

**The Effects of Volunteering for Nonprofit Organizations on
Social Capital Formation: Evidence from a Statewide Survey**

Paper revised and resubmitted to
Nonprofit and Volunteer Sector Quarterly

August 17, 2004

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Keywords: household production, civic engagement, social capital, volunteering

JEL Codes: D13; Z13

ABSTRACT

As membership in traditional civic organizations declines in the United States (Putnam, 2000), could volunteering for nonprofit organizations be an alternative source of social capital formation? We use an updated household production framework (Becker, 1996) to theoretically connect volunteering with two forms of social capital: social connections and civic capacity. Using a unique statewide data set from Vermont, we then use the Cragg (1971) model to estimate the determinants of the probability of receiving a social capital benefit, and the level of such a benefit. We first show that the probability of receiving a social connection or a civic capacity benefit from one's most important nonprofit organization is increased: (a) if it is a religious or social service organization; (b) if one increases their volunteering for the organization; and (c) if one is female, college educated or in a two-parent family. However, the relative magnitude of volunteering is similar, or relatively small, compared to the other significant determinants. We then show that an increase of volunteer hours does increase the levels of social connection and civic capacity, but the magnitude of this effect is also relatively small.

INTRODUCTION

When faced with the dramatic empirical evidence of declining group membership and community activity since the late 1950s, the logical connection made by Putnam (2000) and other scholars of civic engagement (Skocpol, 1999; Costa and Kahn, 2003) is that many forms of social capital, ‘the networks and norms that facilitate collective action’ (Woolcock, 1998), have also declined.

However, the empirical evidence on changes in volunteering¹ in the United States seems to tell a different story about civic trends. As Americans have devoted less time to community groups and activities, they are still committing time to volunteering: in 2000, 44 percent of adults reported that they volunteered, and the average weekly commitment per adult volunteer was 3.6 hours (Independent Sector, 2001).² Putnam (2000) documents a steady increase of volunteering from 1975 to 1998. Costa and Kahn (2003), using three different data sets on volunteering, show that by some measures volunteer rates have grown and by others they have fallen; in no case do they find a dramatic decline of this form of civic activity. But volunteering trends do differ between age cohorts: in 1998, Americans in their 30s were volunteering at a 25 percent lower rate than their counterparts in 1975, while Americans in their early 20s were volunteering at a 30 percent higher rate than their 1975 counterparts (Putnam, 2000).

This civic trend raises the possibility that volunteering for nonprofit organizations has been an alternative source of social capital formation in the United States. Soup kitchens, homeless shelters and local environmental groups may have filled the civic gap left by the decline of the Scouts, the Red Cross, and “service clubs” like Kiwanis,

traditional groups that (among many other activities) have historically mobilized volunteers (Putnam, 2000). As the opportunities for civic interactions in traditional organizations have declined, volunteering for nonprofit organizations can provide individual gains such as improvement of physical and emotional health (Wilson and Musick, 2000) accumulation of human capital (Brown, 1997; Day and Devlin, 1998), and accumulation of social capital, though an increased sense of social connectedness and civic capacity (Smith, 2000).

A handful of recent empirical studies have tested the relationship between volunteering and social capital formation in Europe. Wollenbaek and Selle (2002), using data from a survey of adult Norwegians find that participation in voluntary associations has a statistically significant impact on the building of social capital; but the magnitude of this impact is relatively small. Whiteley (1999), using data from the World Values Survey, likewise finds that a ‘voluntary activity scale’ is a significant predictor of an individual’s level of ‘social trust,’ but that this regressor has a relatively small impact compared to other significant predictors in the model. Freitag (2003), also using the World Values Survey data, finds no statistically significant correlation between voluntary activity and ‘social trust’ in Switzerland. Meier and Stutzer (2004), in a study on the relationship between volunteering and well-being, find that volunteers are more satisfied with their lives than non-volunteers, but that ‘intrinsically motivated’ people, who tend to volunteer because they enjoy helping others, benefit more from volunteering than ‘extrinsically motivated’ people, who tend to view volunteering ‘as an investment in human capital [and] in their social network’ (Meier and Stutzer, 2004, p. 5). In a related empirical study using survey data from Finland, Yeung (2004) finds that volunteering for

church and non-church groups have differing effects on social capital formation. In summary, a diverse range of literature, using European survey data, suggests that the formation of social capital is positively affected by volunteering, but that effect is relatively small.

