

No free lunch, buddy: past housing transfers and informal care later in life

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Abstract Previous empirical literature on the relation between intergenerational transfer of assets and services has mostly focused on contemporary exchanges. By contrast, we provide novel evidence showing that parents who helped their adult children in the past are rewarded by higher chances of receiving informal care later in life. To this end we use Italian data containing precise retrospective information about the help with housing that couples received from their parents when they got married, such as a real estate donation or down payment. Our estimates show that this type of past help is positively associated with the current provision of informal care to the parents. This result is robust to controlling for a large set of individual and family characteristics and is only partially due to increased geographical proximity. We suggest that this finding can be explained by mixed self-interest motives, related to theories based on either bilateral exchange or the presence of a third generation (grandchildren), such as the demonstration effect model or the family constitution model.

Keywords Informal care · Housing · Intergenerational transfers · Geographical proximity

JEL codes D10 · J13 · J14

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1 Introduction

Inter vivos transfers between members of extended family networks are heterogeneous both in type (monetary, in-kind, time) and in motive. In developed countries, upstream transfers are mainly in the form of caregiving (time) from adult children to their elderly parents (Arrondel and Masson 2006). Conversely, downstream financial and in-kind transfers usually take place at an earlier stage of the life cycle, when young individuals invest in their human capital and when they acquire a new house to leave the nest and establish a new family. These past transfers are particularly important, as they affect the process of wealth formation, both influencing the young individuals' decisions and determining the degree of their future wealth and income mobility. The relation between these transfers, and the different motives that lead individuals to make them, has been the subject to lively debate in the literature, starting with Bernheim et al. (1985).

In this paper we contribute to the literature on *inter vivos* transfers by providing novel empirical evidence of the relation between upstream and downstream intergenerational transfers that occur many years apart. In particular, we study whether adult children who, in the past, received economic assistance from their parents are more likely to currently provide informal care to them. This helps to shed new light on how the members of an extended family network enforce implicit agreements of mutual assistance that extend over time. Downstream and upstream intergenerational transfers usually take place in different stages of the life cycle, often more than a decade apart. If there is nothing to prevent the younger generation from shirking its responsibility, the two generations may end up in a prisoner dilemma in which neither assists the other side. Furthermore, as long as the two transfers are tightly related, public policies that affect one of them, such as taxation and old-age security, may also impinge on the other. Most of the empirical literature has focused on contemporary exchange, which can hardly offer any insights about intertemporal choices. By contrast, using Italian data containing a wealth of retrospective information, we present robust evidence that couples who received economic assistance with housing from their parents at the time of their marriage are more likely to provide their parents with informal care later in life. We also discuss further results suggesting that our main finding is more consistent with exchange models and the theories based on self-interest, rather than with frameworks based on pure altruism, although we are not able to fully pin-point a specific theory.

Recent papers that focus on the relation between contemporary downstream transfers and upstream caregiving (see McGarry and Schoeni 1997; Altonji et al. 2000, for previous results), Norton and Van Houtven (2006) and Norton and Huang (2013) demonstrate that caregivers are more likely to receive money from their parents, although there are no differences in terms of the amounts. Conversely, according to Jimenez-Martin and Prieto (2015), informal caregivers receive less economic assistance from their parents. Only a few empirical studies provide evidence about the relation between past transfers from parents and in-kind services provided by the adult children later on in life. McGarry and Schoeni (1997) find that the provision of informal care to parents is negatively correlated with financial transfers received from them in the previous 10 years, although they also find that parents giving more money expect to receive more (time) help in the future. Arrondel

and Masson (2006), discussing the results of Wolff (1998) and Arrondel and Masson (2001), claim that in France neither past gifts nor care given to grandchildren by parents seem to explain current time transfers to them. Furthermore, according to their results, helpers have not been subject to higher educational investments in the past, nor do they expect higher bequests in the future. The authors also refer to Cox and Stark (1998), however, who provide some empirical evidence that helpers are more educated, so may be paying back the past investment from their parents. Arrondel and Masson (2006) conclude that help provided to elderly parents is more likely to be explained by altruism or by a system of indirect reciprocities between generations, whereby young adults either follow what their parents did in the past for their own parents, or hope that they will be imitated by their own children. More recently, López-Anuarbe (2013), using US data, finds that monetary gifts from parents are positively correlated with the past receipt of time assistance from their offspring, but not with the current one. Conversely, she finds no correlation between current caregiving to elderly parents and past monetary gifts received from them. Other studies, in particular Tomassini et al. (2003) and Coda Moscarola et al. (2010), point out that those children receiving help with housing from their parents are more likely to live near to them. Although geographical distance is a good proxy for time transfers, neither paper directly estimates the relation between them and housing transfers. To conclude, Brugiavini et al. (2013) recently demonstrated reciprocity between the provision of grandchild care and elderly care.

We contribute to this limited empirical literature using three cross-sections (1998, 2003 and 2009) of the Italian Multipurpose Survey on Families to analyse the relation between transfers at different points in time. The survey contains retrospective information on help with housing received from the parents at the time of marriage, as well as information about the family network and the current exchange of services, in particular informal care provided by adult children to their elderly parents. The 1998 wave of the Multipurpose Survey has already been used by Tomassini et al. (2003) to study the relation between past help with housing and current geographical distance.¹ Their results, based on a multinomial logit, show that adult children tend to live closer to the set of parents (wives' or husbands') that provided help with housing at the time of their marriage, and closer to both if they both helped. By contrast, we directly study the link with the current provision of informal care to parents. In doing so, we investigate how the system of mutual assistance lasts over time, and we show that only a fraction of our main results can be explained by increased geographical proximity. Other mechanisms, related to a mix of self-interest motives, seem to be relevant in this context. Furthermore, although our main results involve the couple as a whole, the focus on informal care also allows us to understand which partner is mostly involved in this intergenerational exchange.

We focus on help with housing at the time of marriage for several reasons. First, housing costs represent a large proportion of family income and European households generally perceive them as a heavy burden (Pittini 2012). Second, quite a

¹ Cigno et al. (1998) used some statistics from an earlier wave of the survey (1987–1991) to show that it is not only low-economic status parents, but also those who report having excellent financial resources, who have a high probability of receiving personal or financial assistance from relatives or friends. This suggests that altruism is not likely to be the only explanation. Unfortunately, the micro-data from this earlier wave are not currently available.

significant proportion of adult couples received this form of help at the time of their marriage, consistent with earlier evidence about the fundamental role of the family in supporting entry into home ownership (Mencarini and Tanturri 2006; Helderma and Mulder 2007; Modena and Rondinelli 2011). Third, this help takes place at the point at which a new household is formed and, therefore, makes the distinction between the two generations clear. Fourth, this past transfer is precisely identified in the Multi-purpose Survey, whereas other forms of past economic assistance are collected only with reference to specific moments of economic hardship. Nevertheless, we also discuss these in our empirical analysis.

The remainder of the paper is organised as follows: Section 2 discusses the conceptual framework. Data are presented in Section 3 and the main results in Section 4. Section 5 discusses whether our findings are in line with different theoretical models. We conclude the discussion of our findings in Section 6.

2 Conceptual framework

Our main aim, pursued in Section 4.1, is to understand whether children who received help from their parents with housing at the time of their marriage are more or less likely to provide informal care to the older generation later in life. By informal care we mean a time-consuming service that an individual explicitly identifies as “help provided to non-co-resident adults”, consisting of medical assistance, household chores, company or paper work. Following Arrondel and Masson (2006, p. 1009) we exclude visits, as it is difficult in these cases to know who benefits from them (Wolff 2001, for details). Different motives behind the transfers may lead to different predictions. For a detailed discussion of the models presented in this section, see LaFerrere and Wolff (2006). To help following the discussion, Table 1 provides for each model a summary of the implications that we will study in Sections 4 and 5.

An initial approach is based on a strategic bequest motive (Bernheim et al. 1985), whereby the parent promises a larger proportion of the remaining wealth at death to the child who provides the most help.² The competition between siblings leads them to provide more services to the parent(s). This implies that a decrease in bequeathable wealth, in this case as a result of the housing transfer, should reduce the incentive for siblings to compete, and therefore the amount of informal care should shrink.

By contrast, if we assume that there is pure altruism on both sides, we can expect to observe a positive association between downstream and upstream transfers at different points in the life cycle. Parents, who value their children’s utility or consumption, help them when they want to move out and form a new family, but are still young and liquidity constrained.³ In this way the parents reduce their own wealth, increasing the likelihood that they will need assistance in older age, which the

² Recently, Groneck and Krehl (2017) provided evidence that those who provide more elderly care are more likely to receive a larger proportion of future bequests. There is a rich literature that discusses the role of bequests and their differences from *inter vivos* transfers; see, among others, Tomes (1981); McGarry (1999); Laitner and Ohlsson (2001); Nishiyama (2002).

