

# Do First Time House Buyers Receive Financial Transfers from Their Parents?

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## Abstract

Previous papers have suggested that financial transfers from parents to children are significant around the time that children buy their first home. Using a Danish data set with longitudinal information about wealth for a sample of first-time homeowners and their parents, we test whether there are direct financial transfers from parents to children in connection with the purchase of the house or in connection with unemployment spells occurring just after the purchase when children typically hold few liquid assets. We first document that child and parent financial resources are correlated. We then introduce conditioning variables and show that these weaken the intergenerational correlation. In the most ambitious specification we exploit the panel aspect of the data to also condition on fixed unobserved factors that arguably govern preference parameters and/or productivity, and we find no evidence of intergenerational correlations, suggesting that, in the Danish context, direct transfers from parents to children are not important around the time of the purchase of the first home.

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## 1. Introduction

There is great interest in the importance of intergenerational transfers. Transfers are important for giving an adequate description of the wealth distribution, De Nardi (2004), and for understanding the persistence of wealth inequality. Financial transfers between family members can compensate for credit market imperfections and increase the ability of the family members to smooth their marginal utility of consumption across time and states and thereby bring welfare gains, Cox (1990). This may be particularly pertinent during a period of crisis such as most western economies are currently experiencing. Credit constraints are often highlighted when explaining the consumption responses to stimulus policies, see for example Johnson, Parker, Souleles (2006), but if intra family transfers loosen such constraints, the consumption response could be smaller than otherwise thought.

Constraints are important in most housing markets where either lenders or institutional arrangements impose down payment constraints on house buyers. Chiuri and Jappelli (2003) report down payment ratios for 14 countries and show that down payment ratios in the early 1990s were 20% in Australia, Austria, Belgium, Canada, Finland, France, Germany, and Spain. Italy, Luxembourg, and the Netherlands had higher down payment ratios, while down payment ratios were lower in US at 11% and in the UK at 5%. Denmark is similar to the UK. Chiuri and Jappelli (2003) show that down payment constraints can affect the timing of homeownership, and Jappelli and Pagano (1994) and Deaton (1999) suggest that down payment constraints may even impact aggregate savings and growth.

Constraints related to down payment requirements are likely to be of particular importance around the point of the first house purchase. Purchasing the first house is usually associated with a requirement to save for a down payment. Down payment constraints work similarly to credit constraints to the extent that they depress consumption, Engelhardt (1996). Moreover, trading a house is associated with significant transactions costs making it optimal for most people to trade infrequently. People with increasing income paths, i.e. current income below permanent income,

potentially would like to anticipate future income levels by buying a house that matches their permanent income rather than their current income.<sup>1</sup> Since it is generally difficult to borrow against future expected earnings, intergenerational transfers may overcome this constraint. The desire to anticipate future earnings in the face of imperfect credit markets can lead first-time house buyers to run down liquid assets thereby leaving limited capacity to insure themselves against (even transitory) adverse income shocks appearing soon after the house purchase. Ejarque and Leth-Petersen (2008) document that first-time house owners in Denmark mortgage to the limit and run down liquid assets aggressively at purchase leaving them particularly vulnerable to adverse income shocks appearing shortly after having committed to the housing expenditure.<sup>2</sup> Transfers from parents to children may insure recent house owners against adverse income shocks.

While there are good theoretical reasons why intergenerational transfers should play a role, previous empirical studies have also suggested that transfers from parents to children are significant around the time that children buy their first home. For a group of US first-time house-buyers, Engelhardt and Mayer (1998) find that transfers significantly loosen the borrowing constraint caused by the down payment requirement and transfers increase the value of the home purchased. Guiso and Jappelli (2002) find, using Italian data, that private transfers are associated with the purchase of larger homes. Charles and Hurst (2002) study the role played by the family providing down-payment relief for explaining differential transitions to homeownership in the US and find that 45% of white households received resources other than their own savings to purchase a home. There are no previous papers focusing on the risk-sharing hypothesis in relation to first-time house owners. However, Altonji et al. (1992) investigate whether US households in the PSID exhibit intergenerational risk sharing. They find that parental resources do not break the link

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<sup>1</sup> This is, for example, the case when agents are relatively impatient and face increasing income paths. Such agents are known as buffer-stock savers, Carroll (1997).

