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Working papers

Motivations to volunteer and social capital: the role of intrinsic motivations in promoting networks of cooperative relations

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Summary

Although intrinsic motivations receive increasing attention in explaining human actions, our knowledge on their causes and effects is incomplete. Quite surprisingly, the existing literature fails to consider the relationship between intrinsic motivations and social capital formation. The present paper increases understanding on the effect of intrinsic motivations by studying the role that different motivations to volunteer have on the creation of volunteers' social capital which is intended as networks of cooperative relations.

Our empirical analysis considers three indices of social capital, aimed at measuring both the quantitative (number) and the qualitative (degree of familiarity and cooperation) character of social relations, and intrinsic and extrinsic motivations to volunteer (ideal motivations, the desire to feel useful to others, the pursuit of social recognition and the desire to increase the number of acquaintances or friends).

We find that the creation of social capital through participation in voluntary associations is not indifferent to the motivations which induced the volunteer to start his/her unpaid activity. In particular, we show that intrinsic motivations enable people to extend their social networks by creating relations characterized by a significant degree of familiarity. By contrast, extrinsic motivations, and in particular the decision to join an association in order to increase the number of acquaintances or friends, promote the creation of networks from a quantitative point of view, but they do not facilitate the creation of relations based on a particular degree of confidence.

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The analysis presented in this paper stems from research conducted within the joint project "The added value of volunteer work" carried out by EconomEtica – University of Milano Bicocca, University of Parma, "Forum Solidarietà – centre for voluntary work in Parma" and Cariparma Foundation. I would like to thank all the project's participants. I wish to thank also Marco Faillo and Gianluca Grimalda. Remaining errors are solely my own.

1. Introduction

Why do people volunteer? What effect does participation in voluntary associations have on members' social capital? What relation connects the motivation to volunteer and its effect? We draw on an original dataset developed by the author to investigate these three interrelated questions. We also stress the economic relevance and the policy implications of their answers. The paper differs from other studies by its analysis of the effect of intrinsic and extrinsic motivations on the creation of volunteers' social capital, which is defined in terms of networks of cooperative relations.

Why do people volunteer?

We distinguish between extrinsic (though obviously non monetary) and intrinsic motivations to engage in volunteer work. After the seminal works by Titmuss (1970), Deci (1971, 1972, 1975), and Frey (1997) with respect to the economic literature, intrinsic motivations have received increasing attention in explaining human action. Even in standard economic environments, people do not care about their material payoffs alone or, more in general, about the consequences of actions; they also have intrinsic reasons to act (Frey and Jegen 2001). Following Deci, "one is said to be intrinsically motivated to perform an activity when one receives no apparent reward except the activity itself" (Deci 1971, P.105).[1]

Specific conditions characterizing different situations may be more (or less) congenial for intrinsic motivations to arise (Frey 1997). The typical Walrasian market characterized by anonymous interactions restricted to the transmission of coded information through the auctioneer's agency seems not to leave room for intrinsic motivations. And yet, intrinsic motivations may play an important role in institutions characterized by personal relations and high participation in decisions. This is, for example, the case of nonprofit organizations (Frey and Goette 1999), where the large presence of volunteer work may strengthen the idea that people act because they obtain satisfaction from the action in itself. Obviously, volunteers may also be extrinsically motivated. Firstly, they may be interested in the output produced by associational activities. In this case, the voluntary contribution is aimed at enhancing the effect of the association's work on its recipients (Schiff 1990, Duncan 1999). Secondly, volunteers may desire to improve their human capital through the

[1] The literature stresses that the distinction between extrinsic and intrinsic motivations is not always clear and that "in many cases, the two motivations come together" (Frey 1997, p. 14). However, we share Frey's ideas (1997) that "for the purpose of explaining economically and socially relevant human behavior, it suffices that it makes sense to distinguish activities which individuals (mainly) do just because they like them, and others which they (mainly) do because they are induced to do so by monetary payment or by command." (Frey 1997, p.14).

activities carried out in the association (Menchik and Weisbrod 1987). Thirdly they may be attracted by the social recognition that derives from volunteering (Schiff 1990).

Despite the clarity of the theoretical hypotheses, empirical investigations have not definitively clarified the role of these various motivations in explaining volunteer work (Prouteau and Wolff 2004). Our empirical analysis investigates the reason behind the decision to volunteer by explicitly asking unpaid workers in voluntary associations to state why they decided to start their activity. In particular, we distinguish between intrinsic motivations (desire to feel useful for others and ideal reasons) and extrinsic motivations (desire to increase the number of acquaintances or friends and social recognition)[2]. We find that intrinsic motivations are more influential in inducing people to volunteer and, more importantly, we find evidence of significant differences between intrinsic and extrinsic motivations in promoting the creation of volunteers' social capital.

What effect does participation in voluntary associations have on members?

Several studies on the effect of participation in voluntary associations refer to notions usually associated with the concept of social capital.[3] They consider the effect of voluntary participation on civicness (Mayer 2003, Wollebæck and Selle 2003), generalized trust (Brehm and Rahn 1997, Stolle and Rochon 1998, Claibourn and Martin 2000, Mayer 2003, Wollebæck and Selle 2003), trust in public institutions (Brehm and Rahn 1997, Stolle and Rochon 1998, Mayer 2003, Wollebæck and Selle 2003) and indicators of tolerance, free riding and optimism (Stolle and Rochon 1998). Whilst social capital understood in terms of social norms has been thoroughly studied in relation to associational membership, this is not the case of social capital understood as a cooperative network of relations.[4] Contribution in this regard have been made by Wollebæck and Selle (2002) and Prouteau and Wolff (2004). Wollebæck and Selle consider two proxies of social networks. Both are computed by considering the groups outside the sphere of family and relations which are evaluated to be important parts of one's social circle. In the questionnaire used by the

[2] We assume that both the desire to feel useful for others and ideal reasons essentially concern the "inner feelings" (Frey 1997, p.13) which may induce people to act. By contrast, both social recognition, which is usually considered an extrinsic reason to act (see Frey 1997, p.14), and the desire to increase the number of acquaintances are clearly associated with extrinsic motivations.

