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Reciprocity and volunteering

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Abstract

This paper evaluates whether volunteering is imbued with altruistic or strategic reciprocity. Although scholars have intensively studied the motivations and social norms to volunteer, to date there is no agreement why human beings perform activities in which time is freely given up in order to benefit another person, group or organization. We argue that attitudes towards reciprocity and volunteering are related, but that this relationship becomes only visible if we refine the conceptual framework for both concepts. Using data from the Swiss Volunteering Survey 2009, the empirical results of our Bayesian multilevel models show the following: firstly, individuals exhibiting high levels of altruistic reciprocity are more likely to engage in informal volunteering; secondly, we find a negative relationship between altruist reciprocity and the individual likeliness to do voluntary work within non-solidary associations; thirdly, once individuals opted to engage in formal volunteering, we find that strategic reciprocity is clearly related to voluntary engagement in non-solidary associations. Overall, our conceptual foundation provides a more appropriate model to explain the formation of volunteering.

Keywords

Bayesian multilevel modelling, reciprocity, social capital, volunteering

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Introduction

Nearly one billion people throughout the world volunteer through public, non-profit or for-profit organizations, or directly for friends or neighbours (cf. Salamon et al., 2011: 217). Although scholars have intensively studied the motives as to why human beings perform activities in which time is freely given up in order to benefit another person, group or organization, to date there exists no study referring to individual norms of reciprocity constitutive of volunteering (Clary and Snyder, 1999; Dekker and Halman, 2003; Mannino et al., 2011; Wilson, 2000). One might argue that this gap has remained unfilled for obvious reasons, since reciprocity and volunteering seem to be conceptually different. Captured by proverbial phrases such as "what goes around, comes around", the concept of reciprocity represents the general idea that giving and receiving are mutually contingent (Gouldner, 1960: 169). In other words, a reciprocal act implies that doing good is tied to the expectation that it will be compensated by future rewards. Volunteering, in contrast, is generally associated with selfless or charitable engagement to benefit the larger society (Putnam, 2000). As a consequence, one would expect that the decision to volunteer tends to be guided by intrinsic motivations (Deci, 1975) or warm-glow altruism (Andreoni, 1990) rather than by simple cost–benefit calculations. Common sense would therefore suggest that individuals who place great value on reciprocity would not engage in volunteering, which is considered an altruistic activity.

This reasoning seems, however, to be quite myopic. Several findings suggest that people's motivations for performing unpaid work are very likely to be multifaceted, as volunteering takes many forms (Wilson, 2000: 219). Thus, the stimulation to volunteer is usually perceived of as a combination of several motives, other-interested and self-interested alike (Haski-Leventhal, 2009; Osteen, 2002; Silber, 2001). What is more, and although it goes against the common notion that all voluntary work is altruistic, it is undisputable that in many cases people volunteer for an activity only if it is in their interest to do so (Wilson, 2012: 182). Actors do weigh costs and benefits and will not contribute goods and services to others unless they profit from the exchange (Smith, 1981; Wilson, 2000: 222). According to the most radical proponents of this perspective, even in the areas of "humanitarian service volunteering" (e.g. blood donation), altruism continues to play a minor role, resulting in the seeming paradox that there can be altruistic organizations whose members are not generally altruists (cf. Smith, 1981: 30). As with volunteering, there are diverse forms of reciprocity. Beyond the well-known form of strategic reciprocity chosen by rational, self-interested individuals, there exist more selfless reciprocal norms such

as altruistic reciprocity (cf. Diekmann, 2004). In other words, social behaviour is not guided in every respect by the norm of strategic reciprocity.

Against this backdrop, we aim to scrutinize the motivational roots of volunteering, placing individual attitudes towards norms of reciprocity at the centre of our analyses. We deliberately focus on reciprocal norms and not on other relevant norms in the context of volunteering, such as social responsibility or social justice, as this allows us to tackle the seeming oxymoron that volunteering can be both voluntary (e.g. non-compulsory) *and* a social obligation (Musick and Wilson, 2008: 81). We consider a lack of analytical differentiation as the main obstacle to obtaining more concise statements about the altruistic or strategic motivations of volunteering. Based on a more subtle conceptualization of volunteering as well as reciprocity, the purpose of this contribution is to shed new light on the question of whether volunteering is driven by other-interested or self-interested motives. Accordingly, we distinguish between non-solidary/solidary formal voluntary engagement and informal volunteering, on the one hand, and altruistic and strategic forms of reciprocity, on the other. We lay out a theoretical framework that unravels the mechanisms of the relationship between specific forms of reciprocity and volunteering and subject them to an empirical test. Using a new dataset on volunteering in Switzerland, we show theoretically and empirically that individuals exhibiting high levels of altruistic reciprocity are more likely to engage in informal volunteering, whereas elevated levels of strategic reciprocity coincide with a higher propensity for formal volunteering in associations, which do not mainly pursue solidary purposes.

We contribute to the literature in several respects. Firstly, existing research on reciprocity is dominated by (experimental) game theoretical models showing how reciprocity facilitates cooperation and, thus, constitutes a system stabilizing factor (Axelrod, 1984; Berger, 2011; Diekmann, 2004; Franzen and Pointner, 2008; Gouldner, 1960). By investigating the relationship between reciprocity and volunteering with survey data, this study adds a new perspective to the understandings of this literature in addressing the question of how social norms structure pro-social behaviour in a representative sample. Secondly, the conceptual distinction between different forms of reciprocity and volunteering promises more concise insights regarding the question of altruistic or selfish motives underlying different forms of volunteering. In this vein, our study tries to provide new insights to the long-standing altruism–egoism debate often found in discussions about helping regarding identity theory and motivational functional theory. Thirdly, most studies evaluating the motives of volunteering naturally analyse only volunteers, thus neglecting the group of non-volunteers. In contrast, our analyses do not only distinguish between varying

motivations of volunteers themselves; individuals who do not do unpaid work serve as our – methodologically speaking – randomly assigned control group. Fourthly, we need not be content with the observation that it is a "purely empirical" question whether the foundations of volunteering are altruist or self-centred, as suggested by Wilson and Musick (1997: 694). Owing to the elaborate conceptual approach, we are able to show that whether volunteering is rather guided by altruistic reciprocal motives or by strategic reciprocity depends on the *kind* of voluntary activity.

The paper is organized as follows. We begin the next section with a discussion of the theoretical framework binding together reciprocity and volunteering. Based on these conceptual foundations, we develop hypotheses specifying the relationship between reciprocity and volunteering. After explaining the measurement of our variables we conduct Bayesian multilevel analyses in order to test these hypotheses. A discussion of the major findings concludes the paper.

Reciprocity and volunteering: Towards a theoretical framework

This study tries to link pro-social norms with pro-social behaviour. In particular, we ask whether volunteering is imbued with altruistic or strategic reciprocity. While there are many studies on reciprocity, and a lot on volunteerism, we find surprisingly no contribution that attempts to unite the two concepts in a systematic way. In the following, we discuss the concepts of reciprocity and volunteering, unveiling their manifold facets. Starting from this variety of meanings, we derive more subtle and clear-cut conceptualizations of reciprocity and volunteering in order to establish our argumentation of behavioural options.

