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Do monetary rewards undermine intrinsic motivations of volunteers?
Some empirical evidence for Italian volunteers

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Abstract

Empirical studies show that intrinsic motivations increase the volunteer labour supply. This paper studies how monetary rewards to volunteers affect their intrinsic motivations. Using a sample of Italian volunteers, allowing to distinguish the type of volunteer, the paper shows that monetary rewards (extrinsic motivations) influence positively the choice to donate voluntary hours, while a low intrinsic motivation seems to decrease hours per week. Moreover, monetary rewards increase the hours per week of individuals with low intrinsic motivation. Thus, a crowding in effect on low intrinsic motivation might emerge for continuative volunteers.

1.   Introduction

Volunteering is a complex phenomenon the explanation of which transcends the limits of one single approach as different disciplines such as anthropology, psychology, sociology and economics offer insights into the motives for volunteering. The motivational reasons to explain volunteering behaviour have been classified into the following two groups (Hackl et al. 2007). One group focuses on internal rewards due to intrinsic motivation originating from helping others per se. Because people enjoy helping others, no other (material) reward is necessary to motivate people. Meier and Stutzer (2004) distinguish three subcomponents of intrinsic motivation: (i) people care about recipient's utility and benefit from the result of their effort[1]; (ii) volunteers enjoy their work per se and intrinsically benefit from the act of volunteering (Deci and Ryan 1985); (iii) helping others triggers warm-glow benefits as the knowledge of conducing to a good cause is utility increasing (Andreoni 1990). The other group of motives does not refer to the enjoyment of volunteer behaviour per se but to the increase in utility due to extrinsic rewards from volunteering. Helping others is then secondary and volunteers rather expect external benefits and payoffs. Two extrinsic rewards can be distinguished: (i) volunteering can be undertaken as an investment in human capital. Individuals engage in volunteer activities to raise future earnings on the labour market (Menchik and Weisbrod 1987); (ii) people can volunteer in order to invest in social network. Through engagement in volunteer work, social contacts evolve which can be valuable for getting employment.

A widespread body of empirical literature stresses extrinsic motives for voluntary activities[2]. For example, Menchik and Weisbrod (1987), Brown and Lankford (1992) show that an increase in the (market) cost opportunity of giving should reduce voluntary labour supply. Day and Devlin (1996) find that total income is an important determinant of the decision to volunteer. Freeman (1997) shows empirical findings in line with Menchik and Weisbrod (1985), while Hackl et al. (2007) find strong evidence for the investment model in human capital.

However, the empirical literature investigating the role of both intrinsic and extrinsic motivations in explaining the individual decision to volunteer is still insufficient. A recent empirical paper confirms the importance of intrinsic motivation in explaining volunteering.

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[1] For a survey on theories see Fehr and Schmidt (2003).
[2] For a survey see Cappellari and Turati (2004), Hackl et al. (2007).

Cappellari and Turati (2004) find for a sample of Italian workers that intrinsically motivated individuals are more likely to volunteer that extrinsically motivated ones.

Moreover, there is not enough evidence how volunteers would respond if their work were partially paid. In fact, the application of this instrument may, under identifiable conditions, either enhance or damage internal motivation people have to behave in a desired way. Recent research suggests that external reward may reduce intrinsic motivation. Frey and Götte (1999) find that direct monetary compensation reduces voluntary work by affecting intrinsic motivation. This is the so-called "crowding-out effect" proposed by Frey (1992): an increase in direct reward to volunteering "crowds-out" labour supply by reducing intrinsic motivation. The most famous and most quoted empirical example of the "crowding-out effect" is Titmuss (1970) observation about differences in blood giving between the UK and the USA. Total (per capita) supply of blood is significantly greater in the UK, where giving is voluntary and unpaid, than in the USA, where a market for blood does exist. Furthermore, many laboratory experiments support motivational effect (McGraw, 1978).

This paper analyses how monetary rewards to volunteers affect their intrinsic motivations using a Survey on Employment in the Social Care and Educational Services conducted by the *Istituto di Studi sullo Sviluppo delle Aziende Nonprofit (ISSAN)* (see Borzaga 2000; Borzaga and Musella 2004).

The paper shows the following preliminary results. First, monetary rewards increase volunteer labour supply. Second, a low intrinsic motivation decreases continuative voluntary labour. Finally, among continuative volunteers, monetary rewards increase the hours of individuals with a low intrinsic motivation. Thus, this finding seems to support a crowding in effect for continuative volunteers with a low intrinsic motivation.