[3] There are two main approaches to the concept of social capital. The first considers social capital in terms of civicness and social norms of trust and reciprocity (e.g. Putnam et al. 1993 and Knack and Keefer 1997), the second conceives social capital in terms of cooperative networks of relations (this is the approach followed, for example, by Coleman 1988, 1990 and Burt 1992, 2002).

[4] To be stressed is that, at a macro level, since the seminal work by Putnam et al. (1993), associational membership in itself is often considered a proxy for social capital. Sabatini (2008), for example, considers the diffusion of voluntary organizations as a proxy for the density of cooperative networks. However, we adopt a micro approach and investigate the relation between voluntary participation and relational networks by analyzing how participation affects social network formation.

authors, respondents were asked to check a box for each of the following 5 groups: "neighbours and local community where you live now," "current colleagues or fellow students," "former colleagues or fellow students," "friends from where you grew up," and "others." The first measure of social networks is based on the number of groups that a respondent declared to be part of his/her network. The second proxy is a dummy variable that represents the presence or absence of "*friends obtained in the current situation"*, that is, either current colleagues, fellow students, or neighbors (Wollebæck and Selle 2002, p.41). According to the authors' intention, this second indicator wants to measure the impact of involvement in associations on the construction of new social networks. Wollebæck and Selle find that membership is positively correlated with both these two proxies of social networks. Prouteau and Wolff (2004) study the relationship between consumption of relational goods and participation. To this end, they analyse the correlation between associational participation and the number of informal meetings with friends by using data at household level. The authors find that the frequency of gatherings with friends per household is positively affected by the participation in voluntary associations by at least one of the family members.

In this paper we improve understanding of the relationship between associational membership and social network in three directions. Firstly, we consider the role that different motivations to volunteer have on the creation of social networks connected to participation in voluntary associations. We are not aware of any studies on this specific topic. Secondly, we use data at individual level which enable us directly to connect participation and the creation of new social networks and to avoid endogeneity problems (our questions are of the type: how many people met since joining the association do you regard as friends?). Finally, we study the effect of participation on social networks by looking both at the quantitative side of networks (how many people met since joining the association do you regard as friends?) and at the qualitative one (by considering the degree of familiarity characterizing the relations started through the association). This distinction enables us to conduct better investigation of the relationship between motivations and cooperative networks and their economic effect. In fact, a recent study (Degli Antoni 2008) has shown that the effect of social networks on economic variables (specifically individual economic welfare) can only be fully understood by considering also the qualitative aspect of social networks (which in Degli Antoni's paper are considered by looking at the degree of satisfaction with relations) whereas the literature usually focuses on the quantitative element.

What relation connects the motivation to volunteer and its effect in terms of social capital creation?

Although the relationships between motivations and voluntary participation and between voluntary participation and social capital have been often analyzed in the economic literature, we are not

aware of any studies specifically focused on the link between intrinsic and extrinsic motivations to volunteer and the creation of social capital. At least from an empirical point of view, this is probably due to a lack of data with which to conduct this kind of analysis. This paper uses an original database collected by the author, which will be described in more detail below, to address this issue econometrically. It will be shown that social capital formation is significantly affected by the kind of motivation inducing the volunteer to join the association. The creation of cooperative relational networks is fostered by participation in voluntary associations more for intrinsically motivated volunteers than for extrinsically ones.[5] The economic significance of the paper is twofold. Firstly, it increases knowledge about the determinants of social capital, which is substantially recognized as having major effects on the economic system. It is not the mere participation in voluntary associations which generates cooperative networks of relations; essential for these to come about is the role of intrinsic motivations (and consequently the ability of individual associations and of society as a whole to stimulate these attitudes rather than crowding them out[6]). Secondly, the present paper contributes to the literature on intrinsic motivations by stressing a previously unknown effect of this reason to act on social capital formation.

Section 2 presents the database, the social capital and the motivation indices considered in the empirical analysis. Section 3 sets out the empirical results. Section 4 concludes.

2. Database: social capital and motivation indices.

Database

The present analysis is based on an original database collected at the end of 2007 by the author by means of anonymous questionnaires filled in by 290 volunteers of 45 voluntary associations operating in Parma (the ninth Italian province in terms of number of voluntary associations per inhabitants, with 7.3 voluntary associations per 10,000 inhabitants, ISTAT, 2003).[7] The sample of associations was a stratified random sample representing 10% of associations operating in the

[5] This result is rather surprising and interesting if we consider that one of the extrinsic motivations to participate is the desire to increase the number of acquaintances or friends.

[6] Outside interferences via monetary incentives or regulations may both crowd in and crowd out intrinsic motivations (Frey 1997). The literature on the motivation crowding-out effect analyses the reasons why external intervention via monetary payments or regulations may undermine intrinsic motivation. The crowding out effect may be attributed to three psychological processes: Impaired Self-Determination, Impaired Self-Esteem and Impaired Expression Possibility (Frey 1997, pp.16-17). For a survey of empirical evidence on the motivation crowding theory see Frey and Jegen (2001).

