Taxation and wealth transmission in France

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Abstract

This paper studies inter-vivos transfers and bequests in France and their relation to the French inheritance law and taxation using administrative records and a national households survey. Transmission behavior is highly responsive to changes in the fiscal system: inter-vivos gifts increased after a 1992 law made them partly tax-free. Moreover, the probability of giving to children is greater (ceteris paribus) if parents' wealth is taxable. For children, the probability of receiving a gift over the life cycle increases with their permanent income. The amount received increases with current income. It increases or bears no relation to permanent income, depending on the specification. Thus we find no direct support for the altruistic nor for the exchange motive. These results are compatible with a model where parents transfer to the best endowed child. © 2001 Elsevier Science B.V. All rights reserved.

1. Introduction

Most empirical studies of intergenerational transmissions of wealth are made in countries such as the US where there are both freedom of devolution and an estate tax. France is different in that freedom of devolution is restricted by law and there

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is an inheritance tax. As in other industrial countries, these taxes represent a very small part of public resources. In 1994, estate taxes amounted to 26 billion francs (about $5.2 billion) and gift taxes were 3.7 billion francs ($0.7 billion), a total of 30 billion francs, which represents only 1.2% of all taxes.[1] However, for some (rich) families, such taxes can represent an important part of wealth transfers.

Drawing on two types of data, administrative records and households surveys, we have a two-fold aim. First, we want to test the usual economic models of intergenerational transfers taking taxation into account. We concentrate on inter-vivos gifts because they are the most voluntary of transfers. Empirically, the probability of receiving a gift increases with permanent income, and the amount received increases with current income, while it increases or bears no relation to permanent income, depending on the specification. This is compatible with a model where parents transfer to the best endowed child. Thus we find no direct support for altruism, nor for exchange, as a gift motive.

Second, we want to see whether a particular economic model is 'behind' the French institutional and fiscal framework of wealth transfers, and whether observed behavior is consistent with the incentive implied by the tax law. The changes in the gift tax law which took place during the period 1981–1996 act as a natural experiment. From the point of view of the donor, the reaction to taxation and the absence of correlation with the beneficiary's characteristics may be interpreted within a 'joy of giving' type of model.

In Section 2 we describe the institutional and fiscal context of wealth transmission in France. The economic models of inheritance are reviewed in Section 3, along with their possible link to institutions and tax, and their testable predictions. Then we turn to some descriptive analyses of wealth transmission (Section 4) and an empirical study of inter-vivos gifts (Section 5).

2. The rules of transmission and taxation in France

The main features of the French system are the restriction in the freedom of devolution and the taxation of inheritance instead of the whole estate.

2.1. The rules of transmission

The French legal system is a continuation of the Roman system of partition after death which divided property among all the children. A father had to bequeath at

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[1]DGI (1995).

least one-quarter of his estate to his children (Saller, 1994). In France, the children's reserved portion is now up to three-quarters.[2] Thus only part of the estate, called the disposable portion ('quotité disponible'), can be freely disposed of by a father or a mother by will.

As a means to leave property to their children even when in infancy at the time of their death, and to provide for their spouse, without the risk of depriving their children, the Romans invented[3] the concept of separation of the use of the property or its profits, which went to the surviving spouse, from the expectant interest ('nue-propriété'), which belonged to the children. Thus the children only expect to own the full property. The right to use is called usufruct (the use of the fruit), while its owner is called the usufructuary. At the usufructuary's death there is an automatic transfer of the full property to the owners of the expectant interest (the 'nus-propriétaires'). This dismemberment or breaking up of the property is frequent in France today. It is the rule for inheritance between spouses[4] and is frequent in the case of an inter-vivos gift, when only the expectant interest is given. Typically, the giving parents keep the right to live in the house they give to their children. In 1987, 39% of donations entailed the keeping of the usufruct by the donor (Laferrère, 1991), which increased to 60% in 1994.

2.2. The rules of taxation: inheritance tax

What is taxed is not the bequest as a whole but each heir's portion. The tax is a progressive inheritance tax. Up to 1996, the base for calculating the marginal rate was inheritance plus any inter-vivos gifts ever made by the deceased, i.e. the whole lifetime transmission. The tax rate is a function of the link between the heir and the deceased. In direct line (between a mother and a son, for instance) there is

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[2]This portion amounts to half of the estate if there is only one child, two-thirds when there are two children, and three-quarters when there are three or more. In the case where there is no child, the deceased's parents are the privileged heirs. There is an order of devolution, which is a function of blood relation. There is no reserve for the spouse, who is not a privileged heir. However, marriage and the implicit or explicit settlement associated with it make her/him own half of the couple's property (Laferrère, 1997).

[3]Besides a form of property devolution still much in use today (though not in France): *fidei commissum*, which is close to a modern trust.

[4]In the absence of a contrary will, the surviving spouse inherits the right to use a portion of the estate: all of it when there are no children, half of it when there is one child, a third when there are two, and a quarter when there are three. The children get the expectant interest of this portion and inherit the rest of the estate in full property. By will, the disposable portion may be given to one's spouse. This is quite frequent: in 1987, a parent of three children would on average receive 21.3% of her/his spouse's estate, when the *ab intestat* right is a mere 2.5% (Arrondel and Laferrère, 1991).

a progressive rate of 5 to 40% above a 300 000 franc ($60 000) threshold.[5] For a more distant relative (a nephew, for instance) there is a flat rate of 55% above a low tax threshold of 10 000 francs ($2000); the rate is 60% for non-blood-related inheritors (including a non-married partner).

The basic tax rates and levels of exemption are similar for inter-vivos gifts, which compared with bequests are tax favored. There are six advantages in passing one's wealth before one's death: tax reduction, organization of devolution among heirs, possible dismemberment of property, no step-up in value, no 'tax on tax', and a 10 year rollover tax exemption.

1. When giving before a certain age a parent benefits from a reduction in tax (usually 25% when giving before the age of 65, and 15% before the age of 75). From 1960 to 1981, a special form of inter-vivos gift, called 'shared donation' ('donation-partage'), was further encouraged by a 25% tax reduction.[6]
2. French law does not allow trusts. A way for parents to organize the transfer is through donations. This is especially true for entrepreneurs.[7]
3. However the risk is to 'give too much' and be in need later on, because a donation is non-revocable.[8] The only solution is, as mentioned above, to separate (dismember) the property between its use, which is kept by the donor, and the expectant interest, which is given to the children. The fiscal value of the usufruct (the right to live in the property), as compared with the full property, declines with the age of the usufructuary.[9] Take, for instance, a mother of 68 who gives her house worth 500 000 francs to her daughter, keeping for herself the right to live in it. The amount of the transmission will be $500\,000 \times 0.8 = 400\,000$ francs. Thus an incentive to give early comes from paying less tax by giving a reduced amount. When the parent dies, the children own the property outright without any further transmission.[10]

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[5]A rate of 20% is applied from 100 000 francs ($20 000) to 3 400 000 francs ($680 000). The maximum rate of 40% is applied above 11 200 000 francs ($2 600 000). Between spouses the tax rates are identical, with slightly larger brackets. The rates are the same for a grandchild, but the tax threshold is only 10 000 francs ($2000). In 1996, it was increased to 100 000 francs.

[6]The condition was that the sharing was equal in value among all the children. The rules may vary slightly. Thus the reduction was reintroduced after 1987: 15% if the donor was between 65 and 75 years old (25% under 65). This was upgraded to 25% between 65 and 75 (35% under 65) as of January 1998.

[7]Assets such as agricultural and forest land benefit from some estate tax exemptions. Other businesses do not benefit from any special treatment, as is the case in Britain, or Germany (Lamotte and Vincent, 1991). One important exception is life insurance, which is exempted from estate tax.

[8]Except for some clause such as 'retour légal', legal return, which stipulates that, in the case the donee has no child and dies before the donor (his/her parent), the given asset will return to the donor.

[9]If the usufructuary is 40 years old the value is reduced by 50%; followed by a reduction of 10% per 10 years of age; thus the reduction is 60% between 40 and 50, and 90% above 70.

[10]Note that when property is thus shared, all have to agree to sell it, and thus there are potential conflicts which may mitigate the attractiveness of the institution.

