Exploring inter-household transfers: An assessment using panel data from Turkey

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Abstract

This paper aims to contribute to the growing literature on the crowding out/in effect of public transfers on private ones by using two consecutive four-year SILC panel data from Turkey covering years 2008-2011 and 2012-2015. Over the period under study, the number of beneficiaries has increased and the welfare system has expanded to segments of society that were uncovered before. In order to quantify the interaction between public and private transfers, we estimate the effects of public transfers on the amount and likelihood of receiving private transfers by controlling various household characteristics and individual heterogeneity through panel structure. We find that public transfers at the individual level lead to crowding out effects, while public transfers targeting household has no significant neutralizing effect on private transfers. Comparing results from different periods, we observe that the effect of both altruistic motive and crowding-out are decreasing. Additionally, we broaden the definition of standard private transfers to include rent-free (subsidized) housing support. Our results reveal that broadly defined private transfers have a downstream character, are less altruistically motivated and produce less crowding-out effect compared to standard definition.

JEL classifications: D64, I38, J18

Keywords: Altruism, Private transfers, Public transfers, Welfare provision, Crowding out, Correlated random effects, Turkey

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1 Introduction

Private transfers continue to be an important source of income, especially in many developing countries, despite changing household structure and increasing market wage dependency. Both the proportion of households receiving private transfers and the share of private transfers received in the disposable income are of considerable size (Cox and Jimenez, 1990; Subbarao et al., 1997). Different types of households, such as households working in the traditional rural sector and/or as employee in modern sectors, benefit from inter-vivos transfers. For instance, donor parents who support their children living away from home and still need transfers to sustain their consumption are common. A considerable part of the literature addresses the interaction between public and private transfers due to the redistributive effect it will produce. This is of particular importance in safety net design and public policy evaluation. If the crowding out effects are dominant, escaping from poverty would be difficult in the long term (Subbarao et al., 1997). In some cases, findings show that private provision in terms of redistribution dominates the public one, such as in Philippines or Vietnam (Cox et al., 2006) , and leads to suboptimal public policy.

To be more specific, studies examine whether private transfers are helpful to achieve social objectives by complementing or substituting for public transfers. As a component of income, the latter has an impact on private transfer behavior. From a theoretical point of view, the motives for private transfers can help to understand how responsive they are to redistribution. Becker (1974) and Barro (1974) emphasize the altruistic motive for private transfers and discuss the redistributive neutrality. The mechanism in this set-up is simple to understand: the likelihood of receiving private transfers is negatively correlated to the income of recipients. Thus, an increase in public transfers lead to an increase in income and a decrease in private transfers. On the other hand, Bernheim et al. (1985) and Cox (1987) argue an exchange motive for private transfers. In this case, pre-transfer income and the private transfers are positively correlated due to a higher implicit price of services. In other words, private transfers increase with income and/or public transfers rather than decrease.

Earlier evidence from developed countries indicates that the altruism motive fails to explain the reasons for private transfers (Cox et al., 2004; Kunemund and Rein, 1999). Cox (1987) and Cox

and Rank (1992) test the two theoretical predictions with US data and conclude that inter vivos transfers are more consistent with exchange motives than altruism. Cox and Jakubson (1995) estimate that a dollar increase in US public welfare spending could decrease private transfers by 12-cent, at most. In their empirical study using French data, Attias-Donfut and Wolff (2000) find a mixed relationship between public and private transfers. They estimate a positive correlation between receiving public transfers and the probability of receiving private transfers from parents. However, according to their simulations, a 10 percent reduction in retirement pensions would decrease the transfers from parents to children. Reil-Held (2006) examines the relationship between private and public financial transfers to and from elderly people in Germany. His results show a positive impact of public resources on private transfers from elderly to younger generations. On the other hand, he shows a significant negative effect of public transfers on the probability of receiving private financial support for elder people. Kunemund and Rein (1999) find crowding in effects of public transfers in their comparative study comprising five developed countries, Canada, Japan, UK, Germany and US.

Considering that public welfare coverage is limited and redistributive transfers do not sufficiently decrease inequality in developing countries , the complementary or substitutionary character of public transfers have implications for public policy. It is possible that in the absence of public insurance, other forms of redistribution are in play. Cox and Jimenez (1992) estimate the correlation between social security benefits and private transfers in Peru, and conclude that private transfers from younger to elderly generations would be one fifth higher without social security benefits. Juarez (2009) examines the impact of redistributive policy in Mexico on the amount of private transfers that the elderly people receive using an IV approach. Her results report a significant crowding-out effect. Kim and Choi (2011) investigate the role of family support in South Korea and Taiwan, where public transfers exhibit an upward trend recently. Their results indicate that private transfers are still more important than public transfers for income inequality in these countries. Albarran and Attanasio (2002) evaluate a welfare programme targeted at rural population, using randomization. Their results suggest that both the likelihood to receive a transfer and the amount received conditional on receiving private transfers are significantly and negatively

affected by the programme. In a recent study, Gerardi and Tsai (2014) assess the crowding out effects of public transfers by exploiting the introduction of a new social security program in Taiwan. Their results confirm the crowding out hypothesis on the extensive margin of private transfers. Cox et al. (2004) estimate the responsiveness of private transfers to pre-private transfer income using Philippines data in a non linear framework, and find that both altruistic and exchange motive can co-exist for different segments of distribution.

There is a growing literature documenting the characteristics of social assistance schemes in Turkey (Baslevent, 2014; Buğra and Adar, 2008). At micro level, there is no available data providing any information on how private or government funded local charity organisations have a role in welfare provision. However, it seems that traditional forms of welfare provision have been challenged during the single party government (Pinarcioglu and Isik, 2009). For example, Yazici (2012) indicates that the AKP government promoted charity organizations and voluntary initiatives for poverty alleviation and the provision of social services during the last decade. In this study, we will solely focus on inter-household transfers and its interaction with public transfers. Our paper aims to analyze motives for private transfers in Turkey and discuss its implication for public policy. This is the first study using household level Turkish panel data to assess the crowding out effects of public transfers. We define private transfers quite broadly: subsidized rent is included in the regressions that yield more conceivable results. This broader definition of private transfers might be seen as a contributive point of the paper, since subsidized rent is ignored in previous literature mainly due to lack of data. Following previous literature, we deal with the endogeneity problem, since public transfers are targeted generally to those in need. We also distinguish public transfers according to their recipient unit. Our results indicate that individual level public transfers have a significant effect on private ones, while household level public transfers do not play a key role. The obtained results support the altruistic behaviour in private transfers and indicate the crowding out impact of public transfers at individual level. An exchange motive is also found for female recipients.

The Turkish welfare system has experienced an expansion over the last decade, both in terms of amount and coverage. An upward trend is observed both for the amount of public transfers and

Table 1: Income and its components by household type

Household Types	One person household	Households with no dependent children	Households with dependent children	Lone-parent with dependent children	One person household	Households with no dependent children	Households with dependent children	Lone-parent with dependent children
SILC Panel	2008-11				2012-15			
Share in the sample	0.06	0.64	0.29	0.02	0.09	0.58	0.30	0.02
Pre-transfer Income	11.72	26.71	22.56	9.55	9.08	31.01	20.72	13.96
Pre-transfer Income*	10.97	25.90	22.15	8.75	8.39	30.33	20.38	12.87
Net Private Transfers received	1.70	0.61	0.74	5.55	1.30	0.53	0.50	6.22
Net Private Transfers received *	2.44	1.37	1.12	6.35	1.93	1.17	0.80	7.28
Net Transfer Receivers	0.39	0.19	0.18	0.63	0.36	0.16	0.14	0.62
Net Transfer Receivers *	0.44	0.32	0.24	0.64	0.45	0.30	0.21	0.68
Public Transfers (individual)	6.70	3.42	10.89	4.61	7.65	4.08	11.76	4.38
Public Transfers (household)	0.09	0.23	0.07	0.62	0.14	0.26	0.08	0.40
Wage Income ratio (% of pre-transfer Income)	0.25	0.77	0.50	0.39	0.19	0.81	0.51	0.45
Wage Income ratio (% of pre-transfer Income)*	0.28	0.81	0.52	0.47	0.23	0.84	0.53	0.56
Dependency benefit ratio (% of total public transfers)	0.53	0.11	0.09	0.54	0.57	0.12	0.10	0.48
Age of Household Head	61.92	43.68	58.46	42.67	66.10	45.59	60.97	43.64

Source: Survey of Income and Living Conditions (SILC; 2008-11, 2012-15).
The reference period for income variables is the previous year. In order to avoid any inconsistencies, time lag between income variables and household characteristics are adjusted so that we have a three year panel, instead of four years.
* include imputed rents if the household receives rent-free subsidized housing.
All monetary variables are expressed in 1,000 TL and inflated to 2014 prices.

for the share of beneficiaries (Table 1). The amount of individual and household level transfers has increased over time. Pre-transfer income by household type exhibits a more complex pattern. Income levels of one person households, households with more than two adults, and two adult households with and without children decreased, whereas the income of the households with children increased. This trend remains unchanged when the subsidized housing imputed rent is included in the pre-transfer income. Another demographic indicator, wage income ratio is presented in the last column. As in many other developing countries, wage dependency increases and thus, the younger generation becomes socially more protected. The wage-income ratio of one person and lone parent households also indicates a low market income dependency. Herein, we can suggest that demographical changes affect the nature of intra-household private transfers. For instance, younger generations might need more family support due to a longer education period. On the other hand, given a longer life expectancy along with a decreasing family size, elder people could also need more care services. The rest of the paper is organized as follows. Section 2 presents the data and provides descriptive statistics of donors and receivers. Section 3 discusses the empirical strategy. We presents our findings in Section 4, and Section 5 concludes the paper.