However, surprisingly little is known from survey data about the direct relationship between volunteering and social capital formation in the United States: the exception is Whiteley (1999), who finds that in the United States, the relative magnitude of the importance of volunteering for social capital formation is no greater than in France, Britain and Italy.

In order to learn more about the nonprofit sector in Vermont (Kimberly *et al.*, 2002), we recently designed and implemented a unique household survey in Vermont. One of the goals of the survey was to measure a range of benefits provided to individuals through their involvement³ with nonprofit organizations, from pure ‘patron/client’ benefits (e.g., help from a church’s soup kitchen) to emotional and social benefits (e.g., spiritual well-being and sense of security.) In particular, the survey was designed to empirically explore the relationship between nonprofit organizations and social capital formation. In this paper, we explore how involvement with a local nonprofit organization affects one’s social connections and civic capacity. In doing so, we are able to partially answer, for one part of the United States, the questions raised above: whether, and to what magnitude, volunteering for a nonprofit organization contributes to social capital formation.

Our analytical strategy in this paper is as follows. First, we show how the household production model can be used to conceptualize the formation of one’s personal

social capital. We then review the relevant data on nonprofit organizations, volunteering and social capital; discuss our empirical methodology; and present our results. We conclude with a discussion of the implications of these results.

HOUSEHOLD PRODUCTION AND THE BENEFITS OF VOLUNTEERING

A great deal of influential scholarly activity surrounding the costs and benefits of unremunerated action has been in the area of household production (Becker, 1965; Michael and Becker, 1973; Foster *et al.*, 2001). In this section, we provide a brief review of the household production framework, and then use the framework to illustrate how an individual's involvement with a nonprofit organization can be related to an individual's formation of social capital.

The household production model enhanced traditional consumer theory by explicitly bringing an individual's allocation of time into their utility (e.g. welfare) maximizing behavior. The insight of Becker and his collaborators (Becker, 1965; Michael and Becker 1973; Ghez and Becker 1975) was that consumer goods themselves do not make people happier. In the process of combining those goods with one's own time, one 'produces' some desirable outcome, which they called (perhaps unfortunately) 'a commodity.' So for example, a recreation-loving individual combines purchased tennis equipment and hours of playing tennis to produce (with others, in this case) a game of tennis. By taking this formalized approach, Becker and his colleagues were able to formally explore individual trade-offs between time and purchased inputs.⁴

In Becker's extension of the household production model to 'a theory of social interactions' (Becker, 1974), which anticipated some of the current theoretical conceptualizations of social capital (e.g., Glaeser *et al.*, 2002), an individual's own utility

is influenced by ‘characteristics of other persons.’ For example, if an individual is happier when she achieves distinction in her occupation, the opinions of other people in the same occupation will directly affect her own level of happiness (Becker, 1974). After the concept of social capital was formalized by his University of Chicago colleague, James Coleman (Coleman, 1990), Becker (1996) revised his household production framework, so that an individual derives happiness from commodities, various forms of human capital (e.g., general knowledge, professional training) and various forms of social capital (e.g., participation in professional networks, observance of local norms of reciprocity).

