

BEQUESTS, GIFTS, AND EDUCATION*

Swedish evidence on parents' transfer behavior

Katarina Nordblom Henry Ohlsson

September 2003

Abstract

Understanding the determinants of parental transfers is important for several fields in economics, for example, macroeconomics, income and wealth (re)distribution, savings, and public finance. We study the channels parents use to make transfers to their children. First, we focus on the relationship between investments in education and property transfers. Second, we turn to how property transfers are divided between *inter vivos* gifts and bequests. Are the different channels used as substitutes or complements? We use a recent Swedish data set. It is superior to previously used data as it has information on both gifts and inheritances received from parents. We estimate models for the probabilities of having university education, receiving gifts, and receiving inheritances. In addition, we estimate models for gift amounts and inherited amounts. A first main result is that university education has a positive impact on gift probabilities and gift amounts. We also find evidence that parents use bequest and *inter vivos* gifts as substitutes in the sense that gift and bequest probabilities are negatively related. Third, women are more likely than men to receive all types of transfers. Fourth, the more relatives give, the less parents give.

JEL: D10, D64, D91

Keywords: bequests, inheritances, *inter vivos* gifts, education, altruism

Correspondence to: Katarina Nordblom, Department of Economics, Göteborg University, PO Box 640, SE-405 30 Göteborg, Sweden, email <katarina.nordblom@economics.gu.se> or Henry Ohlsson, Department of Economics, Uppsala University, PO Box 513, SE-751 20 Uppsala, Sweden, email <henry.ohlsson@nek.uu.se>.

*Helpful comments and suggestions from Georges Bresson, John Laitner, and Rupert Sendlhofer are gratefully acknowledged. We have also benefited from comments on previous versions of the paper by seminar participants at Göteborg,ERMES; Paris II, SOFI; Stockholm, Umeå, the 2001 IIPF Linz conference, and the 2002 ESPE Bilbao conference. Nordblom thanks the Jan Wallander and Tom Hedelius Foundation for generous financial support. Some of the work was done when Ohlsson enjoyed the hospitality of ERMES, Université Panthéon-Assas, Paris II.

1 Introduction

The main objective of this paper is to study the different channels parents can use to make transfers to their children. Some parents, for instance, are prepared to pay for their children's education but not to make any other property transfers. Another illustration is that some prefer to give money while they are alive (warm glow) rather than bequeathing money.

Parents intentionally, but also unintentionally, make transfers to their children in different ways. There are biological transfers of natural talents and abilities. Purchases of education and other human capital investments are other ways of making transfers. Parents can also transfer financial and tangible property by bequests and *inter vivos* gifts.

The interactions between these different channels for transfers are important for assessing the effects of the transfers. We will focus on two issues:

1. What is the relationship between parents' investment in human capital for their children, on the one hand, and their *inter vivos* gifts and bequests on the other?
2. Do parents use *inter vivos* gifts and bequests as substitutes or complements?

There is a natural sequence over the life cycle of a child for these transfers. Human capital investments usually come early in life. Parents often make *inter vivos* gifts when the child has formed her own family. Inheritances are the last transfers received from parents.

Suppose that there exist stable relationships between the different types of transfers. And suppose that if we have information about early transfers in the child's life. It is then possible to use this information to make better predictions about transfers later in the child's life.

It is crucial to understand the determinants of parental transfers for a wide range of economic issues. Some of these are the possible effects of fiscal policy, the equality of opportunity, the determinants of savings, and the optimal design of tax systems. In macroeconomics, for example, the Ricardian equivalence predictions rest on the assumption of dynastic, altruistic, behavior. Second, parental property transfers are also important when discussing the distribution of income and wealth. The extent to which wealth is carried over from one generation to the next affects how equal opportunities really are. Parental transfers may also decrease the efficiency of public redistribution by counteracting the intended effects of public transfers.

A third field for which parental transfers are important is savings. Strong bequest motives will affect savings behavior. This concerns saved amounts but also the timing of savings over the life cycle. Finally, there are also public finance aspects of parental property transfers. Depending on the determinants of transfer behavior, taxes on *inter vivos* gifts, bequests, and inheritances may or may not create excess burdens.

Much of the previous work concerning bequests has been done on U.S. data, and in this respect the U.S. is rather special. In many European countries bequests are more prevalent also among less wealthy people.¹ Therefore it might be especially interesting to analyze inheritances from a Swedish point of view.

We use recent Swedish data from the 1998 wave of the “Household market and nonmarket activities”-survey (HUS).² This is the first survey for several decades with such detailed information about *inter vivos* gifts and

¹Laitner and Ohlsson (2001) show that Swedes are much more likely to inherit than are Americans.

²The HUS survey is presented at <www.handels.gu.se/econ/econometrics/hus/husin.htm>. There are 8 waves of this survey during the period 1984 – 2000.

inheritances in Sweden.³ It is unique for Sweden as it simultaneously has information on both *inter vivos* gifts and inheritances. It is also superior to previous Swedish data as it is possible to distinguish transfers received from parents from transfers from relatives and other people. This allows us to isolate transfers from parents to children.

The data are on the recipient level. The respondent's siblings are not included in the survey. This means that we cannot tell if parents treat their children in the same way or if transfers, for instance, are compensatory. To do this we need data on the within-family-variation in transfers. Here we can only use the between-family-variation to study the determinants of transfers.

We estimate probit models for the likelihood of having a university education, receiving gifts from parents, and receiving inheritances from parents. The explanatory variables are proxies for parents' resources and variables capturing characteristics of the child. In addition to reduced form estimations, we also estimate structural models for the property transfers. Here the probabilities of receiving transfers of the other types are included as explanatory variables. We also estimate models for gift amounts from parents conditional on having received any parental gift and for inherited amounts from parents conditional on having received any parental inheritance.