The paper is structured as follows. Section 2 shortly summarize crowding theory and develops the hypothesis to be tested. Section 3 presents the data and section 4 the econometric estimates. Section 5 concludes.

2.   Crowding-out theory

Human behaviour is influenced by both extrinsic and intrinsic motivations. The former is activated from outside, the latter relate to activities one simply undertakes because one likes to do them ore because the individual derives some satisfaction from doing his or her duty. According to cognitive social psychology (Deci 1971, 105) "one is said to be intrinsically

motivated to perform an activity when one receives no apparent reward except the activity itself". Social psychologists have argued that there are "hidden costs of reward" (Lepper and Greene 1978), and that monetary rewards may reduce intrinsic motivation (Deci e Ryan 1985; Lane 1991). From a rational point of view, if a person derives intrinsic benefits simply by behaving in an altruistic manner, paying her for this service reduces her option of indulging in altruistic feelings. Her intrinsic motivation then has a reduced effect on supply (Frey and Oberholzer-Gee 1997).

Motivation crowding theory tries to mediate between psychological theory and the standard economic theory that does not normally differentiate between different sources of motivation, and according to which intrinsic motivation is an exogenously given constant. Motivation crowding theory allows a whole spectrum of possible combinations of intrinsic and extrinsic motivations between two polar cases: purely intrinsically (only intrinsically motivated) and purely extrinsically (only extrinsically motivated) individuals. Such movement is attributed to a change in preference. This approach allows obtaining empirically testable hypothesis in settings where intrinsic motivation is assumed to play a role (Frey and Jegen 2001).

Motivation crowding theory represents a generalization for economics in three respect (Frey 1994; Frey and Götte 1999; Frey and Jegen 2001):

(1) Intrinsic motivation can be systematically affected not only by money, but any external intervention. In the standard economic principal-agent theory, external intervention increases the marginal monetary benefit of performing. This is the relative price effect of external intervention;

(2) Intrinsic motivation may be crowded out or crowded in. In the first case the external intervention undermines intrinsic motivation ad thus negatively affects the agent's marginal benefit from performing. In the second case external intervention raises intrinsic motivation increasing the marginal benefit of performing;

(3) In general, it is important to simultaneously consider the crowding-out effect and the relative price effect, thus the external intervention has two opposite effects on the agent's performance.

The identified psychological conditions under which the crowding-out effect appear are two: i) external interventions crowd out intrinsic motivation if the individuals affected perceive them to be controlling. In that case, both self-determination and self-esteem suffer, and the

individuals react by reducing their intrinsic motivation in the activity controlled: ii) external intervention crowd in intrinsic motivation if the individuals concerned perceive it as supportive. In that case, self-esteem is fostered, and individuals feel that they are more freedom to act, thus enlarging self-determination (Frey 1992).

There are a large number of studies that offering an empirical evidence in support of the existence of crowding-out and crowding-in effects (for a survey see Frey and Jegen 2001). In the field of labour supply in voluntary sector, motivation crowding theory has been empirically studied by Frey and Götte (1999).

Frey and Götte (1999) use a unique data set from Switzerland to evaluate how financial rewards to volunteers affect their intrinsic motivation. This is done in a principal-agent relationship[3]. The volunteer in the role of agent chooses the optimal amount of work effort (input of hours). The manager as the principal of the respective non-profit organization offers direct reward to influence the volunteer work supply. The utility $U(V, R)$ and the cost $C(V,R)$ of volunteering depends on hours volunteered V and on direct reward R made to volunteer. Utility function $U(.)$ and cost function $C(.)$ show standard properties: marginal benefit is decreasing ($U_V>0$, $U_{VV}<0$), whereas marginal cost is increasing ($C_V>0$, $C_{VV}>0$), Rational individuals choose that amount of volunteering V that maximizes their net benefit i.e. $U_V - C_V=0$. A change in direct reward R has the following impact on volunteer work (by the envelope theorem)

$$U_{VR} + U_{VV}\frac{dV^*}{dR} = C_{VR} + C_{VV}\frac{dV^*}{dR} \qquad (1)$$

and rearranging

$$\frac{dV^*}{dR} = \frac{U_{VR} - C_{VR}}{C_{VV} - U_{VV}} \qquad (2)$$

Given that the denominator is positive, the change in marginal benefit and in marginal cost inducted by the change in R determines the sign of expression (2). When U_{VR} and C_{VR} is both different from zero, the sign of expression (2) is undetermined, when either U_{VR} and C_{VR} is zero there is a clear behavioural response following an increase in R. According to Frey and Götte two polar cases may be distinguished. At one extreme, an increase in the direct reward causes a *relative price effect* because it lowers the opportunity cost of volunteering ($C_{VR} < 0$).

