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ABSTRACT

Is There Such a Thing as a Family Constitution? A Test Based on Credit Rationing*

The paper aims to ascertain whether voluntary money transfers may be explained by the existence of self-enforcing family constitutions. We identify a circumstance in which an agent will behave differently if she is optimizing subject to a family constitution, than if she is moved by either altruistic or exchange motivations. The circumstance is the presence of a binding credit ration, which may raise the probability of making a money transfer (and the amount of money transferred) if a family constitution exists, but will have the opposite effect if the transfer is either a gift, or payments for services rendered. Allowing for possible endogeneity, we find that rationing has a positive effect on the probability of giving money, and on the amount given, if the potential giver is under the age of retirement and has children, but no significant effect if the person has no children, or is over the retirement age. This rejects the hypothesis that money transfers are motivated by either altruistic or straight exchange motives, but not the one that these transfers are governed by family constitutions.

JEL Classification: D13, J13, J14

Keywords: family constitution, altruism, exchange, private transfers, personal services

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1 Introduction

Economists and anthropologists have long been aware that intra-family transfers play a major role in developing countries.¹ What is not widely realized is that such transfers have a role to play also in developed market economies. For example, Greenwood and Wolff (1992) calculate that, between 1962 and 1983, more than half of the wealth of Americans aged 40-49, and as much as 85 percent of the wealth of those aged less than 40, came from inter-vivos transfers.²

In developed economies, money and tangible assets go mostly from parents to children. By contrast, children give parents mostly personal services (ranging from simple attention to transport and help with bureaucratic tasks). For example, the 1968-88 waves of the Panel Study of Income Dynamics conducted by the Institute for Social Research of the University of Michigan reveal that, while 24 percent of US children received money and more than 30 percent received personal services from their parents, less than 3 percent of children gave money and more than 27 percent gave personal services to their parents (Altonji, Hayashi and Kotlikoff, 2000). A similar pattern emerges from surveys conducted in other countries, for example from the 1992 *Enquete Trois Générations* conducted in France by Caisse Nationale d'Assurance Vieillesse (Attias-Donfut and Wolff, 2000), and from the 1987-91 *Indagine Multiscopo* conducted in Italy by Istituto Nazionale di Statistica (ISTAT, 1993).

The timing of these transfers is very interesting. By way of illustration, we show in Figure 1 the age distribution of transfers made and received in the Italian *Multiscopo*, but similar patterns emerge also from the other surveys mentioned. It transpires that a household is most likely to give some form of help to other households if its head is in middle life, most likely to receive it if its head is either young or old. Figures 2 and 3 show the age distribution of giving and receiving separately for money-intensive and time-intensive forms of help. While confirming the life-cycle pattern of Figure 1, these two diagrams add the important detail that the young get mostly cash, and the old mostly personal services. The percentages reported are rather low, but this is only because they refer to transfers *between* households. If we add transfers *within* households, we get orders of magnitude similar to those reported for the USA.

¹ Among economic papers, see for example Bhaumik and Nugent (2000), and Foster and Rosenzweig (2000).

² For further examples, see Danziger *et al.* (1981) Lampman and Smeeding (1983), Cox and Rank (1992), Altonji *et al.* (2000), Attias-Donfut and Wolff (2000), ISTAT (1993).

