

# PRIVATE MONETARY TRANSFERS AND ALTRUISM: AN EMPIRICAL INVESTIGATION ON ITALIAN FAMILIES

by

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## ABSTRACT

The aim of this paper is to explore the motivation of monetary transfers received by household heads. Indeed, the financial transfers may be motivated by altruism or by the expectation of future services. For this reason, we select a sample of Italian families from the 2006 European Union Statistics on Income and Living Conditions (EU-SILC) dataset. The empirical analysis is based on the two-stages Heckman selection model, to deal with the selectivity problem of individuals receiving a private transfer. First, we consider the transfer decision and try to account for the factors that affect the probability that the household head will receive a transfer. Next, we restrict our analysis to those families who did receive a positive transfer and examine the factors that affect the size of the transfer. The economic interest in the intrinsic explanation of monetary transfers is supported by the efficacy of policy makers instruments. For this reason, we also explore the relationship between private and public financial transfers. The main contribution to the existing literature is to investigate the social motivation of private transfers and their implications in terms of policy in a unified framework.

**KEYWORDS:** Altruism, Household behaviour, Cross-sectional Models

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## 1. Introduction

According to the literature, private transfers are relevant both in developing countries and in highly developed economies (Danziger, Havernan and Plotnick 1981; Lampman and Smeeding 1983; Kotlikoff 1988; Guiso and Jappelli 1991). Moreover, private transfers are important for their persistence also across generations (Deb, Okten and Osili 2010). An interesting element of private transfers to be analyzed is the motivation. Indeed, as explained in Hochguertel and Ohlsson (2009), parents' transfers motives are important for income redistribution, savings and public finance. The motivation underlying a transfer decision may be relative to altruism or exchange motive. According to Becker (1974), an individual cares about the well-being of other individuals in the altruistic framework, while according to Bernheim, Shleifer and Summers (1985), the parent makes transfers to the children in order to obtain services from them. It is possible to identify also a different behavior for family members. Indeed, Berry (2008) investigates to what extent young adult children can rely on their parents for financial support and he finds that parents give more *inter vivos* financial assistance to their disadvantaged children rather than focusing on children most able to give financial help in return.

As explained in Barro (1974), the motives for private transfers are relevant for public policies that redistribute income. There are different ways to analyse the altruistic hypothesis in the literature. First, there are models which consider the bequest data (Ishikawa, 1975; Becker and Tomes, 1979; Adams, 1980; Menchik and David, 1983). The result, that the bequest received is negatively associated to the recipient income, reveals that the altruistic hypothesis may be supported. Second, there are models which consider the way bequest behavior affects wealth mobility (Blinder, 1973; Menchik, 1979 and 1980). In this context, the bequest rules assume a relevant role and not the characteristics of potential recipients. Third, there is an empirical research which considers transfers as payments made in exchange services provided by family heads (Kotlikoff and Spivak, 1981; Kotlikoff, Shoven and Spivak, 1986). However, there are also papers where parental transfers are not significant for children (Wolff 2006).

In this paper we explore the motivation of monetary transfers received by household heads. For this reason, we select a sample of Italian families from the

2006 European Union Statistics on Income and Living Conditions (EU-SILC) dataset. The empirical analysis is based on the two-stages Heckman selection model, to deal with the selectivity problem of individuals receiving a private transfer. First, we consider the transfer decision and try to account for the factors that affect the probability that the household head will receive a transfer. Next, we restrict our analysis to those families who did receive a positive transfer and examine the factors that affect the size of the transfer. Since the economic interest in the intrinsic explanation of monetary transfers is supported by the efficacy of policy makers instruments, we also explore the relationship between private and public financial transfers. This analysis assumes a particular relevance in this period, in which the most heavy financial crisis after that of 1929 produces still negative effects to real economy. The main contribution of the paper to the existing literature is to investigate the social motivation of private transfers and their implications in terms of policy in a unified framework.

The outline of the paper is as follows: Section 2 describes the theoretical framework of private transfers; Section 3 outlines the effects of Government policies according to the link between public and private transfers. Section 4 presents the dataset while Section 5 illustrates models implemented in the analysis. Section 6 shows and discusses the empirical results; in Section 7 we carry out an interesting analysis on the relationship between public and private transfers. Section 8 concludes and points out suggestions for further research.

## 2. Theoretical Framework of Private Transfers

The simplest approach to model the monetary transfer is to consider the utility of the recipient into the utility function of the donor. According to Becker (1974), it is assumed that individual  $i$  is concerned about  $j$  and maximizes the utility function  $U_i = (x_i, U_j(x_j))$  where  $x_i$  and  $x_j$  represent the consumption of  $i$  and  $j$  respectively. The initial income levels of  $i$  and  $j$  are respectively  $y_i$  and  $y_j$ , while  $g_i$  is a monetary transfer from  $i$  to  $j$ . Thus, the budget constraints for  $i$  and  $j$  may be written as:

$$x_i + g_i = y_i \quad (1)$$

$$x_j = y_j + g_i \quad (2)$$

The maximization problem for individual  $i$  becomes:

$$\begin{aligned} \text{Max } U_i &= (x_i, U_j(x_j)) \\ \text{s. t. } x_i + x_j &= y_i + y_j \quad (3) \end{aligned}$$

From (1) we may derive:

$$dx_i = dy_i - \frac{\partial g_i}{\partial y_i} dy_i - \frac{\partial g_i}{\partial y_j} dy_j \quad (4)$$

Since  $dx_i = 0$  for  $dy_i = -dy_j$ , we may obtain:

$$\frac{\partial g_i}{\partial y_i} - \frac{\partial g_i}{\partial y_j} = 1 \quad (5)$$