Although the importance of *reciprocity* has been emphasized throughout the history of mankind, a unified and generally accepted definition of the term is not readily available. In reality, the idea that giving and receiving are mutually contingent, which underlies the concept of reciprocity, adopts manifold forms (cf. Berger, 2011; Diekmann, 2004; Franzen and Pointner, 2008; Gouldner, 1960). To mention only a few distinctions: reciprocity does not only apply to benevolent actions, but may also be positive (reward) or negative (retaliation). Furthermore, reciprocity can imply that a good or service is paid back by a different good or service of equal value ("tit-for-tat") or by exactly the same good or service ("tat-for-tat"). In a similar vein, the recipient of a reciprocal act might be specified or unspecified. In the first case, individuals act according to the norm of generalized reciprocity, driven by the expectation that doing good will pay off some day, or because they want to return a service received in the past to the larger community, for

instance when parents agree to help out with scouting groups long after their own children are no longer members (Musick and Wilson, 2008: 99; Putnam, 2000: 134). Particularistic reciprocity, by contrast, sheds light on individual motives underlying reciprocal acts towards specific persons. The saying "if you want to be helped by others you must help them", for instance, indicates that reciprocal behaviour might also be driven by egoistic motives. This leads to another important distinction between strategic and altruistic reciprocity, which is at the core of our analytical interest.[1]

As game theoretical models were able to demonstrate, it might be interesting for purely egoistic and rational actors to adopt mutually conditional cooperative strategies such as reciprocal behaviour in repeated exchange situations (social dilemmas) (Axelrod, 1984; Diekmann, 2004: 489; Taylor, 1976). If self-centred individuals know that there is a realistic chance for reward, that is, if the "shadow of the future" is large enough (Axelrod, 1984), it is rational for them to reciprocate. This strategic form of reciprocity is based on the mere belief in reciprocal behaviour (Perugini et al., 2003): in contexts in which individuals help someone because they consider it the best way to receive help in the future, reciprocity constitutes a strategic option chosen by rational, self-interested individuals. Here, reciprocity is not the end, but a means.

The model of strategic reciprocity, however, falls short when it comes to explaining reciprocal behaviour in situations where there are no prospects for reward, that is, in one-shot games. There are many non-repeated interactions where reciprocal behaviour nevertheless occurs. Why should a person reciprocate a helpful act to a stranger when it is unlikely that they will ever meet again? Strategic reciprocity cannot explain why a foreigner traveller would honour the excellent service in a restaurant with a generous tip when he knows that he will never return to that place (Diekmann, 2004: 491). In these situations, reciprocal behaviour arises from an internalized motivation that is not necessarily accompanied by the belief that most people do it or that it is strategically advantageous to do so (Perugini et al., 2003: 254). To explain reciprocity in these contexts, Gouldner (1960: 174) coined the term "shadow of indebtedness", which clearly refers to a moral obligation, to the altruistic compliance with a reciprocal norm. Accordingly, the tip example mentioned above reflects altruistic reciprocity (Berger, 2013; Diekmann, 2004; Franzen and Pointner, 2008), which evokes obligations towards others on the basis of their past behaviour rather than on the basis of expectations of future rewards. In these contexts, reciprocal behaviour is no longer a means, but the end to an action (Perugini et al., 2003: 252f).[2]

Volunteering, again, comprises helping behaviours and entails more commitment than spontaneous assistance but is narrower in scope than the care provided to family and friends (Wilson, 2000). At first sight, the idea of

volunteering, that is, any activity in which time is given freely to benefit another person, group or organization, implies selfless benevolent engagement for the larger society (Wilson, 2012: 182). However, it would be misleading to always think of volunteering as an entirely internalized norm of altruism. As Wilson (2000: 215) specifies, the above definition does not preclude volunteers from benefiting from their work. It appears that many volunteers' motivations cannot be neatly classified as either altruistic or egoistic, both because some specific motives combine other-interested and self-interested considerations and because many people indicate that they have both kinds of reasons for volunteering (Clary and Snyder, 1999: 157). Moreover, volunteering could take many forms, each inspired by a different set of norms, values and attitudes (Wilson, 2000: 219).

Accordingly, with respect to voluntary engagement, one has initially to differentiate between formal voluntary work and informal volunteering or simply *helping out* (Ammann, 2001; Bühlmann and Freitag, 2005; Gallagher, 1994; Stadelmann-Steffen et al., 2007, 2010; Traunmüller et al., 2012; Wilson and Musick, 1997). Formal volunteering describes any voluntary activity, which occurs within the framework of a formal organization or association. Informal volunteering captures any voluntary activity that takes place outside formalized structures such as organizations, but also outside one's own household. Thus, formal volunteering might involve unpaid coaching of soccer practice or handing out flyers at a public campaigning event. While *formal* volunteering through organizations that recruit and organize volunteers is an adequate (and frequently used) indicator for social cohesion, so too is *informal* voluntary engagement. Informal volunteering refers to activities such as helping and supporting friends, neighbours, acquaintances and relatives (outside of one's own household) that take place directly between the people involved and outside of any formally organized structure (Gundelach et al., 2010). Examples of informal volunteering are mowing the neighbours' lawn or watching their children.[3]

How do the different types of volunteering relate to the distinction between strategic and altruistic reciprocity? A first answer is given by *the degree of obligation*, which is attributed to the different kinds of volunteering. Here, "obligations have a more powerful influence on informal volunteering than they do on formal unpaid work" (Wilson and Musick, 1997: 700). While in formal volunteer work individuals do not feel obligated to give a certain service to a certain person (Wuthnow, 1991: 95), in informal helping the donor and recipient are likely to have a relationship that entails commitments (Amato, 1990: 31). Secondly, recent research on volunteering uncovers clear differences in the *motivational structure* underlying these two types of volunteering: while formal volunteering is often driven by self-centred motives such as hedonistic ("having fun") or egoistic (recognition,

reward) reasons, altruistic motivations (e.g. "helping others") appear to be more important in the field of informal volunteering (Clary et al., 1996; Freitag and Traunmüller, 2008: 231; Stadelmann-Steffen et al., 2010: 88; Wilson and Musick, 1997: 695). According to functional approaches and the Volunteer Functions Inventory (VFI), informal volunteers' motives, in contrast to those of formal voluntary workers, correspond more to "values" (I feel it is important to help others) and "understanding" (volunteering lets me learn through direct hands-on experience), and less to selfish orientations such as "enhancement" (volunteering makes me feel better about myself) and "career" (volunteering can help me to get my foot in the door at a place where I would like to work) (Clary et al., 1996: 496). Moreover, a closer look at the most important fields of activity of formal and informal volunteering reveals that most formal volunteering is allotted to organizational and administrative activities (Stadelmann-Steffen et al., 2010: 50), whereas informal volunteering generally involves personal help to others, including caring activities (Freitag and Traunmüller, 2008; Stadelmann-Steffen et al., 2010: 71).[4] Against this background, we expect strategic and altruistic forms of reciprocity to be related to types of voluntary engagement that are driven by corresponding motivations and internalized norms of obligations (see Table 1). Thus, and in line with Putnam's (2000: 118) observation that "altruistic behaviours tend to go together", we assume that the norm of altruistic reciprocity is clearly related to informal volunteering, which reflects in our first hypothesis:

> Hypothesis 1: Individuals reporting high levels of altruistic reciprocity are likely to engage in informal volunteering.