Given their special characteristics, human and social capital differ in important ways from utility-generating commodities, even though they also enter into an individual’s utility function. First, one’s own investment in human or social capital may be unrelated to current consumption, but rather tied to future consumption. In this sense, both knowledge and networking can truly be viewed as capital stocks that will increase the flow of future benefit streams. Second, the production of human and social capital depends on the inputs of time and resources from other people: the actions of individuals in a network will affect one’s own enjoyment of the network (Glaeser *et al.*, 2002). More technically, past actions by others, as well as other demographic characteristics, can be viewed as fixed inputs into the household production of social capital (following Deaton and Muellbauer, 1980). Third, joint production of commodities, human capital and/or social capital -- that is, using similar inputs of time and/or resources to jointly produce a range of consumption benefits -- is a common occurrence in this framework. Finally, unlike Becker’s commodities, human and social capital may be either generated

instrumentally (e.g., allocating time and effort to take a university course or to participate in a local knitting group) or as spillovers from another activity: through one's job, one may derive pleasure from specialized knowledge and social networks, even if increasing knowledge and growing a network were not the primary (or even secondary) reasons for taking the job.

In this paper, we use Becker's extended household production framework to conceptualize the relationship between involvement with a nonprofit organization and the two forms of social capital (again, defined as 'the networks and norms that facilitate collective action' (Woolcock, 1998)) that we measured in our survey. The first form of social capital, related to the 'networks' part of our definition, is 'social connections.' If one is involved with a nonprofit organization with a wide range of clients, staff and volunteers, we hypothesize that the satisfaction that individuals gain from the social presence and interaction of others will be affected by selected characteristics of the nonprofit, one's own demographic characteristics, and levels of volunteering. In his authoritative study of grassroots associations, Smith (2000, p. 96) argues that the most important motivation for associational participation is 'rewards that provide member satisfaction from the sociable presence of, and interaction with, other members.' The second form of social capital, related to the 'norms' part of our definition, is 'civic capacity.' If one is involved with a nonprofit which is serving others (e.g., the low-income elderly), we hypothesize that one's sense of fulfilling a civic duty will also be affected by the nonprofit's characteristics, one's demographic characteristics, and volunteering.

In Becker's framework, in which 'characteristics of other persons' affects personal welfare (Becker, 1974), these hypotheses do not require that an individual volunteers for the nonprofit in order to receive social capital benefits. In this formulation, social connectedness and civic capacity can be produced by a range of inputs, even when volunteer hours are nil (as long as we do not adopt the restrictive assumption that the $f(0,x) \equiv 0$, where 'volunteer hours' is the first argument of a (simplified) production function for social capital, and x is a vector of all other arguments and fixed inputs.) And if the individual does volunteer, these hypotheses do not require that the act of volunteering is solely, or even primarily, motivated by the desire to increase one's own social capital, because of the possibility of joint production and/or spillovers in this framework.

THE SURVEY DATA

In this section, we summarize our data on social capital and nonprofit organizations from the "Vermont Poll," an annual survey of adult Vermonters. Data for this study, collected in 2002, were from a representative survey of Vermont registered voters who were selected using random digit dialing and computer aided telephone survey techniques. Analyses based on the Vermont Poll have a confidence interval of 95 percent with a margin of error of plus or minus 5 percent (DeSisto and Kolodinsky, 2002). This study utilizes the responses from 677 surveys with complete information.

The 2002 Vermont Poll included a survey component about local nonprofit organizations⁵ that began with the following introduction: "Now I'd like to ask you a few questions about nonprofit organizations—those groups not managed by government or

private business. They include a wide range of humanitarian, artistic, health care, social service, educational, environmental, religious, or other organizations.” Respondents were asked to identify the type of nonprofit organization that provided them with the greatest personal benefit, which may or may not be an organization for which they volunteer. It is with information about the respondent’s most beneficial organization that we use to test our model: this allows us to focus on the production of social capital through the nonprofit organization that is most important to the daily lives of our respondents. In published empirical studies that use micro-level data on social capital (e.g., Narayan and Pritchett, 1999), focusing on the survey respondent’s most important organization to identify the determinants of social capital is a common approach.

The possible benefits listed in the survey instrument included the two social capital benefits discussed in the previous section -- social connections and civic capacity --- as well as physical health, emotional well-being, financial resources, sense of security, level of knowledge, spiritual well-being, and overall quality of life. Respondents answered ‘yes’ or ‘no’ to receiving each of the above types of benefits. Almost two-thirds (61 percent) of all respondents indicated receiving some type of benefit from an organization: many organizations provide a benefit closely related to their specific mission (for example, religious organizations tend to provide a spiritual benefit). In addition to such expected benefits, over one-half of all respondents reported receiving a social capital benefit (56 percent indicated a social connection, and 57 percent civic capacity) from their most important organization.