³ This is particularly true in southern Europe, where liquidity constraints for the young are more severe and households traditionally acquire real estate either using personal savings or through family transfers or inheritance (Chiuri and Jappelli, 2003).

Table 1 Summary of the main models and consistency with empirical results

Model name	Main reference	Main implications	Consistency
Strategic bequest	Bernheim et al. (1985)	$\partial(\text{ICP})/\partial(\text{HwH}) < 0$	No
Pure altruism	Laferrere and Wolff (2006)	$\partial(\text{ICP})/\partial(\text{HwH}) > 0$ $\partial(\text{HwH})/\partial(\text{HP}) > 0$	Yes No
Imperfect altruism	Cox (1987)	$\partial(\text{ICP})/\partial(\text{HwH}) > 0$	Yes
		$\partial(\text{OH})/\partial(\text{HwH}) > 0$	Yes
		$\partial(\text{HwH})/\partial(\text{HP}) > 0$	No
	Tomassini et al. (2003) and Coda Moscarola et al. (2010)	$\partial(\text{ICP})/\partial(\text{HwH}) > 0$ explained by increased Close_P	Partially
Demonstration effect	Cox and Stark (2005)	$\partial(\text{ICP})/\partial(\text{HwH}) > 0$	Yes
		$\partial(\text{ICP})/\partial(\text{HP}) < 0$	Yes
		$\partial(\text{Child})/\partial(\text{HwH}) > 0$	Yes
		$\partial(\text{ICR})/\partial(\text{HwH}) > 0$	Yes
		$\partial(\text{ICP})/\partial(\text{HwH}) > 0$ only for couples with children	No
Family constitution	Cigno (2006)	$\partial(\text{ICP})/\partial(\text{HwH}) > 0$	Yes
		$\partial(\text{ICP})/\partial(\text{HP}) < 0$	Yes
		$\partial(\text{Child})/\partial(\text{HwH}) > 0$	Yes
		$\partial(\text{ICR})/\partial(\text{HwH}) > 0$	Yes
		$\partial(\text{ICP})/\partial(\text{HwH}) > 0$ only for couples with children	No

Note: ICP is informal care provided by adult children (C) to parents (P); HwH is the help received with housing at the time of marriage; HP is the regional house price at the time of marriage; OH is any future transfer from P to C; Close_P indicates the proximity to P; Child stands for C having offspring; ICR is grandchildren care provided by P. See Section 3 for a more detailed explanations of the variables

children will provide because they are also altruistic. In order to understand whether altruism is the leading explanation of our main finding, in Section 5.1 we also study how the opportunity cost of the housing transfer, in terms of house prices, influences the parents' decision to help. Assume that parents already own the house that they reside in while children do not have real estate and are liquidity constrained, as is usually the case in Italy. When house prices rise, the older generation's wealth *de facto* increases while the real income of the younger generation drops. Altruistic parents should therefore be more likely to help their children.⁴

The model proposed by Cox (1987) also predicts a positive association between downstream financial assistance and upstream services. In his setting, the parents dominate the decision. They care not only about their children's utility, but also about a personal service provided by the latter for which there is no direct market substitute. For the children, the service to parents brings utility costs, hence the parents provide a transfer to compensate for it. One key assumption of this model is

⁴ This may not be true in some extreme circumstances, in particular when the parents already own a house that could be potentially transferred to the children, but the house is too big for their needs and the increase in price is large enough to make the optimal transfer smaller than the income loss from donating the house. In this case the parent could switch from a real estate transfer to a monetary transfer and our data may not capture this.

the fact that the dominant parent needs to make sure that the child will provide the service agreed upon. Cox (1987) assumes that this contract is enforced through social control. This, however, may be hard to justify when the service occurs at a much later time, as in our case (see Cigno et al. 1998, for a similar comment). One possibility, somehow related to the idea that the old generation uses future transfers strategically, is that the parent promises to later compensate the children who are currently helping. In this case, it might as well be that past housing help is just an indicator of future availability of further financial help, so that the actual exchange is between contemporary transfers. In Section 5.2 we discuss this hypothesis in detail. Another possibility, discussed and explored by Tomassini et al. (2003) and Coda Moscarola et al. (2010), is that the service is not informal care per se but geographical proximity between the two generations. Parents buy a house near their children to compensate them for possible income or utility losses due to constrained mobility. Given that a shorter geographical distance reduces the cost of care, this could explain our findings. In Section 5.3, we discuss to what extent our results can be explained by increased geographical proximity to parents.

Cox's (1987) model allows for both altruism and exchange. The former arises when the parents more than compensate the children for their utility loss, while the latter refers to the case in which there is no extra compensation. Although the two situations lead to different results on the quantity of the downstream transfers, the prediction regarding the likelihood of the transfer is the same. In both cases, an increase in the parent's income and a decrease in the child's should increase the chances of a transfer.⁵ As in the bilateral altruism model above, we would therefore expect the parent to be more prone to provide a transfer when house prices increase. As a consequence, this should lead to higher chances of receiving services in the future.

Some alternative models, based on self-interest, take into account that *inter vivos* transfers usually occur between three generations. According to Cox and Stark (2005), elderly parents may invest in their adult children's housing or consumption in order to increase the "production" of grandchildren. In their model, young offspring tend to imitate the behaviour of their own parents. The older generation, therefore, benefits from the presence of grandchildren because the middle generation will take care of the elderly in order to set a good example to the young offspring. This is the "demonstration effect". A different model, proposed by Cigno (2006), assumes that the generations are involved in a strategic game, whereby adult children need to choose whether to follow the rules of an unwritten "family constitution". If they accept, they must provide help to their elderly parents (from whom they have received help in the past) and to the younger generation. If they do not, they are exempt from providing any assistance, but they will also not receive any support in the future.

Both the demonstration effect model and the family constitution model share two common predictions. The first is that providing help to own children can be interpreted as an investment, which has an internal rate of return given by the chance of

⁵ The predictions regarding the quantity of downstream transfers have been tested by a number of studies. A non-exhaustive list includes Cox and Rank (1992); Altonji et al. (1997, 2000); Cox et al. (2004); Alessie et al. (2014).

receiving care in the future. The higher the opportunity cost of providing this help, the lower the chance that the parents will opt for this investment, no matter the needs of the children. In this case, contrary to the previous models, we would expect that when house prices are higher, parents are less likely to transfer real estate to their children and to receive care in the future. The second prediction stems from the fact that past help provided by the parents has no chance of leading to more elderly care in future if there is not a third generation. Therefore we should observe that it leads to increased fertility and that parents may provide additional services aimed at the third generation, such as grandchild care. We further discuss this last prediction in Section 5.4.

Understanding the underlying motive can be crucial to anticipating how public policies can affect the transfers. The altruistic model predicts that public redistribution between generations will crowd out private transfers. By contrast, theories in which individuals are, at least partially, motivated by some kind of exchange or self-interest allow the possibility of crowding in. In addition, the demonstration effect model and the family constitution model predict that the introduction of a mandatory retirement scheme, even if actuarially fair, may reduce intergenerational transfers.

Although each model is associated with specific implications, different families in different contexts may be characterised by a variety of motives. Arrondel and Masson (2006), revising the empirical literature, conclude that a single model is not likely to capture the entire heterogeneity in intergenerational transfers. In their case they propose a combination of family constitution rules, altruism, life-cycle savings and accidental bequests (Arrondel and Masson 2006, p. 1020), together with indirect reciprocities across generations. More recently, Park (2014) studied upstream financial transfers from adult children to elderly parents in South Korea, and argued that altruism and exchange may be operative at different levels of parental income. In evaluating the evidence we, therefore, take into account the possibility that a single motive is not prevalent in our data.

3 Data

3.1 Dataset and variables of interest

We use data from three waves of *Multiscopo sulle Famiglie, soggetti sociali e condizione dell'infanzia* (the Multipurpose Survey on Family and Childhood Conditions), a household cross-sectional survey carried out by the Italian National Statistical Institute (ISTAT) in 1998, 2003 and 2009. The survey sampled around 30 000 households to collect information on household structure, family network, unpaid assistance, important life-cycle events and labour market conditions. The total sample size includes 152 441 respondents. The sample is stratified by region and size of the municipality of residence. In our estimates we do not use sample weights because we both pool three cross-sections and focus on modelling the relationships

among different variables. Instead, we follow the standard approach of including the regional dummies among the covariates.⁶

We take the married couple (adult children) as the unit of observation, i , although we present additional results for wives and husbands separately. In the survey, adult respondents are asked whether they have provided any help to non-co-resident individuals in the four weeks prior to the interview. They then have to specify the most important kind of help they provide and who receives it, with the possibility of multiple recipients. Around 85% of those who report that their most important help is directed towards their parents say that it consists of informal care. We define the dummy variable *ICP* (informal care provided) equal to one for those couples in which at least one of the partners reports that this help is directed to a member of the older generation (parents or in-laws). This consists of either direct medical assistance (e.g., injections), adult care (e.g., help with bathing or eating), household chores, providing company or assisting with paper work. The fact that we observe elderly care only when it is the most important help provided to non-co-resident individuals can lead to an underestimation of the total number of caregivers. Nevertheless, we still find that around 21% of couples provide informal care to the older generation.