Formal volunteer work, again, typically contributes to a collective good (e.g. picking up litter in parks) that makes society better, usually through an organization (Wilson and Musick, 1997: 700). Thus, formal volunteering generally implies some kind of benevolent engagement for the larger society. Nevertheless, as already mentioned above, formal volunteering is often driven by egocentric motivations. We therefore might expect attitudes towards strategic reciprocity to be related to this kind of voluntary work. It has to be noted, however, that formal volunteering comprises different forms of civic engagement in a broad variety of distinct societal associations, such as political parties, churches, sports clubs or humanitarian and environmental organizations. Moreover, voluntary associations do not always have the same effects and there is thus a need for further theoretical and empirical differentiation (Stolle and Rochon, 1998; Warren, 2001; Zmerli, 2003).

In other words, associational diversity raises the question whether the motives of formal volunteering are indeed as uniform as implied above, or

whether the different types of formal volunteering rather reflect distinct individual motivations (cf. Stadelmann-Steffen et al., 2010: 90). In this regard, our fundamental expectation is that voluntary associations directed to different purposes will attract different sorts of human beings. Based on these considerations, we differentiate between solidary and non-solidary associations. Non-solidary associations in particular secure advantage for their clientele and pursue individual material goods, which are individual, scarce and excludable. Sports clubs, interest groups, leisure organizations, civil service and political groups are assigned to this category. Solidary associations pursue inclusive social goods, characterized as social, non-scarce and non-excludable. Religious associations, charitable organizations, cultural clubs, human rights and environmental organizations belong to this category (cf. Warren, 2001; Zmerli, 2003). Thus, it can be assumed that attitudes towards altruistic reciprocity lead to formal volunteering in associations pursuing socially inclusive purposes. In contrast, selfish and strategic motivations are expected to relate to formal volunteering in organizations devoted to non-solidary goods, such as material goods. Based on these considerations we formulate two additional hypotheses on the relationship between the type of reciprocity and different types of formal volunteering:

Hypothesis 2a: Individuals reporting high levels of strategic reciprocity are more likely to engage in formal volunteering within non-solidary associations.
Hypothesis 2b: Individuals reporting high levels of altruistic reciprocity are more likely to engage in formal volunteering within socially inclusive associations.

Finally, we assume that individuals reporting high levels of altruistic reciprocity and a specific sense of obligation do not necessarily engage in non-solidary formal volunteering where hedonistic and egocentric, meaning selfish motives play an important role. In a similar vein, strategic reciprocity is probably of little help to explain engagement in solidary associations as well as informal voluntary engagement, which often involves helping behaviours and internalized norms of commitment or obligation. Based on these expectations, we formulate a third hypothesis:

Hypothesis 3: There is no positive relationship between altruist reciprocity and the individual likeliness to do voluntary work within non-solidary associations. In a similar vein, we do not expect a positive relationship

between strategic reciprocity and the individual propensity for informal volunteering as well as voluntary work within solidary associations.

Table 1 summarizes our theoretical expectations representing all possible combinations between the two types of reciprocity and two forms and kinds of volunteering, respectively.

Table 1. The relation between reciprocity and volunteering.

		Volunteering	
		Informal	*Formal*
			Non-solidary/solidary
Reciprocity	*Strategic*	*	+ / *
	Altruistic	+	* / +

Note: + = positive relation; * = non-positive relation.

Data, variables and methodological approach

To test our hypotheses we base our analysis on the Swiss Volunteering Survey 2009 (Stadelmann-Steffen et al., 2010). Depending on the model estimated, the final sample from the Swiss Volunteering Survey comprises between 1749 and 5777 Swiss and non-national respondents in the 26 Swiss cantons. The individuals in the cantons were randomly chosen and questioned by means of computer-assisted telephone interviewing (CATI). In order to obtain a sufficiently high number of respondents for each subnational unit, the random sample was stratified disproportionally among cantons.

Our dependent variable is whether or not an individual does unpaid voluntary work within (formal volunteering) or outside (informal volunteering) of an organization or association. With regard to formal volunteering, we further distinguish the kind of organization, that is, whether it pursues non-solidary as opposed to solidary purposes. The measurement of formal volunteering refers to the reported formal voluntary engagement as indicated by the Swiss Volunteering Survey 2009: "We would now like to ask you about all the voluntary or honorary work you did for any associations, organizations, or public institutions over the past four weeks. Have you carried out one or more activities of this type?"[5] To test hypothesis 2 we confine the analyses to formal volunteers by distinguishing between formal engagement conducted predominantly for non-solidary associations on the one hand and for associations following mainly a solidary or socially inclusive purpose on

the other hand. We define formal volunteering for political associations, public office, sports clubs, interest groups, leisure organizations and civil service as non-solidary, whereas formal volunteering for religious associations, charitable organizations, cultural clubs and human rights and environmental organizations are considered solidary or socially inclusive associations.[6] When interested in the general likelihood of non-solidary formal volunteering, we distinguish between formal volunteers in non-solidary organizations (coded 1) versus all remaining respondents, that is, volunteers of solidary associations, informal volunteers and non-volunteers (coded 0). With regard to the general likelihood of voluntary work within solidary associations, we analogously differentiate between volunteering in solidary organizations (1) and all other respondents (0) (see Models 2 and 3, Table 2 in the results section). In addition, we also focus on the choice between different kinds of formal voluntary engagement, considering the mere likelihood of non-solidary volunteering (coded 1) as opposed to solidary formal engagement (coded 0) (see Model 4, Table 3 in the results section).[7]

We measure informal volunteering with the following question: "In addition to formal volunteering in associations and other organizations, there are alternative opportunities for volunteering. Did you perform another type of unpaid work beyond volunteering in associations or other organizations, such as babysitting (children other than your own), neighbourly-aid, participating in any kind of projects, organizing a (street) party in your neighbourhood, etc. in the last four weeks? (The work has to be for the benefit of people outside one's own household)". Respondents indicating informal voluntary engagement were allocated the values of 1, while all others were assigned the value 0.

As for our central independent variable, reciprocity, respondents were asked to indicate their agreement with specific statements on a scale ranging from 0 (no agreement) to 10 (total agreement). Altruistic reciprocity is measured by respondents' agreement to the following statement of the Swiss Volunteering Survey 2009: "I take particular effort to help someone who has helped me in the past", whereas strategic reciprocity is captured by respondents' agreement to the statement: "helping someone is the best method to be certain that one will receive help in the future". In our view, these items come very close to what we intend to measure. The statement "I take particular effort to help someone who has helped me in the past" implies compensation for past goodwill, but no explicit strategic incentives, meaning no expectations regarding the future behaviour of others and therefore corresponding to the concept of altruistic reciprocity. By contrast, the statement "to help someone is the best way to be certain that one will receive help in the future" clearly indicates a strategic motivation of reciprocal behaviour. In these instances, social interactions are not one-shot games, but

ego expects a reward in iterated social exchanges (Diekmann, 2004: 489). Additional factor analyses not presented here, which include motivational variables of volunteering as well as the two reciprocity variables, support the construct validity of our measurements for reciprocity. According to these results, altruistic reciprocity indeed coincides with the motivation to help, whereas strategic reciprocity loads highest on the factor denoting egocentric motivations of volunteering.