2 Data

To evaluate the interaction between public and private transfers in Turkey, we use the Survey on Income and Living Conditions (SILC), conducted by Turkstat. SILC[1] is the unique data source designed by a panel structure representing the overall non-institutional population in Turkey. It provides rich information on income and indebtedness of households, labor force status of household members, as well as their demographic characteristics such as gender, age and educational attainment.[2] In order to understand the interaction between transfers and household income over time, we use two consecutive panels of SILC, covering the years between 2008 and 2015. We prefer to use a balanced sample for each round of panel, which helps to eliminate attritions and households with missing information.

For the sake of comparison, income variables are calculated on real amounts according to base year 2014. We have to note that there are some limitations related to the use of earnings structure for the SILC data. The information on personal and household earnings belongs to the previous year, while the questionnaire gives information about the current state of households. Put differently, the reference period for questions related to income is one year prior to the interview. Thus, we need to adjust our time variant household characteristics with the earnings information (Iacovou et al., 2012). Matching earnings information with household characteristics drops the last year and restricts the panel with three years. In the first panel, 2008-2010, we have 2,618 households, while in the consecutive panel 2012-2014, we have a larger sample, covering 5,048 households. Note that SILC survey does not provide private transfers received at the individual level. thus, all estimations in this paper are carried out at the household level.

We use two different types of dependent variables for the amount of received private transfer. The first one is the net private transfer, which is defined as the regular inter-household cash or in-kind transfers received, minus regular inter-household cash or in-kind transfers paid.[3] For an

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[1]The survey design is compatible with the standard EuroStat SILC.

[2]Turkstat uses a rotational design methodology which allows following up a sub-sample up to four years. Four sub-samples are surveyed in each year, and from one year to the next, the oldest sub-sample is replaced with a new one. The sample overlap is 75% between two consecutive years; 50% from year t to $t+2$; 25% from year t to year $t+3$; and zero for longer periods.

[3]All compulsory or voluntary alimony and child support are included. The definition of Euro-stat excludes any gifts and other large, one-time and unexpected cash flows or subsidized housing in the form of imputed rents.

alternative and more comprehensive dependent variable, we include the imputed rent for tenants who live in rent-free housing or who pay subsidized rents. Because it has a regular character, we think that subsidized rent can be considered a private transfer. The households living rent-free or paying a reduced rent cover around 16 per cent of our total sample.

The first variable of interest, namely pre-transfer income, is calculated as the total household income net of taxes, private and public transfers. Our second main predictor is public transfers, which are crucial for identifying the crowding-out effect. It should be noted that SILC does not provide accurate information on whether household members meet certain conditions for entitlement or eligibility to social transfers. In order to refine the crowding-out effect, we distinguish two types of public transfers: individual level benefits and household level benefits. Individual level benefits cover unemployment insurance benefits (UI), retirement benefits, retirement grants, survivor's benefits, disability benefits, education related benefits received in the reference period. Household level benefits include in-cash housing allowances, in-cash and in-kind child allowances, and other social allowances received in the reference period. Table 2 summarizes the sample characteristics of two consecutive panel waves. Approximately one fifth of the sample receives net transfer from other households. Received positive net transfer amount has not changed significantly, while pre-transfer income and public transfers have increased. Increase in the amount of public transfers is slightly larger compared to pre-transfer income. Another important point is that female headed households have raised from 10 per cent to 15 per cent over the period under study. The percentage of households where the head or spouse has social security coverage is barely higher in the second panel wave. Note that household heads have become more educated, while marriage rate and household size have decreased. These findings are in line with the transformation of family structure and household composition in Turkey. Lastly, the proportion of households facing financial issues is striking: about one fourth of households report that they have debt issues, while the subjective assessment of having financial difficulty, i.e. households reporting they are unable to make ends meet, is decreasing. These information are key for an overall picture on how household dynamics shift throughout the years.

	Panel 2008-11		Panel 2012-15	
	Mean	Std. Dev.	Mean	Std. Dev.
Net Private Transfers received	0.80	2.84	0.72	2.98
Net Private Transfers received (incl. subsidized rents)	1.45	3.49	1.26	3.49
Net Transfer Receivers	0.21	0.40	0.19	0.39
Net Transfer Receivers (incl. subsidized rents)	0.31	0.46	0.30	0.46
Pre-transfer Income	24.37	23.95	25.52	26.98
Pre-transfer Income (incl. subsidized rents)	23.68	23.95	24.93	26.95
Public Transfers (Individual)	5.78	9.82	6.73	10.05
Public Transfers (household)	0.18	0.74	0.20	0.81
Family Type				
One person household	0.05	0.22	0.09	0.28
Households with no dependent children	0.64	0.48	0.59	0.49
Households with dependent children*	0.28	0.45	0.30	0.46
Lone-parent with dependent children	0.02	0.14	0.02	0.15
Female Household Head	0.10	0.30	0.15	0.35
Age of Household Head	48.05	14.05	51.26	14.79
Head Education Level				
Less than primary 5 years*	0.16	0.36	0.17	0.38
Primary 5 years	0.47	0.50	0.45	0.50
Primary 8 years	0.10	0.30	0.10	0.30
Secondary	0.09	0.29	0.07	0.26
Vocational Sec.	0.07	0.26	0.08	0.27
Post-Secondary	0.10	0.31	0.12	0.33
Social Sec. head or spouse	0.60	0.49	0.60	0.49
Head Marital Status				
Married*	0.87	0.33	0.82	0.39
Never married	0.03	0.16	0.03	0.16
Spouse died	0.08	0.27	0.13	0.33
Divorced	0.02	0.15	0.03	0.18
Head - health-related limitations past 6 months	0.31	0.46	0.32	0.47
Household - difficulty in loan payments	0.25	0.43	0.24	0.43
Owner*	0.61	0.49	0.63	0.48
Tenant	0.23	0.42	0.20	0.40
Subsidised housing (rent-free)	0.16	0.37	0.16	0.37
Household unable to make ends meet	0.24	0.43	0.17	0.38
Household size	4.00	1.98	3.87	2.11
Number of Households	2,618		5,048	

Source: Survey of Income and Living Conditions (SILC; 2008-11, 2012-15).
The reference period for income variables is the previous year. In order to avoid any inconsistencies, time lag between income variables and household characteristics are adjusted so that we have a three year panel, instead of four years.
* indicates omitted categories used in estimations.
All monetary variables are expressed in 1,000 TL and inflated to 2014 prices.

3 Identification Strategy

To estimate the crowding out/in effects of public transfers on private ones, we employ two empirical models. Following previous literature, we begin with a binary response model to identify factors affecting private transfers on extensive margin. Secondly, we use a censored regression model to estimate the crowding out/in effects on intensive margin. The basic model could be specified as:

$$T_{i,t} = \beta_0 + \beta_1 I_{i,t} + \beta_2 P_{i,t} + \gamma X_{i,t} + v_i + \epsilon_{i,t} \tag{1}$$

The random effect probit and tobit model are used to estimate the outcome of Eq.1 where net receiver T_i takes the value 1 if the household receives positive amount of transfer (cash or in-kind) net of transfers to the other households. It takes 0, if otherwise.[4] $I_{i,t}$ indicates the pre-transfer income and $P_{i,t}$ is the public transfers. As an alternative definition of outcome variable, we adjust the dependent variable when the household has a rent-free housing. We add imputed rent to the private transfer and subtract it from the pre-transfer income.[5] In line with the predictions of the literature, we expect that when $\beta_1 < 0$, private transfers are altruistically motivated whereas $\beta_1 > 0$ suggests that there is an exchange motive (impure altruism) (Cox, 1987). The coefficient $\beta_2 < 0$ implies that public transfers crowd-out private transfers.