Our main explanatory variable, *Help with house*, is a dummy for help received with housing at the time of marriage. The assistance can be a transfer in-kind, whereby parents from either the wife's or the husband's side donate the house or let them live in (or they can rent it for a small sum). Alternatively, it can be a monetary transfer earmarked for purchasing or building a house. The last includes both gifts and loans, implicitly assuming that the loan is either more convenient or more accessible compared with the "formal" market. Around two thirds of those who received housing help declare that the transfer was in-kind. Note that this does not necessarily mean that the older generation already owned the house, but simply that there was no contribution from the side of the younger generation. Therefore, in these in-kind cases, it is likely that the younger generation had less say in choosing the location.

To discuss these hypotheses, we also exploit a house price database, provided by Nomisma, which contains the prices of houses per square metre in each of the Italian provinces from 1965 to 2009. Given that the province identifier is not available in the public release of the Multipurpose Survey, and that not all provinces are always available in the Nomisma survey, we take the simple average of prices at the regional level. One of the problems is that the number of provinces has changed over time, both for administrative reasons and because the sample was progressively extended. We choose to make use of all available information by averaging across available provinces in each region and each year. Nevertheless, in online Appendix A, we show that price trends are fairly smooth (apart from a spike in the Lazio region in 1983), and therefore the change is not likely to significantly alter the dynamics by cohort. Furthermore, results using house prices (Section 5.1) are almost identical if we drop the regions that registered some changes in the number of provinces over time. The most

⁶ We also know from Solon et al. (2015) that, in the case of misspecification, it is not guaranteed that the use of weights leads to a good approximation of the effect of interest. Moreover, to guarantee anonymity, the dataset is released in two versions that cannot be merged. In the first, the region of residence is provided but not the size of the town; in the other, the size is provided but only broader geographical areas are available. We prefer to use the former, as it allows us to control for aggregate differences across regions, for instance heterogeneity in mortgage accessibility.

Table 2 Sample selection

	1998		2003		2009		Total
	Obs	%	Obs	%	Obs	%	Obs
Original sample	59,050		49,541		43,850		152,441
Only married cohabiting couples	29,750	-49.6	24,138	-51.3	20,918	-52.3	74,806
Only if reference person or partner	29,038	-2.4	23,574	-2.3	20,464	-2.2	73,076
Only one observation per couple (wife)	14,519	-50.0	11,787	-50.0	10,232	-50.0	36,538
Only if both partners aged between 20 and 70	12,993	-10.5	9990	-15.2	8233	-19.5	31,216
No previous marriage of the wife	12,865	-1.0	9845	-1.5	8055	-2.2	30,765
With at least one parent alive on both sides	7466	-42.0	5247	-46.7	4289	-46.8	17,002
Not cohabiting with parents or in laws	7143	-4.3	5065	-3.5	4146	-3.3	16,354
Excluding those with parents or in laws abroad	6966	-2.5	4863	-4.0	3788	-8.6	15,617

expensive regions in terms of housing prices are Lombardy and Lazio. In online Appendix A we also show other descriptive statistics for this variable.

3.2 Sample selection

Sample selection (see Table 2) was mostly driven by the definition of *Help with house*. We restricted our analysis to married cohabiting couples and we considered them to be adult children, or the “middle” generation. When we need to distinguish the partners, we refer to them as “adult wives” and “her partner” or “husband”. By contrast, the older generation is referred to as “parents”. In some instances we also distinguish between “parents” for the wife’s side and the “in-laws” for the husband’s side. Finally, the third generation considered is the “grandchildren”. We do not consider separated or divorced individuals or widows or widowers for several reasons. First of all, we were constrained by the 1998 wave of the Multipurpose Survey, where only married and cohabiting women were asked about housing help at the time of marriage. Second, in cases where the partner is dead or living elsewhere we do not have information on the in-laws. Third, these cases are quite different and we would also have to account for the dynamic of the marital history.

To correctly identify adult children, we used only couples where one of the partners is the reference person for the interview, which is the vast majority of cases. Given that we are interested in help both provided and received, we used a mild restriction on age, selecting only couples aged between 20 and 70 years old.

The information on marriage was collected with respect to the last wedding in 1998 and to the first weddings in 2003 and 2009, and we therefore excluded cases where the wife had previous marriages. These cases were a minority in 1998, and slightly increased in 2003 and 2009 owing to the increased rate of divorce. We restricted the sample to couples where there is at least one parent alive on both sides because our interest is in *inter vivos* exchange of family services.

We also excluded those cases where the couple was cohabiting with parents or in-laws at the time of the interviews (1998, 2003 and 2009) because the survey did not allow us to identify elderly care in such cases. This involved only around 4% of the couples. We nevertheless kept those who, at the time of marriage, had moved in with

parents or in-laws but are currently living on their own. We controlled for this choice of past cohabitation in all the regressions, as this constitutes an important alternative to providing help with housing. We chose to keep it distinct from *Help with house* for three main reasons: first, in this case it was not possible to separate geographical distance from housing assistance; second, it may involve significantly different preferences and, because of the co-residence, a different decision mechanism; third, as discussed in Section 3.3, this phenomenon is rather marginal for younger generations.⁷

Lastly, we excluded the few cases with parents or in-laws residing abroad, because these are likely to be driven by different migratory processes. Our final sample contains couples who married between 1956 and 2009. The median is 1988. Excluding the 1% tail that married before 1965, the distribution is symmetric.

3.3 Is housing help at marriage a relevant transfer?

Table 3 shows that the incidence of *Help with house* is substantial. About one third of married couples in our sample received financial support for the purchase of a house at the time of their marriage. Similarly, Guiso and Jappelli (2002), using the Bank of Italy Survey on Households Income and Wealth, found that 28% of Italian households have acquired real estate through a gift, with the financial help of relatives or as a bequest. More recently, Jappelli et al. (2014) showed that the proportion of households who received real estate transfers rose from 30% in 1993 to above 35% in 2006, which is similar to the increase over time that we find in this paper. These numbers are large but in line with the evidence available for other countries. For instance Villanueva (2005) found that bequests account for 31% of total net worth for the United States and for slightly less in Germany.

These statistics suggest that help with housing at the time of marriage is one of the most relevant *inter vivos* transfers. The survey also allowed us to recover some information on other transfers received by the couple. We used a dummy variable *OH* equal to one when the couple received further transfers from parents or in-laws after the marriage and up to the moment of the interview. The information (available only for 1998 and 2003) was collected through retrospective questions and refers to monetary help during difficult or particularly demanding economic circumstances.⁸ Only 6% of the couples in the sample received this kind of help and some of them also received help with the house at the time of their marriage. Furthermore, in the sample (still limited to the 1998 and 2003 survey waves) we also know how many couples are currently being helped by parents or in-laws with economic transfers.⁹ The proportion was quite limited, around 2.4%. The focus on contemporary exchange, therefore, limits the analysis to a narrow proportion of overall transfers, as it neglects the fact that some adult children had already received economic assistance in the past.

⁷ The results are similar when excluding the past cohabitation cases.

⁸ This can be due to unemployment, eviction, insufficient household income, debt, health-related problems and financial needs to set up or run a business.

⁹ This refers to those who reported that the main help received by the family was an economic transfer from parents or in-laws.

Table 3 Transfers earmarked for home purchase from parents or in-laws

Housing transfer	Year			%
	1998	2003	2009	
No	71.3%	71.3%	64.4%	68.9%
[Obs.]	[4967]	[3466]	[2429]	[10,862]
Yes	28.7%	28.7%	35.9%	31.1%
[Obs.]	[1999]	[1397]	[1359]	[4755]
Total	6966	4863	3788	15,617

Note: The sample has been selected from the Multipurpose Survey on Family and Childhood Conditions Dataset (1998/2003/2009). In squared brackets we show the number of observations

4 Results

4.1 The relation between housing help and elderly care

We analysed the relation between past housing transfer and the current provision of informal care to parents by regressing *ICP* on *Help with house* and a set of controls, *X*:

$$ICP_i = \beta_0 + \beta_1 Helpwithhouse_{i,tm} + X_i' \beta_2 + \varepsilon_i \quad (1)$$

where *i* is the adult children couple. For clarity, the subscript *tm* indicates that the housing transfer occurred at the time of marriage, which itself took place prior to the individual interviews (1998, 2003 and 2009). We specify this equation as a Linear Probability Model (LPM), as it facilitates the discussion of the results, in particular when we look at the different possible explanations. The LPM usually provides a good approximation to the Average Marginal Effects from non-linear models, such as Probit (Wooldridge 2010). However, this may not always be the case. We therefore re-estimated all the main regressions using Probit. In Appendix B we show that the Average Marginal Effects from these models are very close to the coefficients estimated by the LPM.