This is a relevant theoretical result, which is widely used in the empirical analysis to test for the altruism hypothesis. Choosing the interpretation that the individual  $i$  is the parent and the individual  $j$  is children in a family environment, Altonji, Hayashi and Kotlikoff (1997) find that an increase in parent's income leads to an increase in the transfer and that an increase in the child's income leads to a decrease in the transfer, but the estimates of these effects are much smaller in absolute value than what would be computed in (5). For this reason, they reject the hypothesis of pure altruism. We may distinguish two approaches to explain the monetary transfers in the empirical literature. A first approach is introduced by Cox (1987): altruistic parents transfer economic means to their children in exchange for services. In this case, if income increases, the threat point of the child also increases and the parent may have to increase his transfer to obtain the desired services. If we find a positive correlation between recipient's income and transfer amount in the data, then the exchange regime hypothesis is verified. In particular, this hypothesis has been tested in many papers and for different countries (Cox 1987; Cox and Rank 1992; Cox, Eser and Jimenex 1998; Secondi 1997).

A second approach is the one by Cigno, Giannelli and Rosati (1998). They assume that individuals live for three periods and derive utility from their own consumption. Family network system allow the reallocation of consumption over the life cycle: each middle-aged individual must transfer a specified amount of income to each of the children and a specified amount of income to each of the parents. In this context, credit rationing has a positive effect on the probability of

intrafamily transfers, while in the pure altruism model and in the exchange one an increase in rationing produces a decrease in the donor's income and therefore a decrease of the transfer. In particular, Cigno, Giannelli and Rosati (1998) test for their hypothesis by using Italian data.

### **3. Public and Private Transfers: Consequences of Government Policies**

Family intergenerational transfers have received increasing interest in the economic literature because of their interaction with Government policies. Indeed, if private and public transfers are 'substitutes', an increase of public transfers might lead to a decrease in private transfers, the so-called 'crowding-out' effect of policy makers instruments. This effect may realize in two ways: firstly, children may reduce private transfers to their retired parents because of the increase of public funds; secondly, parents could use the public transfers they receive to increase their private transfers to children. This topic is particularly interesting in those European developed countries characterized by a growing population of older people and a very low fertility rate (Disney and Johnson, 2001), such as Italy.

The reaction of private transfers to Government policies depends on the intrinsic motivation for giving. If private transfers are explained by pure altruism (Barro, 1974), as it is described in the previous section, a public policy that forces a transfer from child to parent, through the pension system, but leaves aggregate family income unchanged will have no effect on any family member's consumption. Indeed, the parents will increase private transfers by the exact amount of the due public transfer to assure consumption of both at the previous level. Thus, in this case the policy makers instruments are not efficacious.

If private transfers are motivated by exchange regime hypothesis (Cox, 1987), transfers from parents may increase in response to an increase in the child's income because the child now needs more compensation to assure the same amount of services. Thus, in this case exchange motivated transfers may strengthen the effects of public transfers. For this reason, this effect is also called 'crowding in' effect in the empirical literature (Kunemund and Rein, 1999).

As far as the empirical evidence is concerned, Cox and Jimenez (1992) report that families in Peru who obtain social security income are slightly less likely to get private monetary transfers. In particular, simulation models suggest that private transfers would be about 20% higher without a social security programme. In this case, we may observe a crowding-out effect, but it is less than expected by models of pure altruism (100%). Also Jensen (2003) report similar results from South-Africa data. Results suggest that each rand of public pension income to elderly people leads to a decrease of about 30% rand in private transfers. Schoeni (2002) explore the interaction between public and private transfers to unemployed people in the USA. He finds that a substantial proportion (24 to 40 cents per dollar) of the unemployed who obtain public benefits receive private support as well, while Cox and Jakubson (1995), by investigating data of anti-poverty programme in the USA, find a crowding-in effect. Attias-Donfut and Wolff (2000) find a strong positive correlation between the receipt of public transfers and the probability of receiving financial help from parents in France. Kunemund and Rein (1999) implement an International analysis to test the existence of crowding-in versus crowding-out effect. They consider Canada, Japan, the United Kingdom, Germany and the USA. Results suggest that in Germany the social security system does not lead to a crowding-out effect; elderly German people do not receive less help with money than elderly people in the other countries, as expected by crowding-out hypothesis. Reil-Held (2006) investigates the relationship between private and public financial transfers to and elderly people using data from Germany. Results suggest a positive correlation between the amount of public transfers elderly people receive and in the private transfers they give. On the other hand, we may observe that for the much smaller group of elderly people who receive private financial support, that transfers are negatively correlated with the public transfers they receive. Thus, the crowding-out effect may not be rejected.

Now, we are living the most heavy financial crisis after that of 1929, as documented also in Blanchard (2009). Because of this serious crisis, policy makers must realize actions to curb public debt. This means also a reduction of public transfers. For this reason, we believe that in this particular period, the interest for the link between private and public transfers assumes a fundamental relevance for evaluate the effects of negative policy instruments.

## 4. Data

In this paper we select a sample of Italian families from the 2006 European Union Statistics on Income and Living Conditions (EU-SILC) dataset. The EU-SILC database provides comparable, cross sectional and longitudinal multidimensional data on income, social exclusion and living conditions performed in Member States (MS) of the European Community. The reference population of EU-SILC is all private households and their current heads residing in the territory of the MS at the time of data collection. The EU-SILC data is thus a national representative sample of all person aged 16 and over residing in private households within the country. Four types of data are gathered in EU-SILC: 1) variables measured at the household level; 2) information on household size and composition and basic characteristics of household heads; 3) income and other more complex variables measured at the personal level, but aggregated to construct household-level variables; 4) variables collected at the personal level. The items included in the micro data regards health, education, child care, housing, demographic and employment characteristics, income.