4. There is no step-up in value of what was given before death, in case of inflation, to calculate the inheritance tax. Only the nominal amount given is mentioned at the time of the estate.[11]
5. The donor is allowed to pay the tax on his/her gift, which is equivalent to giving the tax amount free of tax. Thus the marginal rate goes from t to $t/(1 + t)$. For rich parents in the highest gift tax bracket, the marginal rate goes from 40 to 28.6%, which is an important advantage and provides a strong incentive to give.
6. In 1992, the system was significantly modified. Before this every donation ever registered during one's lifetime was to be mentioned in the estate, in order to compute the tax which applied to the total lifetime transmission from the deceased. In 1992, it was decided that a donation made more than 10 years before death would not enter into the calculation of the inheritance tax. This means that a parent can give 300 000 francs ($60 000) to each of his/her children every 10 years, free of tax, and it reduces the marginal tax rate on the estate. This was done to encourage early transmission, the idea being that inheritance often came too late in life, supposedly to buy a family house, or start a business, and that donations would reduce wealth concentration.[12] Another argument put forward by the government is the encouragement of consumption by the young.[13] Again, this measure encourages rich individuals to make early intergenerational transmissions. Finally, in 1996, the tax threshold for a grandchild was increased from 10 000 to 100 000 francs, with the same 10 year rollover.

   To counterbalance these advantages, gifts besides being non-revocable are costly: even when the donation is non-taxable, there are some notary legal expenses and an inter-vivos gift is a costly act.
   The effect of tax legislation on donations seems important (Fig. 1). Their number increased by 28% in 1981, when it was decided to create a wealth tax and some parents divided their wealth to avoid it. In 1981, there were also rumors of an impending suppression of the tax reduction on gifts which further increased the incentive to give. When the tax reductions were finally suppressed, the number of gifts fell sharply. The decline stopped in 1987, when tax reduction on 'sharing gifts' was reintroduced, and the new favorable treatment introduced in 1992 translated into a sharp and permanent increase in the number of donations, from 140 000 in 1991 to 218 000 in 1994. In 1996, new advantages for gifts to

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[11]As for capital gains, they are based on the value at the time of the gift (or of the inheritance).

[12]Much of the wealth is concentrated in the hands of elderly persons whose investments are not, supposedly, the most productive (however, there does not seem to be any conclusive study on risk aversion and age).

[13]Assumed to be higher than those of older individuals. Bodier (1996) studies cohort and age effect on consumption.
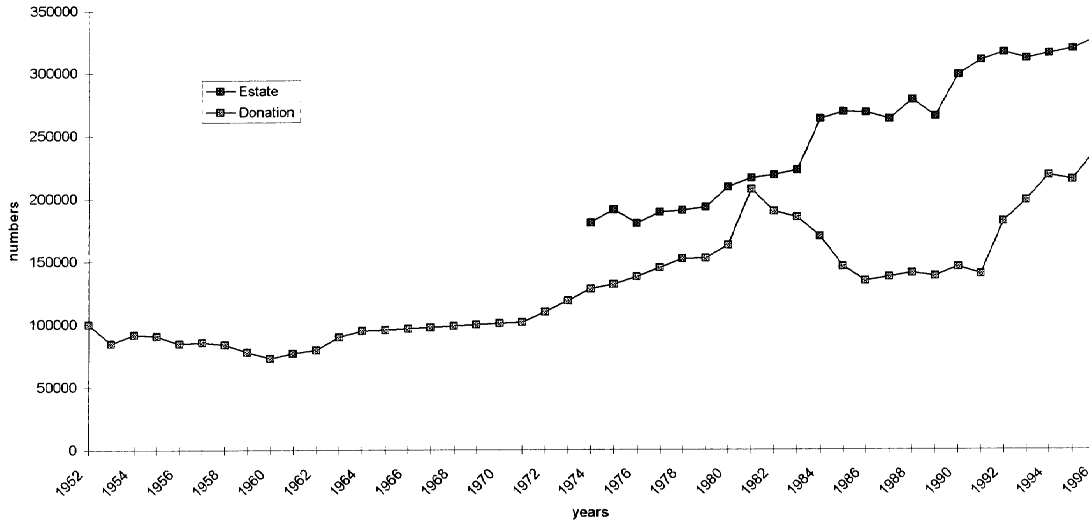
	1950	1960		1974	1980	1986	1992	
Tax threshold in direct line or between spouses	Global : 50 000 F + 30 000 F per child	Per recipient : 100 000 F			Per recipient : 175 000 F	Per recipient: 250000	Per recipient : 275 000 F	Per recipient (child) : 300 000F per period of 10 years
	10 000 F per grand-child		Lifetime transfer is taxed					100 000 F per grand-child 1996
Maximal tax rate in direct line or between spouses	20 to 30% depending on the number of children	15%			20%		40%	
'Sharing gift'	25% reduction in tax (from 1942)			Larger low tax bracket		1987	Reduced tax for donor <65	
			1970		Wealth tax (IGF) 1982	1986	Wealth tax (ISF) 1989	

Source: DGI

Fig. 1. Number of estates and inter-vivos gifts (registered).

grandchildren resulted in a 10% increase in the number of donations. Thus tax incentives seem to be a strong motive for intergenerational transfers. We now turn to their link to economic models.

3. Economic models of gifts, bequests and inheritance

Many models of intergenerational transfers do not introduce time, nor imperfect markets, nor different taxation for gifts and inheritance, and therefore do not distinguish between making gifts and leaving an estate.[14] For instance, in the life-cycle model with uncertain lifetime and imperfect annuity market, there are no gifts and inheritance is accidental. If the parents are only motivated by their consumption, estate taxes will have no influence on saving behavior (Arrondel et al., 1997). In this context, rich people leave large bequests, being unable to consume all their wealth: those bequests could also be labelled 'accidental'.

The non-accidental models of transmission are either altruistic, or egoistic. The altruistic model, in which the parents take into account their child's utility, predicts that both probability and amount of transfer are negatively related to the child's income (Cox, 1987; Becker, 1993). In this model, taxation may be harmful if it reduces the parents' transfer to the poorest child, however it will be partially offset by increased parents' savings. Compulsory equal sharing may lower an altruistic parent's utility.

In the exchange model, the transfer is a means to pay for care from one's children (Cox, 1987).[15] The probability of a transfer is again negatively related to the child's income as the price of his/her services or attention increases with his/her income (due to opportunity costs). Thus it is not possible to distinguish altruism from exchange from information on transfer decisions alone. The amount of transfer may rise or decrease with the child's income (depending on the elasticities of the parent's demand of services and the children's supply of services). In this context, parents will choose the cheapest way to buy services from their children, thus try to lower taxes, for instance by making gifts. In these models, whether of altruism or of exchange, taxing the transfer is like taxing consumption.

When capital markets are perfect, the timing of the altruistic transfers is unimportant. However, in more realistic settings, before inheriting, the heir may want to consume more than his current income and borrow on his future income

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[14]Inheritance models are reviewed in Masson and Pestieau (1997), and models of voluntary transfers in Laferrère (1999). Laitner (1997) provides a synthetic view of interhousehold economic links.

[15]Some models explicitly refer to post-mortem inheritance. See, for instance, Kotlikoff and Spivak (1981), where transmission is an insurance, or Bernheim et al. (1985), where parents play one child against the other in order to get attention. They postulate a freedom of devolution, which is limited in France and other civil code countries.

(human capital or inheritance) (Blinder, 1976). In the presence of borrowing constraints, he consumes less while young, than what his lifetime resources would allow. The altruistic parents are thus induced to make an inter-vivos gift to their children. Cox (1990) has described this loan transfer model, where children borrow from their parents. The probability of a transfer is still negatively related to the child's current income, but positively related to his permanent income. The amount of the gift will be positively related to both his current and permanent income in the case of a non-altruistic loan, but negatively related to current income and positively related to permanent income in the case of altruism.

The non-altruistic models of family contracts where parents invest in their children for a return in a later period explicitly rule out inheritance and rely on inter-vivos transfers (Cigno, 1991). Contrary to altruism or to direct exchange, these family contracts are not related to the income of parents and children. In this context, taxing inter-vivos transfers is like taxing investment.

Some authors have put forward a 'warm glow' model of gifts (Blinder, 1976; Andreoni, 1989). The mere size of the gift or bequest increases the donor's utility. Taxing may be more justified than in the case of altruism. Moreover, if inter-vivos gifts and bequests are taxed differently, a model of 'joy of giving' could explain how a potential donor divides the total resources left to the next generation between the two types of transfers (McGarry, 1999, 2001). The amount given to the children is not directly influenced by their characteristics (number, income, etc.). However, parents can also adopt a strategy of making inter-vivos gifts only if their children have the capacity to manage the wealth (Poterba, 2001). In this context, transfers could be an increasing function of the human capital or of the permanent income of the beneficiary.