[7] In 1991, law no. 266 regulated voluntary associations in Italy by providing that, in order to access public grants and to benefit from tax relief, they must be characterized by solidarity aims and a democratic structure and their members must be for the most part voluntary workers. In this paper we focus only on associations which fulfil these criteria and which are consequently registered in the public registers of voluntary associations.

province. The strata referred to the association's activity[8] and to the district in which it operated.[9] The number of volunteers per association was 6.4 on average (minimum 2, maximum 11 and standard deviation 2.4). The 290 volunteers were randomly selected among the associations' members and they completed a structured questionnaire consisted of 64 questions relative to their experiences as volunteers. Compilation of the questionnaire lasted on average 45 minutes. Our database also contains the data from structured questionnaires (one for each association) consisted of 54 questions filled in by presidents or, alternatively, by volunteers with detailed knowledge on the association. These answered questions intended to investigate the characteristics of the associations in terms of size, year of foundation, operational characteristics etc. The variables constructed by means of these questions concerned the organizational level and assumed the same value for each volunteer belonging to the same association. In ten cases the presidents of the associations completed both the questionnaire on the association and the questionnaire on their experience as volunteers. For this reason, in our empirical analysis we used a dummy which takes the value of 1 for these 10 subjects.

Social capital indices

We considered three proxies for social capital. The first one (named *network_increase*) measured the impact of participation on the increase in the member's social network. It was developed from the question: "As a whole, how many people met since joining the association are now your friends?". The second and third social capital proxies took explicit account of the degree of familiarity characterizing the relations formed through the association. The proxy named *higher_familiarity* was the standardized[10] value mean of the 4 answers to the following questions for each respondent: "How many people met through the association would you

1. talk to about family problems?
2. trust to look after your relatives (children/elderly persons)?
3. ask to take care of your home when you are on holiday?

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[8] Seven activities are undertaken by the associations operating in Parma: Assistance, Health, Environmental and animal conservation, Recreation and culture, Civil defence, Education, Civil rights promotion and preservation. We decided to stratify the sample by considering the activities because volunteers' motivation may significantly change in relation to the activity of the association.

[9] Parma province is divided into four administrative districts which vary a lot for population density. In order to have all the districts represented in our sample we decided to stratify the sample according to the four districts.

[10] This proxy (and also the proxy *lower_familiarity*) was standardized with the following procedure: $\frac{x_{ic} - \min(x_i)}{\max(x_i) - \min(x_i)}$ where: x_{ic} indicates the value i related to the association c. The standardization process generates standardized indicators with the same range of variation between 0 to 1, and it produces a more robust trial in the presence of *outliers* (Saisana and Tarantola 2002, p.11), which seem to characterize our indicators.

4. give/ask for help in activities such as shopping, taking a child or elderly persons to do different activities, etc.?".

The proxy named *lower_familiarity* was the standardized value mean of the 3 answers to the question: "With how many people met through the association have you started the following cooperative relations:

1. phone calls to ask for information or advice?
2. doing not very demanding errands?
3. asking for information about job opportunities?"[11]

The aggregation into two synthetic indices of social capital of the single indicators is justified by their high degree of correlation (see appendix 2).

All three proxies referred to the notion of social capital conceived as a network of cooperative relations. However, they measured different aspects of social networks by considering not only their magnitude but also the degree of familiarity characterizing the network's connections.

Motivations

Although volunteers may not be motivated by monetary incentives, it cannot be ruled out that their decision to join a voluntary association was prompted by other extrinsic motivations. We considered two extrinsic motivations to volunteer: a desire to increase the social recognition which is usually associated with volunteerism (Schiff 1990) and the desire to increase the number of acquaintances or friends (Prouteau and Wolff 2004). With respect to the intrinsic motivations to volunteer, we considered the desire to feel useful for others and ideal motivations.

Extrinsic and intrinsic motivations were measured by asking subjects: "With respect to your decision to become a volunteer, how important were the following aspects, from 1 (not at all) to 7 (entirely)?

- the desire to increase your number of acquaintances or friends (variable named *Mot_network*)
- the pursuit of social recognition (*Mot_socialrecognition*)
- ideal motivations (*Mot_ideal*)
- the desire to feel useful for others (*Mot_usefulness*)"

In the empirical analysis we consider both the single answers and two indices developed by computing the arithmetic mean for each respondent of the replies relative to the extrinsic and

[11] The activities considered in the *higher_familiarity* index directly concern the family circle and consequently imply a higher degree of confidence than those considered in the *lower_familiarity* index.

intrinsic motivations respectively. The two aggregate indices are named *Mot_exctrinsic* and *Mot_intrinsic*.

3.1 Descriptive findings

Descriptive statistics show that participation positively affects social networks of cooperative relations. The average of persons met through the association who have become part of the social network of volunteers (variable *network_increase*) is equal to 7.48 (std.dev. 9.76; min 0; max 50),[12] and 76.90% of respondents declared a number greater than 0.

Tables 1 and 2 show the summary statistics for the indicators used to construct the social capital indices named *higher_familiarity* and *lower_familiarity*.[13] Thanks to their participation in the association, at least 50% of respondents formed, at least with 1 person, the cooperative relationships listed in tables 1 and 2. Note that the lowest median concerns cooperation related to help with activities such as taking a child to do different activities etc., while the highest median concerns the relation which presumably involves the lowest degree of familiarity (phone calls to ask for information or advice).

INSERT TABLES 1 AND 2

In regard to the motivations inducing the decision to become a volunteer, intrinsic motivations seem to be much more important than extrinsic motivations in explaining the decision to engage in volunteer work (Fig.1).