$X_{i,t}$ is a vector of variables giving information on the household and its head as it is reported in the SILC. Household head characteristics, include information about e.g her/his gender, age, education (category) level, marital status (category), health status (physically handicapped in the past 6 months) and social security registration (head or spouse has registered to the social security system[6]). The household characteristics to be controlled are household size, difficulty in paying debt, subjective evaluation of economic hardship (household can not make ends meet without great difficulty) and the dwelling type (excluded in the alternative model when imputed rent is added). v_i is the unobserved, time-invariant, individual specific effect, and ϵ_{it} is the error term supposed to be normally distributed with mean 0 and variance 1.

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[4]For the tobit model, we restricted the amount of net donor to take the value of 0.

[5]Thus, the estimated coefficients for pre-transfer income should be greater than the basic model.

[6]The Turkish social security system is based on kinship of first degree.

There are several identification issues that need to be addressed. The first one is the endogeneity bias which might arise when individuals expect a private transfer in the next period, and decrease their labor supply and work relatively less. Therefore, full information on receiving private transfer might lead to a decrease in pre-transfer income. This incentive mechanism implies that private transfers might condition pre-transfer income through labor supply decision. Theoretically, it resembles the case that in an altruistic setting with endogenous income, the receiver is more likely to exert less effort if he/she knows that a transfer will be made (Laferrère and Wolff, 2006). One way to remove the endogeneity is to use lagged values of pre-transfer income in a 2SLS setting. However, this strategy suffers from two major shortcomings. Firstly, private transfers could be conditioned by past income level as well, so that the time span would not be appropriate for information structure. In that case, lagged values of pre-transfer income will be correlated with current private transfers. This rules out the use of IV procedure. Secondly, the household could receive an idiosyncratic shock of a temporary character and private transfers might compensate the reduction in consumption. Thus, using past income as an IV would be improper to predict the current income. Third, donor income could be correlated with private transfers more than pre-transfer income of the receiving household. A matched data combining donor and receiver information is not available, thus it is difficult to overcome the bias emerging from unobserved donor information.

To deal with the potential endogeneity of receiving private transfers and pre-transfer income, we apply a dynamic panel approach using the lagged value of pre-transfer income and refine the basic model with correlated random effects (CRE) approach. As discussed above, it is hard to believe that the orthogonality assumption, $E(X_{it}|(v_i+\epsilon_{it})$ holds in this set-up. Chamberlain-Mundlak correlated random effects probit model is suggested by Chamberlain (1984) as an alternative approach to allow for the potential correlation between the observed and the unobserved variables. In this approach, the distribution of v_i conditional on X_i; $D(v_i|X_i)$; is specified in a parametric setting (Wooldridge, 2010). Thus, the unobserved individual effect can be written as :

$$v_i = \psi + \lambda \bar{X}_i + a_i, \;\; a_i|X_i \sim N(0, \sigma_a^2) \tag{2}$$

where $\bar{X}_i$ is the vector containing the average values of time-variant independent variables, ψ is a

constant and a_i is the i.i.d. error term. Put differently, in the CRE model framework, we impose a linear relationship between unobservables and observables and we assume that the conditional variance of the unobserved effect is constant. We use the following specification of a standard CRE probit model:

$$P(T_{i,t} = 1|X_i) = \Phi[(\psi + X_{i,t}\beta + \lambda\bar{X}_i)(1 + \sigma_a^2)^{-1/2}] \ \ t = 1, ..., T \tag{3}$$

For the sake of simplicity, we multiply Eq. 3 by $(1 + \sigma_a^2)^{-1/2}$ and obtain the following parameter vector to be estimated:

$$P(T_{i,t} = 1|X_i) = \Phi[(\psi_a + X_{i,t}\beta_a + \lambda_a\bar{X}_i)] \ \ t = 1, ..., T \tag{4}$$

The standard maximum likelihood approach is used to estimate the coefficients of the model. The following likelihood function is maximised using Stata software:

$$\mathcal{L} = \prod(1 - \Phi(\psi_a + X_{i,t}\beta_a + \lambda_a\bar{X}_i))\Phi(\psi_a + X_{i,t}\beta_a + \lambda_a\bar{X}_i) \tag{5}$$

Evaluating the amounts of private transfers makes necessary to deal with the "0 observation" problem given the fact that a large number of households are censored at zero. Therefore, following the related literature, we use a tobit model in addition to binary model which we described above (Reil-Held, 2006; Schoeni, 1997). $T_{i,t}$ takes a positive value if the household is a net receiver. It takes 0 if it is censored. where other variables remain unchanged. In this censored case, we have the same model for $D(v_i|X_i)$ as in Equation 2. The averages of time variant characteristics used to estimate the unobservable individual specific effect once more. Finally, we perform a MLE to obtain the coefficients of the CRE tobit model.

One possible bias is the multicollinearity which might emerge if there is a correlation between social transfers and pre-transfer income, or if public transfer scheme is means-tested. In this case, it is possible that the correlation would reduce the precision of the estimated coefficients. The Turkish social welfare system does not depend heavily on means-tested benefits. Besides, the distinction

between individual and household level public transfer can differentiate the entitlement to social assistance programs. However, the expectations and timing of private transfers is crucial. If it is not regular and substantial, it might satisfy a precautionary need. Even though panel structure partially overcomes the identification problems emerging from endogeneity, we observe a strong dependence to private transfers when subsidized rent is added to them. Thus, it is hard to identify the household through an IV procedure, if the relation has a permanent character. Table 3 gives information on the dependency of households for receiving positive net transfers within a 4-year panel.

Table 3: Household receiving private transfers in the panel

	2008-11		2012-15		2008-11		2012-15	
		%		%		%		%
Never received a transfer	1666	63.6	3352	66.4	1443	55.1	2862	56.7
Received at least once	952	36.4	1696	33.6	1175	44.9	2186	43.3
1 year	360	37.8	654	38.6	308	26.2	565	25.8
2 year	235	24.7	393	23.2	205	17.4	377	17.2
3 year	178	18.7	323	19.0	193	16.4	352	16.1
4 year	179	18.8	326	19.2	469	39.9	892	40.8
No. Households	2618		5048		2618		5048	

Source: SILC Panel 2008-11, 2012-15
The reference period for income variables is the previous year.

4   Results and Discussion

We present the results in Tables 4-7 from probit and tobit estimation described in the previous section. Table 4 and 5 report the marginal effects for probit models, while Table 6 and 7 display the estimated coefficients obtained by Tobit model. The columns -a- of Tables show the results of random effects models. To capture omitted variables with dynamic regression model, columns -b- include a lagged variable of being a net receiver. We expect a decrease in the key variable when the lagged value of dependent variable is included, since it might show to what extent past transfer history can capture unobserved household characteristics. In other words, lagged state variable might indicate whether receiving transfers have a temporary or permanent character. The last two columns of each part report estimated coefficients by the CRE model of two separate

12

panel data sets. The parameters in Table 5 and 7 are estimated by considering subsidized rent as a component of private transfers. In doing so, we obtain a more dependent sample in terms of private transfers, since subsidized housing obviously has a permanent character. Although we do not have any information about donors, we might intuitively expect that they tend to provide financial support to their children whose income is less than their parents. In other words, this observed downstream transfer from parents to children might be a result of insufficient income relative to their parents

The ratio ρ reported in each table shows the proportion of the total variance contributed by the panel-level variance component.[7] If ρ converges to zero, this means that the panel variance component is unimportant, and the panel estimator is not different from the pooled estimator. As seen from Tables 4 and 5, including the lagged dependent variable into the probit regression, decreases the panel-level variance component towards zero, hence translates the regression into the pooled estimator. By taking into account the short spell of the dataset, it seems plausible for the binary case. However, in the tobit estimation the panel level variance component remains significant when the lagged dependent variable is included into the regression (Tables 6 and 7). On the other hand, controlling for unobserved heterogeneity by CRE, increases ρ slightly in all specifications. In the tobit regressions the second wave of the panel yields greater panel level variance component estimates while in the probit case they are not significantly different from each other.