The French system, both of devolution, with children being the privileged heirs, and of taxation, with an inheritance tax depending on family links, could be labelled directive altruism. The implicit rationale behind it is that altruism is higher between parents and children than between other relatives (not to mention strangers), thus the justification to tax heavily estates going to non-relatives, which might be accidental. Thus the tax is non-distorting. But this altruism is bounded by the 'reserve': a child cannot get more than the disposable portion on top of it.

Studying inheritance is studying one of the ways families and individuals deal with death. Donations are hard to make, because they mean facing one's death, and they are not that easy to receive because one has to face the idea of one's parents' future death. Even with two-sided altruism there can be a conflict of interest between parents and children (Stark, 1995). One way to deal with it psychologically is to try to reduce the taxes. For this purpose (and sometimes for this purpose only), both parents and inheriting children are united. This is why even if an inheritance tax may be a good tax for an economist in the case of accidental bequests (and since altruism is not much seen in most empirical tests), or for a government preoccupied with equity, there is always a reluctance to tax it too much. There is more at stake than economics: it is literally a matter of life and

death, of transmission and identity, of roots and memory. Something else is also at stake: family unity. Wealth has to be divided, and this is not only money, which can be divided equally to the last cent. It is a house, furniture or stocks and bonds. How are they to be shared while preventing siblings from being rival? French law and the implicit models of behavior that are behind it, which limits unequal sharing between siblings, and encourages the early organization of transmission through inter-vivos donations, helps individuals to transfer their wealth without creating rivalry, be it at the expense of economic efficiency.

4. Data and descriptive statistics on bequests and gifts

4.1. The data

There are two main sources of information on intergenerational wealth transmission in France, at a national level. On the one hand, the 'Actifs financiers' (financial assets) surveys, which are household surveys on wealth holdings and transfers. On the other hand, administrative surveys on registered estates and gifts. They allow a fairly comprehensive view of the process of transmission.[16]

We mostly rely here on the 'Actifs financiers' household survey of 1992.[17] A nationally representative sample of some 10 000 households was drawn and a comprehensive interview survey of their wealth was conducted by INSEE. Its unique feature is that besides providing insight into the surveyed households, information is also gathered both on the parents and parents-in-law, on adult children living outside, and on their relation with the household in terms of wealth transfers. For instance, the date of the parents' death, their wealth and the amount ever inherited or received through gifts are collected. Motives for the households own inter-vivos transmission are also investigated.

Estate registration is compulsory in France as soon as wealth is above 10 000 F ($2000). Nearly two-thirds of deaths are followed by registration of the estate in front of a notary who sends a copy of the estate return to the tax authorities, whether taxable or not. The rate of registration increased from a third in the seventies to 60% in 1994 and translates into the number of registered estates (Fig. 1). This high rate of registration makes the administrative records a good source of information. We use the 'Mutations à titre gratuit' surveys (MTG) conducted in 1987 and 1994 by the Direction générale des Impôts. They are representative samples of registered estates and inter-vivos gifts (donations) drawn with the

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[16]A complete description of the different sources is given by Arrondel et al. (1997), together with a comparative analysis of French and US empirical tests. A survey of empirical results on inter-vivos models is given by Laferrère (1999).

[17]Identical surveys were conducted in 1986 and 1997.

purpose of simulating tax.[18] Some information is known about each deceased (sex, age, matrimonial status, profession) together with income in the year before death, detailed amount and composition of the estate, amount of estate duty paid by the heirs, amount received by each of them, and amount of previous inter-vivos gifts ever made by the deceased. This is a unique source in that it gives the exact amount of registered transmissions.

Drawing from the MTG surveys, we now present some descriptive statistics on the concentration of transfers, first on bequests registered in a given year then on inter-vivos gifts.

4.2. Bequests

Up to 1992, the MTG surveys provided a description of the bequest and of all previous inter-vivos gifts ever made by the deceased. In 1994, due to the change in the tax law, only the gifts registered less than 10 years before death were recorded (Table 1).

We look only at bequests to children. The striking result is their huge concentration: 42% of the amount is transmitted by the top decile, and 13% by the top centile (Table 1, column 4). Adding previous gifts (made less than 10 years before death) to obtain the total recorded transmission, slightly increases the concentration (Table 1, column 2). More than 55% of total previous gifts were made by the top decile, and 20% by the top centile.[19] There are 19.6% of donors among the richest decile, and 28.5% among the top centile. The concentration of total lifetime transmission[20] (as seen from pre-1992 data) is even more important: in 1987, more than 80% of total gifts were made by the top decile, and 50% by the top centile (Arrondel and Laferrère, 1994). At that time, 12% of all deceased individuals leaving at least one child had made some inter-vivos gift, 40% of the top decile (of bequests plus donations) and 68% of the top centile (Table 1, column 9).

The importance of inter-vivos gifts is a sign of voluntary transmission; for rich individuals it also points to tax motives. Assuming that the pattern of transmission between inter-vivos gifts and bequests is the same for 1987 and 1994, it appears that some gifts are now 'hidden', especially for very rich people. Between the two dates, the gap in the rate of donation is more than 34% for the top 5% wealth holders and about 40% for the top centile. To reduce estate tax, rich people make 'early bequests'. The new 1992 legislation came as a windfall gain to them. The

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[18]For instance, in 1994, a representative sample of 3361 estates and 3808 donations was drawn. The sample rate of 1/150 was multiplied by 50 for estates or donations above 3.5 million francs (see Arrondel and Laferrère, 1991, 1992, 1994).

[19]There might be gifts of all the wealth, in which case there is no estate left.

[20]Ignoring, of course, non-registered gifts. According to the 'Actifs financier' 1992 survey, 11% of gifts mentioned by households were not recorded in front of a notary.

Table 1
Concentration of transmissions to children (bequests and previous inter-vivos gifts) registered in 1994[a]

Amount	Transmission: estate + donation	Mean transmission	Estates	Taxed estates (% of estates)	Estate duty	% with donations	% of all donations	% with donations in 1987
Decile 1	0.9	55 330	0.9	2.2	0.3	0.0	0.0	4.4
Decile 2	2.0	126 500	2.1	1.3	0.2	1.4	0.6	6.1
Decile 3	3.2	200 250	3.3	0.6	0.0	2.4	0.9	4.0
Decile 4	4.3	266 500	4.5	3.9	0.2	3.3	1.2	7.1
Decile 5	5.3	333 500	5.5	25.8	0.1	6.1	3.9	8.2
Decile 6	6.4	402 000	6.6	28.9	0.6	4.9	2.6	5.1
Decile 7	8.2	512 500	8.3	40.2	2.9	11.5	8.7	7.7
Decile 8	10.6	669 500	10.5	48.3	4.6	14.7	15.7	11.4
Decile 9	15.7	984 500	15.9	72.3	11.3	9.5	11.0	28.2
Decile 10	43.5	2 731 000	42.3	91.9	79.6	19.6	55.4	40.3
All	100.0	629 000	100.0	31.6	100.0	7.6	100.0	12.4
P95	31.3	3 925 500	30.4	97.3	64.7	20.5	39.2	54.1
P99	14.2	8 906 500	13.4	99.7	35.8	28.5	20.3	68.1

[a] Source: DGI Insee, Mutations à titre gratuit survey, MTG 1987, 1994.

mean age at the first gift is 70; it is 67 for individuals in the top decile, and 64 for those in the first centile of fortune. Thus richer individuals start to give earlier. The number of registered inter-vivos gifts increases with wealth. On average, 78% of donors make only one gift, the mean number of gifts being 1.33. It is 1.94 in the first decile and 2.38 in the first centile.[21].

On average, 32% of the bequests are taxed and the concentration of estate duty is high: about 80% of total taxes is paid by the top decile and more than one-third is paid by the top centile (Table 1, columns 5 and 6).

4.3. Registered gifts

The MTG surveys also provide representative samples of inter-vivos gifts registered by the tax authorities. For instance, 218 000 were registered in 1994. We stick here to the 175 000 gifts to children, which is 96% of the amount of all registered gifts. Since in 53% of the cases the two parents are giving at the same time, there are 272 400 gifts to children (Table 2).