One could further argue that our analyses are somewhat flawed since we face the problem of endogeneity between reciprocity and volunteering, as it may be possible that volunteers develop attitudes towards the norms of reciprocity. We have to admit that due to our research design we cannot clarify this causality question as we would need panel or time series data to solve this problem. Nevertheless, we want to point out that we focus on voluntary activities that took place in the last four weeks (cf. survey items above), assuming that reciprocal attitudes take more than four weeks to develop and thus precede the voluntary activities captured by the survey.

In order to explain formal and informal volunteering, we further build on former research on the determinants of individual volunteering and integrate the following socio-demographic individual characteristics into the analysis (cf. Nollert and Huser, 2007; Salamon and Sokolowski, 2003: 77; Wilson, 2000; Wilson and Musick, 1997): gender, age and nationality. In line with the expectation that volunteering requires resources in terms of time, as well as human, social and cultural capital, we furthermore account for employment and educational status, trust and social networks, and religious affiliation (cf. Putnam, 2000; Sundeen et al., 2007; Wilson and Janoski, 1995; Wilson and Musick, 1997). Since people are more likely to volunteer if they have local roots, we add homeownership as well as residential stability, that is, how long the respondent has lived at his or her current residence (Stadelmann-Steffen and Freitag, 2011; Wilson, 2012). At the contextual level, a canton's degree of urbanization as well as the language region is integrated into the models, as these contextual factors have proven to be important in explaining volunteering in Switzerland (Baglioni, 2004; Bühlmann and Freitag, 2007; Kriesi, 2004; Stadelmann-Steffen et al., 2010). We use the values of the contextual factors measured prior to 2009 to assure that the potential cause precedes the effect. More detailed information on all variables (operationalization and sources) as well as descriptive statistics can be found in Table 4 in the Appendix.

Methodologically, we apply random intercept models, implying that individual behaviour can vary between cantons (Jones, 1997; Steenbergen and Jones, 2002). In addition, such multilevel models allow for the modelling of macro-level characteristics (in the present case, of the contextual

control variables at the cantonal level). As the dependent variable is dichotomous, individual volunteering of immigrants is transformed into a logit structure. A Bayesian estimation approach is used, which has shown to perform better than maximum likelihood, particularly when employing multilevel models faced with a small number of level 2 units (Browne and Draper, 2006). What is more, in Bayesian estimation, uncertainty does not represent relative frequencies, but the conviction to make use of the best explanatory model for the observations at hand (Gill, 2008: 2). Since Swiss cantons constitute no random sample but the population of all possible cantons, the Bayesian approach is more appropriate here than frequentist estimation techniques.

For an easy interpretation of the Bayesian estimation results, we provide the mean and the 95 per cent credible interval of the posterior distribution, which can be interpreted as in a standard regression situation. The mean is the average effect of an independent variable on the outcome variable and the credible interval, the Bayesian analogue to confidence intervals in a standard regression context (cf. Bräuninger et al., 2010; Hangartner et al., 2007), gives a sense of the statistical reliability of this estimate.

Even though Bayesian MCMC estimators[8] are guaranteed to converge with an infinite number of iterations, the finite iterations we run in our analysis require that we assess (non-) convergence (Hangartner et al., 2007: 626). We conducted several visual checks to test for signs of non-convergence (cf. Gill, 2008: 463ff; Tiao and Box, 1973). In a first step, we inspected the trajectories of every single parameter for signs of lacking convergence. We then controlled all parameters for auto- or cross-correlation. Finally, we tested whether the posterior distributions for each parameter indeed take a unimodal shape like they are supposed to.

Empirical results

In this section we subject our theory-derived relationships to empirical tests, with a focus on the influence of reciprocity on the development of informal and formal volunteering. We will present four different models, each with different concepts of reciprocity and volunteering. The first model measures the impact of strategic and altruistic reciprocity on informal volunteering, while Models 2 and 3 estimate the consequences of the two types of reciprocity on formal volunteering for non-solidary associations and for solidary associations, respectively (see Table 2).[9] Models 1–3 comprise all respondents of the sample, as they ask for the *general likelihood* of informal and formal volunteering in (non-)solidary associations compared to all

other forms of (non-)engagement. By contrast, in the last Model (4) shown in Table 3 the focus shifts to the probability of choosing a specific *kind* of formal volunteering (i.e. non-solidary versus solidary) once an individual opted for formal voluntary engagement. The main results can be described as follows.[10]

— First and foremost, as for our main explanatory variable reciprocity, the results of Table 2 are mainly in line with our theoretical expectations, thereby supporting our differentiated conceptual approach. A closer look at Models 1 and 2 reveals that there is neither a relationship between strategic reciprocity and the likeliness to engage in informal volunteering, nor does altruistic reciprocity coincide with the likeliness for formal volunteering in non-solidary associations, thus corroborating our third hypothesis. More importantly, individuals reporting high levels of altruistic reciprocity are more likely to engage in informal volunteering (Model 1), which corresponds to our hypothesis 1. According to these results, the probability that an individual reporting high values of altruistic reciprocity (10) engages in informal volunteering is 11 per cent higher compared to a person exhibiting identical individual characteristics but low values of altruistic reciprocity (0).[11] Accordingly, while individuals often engage in informal volunteering in order to help others, the deeper root of this helping motivation might be attributed to the fact that these same individuals received help in the past, which they now want to give back to the society.
— Turning to formal volunteering for non-solidary associations, Model 2 in Table 2 shows that the general likelihood of individuals choosing this kind of organizational engagement is not affected by strategic reciprocity. The coefficient for this relationship is positive, but the credible interval crosses the zero line, meaning that the relationship is not statistically reliable. In a similar vein, Model 3 displays a positive coefficient between altruistic reciprocity and formal volunteering in solidary associations, which is, however, not statistically reliable. While these findings contradict our expectation outlined in hypothesis 2, the negative *and* relevant coefficient for strategic reciprocity and formal volunteering in solidary associations meets our expectation outlined in hypothesis 3. In substantial terms this effect is rather modest: the probability that a person indicating high values of strategic reciprocity (10) engages in solidary formal volunteering is 4.5 per cent lower compared to a person with low levels of strategic reciprocity (0).

Table 2. Reciprocity and volunteering (all respondents).

	Informal volunteering	Formal volunteering	
		Non-solidary	*Solidary*
	Model 1	Model 2	Model 3
FIXED EFFECTS			
Constant	−1.77 [−2.40:−1.16]	−2.73 [−3.41:−2.05]	−3.15 [−3.88:−2.34]
Individual level			
Strategic reciprocity	−0.01 [−0.04:0.01]	0.03 [−0.01:0.05]	−0.05 [−0.08:−0.02]
Altruistic reciprocity	0.04 [0.01:0.07]	0.02 [−0.03:0.06]	0.01 [−0.03:0.05]
Sex (ref.cat.: male)	0.40 [0.27:0.53]	−0.64 [−0.82:−0.47]	0.26 [0.07:0.44]
Age	−0.01 [−0.01:−0.004]	−0.02 [−0.02:−0.01]	−0.002 [−0.01:0.004]
Immigrant	−0.25 [−0.45:−0.04]	−0.91 [−1.24:−0.58]	−0.63 [−0.99:−0.29]
Education (ref.cat.: medium education)			
Low education	−0.46 [−0.64:−0.28]	−0.59 [−0.86:−0.32]	−0.56 [−0.86:−0.28]
High education	−0.02 [−0.17:0.13]	−0.03 [−0.22:0.16]	0.63 [0.44:0.82]
Employment (ref. cat.: part-time)			
Full-time employment	−0.36 [−0.53:−0.19]	0.01 [−0.11:0.32]	−0.36 [−0.59:−0.13]
Not employed	−0.04 [−0.20:0.12]	−0.39 [−0.60:−0.16]	−0.09 [−0.29:0.13]
Trust	0.04 [0.01:0.06]	0.07 [0.03:0.10]	0.10 [0.06:0.14]
Social network	0.09 [0.05:0.14]	0.23 [0.16:0.30]	0.10 [0.03:0.17]