For all three transfers we find that more resources for the parents increase the likelihood of transfers and the amounts transferred. This is consistent with most theories of intergenerational transfers. Our other main results are:

First, controlling for parental resources, university education has a positive impact on gift and inheritance probabilities and on gift amounts. We

³Blomquist (1979) and Laitner and Ohlsson (2001) are two previous empirical studies of inheritances using Swedish data.

assume that university education is a good proxy for parents' investments in the human capital of their children. Even though education is free of charge in Sweden, there is evidence parents have spend resources on their children's human capital accumulation.⁴ This result suggests that parents differ in their preferences for how important they consider the well being of their children is.

Second, there is also some evidence that parents use *inter vivos* gifts and bequests as substitutes. Controlling for parental resources, we find that gift and bequest probabilities are negatively related. This suggests that parents differ in when in the child's life cycle they find it optimal to transfer property.

Third, women are more likely to have university education and to have received gifts, controlling for parents' resources. The property transfers could be because daughters care for their parents, in line with the exchange model for intergenerational transfers, see Cox (1987). It is, however, difficult to give an exchange explanation for the higher likelihood of having a university education. This could rather be because women often have lower wages than men at a certain education level. In order to give the daughters the same consumption possibilities as sons altruistic parents therefore might invest more in the human capital of their daughters.

Finally, there are positive relationships between the probabilities of property transfers from parents and property transfers from relatives. This suggests that preferences differ between dynasties (families in a broader sense). At the same time, the actual gift amount from relatives has a negative impact on the gift amount from parents. The parental gift amounts are compensatory in this sense. Theoretically, this is also what would be predicted in a pure altruistic model in the tradition of Becker (1974) and Barro (1974).

⁴See e.g. Klevmarken and Stafford (1999).

The paper is organized as follows: Our theoretical framework is presented in section 2. In this section we first discuss the relationship between parents' investments in their children's human capital and their property transfers to their children. We then discuss the choice between *inter vivos* gifts and bequests. Section 3 presents the data and some main descriptive statistics. Descriptive statistics for all variables used in the empirical analysis can be found in the appendix. Section 4 reports our empirical results. Finally, Section 5 concludes.

2 Theoretical framework

There are several theories suggesting different motives for intergenerational transfers. Most of these deal with bequests from parents, which are the most common property transfers, also in our data. Bequests may be accidental but there are also altruistic, egoistic, and exchange motives suggested in the literature.⁵ *Inter vivos* gifts, on the other hand, are always voluntary.⁶

Our point of departure is an altruistic transfer motive, see Becker (1974) and Barro (1974). Altruistic parents allocate their resources to make the marginal utilities of all members of the family more equal. The extent depends on the degree of altruism. Parents may differ in this respect. If parents want to transfer resources to their children they can transfer human capital and/or property.

2.1 Human capital investments or property transfers?

Becker and Tomes (1986) is a seminal paper on the interactions between human capital investments and property transfers. The paper argues that

⁵See Masson and Pestieau (1997) for an overview of different bequest motives and their implications. Hamermesh and Menchik (1987) discuss planned and unplanned bequests.

⁶Laitner (1997) surveys the literature on intergenerational transfers.

there are probably diminishing returns to human capital investments, while there are constant returns to property transfers. Wealthy parents, therefore, invest more in the human capital of their children than less wealthy parents. They are also more likely to transfer property.

The working paper version of this paper, Nordblom and Ohlsson (2002), presents an illustrative model of a parent's choice between purchases of education and property transfers when there is publicly provided education.⁷ We assume that the parent always makes at least some investment in the child's human capital while there may or may not be property transfers.

The parent has an incentive to invest in more human capital if the return to human capital investment is higher than the return to property transfers. Human capital investment is increasing in the parent's income as long as there is a positive excess return. In the context of the Swedish educational system with all education free of charge, these parental investments are likely to be informal complements to public education. Parents who make larger investments, help their children attain higher levels of education within the public system.

The parent will make property transfers to the child when there is no positive excess return to human capital investment. The likelihood of a property transfer is increasing in the parent's income while it is decreasing in the child's wage rate. Thus, a parent who is poorly educated and has a low wage rate is less likely to make property transfers. Moreover, a child who has a high wage rate is less likely to receive property transfers. The amounts of property transferred are increasing in the parent's income while it is decreasing in the child's wage rate.

⁷The model resembles that of Nordblom (2003).

2.2 *Inter vivos* gifts or bequests?

Parents can make property transfers during their life–time—*inter vivos* gifts. An alternative is to bequeath, thus making the transfer *post mortem*. Why gifts and not bequests?

The existence of liquidity constraints may make parents choose gifts rather than bequests (Bernheim et al., 1985). It is difficult for children to borrow against future inheritances because of imperfect markets and asymmetric information. Parents may, on the other hand, choose to postpone transfers as long as possible for strategic reasons (Cremer and Pestieau, 1996). The motivation for this is to provide the right incentives to study and work for the children. Parents may differ in how they weigh these counteracting effects against each other.

On the other hand, the parent may be liquidity constrained and therefore make transfers as bequests rather than as *inter vivos* gifts. Housing wealth is often a large part of household wealth, and it is not realized until the house is sold.

There are also papers assuming that the actions of a selfish child affects the income of an altruistic parent. In the model of Bruce and Waldman (1990) *inter vivos* gifts and bequests are substitutes in the following sense:⁸ If *inter vivos* gifts are large enough there will be no bequests. The parent is, however, in a second best situation.

If the parent only bequeaths a selfish child will, on the one hand, act so as to maximize the total income of the family.⁹ But he will, on the other hand, save too little the first period expecting the parent to bequeath the second

⁸See also Lindbeck and Weibull (1988).

⁹The Rotten Kid theorem, see Becker (1974), says that if all family members receive gifts from an altruistic parent, it will be in the interest even of selfish family members to maximize total family income. See also Bergstrom (1989).

period. This is the Samaritan’s Dilemma. If the parent instead chooses only to transfer *inter vivos* during the first period, the child will choose to save an efficient amount. The problem is that the child will not act as to maximize total family income during the first period. Instead it will be a Rotten Kid maximizing its own income at the expense of the parent. There can thus be an efficiency trade off between *inter vivos* gifts and bequests.