Inter-vivos gifts are mostly concerned with residential property or family businesses: nearly eight out of 10 mention a house, 22% some other non-residential property such as land or wood, 9% a farm, and 3% other commercial or industrial business, and 10% mention cash. The mean amount given per donor is 375 000 francs ($75 000) and the median is 280 000 francs ($56 000) (Table 2). More than 50% of families make transfers to one child, 29% to two children and about 16% to three or more. The average number of beneficiaries by donors is 1.73 and 2.62 for the top decile of donors. Each donee receives an average of 333 500 francs ($66 670) and 5% receive more than 796 000 francs ($159 200). The mean

Table 2
Characteristics of inter-vivos gifts to children (donations) registered in 1994[a]

	Number	Mean age	Taxed (%)	Mean duty paid			
Per beneficiary	306 500	38	28.2	9820			
Per donor	272 400	67	26.7	11 050			
Per beneficiary and per donor	467 000		23.5	6500			

Amount	Mean	Q1	Median	Q3	P90	P95	P99
Per beneficiary	333 500	126 500	280 000	450 000	635 000	796 000	1 400 000
Per donor	375 000	165 000	280 000	450 000	750 000	960 000	1 765 300
Per beneficiary and per donor	219 000	84 500	189 000	297 500	387 000	495 000	960 000

[a] Source: DGI Insee, Mutations à titre gratuit survey, MTG 1994.

[21]In 1988, according to another survey which gives a precise date for inter-vivos gifts (see Laferrère and Monteil, 1994a,b for details).

age of the donors is 67 and that of the beneficiaries is 38. About 46% of donors make the transfer before age 65, which is the age threshold for taking advantage of the 25% reduction in taxes. The mean amount received has increased by 88% in 10 years (in constant francs). The last line of Table 2 gives the amount by donee and donor, which is what is taxed; 23.5% are taxed and the value of the 3d quartile (Q3) is effectively found to be 297 500 francs, close to the 300 000 francs tax threshold.

About 80% of total taxes on inter-vivos gifts is paid by 10% of donees and 40% by 1% of donees. About 70% of donors make a donation while keeping the usufruct. It seems that parents, even if they make an 'early bequest' to their children, want to keep some control over their wealth. This behavior seems to call for a strategy of giving to reduce the estate tax.

An inter-vivos gift is a means to organize the devolution of one's wealth, and more so if one chooses donation-partage (shared gift), which is explicitly a way of organizing sharing between siblings. Nearly four out of 10 donations are such shared gifts, which points, along with tax incentives, to the desire of parents to avoid conflicts between their children.

5. Econometric analysis of inter-vivos gifts

Since inter-vivos gifts are voluntary transfers, we now ask whether the pattern of gifts made and gifts received validates some of the economic models of intergenerational transfers and if there is an effect of the tax system. Very few surveys allow control for both giver's and beneficiary's human and non-human wealth. Many studies use imputation of part of the information (Tomes, 1981; Cox, 1987, 1990). The best known dataset allowing complete matching is the Panel Study of Income Dynamics (PSID). From the negative but small coefficient of the beneficiary's income on both the probability and the amount received, Altonji et al. (1997) concluded to a very weak altruism. In France, from the MTG surveys, with only proxies for beneficiary's income, we did not find any evidence of altruism, and the transfers may be labelled anti-compensatory (Arrondel and Laferrère, 1991). In the present section we turn to the 'Actifs financiers' 1992 household survey.

Questions were meant to include all gifts ever made or received (not only gifts recorded in front of a notary, and not only gifts received during the year of the survey) by the household. Detailed questions were asked on the parents and on the parents-in-law when the respondents were young,[22] and on children's characteristics, including adult children living outside the household. This allows us to use the surveyed household twice: first as a possible donor, giving to its children, then

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[22]Profession, mother's activity, ownership of housing or professional assets when the individual was 14 years old, existence of money problems in youth, divorce of parents, number of siblings.

as a possible donee, receiving from its parents. Amounts are updated (using the CPI) in order to run both probit models of the probability of making (receiving) a gift and analysis of the amount given (received).

To test the models of inter-vivos transfers, the level of wealth, the current and permanent income of both donor and donee at the time of the gift must be known. The wealth of the giving (or receiving) household at the time of the gift is updated from its level at the time of the survey.[23] Wealth of the respondent's parents is proxied by dummies on their wealth holding, and self-employment status of both father and mother, and their income, is proxied by their social category. For the respondent's children, wealth is unknown, thus human and non-human wealth are proxied by their level of education and social category. Since questions were asked separately to husband and wife in the case of a couple, we work at the individual level when analyzing the gift they received. The respondent household's permanent income is either proxied by the level of education of the head (in the analysis of gifts made) or imputed, both to head and to spouse, but only for salaried workers (in the analysis of gifts received).

The 'Actifs financiers' survey also asked the donors about their motivations in giving. Our analysis starts with the answers to this question.[24] Then the determinants of gifts made by families with at least one adult child are analyzed. Finally, the predictions of the theoretical models of inter-vivos gifts, especially the effects of income variables (current, future and permanent) on the amount received, are more precisely tested.

5.1. A question on the motivation of donors

The donors were asked to choose up to two motives out of a selection of seven (Table 3). We analyze each of the seven motivations with probit models including number of children, wealth level and professional status (salaried versus self-employed) as explanatory variables (Table 4). We only comment on significant effects. The motive of 'organizing the sharing between the children' is put forward by 39% of the donating households, and by more than 55% of families with more than one child (Table 3). This motive is prevalent in all categories of the population, whatever the professional status, but less so among the richest households. This is in line with the intuition that transmission is a family affair in that family unity is at stake and is valued per se by the parents. The fiscal motive comes second: it is mentioned by 23% of donors. The fiscal motive is more prevalent among parents of an only child, since France applies an inheritance tax

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[23]The wealth data seem of good quality, when compared to national aggregates. The ratio of survey to aggregate amounts runs from 40% for financial wealth to 97% for housing and is 75% for total wealth (Arrondel et al., 1996).

[24]Perelman and Pestieau (1991), using another set of questions from the 1986 'Actifs financiers' survey (about the motivation of saving during retirement), provide insight into voluntary bequests.

Table 3
Motives given by households who made inter-vivos gifts to their children (1992)[a]

Motive	Total	Salaried	Self-empl.	One child	Two children	Three children	Four+ children	D9	D10	P95	Non-taxable wealth	Taxable wealth	Taxable wealth (>65 years old)
Fiscal	23.3	22.6	23.4	38.5	13.6	8.5	19.2	21.2	32.9	32.6	10.0	33.4	38.8
Sharing	39.4	40.8	37.9	12.1	52.3	61.4	54.9	37.1	39.8	40.9	50.7	30.7	29.8
Received inheritance	5.0	3.2	6.9	6.7	2.3	9.6	1.3	6.0	6.8	6.4	2.7	6.8	6.0
Got money	4.8	4.5	5.2	0.7	8.5	0.7	10.9	4.4	0.1	2.4	7.5	2.8	2.7
Retirement	10.4	3.1	18.5	13.5	4.9	13.4	9.0	12.1	12.1	16.7	12.9	8.6	9.0
Enterprise	13.6	1.5	26.9	17.0	10.2	11.0	13.5	3.6	19.5	25.7	16.4	11.4	12.2
Marriage, majority	8.3	7.8	8.9	7.3	16.0	9.5	0.5	12.9	13.5	16.9	4.9	10.9	6.4
Need of beneficiary	19.4	21.4	17.2	15.5	26.4	23.8	14.8	15.3	20.1	20.1	18.7	19.9	18.7
Rate of donors	9.9	6.5	23.5	17.4	7.5	8.1	8.3	13.6	19.5	23.4	6.1	19.5	33.7

[a] Source: Insee 'Actifs financiers 1992'.

Table 4
Econometric analysis of motives given by households who made inter-vivos gifts to their children (1992)[a]

Motive	Salaried	Self-empl.	One child	Two children	Three children	Four+ children	D1–D4	D5–D7	D8	D9	D10	Age	Age[2]
Fiscal	+	Ref.	+++	ns	ns	Ref.	Ref.	ns	ns	ns	++	ns	ns
Sharing	ns	Ref.	–––	ns	ns	Ref.	Ref.	ns	–	––	–	–––	+++
Received inheritance	ns	Ref.	ns	ns	ns	Ref.	Ref.	ns	ns	+++	++	ns	ns
Got money	++	Ref.	–	ns	ns	Ref.	Ref.	ns	ns	ns	ns	ns	ns
Retirement	–––	Ref.	ns	ns	ns	Ref.	Ref.	ns	ns	ns	–––	+++	–––
Enterprise	–––	Ref.	ns	ns	ns	Ref.	Ref.	ns	ns	ns	ns	+++	–––
Marriage, majority	ns	Ref.	++	+++	++	Ref.	Ref.	ns	ns	ns	++	ns	–
Need of beneficiary	ns	Ref.	––	ns	ns	Ref.	Ref.	ns	ns	++	+	ns	ns

[a] Source: Insee 'Actifs financiers 1992'.

that makes total tax decline with the number of heirs. The fiscal motive declines with the number of children. Among the very rich, the fiscal motive is put forward more frequently: a third of the richest decile mentions it. It is also more likely among salaried than self-employed. Problems of sharing increase with the number of children.