(Continued)

Table 2. (Continued)

	Informal volunteering	Formal volunteering	
		Non-solidary	*Solidary*
	Model 1	Model 2	Model 3
Residential stability	0.02 [–0.05:0.09]	0.08 [–0.02:0.16]	0.17 [0.06:0.27]
Homeowner	0.19 [0.07:0.31]	0.35 [0.20:0.51]	0.10 [–0.07:0.26]
Religious affiliation (ref.cat.: Prot. and other)			
Catholic	−0.03 [–0.16:0.09]	−0.02 [–0.17:0.15]	−0.08 [–0.25:0.09]
Muslim	−0.13 [–0.70:0.41]	−3.17 [–6.26:–1.25]	−0.71 [–1.99:0.31]
None	−0.04 [–0.23:0.14]	−0.32 [–0.56:–0.07]	−0.70 [–0.98:–0.43]
Contextual level			
Urbanization	−0.06 [–0.18:0.07]	−0.34 [–0.50:–0.18]	−0.26 [–0.44:–0.07]
Share German speaking	0.004 [0.002:0.006]	0.01 [0.002:0.008]	0.00 [–0.004:0.004]
RANDOM EFFECTS			
Contextual variance	0.002 [0.001:0.01]	0.01 [0.001:0.05]	0.04 [0.002:0.13]
N	5772	5777	5777
DIC	7024.26	4802.31	4370.73

Note: Mean posterior distributions of log-odds, and 95% credible interval (squared brackets); all models were calculated in MlwiN using MCMC estimation (15,000 iterations, burn-in 1000, diffuse [gamma] priors); no signs of non-convergence.

The partial confirmation of our theoretical expectations suggests that the decision to engage in non-solidary/solidary formal volunteering as opposed to all other forms of (non-)engagement depends, besides individual norms

of reciprocity, on specific forms of individual capital (social, human) and socio-demographic characteristics (see below). Yet, as elaborated in our theoretical section, varying individual motives are clearly related to different kinds of formal volunteering. Accordingly, once an individual has opted for organizational volunteering, motivational factors should be decisive for her choice of a specific kind of formal voluntary engagement (cf. Clary et al., 1996).

— Based on these considerations, we conducted the same analysis as in Model 2 for formal volunteers only (Model 4 in Table 3).[12] The findings presented in Model 4 corroborate our theoretical expectation, and thus, hypothesis 2: when considering formal volunteers only, the likeliness for non-solidary engagement is indeed higher for individuals reporting high values of strategic reciprocity, whereas there is still no relationship between altruistic reciprocity and formal volunteering in associations mainly pursuing individual material goods. The calculation of predicted probabilities reveals a considerable effect of reciprocity on volunteering: the probability that a person indicating high strategic reciprocity (10) engages in non-solidary as opposed to solidary formal volunteering is 14 per cent higher compared to an individual with very low levels of strategic reciprocity (0).

Table 3. Reciprocity and non-solidary formal volunteering (formal volunteers only).

	Non-solidary formal volunteering
	Model 4
FIXED EFFECTS	
Constant	0.56 [−0.42:1.65]
Individual level	
Strategic reciprocity	0.06 [0.02:0.10]
Altruistic reciprocity	0.02 [−0.04:0.08]
Sex (ref.cat.: male)	−0.78 [−1.03:–0.54]
Age	−0.02 [−0.02:–0.01]
Immigrant	−0.08 [−0.56:0.41]
Education (ref.cat.: medium education)	
Low education	−0.09 [−0.48:0.31]
High education	−0.49 [−0.74:–0.62]

(Continued)

Table 3. (Continued)

	Non-solidary formal volunteering
	Model 4
Employment (ref. cat.: part-time)	
Full-time employment	0.25 [−0.06:0.56]
Not employed	−0.26 [−0.54:0.03]
Trust	−0.04 [−0.10:0.01]
Social network	0.09 [0.002:0.19]
Residential stability	−0.05 [−0.17:0.08]
Homeowner	0.22 [−0.01:0.44]
Religious affiliation (ref.cat.: Protestant and other)	
Catholic	−0.02 [−0.24:0.21]
Muslim	−2.36 [−5.78:0.10]
None	0.31 [−0.06:0.67]
Contextual level	
Urbanization	−0.05 [−0.27:0.15]
Share German speaking	0.01 [0.001:0.01]
RANDOM EFFECTS	
Contextual level variance	0.01 [0.001:0.07]
N	1749
DIC	2263.08

Note: Mean posterior distributions of log-odds, and 95% credible interval (squared brackets); all models were calculated in MlwiN using MCMC estimation (15,000 iterations, burn-in 1000, diffuse [gamma] priors); no signs of non-convergence.

— With respect to the control factors, the empirical results in Table 2 largely corroborate the findings of existing research on volunteering. Accordingly, the likeliness of formal volunteering (Model 2) is higher for educated young Swiss males with employment (cf. Salamon and Sokolowski, 2003; Wilson, 2000). Furthermore, locally rooted individuals indicating an elevated frequency of social contacts as well as high levels of interpersonal trust are more likely to engage in formal volunteering (cf. Stadelmann-Steffen and Freitag, 2011), whereas this likelihood is lower for Muslim respondents (cf. Joppke, 2010; Statham et al., 2005) and undenominational individuals. A look at the contextual variables shows finally that the

likelihood of formal volunteering is higher in rural than in urban areas and that it is particularly widespread in German-speaking Switzerland (Stadelmann-Steffen et al., 2010). Thus, our findings corroborate the scholarly consensus according to which formal volunteering requires individual resources in terms of social and human capital, which explains why men are still more likely to engage in formal volunteering than women and why this likeliness is lower for unemployed individuals. This picture is largely confirmed considering contextual and individual determinants of solidary formal volunteering (Model 3) as well as informal volunteering (Model 1). Unlike non-solidary formal volunteering, but similar to informal volunteering, women are more likely to engage in solidary formal engagement. Whereas the same holds for highly educated individuals, a full-time employment hampers the likeliness for solidary formal engagement. When it comes to informal volunteering, the explanatory power of the individual variables is slightly weaker, indicating that individual resources are a less important precondition for this form of volunteering, which is, again, in line with existing research (cf. Nollert and Huser, 2007). This assumption, however, cannot be extended to individual time resources, since they appear as a relevant condition for informal and solidary formal volunteering (Models 1 and 3), where engagement is less likely among people with full-time employment. Lower individual resources as well as higher scores in altruism and empathy attributed to socialization processes are also often mentioned as an explanation for women's higher informal engagement (and, analogously, solidary formal engagement) compared to men (cf. Wilson, 2000). A look at Model 4 in Table 3 finally shows that socio-demographic characteristics and the individual stock of human and social capital are least decisive in explaining individual choices between different kinds of formal volunteering, thus supporting our assumption that this decision tends to be driven by motivational factors.