INSERT FIGURE 1

The desire to feel useful for others is the factor that most affects the decision to become a volunteer, while the pursuit of social recognition is the least important one. The desire to increase the number of acquaintances or friends matters more than the pursuit of social recognition, but much less so than the intrinsic motivations.

The next section reports an econometric analysis on the relationship between motivation and social capital which considered several control variables and alternative specifications.

[12] The mean calculation did not include the 7 highest values declared by respondents, which ranged from 90 to 400. If these outliers are included, the mean is equal to 11.96 (std. dev. 34.31) and the median is 4.

[13] The correlation between these two indices is equal to 0.86 (significant at 1%.).

3.2 Econometric findings

The empirical analysis used OLS estimates. In all the regressions we clustered standard errors by considering to which associations the volunteers belonged. We assumed that the observations were independent across groups, but not necessarily between groups (volunteers belonging to the same association).

Table 3 shows the results relative to the index of social capital capturing the relations started through associations characterized by a high degree of familiarity (*higher_familiarity*). Equation 1 considers the aggregate indices *Mot_intrinsic* and *Mot_extrinsic*. Equation 2 comprises all the four single motivations to start volunteer work, and equations 3,4,5 and 6 consider the motivations one by one. All the equations include[14]

- dummies which take account of: the association's activity (*Assistance, Civil rights promotion and preservation, Education, Recreation and culture, Health, Environmental and animal conservation*), the district in which the association operated (*District_dummy1, District_dummy2*, *District_dummy3*) and the fact that in ten cases the presidents of the associations filled in both the questionnaire on the association and the questionnaire on their experience as volunteers (*President_dummy*);
- control variables measured at an individual level: *Age_vol*: volunteer's age; *Female*: dummy which takes the value of 1 if the volunteer is a female; *Education_vol*: education of the volunteer, from 1 (no school) to 7 (postgraduate degree); *Employed*: dummy which takes the value of 1 if the volunteer is employed; *Months_in _ass*: number of months the volunteer has worked for the association; *Hour_per_week*: number of hours per week devoted to the association by the volunteer;
- control variables measured at associational level: *Volunteers*: number of the association's volunteers; *Inactive members*: number of the association's members who do not actively participate in the association; *Workers*: number of the association's paid workers; *Recipients*: number of recipients of the association's services; *Age_association*: numbers of years in operation; *Area*: association's area of activity that varies from the city (value 1) to the international level (value 6); *Awareness-raising meetings*: how often discussion groups aimed at raising members' awareness of collective problems are organized by the association, from 1 (never) to 6 (every week); *Meetings*: how often informal meetings to discuss the association's activity are organized by the association, from 1 (never) to 6 (every week).

[14] All the descriptive statistics of regressors are in the statistical appendix.

INSERT TABLE 3

The estimates show that intrinsic motivations to volunteer positively affect the formation of relational networks involving the volunteer and people met through the association characterized by a high degree of familiarity. In particular, the more robust effect seems to be the one generated by ideal motivations. From a quantitative point of view, when *Mot_ideal* increases by a standard deviation, the effect on *higher_familiarity* is an increase of 0.111 in the standard deviation (equation 2). Extrinsic motivations do not affect the social capital index named *higher_familiarity*.

Other variables which positively affect the *higher_familiarity* dependent variable are: the age of the volunteer, the numbers of years the association has been in operation, the frequency of discussion groups, and the number of the association's recipients. In particular, the last two variables may affect the formation of social capital by increasing the opportunity to meet other people during the volunteer activity. All the association's activity dummies are statistically significant, while the district dummies are not.

Table 4 studies the effect of the same independent variables included in table 3 on the variable *lower_familiarity*. The numbers of the association's years of activity and its number of recipients positively affect the dependent variable, which also assumes higher value for men than for women. Moreover, intrinsic motivations – both the ideal motivations and the desire to feel useful for others – seem to be robust in explaining the creation of social networks measured by the social capital index named *lower_familiarity*. The coefficient magnitude of the intrinsic motivations index implies that the increase of standard deviation in *Mot_intrinsic* increases the *lower_familiarity* index of 0.320 standard deviation (equation 1).

INSERT TABLE 4

The social capital indices analyzed in table 3 and 4 measure the quality of networks created by volunteers through the association by considering the kind of activity characterizing the network's relations. The dependent variable of table 5 focuses on the quantitative aspect of social networks simply by considering the number of persons met since joining the association whom the respondent reports as friends. This variable does not give any idea of the degree of familiarity of the relations, but it gives a clear idea of the quantitative impact of volunteering on the social networks of volunteers. The results of table 5 with respect to the effect of motivation on social networks are ambiguous. If we look at the two aggregate indices of motivation, extrinsic motivations seem to prevail. However, when we include the single motivations in the regression we find that both ideal motivations and the desire to increase the number of acquaintances or friends positively affect the

creation of social networks at a quantitative level. This result suggests interesting insights. Probably, extrinsic motivations, and in particular the decision to join an association in order to increase the number of acquaintances or friends, promote the creation of networks from a quantitative point of view but they do not facilitate the creation of relations based on a particular degree of familiarity (tables 3 and 4). We may say that people who join associations for instrumental reasons achieve their aim because they increase their social network, but they are unable to make their new acquaintances part of their more close and familiar friends.

INSERT TABLE 5

4. Conclusions

Although intrinsic motivations receive increasing attention in explaining human actions, our knowledge on their causes and effects is incomplete. The present paper aimed at increasing the understanding of these relationships by illustrating a hitherto undiscovered effect of intrinsic motivations. It shows that creation of volunteers' social capital is significantly affected by the kind of motivations inducing the volunteers to join their associations. We found that intrinsic motivations enable people to extend their social networks by creating relations characterized by a significant degree of familiarity. By contrast, extrinsic motivations, and in particular the decision to join an association in order to increase the number of acquaintances or friends, promote the creation of networks from a quantitative point of view, but they do not facilitate the creation of relations based on a particular degree of confidence.