Some parents may be more concerned with the Rotten Kid problem and less with the Samaritan’s Dilemma. They will bequeath. Other parents may care a lot about the Samaritan’s Dilemma but are less concerned with the Rotten Kid problem. They will give *inter vivos*.

The existence of gift, estate, and inheritance taxation may also affect the choice between gifts and bequests by creating incentives for tax avoidance. Nordblom and Ohlsson (2003) find that transfer taxes may have unexpected effects. These transfer taxes are likely to increase bequests at the expense of *inter vivos* gifts.

3 Data

Our data set is from the 1998 wave of the “Household market and nonmarket activities”-survey (HUS). The complete cross section data set has information about 3,912 individuals belonging to 2,375 households. Of these, 2,899 people have answered the questions about *inter vivos* gifts and inheritances. We have, furthermore, excluded respondents younger than 25.¹⁰ The exclusion of younger individuals is because we want to study human capital and those who go to university have often finished their education by age 24. This leaves us with 2,729 observations in 1,807 households. Although the sample is rather small, we believe that it is sufficient for our purposes.

¹⁰Descriptive statistics for all variables used are presented in Appendix A.

The respondent's siblings are, unfortunately, not included in the survey. This means that we cannot tell if parents treat their children in the same way or not. To do this we need data on the within-family-variation. Here we can only use the between-family-variation.

Table 1 reports that almost 27.3 % of the respondents in our sample have university education. Unfortunately we do not have any direct data on parents' engagement in their children's human capital investments. Instead we assume that the attained educational level proxies for the parents' human capital investment. Having a university degree is, in other words, interpreted as a large investment in the child's human capital by the parent.

< Table 1 about here >

With equal opportunity to education publicly provided free of charge there seems—at first—to be little need for Swedish parents to top up public provision by privately purchasing more human capital for their children. Parents, however, make informal investments in their children's human capital as a complement to public education. Using Swedish data, Klevmarken and Stafford (1999) find that parents' investments in their children are larger than the publicly provided investments.

It could be argued that differences in educational attainment could arise because of differences in ability and not differences in human capital investment. The experience in Sweden is, however, that although education is free of charge and there are subsidized government guaranteed student loans, still a very low proportion of university students come from low income families. There is no evidence that this is because of lack of ability.

Plug and Vijverberg (2001) use U.S. data and show that family income *per se* has a positive impact on children's schooling. Eckstein and Wolpin (1999) find that children whose parents have low income and/or a low level

of education are more likely to drop out of high school. Taken together this indicate that parents with high income tend to invest more in their children's education. This is also shown theoretically by Nordblom (2003).

The data set is rich concerning property transfers.¹¹ We do not only have information about the number and size of *inter vivos* gifts and inheritances, we also know from whom the transfer came; parents, relatives, or someone else. This allows us to isolate transfers from parents to children. The questions concerns all transfers ever received.¹² All adult members of the interviewed households were asked:¹³

“Have you or anyone else in your household received a gift worth at least SEK 1,000¹⁴ or equivalent value?”

All amounts are deflated to the 1998 values using the consumer price index and a 0% real interest rate. Some observations do not include the year and/or the amount of the property transfer. We have had to omit these observations when we study transferred amounts.

A major drawback is, however, that no further specifications are made about who in the household actually received the property transfers. For example, a parental transfer to the respondent's household may have come from the parents-in-law to the respondent's spouse. This creates an assignment problem. We have, therefore, been forced to omit the observations where we have not been able to assign the property transfer to a particular household member.

¹¹Klevmarken (2001) discusses the relative importance of inheritances and gifts for total net worth and wealth inequality using this data.

¹²The survey also includes questions on expected future transfers but we do not use that information here.

¹³The inheritance question is analogous.

¹⁴Presently, August 2003, the SEK/USD and SEK/EUR exchanges rates are roughly 8 and 9.

We have to drop 25 gift observations because of the assignment problem. There are 2,704 usable observations concerning *inter vivos* gifts. Among these almost a fifth, 18.0 %, report that they have received gifts.

The reliability of this can be questioned. The share may be too low. All gifts exceeding SEK 10,000 annually are subject to gift taxation (in 1998). But many taxable monetary gifts are probably never reported to the tax authorities. This may influence the willingness of the respondents to report having received *inter vivos* gifts.

When it comes to *inter vivos* transfers a parent can also lend money. In some surveys loans and gifts are treated as the same kind of transfer (e.g., PSID and HRS in the U.S.). The reason is that many loans are not intended to be paid back. It is often more likely that these loans are used to avoid taxes.

Our data contains information on whether the household has any debt to anyone within the family—parents or relatives. It is, unfortunately, not possible to separate loans from parents from loans from other relatives. We do not have information on the amounts borrowed either. We can, therefore, not include lent amounts in the empirical analysis. For the respondents whose parents are alive we do, however, include a dummy variable for loans in the estimation. Although imprecise, this is a measure of if parents have lent money.

The assignment problem is much more severe for inheritances. In this case we have to drop 324 observations of inheritances. There are 2,405 usable observations concerning inheritances. Slightly more than one out of five, or 21.2 %, answer that they have ever inherited.

But many of the respondents have not yet inherited simply because their parents are still alive. It is not possible to know if these parents intend to

bequeath. We know that 629 of the 2,729 respondents have both parents deceased and there are 122 missing observations. Hence the proportion with both parents deceased is 24.1 %. The corresponding proportion for those with usable observations of inheritances is 27.5 %.

Table 2 reports the average amounts transferred depending from the type of donor. It is clear from the table that property transfers from parents are the most frequent. The table shows that the amounts inherited are larger than *inter vivos* gifts.