Conclusion

This paper addressed the question whether volunteering bears the marking of purely altruistic and selfless motives, or whether egocentric motivations might also initiate voluntary engagement. In contrast to existing research, which has provided ambiguous answers to this question, we claim that while clear-cut statements are possible, they require a more differentiated theoretical conceptualization of the complex terms reciprocity and volunteering to

facilitate the formulation and testing of more subtle hypotheses. Our basic argument renders earlier ways of thinking more precise and overcomes previous analytical deficits. Consequently, our conceptual foundation is able to produce a more appropriate model to explain the formation of volunteering.

The empirical evidence resulting from our Bayesian multilevel analyses supports our differentiated approach: based on a theoretical framework of reciprocity and volunteering, we have been able to gain more concise insights into the relationship between the two concepts. More specifically, our findings suggest that individual informal volunteering, which is occasionally referred to as "informal helping" (cf. Wilson, 2000; Wilson and Musick, 1997), does indeed coincide with high personal levels of altruistic reciprocity. In addition, we find that high levels of strategic reciprocity are only related to formal volunteering in non-solidary as opposed to solidary organizations. This finding confirms our assumption that the general category of formal volunteering is too complex in order to establish a clear relationship with a specific form of reciprocity, as it embraces disparate types of engagement based on distinct motivations. By contrast, we found a negative relationship between strategic reciprocity and the likelihood for solidary formal volunteering, whereas altruistic reciprocity is not related to formal volunteering for non-solidary associations, nor is strategic reciprocity to informal volunteering.

The differentiated findings presented in this paper contradict purist scholars: neither is volunteering an entirely altruist and selfless activity (cf. Putnam, 2000), nor does it always represent an egocentric, rational action assessed by a cost–benefit analysis (cf. Smith, 1981). According to our results, depending on the kind of volunteering one examines, volunteering implies both altruist *and* egocentric motivations.

Overall, our findings bear important implications for the motivational research on volunteering. Reciprocity and volunteering are not contradictory concepts; it rather appears that voluntary engagement depends on individuals' reciprocal attitudes. Thus, help received in the past might motivate individuals in the form of altruistic reciprocity to pay back this good to the larger society and engage in informal volunteering. Furthermore, the belief that helping someone is the best way to receive help in the future, that is, strategic reciprocity, may trigger the decision to engage in formal voluntary engagement for associations pursuing individual material goods. Future research could show whether these positive relationships between specific forms of reciprocity and volunteering are more (or less) salient for specific groups, that is, if they moderate individual propensities to volunteer linked to socio-demographic characteristics. For instance, one might expect that norms of reciprocity motivate specific groups to engage in volunteering,

such as people with low levels of education or immigrants, two groups that would otherwise have a low propensity to volunteer. In this way, one could test Gouldner's (1960) classical assumption that reciprocity acts as a starting mechanism of social cooperation in consolidating societies, such as, for instance, contemporary immigration societies. From a larger societal perspective, these examples show that the reciprocal concept "what goes around comes around" remains an important principle of human interaction, which facilitates cooperation as it contributes to the social capital and, thus, the social cohesion of societies. Considering the socially integrative potential of volunteering, our findings underscore the importance of the transfer of reciprocal values, be it through education in school or at home or through everyday social exchanges.

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Notes

1. We focus on altruistic and strategic variants of reciprocity in order to gain further insight into the relevance of self-centred versus other-centred motives for volunteering at the individual level. Yet, other forms of reciprocity also matter for the decision to volunteer, for instance generalized reciprocity when it comes to explain volunteering at the community level (cf. Eckstein, 2001; Mauss, [1950]1990).
2. Note that our understanding of altruistic reciprocity corresponds to Diekmann's (2004) narrow and particularistic, that is, person-specific, definition of the term. A broader understanding is used by Berger (2013: 31), who defines altruistic reciprocity as "the unconditional tendency of ego to return any experienced action, no matter if the receiver is the same person ego has received the action from or not". In our view, such an encompassing definition blurs the crucial distinction between generalized and altruistic reciprocity.
3. *Informal* voluntary activity is generally per definition an activity that takes place in the proximate social surroundings. We are, however, well aware, that – at least theoretically – there are possible situations in which this type of volunteering takes place beyond one's immediate community.
4. Wilson and Musick (1997) support this varying motivational pattern indirectly when they explain females' higher propensity to engage in informal volunteering with typical socialization patterns according to which women score higher on measures of altruism and empathy than men.
5. The list of possible associations is confined to sports clubs, cultural clubs, church or church-like associations, interest groups, leisure organizations, charitable organizations, civil service, human rights and environmental organizations and political organizations (see Codebook in Table 4 of the Appendix).

6. We do so by recoding the following question: "As for your formal voluntary engagement, please indicate the organization or association in which you spend most time for formal volunteering".
7. Our categorization of solidary and non-solidary associations follows the insights of Warren (2001), who offers a more subtle differentiation of voluntary associations depending on the purpose they pursue (see also Zmerli, 2003). Certainly, most organizations pursue multiple goals (Janoski and Wilson, 1995: 275); however, almost every organization can be assigned a main purpose, and we think that this criterion allows us to clearly distinguish solidary from non-solidary objectives as primary purposes of organizations. Our categorization largely corresponds to Janoski and Wilson's (1995) distinction between self-oriented versus community-oriented organizations, albeit with one notable difference: while Janoski and Wilson (1995) view service organizations as community-oriented, we classify civil service organizations (e.g. firefighters) as non-solidary volunteering, since the primary purpose of these organizations is not solidarity, but to provide specific services to the community. What is more, our classification of organizational purposes does not necessarily overlap with individual purposes. While an individual might view volunteering for her party as either solidary or not explicitly solidary volunteering, the purpose of parties is not primarily solidarity, but rather the advocacy of the party ideology.
8. MCMC stands for "Markov Chain Monte Carlo", the standard estimation techniques for statistical Bayesian analysis (cf. Gill, 2008: chapters 8 and 9).
9. Additional models not reported here prove that there is no relationship between altruistic or strategic reciprocity and formal volunteering. These results corroborate our implicit assumption that formal volunteering embraces very diverse forms of associational involvement reflecting very distinct individual motivations, thereby making it impossible to establish clear relationships between specific norms of reciprocity and formal volunteering.
10. Additional robustness test models based on alternative classifications such as caring versus non-caring volunteering as well as community-centred versus self-centred voluntary organizations (Janoski and Wilson, 1995) do not alter the findings reported here (analyses available upon request). We would like to thank two anonymous reviewers for their helpful comments in this respect.
11. All predicted probabilities reported in this paper are calculated based on average individual characteristics, that is, for a middle-aged female Protestant Swiss homeowner, with medium education and part-time employment, exhibiting average values of trust, social networks and residential stability (cf. Table 4 in the Appendix) and living in an urban and German-speaking canton.
12. In this estimation, we consider the mere likelihood of non-solidary volunteering (coded 1) as opposed to solidary formal engagement (coded 0).

References

Amato PR (1990) Personality and social network involvement as predictors of helping behaviour in everyday life. *Social Psychology Quarterly* 53: 31–43.

Ammann H (2001) *Von Freiwilligkeit sei die Rede*. Zürich: Schweizerische Gemeinnützige Gesellschaft.