Besides adding to knowledge on intrinsic motivations, the paper enriches the social capital literature. In fact, whilst associations are often considered a proxy for the density of social networks at a macro level, too few studies analyze the effect of associational participation on relational social networks at a micro level and they do not investigate the role of motivations to volunteer in promoting social capital creation.

Our findings generate questions and ideas for further research. We have not investigated either the determinants of intrinsic motivations to volunteer or the relation between intrinsic motivations and operational characteristics of associations. Suitable actions implemented by voluntary associations which promote intrinsic motivations to volunteer may increase membership in associations as well as the creation of social capital. By contrast, incentives which crowd out intrinsic motivations of volunteers may produce a negative effect on the creation of cooperative networks of relations generated through the participation in voluntary associations

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Table 1 How many people met through the association would you:

	Obs.	Mean	Min	Max	Std.Dev	Median
talk to about family problems?	270	5.26	0	100	9.66	2
trust to look after your relatives (children/elderly persons)?	266	3.24	0	100	7.21	1
ask to take care of your home while you are on holiday?	264	2.88	0	100	7.38	1
give/ask for help in activities such as shopping, taking a child or elderly persons to do different activities, etc.?	262	3.16	0	50	1	0.5

Tab.2 With how many people met through the association have you started the following cooperative relations:

	Obs.	Mean	Min	Max	Std.Dev.	Median
phone calls to ask for information or advice?	263	5.05	0	50	7.39	3
doing not very demanding errands?	262	3.55	0	50	6.37	1
asking for information about job opportunities?	263	5.11	0	100	9.53	2

Tab.3 Motivations and creation of relational networks characterized by a higher degree of familiarity

Equation	*1 (OLS)*	*2(OLS)*	*3(OLS)*	*4(OLS)*	*5(OLS)*	*6(OLS)*
	Dependent variable: *higher_familiarity*					
Age_vol	0.000	0.000	0.001	0.000	0.001	0.000
	(0.000)*	(0.000)*	(0.000)*	(0.000)	(0.000)**	(0.000)
Female	-0.012	-0.011	-0.013	-0.010	-0.012	-0.011
	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)	(0.008)
Education_vol	-0.002	-0.001	-0.002	-0.001	-0.001	-0.001
	(0.004)	(0.004)	(0.005)	(0.005)	(0.004)	(0.005)
Employed	0.005	0.008	0.005	0.008	0.004	0.004
	(0.009)	(0.012)	(0.009)	(0.010)	(0.008)	(0.010)
Months_in _ass	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Hour_per_week	0.000	0.000	0.000	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Volunteers	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Inactive members	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Workers	-0.006	-0.005	-0.006	-0.006	-0.005	-0.004
	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.004)
Recipients	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)***	(0.000)***	(0.000)**	(0.000)***	(0.000)**	(0.000)**
Age_association	0.001	0.001	0.001	0.001	0.001	0.001
	(0.001)*	(0.001)*	(0.001)**	(0.000)*	(0.001)**	(0.001)**
Area	-0.002	-0.003	-0.002	-0.001	0.000	-0.002
	(0.004)	(0.005)	(0.004)	(0.005)	(0.005)	(0.005)
Awareness-raising meetings	0.016	0.017	0.015	0.014	0.016	0.017
	(0.004)***	(0.004)***	(0.004)***	(0.004)***	(0.004)***	(0.004)***
Meetings	0.003	0.003	0.003	0.001	0.001	0.002
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
President_dummy	0.008	0.006	0.000	0.000	0.006	0.008
	(0.023)	(0.021)	(0.020)	(0.020)	(0.023)	(0.021)
Mot_intrinsic	0.009					
	(0.004)**					
Mot_ exctrinsic	0.002					
	(0.003)					
Mot_ideal		0.004	0.005			
		(0.002)*	(0.002)**			
Mot_ usefulness		0.006		0.008		
		(0.005)		(0.004)*		
Mot_network		-0.001			0.002	
		(0.004)			(0.003)	
Mot_socialrecognition		0.003				0.003
		(0.004)				(0.003)
Constant	-0.232	-0.242	-0.212	-0.191	-0.194	-0.203
	(0.051)	(0.062)	(0.048)	(0.054)	(0.047)	(0.063)
R^2	0.319	0.325	0.299	0.304	0.283	0.294
Root MSE	0.052	0.052	0.052	0.051	0.053	0.052
Obs	165	165	168	170	168	166

All estimates include dummies which take account of: the association's activity and the district in which the association operated (see appendix 3 for coefficients of these dummy variables). Robust standard errors in brackets. * Significant at 10%; ** significant at 5%; *** significant at 1%.