A purely altruistic motive ('need of the beneficiary') is given in one case out of five, more often when there are more children: the mere fact of having many children may be interpreted as a sign of altruism. Less clearly altruistic, gifts made for a wedding or a majority, are more frequent among the very rich.[25] The motive 'gift after a windfall gain' is more frequent when there are more children, but is less frequent among rich families.

The motive of the survival of the family firm, business or farm is put forward by 14% of the donors, 20% of those in the top decile, 26% of those in the first quintile, and 27% of the self-employed. Linked to it is the motive of giving on retirement, also six times more frequent among the self-employed than among salaried workers.

We separated households into two groups according to whether or not their wealth was taxable.[26] Taxability depends on family composition. Wealth (divided by two in the case of a couple) was divided by the number of children and labelled taxable if the amount exceeded 300 000 francs (the 1992 tax threshold, see supra).[27] When wealth is not taxable the fiscal motive is put forward by only 10% of households, and a third of the households mention it when wealth is taxable. As for using gifts as a sharing device, 31% admit to this when wealth is taxable, 51% when wealth is not. Thus parents would bother with making an inter-vivos gift even for small non-taxable amounts for the sake of family peace of mind. Parents with taxable wealth are also more likely than when wealth is not taxable to make a gift for a child's wedding of majority (Table 5). The size of the wealth makes it easier to give, wealth tax (France has had an annual wealth tax since 1981) encourages the division of family wealth and early gifts are tax favored. Among households with taxable wealth and above 65 years old the fiscal motive comes first, before the sharing motive. The fact that wealth is taxable has no effect on the altruistic motive, which is as expected.

The estimation of probit models allows us to calculate the age when the probability of each type of gift motivation is maximum or minimum. Gifts for a wedding or a majority are the earliest (40 years old), then comes the altruistic motive (58). Retirement and the transmission of the family business takes place

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[25] Among rich Americans, the fiscal motive of an inter-vivos gift is twice more frequent than the motive of the need of the beneficiary (Barlow et al., 1966).

[26] Wealth includes the updated amount of the gift. Substituting net wealth for gross wealth gives the same qualitative results.

[27] Excluding non-married couples from the sample does not change the result.

Table 5
Econometric analysis of motives given by households who made inter-vivos gifts to their children
(1992)[a]

Motive	Salaried	Self-empl.	Taxable wealth	Non-taxable wealth	Maximum age
Fiscal	+	Ref.	+ + +	Ref.	71
Sharing	ns	Ref.	− −	Ref.	60 (min)
Received inheritance	ns	Ref.	ns	Ref.	ns
Got money	+ + +	Ref.	ns	Ref.	ns
Retirement	− − −	Ref.	ns	Ref.	64
Enterprise	− − −	Ref.	ns	Ref.	61
Marriage, majority	ns	Ref.	+ + +	Ref.	40
Need of beneficiary	ns	Ref.	ns	Ref.	58

[a] Source: Insee 'Actifs financiers 1992'.

around 60–65. The sharing motive starts after 60 and the fiscal motive is maximum at the late age of 70 (remember that the reduction in taxes stops at 75). This could be analyzed in terms of life-cycle where one motive follows another. The altruistic motive would be more important in the first part of life (when the children most need it), then the fiscal motive or the necessity to share one's wealth becomes more prevalent.

5.2. Gifts made by the household to its children

We now analyze, for households with at least one adult child, the probability of having made a gift or intending to make one (Table 6). Explanatory variables are the givers' characteristics and the mean characteristics of the adult children, since which child is the beneficiary is not known.[28]

The probability of having made a gift is positively influenced (at 10% significance) by the level of wealth (the updated amount of the gifts is included in current wealth), and by whether that wealth is taxable or not. Having a taxable wealth is a strong inducement to make a gift.[29] Giving is not influenced by income nor by human capital. A gift is more frequent when the donor is self-employed (except for small production units). Introducing the mean characteristics of the children (age, sex, marital status, professional activity, number of children, education) yields few significant effects. Striking is the influence of the transmission received: having inherited or received a gift from one's parents increases the

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[28] However, in 76% of cases the number of beneficiaries, which is known, is equal to the number of children.

[29] For the average household, the estimated probability of having made a gift (probit models, Table 6) is 6% and the probability of the intention to give is 11.2%. For households with taxable wealth (all others characteristics being equal), these probabilities are 11.5 and 14.7%, and only 3.7 and 9.5% for households with non-taxable wealth.

Table 6
Inter-vivos gifts made by parents to children[a]

	Probability of giving		Probability of intention to give	
	Parameter	s.e.	Parameter	s.e.
Intercept	−4.992	1.226	−4.969	1.032
Parents' characteristics				
Age of head (10E−1)	0.650	0.368	1.205	0.331
Age 2 (10E−2)	−0.020	0.027	−0.096	0.027
Income (10E−6)	−0.284	0.314	−0.064	0.253
Widow	0.351	0.082	−0.259	0.097
Wealth (10E−7)[b]	0.107	0.069	0.098	0.069
Wealth was taxable	0.600	0.077	0.248	0.070
Own life insurance	−0.062	0.106	0.033	0.084
Social status (reference: farmer)				
Self-employed (small production unit)	−0.324	0.099	−0.112	0.093
Self-employed (big production unit)	0.063	0.240	−0.352	0.275
Liberal profession	−0.109	0.260	−0.191	0.247
Executive	−0.319	0.148	−0.237	0.130
Employee (high qualification)	−0.524	0.135	−0.151	0.111
Employee (low qualification)	−0.577	0.131	−0.381	0.123
Blue-collar workers (high qualification)	−0.285	0.118	−0.314	0.111
Blue-collar worker (low qualification)	−0.534	0.162	−0.450	0.154
Diploma (reference: no diploma)				
Primary level	0.100	0.144	0.014	0.122
Secondary level	−0.311	0.138	0.006	0.108
Baccalaureate	0.033	0.179	0.070	0.150
Graduate and postgraduate studies	−0.120	0.190	−0.118	0.167
Received gift	0.286	0.071	0.330	0.066
Inherited	0.138	0.076	0.049	0.065
Helped by parents	0.100	0.070	−0.012	0.064
Other transfers received	−0.014	0.121	0.096	0.108
Number of adult children	0.004	0.023	0.015	0.022
Adult children characteristics (mean)				
Female (%)	0.009	0.089	−0.041	0.079
Age	0.005	0.007	0.008	0.008
Number of children	0.010	0.006	−0.040	0.040
Diploma (%, reference: no diploma)				
Primary or secondary school	0.057	0.138	0.017	0.126
Baccalaureate	−0.066	0.172	−0.005	0.150
Graduate and postgraduate studies	−0.029	0.159	−0.011	0.143
Marital status (%, reference: farmer)				
Widow	0.080	0.104	0.041	0.095
Divorced	−0.064	0.443	−0.929	0.886
Married	−0.012	0.219	−0.443	0.244
Social status (%, reference: farmer)				
Self-employed	0.145	0.190	0.049	0.210
Executive	−0.165	0.192	−0.043	0.197
Employee	−0.140	0.150	−0.140	0.164
Blue-collar worker	−0.063	0.170	0.086	0.179
Never worked	−0.342	0.181	−0.147	0.183
χ^2 (39 d.f.)	521.24		187.20	
No. of observations (donors)	3743 (407)		3336 (451)	

[a] Source: Insee 'Actifs financiers 1992'.

[b] Wealth includes the updated amount of the gift. To check for endogeneity bias, another probit was run with instrumented wealth (see Table 7). Then the wealth parameter is 0.056 (0.037) for the probit on giving, and 0.106 (0.052) for the intention to give. Other parameters not significantly changed.

probability of making a gift to one's children. This is not predicted by the altruistic model, but may be in line with the idea of implicit contracts in families.