Figure 1

Help given/received by age group

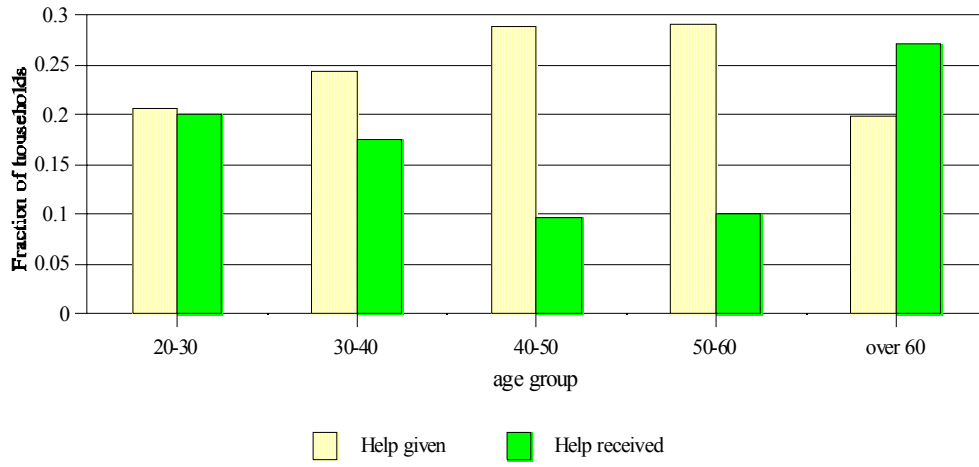


Figure 2

Monetary transfers

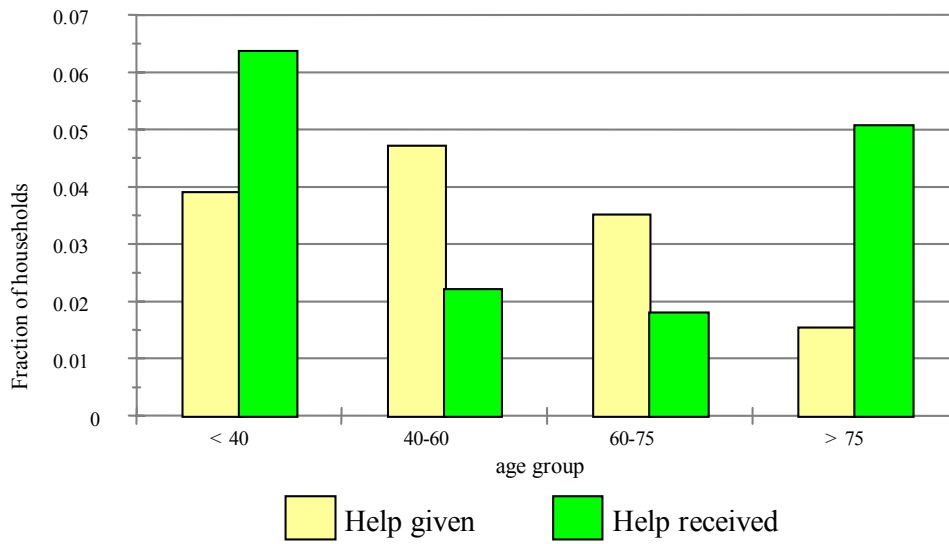
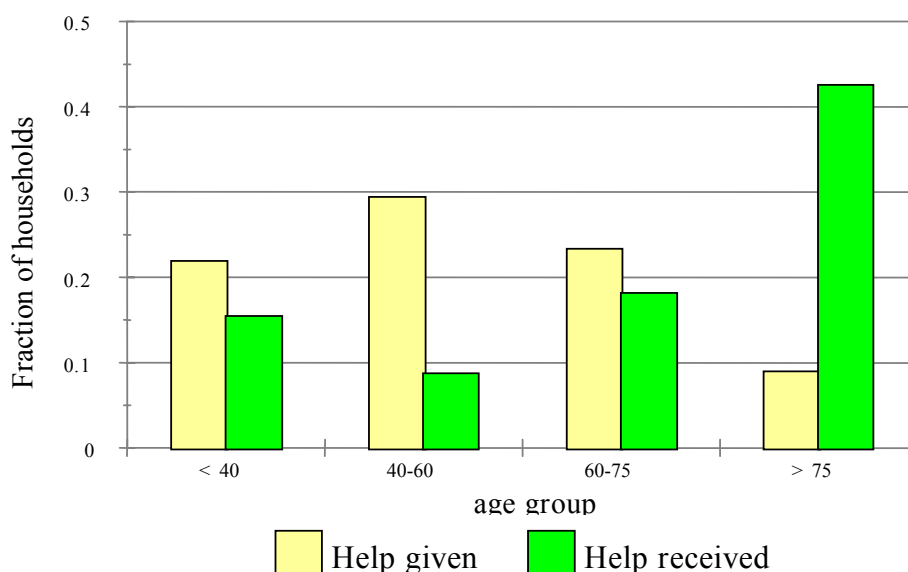


Figure 3
Transfers of personal services



The man-in-the-street view of intra-family transfers is that they are not strictly voluntary, but rather the result of some kind of obligation. A similar view is held by sociologists. Economists, by contrast, tend to consider transfer behavior as the result of individual optimization (just like the purchase of a commodity, or the supply of labour). Most of the economic literature focuses on two polar opposites. Transfers are modelled either as altruistic gifts yielding direct utility for the giver as well as for the receiver (Becker, 1974), or as payment for services rendered (Cox, 1987). An exception is Cigno (1993), who puts forward the idea of a “family constitution”, a set of unwritten, typically unspoken rules constraining the actions of family members.

The economic theory of constitutions tells us that it may be in the interest of agents to first agree on a set of basic rules, which will allow them to safely renounce the dominant strategy in a prisoner’s dilemma type of situation, and then to optimize subject to those rules (Buchanan, 1987). Cigno (1993) establishes conditions under which a family constitution is self-enforcing in the sense that it is in every member’s interest to obey it, and have it obeyed by others. Cigno (2000) finds conditions under which the arrangement is also renegotiation-proof.

Establishing what determines voluntary transfers is important for a number of reasons, including that it tells us how those transfers will be affected by public intervention. If they are genuine gifts, private transfers will tend to offset public transfers, and thus to reduce their re-distributive power (Cox and Jakubson, 1995). If they con-

stitute payment by the relatively rich for services received from the relatively poor, they will affect the government's ability to reduce income inequality, but not its ability to reduce utility inequality. But suppose that they are a reflection of family rules requiring working-age people to support their elderly parents and young children. If that were the case, transfers would be displaced by the introduction or extension of a mandatory pension scheme, rather than by horizontal redistribution (Cigno and Rosati, 1996).

In section 2 of the present paper, we outline the properties of the altruistic model, according to which private money transfers are straight gifts, and of the exchange model, according to which they are straight payments for services received. We then compare these properties with those of a model that allows for the possible existence of family constitutions. We look, in particular, at the way in which being rationed in the formal capital market affects the probability of making or receiving voluntary money transfers, and the amount given or received, under the alternative hypotheses mentioned.

It turns out from this comparison that, while raising the probability of receiving money (and the quantity received) under any of the hypotheses considered, being rationed can raise the probability of *giving* money (and the quantity given) only under the hypothesis that the rationed person has the alternative of complying with a family constitution, or of flouting it. Were we to observe that credit rationing increases the probability of giving money, or the amount given, that would contradict the hypothesis that monetary transfers are either gifts or payment for services rendered. Were we to observe that credit rationing has the mentioned effect only if the giver is in middle life, and has children, that would be consistent with the hypothesis that these transfers are due to the presence of family constitutions.

In section 3, we use one of the Bank of Italy's biannual household surveys to test the hypotheses from which these implications descend. These surveys give information on household income, assets, and access to credit. Normally, they also provide information on money transfers received from other households. Exceptionally, the 1991 survey provides information on money *given* to other households. This unique data set gives us the opportunity to test the hypothesis that the behavior of middle-aged parents is governed by family constitutions.³ Section 4 discusses the results.

³The Bank of Italy survey does not provide information on personal services. That can be found in the almost contemporary *Indagine Multiscopo*, on which figures 1 to 3 are based. Since the latter does not give information on income, assets and access to credit, however, we can only use it for

2 A sketch of the theory

The properties of altruistic and exchange models are too well known to require anything more than a brief outline. In economic models, altruism is generally taken to mean that a person derives direct utility from that of others (Becker, 1974). If all that gives utility is goods that money can buy, and assuming that the utility of the beneficiary is regarded by the benefactor as a normal good, altruism implies that both the probability of giving money, and the amount given, are increasing functions of the giver's, and decreasing functions of the receiver's wealth.⁴ This prediction continues to hold, indeed it is reinforced, if we assume that people derive utility also from the personal services of their close relatives, and that these services do not have perfect market substitutes (otherwise there would be no point in distinguishing between money and personal services).⁵ Optimization does in fact entail that the benefactor will give the combination of money and time that provides the beneficiary with any given level of utility at the lowest possible cost to the former. A person with large wealth (or high opportunity cost of own time) will then give his near and dear mostly money, while a person with small wealth (or low opportunity cost of own time) will give mostly personal services. Much the same is true if money transfers are not gifts, but payment for services rendered. The giver is again likely to be a person with large wealth (or high opportunity cost of own time), the receiver a person with small wealth (or low opportunity cost of own time). The highest price that the former will be willing to pay for a personal service, and the lowest price that the latter will be willing to accept in order to perform a service, will be increasing functions of income or wealth. Therefore, in this case too, the probability of a monetary transfer is an increasing function of the giver's, and a decreasing function of the receiver's wealth.⁶ Credit rationing has qualitatively the same effect under either of these hypotheses. Since a binding ration reduces a person's wealth, the probability of a monetary transfer (and the amount transferred given that a transfer is made) is lower if the potential giver is rationed,

descriptive purposes.