Our interpretations on coefficients are mainly based on tobit model, since it gives a broader perspective via the estimation procedure in levels. The results obtained by the two models are consistent and confirm each other. Yet, there are few exceptions; household head education level is less significant in the binary case, where level effects do not matter. As we argued before, missing information on the type of receiver (omitted variable bias) could over-estimate the effect through dependency. It seems that both the CRE and dynamic panel models (in which the lagged state variable for receiving private transfers are included) improve the model by moderating the effects of our basic predictors, public transfers and pre-transfer income. If the lagged dependent variable

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[7]ρ is defined as $\frac{\sigma_u^2}{\sigma_u^2+1}$ for the probit estimation and $\frac{\sigma_u^2}{\sigma_u^2+\sigma_\epsilon^2}$ for the tobit estimation respectively.

is not controlled in the regressions, we estimate higher coefficients for each key variable.

The results provide evidence for the presence of altruistic motives for private transfers in Turkey. Whether narrowly or broadly defined, private transfers decrease with pre-transfer income for both sub-periods. Note that the altruism parameter slightly decreases over time for the period 2010-2013. Compared to the narrowly defined case, inclusion of subsidized rent lowers the altruistic motive. In other words, the level of pre-transfer income has a lower impact on receiving private transfers when the subsidized rent is included. In the CRE model, which is supposed to control for unobserved heterogeneity, the estimated coefficients are lower as expected.

Our results indicate that female-headed households are more likely to receive private transfers, confirming previous findings of Cox and Jimenez (1990), (Cox et al., 1998), Cox et al. (2004), and Kaufmann and Lindauer (1986). One explanation to this gender based difference could be what we can call as *expected parent care* in the future, which provides insight into the exchange motive. This finding is also in line with the results of Ezemenari (1997), who reports a non-linear relationship between public and private transfers depending on age. She suggests that for females under age thirty-five the altruism motive is dominant, while for the older ones, the exchange motive is more influential. We observe this effect is getting weaker for our sample. The estimated coefficient of female households decreases over time in the dynamic model and the CRE model with the lagged variable.

Our second main finding is the crowding out effect of individual public transfers. Individual public transfers, which have a more permanent character, crowd out private transfers in all specifications. We observe that the magnitude of the crowding out effect coefficient decreases over time especially in tobit model. When imputed rent is included to the regression the crowding out becomes lower, but remains significant. The CRE model and including the lagged value of the dependent variable also provide smaller coefficients. It seems that uncontrolled unobserved heterogeneity leads to overestimation of the crowding out effect. The results obtained by tobit regression indicate stronger crowding-out effects compared to probit specification.

In terms of transfers made to households, the impact of public transfers on private ones is less clear. In probit specification with the narrow definition of private transfers (Table 4), a very small

crowding out effect is found with the dynamic CRE model using the first wave panel. However, this coefficient becomes positive for the second wave. For the broad definition (Table 5), public transfers targeting household have no significant effect. In tobit specification, the estimated coefficients indicate a crowding out effect for the first wave when lagged state variable is added. Similar to probit case, the results are not significant for the 2012-2015 panel (Table 6 and 7). The weak explanatory power of public transfers to households could be partly explained by their low amount compared to individual ones (Table 2). We can argue that receiving small mounts of public transfers do not change the altruistic behaviour of donors. Even for few model specification where coefficients are positive and significant, it seems that there is a crowding-in effect. In other words, receiving public transfers targeted to household serve as a signal for donor households if the amounts are small.

Another interesting finding is that the age of household head becomes significant in the broad model. It seems that younger households receive more private transfers when subsidized rent is included. The dependency to private transfers increases significantly with the broad definition (Table 3). This finding indicates the remarkable presence of *downstream transfers* from parents to their children in Turkey. Households whose head has a *primary 8 years or above education* level receive higher private transfers. This result could be attributed to the presence of an exchange motive as well. On the other hand, considered that educational mobility is quite low in Turkey, (Akarçay-Gürbüz and Polat, 2017), receiving private transfers among educated individuals might be attributed to wealthier family background.

Households lacking social security coverage are more likely to receive private transfers, as expected. Note that agricultural workers generally are not registered with any social security institution in Turkey, and upstream transfers from urban to rural areas are common. As this effect becomes insignificant in the CRE model, it is noteworthy that it is captured at average level below. Family type has a particular social attribute. One-person households receive more transfers only for the period 2008-2011, and in the second wave this coefficient loses significance. Lone parents with children receive *more transfers* compared to families having more than two adults and children in both models. Household size has a *negative effect*. This can be explained by the fact that intra-household transfers grow effective as family size increases. However, in CRE specification its

coefficient becomes insignificant and captured by its average level below especially for the second wave. The coefficients concerning indebtedness of households are mainly negative in different specifications. However in CRE model, the time-average levels of this variable yield positive coefficients. The households who report having financial difficulty to make ends meet are more likely to receive private transfers in the basic model without the lagged dependent variable, especially for the first period. This variable becomes also insignificant when the average levels are included into the regression.

In order to get a more accurate understanding of how public and private transfers interact, we report public and private transfers as a percentage of disposable income[8] by income percentiles (Figure 1a and 1b). Strikingly, Figure 1a shows that the share of individual public transfers in disposable income exhibit an inverse U shape across percentiles. This inverse U relation typically reflects limited welfare provision in Turkey which result from the fact that individual public transfers include mainly employment-related benefits like pensions. Lower segments receive less of individual public transfers since rural employment are mostly uninsured. However, Figure 1b indicates that the share of public transfers targeted to households decreases with income. It almost becomes flat for households with higher income. When we compare two periods, we observe that while the share of household public transfers remains unchanged across years, individual public transfer receivers having lower income seem to benefit relatively more from redistribution. This shift might partly be explained with increased social coverage. It is hard to tell whether the amount of transfers increased or the transfer base is extended. Beside policy preferences, it is probable that increasing share of wage earners and higher educational attainment among younger generation has improved welfare provision in the second period.

The right panels of Figure 1a and 1b show that the share of broadly defined private transfers are decreasing with income, which implies the existence of altruistic behaviour detected in the models.[9] The downward shift in altruistic behaviour across years is remarkable (right panels of Figure 1a and 1b) particularly for lower income segments. It seems that increased public transfer in time has depressed private transfers for the lower segments. Note that it is not only the *levels* but

[8]Disposable income is calculated using the OECD equivalence scale. The distribution is weighted with household size.
[9]Scales of figure 1a and 1b are modified according to individual and household transfers

16

Table 4: Panel Probit Model with Random Effects - (Marginal Effects)