<sup>2</sup> Children may often be wealthier than parents in life time terms because of productivity increases over time. It may be, therefore, that children are generally more likely to transfer funds to their parents in order to smooth marginal utility across generations. However, at the point of the first house purchase children are likely to be affected by constraints and therefore transfers from parents to children are most likely at this point.

between variations in income and food consumption of their children thus providing evidence against intergenerational risk sharing.

The objective of this paper is to examine the importance of direct financial transfers from parents to children around the point when the children purchase their first home. We choose to focus on the first house purchase because the down-payment constraint is likely to be more binding here than at subsequent purchases. Specifically, we ask whether parental transfers influence the value of the house purchased or the size of the mortgage relative to the house value. We also ask whether parental wealth is used as a buffer to cushion adverse income shocks for people that have just bought their first home. If this is the case then direct transfers from parents to children should be observed when the children face adverse income shocks. Alternatively, it should be observed that first-time house owners run down their liquid assets more aggressively when buying their home in the anticipation that they will receive transfers from their parents if adverse income shocks appear before they have restored a sufficient level of precautionary savings. Finally, we investigate whether the share of risky assets in the portfolio of the children is increasing with parental wealth, as would be expected if parents provide implicit insurance against the risk faced by their children.

The analysis is based on a unique data set constructed from Danish administrative records. Becoming a house owner for the first time is an infrequent event and collecting a large number of cases is possible using administrative records but difficult or impossible using survey data. Moreover, it is possible to link parents and children and, unlike any other data resource, the Danish register data contain panel information about wealth for both parents and children. Panel data are particularly valuable in this context. Lifetime income, the value of assets, and ownership of assets tend to be correlated across generations. This can both be because parents pass on wealth to their children, but it can also be because parents pass on inherent productivity and/or preference parameters governing savings behaviour. Indeed, Charles and Hurst (2003) find that these two factors are significant in explaining intergenerational correlations in wealth and income. Using panel data enables us to control for fixed effects of parents and/or children and, thereby, to control

for such confounding factors. Specifically, this is done by investigating whether the timing and magnitude of changes in parental wealth are correlated with the timing and magnitude of the house purchase and savings behaviour of their children.

To our knowledge, the Danish register data is the only existing data source that can be used to answer the question about intergenerational transfers and risk sharing in relation to first time owners. Previous papers have looked at intergenerational transfers for the purchase of the first home. This paper is, however, the first to consider the risk sharing hypothesis by testing whether there are direct financial transfers from parents to children just after the children's first home purchase, and it also focuses on unemployment events where the children are likely to be under severe economic stress. Access to panel data with wealth information is crucial for doing this because it allows effects related to equal preference parameters and productivity across generations to be controlled for.

We find that the unconditional wealth levels and house values, and incomes of parents and children are correlated. We then introduce conditioning variables and show that these weaken the intergenerational correlation. In the most ambitious specification we exploit the panel aspect of the data to also condition on fixed unobserved factors and then find no evidence of intergenerational correlations in any of our tests. This finding is consistent with the productivity/preference transfer hypothesis and highlights the importance of using high quality micro level panel data with wealth information and with the ability to link parents and children when direct financial transfers are investigated. We find no evidence that parents transfer funds to their children for buying the first home. This is in contrast to Guiso and Jappelli (2002) and Engelhardt and Mayer (1998) who find significant transfers in Italy and in the US where down payment constraints are more severe. In our three tests for risk sharing we find no evidence that parents cover the risk of their children just after the house purchase: parents do not transfer funds to their children when the children become unemployed, children do not adjust their liquid asset holdings when the asset holdings of their parents change, and children do not adjust the risk profile of their portfolio when the level of the

financial wealth of their parents changes. These results are novel, and we are not aware of any previous tests that we can compare our results to.