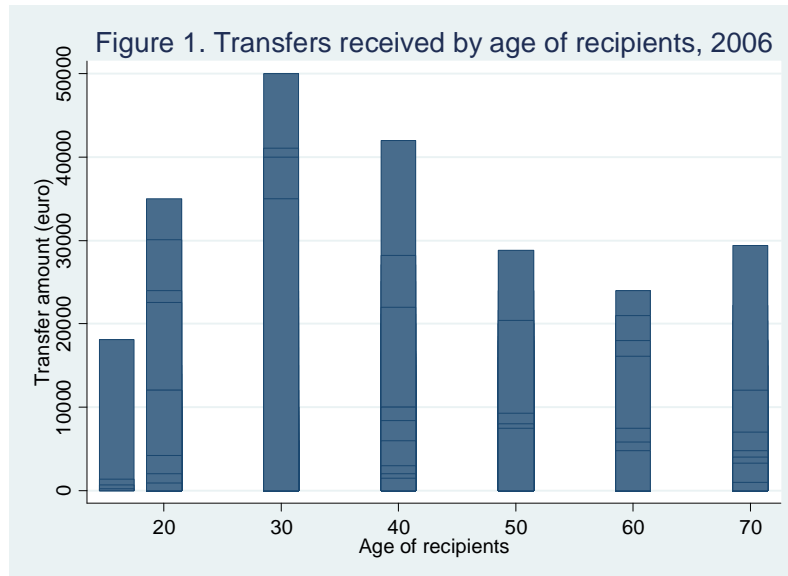
In this paper we use 2006 wave of EU-SILC which provides also information on social participation of respondents. Our sample is composed of 21499 household heads who are aged between 16 and 80 in 2006. All the variables used in the analysis are described in detail in Appendix A. Summary statistics are reported in Table 1.

The micro data contains a question, hy080, in which households report regular inter-household cash transfer received. This variable refers to regular monetary amounts received from other households or persons. It includes: i) compulsory alimony and child support; ii) voluntary alimony and child support received on regular basis; iii) regular cash support from persons other than household heads; iv) regular cash support from household in other countries. Transfers among households or persons who live in the same household are not considered in the survey.

Table 1. Descriptive statistics

Variable	All sample		Recipients		Nonrecipients	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Transfer receipt	0.05	0.21				
Transfer amount	238.59	1655.16	5150.04	5819.90	0	0
Household income	28744.55	22964.20	22348.75	18035.11	29055.24	23132.32
Mean household income	33485.51	5264.97	32959.95	5407.65	33511.04	5256.74
Public transfers	480.90	635.86	207.12	416.16	494.19	641.67
Female	0.29	0.45	0.58	0.49	0.28	0.45
Married	0.62	0.48	0.39	0.49	0.63	0.48
Separated	0.03	0.16	0.13	0.34	0.02	0.15
Divorced	0.03	0.17	0.10	0.30	0.03	0.16
Widowed	0.18	0.38	0.13	0.34	0.18	0.38
Age30-39	0.14	0.35	0.21	0.40	0.14	0.34
Age40-49	0.19	0.39	0.27	0.44	0.19	0.39
Age50-59	0.19	0.39	0.19	0.40	0.19	0.39
Age>60	0.45	0.50	0.24	0.42	0.46	0.50
No edu	0.05	0.22	0.03	0.18	0.05	0.22
Primary edu	0.28	0.45	0.18	0.38	0.30	0.45
Secondary edu	0.57	0.49	0.65	0.48	0.56	0.49
Household size	2.53	1.27	2.40	1.29	2.54	1.27
Children0_2	0.05	0.24	0.06	0.25	0.05	0.24
Children3_5	0.06	0.25	0.05	0.23	0.06	0.25
Children6_15	0.23	0.56	0.31	0.60	0.23	0.55
Children16_24	0.23	0.55	0.36	0.66	0.23	0.55
EU birth	0.01	0.10	0.01	0.11	0.01	0.10
OTH birth	0.04	0.19	0.05	0.22	0.03	0.18
EU citizenship	0.00	0.05	0.01	0.08	0.00	0.05
OTH citizenship	0.02	0.15	0.03	0.17	0.02	0.15
Health problem	0.26	0.44	0.28	0.45	0.26	0.44
Visiting relatives	0.27	0.44	0.31	0.46	0.27	0.44
Student	0.00	0.06	0.05	0.22	0.00	0.04
Unemployed	0.03	0.16	0.12	0.33	0.02	0.15
Retired	0.36	0.48	0.14	0.34	0.37	0.48
Inactive	0.12	0.33	0.22	0.41	0.12	0.33
Unemployment months	0.38	1.92	1.71	3.98	0.31	1.73
Retirement months	3.92	5.60	1.38	3.81	4.04	5.64
Inactivity months	1.84	4.26	2.92	5.07	1.79	4.21
Homeowner	0.75	0.43	0.56	0.50	0.76	0.43
Rooms	3.46	1.14	3.31	1.10	3.47	1.14
Lands and buildings	0.21	0.40	0.16	0.37	0.21	0.41
Savings	0.47	0.50	0.29	0.46	0.47	0.50
North East	0.24	0.43	0.21	0.41	0.24	0.43
Centre	0.24	0.42	0.24	0.43	0.24	0.42
South	0.20	0.40	0.26	0.44	0.20	0.40
Islands	0.08	0.27	0.09	0.28	0.08	0.27
Observation		21499		996		20503





A notable feature of transfers in the 2006 survey is that only a minority of household heads received them. Indeed, the data shows that 996 household heads receive cash transfers, 5 percent of the full sample (transfer receipt in Table 1). Tables 1 reports the average levels of transfers (transfer amount) and the total (disposal) household income for the household heads surveyed.

