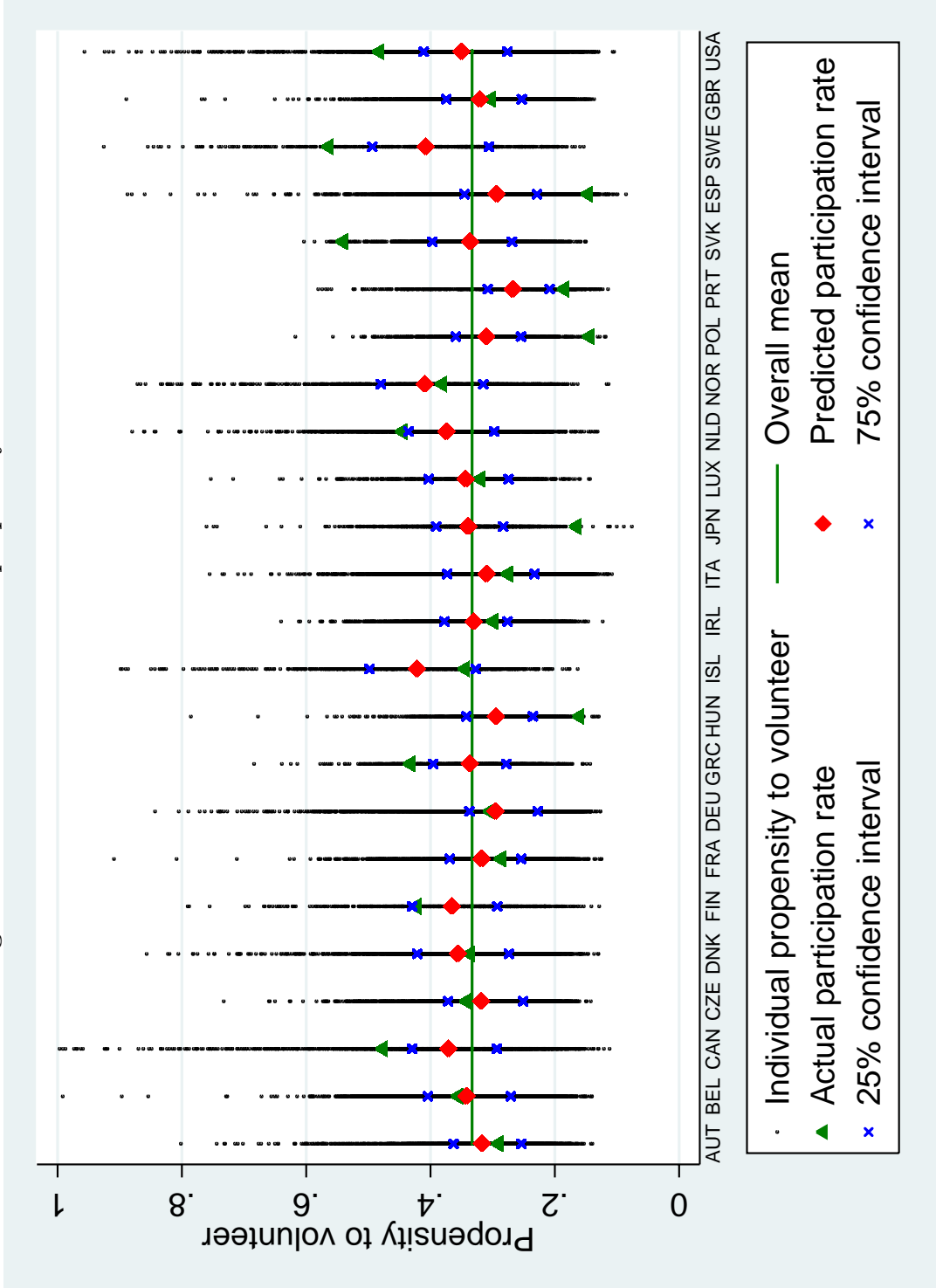
<sup>a</sup> These figures show disaggregated public social expenditure as a percentage of GDP according to policy areas for the years listed in Table 2. In cases where more than one year per country is available, we have calculated an average for these years. Source: *OECD Social Expenditure Database*. For details, see the Data appendix. <sup>b</sup> Active Labor Market Policies.

Table 9: Determinants of voluntary work – controlling for the composition of public social expenditure<sup>a</sup>

	(I)	(II)	(III)
PUBLIC SOCIAL EXPENDITURE			
AS % OF GDP FOR <sup>b</sup>			
Old-age	-0.057* (0.032)	-0.069** (0.032)	-0.050 (0.045)
Survivors	-0.009 (0.014)	-0.006 (0.014)	-0.036 (0.025)
Incapacity	-0.302*** (0.042)	-0.306*** (0.042)	-0.224*** (0.017)
Health	-0.011 (0.008)	-0.014* (0.008)	-0.007 (0.009)
Family	0.258*** (0.024)	0.254*** (0.024)	0.232*** (0.010)
Active labor market policies	-0.335*** (0.045)	-0.337*** (0.045)	-0.293*** (0.032)
Unemployment	-0.242*** (0.035)	-0.243*** (0.035)	-0.247*** (0.036)
Housing	-0.062*** (0.014)	-0.064*** (0.014)	-0.076** (0.031)
Other social policy areas	0.160*** (0.015)	0.152*** (0.015)	0.234*** (0.036)
Political consensus		-0.020*** (0.007)	-0.020*** (0.007)
Vanhanen democratization index			-0.007*** (0.002)
COUNTRY-LEVEL CONTROL VARIABLES			
<i>Tax control variables</i>	yes	yes	yes
<i>Other macroeconomic control variables</i>	yes	yes	yes
<i>Political control variables</i>	yes	yes	yes
INDIVIDUAL-LEVEL CONTROL VARIABLES			
<i>Socio-economic control variables</i>	yes	yes	yes
<i>Political control variables</i>	yes	yes	yes
FIXED-EFFECTS			
<i>Country fixed-effects</i>	yes	yes	yes
<i>Year fixed-effects</i>	yes	yes	yes
R-squared	0.105	0.105	0.105

<sup>a</sup>The dependent variable is equal to one if the respondent does unpaid voluntary work and zero otherwise. The number of observations is equal to 37, 601. Estimation method: ordinary least squares. Robust standard errors (allowing for clustering by country-year and heteroskedasticity of unknown form) in parentheses. \*, \*\*, and \*\*\* indicate statistical significance at the 10-percent level, 5-percent level, and 1-percent level, respectively. <sup>b</sup>The coefficients for the different types of policy areas give the estimated impact on the propensity to volunteer due to an increase of the expenditure category by one standard deviation.

Figure 1: Predicted and actual propensity to volunteer



Comparison between actual and predicted volunteering participation: predicted values based on logit estimates for 37,959 respondents from the World Values survey dataset with age, sex, family status, number of children, household income, education, size of place of residence, and labor market status as regressors.

**Figure 2: Share of voluntary activities among different organizations**