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[3] See also Frey (1992), Frey (1994), Cappellari and Turati (2004).

If no crowding-out effect exists ($U_{VR} = 0$), an increase in the direct reward increases the supply of voluntary work: $dV^*/dR > 0$. At the other extreme, an increase in the direct reward causes a *crowding-out effect* because it undermines the marginal utility of volunteering ($U_{VR} < 0$). If they're in no relative price effect ($C_{VR} = 0$), an increase in the direct reward reduces the supply of voluntary work: $dV^*/dR < 0$. In general, because both the relative price effect and the crowding-out effect are active, i.e. U_{VR} and C_{VR} is both different from zero, the total effect of the direct reward on work performance depends on the relative size of the two countervailing effects. So which effect prevails is an empirical matter.

Frey and Götte (1999) empirically finding that the direct reward reduces the amount of volunteering. While the size of the reward induces individuals to provide more volunteer work, the mere fact that they receive a payment significantly reduces their work efforts. Hence, the indirect effect (that reduces intrinsic motivation) dominates the direct effect of the reward.

In this paper the propositions to be tested are:
Hypothesis 1: individuals who receive rewards for volunteering will offer more hours of work (*relative price effect*).
Hypothesis 2 individuals who have high intrinsic motivations will offer more hours of work.
Hypothesis 3: individuals intrinsically motivated who receive a payment will reduce their work efforts (*crowding-out effect*).

3.   Data and descriptive statistics

The empirical analysis is based on the Survey on Employment in the Social Care and Educational Services conducted by the *Istituto di Studi sullo Sviluppo delle Aziende Nonprofit (ISSAN)* on state, for profit and non-profit organizations operating in the supply of a limited number of personal facilities: Assistance and guardianship, Nursing/rehabilitation, Educational, Cultural, Recreational, School and school-to-work guidance, Job-search assistance and others (see for further details Borzaga 2000). The survey was carried out in the first semester of 1998 in nine regions providing information regards 730 voluntary workers on time spent in volunteering, reimbursements, work motivations and personal characteristics.

In particular, the survey asks individuals how often they have volunteered in for profit and non-profit organizations and how many hours they have devoted to voluntary work. Based on

these questions, the paper considers both continuative volunteer work (hours per week) and occasional volunteer work (hours per month).

The propositions of previous section indicate that empirical analyses on crowding effect require the measurement of reimbursements and intrinsic motivations. One of the main advantages of the data set *ISSAN* is that it provides detailed information on reimbursements and work motivations of volunteers. Based on first information, I form a dummy for reimbursements, assuming value 1 if volunteers have received reimbursements for their activity and 0 otherwise. Based on second information and following Frey (1997), I identify intrinsic motivations from a question in which individuals are asked if they are in agreement that "voluntary work is a moral duty". I define three dummies for intrinsic motivations, which equals 1 for individuals who are in disagreement, medium in agreement and in agreement with the question and 0 otherwise. According to the discussion in the previous Section, reimbursements and intrinsic motivations should play a role in crowding-out (-in) effect.

Table 1 reports an overview of the descriptive statistics. On average, approximately, 10 hours per week and 14 hours per month are devoted to voluntary work in social services. 23 percent of continuative volunteers receive monetary compensation while only 18 percent of receive rewards. 26 percent of the sample of both type of volunteers is characterized by a low intrinsic motivation while only 18 percent of occasional volunteers show a high intrinsic motivation (against 27 percent of continuative ones). If we consider jointly continuative and occasional volunteers, we can observe from table 1 that completed high school is some 30 percent lower than national-wide representative statistics while College/graduate is some 10 percent higher than representative statistics (see *Indagine Multiscopo sulla Famiglia* from ISTAT, 1997). As for the rest of observed characteristics, the incidence of female is rather high while observations are not evenly distributed across Italian regions.