Averages are reported separately for all sample, recipients and non-recipients. While the average size of cash transfers were around 239 euro in the full sample, for household heads who received money transfers in 2006, average size of these transfers were 5150 euro, 23 per cent of the total disposal household income. Total disposal household income, hy020 variable in EU-SILC<sup>1</sup>, is lower in the recipients sample (22348 euro) than in all sample (28744 euro). Transfers flow from the old to the young, and vice versa. As shown in Figure 1, the age pattern of transfers received has a peak in the 30-40 years range, but notable is also the 70-80 years range.

Among the variables that are likely to affect transfers received, we first account for the income of the donors. The theories discussed in previous sections predict that the likelihood of a transfer taking place as well as the amount of the transfer will increase as the income of the donor increases. Since the data does not provide direct information on source of transfers received, we do not know the income of donors. In this paper, the income of donors is proxied by the mean value of the

<sup>1</sup> Regarding as yh020 is computed see EU-SILC variables descriptions year 2006.

total disposal household income for each of the 3 categories of urbanization, db100 variable - densely populated area, intermediate area, thinly populated area - in each of the 20 Italian regions. Thus, in Table 1, mean household income is the mean value of household income of local areas of the region in which the household head resides. Looking at Table 1, the mean household income is slightly lower for transfer recipients, indicating that household heads who receive monetary transfers live in local areas relatively poorer.

In order to address the interaction between private and public transfers, we use additional variables available in the Italian sample. Public transfers mainly consist of social pensions, disability allowances and pensions, old age and retirement pensions, survivors' pensions. Table 1 shows that public transfers, on average, are lower in the recipients sample (207 euro) than in the all sample (481 euro).

A number of demographic variables are included among the explanatory variables. These variables are: gender, marital status, age, education, household size, presence and age of children, country of birth, citizenship, health problems, visiting relatives, occupation status, homeownership, and three indicators of household wealth. Wealth variables comprise the number of rooms available to the household, if household head owns lands and other buildings and if household head has savings. Finally, the Italian macro-regional dummies are also taken into account. Table 1 shows that all sample and recipients sample differ significantly. In the all sample, around 60 per cent of household heads are male and married and have a secondary education. The largest group of individuals, 45 per cent, is aged 60 and more. Furthermore, 23 per cent of the sample comprises household heads with children aged between 16 and 24, about 26 percent have health problems and visit relatives everyday while 36 percent declare to be retired. It is also interesting to note that 75 percent are homeowners and 47 per cent are saver person. In the recipients sample, about 60 per cent of household heads are female and not married (single, separated and divorced, widowed) and have a secondary education. The largest group of respondents, 27 per cent, is aged between 40 and 49. Moreover, 36 per cent of the sample comprises household heads with children aged between 16 and 24, while 44 percent have health problems and meet relatives everyday with 34 percent being in unemployed and inactive status. Finally, 56 percent are homeowners and only 29 per cent are saver person.

## 5. Empirical Framework

In this paper, we use the Heckman selection model in the empirical analysis. It is a methodology which tries to assess the impact of private transfers, after accounting for the possibility of selection of individuals into the private transfer process. The Heckman correction takes place in two stages. First, we formulate a Probit model of the form:

$$\text{Prob}(T_i = 1|Z_i) = \Phi(Z_i\gamma) \quad (6)$$

where  $T_i$  indicates the transfer ( $T_i=1$  if individual  $i$  receives a private transfer and  $T_i=0$  otherwise),  $Z_i$  is a vector explanatory variables,  $\gamma$  is a vector of unknown parameters and  $\Phi$  is the cumulative distribution function of the standard normal distribution. Estimation of the model produces results to predict the probability for each individual. In the second stage, we correct for self-selection by adding a transformation of these predicted individual probabilities (inverse Mills ratio).

Both the altruism and exchange theory predict an inverse relation between the recipient's income and the probability of receiving a transfer. First, we consider the transfer decision and try to account for the factors that affect the probability that the household heads will receive a transfer. Next, we restrict our analysis to those families who did receive a positive transfer and examine the factors that affect the size of the transfer. Here the altruism theory predict a negative relation between the recipient's income and the size of the transfers, while exchange allows for a positive relation.

The Probit model is estimated to explain the probability of receiving a private transfer:

$$T_i = \alpha_0 + \alpha_1 I_{ri} + \alpha_2 I_{di} + \alpha_3' Z_i + \varepsilon_i \quad (7)$$

where “ $i$ ” index household head,  $T_i$  is a dummy variable, taking the value of 1 if the household head receives a transfer and 0 otherwise.  $I_{ri}$  is recipient's income and  $I_{di}$  is donor's income,  $Z_i$  is a vector including the other covariates described in section III, and  $\varepsilon_i$  is the error term. We hypothesize that if transfers are motivated by altruism or self-interest,  $\alpha_1$  is negative and  $\alpha_2$  is positive, indicating that the lower the recipient's income and the higher the donor's income, the higher the likelihood of a transfer taking place.

An ordinary Least Squares (OLS) is estimated to explain the size of the transfer. The dependent variable is the amount of the transfer received by the household head,  $ST_i$ . The equation for  $ST_i$  is given by

$$ST_i = \beta_0 + \beta_1 I_{ri} + \beta_2 I_{di} + \beta_3 Z_i + \lambda + \mu_i \quad (8)$$

where the explanatory variables are the same as those used for the study of the transfer decision. The coefficient of interest is  $\beta_1$ . Both the altruism and exchange theory predict a negative value for  $\beta_1$ , while exchange allows for a positive value of  $\beta_1$ . Because of the positive correlation between donor's income and transfers amounts, the coefficient on  $\beta_2$  is expected to be positive for each transfer motive. Finally, the parameter  $\lambda$  is the inverse Mills ratio, that is a transformation of the predicted individual probabilities computed in the first stage and added in the second stage (OLS model) to correct for self-selection matter.