< Table 2 about here >

Most respondents who have received parental transfers have only received inheritances and no *inter vivos* gifts. This does not necessarily contradict the altruistic bequest motive. It could be the case that parents are liquidity constrained. Unfortunately, we do not have information about which kinds of assets that have been transferred. Housing wealth is a large share of household wealth. Parents may not have liquidity enough to make transfers until they are willing to leave their house. This is often at end of the life cycle. This is also supported by the fact that the most sizable *inter vivos* gifts are made early in the child's life cycle. Prosperous parents can afford to make transfers early, when their children need the resources the most. They do not have to wait until their bounded assets are released. Obviously, inheritances occur later in life than do *inter vivos* gifts. The average age for receiving an inheritance from a parent is 44.6 years. For *inter vivos* gifts the mean age for receiving from a parent is 38.5 years. However, the mean age for receiving a gift exceeding SEK 100,000 is only 33 years.

Some of the inheritances from relatives are probably from grandparents. There are incentives for an altruistic (or tax avoiding) parent to pass on inheritances to her children. To pass on an inheritance is advantageous

for the parent compared to other *inter vivos* gifts. Gifts exceeding SEK 10,000 annually (in 1998) are taxable, while the tax exempt amount for an inheritance passed on is SEK 70,000. In this case the inheritance should rather be viewed as a parental gift.

There are few transfers from other people. In the following analysis we simply add these to the transfers from relatives.

There are 173 respondents, 28.2 percent, in the sub-sample with both parents deceased who have inherited. Almost 10 percent of the people in the sub-sample have also received gifts. Few of these are, however, from parents.

The main theme of the paper is to study how different types of intergenerational transfers are related, especially those from parents. Table 3 reports pairwise correlations between the incidence of different transfers. Note that the table does not report correlations between amounts. We would expect positive correlations if two channels simultaneously are used. In other words, if the channels are complements. Suppose instead that the two channels are substitutes, that there is an either/or situation. The correlations can then be expected to be negative.

< Table 3 about here >

Having a university degree is positively correlated with having received property transfers, especially *inter vivos* gifts from parents. The correlations marked with three stars are all significant at the 1% level. There is also a significant correlation between *inter vivos* gifts and inheritances from parents. But, the correlation between gifts from parents and loans is more than twice as high. This suggests that *inter vivos* transfers often consist of both gifts and loans, maybe because of tax planning. The strong positive correlation between inheritances from parents and relatives suggests that

transfers are more prevalent in certain families than in others.

4 Evidence

In the empirical analysis we study what factors make some parents transfer more than others. We also try to understand the mechanisms determining what specific channels parents use. Finally, we study whether different transfers are substitutes or complements.

We have estimated probit models for whether respondents in our data set have received the three types of transfers from their parents. We have also estimated regression models for the gift and inheritance amounts conditional on having received anything at all.

According to theory, an altruistic parent transfers resources to the child if weighted life-time resources of the parent exceed those of the child. We do not know the life-time resources, neither of the child, nor of the parent, so we are forced to use proxies. We have no information about parental income, so we use education and occupation instead. The highest level of education any of the parents has is captured by two dummy variables. We also have dummy variables for the father's occupation, whether he has run his own business or has been an executive, as opposed to being a blue-collar or lower white-collar worker. Two other proxies for the resources of the parents are used. We include dummy variables for respondents who grew up abroad and those who did not grow up with both parents.

The gender and the age of the respondent are also included as explanatory variables. We have tried the average taxable income in 1996 and 1997, which we know from register data, as a proxy for the life-time income of the respondent. There are, however, many missing observations for this variable. It is, in addition, not significant in any of the specifications we have

tried. We, therefore, do not include income in the specifications reported here.

Education. First we want to study what determines if parents make large investments in the human capital of their children. As discussed in Section 3, we take university education as a proxy for large human capital investments by parents. The estimation results are reported in Table 4.¹⁵

< Table 4 about here >

The higher the education of parents, the higher is the probability that the respondent will have achieved a university degree. This could merely reflect low educational mobility. It could, however, also indicate that more prosperous parents (those with high education) transfer more resources to their children. This is also supported by the fact that having a father who has been an executive increases the probability that the respondent has gone to university. Respondents who did not grow up with both parents are less likely to have university education.

Women are more likely to have a university education than men. The probability of having a university education is increasing in the age of the child up to age 44. In this case, age also captures cohort effects. There are fewer university educated in older cohorts because fewer went to university. And there are fewer university educated in younger cohorts because not all have completed their education. When we do the same exercise with the subsample whose both parents are deceased, the only remaining significant variable is if any of the parents has a university education.

Property transfers. We now turn to property transfers and estimate models for *inter vivos* gifts and inheritances. We start by reporting the results from estimating probit models for whether or not the respondent has

¹⁵We have use the Stata package, all reported standard errors are robust, see StataCorp (2001).

received gifts or inheritances.

We have estimated reduced form models, as well as structural form models. In the reduced form analysis we only use the set of exogenous variables also used in the university education probit. The objective of the structural form analysis is to study the interactions between different types of transfers.

We instrument the variables university education, gifts from parents, inheritances from parents, and loans from family when used as explanatory variables. This is done by estimating reduced form models and then computing probabilities and expected amounts. Appendix B gives more information about how we have done this. Identification is achieved on different ways. One is that the models are estimated using different samples. For example, the university education probit is estimated using the complete sample while the inheritance probit is only estimated for people with both parents deceased.

Columns 1 and 2 in Table 5 report marginal effects from probit estimations for the probability of having received a parental *inter vivos* gift.¹⁶

< Table 5 about here >

The more educated the parents are, the more likely are they to have given *inter vivos*. Being brought up abroad reduces the probability of having received a gift with 9 percentage points.