The results found in this paper are potentially specific to the Danish context where the credit market is well-functioning and the down payment requirement is modest relative to many other countries, yet comparable to the United Kingdom. A low down payment requirement and a well functioning credit market could potentially explain why parents do not provide financial assistance for the house purchase. Also, redistribution via the tax system is extensive in Scandinavian countries, including Denmark, and this arguably reduces the importance of intergenerational risk sharing within families of recent house buyers since insurance is provided by the welfare state to a larger extent than in most other countries.

The next section of the paper presents the data and summary statistics about housing and financial wealth across generations. Section 3 defines and conducts four tests for parental transfers for the house purchase and/or for supporting income when their children experience adverse income shocks. Section 5 concludes.

## 2. The data

The analysis is based on a panel data set constructed by merging different Danish administrative registers covering a 10% random sample of the Danish population. The data set covers the period 1987 to 1996 and contains information at the individual level on demographic characteristics of the household, labour market status, housing tenure, income, and wealth/assets holdings. The data are obtained from the income-tax registers, and the wealth information exists because a wealth tax existed in Denmark in this period. The asset data can be divided into a number of sub-categories: liquid assets and housing assets. Liquid assets can be divided into the value of bonds, stocks, cash in the bank, mortgage deeds (securities), and a self-reported measure of high value items such as cars and boats. The value of housing assets in our register data set is the tax-assessed value. Tax assessed values can potentially differ from market values. To correct for this we have obtained

information about municipal level average ratios of market to tax assessed values for traded houses for each year covered by our sample. There were 275 municipalities in Denmark in the period covered by the sample, and we have thus used 275 different ratios for each year to correct the tax assessed values<sup>3</sup>. The liability data can be divided into mortgage debt and other debt up to 1993 after which we can only construct a consistent measure of total debt. All wealth variables are measured at the end of the year and all economic variables have been deflated by the consumer price index.

These data can be linked to each other using the personal identity number of the individuals, which is common to all registers in Denmark. A nice feature of the data is that we can retrieve the same set of information for the partner of the main person in the sample. Moreover, and this is especially important for our analysis, we can also link this information with the same set of information for the parents of the individual and his/her partner. Because the gross data set is so comprehensive, we are able to focus on first-time house owners and still be left with a fairly large data set with panel data on the wealth of both first-time homeowners and their parents.

The focus is on couples who are first-time owners and who bought their house during the period 1989-1993. First-time homeowners are defined as couples, where the oldest person is aged between 20 and 45, who bought a house in this period and who were observed as renters at least two years before the house purchase.

## **Data selection**

We started out with a data set containing 194,091 individuals aged between 20 and 45 who were observed between 1987 and 1996. From this initial data set, we have selected individuals living in

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<sup>3</sup> Our measure of house values is potentially biased if the relative gap between the market value and tax value is different for houses of different values within the municipalities. We note, however, that a large part of the sorting of house values is between municipalities with more expensive houses located in municipalities in or close to the largest cities.

couples during this period and who bought their first house between 1989 and 1993<sup>4</sup>. We then selected the observations where individuals are observed with the same partner and where the couple is observed as renters at least two years prior to the purchase and two years as owners after the purchase. This left us with 5,293 couples. We left out observations with negative disposable income or negative liquid assets and kept in the sample couples that were observed in consecutive years<sup>5</sup>. The final sample includes 4,502 couples who are first-time homeowners with a total of 39,321 observations. There are 20,458 observations pertaining to years after the point of purchase of the home.