The association between current informal care and help received with housing in the past may be driven by: (i) differences across cohorts and areas; (ii) correlation between housing help and different demographic characteristics that may influence the exchange of services; and (iii) differences in assets between families with and without housing wealth. We selected the control variables to account for this heterogeneity. We included dummies for survey wave and region of residence in all the regressions. As already discussed in Section 3.2, we used a dummy to control for whether the couple moved in with parents or in-laws at the time of their marriage. We also considered the number of children in the household, using a dummy for their presence, and coding the age of the youngest child to 0 if no children were present. Both account for the fact that the presence of offspring reduces the time available to dedicate to *ICP*. For both partners we controlled for age to account for the stage in the life cycle. We also included the number of siblings and a dummy for their

presence, given that they strongly reduce the need for *ICP* (see Rainer and Siedler 2009). The survey does not record where siblings lived with respect to the parents.

Dummies for educational attainment and presence of health limitations (combined with wave dummies to account for a minor change in the questionnaire wording) were considered. The former can influence the preferences towards housework, although they are also good proxies for income, while the latter accounts for possible problems in helping other persons. For each of the parents and in-laws we included variables that may shape their demand for assistance. In particular, we added their age, as well as dummies for (parents') educational attainment when the respondent was 14 and for their health limitations; the latter interacted with wave dummies to account for a minor change in the questionnaire wording. Since it may be that only one parent or in-law is alive, we also added two dummies indicating whether only the father or only the mother is alive. If a parent is dead, age and limitations were set to zero but the relative dummies accounted for this case. The same variables were included for in-laws.

For differences in income and wealth across households, we included the number of rooms, televisions, mobile phones, motorbikes and cars as controls, and, in addition, dummies for the kind of dwelling and tenure. For both partners we added dummies for employment status, extended to account for the kind of occupation and for the main source of income (labour, pensions, wealth). Finally, for all parents and in-laws we included dummies for their employment status when the respondent was 14 years old. Here we discuss only the main results of interest, but the coefficients for the various covariates, which can be found in online Appendix A (Table A.3), appear in line with expected results.

Table 4 starts with a basic specification including only wave and region dummies. Adult children who were helped by their parents with the house (at the time of their marriage) are more likely to currently provide elderly care to their parents. The relation is likely to be affected by different demographic characteristics, in particular age, given that there are significant differences in the importance of the help provided with housing over time. Once we add the full set of characteristics (column 2), the estimated coefficient increases to 2.6 percentage points. One of the reasons is that the proportion of couples that received help with housing increased over the years, but younger couples are less likely to provide care because their parents are younger. Hence, once we control for demographic characteristics of both generations (instead of including only wave and regional dummies) the estimated effect becomes larger. If, following Oster (2013), we assume that the selection on observables is proportional to selection on unobservables, it is possible to bound the omitted variable bias looking at the coefficient movements of the R^2 . If we assume that the maximum R^2 that we could reach, including all the relevant omitted variables, is 1.3 times the observed R^2 in column (2), then the estimated effect taking into account the bias would be slightly larger than the one we show. The estimated impact is not negligible, given that the proportion of informal carers in the overall sample is around 21%.¹⁰

¹⁰ Results for the sub-sample with greater care needs (e.g. older parents) can be found in online Appendix C.

Table 4 Linear Probability Model (LPM) for ICP (informal care provided to parents or in-laws)

Dependent variable	(1)	(2)	(3)	(4)
	ICP	ICP	$ICP_{parents-inlaws}$	ICP
Help with house	0.020*** (0.007)	0.026*** (0.008)		
$HwH_{parents-inlaws}$			0.016** (0.007)	
Contemp. monetary help				0.086*** (0.026)
Observations	15,617	15,617	11,829	11,829
R^2	0.006	0.090	0.061	0.092
Waves, regions	X	X	X	X
Demographic characteristics		X	X	X
Wealth characteristics		X	X	X

Note: ICP is a dummy equal to 1 for the adult couple who provide elderly care to parents or in-laws. In column (3) the dependent variable is the difference between ICP to parents and in-laws; in columns (4) the explanatory variable of interest is Contemporary monetary help. In both cases the 2009 wave is not available. Waves (1998, 2003 and 2009) and (19) regional dummies are included. The following demographic characteristics are included both for each partner of the adult couple and for each parent and in-law: age, health limitations (reference category: no health problem), dummies for parents and in-laws alive and level of educational attainment (reference category: elementary). For the adult couple we consider a dummy for having a siblings and the number of them; we include a dummy which for having a child inside the household, the number of them and the age of the youngest one. The wealth characteristics are: dummies for tenure status (reference category: rent), type of house (reference category: terraced), number of rooms, mobile phones, TVs, motorcycles, cars. We also include job occupations (reference category: clerical worker) both for the adult couple and for each parents and in-laws at the time in which the (current) adult child was 14 years old. We finally control for the main source of earnings (reference category: dependent employee). Robust standard errors in brackets

* $p < .10$, ** $p < .05$, *** $p < .01$

An alternative strategy could be to compare the two sides of the family (i.e., parents vs in-laws). If our main results from column (2) are simply driven by couples who are more altruistic or more prone to provide elderly care, then we would expect the positive effect to disappear when we distinguish the two sides. In column (3) we follow this strategy by replacing the dependent variable with the difference between a dummy for informal care provided to parents (i.e. the wives' side) and a dummy for informal care provided to in-laws (i.e. the husbands' side). Similarly, the main regressor is now the difference between a dummy for having received housing help from parents and a dummy for having received help from in-laws. A positive coefficient would imply that, when only one side provided help with housing, that side is also more likely to receive informal care. We cannot use the last wave because the questionnaire is slightly different and it does not allow us to distinguish the two sides with regards to help with housing. The results are in line with the main finding that the family side that provided help with housing is more likely to currently receive care.

In the final column we substitute past help with a dummy equal to one when adult children are currently receiving economic transfers from their parents (*Contemp. monetary help*), which is not available for the 2009 wave.¹¹ In line with the literature,

¹¹ The regression in column (3), run only on data from 1998 and 2003, gives a similar positive and significant coefficient.

the effect on the provision of informal care to parents is quite large, amounting to 8.6 percentage points. Although this effect is stronger than the one of *Help with house*, it must be underlined that the current monetary help from parents involves a significantly smaller proportion of the population (2.4% vs 31.1%) each year. In Section 5.2 we also discuss the relation between help with housing and current economic transfers.

One issue is that parents may have supported their children with other transfers around the time of their marriage, for instance by simply transferring money to them, but, unfortunately, the questionnaire did not capture this information. The dummy variable *Help with house* may therefore capture only the actual use of the transfer (for housing) rather than the fact that a transfer took place. We believe that this is not necessarily a concern. First, we have already shown that help with housing at the time of marriage is quite relevant to *inter vivos* transfers, hence our dummy is likely to be at least a very good proxy for the presence of an actual transfer. Second, we expect that other forms of economic assistance are also positively correlated with in-kind services from adult children. If this is the case, we are potentially underestimating the effect of housing transfers, given that some of the couples in the “comparison group” may have received assistance as well. We also checked whether our results are significantly different if we excluded those cases in which the couple may have simply not found it optimal to acquire a house, by excluding those who went to live in rented accommodation and those who moved to a house that was already owned by one of the partners. The estimates were found to be very similar (0.020 with standard error (s.e.) 0.008) in both cases.

To conclude, Table 5 shows different measures of the intensive margin of the relation between past housing help and current care provision to the parents. Adult couples who received help with housing at the time of their marriage provided 11% more times elderly care than their counterparts. This additional elderly care seems to be less intensive (column 2 vs 3), defined as those cases where the total hours of care in the four weeks before the interview was lower than the median (13 h). However, if we look at the type of care we do not find any difference between “soft” and “hard” elderly care (column 4 vs 5), where the former is defined as paper work and company while the latter is related to medical assistance, adult care and household chores.

4.2 Heterogeneity

Table 6 breaks down *Help with house* into earmarked monetary transfer – where parents provided a sum to help adult children purchase or build a house – and in-kind help – where the older generation donated the entire house. The coefficient of the latter is slightly larger (0.029 vs 0.022), but the difference is not statistically significant (column 1). In some cases of in-kind transfer, the house was made available for free (or for a small sum) without giving the property rights to the children.¹² We expect this type of help, which accounts for one quarter of the total number in the

¹² Indeed, those with *Help with house* equal to one were much more likely, at the time of the survey, to live in a house that does not belong to them but for which they do not pay the rent (26.5% in the sample of those who received help with house vs 7.0 for those who did not). The difference in the proportion of those who live in their own house is, instead, much smaller (70.0 vs 69.4).