## 6. Empirical Results

Table 2 reports the results of the estimation of the probability of receiving a private transfer. Equation (7) is estimated for all sample. The estimated Probit coefficients on recipient's and donor's income have the expected signs and are statistically significant, respectively, at 1 and 5 per cent. These estimates are consistent with both altruism and exchange explanation. This result is in line with previous studies of Cox (1987) and Secondi (1997). Household head who are women are more likely to receive transfers while people who are married have a lower probability of receiving financial transfers than their single counterparts (reference category). Following Cox (1987), the findings for gender are reconciled with altruistic and exchange models. In the altruistic explanation, the probability of transfer receipt is higher for female because private transfers may compensate women for wage discrimination or interruption of careers. In the exchange explanation, women, for choice or discriminations, are concentrated in activities that are related to family-oriented services (home production). Home production would raise the demand price and lower the supply price of services (Cox 1987, 535).

Table 2. Probit estimates of receiving a transfer: all sample

Variable	I		II	
	Coef.	Std. Err.	dF/dx	Std. Err.
Household income (ln)	-0.108***	0.027	-0.007***	0.002
Mean household income (ln)	0.400**	0.159	0.025**	0.010
Female	0.528***	0.044	0.042***	0.0
Married	-0.123**	0.049	-0.008**	0.004
Separated	0.624***	0.074	0.068***	0.012
Divorced	0.454***	0.075	0.043***	0.010
Widowed	-0.343***	0.068	-0.018***	0.003
Age30-39	0.024	0.091	0.001	0.006
Age40-49	-0.121	0.093	-0.007	0.005
Age50-59	-0.187*	0.095	-0.011*	0.005
Age>60	0.290***	0.098	-0.018***	0.006
No edu	-0.403***	0.108	-0.018***	0.003
Primary edu	-0.331***	0.069	-0.018***	0.003
Secondary edu	-0.184***	0.055	-0.012***	0.003
Household size	0.025	0.027	0.001	0.002
Children0_2	-0.032	0.078	-0.002	0.005
Children3_5	-0.083	0.075	-0.005	0.005
Children6_15	0.042	0.038	0.003	0.002
Children16_24	0.192***	0.037	0.012***	0.002
EU birth	-0.305	0.189	-0.014	0.006
OTH birth	0.058	0.117	0.004	0.008
EU citizenship	0.612**	0.289	0.068	0.049
OTH citizenship	0.148	0.155	-0.008	0.007
Health problems	0.187***	0.040	0.013***	0.003
Visiting relatives	0.117***	0.037	0.008***	0.003
Student	1.798***	0.173	0.423***	0.068
Unemployed	0.779***	0.071	0.098***	0.014
Inactive	0.362***	0.049	0.030***	0.005
Homeowner	-0.216***	0.038	-0.015***	0.003
Rooms	0.028*	0.016	0.002*	0.001
Lands and buildings	0.034	0.045	0.002	0.003
Savings	-0.205***	0.037	-0.013***	0.002
North East	0.052	0.051	0.003	0.003
Centre	0.076	0.052	0.005	0.003
South	0.291***	0.065	0.022***	0.006
Islands	0.168**	0.084	0.012**	0.007
No. of observations		20984		
Pseudo R-squared		0.19		
Log-likelihood		-3210.04		

Note. The dependent variable is equal to one if the household head receives a transfer and 0 otherwise. The independent variables are described in Appendix. Standard errors are corrected for heteroscedasticity. The symbols \*\*\*, \*\*, and \* denote that the coefficient is significantly different from zero at the 1, 5 and 10 percent levels, respectively

The inverse relationship between marital status and the probability of transfer receipt is difficult to explain in the context of the altruistic model. In Table 1 the coefficients on separated and divorced variables are positive and statistically significant at 1 per cent. As alimonies are included in private support, we interpret this finding as the monetary compensation for the events of separation and divorce. An alternative explanation related to the exchange model is that marriage raises the implicit supply price of services provided to other household heads. Household responsibilities associated with marriage make it less likely for a married couple to exchange services for private transfer income (Cox 1987, 536). The pattern of old to young people is evidenced by the coefficients on the age dummies. Compared to the omitted category of household heads in their twenties, heads in their fifties and especially those aged 60 and over are significantly less likely to be transfer recipients.

Household heads who are well-educated are also more likely to receive transfers. The direct relationship between household size and the probability of transfer receipt is not statistically significant. However, having children aged between 16 and 24 increases the likelihood to have monetary support. Household heads whose citizenship is European have higher probability of receiving money transfers than those who are not European (reference category).

Health problems is measured by a dummy equal to one if the respondent suffers from any a long-standing illness or condition. In Table 1 it emerges that household head who experiences this type of health problem receives more monetary transfers. Family ties are also important. Here, family ties are proxied by the frequency with whom the household head visits his/her relatives. This variable is positive and statistically significant. Indeed, if the receiver daily meet their relatives, the probability to have a transfer significantly goes up.

The receiver's economic situation is proxied by a set a variables: education and occupation status. Both status provide consistent results: assistance is more likely to be received by an individual who is a student<sup>2</sup> or does not work, than one who is employed.

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<sup>2</sup> In our dataset, we cannot distinguish the students living with their parents and students living outside their family. For this reason, we assume that the former are not numerous, then the transfers received by the category are to be considered 'extra-household' transfers and not 'intra-household' ones.

Clear effect of wealth variables can be inferred from the estimated coefficients. Homeowner and savings show a negative coefficient, statistically significant at 1 per cent. Therefore, these variables are associated with a lower probability of receiving financial transfers.

The analysis of the probability of receiving transfers is only sufficient to provide evidence in favor or against the altruism and exchange theories. It is necessary to look at the determinants of the size of the transfers.