The number of hours volunteered, the share of persons receiving monetary compensation and the fraction of individuals who are characterized by intrinsic motivations differ between male and female and also between individuals who are employed in the market and those who are not (table 2). Histogram among intrinsic motivations and monetary rewards are showed in figure 1 and figure 2. Correlations and conditional dependence among intrinsic motivations and monetary rewards are showed in table 3.

Table 1 – sample means

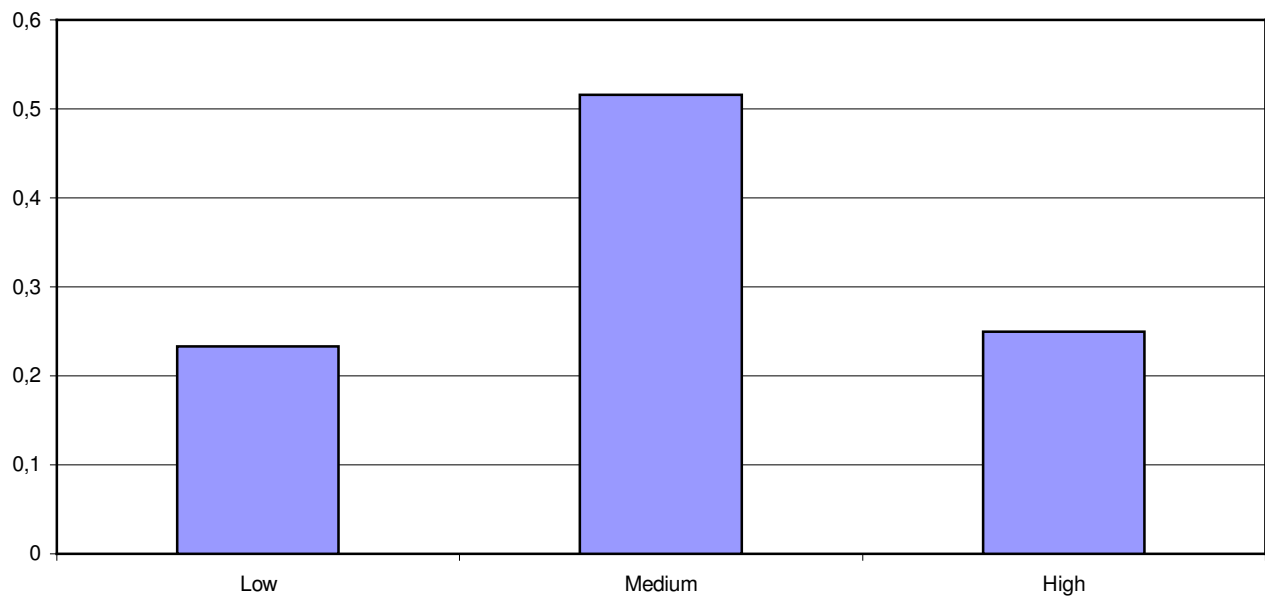|	Continuative volunteer work°	Occasional volunteer work§
Variable	**Mean**	**Mean**
Hours per week	9.79	
Hours for month		14.24
Female	0.63	0.61
Married	0,39	0.41
Age31-40	0.16	0.16
Age41-50	0.13	0.13
Age51-60	0.15	0.08
Age>61	0.16	0.09
Completed elementary (5 yrs)	0.05	0.06
Completed junior high school (8 yrs)	0.18	0.17
College/Graduate (>20 yrs)	0.19	0.15
Reimbursements	0.23	0.18
Low intrinsic motivation	0.27	0.26
High intrinsic motivation	0.27	0.17
Employed	0.27	0.37
Piemonte	0.17	0.08
Lombardia	0.07	0.15
Trentino	0.11	0.16
Friuli	0.02	0.01
Toscana	0.14	0.09
Campania	0.19	0.13
Calabria	0.05	0.07
Sicilia	0.03	0

°N=539, Missing on hours per week=34
§N=184, Missing on hours per month=28

Table 2 – Volunteering stratified according to

	Continuative volunteer work				Occasional volunteer work			
	Male	Female	Employed	Non-Employed	Male	Female	Employed	Non-Employed
Average hours per week	8.08	11.44	7.47	10.65				
Average hours per month					15.93	13.05	11.01	15.68
Fraction of volunteers who receive rewards	0.32	0.18	0.28	0.21	0.17	0.20	0.15	0.19
Low intrinsic motivation	0.20	0.31	0.26	0.28	0.31	0.23	0.29	0.25
High intrinsic motivation	0.28	0.26	0.26	0.28	0.18	0.17	0.11	0.21