### **The financial situation of first-time house owners**

We start out by showing summary statistics illustrating how households build up assets before the house purchase and then run them down at purchase to a fairly low level leaving them with limited capacity to self-insure against adverse income shocks. This reflects legal restrictions or lending policies imposed by banks that typically require potential homeowners to put up a minimum share of the house price as a down payment for the purchase of their house. In Denmark legal restrictions in place during the period covered by our sample allowed house owners to take out a mortgage from a mortgage bank up to a maximum of 80% of the value of the house. Mortgage banks are

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<sup>4</sup> This was a period when house prices fell. House price changes affect the wealth of both parents and children. According to the life cycle framework such wealth changes could impact consumption and savings, and could, therefore, potentially also influence the level of transfers between generations. The theoretical conjecture of housing wealth effects is, however, very difficult to verify in empirical studies. In an analysis of housing wealth effects for this period, Browning, Gørtz and Leth-Petersen (2011) find no evidence that (unanticipated) house prices changes cause consumption to change, except for young house owners who have positive housing equity and who experienced increasing prices in the period 1993-1996. The house buyers in our sample typically have very little or no equity, and the average house buyer even has negative net wealth up to four periods after the house purchase, cf. table A1. It is therefore not likely that housing wealth effects would play an important role for either parents or children in the present analysis.

<sup>5</sup> We left out observations with negative disposable income and negative liquid assets to be able to work with the natural logarithmic transformation. This selection is potentially critical, since those with negative liquid assets may be the group who benefit the most from intergenerational transfers. In a robustness test we used a different transformation, where assets and income were normalized on the average household income in the observation period, in order to be able to include these observations. The results from this experiment did not affect any of our conclusions. The second selection leaves out divorced couples. This is potentially critical because divorced people may be more exposed to risk since they can no longer insure within the couple and therefore potentially will benefit more from financial transfers from their parents. To check for this we made a separate analysis of divorced persons, and the results were similar to the results presented in the paper. Both sets of results are available on request.



specialised banks offering mortgage loans based on underlying mortgage bonds. Mortgage loans use the house as collateral and they are typically cheaper than conventional bank loans. On top of the mortgage loan, households are allowed to borrow 15% of the value of the house from conventional banks for the purpose of buying a house. These loans are also offered using the house as collateral, but they are typically more expensive than the loans offered by mortgage banks. House buyers are thus required to provide financing for the remaining 5% of the house value themselves. This is the effective down payment requirement. Besides this type of formal constraint banks can impose further restrictions on the ability to borrow for the purchase of a house. For example, anecdotal evidence suggests that banks often apply rule-of-thumb lending policies restricting the amount that can be borrowed to a multiple of the annual income of the household.

Figure 1 plots the savings profile around the time of the house purchase for the observations in our sample. This savings profile is constructed from the coefficients obtained from a regression of one period changes in liquid assets relative to the value of the house purchased<sup>6</sup> on a set of dummies indicating the distance in time from the point where the house is purchased and a set of controls for changes in the number of children in the family and year dummies. Liquid assets consist of cash, bonds, stocks, securities and high-value items. The savings profile is scaled using the unconditional level of liquid assets measured in period two after the house purchase.

[Figure 1 about here; see end of paper]

Figure 1 shows a clear build-up of liquid assets in the periods leading up to the time of the house purchase. Liquid assets peak the year before purchasing the house, where average liquid assets relative to the value of the house to be purchased are about 3.5 percentage points higher than in the year of the house purchase. The households in the sample keep de-accumulating liquid assets for

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<sup>6</sup> Comparing people at different levels of permanent income may blur the picture and the value of the house is a natural normalization, Ejarque and Leth-Petersen (2008).

another period after the house purchase, presumably due to initial repairs. In the third year after the purchase liquid assets start to build again, but only modestly. Not until period four after the purchase are liquid assets built up to a level matching the level in the year of the purchase. Table 1 presents summary statistics for liquid assets (henceforth denoted LA in the tables) across time where the time is centred at the point of the house purchase and normalised by the house value (henceforth denoted H in the tables) at purchase similarly to figure 1. The table shows that in periods 1 and 2, where liquid assets are at the minimum, the mean *level* of liquid assets constitutes some 8% of the value of the house measured at the time of the purchase. The median household, however, holds liquid assets corresponding to only 4% of the house value. Considering that the house value corresponds to roughly two times annual disposable income, this means that the median household holds liquid assets corresponding to about 1 month's income. This suggests that the typical first-time house owner has limited capacity to self-insure against adverse income shocks based on the liquid asset holdings.