It is thus difficult to identify a single motive for the probability of giving. Since none of the characteristics of the children are significant, it is possible to refer to 'joy of giving' models of transfers. Moreover, the positive effect of a taxable wealth could be interpreted as a strategy of reducing estate or wealth taxes in this type of model. The positive effect of self-employed status points to the intergenerational transmission of family business.

In column 3 of Table 6 the probability not to have made a gift, but to intend to make one, is analyzed.[30] The most important new result is the effect of age, which is now positive and concave, with a maximum at 63 years old. The effect of widowhood is positive for a gift made (which may point to payment of children's services by the surviving parent), but is negative for the intention to give. The desire to make a gift, when none has been made, increases until one gets to retirement age, then either the gift has been made, or the desire declines as one gets older.

A specification excluding the dummy for taxable wealth was also tested (not shown here). There is still a positive effect of the level of wealth, but now a strong negative effect of the number of children on the probability to have made a gift (the effect was previously hidden in the dummy for taxable wealth): the tax incentive is stronger for parents of few children because of taxation which is then higher. The effect of the number of children disappears in the intention to give model. Parents of many siblings could also have a desire to give which they cannot fulfill, for instance because of the trade-off between quantity and quality of children.

Estimating what determines the amount given is more difficult because some variables have to be updated at the date of the gift and this is not always feasible, especially for the beneficiaries' characteristics (Table 7). Two specifications are presented: in the second column, income and wealth are those at the time of the survey (the updated amount of the gift has been included in wealth); in the third column, wealth and income have been instrumented to impute their value at the time of the gift. The third specification introduces the motives of the donation in the regression with instrumented variables.[31]

The (imputed) household's wealth level at the time of the gift (and the wealth at the time of the survey) is positively correlated with the amount given. Current income has a positive but not very significant influence on the amount given (only when the motives are added). The amount given is also positively correlated with a

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[30]The sample only includes households who have never made a gift.

[31]We do not correct for selectivity bias, since too few permanent variables allowed us to estimate the probit model. A tentative correction shows that the qualitative results are not modified when the bias is corrected.

Table 7
Amount given by parents to children (log)[a,b]

Variable	No instruments for income and wealth		With instruments for income and wealth		With instruments for income and wealth	
	Parameter	s.e.	Parameter	s.e.	Parameter	s.e.
Intercept	2.036	1.510	10.009	2.406	8.046	2.311
Parents' characteristics (donors)						
Income (log)[c]	−0.037	0.064	0.122	0.230	0.333	0.224
Wealth[d] (log)	0.714	0.055	0.217	0.101	0.187	0.097
Age (10E−1)	0.090	0.354	−0.798	0.428	−0.894	0.414
Age 2 (10E−2)	0.007	0.029	0.073	0.036	0.080	0.035
Received gift	0.088	0.129	−0.053	0.152	−0.091	0.144
Inherited	0.114	0.111	0.168	0.133	0.124	0.126
Couple (yes: 1)	−0.281	0.118	−0.044	0.137	−0.025	0.132
Number of children	−0.310	0.144	−0.233	0.167	−0.193	0.160
Number of adult children	0.234	0.168	0.171	0.196	0.176	0.188
Social status (non-self-employed=1)	0.024	0.118	−0.137	0.168	−0.179	0.162
Diploma (reference: no diploma)						
Primary level	−0.265	0.227	−0.281	0.274	−0.267	0.261
Secondary level	−0.036	0.218	0.340	0.276	0.412	0.263
Baccalaureate	−0.289	0.269	0.310	0.344	0.382	0.331
Graduate and postgraduate studies	0.011	0.242	0.465	0.321	0.314	0.306
Motives for donation						
Fiscal					0.393	0.148
Sharing					0.574	0.128
Inherited					−0.079	0.218
Got money					−0.310	0.273
Retirement					0.355	0.168
Enterprise					0.146	0.159
Marriage, majority					−0.271	0.200
Need of beneficiary					−0.265	0.151
Adult children (beneficiaries) characteristics (mean)						
Female (%)	−0.117	0.075	−0.139	0.088	−0.119	0.084
Diploma (%, reference: no diploma)						
Primary or secondary level	0.005	0.076	0.010	0.090	0.008	0.086
Baccalaureate	−0.025	0.117	−0.014	0.139	−0.053	0.131
Graduate and postgraduate studies	0.012	0.106	0.081	0.126	0.042	0.120
Social status (%, reference: farmer)						
Self-employed	−0.075	0.115	0.007	0.138	−0.055	0.130
Executive	0.174	0.141	0.318	0.168	0.295	0.159
Employee	0.048	0.094	0.028	0.112	0.028	0.107
Blue-collar worker	−0.042	0.080	−0.146	0.094	−0.162	0.089
Never worked	0.146	0.112	0.071	0.133	0.081	0.127
R^2	0.39		0.16		0.27	
Number of gifts[e]	440		440		440	

[a] Source: Insee, 'Actifs financiers survey 1992'.   [b] All variables are updated at the date of the gift except non-instrumented income and wealth (column 2).   [c] Instrumental variables for income are age, diploma, social status, geographical area, profession of parents. The R^2 of the regression is 0.31.

[d] Wealth includes the updated amount of gifts. Instrumental variables for wealth are age, diploma, income level, social status, geographical area, profession of parents, transfers received (donation, inheritance, other financial help). The R^2 of the regression is 0.47.

[e] The regression was run on the sample of gifts, not on those of givers (33 households made two gifts).

high level of education (human capital), which may be interpreted as a proxy for permanent income.

There is very little influence of the children's characteristics, except for a positive effect of the ratio of executives among the children, which does not point to altruism, but could be a sign of a transfer to the most able child. However, to test the robustness of this effect we should control by the children's wealth level, which is not available.

Introducing the different motives for the gift as independent variables in the equation of the amount given, three of them have a positive effect, and one a negative effect (Table 7, column 4). The desire to organize the sharing of the estate between the children increases the amount ceteris paribus by 74%, and the fiscal motive increases it by 50%. Among givers, those who put forward a sharing motive are those who give the biggest amounts (for a given level of wealth and a fixed number of children). Giving on retirement also has a positive effect on the amount given (38%): those gifts are probably gifts of farms or family businesses made by self-employed households, thus their importance. On the contrary, there is a negative effect of the altruistic motive (need of beneficiary) on the amount given: altruistic transfers, reacting to variations in the income of the beneficiary, are likely to be smaller (here 25% smaller) than tax motivated advanced bequests.

5.3. Gifts received by salaried workers

We now study the receipt of an inter-vivos gift by the household (Table 8). As compared with gifts made, the control for the beneficiary's resources is more accurate. Since the date of the gift is known, we compute current income and other variables concerning the beneficiary (age, marital status, number of children) at the date of receipt. Moreover, permanent income (the present value of life-time resources) was computed for salaried individuals in a rather sophisticated way. It is a function of the age profile of wages, of the rate of growth of past and future real wages and interest rates, and of an individual fixed effect. Both external macro economic information and retrospective questions asked in the survey were used to compute past earnings. Assumptions on future macro economic conditions were also made. Thus age and cohort effects are separated. Income profiles were assumed to be permanent (careers and age at retirement are modeled separately) from one generation to the next, but macro economic shocks were not (Lollivier and Verger, 1999; see Appendix A for details).

From the reconstructed income profile, an individual human wealth variable was also computed as the present value of all future labor earnings for non-self-employed donees at the date of the gift. All these resource variables allow us to test more precisely the different motives for transfers.