⁴Under the strong assumption of income pooling, the two effects should add up to unity. No empirical study has ever found that (see, for example, Altonji, Hayashi and Kotlikoff, 1995).

⁵If an elderly person were indifferent between the services of a paid nurse and those of a grown-up daughter, she would also be indifferent between receiving an hour of her daughter's time, or a sum of money sufficient to hire a nurse for an hour.

⁶Given that an exchange takes place, the amount transferred increases with the giver's wealth, but it may increase also with the receiver's wealth, because the supply price will rise.

higher if the potential receiver is rationed.

The constitution hypothesis requires a slightly lengthier exposition.⁷ If a transfer is made in exchange for some kind of return, the person making it must be reasonably sure that the other party will deliver his side of the deal. That is not a problem if the exchange is simultaneous (“if you visit Grandma, she will give you a present”), or occurs on a regular basis (“I shall give you a dollar every time you sweep the yard”). It is a problem, however, if the deal is that a middle-aged person will give money or personal services to a young person in exchange for money or personal services some twenty years later, when the young person will have become middle-aged, and the middle-aged person will have become old. Such a deal could be mutually advantageous, either because the young have difficulty in borrowing money from the capital market (and are thus willing to pay more than the market rate of interest), or because the personal services envisaged by the deal have no perfect market substitutes (and the person receiving them is thus willing to pay more than the market wage rate), but it will not come off in the absence of a contract-enforcement mechanism.

The mechanism suggested in Cigno (1993) is a “family constitution”, a set of unwritten, typically unspoken, rules prescribing the amount of money that each person must pay to each of her children when they are young, and to each of her parents when they are old. Compliance is ensured by a clause, embedded in the constitution, that excuses a person from giving anything to the parent who unjustly failed to support a grand-parent. A person reaching middle life has then a choice between two strategies. One, called “go it alone”, consists of ignoring the family rules, and providing for her own old age by saving (behaving, in other words, in the way hypothesized by life-cycle theory). The other, called “comply”, consists of obeying the rules, and providing for old age by implicitly investing in children (acquiring credit towards her children by supporting them while they are young). Unlike going it alone, complying has a fixed cost (fixed in the sense that it does not depend on how many children the agent has and, therefore, on how much she will get from them in old age), represented by the amount that the agent must transfer to her own parents.

The return to saving is the market interest factor. The marginal⁸ return to investing in children is the ratio of money received from, to money given to (or spent on) them. A necessary and sufficient condition for a constitution to be self-enforcing, in the sense that it supports a sub-game perfect Nash-equilibrium, is that the pay-off to going it

⁷For a full exposition, see Cigno (2004).

⁸Marginal, not average, because of the fixed cost of transfers to the investor’s own parents.

alone is no larger than the pay-off to complying (Cigno, 1993).⁹ This implies that the marginal return to children must be sufficiently larger than the interest factor to allow the agent to recover the cost of the transfers she has to make to her own parents. In the absence of risk, compliers would then borrow as much as possible from the capital market, and invest in children. Since nobody can be allowed to borrow without limit, all compliers would then be rationed in the capital market. That is not true, however, if investing in children is risky, in that case a risk-averse complier may well refrain from borrowing her full ration, and may even want to do some precautionary saving (Rosati, 1996).

Cigno and Rosati (2000) reformulate the constitution model by turning the requirement to provide the young and the old with a certain amount of money into one of providing them with a certain level of utility.¹⁰ Compliers will then give their children and parents the combination of money and personal services that minimizes the cost of providing the appointed beneficiaries with the specified level of utility (as altruists would, except that the latter can decide on how much utility to give). Since the money equivalent of the utility of receiving personal services without a perfect market substitute can be very high, the possibility of satisfying the constitutional requirement with services rather than money makes it more likely that a family constitution will be able to offer a higher return than the capital market, hence that it will be self-enforcing.

Some of the behavioral implications of the constitution story are no different from those of altruism or straight exchange.¹¹ Compliers are likely to give money if their wealth is high, personal services if their wealth is low. Conversely, they are likely to receive money if their wealth is low, personal services if their wealth is high. Other predictions, however, are quite different. Suppose, for example, that the government were to introduce or expand an actuarially fair pension system. Altruistic and exchange models predict that such a policy would not affect transfer behavior,¹² because it

⁹Cigno (2000) shows that a self-enforcing constitution is renegotiation-proof if the intergenerational allocation of consumption associated with it is not Pareto-dominated by that associated with any other one.

¹⁰That, notice, is not the same as requiring the middle-aged to transfer money to the young and the old, and letting the latter buy personal services as in the straight exchange model, because the stronger party (the middle aged) could exploit the other two. The (limited) efficiency properties of family constitutions would then be lost.

¹¹“Straight” because the constitution model also implies exchange, but of a multilateral kind that involves three generations.

¹²Except for the distortion of marginal incentives if pension contributions increase with labour.

would not change the wealth position of the persons compulsorily included in the scheme.¹³ The constitution model, by contrast, predicts that behavior may change. If a sufficiently large part of an agent's demand for old-age consumption is taken care of by the pension, and given that the agent can avoid participating in the family scheme but not in the government one, the difference between the return to children implied by the family constitution and the return to saving offered by the market might not in fact be large enough to recover the fixed cost of complying. A number of people who would have otherwise complied with their respective family constitutions might then go it alone. Aggregate household saving may then rise, and private transfers fall.