Dep. var: Net transfer receiver (*excl. subs. rents*)	Panel 2008-2011				Panel 2012-2015			
	RE (a)	RE (b)	CRE (c)	CRE (d)	RE (e)	RE (f)	CRE (g)	CRE (h)
Previous year status (net receiver=1)		0.304***		0.303***		0.281***		0.279***
		(0.006)		(0.006)		(0.004)		(0.004)
Pre-transfer Income (1000 tl)	-0.004***	-0.003***	-0.004***	-0.003***	-0.003***	-0.002***	-0.003***	-0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Public Transfers (individual)	-0.007***	-0.005***	-0.007***	-0.005***	-0.006***	-0.004***	-0.006***	-0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.000)
Public Transfers (household)	-0.002	-0.006	-0.003	-0.007	0.004	0.006*	0.003	0.005
	(0.005)	(0.005)	(0.005)	(0.005)	(0.003)	(0.003)	(0.003)	(0.003)
Female Household Head	0.143***	0.113***	0.138***	0.111***	0.117***	0.088***	0.117***	0.088***
	(0.025)	(0.019)	(0.025)	(0.019)	(0.014)	(0.012)	(0.014)	(0.012)
Age of Household Head	0.001	0.001*	0.001	0.001	-0.000	0.000	-0.001	-0.000
	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Primary 5 years	-0.024	0.001	-0.016	0.004	-0.026*	-0.008	-0.020	-0.006
	(0.017)	(0.011)	(0.016)	(0.011)	(0.011)	(0.008)	(0.011)	(0.008)
Primary 8 years	0.026	0.028	0.034	0.032*	-0.007	0.006	0.002	0.009
	(0.026)	(0.016)	(0.026)	(0.016)	(0.016)	(0.011)	(0.016)	(0.011)
Secondary	0.032	0.038*	0.047	0.044*	0.019	0.019	0.030	0.022
	(0.029)	(0.018)	(0.030)	(0.018)	(0.020)	(0.013)	(0.020)	(0.013)
Vocational Sec.	0.029	0.025	0.041	0.030	-0.001	0.016	0.011	0.019
	(0.031)	(0.019)	(0.031)	(0.019)	(0.019)	(0.013)	(0.019)	(0.013)
Post-Secondary	0.026	0.038	0.046	0.046*	-0.009	0.013	0.005	0.017
	(0.031)	(0.020)	(0.032)	(0.020)	(0.018)	(0.013)	(0.019)	(0.013)
Social Sec. head or spouse	-0.033**	-0.012	-0.028**	-0.009	-0.035***	-0.015*	-0.031***	-0.014*
	(0.010)	(0.008)	(0.010)	(0.008)	(0.007)	(0.006)	(0.007)	(0.006)
Never married	-0.011	-0.020	-0.008	-0.020	0.002	-0.008	0.000	-0.007
	(0.032)	(0.024)	(0.033)	(0.024)	(0.023)	(0.017)	(0.023)	(0.017)
Spouse died	-0.089***	-0.110***	-0.091***	-0.110***	-0.065***	-0.076***	-0.066***	-0.075***
	(0.011)	(0.014)	(0.012)	(0.014)	(0.009)	(0.010)	(0.010)	(0.010)
Divorced	0.017	-0.032	0.007	-0.037	0.014	-0.030*	0.008	-0.032*
	(0.042)	(0.025)	(0.040)	(0.025)	(0.022)	(0.014)	(0.021)	(0.014)
Head-health-related limitations past 6 months	0.012	0.006	-0.002	-0.012	0.018**	0.016**	0.005	0.002
	(0.009)	(0.008)	(0.010)	(0.011)	(0.006)	(0.006)	(0.006)	(0.008)
Household - difficulty in loan payments	-0.005	-0.008	-0.011	-0.016	-0.007	-0.015*	-0.008	-0.016*
	(0.009)	(0.009)	(0.010)	(0.011)	(0.006)	(0.006)	(0.006)	(0.008)
One person household	0.045	0.046*	0.051	0.049*	0.020	0.027*	0.023	0.029*
	(0.032)	(0.023)	(0.033)	(0.023)	(0.013)	(0.011)	(0.013)	(0.012)
Households with no dependent children	-0.008	-0.007	-0.010	-0.009	0.031***	0.024**	0.031***	0.024**
	(0.014)	(0.011)	(0.015)	(0.011)	(0.009)	(0.008)	(0.009)	(0.008)
Lone-parent with dependent children	0.168*	0.131**	0.166*	0.126**	0.152***	0.124***	0.147***	0.122***
	(0.068)	(0.041)	(0.066)	(0.041)	(0.037)	(0.024)	(0.036)	(0.024)
Household unable to make ends meet	0.024**	0.011	0.013	-0.007	0.010	0.011	-0.007	-0.011
	(0.009)	(0.009)	(0.009)	(0.011)	(0.006)	(0.006)	(0.006)	(0.008)
Household size	-0.005	-0.001	-0.005	-0.001	-0.015***	-0.008***	-0.015***	-0.009***
	(0.003)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Tenant	-0.003	-0.002	-0.008	-0.005	-0.008	-0.011	-0.013	-0.014*
	(0.011)	(0.010)	(0.011)	(0.010)	(0.008)	(0.007)	(0.008)	(0.007)
Subsidized housing (rent-free)	0.142***	0.062***	0.138***	0.060***	0.063***	0.036***	0.059***	0.034***
	(0.022)	(0.011)	(0.022)	(0.011)	(0.012)	(0.007)	(0.012)	(0.007)
Averages of time variant vars.								
Head - health-related limitations past 6 months			0.055*	0.036*			0.045***	0.027*
			(0.021)	(0.017)			(0.014)	(0.011)
Household - difficulty in loan payments			0.021	0.016			-0.008	-0.000
			(0.022)	(0.017)			(0.015)	(0.012)
Household unable to make ends meet			0.063**	0.047**			0.117***	0.063***
			(0.024)	(0.018)			(0.018)	(0.014)
sigma u	1.574	0.002	1.580	0.002	1.545	0.001	1.548	0.001
	(0.066)	(0.013)	(0.100)	(0.067)	(0.049)	(0.006)	(0.050)	(0.007)
rho	0.712	0.000	0.714	0.000	0.705	0.000	0.706	0.000
	(0.017)	(0.000)	(0.017)	(0.000)	(0.013)	(0.000)	(0.013)	(0.000)
Observations	7,854	7,854	7,854	7,854	15,144	15,144	15,144	15,144
Number Households	2,618	2,618	2,618	2,618	5,048	5,048	5,048	5,048

Robust standard errors in parentheses, *** p<0.001, ** p<0.01, * p<0.05.
Source: Survey of Income and Living Conditions (2008-11, 2012-15).
The reference period for income variables is the previous year. In order to avoid any inconsistencies, time lag between income variables and household characteristics are adjusted so that we have a three year panel, instead of four years.
Omitted categories for household head are; less than 5 year primary for education level, being married for marital status. In case dwelling dummies, being the owner is reference category. Households with dependent children is the omitted category.
All monetary variables are expressed in 1,000 TL and inflated to 2014 prices.

17

Table 5: Panel Probit Model with Random Effects - Sample with subsidized rents imputed - (Marginal Effects)

Dep. var: Net transfer receiver (*incl. subs. rents*)	Panel 2008-2011				Panel 2012-2015			
	RE (a)	RE (b)	CRE (c)	CRE (d)	RE (e)	RE (f)	CRE (g)	CRE (h)
Previous year status (net receiver=1)		0.395***		0.395***		0.376***		0.374***
		(0.004)		(0.004)		(0.003)		(0.003)
Pre-transfer Income (1000 tl)	-0.006***	-0.003***	-0.006***	-0.002***	-0.005***	-0.002***	-0.005***	-0.002***
	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Public Transfers (individual)	-0.010***	-0.004***	-0.009***	-0.003***	-0.009***	-0.003***	-0.008***	-0.003***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.000)
Public Transfers (household)	-0.005	-0.006	-0.006	-0.006	0.007	0.005	0.005	0.004
	(0.008)	(0.005)	(0.008)	(0.005)	(0.005)	(0.003)	(0.004)	(0.003)
Female Household Head	0.220***	0.100***	0.212***	0.099***	0.174***	0.065***	0.170***	0.064***
	(0.043)	(0.020)	(0.042)	(0.020)	(0.024)	(0.012)	(0.024)	(0.012)
Age of Household Head	-0.004***	-0.000	-0.004***	-0.001	-0.004***	-0.001*	-0.004***	-0.001*
	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)
Primary 5 years	-0.055	0.004	-0.039	0.007	-0.090***	-0.012	-0.071**	-0.010
	(0.033)	(0.012)	(0.031)	(0.011)	(0.025)	(0.008)	(0.023)	(0.008)
Primary 8 years	-0.009	0.019	0.007	0.022	-0.053	0.002	-0.031	0.004
	(0.046)	(0.016)	(0.044)	(0.016)	(0.034)	(0.011)	(0.032)	(0.011)
Secondary	-0.003	0.018	0.023	0.023	-0.042	0.007	-0.015	0.010
	(0.050)	(0.017)	(0.049)	(0.017)	(0.038)	(0.013)	(0.036)	(0.013)
Vocational Sec.	0.079	0.032	0.099	0.036*	-0.061	0.008	-0.028	0.011
	(0.062)	(0.019)	(0.060)	(0.019)	(0.037)	(0.013)	(0.035)	(0.013)
Post-Secondary	-0.038	0.032	-0.006	0.037*	-0.110***	0.001	-0.070*	0.005
	(0.047)	(0.019)	(0.048)	(0.019)	(0.032)	(0.013)	(0.032)	(0.013)
Social Sec. head or spouse	-0.049**	-0.011	-0.043**	-0.009	-0.036**	-0.006	-0.028*	-0.005
	(0.017)	(0.008)	(0.016)	(0.008)	(0.012)	(0.006)	(0.011)	(0.006)
Never married	-0.078*	-0.052*	-0.075	-0.052*	-0.031	-0.014	-0.033	-0.014
	(0.040)	(0.023)	(0.040)	(0.023)	(0.035)	(0.017)	(0.034)	(0.017)
Spouse died	-0.145***	-0.123***	-0.147***	-0.123***	-0.086***	-0.068***	-0.087***	-0.068***
	(0.017)	(0.018)	(0.017)	(0.018)	(0.016)	(0.012)	(0.016)	(0.012)
Divorced	-0.018	-0.059*	-0.035	-0.064*	0.063	-0.027	0.043	-0.029
	(0.063)	(0.026)	(0.058)	(0.025)	(0.043)	(0.015)	(0.039)	(0.015)
Head - health-related limitations past 6 months	0.011	0.002	0.002	-0.007	0.019*	0.013*	0.004	0.001
	(0.013)	(0.008)	(0.014)	(0.011)	(0.009)	(0.006)	(0.009)	(0.008)
Household - difficulty in loan payments	-0.028*	-0.018*	-0.033*	-0.024*	-0.008	-0.010	-0.018	-0.021**
	(0.013)	(0.009)	(0.014)	(0.011)	(0.009)	(0.006)	(0.009)	(0.008)
One person household	0.083	0.044*	0.088	0.047*	0.054*	0.044***	0.060**	0.046***
	(0.049)	(0.022)	(0.048)	(0.022)	(0.023)	(0.012)	(0.023)	(0.012)
Households with no dependent children	0.037	0.006	0.034	0.004	0.072***	0.028***	0.069***	0.028***
	(0.021)	(0.011)	(0.021)	(0.011)	(0.013)	(0.008)	(0.013)	(0.008)
Lone-parent with dependent children	0.209*	0.094*	0.200*	0.091*	0.141**	0.091***	0.134**	0.091***
	(0.093)	(0.038)	(0.089)	(0.038)	(0.047)	(0.023)	(0.045)	(0.023)
Household unable to make ends meet	0.037**	0.007	0.022	-0.010	0.010	0.006	-0.010	-0.010
	(0.013)	(0.009)	(0.013)	(0.011)	(0.009)	(0.007)	(0.009)	(0.008)
Household size	-0.016**	-0.004	-0.017**	-0.004	-0.025***	-0.007***	-0.027***	-0.008***
	(0.005)	(0.002)	(0.005)	(0.002)	(0.004)	(0.002)	(0.004)	(0.002)
Averages of time variant vars.								
Head - health-related limitations past 6 months			0.050	0.017			0.080***	0.024*
			(0.037)	(0.017)			(0.024)	(0.012)
Household - difficulty in loan payments			0.022	0.011			0.056*	0.022
			(0.039)	(0.017)			(0.027)	(0.012)
Household unable to make ends meet			0.136**	0.047*			0.206***	0.045**
			(0.043)	(0.018)			(0.033)	(0.015)
sigma u	2.462	0.001	2.476	0.001	2.422	0.001	2.436	0.001
	(0.097)	(0.006)	(0.098)	(0.006)	(0.069)	(0.005)	(0.069)	(0.005)
rho	0.858	0.000	0.860	0.000	0.854	0.000	0.856	0.000
	(0.010)	(0.000)	(0.010)	(0.000)	(0.007)	(0.000)	(0.007)	(0.000)
Observations	7,854	7,854	7,854	7,854	15,144	15,144	15,144	15,144
Number Households	2,618	2,618	2,618	2,618	5,048	5,048	5,048	5,048