After being asked which types of benefits they received from the organization (‘yes’ or ‘no’ to the list of benefits), respondents were then asked to rate the level of the

different benefits provided by that organization (on a 1 - 10 scale, where 1 represents the least benefit and 10 indicates the greatest benefit). As shown in Table 1, the average levels are 6.6 for respondents reporting a social connection benefit, and 6.3 for respondents reporting a civic capacity benefit.

Respondents were also asked to identify the types of organizations for which they volunteered -- if any -- in the previous year, and then to indicate the total number of hours that they volunteered. Sixty-two percent of the entire sample volunteered for at least one organization; as shown in Table 1, the average number of volunteer hours per week across the entire sample is almost one half-hour (0.49 hours).⁶ For those who received at least one reported benefit from a nonprofit organization, the average volunteer commitment per week for the respondent's most important organization is just under 45 minutes (0.67 hours). And, for those who received a social capital benefit, the average weekly volunteer commitment is slightly greater: 48 minutes (0.79 hours) for those reporting a social connection benefit, and 48 minutes (0.78 hours) for those reporting a civic capacity benefit.

As listed in Tables 1, we also collected data on a range of other organizational and demographic characteristics which apply to the household production framework. These are all dummy variables that are assigned a "1" if the characteristic is present and "0" otherwise (with the exception of 'age', a continuous variable measuring the age of the survey respondent in years.) 'Religious' and 'social service' indicate the type of organization that provided the most benefit. 'Single parent' is assigned a value of "1" if a household with children is headed by a single adult; 'two parents' is assigned a value of "1" if two adults and children are present in the household; the left out category includes

all households without children under the age of 18. ‘Unemployed’ is assigned a value of “1” if all adults in the household are not employed in the labor force; ‘dual earner’ is a dummy variable assigned a “1” if, in a two-adult household, both adults are employed in the labor force. ‘Rural’ is a dummy variable assigned a value of “1” if the respondent does not live in the only urban county in Vermont (as designated by the U.S. Census). ‘Male’ is a dummy variable assigned a “1” if the respondent is male. Education is assigned a “1” if the respondent completed a bachelor’s degree or higher. In the survey instrument, income was measured in quartiles: in Table 1, ‘low income’ is a dummy variable assigned a “1” if the respondent is in the lowest quartile of income (as indicated by U.S. Census data); ‘high income’ is a dummy variable assigned a “1” if the respondent is in the highest quartile.

THE ECONOMETRIC MODEL AND RESULTS

In this section, we present our econometric strategy for testing the relationship between volunteering and social capital, and then the econometric results.

Empirical research to date on the determinants of social capital formation has not differentiated between the determinants of the formation of social capital and the determinants of the level of social capital: despite the exponential growth of published articles on social capital in the last few years, we have found no econometric models on the determinants of social capital that make this important distinction.

In this paper, we use the Cragg (1971) model to distinguish between the probability of social capital formation and the level of social capital formation. As noted above, our social capital measures are censored at 0. Econometrically, if y^* (in this case, a level of social capital) is non-positive, a 0 is observed for y , otherwise the observation

is of y^* (Greene, 1998). We argue, along the lines of Fin and Schmidt (1984), that the probability of receiving a social capital benefit is determined separately from the level of that benefit. For example, the type of organization one volunteers for may impact the probability of receiving a social capital benefit, but have no effect on the level of the benefit. Similarly, the level of hours of volunteering may impact the level of social capital, but may have no effect on the probability of receiving a social capital benefit.

The model (based on Cragg, 1971) is therefore written:

$$\text{Prob } [y^* > 0] = \Phi(\gamma'z),$$

$$\text{Prob } [y^* = 0] = 1 - \Phi(\gamma'z),$$

where y^* is the level of social capital benefit and individual receives. If $y^* > 0$, a truncated regression in $B'x$ applies (Greene, 1998).