Another important difference between the constitution story and the other two hypotheses considered has to do with the effect of credit rationing. We have already noted that both the altruistic and the exchange model predict a negative effect of rationing on the probability of making a money transfer, and on the amount of money transferred. That is not true of the constitution model. Suppose that the market rate of interest is 3 percent. Suppose that, by supporting her parents at some prescribed level, the agent could acquire the right to receive a safe 10 percent return (in money or services) on money or services invested in children. Were she allowed to borrow from the market and invest in her children, the agent would obviously do so. But, the fact that it is safe to invest in one's own children does not mean that it is safe to lend to the person making such an investment. Since an entitlement arising from an informal family arrangement cannot be ceded to others as if it were a commercial bond,¹⁴ we must then realistically assume that the agent will not be allowed to borrow against such an informal entitlement. Her ability to borrow from the market will depend on other considerations, such as ability to offer collateral.

Let us then see how credit ration could affect transfer behavior. Let the agent's preferences be such, that her utility is maximized if she borrows a certain amount $-S$ from the market at the going interest rate, and gives nothing to anybody. Were she allowed to borrow that amount, the agent would go it alone. If her credit ration were sufficiently smaller than $-S$, however, the agent might be better-off complying. If that were the case, she would support her parents at the level prescribed by her family constitution, and invest in her children. The imposition of a binding ration could thus

¹³That is obviously not true if the system is either more or less than actuarially fair, because in that case the participant receives an implicit subsidy, or is charged an implicit tax.

¹⁴Indeed, if it is an entitlement to receive the services of the original creditor's children, it would be of no use to a third party such as a bank.

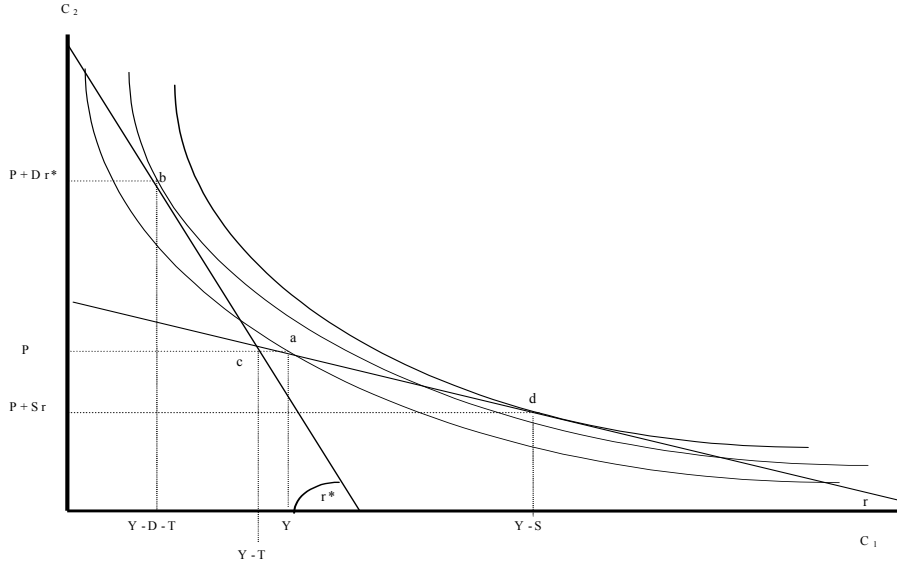
induce agents, who would have otherwise given nothing to anybody, to make transfers to their parents and children.

The argument is illustrated in Figure 4, adapted from Cigno (1993), for the basic case where transfers are exclusively monetary. An agent in middle life has current income Y , and future (old-age) income P . Her credit ration is B . Let C_1 denote current consumption, C_2 future consumption, D current transfers to children, and T current transfers to parents. If the agent decides to go it alone, the relevant budget constraint is represented by the straight line through point a , with slope equal to the market interest factor, r . If she decides to comply, the relevant budget line is the one through point b , with slope equal to the implicit return offered by the family constitution, $r^* > r$. Her budget set is thus delimited by the broken line through points b, c and d . If B is at least equal to the amount $-S$, the agent “goes it alone”. The optimum is then at point d , where she saves the negative amount S ($-B < S < 0$), and makes no transfers. In old age, she will consume $P + Sr < P$. But suppose that B is smaller than $-S$, say zero. The agent will then comply, which means paying T to her parents, and D to her children. The optimum is in that case at point b , where current consumption is $Y - D - T$, and old-age consumption $P + Dr^* > P$. Therefore, credit rationing increases both the probability of making a transfer, and the amount transferred.

The diagram assumes that children are safe as houses. In reality, however, domestic investments are risky, because grown-up children might not want,¹⁵ or be able to, pay parents their dues (Rosati, 1996). As already mentioned, risk-averse compliers may then find it optimal to borrow less than their full ration. It will still remain true, however, that some agents will make transfers (“comply”) if they are effectively rationed, make no transfers (“go it alone”) if they are not. This, let us not forget, is peculiar to the constitution model. The other models considered predict that credit rationing will make agents less ready to part with money.

¹⁵In other words, the economic environment may change in such a way, that the constitution is no longer self-enforcing.

Figure 4
Effects of credit rationing



3 Empirical evidence

Discriminating empirically between the constitution story and the two alternatives is not easy, because all these models have common properties descending from the common assumption that agents optimize. We have identified two possible areas where the predictions of the constitution model are the opposite of those of either altruism or straight exchange. One has to do with the effect of pension policy, the other with the effect of credit rationing. Aggregate time-series evidence on the effects of pension policy in Germany, Italy, Japan, UK and USA appears to reject altruism, but not the constitution hypothesis.¹⁶ Here, we carry out a test based on the effect of credit rationing on transfer behavior in Italy.

What we need to show is that observed transfer behavior is consistent with optimization in the domain restricted by the presence of a family constitution, and not in the domain restricted by its absence. As anticipated in Section 1, we use the 1991

¹⁶See Cigno and Rosati (1992, 1996, 1997), and Cigno, Casolaro and Rosati (2003).

Bank of Italy household survey because, unlike previous and subsequent editions, it reports on voluntary money transfers made, rather than received.¹⁷ As pointed out in Section 2, the observation of transfers made allows one to discriminate between the constitution and other models of transfer behavior, while the observation of transfers received does not.

The survey covers 24,930 individuals living in 8,188 households. It provides information on the household as a whole, and on its individual members. Information about individuals includes the age, sex, relationship to the household head (child, wife, parent, etc.), education, labour market status by professional level and sector of activity, income by source, and assets (which may include whole businesses, real estate, jewelry and other durables, as well as net financial assets) of each resident household member. It also gives information on the number and ages (but not income or assets) of non-cohabiting parents and children of household members. Household-level information includes the place of residence. After deleting some observations due to missing information on some variables of interest, the sample reduces to 8093 households. Descriptive statistics for the whole sample, and for two sub-samples of interest are reported in Table 1.