Andreoni J (1990) Impure altruism and donations to public goods: a theory of warm-glow giving. *Economic Journal* 100: 464–477.

Axelrod RM (1984) *The Evolution of Cooperation*. New York: Basic Books.

Baglioni S (2004) *Société civile et capital social en Suisse. Une enquête sur la participation et l'engagement associatif*. Paris: L'Harmattan.

Berger J (2011) Altruistische Reziprozität. Empirische Evidenz aus sequentiellen Diktator- und Taking-Spielen bei 11-jährigen Kindern. *Soziale Welt* 2: 165–184.

Berger R (2013) Altruistische Reziprozität. Theoretische Überlegungen und experimentelle Evidenz. *Kölner Zeitschrift für Soziologie und Sozialpsychologie* 65: 31–48.

Bräuninger T, Gschwend T and Shikano S (2010) Sachpolitik oder Parteipolitik? Eine Bestimmung des Parteidrucks im Bundesrat mittels bayesianischer Methoden. *Politische Vierteljahresschrift* 51: 223–249.

Browne WJ and Draper D (2006) A comparison of Bayesian and likelihood-based methods for fitting multilevel models. *Bayesian Analysis* 1: 473–514.

Bühlmann M and Freitag M (2005) *Freiwilligkeit als soziales Kapital der Gesellschaft. Makrosoziologische Untersuchungen für die Schweizer Kantone. Schlussbericht des Forschungsprojektes zuhanden der Schweizerischen Gemeinnützigen Gesellschaft (SGG)*. Zürich: Universität Zürich/Konstanz: Universität Konstanz.

Bühlmann M and Freitag M (2007) Freiwilligkeit als soziales Kapital der Gesellschaft. Ein Vergleich der Schweizer Kantone. In: Farago P (ed.) *Freiwilliges Engagement in der Schweiz: Ergebnisse neuer Forschungen*. Zürich: Seismo, pp. 56–107.

Clary EG and Snyder M (1999) The motivations to volunteer: theoretical and practical considerations. *Current Directions in Psychological Science* 8: 156–159.

Clary EG, Snyder M and Stukas AA (1996) Volunteers' motivations: findings from a national survey. *Nonprofit and Voluntary Sector Quarterly* 25: 485–505.

Deci EL (1975) *Intrinsic Motivation*. New York: Plenum Publishing Company Limited.

Dekker P and Halman L (2003) *The Values of Volunteering: Cross-Cultural Perspectives*. New York: Kluwer Academic/Plenum Publishers.

Diekmann A (2004) The power of reciprocity. Fairness, reciprocity and stakes in variants of the dictators game. *Journal of Conflict Resolution* 48: 487–505.

Eckstein S (2001) Community as gift-giving: collectivist roots of volunteerism. *American Sociological Review* 66: 829–851.

Franzen A and Pointner S (2008) Fairness und Reziprozität im Dikatorspiel. In: Rehberg K-S (ed.) *Die Natur der Gesellschaft. Verhandlungen des 33. Kongresses der Deutschen Gesellschaft für Soziologie in Kassel* (CD Rom). Frankfurt/New York: Campus Verlag, pp. 2113–2125.

Freitag M and Traunmüller R (2008) Sozialkapitalwelten in Deutschland. Soziale Netzwerke, Vertrauen und Reziprozitätsnormen im subnationalen Vergleich. *Zeitschrift für Vergleichende Politikwissenschaft* 2: 221–256.

Gallagher SK (1994) Doing their share: comparing patterns of help given by older and younger adults. *Journal of Marriage and Family* 56: 567–578.

Gill J (2008) *Bayesian Methods: A Social and Behavioral Sciences Approach*. Boca Raton, FL: Chapman & Hall/CRC Press.

Gouldner AW (1960) The norm of reciprocity: a preliminary statement. *American Sociological Review* 25: 161–178.

Gundelach B, Freitag M and Stadelmann-Steffen I (2010) Making or breaking informal volunteering. Welfare statism and social capital in a sub-national comparative perspective. *European Societies* 12: 627–652.

Hangartner D, Bächtiger A, Grünfelder R, et al. (2007) Mixing Habermas with Bayes: methodological and theoretical advances in the study of deliberation. *Swiss Political Science Review* 13: 607–644.

Haski-Leventhal D (2009) Altruism and volunteerism: the perceptions of altruism in four disciplines and their impact on the study of volunteerism. *Journal for the Theory of Social Behaviour* 39: 271–299.

Janoski T and Wilson J (1995) Pathways to voluntarism: family socialization and status transmission models. *Social Forces* 74: 271–292.

Jones K (1997) Multilevel approaches to modelling contextuality. From nuisance to substance in the analysis of voting behaviour. In: Westert P and Verhoeff RN (eds) *Places and People: Multilevel Modelling in Geographical Research*. Utrecht: KNAG/Netherlands Geographical Studies, pp. 19–43.

Joppke C (2010) *Veil: Mirror of Identity*. Cambridge: Polity.

Kriesi H (2004) Freiwilligkeit aus der Sicht der Politikwissenschaft. In: Ammann H (ed.) *Freiwilligkeit zwischen liberaler und sozialer Demokratie*. Zürich: Seismo, pp. 72–85.

Mannino CA, Snyder M and Omoto AM (2011) Why do people get involved? Motivations for volunteerism and other forms of action. In: Dunning DA (ed.) *Social Motivation*. New York: Psychology Press, pp. 127–146.

Mauss M ([1950]1990) *The Gift: The Form and Reason for Exchange in Archaic Society*. London: Routledge.

Musick M and Wilson J (2008) *Volunteers: A Social Profile*. Bloomington, IN: Indiana University Press.

Nollert M and Huser C (2007) Freiwillig Aktive in der Schweiz: Einflussfaktoren und typische Profile. In: Farago P (ed.) *Freiwilliges Engagement in der Schweiz*. Zürich: Seismo Verlag, pp. 14–55.

Osteen M (2002) Introduction: questions of the gift. In: Osteen M (ed.) *The Question of the Gift: Essays Across Disciplines*. London: Routledge, pp. 1–41.

Perugini M, Galluci M, Presaghi F, et al. (2003) The personal norm of reciprocity. *European Journal of Personality* 17: 251–283.

Putnam RD (2000) *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon & Schuster.

Salamon LM and Sokolowski WS (2003) Institutional roots of volunteering. In: Dekker P and Halman L (eds) *The Values of Volunteering: Cross-Cultural Perspectives*. New York: Kluwer Academic/Plenum Publishers, pp. 71–90.

Salamon LM, Sokolowski WS and Haddock MA (2011) Measuring the economic value of volunteer work globally: concepts, estimates, and a roadmap to the future. *Annals of Public and Cooperative Economics* 82: 217–252.

Silber IF (2001) The gift-relationship in an era of 'loose' solidarities. In: Ben-Rafael E and Sternberg Y (eds) *Identity, Culture and Globalization*. Leiden: Brill, pp. 385–400.

Smith DH (1981) Altruism, volunteers, and volunteerism. *Nonprofit and Voluntary Sector Quarterly* 10: 21–36.

Stadelmann-Steffen I and Freitag M (2011) Making civil society work: models of democracy and their impact on civic engagement. *Nonprofit and Voluntary Sector Quarterly* 40: 526–551.