Since the gift variable includes all past gifts, it is more correct to use only permanent variables in the probit model comparing those who received a gift and

Table 8
Gift received by (salaried) individuals from their parents[a]

Variable	Probit model		(Log) Amount					
			Model 1		Model 2		Model 3	
	Parameter	s.e.	Parameter	s.e.	Parameter	s.e.	Parameter	s.e.
Intercept	−1.627	0.211	19.463	7.085	12.612	3.508	13.167	2.606
Parent's characteristics								
Number of parents at time of gift								
Parents both alive			0.000		0.000		0.000	
Only mother alive			0.075	0.132	0.109	0.133	0.105	0.132
Only father alive			−0.142	0.170	−0.108	0.169	−0.121	0.169
Father's age at gift (reference: ≥75)								
<65			−0.380	0.183	−0.389	0.182	−0.359	0.180
65–69			−0.242	0.190	−0.252	0.189	−0.200	0.190
70–74			−0.197	0.196	−0.182	0.195	−0.143	0.195
Mother's age at gift (reference: ≥75)								
<65			0.037	0.206	0.009	0.210	−0.012	0.204
65–69			0.413	0.203	0.370	0.199	0.346	0.202
70–74			0.176	0.199	0.101	0.200	0.086	0.199
Father's profession in youth								
Farmer	0.000		0.000		0.000		0.000	
Self-employed	−0.126	0.072	0.843	0.361	0.456	0.222	0.457	0.190
White collar	−0.094	0.087	0.545	0.301	0.247	0.220	0.231	0.208
Blue collar	−0.227	0.078	0.634	0.640	−0.014	0.350	0.048	0.286
Father non-active	−0.067	0.116	0.567	0.304	0.404	0.267	0.417	0.259
Mother's profession in youth								
Non-active	0.000		0.000		0.000		0.000	
Active as non-paid family help	0.471	0.203	−1.317	1.485	0.138	0.871	0.047	0.757
Active (part time)	0.257	0.197	−0.567	0.982	0.288	0.682	0.223	0.635
Active (full time)	0.326	0.197	−0.802	1.140	0.269	0.736	0.187	0.669

Wealth in youth								
Homeowner	0.271	0.043	−1.007	0.765	−0.243	0.396	−0.304	0.302
Own other housing	0.484	0.043	−1.485	1.321	−0.116	0.676	−0.246	0.503
Own professional assets	0.228	0.061	−0.833	0.647	−0.192	0.342	−0.218	0.270
Financial difficulties in youth								
No financial difficulties	0.000		0.000		0.000		0.000	
Financial difficulties	−0.128	0.053	0.237	0.372	−0.137	0.217	−0.055	0.184
Low wealth holder	−0.084	0.046	−0.122	0.252	−0.374	0.159	−0.326	0.138
Parents divorced	−0.248	0.091	0.725	0.731	0.034	0.422	0.071	0.351
Individual's characteristics								
Age at gift (10E−3)			10.207	7.590	−0.705	7.954	−0.428	7.871
Couple at time of gift			−0.483	0.273	−0.435	0.238	−0.454	0.236
Sex: female	−0.003	0.042	0.089	0.107	0.131	0.103	0.107	0.103
Number of siblings	−0.085	0.010	0.202	0.238	−0.044	0.122	−0.022	0.093
Number of children at time of gift			0.028	0.040	0.013	0.040	0.009	0.039
Education level (reference: no education)								
Primary level							−0.070	0.123
Secondary level							−0.042	0.143
Baccalaureate							0.311	0.139
University degree							0.121	0.136
Executive							−0.070	0.102
Current income at time of gift (10E−5)					0.302	0.102	0.284	0.102
Human capital at time of gift (10E−7)					0.170	0.297		
Permanent Income (10E−5)	0.097	0.038	−0.029	0.275				
Spouse active			0.462	0.256	0.254	0.224	0.306	0.225
Spouse's current income at gift (10E−5)					0.263	0.114		
Spouse's human capital at gift (10E−5)					−0.007	0.046	0.206	0.082
Spouse's permanent income (10E−5)			0.184	0.089				
Mill's ratio			−4.457	3.415	−0.948	1.724	−1.213	1.277
R^2 or χ^2 (d.f.)	700.13		0.19		0.20		0.21	
Number of donees	921		921		921		921	
Number of observations	9414							

[a] Source: Insee, 'Actifs financiers 1992'.

those who did not.[32] The probit shows that parents' wealth has the most significant effect: all asset ownership dummies are significant and positive (negative in the case of money problems). Father's profession is also significant: his being a farmer has a positive effect, along with mother's being a farmer.[33] Divorce of the parents has a negative effect. The negative effect of the number of siblings is highly significant. The more siblings, the less the probability of receiving a gift, for a given level of wealth. Altruism could explain this effect: parents make monetary transfers after having invested in their children's human capital which draws on their resources (the quality–quantity effect of Becker, 1993). The result is also compatible with parents' strategy to reduce estate taxes because, since it is the amount received by each donee which is taxed, parents with more children have less incentive to make a gift.

The permanent income of the beneficiary is positively correlated with the probability of receiving a gift. Neither the altruistic model nor an exchange model in which gifts are a means of payment of children's services could explain this effect (Cox, 1987). They both predict a negative correlation between the probability of receiving a gift and the child's resources. However, since it is not possible to control for current income, interpretation in the context of the exchange or loan transfer models (Cox, 1990) is hard: for example, the result could be compatible with altruistic parents giving to a liquidity constrained child.[34]

One explanation for the positive effect of the beneficiary's permanent income on the probability of receiving a gift could be that inter-vivos gifts are made to finance human capital investment. However, this is not compatible with an average observed age of beneficiaries of 38 years.[35] Another possibility would be simply an effect of the parents' wealth because we use only proxies for this variable (under the assumption that there is a strong intergenerational immobility of resources).[36] A last possibility could be the intergenerational transmission of investment behavior (Poterba, 2001): parents give more frequently when the child is a good

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[32]Arrondel and Wolff (1998) with the same data also use characteristics at the date of the survey. Here, we concentrate on the analysis of the amount received and we want to correct selectivity bias with an adequate probit.

[33]Remember that we leave aside self-employed individuals in this section, thus most of the gifts of family business or farm. But a salaried child may be compensated by, say, her father who gave the farm to her brother.

[34]To make the control possible, we should study gifts received in a given year. Too few observations are available to do this.

[35]Moreover, this possible endogeneity of the child's permanent income should be of less importance in a country like France were education is free.

[36]To appraise the consequences of ignoring parental resources on the effect of child resource variables, a survey allowing control for the two variables has to be used. Another French survey, 'Trois générations CNAV', which studies the intergenerational transfers among three generations of families, allows this analysis. Wolff (1998) shows (with a generalized Tobit model) that the omission of the parental resource variables does not notably change the parameter of the child's resource variable nor its significance.

manager of wealth. This would be natural for a self-employed child (excluded here) taking over the business, but it could also be true for salaried workers.

Analysis of the amount received allows us to test the different transfer motives, which are summarized in Table 9.

Model 1 introduces the permanent income of the donee and the permanent income of the spouse (with a dummy variable for spouse's labor supply). This allows us to test the simple version of altruism or exchange (Cox, 1987). Model 2 specifies the loan transfer model of Cox (1990), where parents lend to their credit constrained children. The amount given will be a decreasing function of current income (less needs) and an increasing function of future income in the presence of altruism; the sign of current income in the exchange model is positive. Model 3 is an alternative version of the first model where current income at the time of receipt of the gift is introduced along with other permanent variables (such as diploma). Two sets of equations of amount were run: the first equations (Table 8) correct for selectivity bias by introducing the Mill's ratio (Heckman method); the second set (not reported) does not correct this bias.[37]

The amount received is higher when the father was non-farming self-employed or executive (Table 8, column 3). The age of the parents at the time of the gift has a positive influence. The age classes were defined to take into account tax incentives. The incentives seem to exist in the case of the mother, and the amount given is higher when she is between 65 and 70 years old.[38] The fact that the gift was made by a widowed parent is also positively related to the amount received. Number of siblings has no significant effect, neither has the number of children of the donee at the time of the gift.

Individual's permanent income has no effect, but spouse's permanent income has a significant positive effect (model 1).[39] In model 2, estimated current income at the time of the gift for both the beneficiary and the spouse is introduced. They both have a significant positive influence, but the actualized value of future income has none.[40] Thus the gift cannot be considered as a loan to constrained children. The positive effect of current income at the date of receipt on amount received is also observed in estimating model 3. It could be compatible with an exchange of services model, if it had not been ruled out by the probit.

However, this positive effect could be linked to three biases. First, if parents' and children's permanent incomes are positively correlated, there is a positive bias

[37]As we have only a small set of permanent explanatory variables to explain the probability of a gift, there may be a strong collinearity between the Mill's ratio and the other variables in the equation of amount given. This is the reason why two sets of regressions were run.

[38]Many gifts are made by both parents at the same time, so one parent may be above the 65 or 70 year limit, while the other, usually the mother, is still younger and can benefit from the tax reduction.

[39]With no correction for selectivity (Mill's ratio not introduced), the beneficiary's permanent income positively influences the amount received.

[40]To compare with the results of Cox (1990) we ran another regression with both current and permanent income. Permanent income is not significant and current income has the same positive sign.