Tab.4 Motivations and creation of relational networks characterized by a lower degree of familiarity

Equation	*1 (OLS)*	*2(OLS)*	*3(OLS)*	*4(OLS)*	*5(OLS)*	*6(OLS)*
	Dependent variable: *lower_familiarity*					
Age_vol	0.001	0.001	0.001	0.000	0.001	0.001
	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)
Female	-0.024	-0.024	-0.027	-0.021	-0.025	-0.024
	(0.011)**	(0.012)**	(0.011)**	(0.012)*	(0.012)**	(0.012)*
Education	0.003	0.003	0.001	0.002	0.004	0.004
	(0.005)	(0.006)	(0.007)	(0.007)	(0.005)	(0.007)
Employed	0.012	0.014	0.008	0.015	0.005	0.010
	(0.014)	(0.018)	(0.015)	(0.017)	(0.015)	(0.015)
Years_in _ass	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Hour_per_week	0.000	0.000	0.000	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Volunteers	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Inactive members	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Workers	-0.007	-0.006	-0.008	-0.008	-0.007	-0.004
	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)	(0.006)
Recipients	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)**	(0.000)**	(0.000)*	(0.000)***	(0.000)**	(0.000)*
Age_association	0.002	0.002	0.002	0.002	0.002	0.002
	(0.001)	(0.001)*	(0.001)*	(0.001)*	(0.001)*	(0.001)*
Area	0.002	0.001	0.003	0.005	0.005	0.003
	(0.007)	(0.007)	(0.006)	(0.008)	(0.007)	(0.007)
Awareness-raising meetings	0.010	0.011	0.009	0.008	0.010	0.014
	(0.005)*	(0.007)	(0.005)	(0.005)	(0.007)	(0.007)**
Meetings	0.010	0.011	0.011	0.007	0.007	0.008
	(0.007)	(0.007)	(0.006)*	(0.008)	(0.007)	(0.007)
President_dummy	0.027	0.027	0.015	0.012	0.028	0.029
	(0.030)	(0.027)	(0.030)	(0.031)	(0.031)	(0.028)
Mot_intrinsic	0.018					
	(0.007)**					
Mot_ exctrinsic	0.006					
	(0.007)					
Mot_ideal		0.009	0.012			
		(0.003)***	(0.003)***			
Mot_ usefulness		0.009		0.014		
		(0.009)		(0.008)*		
Mot_network		0.001			0.005	
		(0.006)			(0.005)	
Mot_socialrecognition		0.006				0.007
		(0.007)				(0.006)
Constant	-0.301	-0.311	-0.241	-0.210	-0.208	-0.232
	(0.086)	(0.106)	(0.077)	(0.092)	(0.066)	(0.099)
R^2	0.276	0.278	0.249	0.242	0.227	0.235
Root MSE	0.088	0.088	0.088	0.088	0.090	0.090
Obs	164	164	167	169	167	165

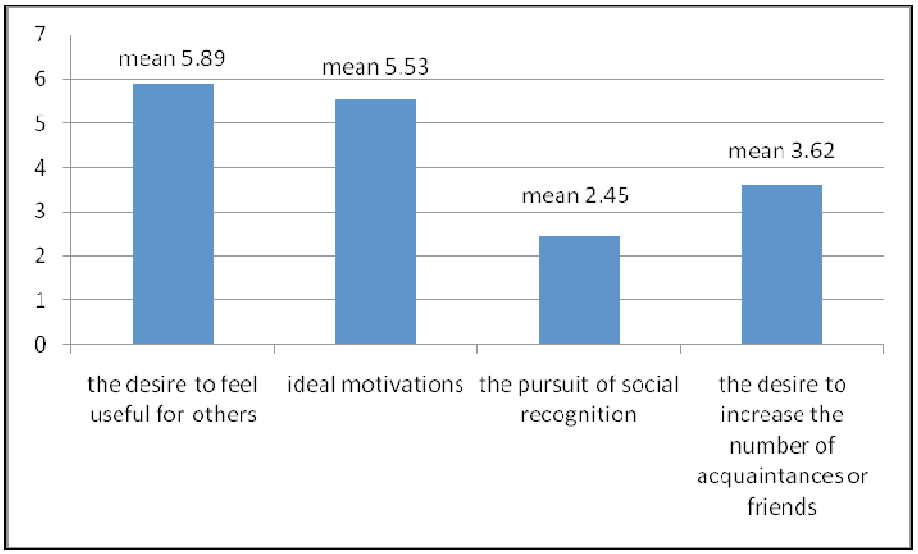
All estimates include dummies which take account of: the association's activity and the district in which the association operated (see appendix 3 for coefficients of these dummy variables). Robust standard errors in brackets. * Significant at 10%; ** significant at 5%; *** significant at 1%.

Tab.5 Motivations and creation of relational networks from a quantitative point of view