The probability of having received parental gifts is 3 percentage points higher for women than for men, controlling for parents' resources. This could be because daughters care for their parents, in line with the exchange model for intergenerational transfers, see Cox (1987). But women are also more likely to have a university education than men, indicating that parents

¹⁶Some empirical papers studying *inter vivos* gifts are Altonji et al. (1997), Arrondel and Laferrère (2001), Arrondel and Masson (2001), Cox (1987), Dunn and Phillips (1997), Hochguertel and Ohlsson (2000), and McGarry (1999).

are more generous towards their daughters.¹⁷

Now we turn to the structural form probit, see column 2 in Table 5. Controlling for parental resources, we see that the probability of university education increases significantly the gift probability. There is a complementary relation between education and gifts. Some parents transfer more, both as human capital investments and as gifts, some transfer less. This result suggests that parents differ in their preferences for how important they consider the well being of their children is.

The table also reports a significant negative impact of the probability of a parental inheritance controlling for parental resources. Respondents who have a high probability of receiving a parental inheritance are less likely to receive *inter vivos* gifts than those with a low probability. This suggests that parents use *inter vivos* gifts and bequests as substitutes. Parents, in other words, differ in when in the child's life cycle they find it optimal to transfer property.

Having received *inter vivos* gifts and inheritances from relatives and others is positively related to the probability of having received a parental gift. This could be because of a dynastic effect, where some dynasties (richer or more altruistic) are more prone to give than others.

Similar estimations for the probability of having received a parental inheritance are presented in columns 3 and 4 in Table 5.¹⁸ We have estimated these probits using a sub-sample of those who have reported that both their parents are deceased.

Several of the proxies of the parents' resources suggest that parents with

¹⁷This significant gender effect remains even if we control for the income of the respondents.

¹⁸Some empirical papers studying bequests and inheritances are Arrondel et al. (1997), Jürges (2001), Laitner and Juster (1996), Laitner and Ohlsson (2001), Menchik (1980, 1988), Tomes (1981, 1988), and Wilhelm (1996).

more resources are more likely to bequeath. Having been brought up abroad reduces the probability of having received an inheritance with 20 percentage points. Respondents who did not grow up with both parents are not significantly less likely to inherit although they receive *inter vivos* gifts to a lesser extent.

Now we turn to the structural form probit, see column 4 in Table 5. We find that the estimated effect of the probability of gifts from parents on inheritances from parents is negative but not significant. As for gifts, having received *inter vivos* gifts and inheritances from relatives and others increases the probability of having received a parental inheritance. When it comes to inheritances these transfers has a stronger impact. Having received an inheritance from a relative increases the probability of having received also a parental inheritance with 41 percentage points.

We have also estimated OLS regressions for the gift amounts received conditional on having received anything at all. The dependent variables are the logarithms of gift amounts.¹⁹ The right-hand side transfer amounts are also expressed in logarithmic terms. Table 6 reports the estimation results.

< Table 6 about here >

Variables indicating parental economic status are insignificant for gift amounts, with the exception of having been brought up abroad. There is a very strong positive effect of a high probability of having borrowed money from family members on the gift amount. This could indicate that due to tax avoidance parents who want to transfer large amounts complement sizable gifts with loans (perhaps not intended to be paid back).

The actual gift amounts from relatives have a significant effect on *inter vivos* amounts transferred from parents. The effect is negative but small; the

¹⁹We have only done this for *inter vivos* gifts, since the sample is so small for those with positive inheritances, so those estimates are not very useful.

elasticity is only 5 percent. This suggests that parents act in a compensatory way. Controlling for their resources, they decrease their gifts to the child if she has received large gifts from others. Theoretically, this is what would be predicted in an altruistic model in the tradition of Becker (1974) and Barro (1974).

5 Conclusion

We have studied intergenerational transfers using information on both *inter vivos* gifts and inheritances. The unique Swedish data set, the 1998 wave of HUS, also allows us to distinguish between transfers from parents and transfers from relatives and others.

Parental transfers are the most common and largest, and from an intergenerational mobility perspective, the most interesting. According to theory in the spirit of Becker and Tomes (1986), altruistic parents transfer resources to their children in terms of human capital and/or property. Suppose that there are decreasing marginal returns to human capital investments, but constant returns to property transfers. We would then expect parents to invest in human capital up to a certain point and then turn to transfers of property. Parents with less resources will only transfer human capital, and that to a lesser extent than more prosperous parents.

The empirical analysis supports this result. Higher parental resources increase the likelihood of all types of transfers.

There are strong positive correlations between human capital formation and property transfers. Controlling for parents' resources, we find that university education has a positive impact on gift and inheritance probabilities and on gift amounts. There is a complementary relation between education and gifts. Some parents transfer more, both as human capital investments

and as gifts, some transfer less. This result suggests that parents differ in their preferences for how important they consider the well being of their children is.

There is also some evidence that parents use *inter vivos* gifts and bequests as substitutes. Controlling for parental resources, we find that gift and bequest probabilities are negatively related. Respondents who have a high probability of receiving a parental inheritance are significantly less likely to receive *inter vivos* gifts than those with a low probability. This suggests that parents differ in when in the child's life cycle they find it optimal to transfer property.

Most respondents who have received parental transfers have only received inheritances and no *inter vivos* gifts. This does not necessarily contradict the altruistic bequest motive. It could be the case that parents are liquidity constrained.

Women are more likely than men to receive transfers, controlling for parents' resources. They are, in other words, more likely to have university education and to receive *inter vivos* gifts.

The property transfers could be because daughters care for their parents, in line with the exchange model for intergenerational transfers. It is, however, difficult to give an exchange explanation for women's higher likelihood of having a university education.

Finally, relatives seem to have the same property transfer behavior as parents. There are positive relationships between the probabilities of property transfers from parents and property transfers from relatives. This suggests that preferences differ between dynasties (families in a broader sense).

At the same time, parental gift amounts are compensatory. Controlling for their resources, parents decrease their gifts to the child if she has received

large gifts from relatives and others. Theoretically, this is what would be predicted in a pure altruistic model.