In our sample, we also face the possibility of sample selection bias. We have a sample of 677 individuals who completed a survey, but not all of these reported a benefit from a nonprofit organization, so we must control for the possibility of sample selection bias (Heckman, 1979). After estimating the probability of receiving any benefit, using the Heckman (1979) specification, we estimate the probability of receiving a social capital benefit using the Probit procedure. We then estimate the level of social capital benefit, using the truncated procedure from Cragg (1971)⁷. We estimate each of these models with ‘social connection’ and ‘civic capacity’ separately.

The general forms of the equations are as follows:

$$\begin{aligned} \text{Probability of building social capital} = & \alpha_0 + \alpha_1 \text{'religious'} + \alpha_2 \text{'social service'} + \alpha_3 \\ & \text{'volunteer hours'} + \alpha_4 \text{'volunteer for religious organization'} + \alpha_5 \text{'volunteer for} \\ & \text{social service organization'} + \alpha_6 \text{'single parent'} + \alpha_7 \text{'two parents'} + \alpha_8 \\ & \text{'unemployed'} + \alpha_9 \text{'dual earner'} + \alpha_{10} \text{'rural'} + \alpha_{11} \text{'male'} + \alpha_{12} \text{'age'} + \alpha_{13} \\ & \text{'college'} + \alpha_{14} \text{'low income'} + \alpha_{15} \text{'high income'} + \alpha_{15} \text{sample selection control} + \varepsilon \end{aligned}$$

and

$$\begin{aligned} \text{Level of social Capital} = & \beta_0 + \beta_1 \text{'religious'} + \beta_2 \text{'social service'} + \beta_3 \text{'volunteer} \\ & \text{hours'} + \beta_4 \text{'volunteer for religious organization'} + \beta_5 \text{'volunteer for social service} \\ & \text{organization'} + \beta_6 \text{'single parent'} + \beta_7 \text{'two parents'} + \beta_8 \text{'unemployed'} + \beta_9 \text{'dual} \\ & \text{earner'} + \beta_{10} \text{'rural'} + \beta_{11} \text{'male'} + \beta_{12} \text{'age'} + \beta_{13} \text{'college'} + \beta_{14} \text{'low income'} + \beta_{15} \\ & \text{'high income'} + v, \end{aligned}$$

where ε and v are error terms.

The variables 'volunteer for religious organization' and 'volunteer for social service organization' indicate that the respondent, both received a benefit and volunteered for these types of organizations. As discussed below, this variable allows us to test whether the social capital benefits from volunteering are dependent of the type of nonprofit organization for which one volunteered (following Yeung, 2004).

A. The determinants of the probability of building social capital.

The results for the Probit models are presented in the first two columns of Table 2, where each marginal effect describes the change in the probability of receiving each social capital benefit from the respondent's most important organization. Note that the sample selection variable, Lambda, is significant, indicating that the first step of the (Heckman selection) estimation was appropriate.

As we describe here, there are four significant results from these models. The first two rows show that the probability of receiving a social capital benefit are significantly greater with religious or social service organizations, as opposed to humanitarian, artistic, health care, and other types organizations (the categories not included in the estimated equation), regardless of whether they volunteered for that organization. The magnitude of this significant effect is large: if one's most important group is religious, this increases by 0.53 the probability that one receives a 'social connections' benefit from the organization; the comparable figure for 'civic capacity' is 0.48. The statistically significant effect is slightly smaller if one's most important group is social service-related. The probability of receiving a social connections benefit increases by 0.40; the comparable figure for civic capacity is 0.42.

The second significant result involves volunteer hours. The third row of Table 2 shows that the probability of receiving a social connections and a civic capacity benefit is affected by the number of volunteer hours dedicated to the organization. What is the magnitude of this effect? If an individual increases their volunteering commitment by just under one hour per week (the probabilities are computed at average hours of volunteering, which is .46 for the entire sample), their probability of receiving a social connections and a civic capacity benefit increases by 0.12 and 0.10, respectively. The more one volunteers for a nonprofit organization, the more one is likely to feel socially connected and civically engaged through their involvement with that nonprofit.