Table 5 ICP (informal care provided to parents or in-laws)—Intensity

Dependent variable	(1)	(2)	(3)	(4)	(5)
	ICP	ICP	ICP	ICP	ICP
	Number of times	Less intensive	More intensive	Soft	Hard
Help with house	0.112** (0.057)	0.017*** (0.006)	0.009 (0.006)	0.014** (0.005)	0.015** (0.006)
Observations	15,617	15,617	15,617	15,617	15,617
R^2	0.060	0.024	0.104	0.030	0.083

Note: In column (1), we estimate the model using Poisson where the dependent variable is the number of times the adult couple provide ICP to parents or in-laws (R^2 should be intended as the Pseudo R^2). Columns (2) to (5) are estimated by OLS. In columns (2) and (3), less (more) intensive ICP is equal to 1 for the adult couple who provide less (more) than 13 h in the last 4 weeks of elderly care to parents or in-laws. In column (4) and (5), we define as soft (hard) ICP when the adult couple provide the following services to the parents and in-laws: company and paper work (medical assistance, adult care and household chores). We include the full set of controls used for the main specification in Table 4, column (2). Robust standard error in brackets

* $p < .10$, ** $p < .05$, *** $p < .01$

group that has been helped with housing, to be more strongly related to *ICP*. The reason is that parents still have some power to evict their adult children from the house, even if this power is limited by social and legal constraints. We also ran the main regression by splitting the *Help with house* dummy to separate this kind of help. In line with our a priori expectations, it displays a stronger coefficient (0.057, s.e. 0.018). The effect of the other forms of *Help with house* is, nevertheless, still in line with the main results (0.020, s.e. 0.008).

A different issue relates to the fact that, according to Banfield (1958) and Putnam (1993), the different systems of government that ruled the pre-unification Italian states led to different attitudes to civil society and family solidarity. This heterogeneity has been shown to have persisted through time, with the south still being characterised by a “lack of social trust outside the strict family circle” (Guiso et al. 2004, p. 526). We conducted two tests to check whether results are strongly dependent on the different exposure to this “amoral familism”. First, we interact past housing transfer with a dummy that indicates the regions in the south of Italy that, in theory, should be more exposed to familism. The result in column (2) shows almost no difference in the effect of interest between the two areas. Second, we focus on the familistic values, interacting our main variable with the percentage of “yes” votes by region at the Italian divorce referendum of 1974. Voters were asked whether they wanted to repeal a law, passed three years before, that allowed divorce for the first time in modern Italian history. Those voting “yes” wanted to outlaw divorce, and those voting “no” wanted to retain the law and their newly gained right. The outcome of the referendum was in favour of the “no” vote, thus allowing the divorce laws to remain in force, but the proportion of “yes” votes was quite heterogeneous across regions. Nevertheless, our effect of interest does not seem to change along this dimension of heterogeneity, as the interaction term is a precisely estimated zero.

So far we have analysed the couple as a single unit. If we split the two partners, we find that the main result is driven by wives (column 4 vs 5), as expected, given that

Table 6 LPM for ICP (informal care provided to parents or in-laws)—Heterogeneity

Dependent variable	(1) ICP	(2) ICP	(3) ICP	(4) <i>ICP^{wife}</i>	(5) <i>ICP^{husband}</i>	(6) <i>ICP^{wife} parents-inlaws</i>
Help with house		0.027*** (0.010)	0.026*** (0.008)	0.027*** (0.007)	0.007 (0.006)	
Monetary help	0.022* (0.012)					
In-kind help	0.029*** (0.009)					
HwH * South		-0.002 (0.014)				
HwH * Yes voting			0.000 (0.001)			
<i>HwH_{parents-inlaws}</i>						0.019*** (0.006)
Observations	15,617	15,617	15,617	15,617	15,617	11,829
R ²	0.090	0.090	0.090	0.087	0.075	0.072

Note: *ICP^{wife}* (*ICP^{husband}*) refers to ICP provided by the wife (husband) to either parents or in-laws. *ICP^{wife}_{parents-inlaws}* is the difference in ICP to the two sides of the older generation, but referring only to the assistance provided by the wife. Yes voting is the percentage of “yes” votes by region at the Italian divorce referendum (1974), rescaled by subtracting its mean. We include the full set of controls used for the main specification in Table 4, column (2). Robust standard error in brackets

*p < .10, **p < .05, ***p < .01

women are usually more likely to provide care. Nevertheless, the mechanism is not limited to the matriarchal line. Wives tend to provide more care to the side of the older generation that provided help, if only one of them did so (column 6), again suggesting that the results are not simply driven by individuals that are more altruistic.

We also carried out several checks on robustness, including dummies for family contacts, for individuals having already left the house before marriage, and for different cohorts. The results are discussed in online Appendix C.

5 Possible motivations

In the following subsections, we present four pieces of evidence that favour a mix of exchange and self-interest motives rather than altruism. First, we show that parents seem to take into account the opportunity cost of their help, as past housing transfer negatively correlates with regional house prices. Second, we show that the exchange contract may be enforced by further transfers and, third, by increased geographical proximity, which decreases the cost of care and increases social control, leading to a higher likelihood of informal care. However, both channels seem to explain only a fraction of our main finding, calling for theories whereby the contract between generations is self-enforcing. Finally, we show that parents who help with housing their children seem to be investing in a third generation (grandchildren), as predicted by models based on a family constitution or on the demonstration effect (Cigno 2006; Cox and Stark 2005, respectively).

5.1 Do parents consider the cost of the transfer?

In order to study how parents react to economic factors that may influence their transfer choice, we regress *Help with house* on *House price* and the whole set of covariates. As discussed in Section 2, both a bilateral altruism model and Cox's (1987) model with an imperfect altruistic parent predict a positive relation (see Table 1). By contrast, a negative relation is consistent with models based on non-cooperative and non-altruistic agents, such as Cox and Stark (2005) and Cigno et al. (1998), in which the investment in children buys old-age security. Table 7 column (1) shows that when house prices at the time of marriage are higher, children are less likely to receive help in purchasing their first house. The opportunity cost of the transfer seems therefore to be more important than the fact that children may be more in need of help, at least on average. The effect is not negligible: considering that the standard deviation in house prices is EUR 567/sq m, an increase of this magnitude would lower the probability of receiving help with housing at the time of marriage by 2.5 percentage points, which is slightly more than one tenth of the proportion of households that actually received it.¹³

¹³ In order to further check whether our estimates are simply capturing a switch between different forms of assistance, we tried excluding those couples for whom it might have been less convenient to acquire a house, namely those who moved into rented accommodation or to a house already owned by one of the partners. The result is more robust and still shows a negative relation between house prices and providing help with the house.

Table 7 Help with house, house prices and informal care

Dependent variable	(1)	(2)	(3)	(4)
	Help with house	ICP	Help with house	ICP
House price (1000 euro \times sqm)	-0.044	-0.031	-0.076	-0.036
P-value (robust)	0.001	0.016	0.000	0.008
P-value (cluster region)	0.009	0.045	0.000	0.041
P-value (wild bootstrap)	0.012	0.096	0.000	0.089
Sample	All	All	No monetary help	No monetary help
Observations	14,744	14,744	13,309	13,309

Note: in each column, p -values refer to the null that the coefficient associated with the *House price* is equal to zero. All regressions are estimated by OLS and include wave, region dummies, plus demographic characteristics and wealth characteristics, as in Table 4, column (2). The sample excluded observations for which we do not have regional house prices for the relative year of marriage. Bootstrap p -values are calculated using 999 replications

House price varies across regions and year of marriage, but in the regression we used only the within-region variation, as we included regional fixed effects.¹⁴ We find it more credible to focus only on this source of variation because house prices are lower in southern regions, where the degree of familism is higher and formal care is less available (as already discussed in Section 4.2). Nevertheless, there may be a strong autocorrelation over time within regions, and therefore the correct standard errors should account for this clustering. As there are only 19 distinct regions in the data, clustered standard errors are likely to be distorted (Cameron and Miller 2015).¹⁵ We therefore calculated p -values implementing the wild bootstrap method that they proposed.¹⁶ In all cases the coefficient was statistically significant at the 5% level.

As before, one concern could be that house prices do not necessarily affect the parents' decision about giving economic assistance, but simply their preference between providing help with the house and a generic (non-earmarked) monetary transfer. To shed light on this issue, we checked whether the estimate is driven by in-kind help with housing rather than earmarked transfers. In the former case it is more likely that the parents already owned the property (although not necessarily, see Section 3.1), so that house prices at the time of marriage constitute the relevant opportunity cost (to be compared with the future gains from informal care). We

¹⁴ We get similar results in terms of magnitude when rescaling housing prices in accordance with the consumer price index to account for inflation.