Fig. 1 - Reimbursments and intrinsic motivation for continuative volunteers

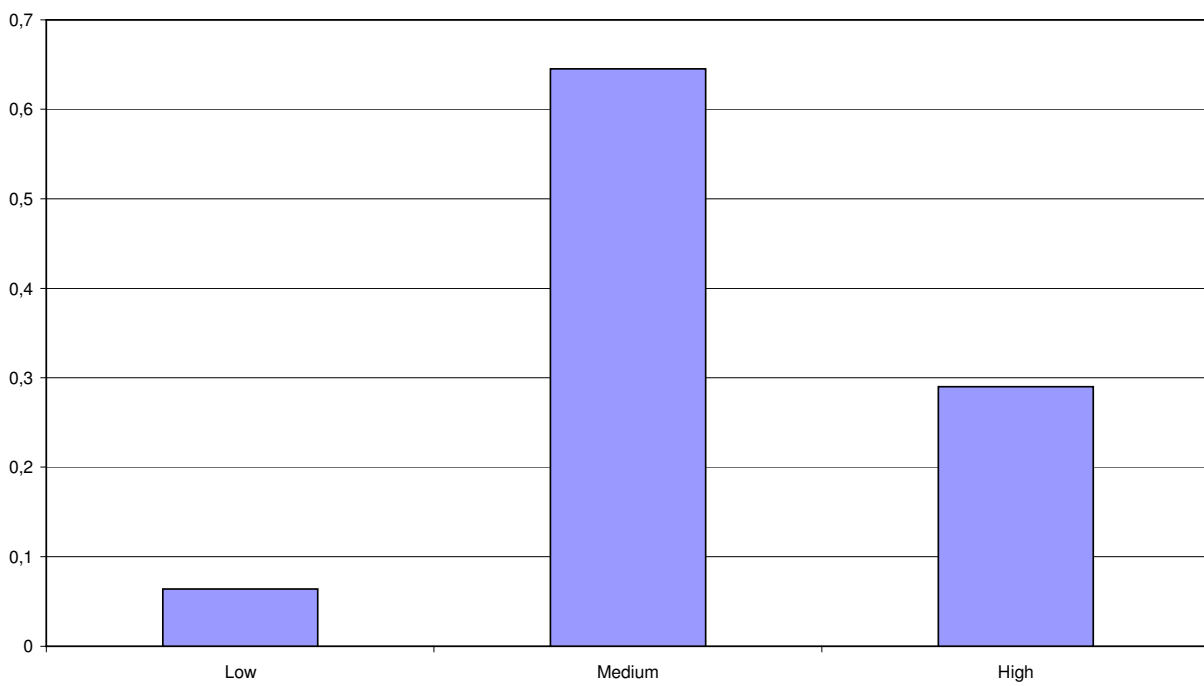**Fig. 2 - Reimbursments and intrinsic motivation for occasional volunteers**

Table 3 – Correlations and conditional dependence*

	Continuative volunteer work		Occasional volunteer work	
	Low intrinsic motivation	High intrinsic motivation	Low intrinsic motivation	High intrinsic motivation
Monetary rewards	-0.05	-0.03	-0.22***	0.13
Monetary rewards*	-0.04	-0.01	-0.27***	0.10

Note: *Probit equations with which intrinsic motivations are regressed against the reimbursements plus the set of controls indicated in table 1. *** Indicate statistical significance at the 1 percent level.

4. Economic framework

In this Section I provide empirical tests of my hypotheses. First, I study how individuals react when considering both reimbursements and intrinsic motivations. Next, I assess the crowding-out (-in) effect.