The results presented so far raise the following question: does volunteering for religious or social service organizations -- as opposed to the others types of organizations -- further increase the probability of social capital formation? The (statistically

insignificant) results presented in the fourth and fifth row show that this is not the case. A relationship with religious or social service organizations increases the probability of being socially connected and civically engaged, but volunteering for these specific groups does not have an additional social or civic payoff.

The last significant result involves demographic characteristics of the sample. Three demographic characteristics are significant in the Probit model: gender, education, and family composition. Men are 0.16 less likely to receive social connection benefits, and 0.11 less likely to receive civic engagement benefits compared to women. College educated individuals are more likely to receive social capital benefits: for those who have completed at least a bachelor's degree, the probability of receiving a social connection benefit is 0.25 higher, and the probability of receiving a civic capacity benefit is 0.11 higher. Compared to households with no children under the age of 18, the probability of receiving each of the two social capital benefits is 0.45 and 0.51 higher (respectively) for two-parent families. This relatively large effect is consistent with aggregate evidence in the United States (Putnam, 2000; Costa and Kahn, 2001): the likelihood of being socially and civically engaged declines as families move away from a two-adult family structure.

The results in this section can be summarized as follows. The probability of receiving a social connection or a civic capacity benefit through involvement with a nonprofit organization is increased: if one has a relationship with a religious and social service organization; if one increases their volunteering for the organization; and if one is female, college educated or in a two-parent family. However, the relative magnitude of volunteering is similar, or relatively small, compared to the other significant determinants. In terms of predicting the probability of receiving a social capital benefit,

the effect of involvement with religious or social service organizations and the effect of being in a two-parent family are relatively greater than the effect of volunteering.

B. The determinants of the level of social capital.

The results for the truncated regression models are presented in the next two columns of Table 2, which (following Cragg, 1971) are among only those respondents who received each of the social capital benefits, respectively. As we describe here, there are three significant results from these models. First, the type of organization does not impact the level of social capital benefit. In particular, whether one's most important organization is a religious or social service organization does not raise the level of 'social connections' or 'civic capacity' associated with that organization. Recall that relationships with these types of organizations did increase the probability of receiving a social capital benefit; no type of organization builds a higher level of social capital than any other.

Second, hours of volunteering have a significant, but relatively small, impact on increasing the level of the 'social connections' and 'civic capacity' benefits (which, as noted above, are scaled from 1-10). If an individual increases their volunteering commitment by one hour per week, the level of the 'social connections' and 'civic capacity' benefits increase by only 0.17 and 0.20, respectively. A significant amount of volunteering increases the level of social capital by only a small amount. And, as indicated by the fourth and fifth rows, volunteering for religious and social service organizations does not have an additional affect on the level of social capital.

Finally, males receive a (statistically significant) lower level of 'social connections' and 'civic capacity' benefit compared to females – but again, the

magnitudes of the effects (-0.68 and -0.63, respectively) are relatively small. Overall, no other demographic characteristic affects the level of social capital benefit received from an organization.

DISCUSSION AND CONCLUSIONS

What does the future hold for social capital formation in the United States? Given the recent steady decline of membership in traditional organizations (Putnam, 2000; Costa and Kahn, 2003) and Americans' continued commitment to volunteering (Putnam, 2000; Costa and Kahn, 2003; Independent Sector, 2001), we asked in this paper whether volunteering for nonprofit organizations is likely to be an alternative source of social capital formation.

The good news presented here is that volunteering for non-profit organizations may indeed be a partial substitute for the decline of traditional membership. Through volunteering for nonprofit organizations, individuals are more likely to be socially and civically engaged. The not-so-good news? At the margin, the social capital generated through additional volunteering seems to be relatively small. Volunteering does not have as great an impact on the probability of social capital formation as does involvement with religious or social service organizations or being in a two-adult family with children. And while an increase of volunteer hours does increase the level of ones social connection and civic capacity, the magnitude of this effect is relatively small.