The effect of the inherited amount is, however, insignificant. This could reflect that people take taxation into serious account when they decide upon *inter vivos* gifts. This is supported by the finding that parents who transfer large *inter vivos* amounts also tend to lend money to their children possibly to avoid taxation.

We, however, suspect that some of inheritances from others than parents probably are disguised parental *inter vivos* gifts. Parents can hand over some or all of the inheritance they receive to their children. This transfer is more favorable from a taxation point of view than other *inter vivos* gifts.

A Appendix. Sample statistics

Table A.1 reports descriptive statistics for the variables used in the estimations. We use the full sample and a sub-sample of respondents whose both parents are deceased to study gifts. The sub-sample is also used to study inheritances. It consists of 23.3% of the respondents.

The variable “university education” is a dummy variable which takes the value 1 if the respondent has a university degree, 0 otherwise. Also “gift from parents”, “inheritance from parents”, “loan from family”, “gift from relatives”, and “inheritance from relatives” are constructed in the same way.

The variables “parent high school” and “parent university” are dummy variables indicating the highest education of any of the parents. Two other dummy variables are “father own business” and “father executive”, which takes value 1 if the father has run his own business or has been an executive, respectively. When both these dummy variables are zero the father has been a blue-collar or lower white-collar worker. The dummy variable “grew up abroad” takes the value 1 if the respondent spent most of her childhood abroad. The dummy variable “did not grow up with both parents” takes value 1 if the respondent has not lived together with both parents during the major part of childhood.

< Table A.1 about here >

B Appendix. Identification and first step estimations

In the structural form probit for each transfer type, we use four predicted probabilities for the other transfer types among the explanatory variables. Similarly, we use predicted expected values for inherited amounts in the structural form regression for *intervivos* gift amounts.

This raises the question of identification. Usually this is done by imposing exclusion restrictions. Here we use the same right hand side variables in all first and second step estimations. Six dummy variables proxy parents' resources: parents education and occupation (4 dummy variables), child grew up abroad, and child did not grow up with both parents. In addition, gender and age of the respondent are included among the right hand side variables.

Instead identification is here achieved by varying the samples sizes in two ways. First, we use different samples for the first step estimations. Second, we make predictions for different samples. This way we do not only identify on the functional forms.

The set of right hand side variables is non-missing for 2,607 observations out of the total of 2,729 observations. There are no missing observations for the variable university education. The first step estimation can, therefore, be based on 2,607 observations. This is the estimation reported in Table 4, column 1. The probability of having a university education is then predicted for the 2,607 observations using this model, see Table B.1.

< Table B.1 about here >

The procedure is analogous for the probability of receiving a gift from the

parents. As there are some missing observations for the dependent variable in the first step, the number of observations used is 2,586 (see, Table 5, column 1). The probability prediction can, however, be made for the 2,607 observations.

The expected unconditional inheritance amount from parents is computed in the following way: The predicted probability of a parental inheritance given both parents are deceased, see previous paragraph, is multiplied by the expected conditional amount. The expected conditional amount is calculated by first estimating a model for inheritance amounts only using observations with positive parental inheritances. This leaves us with 142 observations for the estimation. The prediction is then made for all 2,607 individuals, and for those whose parents are alive the prediction could be interpreted as the probability of having inherited if their parents would have been dead. The opposite is done for loan from family. Here we condition on having at least one parent alive when estimating.

References

- J. G. Altonji, F. Hayashi, and L. J. Kotlikoff. Parental altruism and inter vivos transfers: Theory and evidence. *Journal of Political Economy*, 105(6):1121–1166, December 1997.
- L. Arrondel and A. Laferrère. Taxation and wealth transmission in France. *Journal of Public Economics*, 79(1):3–33, January 2001.
- L. Arrondel and A. Masson. Family transfers involving three generations. *Scandinavian Journal of Economics*, 103(3):415–443, September 2001.
- L. Arrondel, A. Masson, and P. Pestieau. Bequest and inheritance: Empirical issues and France–U.S. comparison. In G. Erreygers and T. Vandevelde, editors, *Is Inheritance Legitimate? Ethical and Economic Aspects of Wealth Transfers*, chapter 4, pages 89–125. Springer Verlag, Berlin, 1997.
- R. J. Barro. Are government bonds net wealth? *Journal of Political Economy*, 82(6):1095–1117, December 1974.
- G. S. Becker. A theory of social interactions. *Journal of Political Economy*, 82(6):1063–1093, December 1974.
- G. S. Becker and N. Tomes. Human capital and the rise and fall of families. *Journal of Labor Economics*, 4(S):S1–S39, July 1986.
- T. C. Bergstrom. A fresh look at the Rotten Kid theorem—and other household mysteries. *Journal of Political Economy*, 97(5):1138–1159, October 1989.
- B. D. Bernheim, A. Shleifer, and L. H. Summers. The strategic bequest motive. *Journal of Political Economy*, 93(6):1045–1076, December 1985.
- S. Blomquist. The inheritance function. *Journal of Public Economics*, 12(1):41–60, August 1979.
- N. Bruce and M. Waldman. The rotten kid theorem meets the samaritan’s dilemma. *Quarterly Journal of Economics*, 105(1):155–165, February 1990.
- D. Cox. Motives for private income transfers. *Journal of Political Economy*, 95(3):508–546, June 1987.
- H. Cremer and P. Pestieau. Bequests as heir “discipline device”. *Journal of Population Economics*, 9(4):405–414, November 1996.