Equation	*1 (OLS)*	*2(OLS)*	*3(OLS)*	*4(OLS)*	*5(OLS)*	*6(OLS)*
	Dependent variable: *network_increase*					
Age_vol	0.022	0.052	-0.058	-0.058	0.026	-0.018
	(0.150)	(0.149)	(0.144)	(0.149)	(0.132)	(0.148)
Female	4.990	4.203	4.668	5.136	4.893	4.469
	(6.755)	(6.401)	(6.773)	(6.931)	(6.447)	(6.720)
Education	0.570	0.217	-1.102	-0.623	0.184	0.027
	(1.914)	(1.768)	(1.374)	(1.375)	(1.545)	(1.876)
Employed	-3.798	-5.381	-5.508	-4.701	-5.766	-3.653
	(4.067	(4.685)	(5.106)	(5.420)	(3.530)	(4.410)
Years_in _ass	0.078	0.080	0.065	0.067	0.082	0.070
	(0.037)**	(0.036)**	(0.038)*	(0.038)**	(0.035)**	(0.040)*
Hour_per_week	1.737	1.788	1.901	1.836	1.693	1.755
	(1.101)	(1.126)	(1.209)	(1.194)	(1.107)	(1.110)
Volunteers	-0.072	-0.054	-0.018	-0.032	-0.026	-0.105
	(0.095)	(0.098)	(0.095)	(0.087)	(0.097)	(0.092)
Inactive members	-0.001	-0.003	-0.004	-0.003	-0.004	0.001
	(0.009)	(0.008)	(0.009)	(0.008)	(0.009)	(0.009)
Workers	1.138	0.792	0.055	0.200	0.030	1.726
	(1.366)	(1.483)	(1.332)	(1.295)	(1.396)	(1.371)
Recipients	-0.009	-0.010	-0.008	-0.007	-0.007	-0.010
	(0.008)	(0.009)	(0.007)	(0.007)	(0.008)	(0.008)
Age_association	0.542	0.574	0.499	0.560	0.581	0.661
	(0.247)**	(0.256)**	(0.223)**	(0.225)*	(0.233)**	(0.226)***
Area	-1.104	-1.114	-0.865	-0.724	-0.901	-1.425
	(1.345)	(1.606)	(1.281)	(1.359)	(1.359)	(1.596)
Awareness-raising meetings	4.110	3.823	3.399	4.138	4.021	5.368
	(2.356)*	(2.348)	(2.525)	(2.595)	(2.666)	(2.262)**
Meetings	-0.383	-0.101	-0.113	-0.974	-1.194	-0.561
	(2.101)	(2.211)	(2.385)	(2.411)	(2.256)	(2.154)
President_dummy	66.545	67.822	57.525	56.797	67.782	67.057
	(46.521)	(46.363)	(42.783)	(43.141)	(46.795)	(46.587)
Mot_intrinsic	1.348					
	(1.479)					
Mot_ exctrinsic	4.062					
	(1.893)**					
Mot_ideal		1.965	2.471			
		(0.930)**	(1.026)**			
Mot_ usefulness		-1.363		0.453		
		(1.729)		(1.805)		
Mot_network		2.460			3.015	
		(1.272)*			(1.120)**	
Mot_socialrecognition		1.472				2.448
		(2.126)				(1.979)
Constant	-115.728	-112.389	-90.313	-84.426	-102.941	-105.603
	(25.135)	(29.075)	(19.795)	(20.225)	(19.471)	(29.178)
R^2	0.408	0.414	0.364	0.355	0.403	0.393
Root MSE	30.325	30.398	30.697	30.842	30.074	30.521
Obs	163	163	169	170	166	164

All estimates include dummies which take account of: the association's activity and the district in which the association operated (see appendix 3 for coefficients of these dummy variables). Robust standard errors in brackets. * Significant at 10%; ** significant at 5%; *** significant at 1%.

Fig 1 With respect to your decision to become a volunteer, how important were the following aspects, from 1 (not at all) to 7 (entirely)?



Appendix 1 - *Statistical appendix*

Variable	*Obs.*	*Mean*	*Std. Deviation*	*Minimum*	*Maximum*
Higher_familiarity	261	0.045	0.080	0	1
Lower_familiarity	260	0.075	0.107	0	0.867
Network_increase	269	11.959	34.313	0	400
Age_vol	281	48.986	16.152	16	86
Female	288	0.528	0.500	0	1
Education	286	4.395	1.343	2	7
Employed	290	0.652	0.477	0	1
Years_in _ass	255	93.184	84.583	0	491
Hour_per_week	276	6.228	6.710	0	40
Volunteers	280	54.604	85.525	2	350
Inactive members	290	561.269	1221.271	0	5500
Workers	283	1.028	2.924	0	14
Recipients	241	199.681	395.144	0	2000
Age_association	278	20.745	14.076	1	81
Area	283	2.954	1.623	1	6
Awareness-raising meetings	286	3.476	1.562	1	6
Meetings	286	4.070	1.466	1	6
District_dummy1	290	0.255	0.437	0	1
District_dummy2	290	0.390	0.489	0	1
District_dummy3	290	0.131	0.338	0	1
Assistance	290	0.293	0.456	0	1
Civil right promotion and preservation	290	0.103	0.305	0	1
Education	290	0.093	0.291	0	1
Recreation and culture	290	0.062	0.242	0	1
Health	290	0.355	0.479	0	1
Environmental and animal conservation	290	0.086	0.281	0	1
President_dummy	290	0.034	0.183	0	1
Mot_intrinsic	263	5.711	1.149	1	7
Mot_ exctrinsic	255	2.992	1.533	1	7
Mot_ideal	268	5.537	1.736	1	7
Mot_ usefulness	274	5.894	1.334	1	7
Mot_network	265	3.619	1.997	1	7
Mot_socialrecognition	256	2.445	1.790	1	7

Appendix 2 - Correlation among social capital simple indicators

Correlation matrix of indicators used for the index higher-familiarity

How many of the people you have met through the association would you:	talk to about family problems	entrust with relatives (children/elderly persons)	ask to take care of your home during holidays	give/ask for help with activities such as taking children to do different activities, etc.
talk to about family problems	1			
entrust with relatives (children/elderly persons)	0.813*	1		
ask to take care of your home during holidays	0.744*	0.905*	1	
give/ask for help with activities such as taking children to do different activities, etc.	0.523*	0.617*	0.595*	1

*Significant at 1%.

Correlation matrix of indicators used for the index lower-familiarity

With how many people met through the association have you started the following cooperative relations:	phone calls to ask for information or advice	doing not very demanding errands	asking for information about job opportunities
phone calls to ask for information or advice	1		
doing not very demanding errands	0.708*	1	
asking for information about job opportunities	0.641*	0.418*	1

*Significant at 1%.

Appendix 3 – Coefficients of dummy variables included in Tables 3,4 and 5.