Robust standard errors in parentheses, *** p<0.001, ** p<0.01, * p<0.05.
Source: Survey of Income and Living Conditions (2008-11, 2012-15).
The reference period for income variables is the previous year. In order to avoid any inconsistencies, time lag between income variables and household characteristics are adjusted so that we have a three year panel, instead of four years.
Omitted categories for household head are; less than 5 year primary for education level, being married for marital status. In case dwelling dummies, being the owner is reference category. Households with dependent children is the omitted category.
All monetary variables are expressed in 1,000 TL and inflated to 2014 prices.
Broad definition of private transfers include imputed rents if the household receives rent-free subsidized housing.

Table 6: Panel Tobit Model with Random Effects

	Panel 2008-2011				Panel 2012-2015			
	RE	RE	CRE	CRE	RE	RE	CRE	CRE
Dep. var: Net transfer receiver (*excl. subs. rents*)	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
Previous year status (net receiver=1)		5.506***		5.469***		6.049***		5.990***
		(0.379)		(0.378)		(0.284)		(0.285)
Pre-transfer Income (1000 tl)	-0.137***	-0.111***	-0.133***	-0.108***	-0.117***	-0.086***	-0.111***	-0.083***
	(0.011)	(0.010)	(0.011)	(0.010)	(0.008)	(0.007)	(0.008)	(0.007)
Public Transfers (individual)	-0.235***	-0.177***	-0.232***	-0.176***	-0.221***	-0.154***	-0.213***	-0.151***
	(0.026)	(0.023)	(0.026)	(0.023)	(0.016)	(0.016)	(0.019)	(0.017)
Public Transfers (household)	-0.152	-0.272	-0.176	-0.292	0.067	0.052	0.041	0.035
	(0.164)	(0.160)	(0.165)	(0.161)	(0.096)	(0.098)	(0.097)	(0.098)
Female Household Head	6.004***	5.780***	5.861***	5.679***	6.144***	5.566***	6.154***	5.575***
	(0.694)	(0.627)	(0.697)	(0.629)	(0.483)	(0.443)	(0.485)	(0.445)
Age of Household Head	0.017	0.016	0.007	0.009	-0.009	0.003	-0.014	0.000
	(0.017)	(0.014)	(0.018)	(0.015)	(0.013)	(0.011)	(0.013)	(0.011)
Primary 5 years	0.126	0.594	0.288	0.683	-0.311	0.095	-0.164	0.143
	(0.508)	(0.418)	(0.511)	(0.420)	(0.409)	(0.336)	(0.413)	(0.339)
Primary 8 years	1.490*	1.700**	1.671*	1.801**	0.694	0.989*	0.911	1.065*
	(0.707)	(0.577)	(0.711)	(0.579)	(0.579)	(0.474)	(0.584)	(0.477)
Secondary	2.353**	2.386***	2.680***	2.573***	2.135***	2.135***	2.395***	2.228***
	(0.756)	(0.616)	(0.764)	(0.621)	(0.629)	(0.517)	(0.635)	(0.520)
Vocational Sec.	1.729*	1.766**	2.010*	1.930**	1.109	1.397**	1.395*	1.495**
	(0.821)	(0.665)	(0.827)	(0.668)	(0.646)	(0.529)	(0.653)	(0.533)
Post-Secondary	2.376**	2.777***	2.797***	3.016***	1.303*	1.765**	1.658*	1.896***
	(0.823)	(0.678)	(0.834)	(0.684)	(0.652)	(0.541)	(0.661)	(0.546)
Social Sec. head or spouse	-0.771*	-0.439	-0.667*	-0.362	-1.132***	-0.663**	-1.040***	-0.627**
	(0.314)	(0.289)	(0.316)	(0.291)	(0.260)	(0.241)	(0.262)	(0.242)
Never married	-0.733	-1.067	-0.672	-1.035	0.544	0.669	0.518	0.664
	(0.977)	(0.843)	(0.978)	(0.844)	(0.785)	(0.662)	(0.788)	(0.664)
Spouse died	-5.808***	-6.218***	-5.848***	-6.239***	-4.111***	-4.622***	-4.127***	-4.625***
	(0.730)	(0.686)	(0.732)	(0.687)	(0.523)	(0.492)	(0.525)	(0.493)
Divorced	-2.141*	-3.542***	-2.296*	-3.635***	0.765	-0.902	0.654	-0.938
	(1.018)	(0.884)	(1.021)	(0.888)	(0.643)	(0.573)	(0.645)	(0.574)
Head - health-related limitations past 6 months	0.446	0.329	0.063	-0.154	0.529*	0.429*	0.266	0.237
	(0.264)	(0.263)	(0.296)	(0.324)	(0.206)	(0.208)	(0.233)	(0.256)
Household - difficulty in loan payments	-0.123	-0.276	-0.275	-0.486	-0.275	-0.402	-0.333	-0.508*
	(0.262)	(0.266)	(0.288)	(0.315)	(0.207)	(0.214)	(0.228)	(0.252)
One person household	1.421*	1.541*	1.505*	1.605*	0.065	0.327	0.127	0.360
	(0.712)	(0.640)	(0.714)	(0.642)	(0.472)	(0.435)	(0.474)	(0.437)
Households with no dependent children	-0.527	-0.595	-0.582	-0.634	1.039**	0.906**	1.037**	0.901**
	(0.439)	(0.394)	(0.440)	(0.395)	(0.344)	(0.317)	(0.346)	(0.318)
Lone-parent with dependent children	3.575***	3.857***	3.572***	3.833***	3.949***	5.012***	3.944***	4.996***
	(0.938)	(0.869)	(0.938)	(0.870)	(0.673)	(0.622)	(0.675)	(0.624)
Household unable to make ends meet	0.535*	0.228	0.370	0.070	0.249	0.197	-0.081	-0.052
	(0.249)	(0.258)	(0.269)	(0.298)	(0.208)	(0.220)	(0.222)	(0.249)
Household size	-0.128	-0.007	-0.142	-0.019	-0.458***	-0.316***	-0.482***	-0.330***
	(0.096)	(0.083)	(0.097)	(0.084)	(0.080)	(0.070)	(0.081)	(0.071)
Tenant	-0.486	-0.275	-0.630	-0.376	-0.552	-0.478	-0.671	-0.540
	(0.428)	(0.356)	(0.432)	(0.360)	(0.339)	(0.289)	(0.343)	(0.291)
Subsidized housing (rent-free)	2.710***	1.855***	2.646***	1.818***	1.643***	1.111***	1.561***	1.075***
	(0.430)	(0.356)	(0.431)	(0.357)	(0.335)	(0.279)	(0.337)	(0.280)
Averages of time variant vars.								
Head - health-related limitations past 6 months			1.709**	1.364*			1.029*	0.492
			(0.649)	(0.560)			(0.512)	(0.446)
Household - difficulty in loan payments			0.666	0.622			0.029	0.267
			(0.681)	(0.577)			(0.568)	(0.486)
Household unable to make ends meet			0.957	0.517			2.654***	1.121*
			(0.726)	(0.611)			(0.675)	(0.569)
Constant	-4.169***	-6.258***	-4.663***	-6.498***	-3.300**	-6.436***	-3.939***	-6.686***
	(1.244)	(1.056)	(1.283)	(1.078)	(1.018)	(0.879)	(1.039)	(0.890)
sigma u	6.127***	3.782***	6.138***	3.805***	6.645***	4.263***	6.672***	4.294***
	(0.202)	(0.224)	(0.203)	(0.223)	(0.160)	(0.159)	(0.161)	(0.160)
sigma e	4.625***	5.431***	4.621***	5.418***	4.679***	5.520***	4.681***	5.512***
	(0.100)	(0.142)	(0.100)	(0.142)	(0.078)	(0.109)	(0.078)	(0.109)
rho	0.637	0.327	0.638	0.330	0.669	0.374	0.670	0.378
	(0.017)	(0.032)	(0.017)	(0.032)	(0.012)	(0.022)	(0.012)	(0.023)
Observations	7,854	7,854	7,854	7,854	15,144	15,144	15,144	15,144
Number Households	2,618	2,618	2,618	2,618	5,048	5,048	5,048	5,048