Table 1 also presents summary statistics of the debt level, and for disposable income, it shows earnings, the share of risky assets in the portfolio, and unemployment. Even before the house purchase these households have significant debt. We do not have information about the characteristics of this debt, but it could potentially include consumption debt, car loans, student loans, etc. In the year of the house purchase the total debt amounts to some 117% of the value of the house. The level of debt continues to be higher than the value of the house even seven years after the purchase. Disposable income (henceforth denoted Y in the tables) and earnings (relative to the house value at purchase) are both increasing before and after the house purchase. Table 1 also shows the development in the share of risky assets, measured as the fraction of shares in the portfolio. This measure will be used to test whether the willingness to take on risk is related to the level of assets of the parents. Generally, the share of risky assets is low, and it is lower after the house purchase than before. The final two rows in table 1 present summary statistics on unemployment. The first unemployment statistic presents the incidence of unemployment events. Peaking just before the house purchase, 47% of the households in the sample are affected by

unemployment events. The final row gives the mean unemployment duration (measured as a fraction of a year) across households where the within household unemployment rate is the highest rate among the two partners in the household. One thing to note is that the average unemployment duration is increasing up to the point of the house purchase and declines thereafter. Another thing to note is that the average duration, corresponding to about two months of unemployment, does not seem long enough to put the household under severe financial stress. This, however, hides the fact that 20% of the households in the sample experience unemployment lasting at least 40% of the year, corresponding to about five months of unemployment.

[Table 1 about here]

The objective of this study is to understand whether parents transfer funds to their children. Comparing the mean liquid asset holdings of parents and children, the average level of parental liquid wealth is about seven times that of the children.<sup>7</sup> If children face an income drop comparable to, say, one month of income (beyond what can be cushioned by their own liquid assets) then, roughly, that compares to 8% of mean parental liquid assets. Similarly, the minimum down payment requirement is 5% of the value of the house and this also corresponds to about 8% of mean parental liquid wealth. Comparing medians these ratios are about double the size. This suggest that if parents tap into liquid wealth in order to help out with the down payment or in periods with significant income drops, then this should be detectible using the Danish data.

The numbers shown so far document that first time house buyers have limited financial assets to buffer income losses, that unemployment events are frequent and that parents, on average, have more financial resources than their children. If transfers between parents and children take place, then wealth and house values should be correlated across generations. In table 2 we report slope parameters from four regressions: (1) Children's liquid assets on parental liquid assets (2) the value

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<sup>7</sup> In table A1 in the appendix levels of wealth of the children and the parents are presented.

of the house purchased by the children on the level of liquid assets of the parents (3) the value of the house at time of purchase on the value of the parents' house (4) children's disposable income on parental liquid assets. Following Charles & Hurst (2003) we purge age effects as we would like to control for the influence of the position in the lifecycle on wealth accumulation.

[Table 2 about here]

In all cases the slope parameters are positive and significant. Liquid asset holdings are correlated, house values are correlated, but the house value of the children is also correlated with the level of liquid assets of the parents. These correlations across generations could be the result of direct transfers from the parents to children where wealthy parents tend to transfer more to their children. They could, however, also reflect transmission of productivity/permanent income across generations. Wealthy parents are likely to have been productive throughout their work life and if they have children who are productive as well, this will likely generate such correlations even if no direct financial transfers have taken place. In fact, parental liquid asset holdings are correlated with the income of the children. The two explanations are obviously not mutually exclusive. In the empirical part of the paper we design tests that discriminate between them.