- T. A. Dunn and J. W. Phillips. The timing and division of parental transfers to children. *Economics Letters*, 54(2):135–137, February 1997.
- Z. Eckstein and K. I. Wolpin. Why youths drop out of high school: The impact of preferences, opportunities, and abilities. *Econometrica*, 67(6):1295–1339, November 1999.
- D. S. Hamermesh and P. L. Menchik. Planned and unplanned bequests. *Economic Inquiry*, 25(1):55–66, January 1987.
- S. Hochguertel and H. Ohlsson. Compensatory *inter vivos* gifts. Working Paper 31, Department of Economics, Göteborg University, October 2000.
- H. Jürges. Do Germans save to leave an estate? An examination of the bequest motive. *Scandinavian Journal of Economics*, 103(3):391–414, September 2001.
- A. Klevmarcken and F. Stafford. Measuring investments in young children with time diaries. In J. Smith and R. Willis, editors, *Wealth, work, and health. Innovations in measurement in the social sciences*, pages 34–63. The University of Michigan Press, Ann Arbor, 1999.
- N. A. Klevmarcken. On the wealth dynamics of Swedish families 1984–1998. Working Paper 2001:17, Department of Economics, Uppsala University, September 2001.
- J. Laitner. Intergenerational and interhousehold economic links. In M. R. Rosenzweig and O. Stark, editors, *Handbook of Population and Family Economics*, volume 1A, chapter 5, pages 189–238. North-Holland, Amsterdam, 1997.
- J. Laitner and F. T. Juster. New evidence on altruism: A study of TIAA-CREF retirees. *American Economic Review*, 86(4):893–908, September 1996.
- J. Laitner and H. Ohlsson. Bequest motives: A comparison of Sweden and the United States. *Journal of Public Economics*, 79(1):205–236, January 2001.
- A. Lindbeck and J. W. Weibull. Altruism and time consistency: The economics of fait accompli. *Journal of Political Economy*, 96(6):1165–1182, December 1988.
- A. Masson and P. Pestieau. Bequests motives and models of inheritance: A survey of the literature. In G. Erreygers and T. Vandevelde, editors, *Is Inheritance Legitimate? Ethical and Economic Aspects of Wealth Transfers*, chapter 3, pages 54–88. Springer Verlag, Berlin, 1997.

- K. McGarry. Inter vivos transfers and intended bequests. *Journal of Public Economics*, 73(3):321–351, September 1999.
- P. L. Menchik. Primogeniture, equal sharing and the U.S. distribution of wealth. *Quarterly Journal of Economics*, 94(2):299–316, March 1980.
- P. L. Menchik. Unequal estate division: Is it altruism, reverse bequests, or simply noise? In D. Kessler and A. Masson, editors, *Modelling the Accumulation and Distribution of Wealth*, chapter 4, pages 105–116. Clarendon Press, Oxford, 1988.
- K. Nordblom. Is increased public schooling really a policy for equality? The role of within-the-family education. *Journal of Public Economics*, 87(9-10):1943–1965, 2003.
- K. Nordblom and H. Ohlsson. Bequests, gifts, and education: Swedish evidence on parents’ transfer behavior. Working Paper 69, Department of Economics, Göteborg University, April 2002.
- K. Nordblom and H. Ohlsson. Taxes and intra-family transfers. June 2003.
- E. Plug and W. Vijverberg. Schooling, family background, and adoption: Does family income matter? Discussion paper 246, IZA, January 2001.
- StataCorp. *Stata Statistical Software: Release 7.0*. Stata Corporation, College Station, TX, 2001.
- N. Tomes. The family, inheritance, and the intergenerational transmission of inequality. *Journal of Political Economy*, 89(5):928–958, October 1981.
- N. Tomes. Inheritance and inequality within the family: Equal division among unequals, or do the poor get more? In D. Kessler and A. Masson, editors, *Modelling the Accumulation and Distribution of Wealth*, chapter 3, pages 79–104. Clarendon Press, Oxford, 1988.
- M. O. Wilhelm. Bequest behavior and the effect of heirs’ earnings: Testing the altruistic model of bequests. *American Economic Review*, 86(4):874–892, September 1996.

Table 1: Incidence of university education, *inter vivos* gifts, and inheritance.

	number of observations		
	university education	<i>inter vivos</i> gifts	inheritances
yes	744	486	462
no	1,985	2,218	1,943
usable observations	2,729	2,704	2,405
not possible to assign	–	25	324

Note. The total number of observations is 2,729.

Table 2: Transferred amounts, 1998 SEK thousands.

	all		both parents deceased	
	n of obs	mean	n of obs	mean
<i>inter vivos</i> gift from:				
parents	376	74 (332)	24	91 (231)
relatives	132	22 (36)	16	22 (27)
others	31	160 (778)	7	44 (70)
total <i>inter vivos</i> gifts	486	73 (352)	60	144 (495)
inheritance from:				
parents	343	254 (1,897)	142	172 (326)
relatives	166	83 (207)	60	116 (314)
others	15	121 (178)	6	197 (262)
total inheritances	462	233 (1,646)	173	215 (421)

Note. Standard deviations within parentheses.

Table 3: Incidence of transfers, correlations between different types.

	gift from parents	inheritance, parents	loan from family	gift from relatives	inheritance, relatives
university	0.14*** (2,704)	0.05*** (2,405)	0.09*** (1,674)	0.08*** (2,704)	0.06*** (2,405)
gift from parents		0.07*** (2,356)	0.15*** (1,467)	0.13*** (2,384)	0.08*** (2,503)
inheritance, parents			-0.04 (1,475)	0.05 (2,356)	0.20*** (2,405)
loan from family				0.03 (1,467)	0.02 (1,475)
gift from relatives					0.04 (2,356)

The number of observation within parentheses.

Note. *** the correlation is significant at the 1 percent level.

Table 4: Has university education, marginal effects, probit model.

	all	both parents deceased
parent high school	0.17*** (0.040)	0.14* (0.091)
parent university	0.38*** (0.033)	0.42*** (0.097)
father own business	-0.018 (0.020)	-0.026 (0.029)
father executive	0.14** (0.069)	0.034 (0.095)
grew up abroad	-0.023 (0.036)	0.012 (0.054)
did not grow up with both parents	-0.077*** (0.0267)	0.042 (0.050)
woman	0.040** (0.018)	0.0050 (0.028)
age	0.021*** (0.0046)	-0.0050 (0.012)
age ² /100	-0.023*** (0.0045)	0.00 (0.010)
log likelihood	-1,387	-305.6
χ^2	236	51
significance level	0.000	0.000
pseudo R^2	0.088	0.083
number of observations	2,607	724

Notes. Robust standard errors within parentheses.