¹⁵ In the Multipurpose Survey, the Aosta Valley region is aggregated with Piedmont (in principle, there are 20 Italian regions). Given that the latter is much larger and more populated, we always use only its house price level.

¹⁶ We thank Claudio Labanca for sharing his code for calculating wild bootstrap p -values with us. We took inspiration from it and from Cameron and Miller (2015). We also inspected the distribution of t -tests generated and never found specific problems, such as mass points around particular values or missing values. We finally tried with a more standard pair bootstrap, but p -values tended to be smaller than those obtained using clustered standard errors, which is in line with the poor performance of this method when clusters are not frequent.

defined the categorical variable *Type of help* as:

$$Type\ of\ help = \begin{cases} 0 & \text{if } Help\ with\ house = 0 \\ 1 & \text{if } Earmarked\ monetary\ transfer\ for\ housing = 1 \\ 2 & \text{if } In\ kind\ help\ with\ housing = 1 \end{cases} \quad (2)$$

and we ran a multinomial logit regression, using the category *no help* as a baseline and adding all the regressors, plus *House price*. The latter was statistically significant only for the in-kind help outcome. Furthermore, in column (3) of Table 7 we exclude from the sample those who received monetary help. The comparison is, therefore, only between couples who were helped with an in-kind transfer and those for whom *Help with house* is equal to zero. In this last case, the association with house prices is much stronger.

So far, our results are more consistent with the models developed by Cox and Stark (2005) and Cigno et al. (1998) rather than with the purely or imperfectly altruistic ones. Given that these models predict a positive relation between *Help with house* and *ICP*, then we expect that the negative relation between house prices and *Help with house* translates to informal care as well. The relation between house prices and *ICP* is also useful to understand whether parents are actually switching to other transfers when house prices are higher. If so, we would expect no difference from the point of view of the adult children, who still receive help. Consequently, we would predict no impact of past house prices on the current provision of informal care. In Table 7, column (2), we show the regressions of *ICP* on house prices. The estimated effect of *House price* is negative and statistically significant at the 10% level even using the wild bootstrap standard error. This is confirmed in column (4) where we look only at in-kind transfers. Obviously, this negative relation is in line with the theory only insofar as it is not driven by other unobserved heterogeneous factors that influence both house prices and *ICP*. The first concern is that house prices are lower in regions with more familism and fewer options for formal care, but as already mentioned this should be accounted for by regional dummies. An additional important issue is that prices may be related to other characteristics, and in particular to family wealth. However, our regressions include a full set of controls for current wealth, as expressed both by the possession of a list of durable goods, a proxy of life-time wealth, and by the partners' occupations and levels of education, and also by the parents' and in-laws' levels of education and occupations when the currently adult children were 14 years old. Another problem is that we do not know the region of origin, only the current one (except for the 2003 wave, which does not provide sufficient observations to detect a result). This is likely to reduce the power of the relation, although it is hard to predict how this could bias the result. Nevertheless, although a significant proportion of the couples live in a different town from their parents, most live within 50 km (see Fig. 1).

Finally, the relation between house prices and *Help with house* is likely to be non-monotonic. To simplify, two subgroups might be present in the population: the parents providing less help when prices are higher (group A), because they behave more strategically, and those who would do the opposite (group B), as they would act closer to the purely altruistic model (see also Table 1). If this is the case, our estimate

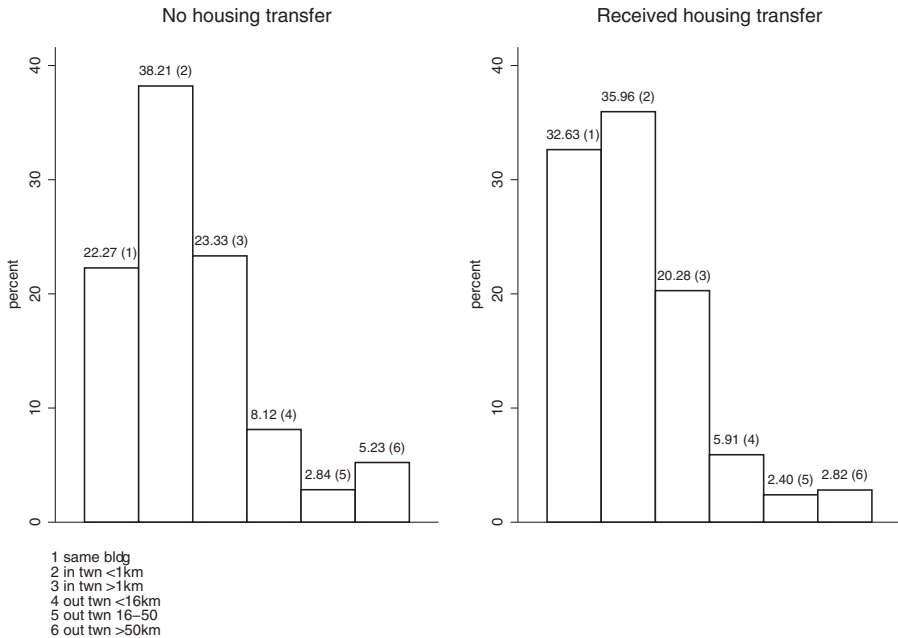


Fig. 1 Predicted distribution of current distance to parents or in-laws by help received with housing transfer at the time of marriage, LPM fits, Multiscope 1998/2003/2009

is likely to capture only the prevalent motive as it averages across these different subgroups. The average, however, will depend on both the size of the different groups and the intensity of the (within-group) relation between house prices and help with housing; hence, it is difficult to say which group is larger in the population.

With heterogeneous motives, the interpretation of the relation between house prices and informal care becomes even more difficult. The effect of *Help with house* on *ICP* (in Eq. (1)) might be different in the two groups (say β_1^A and β_1^B) because, for instance, in the strategic case the future provision of elderly care more strongly depends on whether the help with house is provided. In this case the coefficient on *House prices* in the regression for *ICP* will be a weighted combination of the two effects, but the weight will be negative for group A (for those behaving more strategically, higher house prices reduce *HwH*) and positive for group B (because, being closer to pure altruism, they increase *HwH* when prices are higher). As long as both β_1^A and β_1^B are positive, then the sign of the estimated coefficient in columns (2) and (4) should be negative (unless β_1^B is large enough), as we find. Nevertheless, it is important to acknowledge that the negative estimate on house prices in the regression for *ICP* is also consistent with both effects (β_1^A and β_1^B) being negative. This situation would be in line only with the bequest motive and, therefore, seems at odds with the other results.

5.2 Is housing help only a signal for future transfers?

Parents might have used the housing transfer in the past to signal to their children the possibility of further financial transfers, closer to or at the time when they need

Table 8 LPM for further transfers

Dependent variable	(1) OH	(2) Contemp. monetary
Help with house	0.011** (0.005)	0.002 (0.003)
Observations	11,829	11,829
R^2	0.056	0.065

Note: OH is a dummy equal to 1 for the adult couple who receive future (with respect to the time of marriage) other type of help from parents or in-laws. Both dependent variables are not available for the 2009 wave. We include the full set of controls used for Table 4, column (2). Robust standard error in brackets

* $p < .10$, ** $p < .05$, *** $p < .01$

informal care (see Table 1). In Table 8 column (1), we focus on the dummy variable *OH*, which is equal to one if the couple received further transfers from parents or in-laws during a moment of economic distress, between the time of marriage and up to the interview.

The relation between past help with housing and further transfers is not negligible, considering that only approximately 7% of couples in the sample received other support from parents or in-laws. This is in line with the idea that parents may use the housing transfer to signal the future availability of wealth or some residual family resources to support the adult child. Nevertheless, this is not likely to be the main explanation for the association between help with housing and ICP. For instance, for it to explain 10% of our main effect (i.e., 0.26 percentage points), we would need these further transfers to increase the likelihood of providing ICP by around 24 percentage points (0.0026/0.011), a much larger effect than the one found for help with housing itself.

In column (2) we focus instead on the relation between past help with housing and a dummy for contemporary monetary help from the older generation (*Contemp. monetary help*). The estimate is tiny in size and not statistically significant, confirming that our main result is not driven by the association of past help with housing with further financial transfers.

An alternative but related explanation could be that help with housing at the time of marriage is an anticipation of future bequests. In this case, the intertemporal exchange is guaranteed by adult children expecting larger returns after the provision of elderly care. Unfortunately, our data do not contain information on bequest expectations. To the best of our knowledge, only the Survey of Health, Ageing and Retirement in Europe (SHARE) contains such information. However, its structure and the available information is quite different from the *Multiscopo*. It is, therefore, beyond the scope of the present work to exploit SHARE to provide results about this channel. Furthermore, in Italy the succession law prescribes some minimum proportion of bequests for each possible heir, in particular for children and partners. There is, therefore, limited scope for a strategic use of bequests because parents cannot promise to write a significantly unequal will.