One of the questions asked is about monetary help in excess of 500 000 liras (around 350 euros at today's prices) given by any household member to non-coresident "friends or relatives" in the course of the interview year.¹⁸ While only affecting a minority (16 percent) of households, such transfers are quite substantial (on average, 7.2 percent of the giver's disposable income) where they do occur. Since the survey does not provide information on the identity or characteristics of the beneficiary, these will have to be inferred.

Another set of questions asks whether, in the interview year, any household member was denied credit by a financial institution, or refrained from applying in the belief that it would be denied.¹⁹ Although only 6 percent of those who made transfers

¹⁷Incidentally, this asymmetry prevented us from exploiting the small panel element contained in this series of surveys.

¹⁸Alimony to a former spouse, and mandated support for children living with a former spouse, are explicitly excluded.

¹⁹The actual questions were: "In the course of 1991, did you or any other member of your household have a loan application rejected or curtailed by a bank or other financial institution?" and "In the course of 1991, did you or any other member of your household consider applying to a bank or other financial institution for a loan, but desisted thinking that the application would be rejected?". We shall consider "rationed" any household whose members answered yes to either of those questions

were rationed in the credit market, as many as 24 percent of rationed households (as against 16 percent of the total) made transfers.²⁰ Therefore, rationed households are more likely to make transfers. Since we are not told which household member (the head, the head's partner, or any of their coresident parents and children) is rationed, this also will have to be inferred.

3.1 Probability of being rationed and probability of making a money transfer

Since both the altruistic and the exchange model predict that credit rationing reduces the probability of making a money transfer, finding that this effect is positive would reject both of these models. By contrast, the constitution model says that credit rationing may induce a person to make a transfer in order to qualify for filial support in old age. Were we to find that credit rationing increases the probability that a person under the age of retirement with children will make a transfer, that would then be consistent with the constitution hypothesis. The latter would be rejected if rationing increased the probability that persons without children, or over the age of retirement, make transfers.

We thus examine households with head under the age of 65,²¹ and with children, separately from households with heads aged at least 65, or without children. For each sub-sample, and for the whole sample, we want to estimate the effect of credit rationing on the probability of making a money transfer. Since a binding credit ration is partly the result of choice (if one does not wish to borrow, the ration cannot be binding), however, there is an endogeneity problem. To deal with it, we use an instrumental-variable probit model.

To identify the auxiliary probit for the probability of being rationed, we use a dummy for home ownership, and geographical dummies for area of residence. The justification for using the former as an identifying variable is that, since real estate is less

(but nothing of substance changes if we consider rationed only those who answered yes to the first).

²⁰On average, rationed households transfer more than the rest (436 000 liras, as against 353 000 for the whole sample). If we exclude households not making transfers, however, the mean is lower for rationed households (1 781 000 liras) than in the sample as a whole (2 164 000 liras).

²¹The age of 65 is the mandatory age of retirement in Italy. A number of people retire officially before that age. Given the Italian labour market structure, however, a great number of these early retirees remains active on the secondary labour market (in some cases beyond the age of 65). On balance, we thus find it reasonable to regard 65 as the age when most people actually stop working.

risky than other assets, and thus most acceptable as collateral by lending institutions in Italy as elsewhere, home ownership is an obvious determinant of the probability to get credit. It could be objected that, when the household's net worth is controlled for, home ownership is an indicator of portfolio composition. Since homes are less liquid than other assets, there could then be an independent portfolio-composition effect of home ownership on transfer behavior. We tested for it in the transfer probability regression, but the dummy for home ownership turned out to be insignificant.²²

The justification for using the area of residence as an identifying variable is that, for historical and structural reasons, credit is notoriously more difficult to obtain, and more expensive, in the southern than in the northern regions of Italy. To this it could be objected that the area may act as a proxy for family ties, allegedly stronger in the South than in the North, and that it could thus have an independent effect on transfer behavior. This objection would have some force if we were talking of the region of birth (not available in the data), rather than of the region of residence. During the 1950s and early 1960s, there was in fact massive migration from the South to the North of Italy, and the phenomenon persists on a smaller scale even now. Even if it were true that family ties are stronger in Southern than in Northern cultures, we would thus have to assume that people change culture very quickly as they migrate from the South to the North, in order to be able to argue that the place of residence has a direct effect, independent of credit availability, on the probability of making a transfer.

The first-stage regressions estimate the effect of all the independent variables, including the identifying ones, on the probability of being rationed. The results, presented in Table 2, show that, in the two sub-samples as in the full sample, the probability of being rationed in the credit market is lower for home owners, and decreases as the place of residence moves from the South (the reference area) to the North.

In addition to home ownership and place of residence, the list of first-stage regressors includes:

- i.** current household income, net asset holdings, and a dummy for having received assets in the past;
- ii.** the number of children and parents of the household head, and of the head's wife, differentiated by age group, and by whether they live in or out the household;

²²Results are available on request.

- iii. other personal characteristics of the household head (age, sex, education, sector of activity).

Using the first-stage results, we computed instrumental variable probit regressions for the probability of making a transfer in the full sample, and in the two sub-samples. The results are reported in Table 3.²³ In the full sample, credit rationing has a significantly positive effect on the probability of giving money. Other things being equal, an increase of 1 percent in the probability of being rationed raises the probability of making a transfer by 0.21 percent. Credit rationing has a positive and significant effect also in the sub-sample of households with head under the age of 65 and with children, and the effect is stronger than in the full sample (an increase of 1 percent in the probability of being rationed increases the probability of making a transfer by 0.44 percent). By contrast, credit rationing has no significant effect in the sub-sample of households with head aged 65 or over, or without children. These findings reject the null hypothesis that money transfers are made for either altruistic or exchange motives.

In the full sample, and in both sub-samples, income and assets have a significantly positive, but extremely small effect. Having received assets in the past (by inheritance, or otherwise) also increases the probability of making a cash transfer. These findings lend themselves to a number of possible interpretations, but straight exchange seems unlikely to be one of them. Altruism is consistent with the finding of a positive correlation between past receipts and current transfers, but not with the finding that income and assets have little effect on the probability of making monetary presents. By contrast, the constitution story is consistent with both findings, because the decision whether to comply or go it alone depends primarily on a comparison between the market rate of interest and the marginal return to children.