*** significant at the 1 percent level,

** significant at the 5 percent level.

Table 5: Has received parental transfers, marginal effects, probit models.

reduced form	<i>inter vivos</i> gifts		inheritances, both parents deceased	
	reduced form structural form	structural form	reduced form	structural form
parent high school	0.074*** (0.030)	0.11*** (0.05)	0.07 (0.10)	0.09 (0.12)
parent university	0.062*** (0.024)	0.05* (0.03)	-0.04 (0.08)	-0.05 (0.10)
father own business	0.021 (0.015)	0.04** (0.02)	0.01 (0.03)	0.008 (0.04)
father executive	0.042 (0.048)	0.20* (0.14)	0.23* (0.14)	0.29** (0.16)
grew up abroad	-0.085*** (0.015)	-0.11*** (0.01)	-0.20*** (0.03)	-0.19*** (0.03)
did not grow up with both parents	-0.040** (0.018)	-0.06* (0.02)	-0.05 (0.05)	-0.07 (0.05)
woman	0.030** (0.012)	0.05*** (0.02)	0.04 (0.03)	0.03 (0.04)
age	0.014*** (0.00)	0.04*** (0.01)	0.05*** (0.02)	0.04 (0.03)
age ² /100	-0.019*** (0.00)	-0.04*** (0.01)	-0.04*** (0.01)	-0.03* (0.02)
university education, probability ^a		0.06*** (0.02)		0.09* (0.05)
gift from parents, probability ^a				-1.24 (1.06)
inheritance from parents, probability ^a		-0.59** (0.29)		
loan from family, probability ^a		-0.50 (0.34)		0.86 (1.67)
gift from relatives and others, dummy		0.12*** (0.03)		0.35*** (0.11)
inheritance from relatives and others, dummy		0.07*** (0.02)		0.41*** (0.07)
log likelihood	-951	-920	-317	-279
χ^2	107	213	37.1	94.5
significance level	0.000	0.000	0.000	0.000
pseudo R^2	0.08	0.10	0.055	0.14
number of observations	2,586	2,528	629	614

Notes. Robust standard errors within parentheses. ^a instrumented probabilities.

*** significant on the 1 percent level, ** significant on the 5 percent level,

* significant on the 10 percent level

Table 6: Gift amounts received, structural form, OLS.

<i>inter vivos</i> gifts	
parent high school	-0.38 (1.22)
parent university	-1.96 (2.52)
father own business	-0.24 (0.38)
father executive	0.57 (1.37)
grew up abroad	-2.15** (1.07)
did not grow up with both parents	-0.28 (0.73)
woman	-0.20 (0.46)
age	-0.11 (0.33)
age ² /100	0.19 (0.33)
university education, probability ^b	3.55
inheritance from parents, parents deceased, expected unconditional amount ^a	-0.42 (0.39)
loan from family, parents alive, probability ^b	10.01*** (3.37)
gift from relatives, actual amount	-0.050** (0.021)
inheritance from relatives, actual amount	-0.015 (0.015)
constant	10.20* (6.08)
R^2	0.11
significance level	0.00
number of observations	353

Notes. Robust standard errors within parentheses. The dependent variable is $\ln(\text{received amount})$.

^a instrumented unconditional amounts, ^b instrumented probabilities

*** significant on the 1 percent level, ** significant on the 5 percent level,

* significant on the 10 percent level

Table A.1: Descriptive statistics.

	full sample			both parents deceased		
	n of obs	mean	s.d.	n of obs	mean	s.d.
university education	2,729	0.27		629	0.17	
gift from parents	2,704	0.14		614	0.037	
gift amount from parents, unconditional	2,704	10,298	126,189	614	3,555	48,139
gift amount from parents, conditional	376	74,058	331,727	24	91,372	231,070
inheritance from parents, parents deceased	2,405	0.14		629	0.23	
inherited amount from parents, unconditional	2,405	36,161	721,073	629	38,806	170,404
inherited amount from parents, conditional	343	253,547	1 897,264	142	171,895	326,023
loan from family	1,628	0.037		425	0.012	
gift from relatives and others	2,704	0.060		614	0.037	
gift amount from relatives and others, unconditional	2,704	2,888	84,154	614	1,063	9,975
gift amount from relatives, and others, conditional	162	48,207	341,613	23	28,390	44,290
inheritance from relatives and others	2,405	0.08		629	0.10	
inherited amount from relatives and others, unconditional	2,405	6,472	60,350	629	12,965	106,288
inherited amount from relatives and others, conditional	180	86,472	204,831	66	123,560	308,664
parent high school	2,607	0.068		629	0.037	
parent university	2,607	0.10		629	0.041	
father own business	2,607	0.33		629	0.47	
father executive	2,607	0.021		629	0.023	
grew up abroad	2,607	0.060		629	0.076	
did not grow up with both parents	2,607	0.094		629	0.10	
woman	2,729	0.50		629	0.48	
age	2,729	50.58	14.25	629	65.35	10.64

Table B.1: Number of observations in the first step estimations.

	restriction sample	estimation n of observations	source	prediction n of predicted observations
university education, probability	—	2,607	Table 4, column 1	2,607
gift from parents, probability	—	2,586	Table 5, column 1	2,607
gift from parents, expected conditional amount	positive gift amount	353	available on request	2,607
inheritance from parents, probability	both parents deceased	629	Table 5, column 3	2,607
inheritance from parents, expected conditional amount	both parents deceased and positive inh. amount	142	available on request	2,607
loan from family, probability	at least one parent alive	1,628	available on request	2,607