5.3 Is it only an exchange with geographical proximity?

An important mechanism that could explain our results is the fact that those children who received help with housing at the time of their marriage are more likely to live close to their parents, as already shown by Tomassini et al. (2003). This could imply that the actual exchange is not with future assistance, but with geographical proximity (see Table 1), as argued by Coda Moscarola et al. (2010). Parents use earmarked transfers to encourage children to establish their new family nearby. Given that mobility costs limit the likelihood that they will then move somewhere else, and that social control is greater when relatives are closer, the intergenerational contract is more likely to be respected. This supports the enforceability assumption that underlies Cox's (1987) model.

In the survey, individuals were also asked about the distance between their residence and that of their parents at the time of the interview. The information is reported as a categorical variable in Fig. 1. For each partner we define the distance from parents as the minimum distance from either the mother or the father, in the event that they live apart. At the couple level we define distance as the minimum between parents and in-laws.

Figure 1 reproduces the results of Tomassini et al. (2003), by first fitting a set of linear probability models for each distance dummy (at the level of the couple) on help with housing and all other covariates, and then predicting the two counterfactual probability distributions for the overall sample (assuming, respectively, that nobody received help and that everybody did).¹⁷ Receiving help is associated with a large increase in the chance that parents and married adult children will live in the same building, and a decrease in the other distances. Nevertheless, most of the decrease in probability mass associated with other categories is related to those living within 16 km of their parents.

Table 9 column (1) shows a regression of *ICP* on distance dummies, which is defined as the minimum distance from parents or in-laws. Although geographical distance is generally associated with less parental care, the negative effect of distance becomes substantially large only when adult children are located further than 16 km away. Using the predicted changes in the geographical distribution (Fig. 1) we can also calculate that around 0.7 percentage points of the effect, approximately one quarter, can be explained by increased proximity.

An alternative way to understand what proportion of the effect can be explained by geographical proximity is to condition the regressions on distance. If there is no selection on unobservables relative to distance, this strategy should recover the conditional effect of interest (see Cutler and Lleras-Muney 2010, for an example in a different context). Hence we would expect no significant effect in the case in which the overall (unconditional) results were simply driven by increased proximity. Columns (2) and (3) split the sample between those who live within 16 km and those who live further away. The coefficients are very similar in magnitude. They are significant only when we focus on the sample of individuals who live close to (within 16 km of) their parents or in-laws. However, the sample size for those living further away is quite small and a proper Wald test cannot reject the null hypothesis that the coefficients in the two

¹⁷ Each distance bar is the average fitted probability across the whole sample, fixing the *Help with house* dummy either to 0 or 1.

Table 9 LPM for ICP with distance controls

Dependent variable	(1)	(2)	(3)	(4)
	ICP	ICP	ICP	ICP
Help with house		0.019** (0.008)	0.022 (0.021)	0.019** (0.008)
<i>Minimum distance</i>				
In town <1 km	-0.003 (0.009)			
In town >1 km	-0.027** (0.010)			
Out town <16 km	-0.058*** (0.014)			
Out town 16–50	-0.117*** (0.018)			
Out town >50 km	-0.179*** (0.013)			
<i>Distance dummies from parents</i>				X
<i>Distance dummies from in-laws</i>				X
Sample	All	Within town	Outside town	All
Observations	15,617	13,329	2288	15,617
R^2	0.099	0.095	0.193	0.101

Note: Robust standard error in brackets. We include the full set of controls used for the main specification in Table 4, column (2)

* $p < .10$, ** $p < .05$, *** $p < .01$

subsamples are equal. In column (4) we re-estimate the main equation with the inclusion of the whole set of dummies for distance (in this case separately for parents and in-laws) along with the explanatory variable of interest *ICP*.¹⁸ Comparing the coefficient on *Help with house* in the last column with the main estimate in Table 4, we can confirm that around 25% of the relation between help with housing and informal care provided to parents seems to be driven by proximity.

The situation is more complicated if adult children choose the distance according to unobservable characteristics and this sorting on unobservables is different for individuals who received help with housing with respect to those who did not. In this case, the conditional-on-distance regressions may be biased, because within each category of geographical proximity there might be unobservable differences between those with $HwH = 1$ and the others (even if there are no differences without conditioning on distance). Intuitively, though, we expect that HwH moves closer to their parents those adult children who are less willing to provide *ICP*. The bias should, therefore, be negative and it does not undermine our conclusion that, even conditional on distance, *ICP* is greater among those who received help with housing at marriage.

To formalise our argument, it is clearer to consider only two categories of distance, close ($D_i = 1$) and far ($D_i = 0$). The mean regression conditional on distance

¹⁸ We could also include the distance from parents at the time of marriage. However, we statistically test the joint significance of the dummies and we conclude that we cannot reject H_0 with an F -test with p -value 0.28.

becomes:

$$\begin{aligned}
 E[ICP_i | HwH_{i,tm}, X'_i, D_i = d] &= \tilde{\beta}_0 + X'_i \tilde{\delta} + \\
 &(\beta_1 + E[\varepsilon_i | HwH_{i,tm} = 1, X_i, D_i = d] - \\
 &E[\varepsilon_i | HwH_{i,tm} = 0, X_i, D_i = d]) HwH_{i,tm}.
 \end{aligned}
 \tag{3}$$

The coefficient on *Help with house* (*HwH* here) therefore includes a selection term that accounts for the different unobservable ability (or preference) in providing elderly care between those who live at a certain distance and received help with housing and those who live at the same distance but did not receive help. This selection term may be different from zero even if $E[\varepsilon_i | HwH_{i,tm}, X'_i] = E[\varepsilon_i | X'_i]$, that is, even if those who are helped with housing have a similar propensity to care as those who were not helped in terms of unobservables (unconditionally with respect to distance but conditionally on other observables). This may happen if, among those couples who actually received help, only a subgroup characterised by higher (or lower) propensity to care select to live closer to their parents. We can give a sign to this selection term using an intuitive model in which the amount of care provided depends only on geographical distance, D_i , and the individual unobservable willingness to provide elderly care, as summarised by ε_i (see Konrad et al. 2002, for a formal model). In this case there should be a threshold, $\bar{\varepsilon}$, such that those with $\varepsilon_i < \bar{\varepsilon}$ should live further away ($D_i = 0$), depending on labour market opportunities and other characteristics (captured by covariates X_i). Assuming that parents act strategically, as argued in Section 5.1, we would expect them to be more likely to help with a house located nearby. This is also in line with the evidence just discussed on the effect on geographical proximity. Therefore, as far as the gift is large enough to compensate for the increased cost of *ICP*, the threshold $\bar{\varepsilon}$ decreases, moving individuals just below the hold threshold closer to their parents (that is from $D_i = 0$ to $D_i = 1$). This implies that, among those who received the help, there is a decrease in the average ε_i within each distance group, because the individuals that change distance have lower ε_i than those who were previously at $D_i = 1$, but larger than those who are left in $D_i = 0$. Therefore the estimates conditional on distance should have a downward bias, which is reassuring given that our results still reveal a positive effect of help with housing on *ICP*.

Overall, we can conclude that the distance mechanism appears to be relevant, but it does not seem to be the only explanation.

5.4 Are (grand)parents facilitating the presence of a third generation?

Both in the “demonstration effect” model proposed by Cox and Stark (2005), and in the family constitution model advanced by Cigno (2006), *Help with house* can be interpreted as an investment that parents make to establish a family network, which will ultimately increase the chances of receiving care in the future. This investment will provide a return only if there is a third generation (see Table 1 for a summary of the implications of the two models).

Table 10 shows a weak positive correlation between the receipt of a past housing transfer and the probability that the couple has at least one child living in the household or elsewhere. This correlation is still positive when we include the full set

Table 10 LPM for the probability of having at least one child and ICR

Dependent variable	(1) Child in/out HH	(2) Child in/out HH	(3) Child in/out HH	(4) Child in/out HH	(5) ICR	(6) ICR
Help with house	0.007 (0.006)		0.011 (0.008)		0.063*** (0.010)	
Monetary help		-0.007 (0.010)		-0.011 (0.013)		0.028* (0.015)
In-kind help		0.015*** (0.007)		0.023*** (0.009)		0.081*** (0.012)
Sample	All sample	All sample	Women aged < 40	Women aged < 40	Co-resident child aged < 14	Co-resident child aged < 14
Observations	15,617	15,617	9309	9309	10,066	10,066
R ²	0.148	0.148	0.212	0.212	0.167	0.168

Note: The dependent variable Child in/out HH in columns (1)–(4) is a dummy that takes value 1 if the adult couple has at least one child in or outside the household (87.6% in the sample). The dependent variable in columns (5)–(6) is a dummy ICR equal to one if the young offspring (aged less than 14) of the couple are at least sometimes looked after by a grandfather or grandmother. The age threshold of 14 is due to questionnaire design. In columns (5)–(6) we restrict the sample to all the individuals with at least a co-resident child aged less than 14. In all columns we include the full set of controls used for the main specification in Table 4 (column 2), apart from columns (1)–(4) which exclude those relative to the presence of offspring in the household. Robust standard error in brackets.