Table 3 reports the ordinary least square results of the estimation of the size of financial transfer. Equation (8) is estimated for the recipients sample. The estimated OLS coefficient on recipient's income is positive and statistically significant at 1 per cent. For the average recipient with an income of about 22348 euro, one percent increase in annual income is predicted to raise the amount of transfers by 0.667, from sample mean of about 5150 to 8585 euro. The positive relationship between recipient's income and transfer amount received is consistent with exchange theory. According to the exchange framework, this result seems to indicate that recipients with higher income ask for higher payments in exchange for services provided. This suggestion seems to be confirmed by the estimated coefficients on age dummies. Indeed, the results reported in Table 3 show that compared to the omitted category of household heads in their twenties, recipients in their sixties receive more transfers.

Looking at the other coefficients in Table 3, the mean household income, the proxy of donor's income, has a positive and significant impact on the size of transfers, as expected. Hence, the positive relationship between donor's income and transfer amount received is also consistent with exchange theory. It also appears that marital status and education play roles in determining the amount of transfers received. We have discussed above as the findings on separated and divorced are in line with the exchange explanation while evidence on education dummies points out that transfer amount received increases with education level. Household size decreases the size of transfers. An exchange interpretation of this finding may be that household size raises the implicit supply price of services provided to other household heads. Household heads whose citizenship is European receive less transfers amount than those whose citizenship is not European (reference category).

Table 3. Least-squares estimates of the amount of transfers received: recipients

Variable	Coef.	Std. Err.
Household income (ln)	0.667***	0.047
Mean household income (ln)	0.691**	0.332
Female	0.285	0.086
Married	-0.028	0.105
Separated	-0.374***	0.130
Divorced	-0.295**	0.144
Widowed	-0.348**	0.152
Age30-39	0.152	0.159
Age40-49	-0.067	0.175
Age50-59	0.088	0.192
Age>60	0.046***	0.212
No edu	-0.368*	0.217
Primary edu	-0.274*	0.146
Secondary edu	-0.174*	0.091
Household size	-0.114**	0.050
Children0_2	-0.054	0.164
Children3_5	0.075	0.153
Children6_15	0.097	0.072
Children16_24	0.062	0.072
EU birth	0.799***	0.242
OTH birth	0.202	0.193
EU citizenship	-0.643**	0.314
OTH citizenship	-0.265	0.267
Health problems	-0.227***	0.082
Unemployment months	0.053***	0.010
Inactivity months	0.037***	0.008
Homeowner	0.201***	0.071
Rooms	0.029	0.033
Lands and buildings	0.178**	0.088
Savings	0.218***	0.080
North East	-0.354***	0.101
Centre	-0.126	0.093
South	-0.129	0.134
Islands	-0.155	0.177
Mills ratio	-0.752***	0.125
No. of observations		982
Pseudo R-squared		0.29

Note. The dependent variable is the natural logarithm of the size of the monetary transfer. The independent variables are described in Appendix. Standard errors are corrected for heteroscedasticity. The symbols \*\*\*, \*\* denote that the coefficient is significantly different from zero at the 1 and 5 percent levels, respectively.



Also in this case, occupation status provides consistent result: the size of the transfer is positively related to the months spent in unemployment and inactivity. At the same time, disabled individuals receive more monetary transfer.

*Homeowner, lands and buildings* and *saving* are wealth variables with a significant coefficient (at 1 and 5 per cent). These variables are positively correlated with the size of transfers. Since land and building are an indicator of permanent income, the positive coefficient seems to reinforce the positive correlation on household income and providing additional evidence for the exchange theory: recipients with higher current and permanent income receive higher transfers. Moreover, household heads who live in North East regions receives less cash transfers than those who lives in Nord West regions (reference category).

Finally, the Mills ratio coefficient is significant and negative. This means that there is an overestimation of the transfer effect, if we do not consider the selectivity problem of individuals.

## **7. Public and Private Transfers Analysis**

We now investigate the relationship between public transfers and private transfers. In particular, we test the crowding-out versus crowding-in hypothesis which a policy makers instrument can realize. Again, the Heckman selection model is implemented. Then, a Probit and OLS models are used to estimate the probability of private transfer receipt and the amount received, respectively, in which among the independent variable we include also public transfers. Tables 4 and 5 show the results of the estimation of the probability of receiving a private transfer and those of the OLS estimation of the size of financial transfer with public transfers as covariates. Also in this case, the Mills ratio coefficient is significant and negative, providing that there is an overestimation of the transfer effect, if we do take into account the selectivity problem of the individuals. The overall results are quite similar to those that emerge from Tables 2 and 3. The coefficient of public transfers is in all models negative and statistically significant, respectively, at 1 per cent (probit) and 5 per cent (OLS). The negative correlation

Table 4. Probit estimates of receiving a private transfer with public transfers: all sample