These mixed findings are in fact consistent with the findings of other recent empirical studies on the relationship between volunteering and social capital formation in Europe (Whiteley, 1999; Wollenbaek and Selle, 2002); related empirical studies on the

motivations for volunteering in Europe (Yeung, 2001; Meier and Stutzer, 2004); and a single recent study that includes data on volunteering and social capital formation in the United States (Whiteley, 1999). Our results on the independent, positive effects of religious and social service social organizations on social capital formation are also consistent with other recent findings on volunteering and social capital formation (Yeung, 2004).

Earlier, we noted that members of the ‘Millennial Generation,’ Americans in their early 20s, were volunteering at a relatively high rate (Putnam, 2000; for additional evidence on community service in this age cohort, see Howe and Strauss (2000)). Whether or not a new American commitment to volunteerism can or will absorb all of the recent losses in social capital formation remains an empirical question. It seems clear (and intuitively sensible) that volunteering increases the probability of feeling socially connected and achieving one’s civic capacity. As new data on social capital and volunteering in the United States is created and circulated, further applications of proper statistical techniques will shed further light on the degree to which volunteering in the United States is likely to increase social capital formation. Given the recent focus on the importance of social capital for the American experience (Skocpol, 1999; Putnam, 2000) and the growing economic and social prominence of the nonprofit sector, more empirical studies in this area are certainly warranted.

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Table 1: Definitions and summary statistics of survey data

Variable Name	Definition	All	Those reporting a social connection	Those reporting civic capacity
Social connections	Level of social connection benefit reported (range 0-10)	5.7 ^a (3.1) ^b	6.6 (2.4)	6.1 (2.9)
Civic capacity	Level of civic capacity benefit reported (range 0-10)	5.6 (3.1)	5.9 (2.9)	6.3 (2.5)
Volunteer hours	Volunteer hours per year /52	.49 (1.4)	.79 (1.7)	.78 (1.7)
Religious	1=received benefit from a religious organization	.16 (.37)	.28 (.45)	.27 (.45)
Social service	1=received benefit from a social service organization	.11 (.31)	.16 (.37)	.17 (.38)
Single parent	1=single parent household	.02 (.12)	.02 (.13)	.02 (.13)
Two parents	1=two adult household	.21 (.41)	.33 (.47)	.35 (.48)
Unemployed	1= household is unemployed (includes retired)	.18 (.39)	.17 (.38)	.17 (.38)
Dual earner	1= dual earner household	.41 (.49)	.44 (.50)	.42 (.49)
Rural	1= resides in rural area	.56 (.50)	.56 (.50)	.55 (.50)
Male	1= male	.47 (.50)	.43 (.50)	.44 (.50)
Age	Age in years	50.6 (15.0)	50.1 (14.9)	49.8 (14.7)
College	1= bachelor's degree or higher	.46 (.50)	.53 (.50)	.51 (.50)
Low income	1=income less than \$20,000	.09 (.30)	.09 (.29)	.09 (.29)
High income	1=income greater than \$60,000	.44 (.49)	.45 (.50)	.44 (.50)
N =		677	379	382

^aProportion of the sample reported, except for age, which is reported as a mean.

^bStandard Deviations in ()