4.1 Estimation and empirical results

A simple way to assess theoretical hypotheses is by means of OLS equations with which volunteering hours are regressed against the set of controls plus the reimbursements and intrinsic motivations dummies, and the reimbursements multiplied for intrinsic motivations dummies

$$V_i = \boldsymbol{\beta'X_i} + \gamma R_i + \delta \mathbf{E}_i + \varepsilon_i \tag{3}$$

$$V_i = \boldsymbol{\beta'X_i} + \gamma R_i + \delta \mathbf{E}_i + \lambda R_i \mathbf{E}_i + \varepsilon_i \tag{4}$$

Where V_i are hours of volunteer work, $\mathbf{X_i}$ is the vector of explanatory variables, R_i is the vector of the reimbursements, $\mathbf{E}_i$ is the vector of the intrinsic motivations dummies, $R_i\mathbf{E}_i$ is the combined term and ε_i is the random error term. The set of controls included in $\mathbf{X_i}$ corresponds to the personal characteristics and to the regional dummies listed in table 1.

Results from the estimation of equation (3) for both occasional volunteer work and continuative volunteer work are reported in table 4. According to the discussion in the Section 2, reimbursements and intrinsic motivations induce volunteers to provide more volunteer work, Thus, hypotheses 1 is tested by looking the sign of the coefficient on reimbursements dummy while hypotheses 2 is tested by looking the sign of the coefficients on intrinsic motivations. Both are expected to increase volunteering labor. Looking the signs of the variables calculated multiplying the reimbursements for the intrinsic motivations tests hypothesis 3. If the coefficients of these variables are decreasing, the hypothesis of crowding out will be verified. Results from the estimation of equation (4) are showed in table 5.

Table 4 – Statistical test of reimbursements and intrinsic motivations

Variable	Coefficients		Coefficients	
	Continuative volunteer work (Hours per week)		Occasional volunteer work (Hours per month)	
Female	-0.19**	(0.08)	-0.16	(0.16)
Married	-0.32***	(0.10)	0.12	(0.20)
Age31-40	-0.03	(0.14)	-0.05	(0.26)
Age41-50	0.41***	(0.14)	-0.36	(0.25)
Age51-60	0.30*	(0.15)	-0.84**	(0.38)
Age>61	0.23	(0.15)	-0.16	(0.30)
Completed elementary (5 yrs)	0.14	(0.19)	-0.18	(0.26)
Completed junior high school (8 yrs)	-0.22**	(0.10)	0.49**	(0.22)
College/Graduate (>20 yrs)	-0.14	(0.10)	0.12	(0.25)
Reimbursements	0.50***	(0.09)	0.63***	(0.20)
Low Intrinsic motivation	-0.14	(0.09)	0.00	(0.18)
High intrinsic motivation	0.00	(0.08)	0.37*	(0.22)
Employed	-0.25***	(0.09)	-0.35**	(0.17)
Piemonte	-0.50***	(0.12)	0.32	(0.29)
Lombardia	-0.02	(0.18)	0.35	(0.29)
Trentino	-0.46***	(0.13)	-0.05	(0.21)
Friuli	0.91***	(0.32)	1.13***	(0.24)
Toscana	-0.15	(0.14)	-0.18	(0.27)
Campania	0.38***	(0.12)	0.27	(0.30)
Calabria	0.47**	(0.22)	- 0.19	(0.31)
Sicilia	-0.19	(0.21)	D	
No. obs.	465		132	
R^2(adjusted)	0.29		0.30	

Notes: Dependent variables in natural logarithms (ln(hours)). White standard errors are in parentheses. *, **, *** Indicate statistical significance at the 10 percent level, 5 percent level and 1 percent level. Reference category for dummy variables: male, non-married, Age<30, completed high school (13 yrs), does not report reimbursements and medium intrinsic motivations, non-employed, Veneto. D=dropped.

Estimates in table 4, from continuative volunteer work (hours per week), show that the coefficient on reimbursements shifts volunteer labour in the expected direction. The coefficient is positive and significant at 1 percent level. This is consistent with relative price effect. On the other hand, the coefficients on intrinsic motivations presents the expected signs, but they are not significantly different from zero. Thus, there is not an empirical evidence that intrinsic motivations would increase continuative voluntary labour.

As far the other estimated coefficients, continuative volunteer work in the social services is positively associated with geographical location in Friuli, Campania and Calabria. Surprisingly, respect the pattern emerged from the descriptive analysis of table 1, hours per

Table 5 – Statistical test of crowding effect.