Table 9
Predicted effect of income on the probability of receiving a gift and on the amount received

Beneficiary's income	Payment of services (Cox, 1987)				Loan (Cox, 1990)			
	Exchange		Altruism		Exchange		Altruism	
	Probability	Amount*	Probability	Amount	Probability	Amount	Probability	Amount
Current	−	+	−	−	−	+	−	−
Permanent					+	+	+	+

* Assuming that parents' demand elasticity for child services is low enough.

on the sign of the child's income parameter (Altonji et al., 1997).[41] Second, we interpret as an intergenerational anti-compensatory effect what may be unequal sharing in favor of the richest child (an intragenerational effect, parents' permanent income being given). To test the robustness of the intergenerational effect, we should control for the siblings' income, which is not available in the survey. However, with another data set we have shown that the effect is robust to the control (Arrondel and Laferrère, 1991). Finally, there could be unobserved heterogeneity. For instance, errors in measuring income could be correlated with some variables (such as beneficiary's income) which would bias the estimators.

These results concerning the amount of gift received do not seem in line with altruism nor with the exchange model. Moreover, the positive effect of the beneficiary's income on the probability of receiving a gift and the amount received cannot be interpreted by these motives. Another transmission strategy has to be found, such as the necessity to find a child who is a good portfolio manager, a motivation reinforced among rich people by the desire to reduce estate tax through inter-vivos gifts.

6. Conclusion

No legal or fiscal system is so strong and so detailed as to determine family behavior, but some individuals seem to use it to optimize their transmission. We find strong reactions to tax incentives.

The empirical tests do not validate a single model of intergenerational transfers. Altruism seems to be found at the time in the life-cycle when the children are young adults and is linked to gifts of comparatively small amounts. Altruism is harder to detect from the study of total inter-vivos gifts. The transfers appear anti-compensatory (the income of the beneficiary has a positive influence, both on the probability of a gift and on the amount given), which contradicts Beckerian altruism. The exchange model or the loan model to a liquidity constrained child does not seem to fully explain inter-vivos transmission behavior either. More satisfactory is the 'joy of giving' model, taking into account taxation (the fact of having a taxable wealth has a strong influence, and the fiscal motive is the most frequently put forward), or a model of transmission of investment behavior (there is a positive correlation of the amount received with the permanent income of the beneficiary).

The mere existence of gifts is a sign of voluntary transfers and some of them are altruistic. The elusiveness of altruism in an empirical test is puzzling. Very few

[41]They also point to the non-separability between preferences and incomes generic to the transfer models based on altruism (their note 9, p. 1128). Moreover, parents' income and wealth are proxied by professional activity and six dummies, which is not the same as knowing their exact amount (cf. footnote 34).

transfers ever go outside the family circle and children are rarely disinherited. Besides, the whole French legal system takes altruism within the family for granted.

These results may partly come from the data. They offer the unique feature of providing all transfers ever made and received over a lifetime, up to the date of the survey. The drawback is that they cannot provide current income or wealth at the time of the gift (we imputed it), and give no knowledge of siblings' reception. This precludes a conclusive test rejecting altruism. Besides, if altruistic transfers are small transfers made by parents reacting to small changes in the children's current income, it is no wonder that it is not easy to detect them in data on (mostly) formal inter-vivos gifts. There are many other forms of transfers not taken into account here: human capital investment, and all forms of help and services given by parents to their children, from coresidence to loans, which may be more directly altruistic or correspond to exchange. Moreover, since wealth is highly concentrated and since the practice of formal gifts is one of top wealth holders, a theoretical model adapted to the very rich is needed.

Study of the motives given by the households strongly suggests that different motives are present along the life-cycle or among different groups of households. Going more deeply into the separation of these motives is left for future research.

Acknowledgements

Appendix A. The construction of permanent income

The permanent income concept used in this paper is that calculated by Lollivier and Verger (1999) from the "Actifs financiers" survey. It is described here in more detail.

Assuming a stationary society where individuals have the same career profile along the life cycle and differ only by their initial income, the human capital HC_i of individual i is

$$\log HC_i = X_i \beta + \epsilon_i, \tag{A.1}$$

where X_i is a vector of variables describing the initial stock of human capital (diploma, parents' social status) and past career (length, unemployment periods, health problem periods) of the individual, β is the vector of parameters, and ϵ_i is a 'permanent' error term with 0 mean and variance σ_ϵ^2.

At the date t of the survey the relation between current income and human capital is

$$\log Y_{it} = \log HC_i + c(a_i) + v_{it}, \tag{A.2}$$

where $c(a_i)$ is an age effect, which is the same for all individuals (there is no generation effect on age income profile). $c(a_i)$ is the sum of a spline function and a dummy for the age of retirement (estimated with a duration model for those who were not retired at the date of the survey). v_{it} is a transitory random term with 0 mean and variance σ_v^2.

So the income equation is

$$\log Y_{it} = X_i \beta + c(a_i) + \epsilon_i + v_{it}, \tag{A.3}$$

where ϵ_i and v_{it} are assumed to be independent.

Eq. (A.3) is estimated by OLS to obtain $\hat{\beta}$ and an estimation of the age function $\hat{c}$. A minimum variance estimator of ϵ_i is given by

$$\hat{\epsilon}_i = \left(\frac{\sigma_\epsilon^2}{\sigma_\epsilon^2 + \sigma_v^2} \right) \widehat{(\epsilon_i + v_{it})} = \alpha \widehat{(\epsilon_i + v_{it})}, \tag{A.4}$$

where the permanent part of the variance α is evaluated with longitudinal data. Lollivier and Verger make α depend positively on the age of the individual (from 0.61 for individuals who are less than 25 years old, to 0.83 for those who are more than 40). From (A.1) and (A.4), they calculate an estimator of the individual's human capital:

$$\widehat{\log HC_i} = X_i \hat{\beta} + \hat{\epsilon}_i. \tag{A.5}$$

To simulate the life income profile, a monetary value $s(\tau)$ is given to each unit of human capital for all dates τ. In other words, $s(\tau)$ is an indicator of the general level of income. Lollivier and Verger assume that the evolution of $s(\tau)$ is the same for all individuals (there is no relation between age and date). For the past, they use time series of average income. For the future, they consider several scenarios (-2%, -1%, 0%, $+1\%$, $+2\%$). The real income profile of individual i is given by

$$R_i(a) = s(\tau) \exp[\widehat{\log Y_i(\tau,a)}] = s(\tau) \exp[X_i\hat{\beta} + \hat{\epsilon}_i + \hat{c}(a)], \tag{A.6}$$

where $Y_i(\tau,a)$ is the real income of individual i at age a and date τ. So the permanent income can be written

$$YP_i = \left(\sum_{a=A1}^{A2} \frac{R_i(a)}{\prod_{\tau=A1}^{a} [1 + \rho(\tau)]} \right) \Bigg/ \left(\sum_{a=A1}^{A2} \frac{1}{\prod_{\tau=A1}^{a} [1 + \rho(\tau)]} \right), \tag{A.7}$$

where the discount rate $\rho(\tau)$ is the real interest rate (equal to 3% for the future). $A1$ is the age at the beginning of economic life and $A2$ is the age at death (imputed from mortality tables).

At the date of the survey, the value of 'human gross wealth' for individual i at age A is the sum of his/her future incomes:

$$HW_i(A) = \left(\sum_{a=A}^{A2} \frac{R_i(a)}{\prod_{\tau=A}^{a}[1 + \rho(\tau)]} \right). \tag{A.8}$$

Permanent income was not computed for self-employed individuals because their income is less well known in the survey and it is hard to estimate $s(\tau)$ for them. Thus permanent income was calculated only for individuals in households with a salaried male head.

Eq. (A.3) was estimated separately on eight population subgroups. First, a distinction was made between males and females because their careers are different. Second, each gender was separated into four groups according to their initial human capital (proxied by individual's age at end of studies relative to the cohort average).

To estimate female permanent income, Lollivier and Verger assume that: (1) women who have never been in the job market up to the date of the survey will not be active in the future; (2) women who are in the job market at the date of the survey will still be in the market in the future; (3) among women who were not active at the date of the survey, but have been in the job market in the past, those who are over 40 years old will not be active in the future; (4) of those who are less than 40 years old, some (randomly selected to match observed activity rates at each age) will be active in the future.

Permanent income of a household is the sum of both spouses' permanent income. It is thus assumed that family structure in the future will be the same as family structure at the date of the survey (man alone or couple). Under the assumption of zero growth of wages in the future, average permanent income was about 122 000 francs when current income was 143 000 francs. Human wealth amounted to 2 700 000 francs when non-human gross wealth was about 670 000 francs.

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