In the full sample, and in the first sub-sample, we find that the probability of giving money to a member of another household is significantly and positively affected by

²³To check that the endogeneity problem is taken care of by this two-step procedure, we used a version of the test proposed by Smith and Blundell (1986). As originally formulated, this test is applicable to the case where the explanatory variable suspected of being endogenous is continuous. As is common practice (see, for example, Rivers and Vuong, 1988, or Vella, 1992) in the case of a binary variable, we approximated the residuals of the probit for being rationed with the Mills ratio. In all samples, the Mills ratio generated by the probit for being rationed is uncorrelated with the probability of making a transfer. The P-value of the Mills ratio is 0.6119 for the whole sample, 0.778 for the first sub-sample, and 0.4612 for the second sub-sample.

the number of children aged up to 30 living out of the parental home, and negatively affected by the number of children living in. The parents of the household head or of the head's partner, living either in or out of the household, have no significant effect. We thus infer that money transfers go essentially to the children of the household head, or of the head's partner, and that this applies not only to transfers between households, but also to transfers (unrecorded in the survey) within households.

This does not necessarily mean that elderly parents get nothing. It may mean that transfers to the old are in the form of personal services. All the theories considered (altruism, exchange, constitution) do in fact predict that personal services will go to the relatively rich, and money to the relatively poor. In view of the fact that, in Italy as in other continental European countries, a generous public pension system makes the old relatively well provided with money,²⁴ these theories lead us to expect that money will go mostly to the young, and personal services mostly to the old. Figures 2 and 3, constructed with data from the almost contemporaneous *Indagine Multiscopo*, confirm that this is indeed the case.

In the second sub-sample, the number of children living with their parents, the number of children aged up to 30 living away, and the number of parents (of either the household's head or the head's partner, living either in or out of the household) have no significant effect on the probability of making a money transfer. Only children over the age of 30 living away from the parental home increase the probability that the households in this sub-sample will make a money transfer (obviously, this applies only to households with children, hence with head over the age of retirement).

The probability of giving money increases also with the household head's age and level of education, and is higher if the head is male (but the effect is significant only at the 10% level). Households with head working in agriculture or in the industrial sector are less likely to make transfers than households with head in the private service sector (the reference group). Working in the public sector has no significant effect. By contrast, in the second sub-sample, households with head working in the public sector are more likely to make transfers. The effects of these control variables have no obvious interpretation, but confirm that the two sub-samples of households are indeed different.

There may be also differences between the two groups of households included in the second sub-sample, namely between older households, and childless households of any

²⁴This will become less and less true as recent pension reforms come on stream, but was very much true in 1991 Italy.

age. In particular, the effect of credit rationing on the probability of making a transfer by a household with head over the age of retirement could be different from the effect of credit rationing on the probability of making a transfer by a younger household without children. To check for this possibility, we re-estimated the instrumental variable probit model on the second sub-sample including only households without children. If these households make transfers, it will obviously be for reasons other than compliance with family rules. If they do it for altruistic or exchange reasons, we should find that rationing has a negative effect on the probability of giving. We find that being rationed has no significant effect on the probability of making a transfer.²⁵ Therefore, altruism and straight exchange, but not the constitution hypothesis, are again rejected.

Since the question about access to credit refers to any household member, the rationed person could be a coresident adult, rather than the head or the head's partner. For our purposes, it is thus important to know whether the effect of rationing remains positive when we leave out the couple's grown-up children and elderly parents living in. In order to do that, we restricted the first sample to households where there are neither children over the age of 18, nor elderly parents (of the household head, or the head's partner) living in. The results, reported in Table 4, show that the effect of credit rationing is still positive and significant. This is consistent with the constitution story.

3.2 The amount of money transferred

Our final step was to estimate a tobit model predicting the amount of money transferred, given that a transfer is made, as a function of the same variables used to explain the probability of making a transfer.²⁶ The results for the full sample and for each sub-sample are reported in Table 5. The marginal effects (elasticities in the case of continuous variables) are computed conditionally on a transfer being made.

In the first sub-sample, an increase of 1 percent in the probability of being rationed raises the amount transferred by about 0.09 percent, and the effect is significant. The transfer maker's income and assets have very small effects on the amount of money transferred (the marginal elasticities are respectively 0.07 and 0.03).²⁷ This is

²⁵The P-value of the coefficient on rationing is 0.387.

²⁶When we examine the determinants of transfer amounts, we do not control for the probability of making a transfer. Therefore the results have to be interpreted conditional on a transfer being made.

²⁷The difference in the size of the two effects is hardly surprising in view of the low liquidity of the asset variable (which, recall, is defined to include whole family businesses, property, jewels, etc.).

consistent with the hypothesis that, once an agent has decided to comply, her transfer behavior is conditioned by the family constitution. We also find that an additional child living at home reduces the amount of money transferred to non-residents by about 107,000 liras (a reduction of about 5 percent from the average transfer for this sub-sample, shown in Table 1). A child not older than 30 living away from the parental home raises that amount transferred by about 155,000 liras (an increase of about 7 percent on the average).

In the second sub-sample, the probability of being rationed has no significant effect on the amount transferred. The effect of the transfer maker's income is a little larger than in the first sub-sample (the marginal elasticity is 0.09), while the effect of the transfer maker's assets is a little smaller (a marginal elasticity of 0.02).

We can see by looking at Table 1 that the total amount of money transferred by households with children, and with head below retirement age, accounts for nearly sixty percent of the total amount transferred by all households.²⁸ If it is true that the transfers made by this category of households are governed by family constitutions, up to 60 percent of all the money transferred can be explained by the constitution model.

4 Discussion

The paper aimed to ascertain whether voluntary money transfers (or a fraction of them substantial enough to be empirically relevant) could be explained by the existence of family constitutions prescribing the level at which a working age person should support her young children and elderly parents. The hypothesis that such a person may find it advantageous to first acquiesce to a family constitution, and then optimize subject to it, was tested against the alternatives usually considered in the economic literature, namely that money transfers are either gifts, or straight payment for services rendered. Our strategy was to identify a circumstance in which an agent could be expected to behave differently if there is a family constitution, than if there is not. The circumstance is the presence of a binding credit ration, which may raise the probability of making a money transfer, and the amount transferred, if a family constitution exists, but will reduce both the probability and the amount if transfers are either gifts, or payment for services received.