*p < .10, **p < .05, ***p < .01

Table 11 LPM for ICP for couples with or without children

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)
	ICP	ICP	ICP	ICP	ICP	ICP
Help with house	0.013 (0.008)	0.018 (0.022)	0.033* (0.020)	0.025* (0.013)	0.084 (0.067)	0.083 (0.055)
Help with house X Child in/out HH			-0.021 (0.021)			-0.059 (0.057)
Observations	13,677	1940	15,617	6603	401	7004
R ²	0.024	0.053	0.024	0.023	0.158	0.023
Child	Yes	No	All	Yes	No	All
Mother's age	All	All	All	>39	>39	>39

Note: The variable Child in/out HH in columns (3) and (6) is a dummy that takes value 1 if the adult couple has at least one child in or outside the household (87.6% in the sample). We include the full set of controls used for the main specification in Table 4 (column 2), plus in columns (3) and (6) the dummy Child in/out HH. Robust standard error in brackets

* $p < .10$, ** $p < .05$, *** $p < .01$

of controls, but it becomes smaller and loses statistical significance. We observe, however, quite different effects for “monetary” and “in-kind” help. The former is never significant at any conventional statistical level, while the latter appears strongly and positively related to the probability of having at least one child.¹⁹ These results suggest that in-kind intergenerational transfers increase, *de facto*, the likelihood of “producing” grandchildren. This is particularly true if we focus on younger women, aged less than 40 years, which may also be interpreted as evidence that help with housing leads to anticipate the first pregnancy. In the last two columns of Table 10, we demonstrate that those parents who provided help with housing are also more likely to currently help with grandchildren. When we control for all covariates the effect is still quite large, given that the proportion of couples receiving help with grandchildren is 48% in the selected sample.²⁰

Both results suggest that parents who provided help with housing to their children facilitate a third generation, namely their grandchildren, which is in line with both the demonstration effect model and the family constitution model. Since the presence of a young generation is crucial for both theories, in Table 11 we discuss whether our main finding is limited to the subgroup with children. Although the results tend to be highly imprecise owing to the small sample size, the relation in the subgroup without living children seems to be at least as large as in the other group.²¹ The results are similar if we split the sample between those with co-resident children and those without. One counter-argument is that the family constitution does not require young children to be currently present, as it is only necessary that the middle generation expects a younger generation to assist them in the future. Nevertheless, the final

¹⁹ We presumably slightly underestimate the fertility effect because the question (“how many children alive/adopted do you have?”) was asked only to people over 25 years old.

²⁰ If we add dummies for distance from parents and in-laws, which are strongly negatively correlated with *ICP*, the coefficient for help received from parents shrinks to 4.6 percentage points and is still statistically significant at the 1% level.

²¹ The results are unchanged once we control for the geographical proximity to parents and in-laws.

columns of Table 11 focus only on the subsample of wives aged 40 years or more, who are less likely to have other children in the future. The results are imprecise, but they still suggest that the positive relation is, if anything, larger in the sample without children. This indicates that a single motive is not prevailing in this context.

6 Conclusions

This analysis contributes to the debate about the economic rationale behind unpaid assistance to ageing parents. Using data from three waves (1998, 2003 and 2009) of the Italian Multipurpose Survey, we show a positive effect of downstream help with housing received in the past on current informal elderly care. The two generations seem, therefore, to be able to avoid the prisoner dilemma in which neither financial transfers nor elderly care are provided.

Our main result can be explained by different motives. Table 1 provides a summary of the motives discussed in Section 2 and their consistency with our results. A standard bequest motive framework would not be consistent with our main finding, as the contraction in bequeathable wealth should reduce the bargaining power of the parents and their likelihood of receiving assistance from their adult children.

The positive relation between *ICP* and *Help with house* is instead compatible with a simple model with bilateral altruism, whereby the generations help each other at different points in the life cycle in which they are in need. However, we show that the decision to provide help with housing at the time of marriage is negatively related to regional house prices, particularly for in-kind transfers. The negative relation also translates into a lower likelihood of receiving informal care from adult children. This result is at odds with the predictions of the altruistic model. Our main result would also be compatible with Cox's (1987) model, in which an imperfectly altruist parent dominates the decisions. The model allows not only altruism, but also exchange. For this model to be a valid explanation, the informal agreement between the two generations needs to be enforceable over time. One possibility is that parents who provide a housing transfer are more likely to provide further financial transfers in the future, and the help with housing should be understood as a signal of the availability of intergenerational help. In this case, inasmuch as the adult children assume that more will be received in the future, they may be more willing to currently assist their parents. However, we empirically demonstrate that this channel seems to only marginally influence our main result. Another possibility is that the actual exchange occurs between help with housing and geographical proximity, which decreases the cost of care and increases social control, leading to a higher likelihood of informal care. However, perhaps surprisingly, only a fraction of the relation is explained by this channel, as the empirical association between past help and current care persists even for children living further away. Our result seems therefore to call for other models that guarantee that the intergenerational contract is self-enforceable. Furthermore, Cox's model, under both altruism and exchange, is not compatible with our finding of a negative relation between help with housing and house prices.

By contrast, both our main finding and the negative relation with house prices are in line with those models in which the help provided to the children can be understood as an investment for the future, such as the "demonstration effect" of Cox and

Stark (2005) and the family constitution of Cigno et al. (1998). Both models predict that the return on this investment is guaranteed only if there is (or there will be for the family constitution) a third generation, the grandchildren. Indeed, we provide additional evidence that the help with housing from parents is positively associated with the likelihood of having children and grandchild care provided by the parents. However, we also show that the positive correlation is not driven only by couples who have children, but also by those who are childless or less likely to have children in the future.

To summarise, the empirical evidence suggests that a single motive is not prevailing, as it has been argued by Arrondel and Masson (2006) and Park (2014) for other countries and using other methods. Although a simple model of altruism may explain some of the results, we provide some empirical evidence that is more in line with different models based on exchange and, more generally, self-interest. In some families, past help with housing can be understood as a standard exchange with increased proximity. In other cases, the *quid pro quo* seems to be between quasi-contemporary transfers. Some families seem instead to perceive the help as an investment in their future following the rules of an unwritten constitution or the hope that the demonstration effect will take place.

With respect to the theoretical and empirical literature, our results point out that more attention should be devoted to past transfers, and not only to bequests and contemporary *inter vivos* exchange. The fact that different self-interest motives support the mutual provision of services and assistance at different points in the life cycle needs to be taken into account when designing policies that may alter one of the two transfers. As demonstrated by Cigno et al. (1998), if the provision of public elderly care increases and reduces the future demand for help from adult children, then the rate of return in investing in the younger generation decreases, thereby affecting early downstream transfers (such as housing). Similarly, if taxation of intra-family donations increases the cost of providing economic help to adult children, then parents may not find it optimal to comply with the mutual assistance implicit contract, and therefore we may expect them to receive less informal care in the future and to depend more on public policy. The presence of mixed motives complicates the overall picture. As clearly highlighted by the impure altruist model of Cox (1987), policy implications also depend on the degree of substitutability between informal and formal care. For instance, a redistributive policy that, even implicitly, transfers money from the older to the younger generation may as well increase the quantity of the downstream transfers provided by parents to their children, as long as the parents' demand for the future informal care service is sufficiently rigid. As we find evidence of mixed motives, we cannot provide a comprehensive and neat picture of the policy implications, which would require modelling of this heterogeneity. Nevertheless, our findings suggest that a full assessment of different counterfactual policies should account for the intertemporal exchange of transfers and services between the two generations. This can be important for the design of structural models used to evaluate the impact of formal care policies, which often involve a dynamic setting (see, for instance, Byrne et al. 2009; Barczyk and Kredler 2017).

One limitation of our study, also due to the survey design, is that we are not fully able to study the differences between past tied transfers, such as the one we analyse, and other forms of economic assistance. Some of the mechanisms that we discuss are

relevant only for the housing transfer, in particular increased geographical proximity. Further research may help in understanding whether the positive relation between help with housing and the current provision of elderly care by adult children carries over to other forms of past economic assistance provided by parents, and how this intertemporal exchange is enforced.

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interests.

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