Variable	Coefficients		Coefficients	
	Continuative volunteer work (Hours per week)		Occasional volunteer work (Hours per month)	
Female	-0.18**	(0.08)	-0.17	(0.17)
Married	-0.31***	(0.10)	0.15	(0.21)
Age31-40	-0.04	(0.14)	-0.07	(0.26)
Age41-50	0.40***	(0.14)	-0.39	(0.25)
Age51-60	0.29*	(0.15)	-0.91**	(0.38)
Age>61	0.23	(0.15)	-0.19	(0.33)
Completed elementary (5 yrs)	0.14	(0.19)	-0.15	(0.28)
Completed junior high school (8 yrs)	-0.22**	(0.10)	0.46**	(0.23)
College/Graduate (>20 yrs)	-0.14	(0.10)	0.10	(0.25)
Reimbursements	0.34***	(0.13)	0.62**	(0.24)
Low intrinsic motivation	-0.23**	(0.10)	0.02	(0.20)
High intrinsic motivation	-0.04	(0.10)	0.28	(0.23)
R*Low intrinsic motivation	0.46*	(0.23)	-0.46	(0.43)
R* High intrinsic motivation	0.17	(0.18)	0.47	(0.58)
Employed	-0.23***	(0.09)	-0.39**	(0.18)
Piemonte	-0.50***	(0.12)	0.34	(0.30)
Lombardia	-0.04	(0.19)	0.33	(0.29)
Trentino	-0.45***	(0.13)	-0.06	(0.21)
Friuli	0.88***	(0.31)	1.09***	(0.25)
Toscana	-0.15	(0.14)	-0.15	(0.27)
Campania	0.38***	(0.12)	0.28	(0.30)
Calabria	0.47**	(0.22)	- 0.20	(0.33)
Sicilia	-0.18	(0.22)	D	
No. obs.	465		132	
R^2(adjusted)	0.30		0.31	

Notes: Dependent variables in natural logarithms (ln(hours)). White standard errors are in parentheses. *, **, *** indicate statistical significance at the 10 percent level, 5 percent level and 1 percent level. Reference category for dummy variables: male, non-married, Age<30, completed high school (13 yrs), does not report reimbursements and medium intrinsic motivations, reimbursements multiplied 0or medium intrinsic motivations, non-employed, Veneto. D=dropped.

week are negatively associated with female. Not surprisingly, instead, the cost opportunity of time reduces hours volunteered. The coefficients on married variable and on employed variable are negative and significant. The age distribution dummies show that old individuals volunteer more then young individuals, while the year schooling dummies indicate that individuals with completed junior high school volunteer less than individuals with completed high school.

Moving to results to occasional volunteer work (hours per month), it can be observed in table 4 that the coefficient on reimbursements is again positive and significant at 1 percent level. Thus, a relative price effect also works for occasional voluntary labor. The coefficient on high intrinsic motivation presents a positive sign and it is statistically significant at 10 percent level. This weak finding seems to evidence that high intrinsic motivation would increase occasional voluntary labour.

As far the other estimated coefficients, occasional volunteer work in the social services is positively associated with geographical location in Friuli. Again, the cost opportunity of time reduces hours volunteered, while old individuals volunteer less then young individuals. Surprisingly, individuals with completed junior high school volunteer more than individuals with completed high school.

Looking the crowding effect, the empirical evidence of table 5 shows that monetary rewards help individuals with low intrinsic motivation to offer more hours per week. This finding would support a crowding in effect on low intrinsic motivation. Instead, neither a crowding out nor a crowding in effect is obtained for the occasional volunteers.

In the attempt to understand the effect of the monetary incentive on the individuals with various intrinsic motivations, I narrow the analysis separating the individuals with low intrinsic motivation from those with high intrinsic motivation. Results are showed in tables 6 – 9[4].

Empirical findings of tables 6-9 explain the following preliminary results. First, monetary rewards increase volunteer labour supply both of continuative volunteers and of occasional ones. Second, monetary rewards increase the hours of individuals with low intrinsic motivation. Thus, a crowding in effect on low intrinsic motivation of the continuative volunteers must exist. Finally, among occasional volunteers, monetary incentives seem to increase the hours of individuals with high intrinsic motivation, but this evidence is not statistically significant.

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[4] I have run Tobit equations obtaining similar results.