Variable	I		II	
	Coef.	Std. Err.	dF/dx	Std. Err.
Household income (ln)	-0.083***	0.027	-0.005***	0.002
Mean household income (ln)	0.388**	0.160	0.024**	0.010
Public transfers (ln)	-0.030***	0.009	-0.002***	0.000
Female	0.519***	0.044	0.041***	0.004
Married	-0.137**	0.058	-0.009**	0.004
Separated	0.616**	0.074	0.067***	0.012
Divorced	0.439***	0.075	0.041***	0.010
Widowed	-0.251***	0.074	-0.013***	0.003
Age30-39	0.026	0.091	0.002	0.006
Age40-49	-0.116	0.093	-0.007	0.005
Age50-59	-0.176*	0.097	-0.010*	0.00
Age>60	-0.209*	0.111	-0.013*	0.007
No edu	-0.366***	0.108	-0.017***	0.003
Primary edu	-0.310***	0.070	-0.017***	0.003
Secondary edu	-0.175***	0.055	-0.011***	0.004
Household size	0.020	0.027	0.001	0.002
Children0_2	-0.031	0.078	-0.002	0.005
Children3_5	-0.080	0.075	-0.005	0.005
Children6_15	0.045	0.038	0.003	0.002
Children16_24	0.194***	0.038	0.012***	0.002
EU birth	-0.305	0.191	-0.014	0.006
OTH birth	0.050	0.118	0.003	0.008
EU citizenship	0.608**	0.290	0.067**	0.048
OTH citizenship	-0.139	0.156	-0.008	0.007
Health problems	0.208***	0.041	0.014***	0.003
Visiting relatives	0.124***	0.037	0.008***	0.003
Student	1.823***	0.173	0.431***	0.069
Unemployed	0.792***	0.072	0.099***	0.014
Retired	0.140*	0.076	0.009*	0.014
Inactive	0.426***	0.062	0.037***	0.007
Homeowner	-0.216***	0.038	-0.015***	0.003
Rooms	0.027	0.016	0.002	0.001
Lands and buildings	0.030	0.045	0.002	0.003
Savings	-0.205***	0.037	-0.013***	0.002
North East	0.052	0.051	0.003	0.003
Centre	0.080	0.052	0.005	0.003
South	0.298***	0.065	0.022***	0.006
Islands	0.172**	0.084	0.012**	0.007
No. of observations		20984		
Pseudo R-squared		0.19		
Log-likelihood		-3202.47		

Note. See note Table 2.

Table 5. Least-squares estimates of the amount of private transfers received and public transfers: recipients

Variable	Coef.	Std. Err.
Household income (ln)	0.716***	0.049
Mean household income (ln)	0.656**	0.332
Public transfers (ln)	-0.032**	0.015
Female	-0.064	0.095
Married	-0.004	0.104
Separated	-0.396***	0.128
Divorced	-0.324**	0.143
Widowed	-0.229	0.150
Age30-39	0.119	0.160
Age40-49	-0.100	0.175
Age50-59	0.005	0.192
Age>60	0.229	0.218
No edu	-0.347	0.217
Primary edu	-0.259*	0.145
Secondary edu	-0.153*	0.091
Household size	-0.161***	0.050
Children0_2	-0.045	0.164
Children3_5	0.099	0.153
Children6_15	0.116	0.071
Children16_24	0.080	0.072
EU birth	0.810***	0.243
OTH birth	0.182	0.189
EU citizenship	-0.618*	0.313
OTH citizenship	-0.232	0.260
Health problems	-0.220***	0.083
Unemployment months	0.060***	0.010
Retirement months	0.057***	0.013
Inactivity months	0.059***	0.009
Homeowner	0.190***	0.070
Rooms	0.029	0.033
Lands and buildings	0.167*	0.087
Savings	0.215***	0.079
North East	-0.364***	0.100
Centre	-0.123	0.093
South	-0.114	0.133
Islands	-0.154	0.175
Mills ratio	-0.778***	0.124
No. of observations		982
Pseudo R-squared		0.30

Note.

See note Table 3.

between public transfers and private transfer receipt shows that household heads who receive more public transfers must expect to receive a lower private financial help. For the average recipient with public transfers of about 207 euro, one percent increase in public transfers is predicted to decrease the amount of transfers by 0.032, from sample mean of about 5150 to 4985 euro. Hence, the hypothesis about an crowding-out process cannot be rejected.

This result is similar to that of Reil-Held (2006) and could be due also to a better regularity of public transfers with respect to non-public incomes. However, our analysis about private intergenerational relations is very relevant for public policy. The significance of the empirical estimate shows a strong relation between the family and the state. Thus, every policy action has relevant effects on the family behavior about private assistance.

From the results of the previous section, we learn that the motivation underlying the private transfer is also the exchange of future services. Indeed, we see that there is a significant positive coefficient on household income ( $\ln$ ): the higher the household income is, the higher bargaining power of donor is and then the higher the size of transfer must be.

From the empirical results of this section, we observe that the public and the private transfers are substitutes: in case of public transfers increase, private transfers react negatively. In this framework, we try to explain the effect of a reduction in public transfers because of the international financial crisis involving the public debt of states. Since public and private transfers are substitutes, we may expect a positive crowding-out effect on private financial help after a decrease of public transfers. But since the amount of resources collected by state are not distributed to the families, then we may expect also a reduction of household incomes and then a decrease of private transfers, due to a negative crowding-in effect. Thus, the final result cannot be identified well, because of two opposite forces. For this reason, this topic needs further investigation to pick out other important factors able to describe which force is prevalent.

## **8. Conclusions**

In this paper we explore the motivation of monetary transfers received by household heads. Indeed, the financial transfers may be motivated by altruism or

by the expectation of future services. For this reason, we select a sample of Italian families from the 2006 European Union Statistics on Income and Living Conditions (EU-SILC) dataset. The empirical analysis is based on the two-stages Heckman selection model, to deal with the selectivity problem of individuals receiving a private transfer. First, we consider the transfer decision and try to account for the factors that affect the probability that the household member will receive a transfer. Next, we restrict our analysis to those families who did receive a positive transfer and examine the factors that affect the size of the transfer. Because of the interesting interaction between family intergenerational transfers and Government policies, we also explore the relationship between private and public financial transfers. The main contribution to the existing literature is to investigate the social motivation of private transfers and their implications in terms of policy in a unified framework.

As far as the motivation underlying the private transfers is concerned, the estimated probit coefficients on recipient's and donor's income have the expected signs and are statistically significant, respectively, at 1 and 5 per cent. These estimates are consistent with both altruism and exchange. This result and those relative to the explanatory variables are in line with previous studies of Cox (1987) and Secondi (1997).