²⁸The probability of making a transfer, and the amount transferred, is about the same in both sub-samples. Since the first sub-sample contains about 60 percent of all households, it follows that households in this sub-sample transfer about 60 percent of the total.

Allowing for the possibility that credit rationing is endogenous, and therefore that agents complying with a family constitution might be more likely to use their credit rations to the full than agents who do not comply, we found that rationing has a positive effect on the probability of making a transfer for agents (household heads and their partners) under the age of retirement with children, but an insignificant effect for agents over the age of retirement, or without children. This rejects the hypothesis that money transfers are motivated by either altruism or straight exchange, but not the alternative hypothesis that transfers are governed by family constitutions. These findings are consistent with time-series evidence of the effects of pension policy on aggregate saving and fertility behavior, not only in Italy, but also in Germany, Japan, UK and USA.²⁹

In a context like the Italian one, where a generous public pension system leaves the old comparatively well provided with money, all the explanations of transfer behavior that we have examined imply that private money transfers will go primarily to the young, and personal services primarily to the old. The latter cannot be verified on the Bank of Italy data used for the tests, because this survey is silent on the subject, but the almost contemporaneous *Indagine Multiscopo*, used for descriptive purposes in section 1, and surveys relating to other countries also mentioned in that section, confirm that personal services do indeed go primarily to the old. Since the only hypothesis survived from the credit rationing tests predicts that people in middle life must make transfers to their parents, as well as to their children, if they want the latter to do the same, it is comforting to have subsidiary information that elderly parents get personal services.

Coherently with the constitution hypothesis, we also found that voluntary money transfers show very low sensitivity to the donor's income and assets. This implies that redistributive policies are unlikely to be offset to any large extent by countervailing changes in private transfer behavior. This is consistent with the finding of Cox and Jakubson (1995) that voluntary transfers are little affected by redistributive policies. The problem is rather that public pensions will reduce the scope for intra-family arrangements (the probability that a self-enforcing family constitution exists).³⁰ The same may be said of the development of financial markets,³¹ and of policies aimed at facilitating access to credit. Since neither the market nor the public sector provides

²⁹See Cigno and Rosati (1992, 1996, 1997), Cigno, Casolaro and Rosati (2003).

³⁰Cigno and Rosati (1992, 1996, 1997), and Cigno, Casolaro and Rosati (2003), find indirect time-series evidence of this in a number of countries.

³¹Cigno and Rosati (1992) find evidence of this in Italy.

perfect substitutes for the services of one's own parents and children, these otherwise desirable developments may thus have undesirable side-effects.

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Table 1 – Descriptive statistics

Variable	All households		Head under 65, with children		Head 65+, or without children	
	Mean	st.dev	Mean	st.dev	Mean	st.dev
Transfers made	0.16	0.16	0.17	0.37	0.16	0.36
Value of tran. (million liras)§	2,16	3,18	2,13	3,5	2,20	2,4
Credit is rationed	0.04	0.19	0.05	0.22	0.01	0.11
Income (million liras)	30,2	18,6	34	18,9	23,7	16,2
Assets (million liras)	163	263	181	281	134	224
Received assets	0.22	0.42	0.22	0.42	0.22	0.41
N. of children at home	1.17	1.13	1.71	1.01	0.25	0.61
N. of children ≤30 away	0.18	0.53	0.25	0.61	0.06	0.31
N. of children >30 away	0.53	1.11	0.21	0.64	1.08	1.48
N. of parents ≤60 away	0.13	0.43	0.13	0.44	0.12	0.43
N. of parents >60 away	0.53	0.73	0.72	0.77	0.21	0.52
N. of parents at home	0.03	0.16	0.03	0.16	0.03	0.16
Head is male	0.82	0.39	0.91	0.29	0.67	0.47
Age of head	53.16	15.04	47.66	9.99	62.46	17.38
Head's education (years)	8.37	4.40	8.81	4.20	7.62	4.62
Head works in agriculture	0.09	0.29	0.07	0.25	0.14	0.34
Head works in industry	0.32	0.47	0.34	0.48	0.28	0.45
Head works in public sector	0.28	0.45	0.28	0.45	0.27	0.44
Head works in service sector	0.31	0.46	0.30	0.46	0.32	0.46
Home is owned	0.61	0.49	0.62	0.49	0.60	0.49
Resident in North West	0.23	0.42	0.21	0.41	0.25	0.44
Resident in North East	0.19	0.39	0.18	0.38	0.20	0.40
Resident in Centre	0.20	0.40	0.20	0.40	0.22	0.41
Resident in South	0.38	0.49	0.41	0.49	0.33	0.47
N. of observations	8093		5086		3007	

§ only for households that make transfers

Table 2 – First stage regressions: probit for being rationed

Variables	All Households		Head under 65, with children		Head 65+, or without children	
	coeff.	t-stat	coeff.	t-stat	coeff.	t-stat
Income (million liras)	0.000	4.09	0.000	3.2	0.000	1.79
Assets (million liras)	0.000	-1.08	0.000	-0.97	0.000	-0.62
Received assets	0.158	2.35	0.176	2.38	0.089	0.52
N. of children at home	0.128	5.02	0.074	2.3	0.267	3.17
N. of ch. <=30 away	0.061	1.22	0.025	0.47	-0.271	-0.73
N. of ch. >30 away	0.012	0.3	0.042	0.74	0.000	0
N. parents <=60 away	-0.011	-0.16	0.041	0.52	-0.128	-0.87
N. parents >60 away	-0.034	-0.77	-0.015	-0.33	-0.152	-1.07
N. parents at home	0.074	0.47	0.149	0.84	-0.178	-0.5
Head is male	0.071	0.75	0.010	0.08	0.114	0.63
Age of head	-0.017	-5.13	-0.011	-2.48	-0.028	-4.29
Head's education (yrs)	-0.005	-0.59	0.000	-0.01	-0.021	-1.03
Head in agriculture	-0.085	-0.72	-0.065	-0.47	-0.090	-0.35
Head in industry	0.047	0.66	0.057	0.73	0.004	0.02
Head in public sector	0.033	0.46	0.052	0.64	-0.046	-0.25
Home is owned	-0.229	-3.6	-0.261	-3.7	-0.168	-1.06
Resident in N. West	-0.271	-3.44	-0.264	-2.98	-0.404	-2.18
Resident in N. East	-0.327	-3.82	-0.331	-3.44	-0.351	-1.8
Resident in Centre	-0.151	-1.97	-0.124	-1.47	-0.428	-2.05
constant	-1.121	-5.11	-1.234	-4.51	-0.449	-0.95
N. of observations	8093		5086		3007	
Pseudo R ²	0.079		0.038		0.075	