Robust standard errors in parentheses, *** p<0.001, ** p<0.01, * p<0.05.
Source: Survey of Income and Living Conditions (2008-11, 2012-15).
The reference period for income variables is the previous year. In order to avoid any inconsistencies, time lag between income variables and household characteristics are adjusted so that we have a three year panel, instead of four years.
Omitted categories for household head are; less than 5 year primary for education level, being married for marital status. Households with dependent children and house ownership are omitted categories for household characteristics.
All monetary variables are expressed in 1,000 TL and inflated to 2014 prices.

	Panel 2008-2011				Panel 2012-2015			
Dep. var: Net transfer receiver (*incl. subs. rents*)	RE (a)	RE (b)	CRE (c)	CRE (d)	RE (e)	RE (f)	CRE (g)	CRE (h)
Previous year status (net receiver=1)		7.385***		7.373***		6.936***		6.918***
		(0.312)		(0.312)		(0.217)		(0.219)
Pre-transfer Income (1000 tl)	-0.103***	-0.076***	-0.099***	-0.075***	-0.093***	-0.061***	-0.089***	-0.060***
	(0.008)	(0.007)	(0.008)	(0.007)	(0.005)	(0.005)	(0.006)	(0.005)
Public Transfers (individual)	-0.164***	-0.116***	-0.160***	-0.115***	-0.178***	-0.111***	-0.172***	-0.110***
	(0.020)	(0.017)	(0.020)	(0.017)	(0.014)	(0.012)	(0.014)	(0.012)
Public Transfers (household)	-0.160	-0.246	-0.178	-0.256	0.026	-0.024	0.008	-0.029
	(0.136)	(0.134)	(0.137)	(0.134)	(0.074)	(0.077)	(0.075)	(0.078)
Female Household Head	4.732***	4.775***	4.681***	4.744***	5.040***	4.238***	5.053***	4.244***
	(0.635)	(0.544)	(0.639)	(0.546)	(0.398)	(0.355)	(0.399)	(0.356)
Age of Household Head	-0.063***	-0.027*	-0.067***	-0.030*	-0.055***	-0.018*	-0.055***	-0.017
	(0.015)	(0.011)	(0.016)	(0.012)	(0.011)	(0.009)	(0.011)	(0.009)
Primary 5 years	-0.251	0.496	-0.085	0.549	-0.580	0.045	-0.467	0.048
	(0.492)	(0.360)	(0.497)	(0.362)	(0.361)	(0.271)	(0.364)	(0.273)
Primary 8 years	0.395	1.215*	0.571	1.267**	0.311	0.873*	0.471	0.880*
	(0.675)	(0.487)	(0.679)	(0.489)	(0.503)	(0.374)	(0.507)	(0.376)
Secondary	1.238	1.711***	1.514*	1.794***	1.324*	1.718***	1.537**	1.735***
	(0.713)	(0.516)	(0.721)	(0.520)	(0.552)	(0.412)	(0.557)	(0.414)
Vocational Sec.	1.687*	1.842***	1.923*	1.914***	0.485	1.123**	0.756	1.151**
	(0.776)	(0.548)	(0.783)	(0.551)	(0.564)	(0.418)	(0.570)	(0.421)
Post-Secondary	0.747	2.240***	1.108	2.342***	0.124	1.413***	0.508	1.471***
	(0.760)	(0.557)	(0.773)	(0.562)	(0.554)	(0.421)	(0.563)	(0.425)
Social Sec. head or spouse	-0.475	-0.180	-0.411	-0.148	-0.466*	-0.201	-0.401*	-0.191
	(0.264)	(0.237)	(0.265)	(0.238)	(0.201)	(0.184)	(0.202)	(0.185)
Never married	-1.596	-2.039**	-1.560	-2.029**	0.138	0.780	0.111	0.771
	(0.893)	(0.713)	(0.894)	(0.714)	(0.661)	(0.528)	(0.662)	(0.528)
Spouse died	-5.135***	-5.707***	-5.171***	-5.718***	-2.973***	-3.574***	-2.973***	-3.576***
	(0.649)	(0.593)	(0.650)	(0.593)	(0.420)	(0.389)	(0.421)	(0.389)
Divorced	-2.230*	-3.732***	-2.421*	-3.807***	1.303*	-0.566	1.180*	-0.591
	(0.955)	(0.770)	(0.959)	(0.774)	(0.549)	(0.462)	(0.551)	(0.463)
Head - health-related limitations past 6 months	0.215	0.097	0.095	-0.048	0.327*	0.253	0.215	0.220
	(0.214)	(0.218)	(0.231)	(0.266)	(0.152)	(0.157)	(0.164)	(0.188)
Household - difficulty in loan payments	-0.284	-0.463*	-0.312	-0.475	-0.160	-0.239	-0.281	-0.376*
	(0.206)	(0.216)	(0.219)	(0.253)	(0.148)	(0.157)	(0.157)	(0.181)
One person household	2.180***	2.035***	2.229***	2.058***	0.347	0.666	0.418	0.695*
	(0.644)	(0.552)	(0.646)	(0.553)	(0.382)	(0.345)	(0.383)	(0.346)
Households with no dependent children	0.087	-0.184	0.050	-0.203	1.269***	1.011***	1.242***	0.997***
	(0.375)	(0.324)	(0.375)	(0.325)	(0.263)	(0.241)	(0.264)	(0.242)
Lone-parent with dependent children	3.631***	3.631***	3.612***	3.611***	2.851***	4.349***	2.839***	4.344***
	(0.835)	(0.760)	(0.836)	(0.760)	(0.544)	(0.506)	(0.545)	(0.506)
Household unable to make ends meet	0.485*	0.132	0.333	-0.001	0.133	0.072	-0.034	0.023
	(0.198)	(0.211)	(0.208)	(0.243)	(0.151)	(0.165)	(0.158)	(0.184)
Household size	-0.263**	-0.119	-0.266**	-0.119	-0.412***	-0.266***	-0.441***	-0.276***
	(0.087)	(0.070)	(0.088)	(0.071)	(0.065)	(0.054)	(0.066)	(0.055)
Averages of time variant vars.								
Head - health-related limitations past 6 months			0.743	0.423			0.603	0.083
			(0.616)	(0.470)			(0.439)	(0.347)
Household - difficulty in loan payments			-0.019	-0.035			0.874	0.540
			(0.645)	(0.475)			(0.488)	(0.373)
Household unable to make ends meet			1.526*	0.538			2.021***	0.200
			(0.695)	(0.508)			(0.600)	(0.450)
Constant	2.232*	-3.005***	1.628	-3.146***	1.497	-4.080***	0.643	-4.262***
	(1.094)	(0.862)	(1.143)	(0.884)	(0.832)	(0.681)	(0.856)	(0.690)
sigma u	6.836***	3.436***	6.853***	3.444***	6.821***	3.881***	6.841***	3.889***
	(0.184)	(0.171)	(0.184)	(0.172)	(0.132)	(0.113)	(0.133)	(0.114)
sigma e	3.939***	4.875***	3.938***	4.872***	3.749***	4.546***	3.749***	4.545***
	(0.068)	(0.106)	(0.068)	(0.106)	(0.048)	(0.072)	(0.048)	(0.072)
rho	0.751	0.332	0.752	0.333	0.768	0.421	0.769	0.423
	(0.011)	(0.028)	(0.011)	(0.028)	(0.008)	(0.019)	(0.008)	(0.019)
Observations	7,854	7,854	7,854	7,854	15,144	15,144	15,144	15,144
Number Households	2,618	2,618	2,618	2,618	5,048	5,048	5,048	5,048