However, the analysis of the probability of receiving transfers is only sufficient to provide evidence in favor or against the altruism and exchange theories. It is necessary to look at the determinants of the size of the transfers. The estimated OLS coefficient on recipient's income is positive and statistically significant at 1 per cent. For the average recipient with an income of about 22348 euro, one percent increase in annual income is predicted to raise the amount of transfers by 0.667, from sample mean of about 5150 to 8585 euro. The positive relationship between recipient's income and transfer amount received is consistent with exchange theory. According to the exchange framework, this result seems to indicate that recipients with higher income ask for higher payments in exchange for services provides. This suggestion is confirmed by the estimated coefficients on age dummies. Indeed, the results show that compared to the omitted category of household heads in their twenties, recipients in their sixties receive more transfers. Finally, the Mills ratio coefficient is significant and negative. This means

that there is an overestimation of the transfer effect, if we do not consider the selectivity problem of individuals.

As far as the relationship between the public and private transfers is concerned, again the Heckman selection model is implemented. Then, a Probit and OLS models are used to estimate the probability of private transfer receipt and the amount received, respectively, in which among the independent variable we include also public transfers. The coefficient of public transfers is in all model negative and statistically significant, respectively, at 1 per cent (probit) and 5 per cent (OLS). The negative correlation between public transfers and private transfer receipt shows that household heads who receive more public transfers must expect to receive a lower private financial help. For the average recipient with public transfers of about 207 euro, one percent increase in public transfers is predicted to decrease the amount of transfers by 0.032, from sample mean of about 5150 to 4985 euro. Hence, the hypothesis about an crowding-out process cannot be rejected. Also in this case, the Mills ratio coefficient is significant and negative, providing that there is an overestimation of the transfer effect, if we do take into account the selectivity problem of the individuals.

However, our analysis is implemented in a simple empirical environment and can be improved. First, we should take into account also non-monetary help in the private support analysis. Second, we should investigate not only the receipt transfer but also the giving of transfers. Third, we may explore the endogeneity issue of particular variables. Finally, we might use a dynamic model to verify whether our empirical results are sensitive to the lag between the private and public transfers.

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## Appendix. Variables definition

<i>Variable</i>	<i>Description</i>
<i>Dependent variable</i>	
Transfer amount	Dummy 1. If the respondent receives a transfer; 0 otherwise
Transfers receipt	Regular inter-household cash transfers received (in euro)
<i>Key independent variables</i>	
Household income	Net total disposal household income (in euro) without inflation factor
Mean Household income	The mean value of the household income for each of the 3 categories of degree of urbanization in each of the 20 Italian regions
Public transfers	Sum (in euro) of social pensions, disability allowances and pensions, old age and retirement pensions, survivors' pensions
<i>Demographic and socio-economic characteristics</i>	
Female	Dummy, 1 if female; 0 otherwise. <b>Reference group: male</b>
Married	Dummy, 1 if married; 0 otherwise; <b>Reference group: single</b>
Separated	Dummy, 1 if separated; 0 otherwise
Divorced	Dummy, 1 if divorced; 0 otherwise
Widowed	Dummy, 1 if widowed ; 0 otherwise
Age30-39	Dummy, 1 if age is between 30 and 39; 0 otherwise. <b>Reference group: age16-29</b>
Age40-49	Dummy, 1 if age is between 40 and 49; 0 otherwise.
Age50-59	Dummy, 1 if age is between 50 and 59; 0 otherwise
Age>60	Dummy, 1 if age is above 60; 0 otherwise
No edu	Dummy, 1 if no education; 0 otherwise. <b>Reference group: tertiary education (18 years and more)</b>
Primary edu	Dummy, 1 if primary education ( <i>elementary school</i> : 5 years); 0 otherwise
Secondary edu	Dummy, 1 if secondary education (junior high school and <i>diploma</i> : 6 - 13 years); 0 otherwise
Household size	Number of household members
Children0_2	Number of own children ages 0 - 2 years old. <b>Reference group: no children</b>
Children3_5	Number of own children ages 3 - 5 years old
Children6_15	Number of own children ages 6 - 15 years old
Children16_24	Number of own children ages 16 and 24 attending school
EU birth	Dummy, 1 if the country of birth is any European union country (EU25); 0 otherwise. <b>Reference group: country of residence</b>
OTH birth	Dummy, 1 if the country of birth is any other country
EU citizenship	Dummy, 1 if the citizenship is that of any European union country. 0 otherwise. <b>Reference group: country of residence.</b>
OTH citizenship	Dummy, 1 if the citizenship is that of any other country
Health problem	Dummy, 1 if the respondent suffers from any a long-standing illness or condition; 0 otherwise
Visiting relatives	Dummy, 1 if the respondent meets relatives everyday a week; 0 otherwise
Student	Dummy, 1 if the respondent declares he/she is currently student; 0 otherwise. <b>Reference group: employed</b>
Unemployed	Dummy, 1 if the respondent declares he/she is currently unemployed; 0 otherwise
Retired	Dummy, 1 if the respondent declares he/she is currently retired; 0 otherwise
Inactive	Dummy, 1 if the respondent declares he/she is currently inactive; 0 otherwise
Unemployment months	Number of months spent in unemployment in income reference period; 0 otherwise
Retirement months	Number of months spent in retirement in income reference period; 0 otherwise
Inactivity months	Number of months spent in inactivity in income reference period; 0 otherwise
Homeowner	Dummy, 1 if the respondent owns the house where he /she lives; 0 otherwise
Rooms	Number of rooms available to the household
Lands and buildings	Dummy, 1 if the respondent owns lands and other buildings; 0 otherwise

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*Macro-regional dummies*

North East	Dummy, 1 if the respondent lives in North east regions; 0 otherwise. <b>Reference group: North West</b>
Centre	Dummy, 1 if the respondent lives in Central regions; 0 otherwise
South	Dummy, 1 if the respondent lives in Southern regions; 0 otherwise
Islands	Dummy, 1 if the respondent lives in the Islands; 0 otherwise

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