Stadelmann-Steffen I, Freitag M and Bühlmann M (2007) *Freiwilligen-Monitor Schweiz 2007*. Zürich: Seismo.

Stadelmann-Steffen I, Traunmüller R, Gundelach B, et al. (2010) *Freiwilligen-Monitor Schweiz 2010*. Zürich: Seismo.

Statham P, Koopmans R, Giugni M, et al. (2005) Resilient or adaptable Islam? Multiculturalism, religion and migrants' claims-making for group demands in Britain, the Netherlands and France. *Ethnicities* 5: 427–459.

Steenbergen M and Jones BS (2002) Modeling multilevel data structures. *American Journal of Political Science* 46: 218–237.

Stolle D and Rochon TR (1998) Are all associations alike? Member diversity, associational type and the creation of social capital. *American Behavioral Scientist* 42: 47–65.

Sundeen RA, Raskoff SA and Garcia C (2007) Differences in perceived barriers to volunteering to formal organizations: lack of time versus lack of interest. *Nonprofit Management and Leadership* 17: 279–300.

Taylor M (1976) *Anarchy and Cooperation*. New York: Wiley.

Tiao GC and Box GEP (1973) Some comments on "Bayes" estimators. *American Statistical Association* 27: 12–14.

Traunmüller R, Stadelmann-Steffen I, Ackermann K, et al. (2012) *Zivilgesellschaft in der Schweiz. Analysen zum Vereinsengagement auf lokaler Ebene*. Zürich: Seismo.

Warren ME (2001) *Democracy and Association*. Princeton, NJ: Princeton University Press.

Wilson J (2000) Volunteering. *Annual Review of Sociology* 26: 215–240.

Wilson J (2012) Volunteerism research: a review essay. *Nonprofit and Voluntary Sector Quarterly* 41: 176–212.

Wilson J and Janoski T (1995) The contribution of religion to volunteer work. *Sociology of Religion* 56: 137–152.

Wilson J and Musick M (1997) Toward an integrated theory of volunteer work. *American Sociological Review* 62: 694–713.

Wuthnow R (1991) *Acts of Compassion: Caring for Others and Helping Ourselves*. Princeton, NJ: Princeton University Press.

Zmerli S (2003) Applying the concepts of bonding and bridging social capital to empirical research. *European Political Science* 2: 68–75.

Appendix

Table 4. Variables, operationalization and data sources.

Variable	Summary statistics	Operationalization/source[a]
Dependent variables		
Formal voluntary engagement	*Shares*: Volunteer: 27.2% Non-volunteer: 72.8%	Dummy: 1 = Individual performs formal unpaid work for an organization or association; 0 = Individual does not perform formal unpaid work for an organization or association such as sports clubs, cultural clubs, church or church-like associations, interest groups, charitable organizations, leisure organizations, civil service, human rights and environmental organizations, political groups.
Formal voluntary engagement for non-solidary organizations I (formal volunteers only)	*Shares*: Non-solidary org.: 55.9% Solidary org.: 44.1%	Dummy: 1 = formal volunteering mainly conducted for non-solidary organizations (i.e. sports clubs, interest groups, leisure organizations, civil service and political groups); 0 = formal volunteering mainly conducted for solidary organizations (i.e. church or church-like associations, charitable organizations, cultural clubs, human rights and environmental organizations).
Formal voluntary engagement for non-solidary organizations II (all respondents)	*Shares*: Non-solidary formal volunteers: 17.7% Remaining respondents: 87.3%	Dummy: 1 = formal volunteering mainly conducted for non-solidary organizations (see above); 0 = all remaining respondents.
Formal voluntary engagement for solidary organizations (all respondents)	*Shares*: Solidary formal volunteers: 10% Remaining respondents: 90%	Dummy: 1 = formal volunteering mainly conducted for solidary organizations (see above); 0 = all remaining respondents.

(Continued)

Table 4. (Continued)

Variable	Summary statistics	Operationalization/source[a]
Informal voluntary engagement	*Shares*: Volunteer: 30.7% Non-volunteer: 69.3%	Dummy: 1 = Individual performs informal unpaid work; 0 = individual does not perform informal voluntary work outside associations or organizations and outside the own household (e.g. babysitting others' children, helping out in the neighbourhood, involvement in projects, organizing (street) festivities, etc.).
Independent variables – Individual level		
Strategic reciprocity	Mean: 6.5 SD: 2.8 Min.: 0 Max.: 10	Agreement on a scale from 0 to 10 (0 = no agreement, 10 = total agreement): "helping someone is the best method to be certain that one will receive help in the future".
Altruistic reciprocity	Mean: 8.4 SD: 1.9 Min.: 0 Max.: 10	Agreement on a scale from 0 to 10 (0 = no agreement, 10 = total agreement): "I put a particular effort in helping someone who has helped me in the past."
Sex	*Shares*: Male: 39.2% Female: 60.8%	Dummy: 0 = men; 1 = women.
Age	Mean: 56.5 SD: 17.1 Min.: 17 Max.: 98	Age (in years) of the persons interviewed.
Nationality	*Shares*: Swiss: 88.1% other: 11.9%	Dummy: 0 = Swiss; 1 = other.

(Continued)

Table 4. (Continued)

Variable	Summary statistics	Operationalization/source[a]
Educational level	*Shares*: Low education: 14.2% Medium education: 66.9% High education: 18.9%	Highest completed level of education, 3 categories: (1) no education higher than obligatory school or low educational achievements; (2) secondary education; (3) tertiary education.
Employment	*Shares*: Full-time: 32% Part-time: 21.5% Not employed: 46.5%	3 categories: (1) full-time employed; (2) part-time employed; (3) not employed.
Trust	Mean: 6.5 SD: 2.2 Min.: 0 Max.: 10	Scale from 0 to 10: 0 = no trust; 10 = high trust in other people.
Social networks	Mean: 5.2 SD: 1.3 Min.: 1 Max.: 7	Frequency of contacts with friends, family and colleagues (outside work), 7 categories: (1) never; (2) less than once a month; (3) once a month; (4) several times a month; (5) once a week; (6) several times a week; (7) daily.
Religious affiliation	*Shares*: Protestant and other: 38.9% Catholic: 45.2% Muslim: 1.3% Non-affil.: 14.6%	4 categories: (1) Protestant and other; (2) Catholic; (3) Muslim; (4) non-affiliated.

(Continued)

Table 4. (Continued)

Variable	Summary statistics	Operationalization/source[a]
Residential stability	Mean: 3.7 SD: 0.8 Min.: 1 Max.: 5	Time spent living in same place, 5 categories: (1) less than one year; (2) one to three years; (3) three to 10 years; (4) more than 10 years; (5) since birth.
Homeowner	*Shares*: Homeowner: 54.5% Renter: 45.5%	Dummy: 0 = renter, 1 = homeowner.
Independent variables – Contextual level		
Urbanization	*Shares*: Urban: 69.4% Rural/aggl.: 30.6%	Dummy: 0 = rural, 1 = urban/agglomeration; source: Federal Statistical Office: population census, 2000.
Linguistic region	Mean: 78.2 SD: 33.9 Min.: 13 Max.: 99	Percentual share of German-speaking population within a canton; source: based on Federal Statistical Office, population census 2000.

[a]All individual variables are taken from the Swiss Volunteering Survey 2009.