Coefficients of dummy variables included in Table 3

Equation	***1 (OLS)***	***2(OLS)***	***3(OLS)***	***4(OLS)***	***5(OLS)***	***6(OLS)***
	Dependent variable: *network_increase*					
District_dummy1	-13.033	-13.671	-6.527	-5.958	-10.918	-14.880
	(7.969)	(8.521)	(7.650)	(7.373)	(7.336)	(8.441)*
District_dummy2	2.377	2.162	5.516	4.625	2.872	1.245
	(6.604)	(6.602)	(7.957)	(7.904)	(6.539)	(6.836)
District_dummy3	2.313	1.240	3.466	6.732	4.234	4.888
	(9.070)	(8.895)	(9.451)	(9.990)	(8.671)	(8.937)
Assistance	66.336	69.776	58.428	60.205	67.814	70.251
	(16.053)***	(16.565)***	(14.204)***	(14.234)***	(14.756)***	(16.006)***
Civil right promotion and preservation	72.267	70.406	61.209	65.966	69.679	79.839
	(16.808)***	(18.598)***	(15.866)***	(15.222)***	(16.871)***	(16.993)***
Education	85.633	88.926	79.381	80.343	85.882	93.586
	(15.075)***	(16.639)***	(13.593)***	(14.079)***	(15.215)***	(15.286)***
Recreation and culture	70.816	72.380	60.022	63.502	71.927	77.437
	(19.646)***	(19.994)***	(19.727)***	(19.594)***	(20.454)***	(19.555)***
Health	67.135	70.942	58.614	58.650	66.778	72.110
	(12.448)***	(13.845)***	(11.503)***	(12.221)***	(12.286)***	(12.930)***
Environmental and animal conservation	55.803	54.972	47.668	51.814	60.664	56.360
	(15.538)***	(16.189)***	(16.205)***	(16.230)***	(15.614)***	(16.319)***

Robust standard errors in brackets. * Significant at 10%; ** significant at 5%; *** significant at 1%.

Coefficients of dummy variables included in Table 4

Equation	***1 (OLS)***	***2(OLS)***	***3(OLS)***	***4(OLS)***	***5(OLS)***	***6(OLS)***
	Dependent variable: *lower_familiarity*					
District_dummy1	-0.076	-0.078	-0.073	-0.069	-0.072	-0.080
	(0.027)***	(0.029)**	(0.026)***	(0.026)**	(0.028)**	(0.031)**
District_dummy2	-0.035	-0.034	-0.040*	-0.041	-0.044	-0.042
	(0.024)	(0.025)	(0.023)	(0.027)	(0.026)	(0.028)
District_dummy3	-0.046	-0.043	-0.047	-0.045	-0.039	-0.034
	(0.031)	(0.032)	(0.028)	(0.031)	(0.029)	(0.035)
Assistance	0.136	0.138	0.143	0.113	0.155	0.162
	(0.052)**	(0.054)**	(0.048)***	(0.052)**	(0.051)***	(0.057)***
Civil right promotion and preservation	0.153	0.162	0.144	0.142	0.160	0.185
	(0.053)***	(0.061)**	(0.051)***	(0.049)***	(0.053)***	(0.064)***
Education	0.141	0.149	0.152	0.115	0.150	0.175
	(0.049)***	(0.050)***	(0.047)***	(0.049)**	(0.051)***	(0.056)***
Recreation and culture	0.178	0.181	0.183	0.152	0.196	0.208
	(0.064)***	(0.070)**	(0.067)**	(0.063)**	(0.071)***	(0.084)**
Health	0.158	0.164	0.163	0.118	0.158	0.174
	(0.044)***	(0.046)***	(0.041)***	(0.044)**	(0.045)***	(0.053)***
Environmental and animal conservation	0.151	0.148	0.138	0.148	0.158	0.150
	(0.054)***	(0.057)**	(0.054)**	(0.053)***	(0.053)***	(0.055)***

Robust standard errors in brackets. * Significant at 10%; ** significant at 5%; *** significant at 1%.

Coefficients of dummy variables included in Table 5

Equation	***1 (OLS)***	***2(OLS)***	***3(OLS)***	***4(OLS)***	***5(OLS)***	***6(OLS)***
	Dependent variable: ***network_increase***					
District_dummy1	-13.033	-13.671	-6.527	-5.958	-10.918	-14.880
	(7.969)	(8.521)	(7.650)	(7.373)	(7.336)	(8.441)*
District_dummy2	2.377	2.162	5.516	4.625	2.872	1.245
	(6.604)	(6.602)	(7.957)	(7.904)	(6.539)	(6.836)
District_dummy3	2.313	1.240	3.466	6.732	4.234	4.888
	(9.070)	(8.895)	(9.451)	(9.990)	(8.671)	(8.937)
Assistance	66.336	69.776	58.428	60.205	67.814	70.251
	(16.053)***	(16.565)***	(14.204)***	(14.234)***	(14.756)***	(16.006)***
Civil right promotion and preservation	72.267	70.406	61.209	65.966	69.679	79.839
	(16.808)***	(18.598)***	(15.866)***	(15.222)***	(16.871)***	(16.993)***
Education	85.633	88.926	79.381	80.343	85.882	93.586
	(15.075)***	(16.639)***	(13.593)***	(14.079)***	(15.215)***	(15.286)***
Recreation and culture	70.816	72.380	60.022	63.502	71.927	77.437
	(19.646)***	(19.994)***	(19.727)***	(19.594)***	(20.454)***	(19.555)***
Health	67.135	70.942	58.614	58.650	66.778	72.110
	(12.448)***	(13.845)***	(11.503)***	(12.221)***	(12.286)***	(12.930)***
Environmental and animal conservation	55.803	54.972	47.668	51.814	60.664	56.360
	(15.538)***	(16.189)***	(16.205)***	(16.230)***	(15.614)***	(16.319)***

Robust standard errors in brackets. * Significant at 10%; ** significant at 5%; *** significant at 1%.