Table 3 - Instrumental variable probit for making a transfer

Variables	All households			Head under 65, with children			Head 65+, or without children		
	coeff.	t-stat	marg. eff or elast.	coeff.	t-stat	marg. eff or elast.	coeff.	t-stat	marg. eff or elast.
Credit is rationed*	3.579	4.22	0.21	5.534	5.12	0.439	2.198	1.30	0.046
Income (million liras)*	0.000	5.59	0.29	0.000	3.02	0.213	0.000	4.49	0.360
Assets (million liras)*	0.000	6.67	0.12	0.000	6.79	0.171	0.000	2.64	0.068
Received assets	0.122	2.93	0.030	0.046	0.86	0.011	0.216	3.19	0.053
N. of children at home	-0.088	-4.20	-0.021	-0.105	-3.84	-0.025	-0.075	-1.40	-0.017
N. children <=30 away	0.100	3.14	0.024	0.108	2.89	0.026	0.041	0.44	0.009
N. children >30 away	0.039	1.99	0.009	-0.005	-0.13	-0.001	0.051	2.24	0.012
N. of parents <=60 away	-0.020	-0.39	-0.005	-0.013	-0.20	-0.003	-0.077	-0.86	-0.018
N. of parents >60 away	0.023	0.76	0.005	0.012	0.36	0.003	0.083	1.17	0.019
N. of parents at home	0.016	0.14	0.004	0.053	0.40	0.013	-0.121	-0.63	-0.026
Head is male	0.096	1.87	0.022	0.147	1.77	0.033	0.040	0.61	0.009
Age of head	0.007	3.14	0.002	0.010	2.72	0.002	0.004	1.20	0.001
Head's education (years)	0.029	6.00	0.007	0.033	5.66	0.008	0.015	1.83	0.003
Head works in agricult.	-0.149	-2.10	-0.033	-0.208	-2.04	-0.045	-0.086	-0.85	-0.019
Head works in industry	-0.130	-2.87	-0.030	-0.166	-3.01	-0.038	-0.074	-0.94	-0.016
Head in public sector	0.042	0.94	0.010	-0.035	-0.62	-0.008	0.166	2.16	0.041
constant	-2.027	-13.60		-2.225	-10.20		-1.850	-7.29	
N.of observations		8093			5086			3007	
Log-likelihood		-3402.63			-2151.14			-1238.50	

* For these variables, the values reported are elasticities rather than marginal effects.

Table 4 - Instrumental variable probit for making a transfer for households consisting only of parents, and children under 18.

Variables	coeff.	t-stat	marg effect (or elast.)
Credit is rationed*	11.022	5.15	0.997
Income (million liras)*	0.000	1.20	0.161
Assets (million liras)*	0.000	5.85	0.237
Received assets	0.122	1.65	0.029
N. of children <=18 home	-0.137	-2.84	-0.031
N. of children <=30 away	0.163	2.94	0.037
N. of children >30 away	0.028	0.46	0.006
N. of parents <=60 away	0.047	0.65	0.011
N. of parents >60 away	0.091	1.92	0.021
Head is male	0.031	0.25	0.007
Head's age	0.017	3.11	0.004
Head's education (years)	0.018	2.10	0.004
Head works in agriculture	-0.387	-2.46	-0.072
Head works in industry	-0.417	-5.33	-0.089
Head works in public sector	-0.109	-1.43	-0.024
constant	-2.621	-7.99	
N. of observations		2781	
Log likelihood		-1127.9901	

*For these variables, the effects reported are elasticities.

Table 5 - Amount of money given – Tobit instrumental variable

Variables	All households			Head under 65, with children			Head 65+, or without children		
	coeff	t-stat	marg. eff or elast.	coeff.	t-stat	marg. eff or elast.	coeff.	t-stat	marg. eff or elast.
Credit is rationed*	13567.85	3.48	0.040	22316.11	4.34	0.086	7207.754	1.02	0.008
Income (million liras)*	0.036	7.08	0.084	0.028	4.54	0.073	0.044	4.93	0.090
Assets (million liras)*	0.002	7.27	0.026	0.000	6.98	0.033	0.002	3.16	0.018
Received assets	657.758	3.46	128.689	283.748	1.11	54.750	1078.241	3.85	214.844
N. of children at home	-450.553	-4.64	-86.181	-563.068	-4.27	-107.649	-271.363	-1.20	-51.861
N. of ch. <=30 away	736.534	5.10	140.884	813.862	4.62	155.596	32.464	0.08	6.204
N. of ch. >30 away	152.679	1.68	29.204	5.082	0.03	0.972	185.503	1.92	35.452
N. parents <=60 away	-115.762	-0.48	-22.143	-62.749	-0.20	-11.997	-369.839	-0.96	-70.681
N. parents >60 away	65.130	0.47	12.458	43.001	0.26	8.221	223.510	0.75	42.726
N. parents at home	236.412	0.48	45.846	326.094	0.52	63.492	-189.227	-0.24	-35.732
Head is male	412.467	1.73	77.653	623.504	1.55	115.754	198.738	0.69	37.810
Head's age	32.964	3.34	6.305	47.193	2.70	9.022	20.892	1.49	3.993
Head's education (yrs.)	124.911	5.67	23.893	142.633	5.09	27.268	78.066	2.22	14.919
Head works in agricult.	-565.332	-1.72	-105.176	-624.661	-1.28	-115.740	-400.153	-0.93	-75.007
Head works in industry	-545.016	-2.59	-103.039	-782.624	-2.91	-147.567	-170.305	-0.51	-32.385
Head in public sector	241.070	1.16	46.418	-74.147	-0.27	-14.149	670.809	2.09	130.997
constant	-9859.934	-13.61		-10954.16	-9.97		-8465.694	-7.64	
N. of observations	8093			5086			3007		
Log-likelihood	-15020.740			-9656.511			-5348.356		

* For these variables, the effects reported are elasticities.