Robust standard errors in parentheses, *** p<0.001, ** p<0.01, * p<0.05.
Source: Survey of Income and Living Conditions (2008-11, 2012-15).
The reference period for income variables is the previous year. In order to avoid any inconsistencies, time lag between income variables and household characteristics are adjusted so that we have a three year panel, instead of four years.
Omitted categories for household head are; less than 5 year primary for education level, being married for marital status. Households with dependent children is the omitted category. All monetary variables are expressed in 1000 TL and inflated to 2014 prices.
Broad definition of private transfers include imputed rents if the household receives rent-free subsidized housing support.

also the *differences* that suggest further crowding-effect. Certainly, we need a different estimation strategy to detect this kind of individual effect.

Figure 1c visualizes our distinction between narrow and broad definition of private transfers.[10] Share of private transfers in the form of subsidized rents (broader definition) has a more flatter shape compared to narrowly defined private transfers and it hardly changes across years. However, narrowly defined private transfers (the left panel of Figure 1c) seems to decline rather drastically across years for lower segments. It is apparent that total variation comes from narrow definition. It is noteworthy that share of private transfers (narrowly defined) almost becomes negligible and declines lower than 2 percent for the year 2014. Another important observation is that it becomes smoother across income percentiles. It would not be misleading to assume that subsidized rents is a form of private transfers equally common among households with higher income.

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[10]We do not restrict net private transfers to have only positive values which was the case in model estimations. Negative values at the higher percentiles implies net donation share in terms of disposable income.

5 Conclusion

Inter-vivos transfers among households can have counter-acting (neutralizing) effect on income redistribution when we consider their interaction with the welfare regime. Public policy should take into account to which extent public transfers crowd-out private ones, rendering such transfers partially less effective in alleviating poverty. In this paper, using recent two panels of SILC 2009-2011 and 2012-2015, we investigate how these transfers interact with each other and how they evolve through the specified period.

We use two different econometric models in order to measure the parameters of being a private transfer receiver in a binary and level framework. Our findings indicate the altruistic motive of donors, rather than the exchange motive reported by the literature on some of the developed countries. The results are quite robust for different specifications and under different models. We observe that compared to 2008-2011 panel, the altruistic motive weakens for 2012-2015. We alternatively modified our dependent variable by adding subsidized rent to private transfers. The results obtained by this broader definition of private transfers suggest the existence of downstream transfer from probably wealthier parents to children in Turkey. While age of the receiver has no significance in narrower model, younger household head receive more private transfers when rent-free housing is added to the definition.

Our findings indicate that the crowding out effect is only effective through individual public transfers, whereas household level public transfers do not significantly lead to any decrease in private transfer. We also draw attention to the the low level of household level public transfers and the ungenerous character of the Turkish welfare regime, which might be responsible for such a finding. Our results also provide evidence that female-headed households and household having more educated head receive more private transfers. We find no significant impact of indebtedness on receiving more transfers, on the contrary, in some specifications, households who do not have any debt issues receive more transfers.
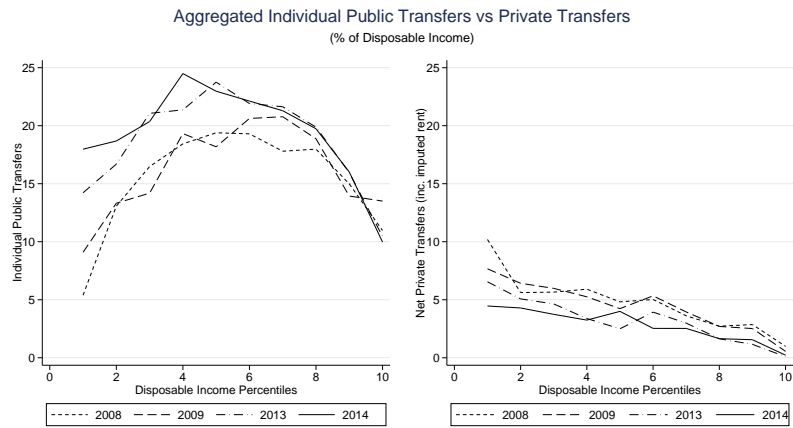
For further research, we believe that the identification of donor household is crucial in order to provide a complete picture of broader private transfer motivation. The SILC data used in this paper in its current framework is insufficient to discuss the particularities of the targeting procedure and

eligibility criteria of public transfer. The time span of public and private transfers is also crucial for further identification issues. A dataset having longer panel including donor information would better detect the dependency of households on transfers in general.
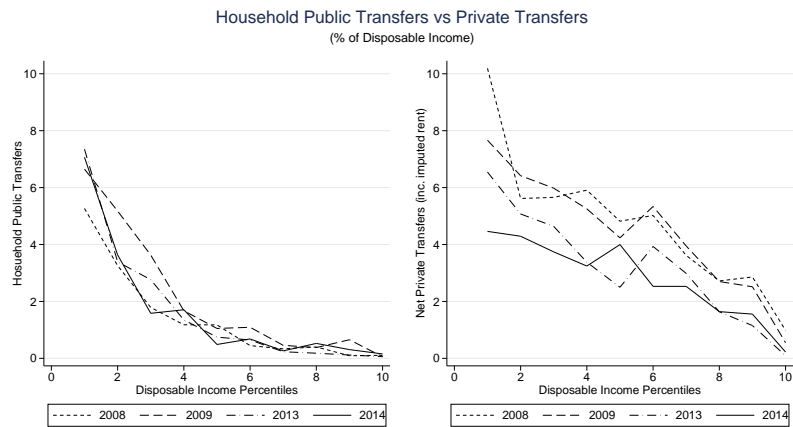
Acknowledgements

Figure 1: Interaction between public and private transfers by disposable income percentiles

Aggregated Individual Public Transfers vs Private Transfers
(% of Disposable Income)

(a)

Household Public Transfers vs Private Transfers
(% of Disposable Income)

(b)

Private Transfers and Subsidized Rents
(% of Disposable Income)
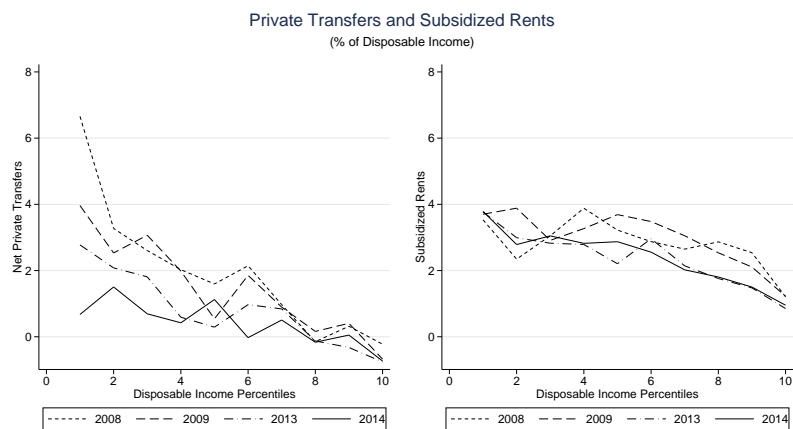
(c)

- Source: SILC (2008-11, 2012-15).
- Disposable income is calculated using the OECD equivalence scale. The distribution is weighted with household size.
- The reference period for income variables is the previous year. In order to avoid any inconsistencies, time lag between income variables and household characteristics are adjusted so that we have a three year panel, instead of four years.

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