Table 2. The Determinants of Social Capital Benefits

Variable	Probability of receiving social capital benefit (marginal effects reported)		Level of social capital benefit received	
	Social connections	Civic Capacity	Social connections	Civic Capacity
Religious	.53*** (.04)	.48*** (.05)	.18 (.42)	.43 (.46)
Social service	.40*** (.04)	.42*** (.04)	-.04 (.43)	.75 (.46)
Volunteer hours	.12*** (.03)	.10*** (.03)	.17** (.07)	.20** (.08)
Volunteered for Religious organization	.05 (.19)	.06 (.04)	.40 (.50)	.21 (.55)
Volunteered for Social Service organization	-.24 (.15)	-.14 (.17)	1.05 (.64)	.10 (.67)
Single parent	.20 (.14)	-.13 (.16)	-.14 (.96)	-1.19 (1.06)
Two parents	.45*** (.04)	.51*** (.03)	-.33 (.28)	-.46 (.31)
Unemployed	-.04 (.09)	-.06 (.08)	-.44 (.45)	-.65 (.49)
Dual earner	.07 (.05)	-.02 (.06)	-.02 (.28)	.48 (.30)
Rural	-.01 (.05)	-.05 (.05)	-.09 (.25)	.25 (.27)
Male	-.16*** (.05)	-.11** (.05)	-.68** (.25)	-.62** (.27)
Age	-.02 (.02)	-.005 (.02)	-.04 (.11)	-.01 (.12)
College	.25*** (.05)	.11** (.05)	-.26 (.25)	-.33 (.27)
Low income	.06 (.08)	-.02 (.09)	-.63 (.49)	.29 (.52)
High income	-.03 (.20)	-.04 (.05)	-.02 (.28)	-.18 (.30)
Constant	-.45*** (.13)	-.24** (.33)	7.16*** (.66)	6.00*** (.71)
Lambda (sample selection)	.50*** (.05)	.49*** (.05)	----	----
Sigma	----	----	2.33*** (.09)	2.51*** (.10)
N	677	677	379	382

Standard errors in (). * = sig. p<.10; ** = sig. p<.05; *** = sig. p<.01

¹ Volunteering in this paper is synonymous with volunteer action, which is “significantly unremunerated volunteer action by an individual or group and results significantly from volunteer altruism” (Smith, 2000).

² Similar trends are found in other countries: using a broad array of survey material, de Hart and Dekker (1999) find that involvement in voluntary associations is rising in the Netherlands.

³ ‘Involvement’ with a nonprofit organization encompasses a range of possible interactions, from being a client of a local health facility to attending exhibits sponsored by a local arts agency. Such involvement may or may not include volunteering for that organization.

⁴ In the original formulation of the household production model (Becker, 1965; Michael and Becker, 1973), a household maximizes its own utility over a set of commodities “primary objects of consumer choice ... from which utility is directly obtained” (Michael and Becker, 1973). Commodities are ‘produced’ in a household with sets of purchased goods and of time. With constant average earnings, the price of time equals the wage, the opportunity cost of foregone earnings.

⁵ The local non-profit organizations in Vermont tend to be very small. Seventy-three percent of statewide non-profit organizations have annual gross revenues below \$199,000, with 37 percent below \$25,000 (Kimberly *et al.* 2002). About 75 percent of the organizations have fewer than ten employees, with 62 percent employing fewer than five persons. In addition, 77 percent of survey respondents indicated that they volunteered for small organizations (based on the definition in Kimberly *et al.* (2002)). Most Vermont non-profit organizations, then, can be categorized as community or grassroots associations.

⁶ If an individual volunteered for one organization, and that organization provided the most benefit to them (and was therefore the organization that we used to test our model of social capital), the total number of hours is used for the variable ‘volunteer hours’. If an individual volunteered for more than one organization and the organization volunteered for “the most” provided the most benefit, volunteer hours is a calculated variable: we made the assumption that 75 percent of the total volunteer hours were attributed to that organization. If an individual volunteered for more than one organization and the organization volunteered for “second most” provided the most benefit, we made the assumption that 25 percent of total volunteer hours were attributed to that organization. We verified, using alternative percentages (for example, 90 percent instead of 75 percent, and 10 percent instead of 25 percent), that the results reported in Table 2 were not exceedingly sensitive to our assumptions.

⁷ If the probability of a non-limit value and the level of that value are impacted in the same direction and the same magnitude, the Tobit model is appropriate. The choice of appropriate model is an empirical question. A likelihood ratio test, tests the restriction of the Tobit model that $z=x$ and $\gamma=B$. The restriction was rejected at the .01 level in preliminary analysis. Thus, we utilize the Cragg specification.