Table 6 – Statistical test of reimbursements and low intrinsic motivations

Variable	Coefficients		Coefficients	
	Continuative volunteer work (Hours per week)		Occasional volunteer work (Hours per month)	
Reimbursements	0.49***	(0.09)	0.64***	(0,21)
Low intrinsic motivation	-0.14	(0.08)	-0.04	(0,18)
Individual controls	Yes		Yes	
Regions	Yes		Yes	
No. obs.	465		132	
R^2(adjusted)	0.29		0.29	

Notes: Dependent variables in natural logarithms (ln(hours)). White standard errors are in parentheses. *, **, *** Indicate statistical significance at the 10 percent level, 5 percent level and 1 percent level. Reference category for dummy variables: male, non-married, Age<30, completed high school (13 yrs), does not report reimbursements and medium intrinsic motivations, non-employed, Veneto.

Table 7 – Statistical test of reimbursements and high intrinsic motivations

Variable	Coefficients		Coefficients	
	Continuative volunteer work (Hours per week)		Occasional volunteer work (Hours per month)	
Reimbursements	0.50***	(0.09)	0.63***	(0,20)
High intrinsic motivation	0.05	(0.08)	0.37*	(0.21)
Individual controls	Yes		Yes	
Regions	Yes		Yes	
No. obs.	465		132	
R^2(adjusted)	0.29		0.30	

Notes: Dependent variables in natural logarithms (ln(hours)). White standard errors are in parentheses. *, **, *** indicate statistical significance at the 10 percent level, 5 percent level and 1 percent level. Reference category for dummy variables: male, non-married, Age<30, completed high school (13 yrs), does not report reimbursements and medium intrinsic motivations, non-employed, Veneto.

Table 8 - Statistical test of crowding effect separated for intrinsic motivation: low.

Variable	Coefficients		Coefficients	
	Continuative volunteer work (Hours per week)		Occasional volunteer work (Hours per month)	
Reimbursements	0.40***	(0.10)	0.70***	(0.22)
Low Intrinsic motivation	-0.21**	(0.10)	-0.00	(0.19)
R*Low Intrinsic motivation	0.37*	(0.22)	-0.55	(0.41)
Individual controls	Yes		Yes	
Regions	Yes		Yes	
No. obs.	465		132	
R^2(adjusted)	0.30		0.31	

Notes: Dependent variables in natural logarithms (ln(hours)). White standard errors are in parentheses. *, **, *** Indicate statistical significance at the 10 percent level, 5 percent level and 1 percent level. Reference category for dummy variables: male, non-married, Age<30, completed high school (13 yrs), does not report reimbursements and medium intrinsic motivations, reimbursements multiplied for medium intrinsic motivations, non-employed, Veneto.

Table 9 - Statistical test of crowding effect separated for intrinsic motivation: high.

Variable	Coefficients		Coefficients	
	Continuative volunteer work (Hours per week)		Occasional volunteer work (Hours per month)	
Reimbursements	0.49***	(0.11)	0.56***	(0.21)
High Intrinsic motivation	0.04	(0.09)	0.28	(0.22)
R*High intrinsic motivation	0.02	(0.17)	0.53	(0.56)
Individual controls	Yes		Yes	
Regions	Yes		Yes	
No. obs.	465		132	
R^2(adjusted)	0.29		0.31	

Notes: Dependent variables in natural logarithms (ln(hours)). White standard errors are in parentheses. *, **, *** Indicate statistical significance at the 10 percent level, 5 percent level and 1 percent level. Reference category for dummy variables: male, non-married, Age<30, completed high school (13 yrs), does not report reimbursements and medium intrinsic motivations, reimbursements multiplied for medium intrinsic motivations, non-employed, Veneto.

5.   Preliminary conclusions

This paper have analysed the role of monetary rewards and intrinsic motivations in the decision to supply voluntary hours. Several studies have pointed out that intrinsic motivations may be important for volunteering (Freeman 1997; Cappellari and Turati 2004). In particular, Cappellari and Turati (2004) have found for a sample of Italian workers that intrinsically motivated individuals are more likely to volunteer that extrinsically motivated ones.

This paper has used a data set on a sample of Italian volunteers to evaluate how financial rewards to volunteers affect their intrinsic motivations. It has found that monetary rewards (extrinsic motivations) influence positively the choice to donate voluntary hours, while a high intrinsic motivation seems to increase only hours per month. Moreover, monetary rewards increase the hours per week of individuals with low intrinsic motivation. Thus, a crowding in effect on low intrinsic motivation seems to emerge for continuative volunteers.

Obviously, further investigations are required. These results might well be affected by sample selection bias on missing values and by simultaneity bias on intrinsic motivations.

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