### **3. Tests for intergenerational transfers of financial wealth**

The objective is to investigate whether there are direct transfers from parents to children around the point of the first house purchase, and we focus on tests that are possible to carry out using the Danish register data. In particular we will focus on financial transfers for two purposes. The first is transfers for purchasing the house. The second is for parents supplementing the income of their children during spells of low income. We also extend the second test by investigating whether

children anticipate parental transfers for emergencies just after they have purchased the house, i.e. whether the children consider parental wealth as part of their buffer-stock savings.

### Transferring funds for the purchase

In the case where parents transfer money for the purchase of the house, two effects are likely to occur. Recipients can either increase the value of the house that they will purchase or they can decide to use this transfer for the down payment thereby reducing the need for financing through (mortgage) banks. This suggests testing whether the value of the house purchased or the amount of house equity (price-mortgage) explains the development in parental wealth or liabilities at the point of the purchase.

The test is conducted by employing the following regression

$$\Delta \ln LA_{it=t0}^P = \beta_0 + \beta_1 \ln H_{it=t0}^C + \beta_2 X_{it=t0}^C + \beta_3 X_{it=t0}^P + u_{it=t0} \quad (1)$$

Where  $LA_{it=t0}^P$  is liquid asset holdings of the parents, and  $t0$  is the point in time that the children purchase the house.<sup>8</sup>  $H_{it=t0}^C$  is a measure of the value of the house purchased by the children at the point of the purchase. We also estimate versions of (1) where we include the mortgage or the amount of housing equity. This is to allow for the fact that a parental subsidy may be allocated to increasing either the value of the house or for increasing the down payment.  $X_{it=t0}^C$  is a vector of control variables pertaining to the children. This includes number of children, age controls, number of adults, and indicators for educational attainment.  $X_{it=t0}^P$  is a vector of parental control variables including age and age squared, the highest education level of the parents and two

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<sup>8</sup> In all the tests presented in the paper we also tried to use a measure of parental wealth including housing equity, but the results did not change.

variables indicating the change in income from  $t0-1$  to  $t0$  and for unemployment in period  $t0$ . We include the latter two to control for the saving effects of adverse shocks appearing at the parental level.

The hypothesis of no transfers is  $\beta_1 = 0$ . We would expect the change in parental wealth at the time of purchase to be negatively related to the value of the house if any transfers have taken place. The alternative is therefore  $\beta_1 < 0$ , and rejecting this we take it as evidence that parents have transferred funds for supporting the purchase of their children's house.

Results are presented in table 3. All variables are measured at the end of the year in which the household has purchased their house. We estimated the models by OLS and computed a covariance matrix robust to the presence of unknown forms of heteroskedasticity. The dependent variable is the change in log parental liquid assets. Column 1 shows the result of a simple bivariate regression of the change in parents' liquid assets at the time of the house purchase,  $\Delta \ln LA_{it=t0}^P$ , on the value of the children's house,  $H_{it=t0}^C$ . Column 2 extends the regression from column 1 by adding parental and child control variables as well as a set of year dummies. Column 3 presents results from regressions where the size of the mortgage is added, and in column 4  $H_{it=t0}^C$  is replaced with the amount of equity at the point of the purchase. In all cases the parameter to the variable measuring the financial transfer associated with the house purchase is insignificant, suggesting that the children do not benefit from financial transfers from their parents when they buy their first house.<sup>9</sup> As an alternative measure of transfers we have also tried to use the change in the level of parents' mortgage. Parents might have better access to the credit market than their children and be able to borrow money on behalf of their children (not reported). We didn't find any evidence of transfers in this case either. We conclude that direct transfers targeted to the children's first home purchase are not widespread.

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<sup>9</sup> Parents may support their children by co-signing loans. We do not have information about this in the data.

[Table 3 about here]

### **Transferring funds when adverse income shocks appear after the purchase**

First-time home buyers in Denmark face a down-payment constraint (figure 1 illustrated the effect of this), and selling the house again is associated with significant transactions costs. As shown by Ejarque and Leth-Petersen (2008) these two features are important for the savings behaviour of home buyers, and they leave a potential for parents to act as an insurance device. Households in the age span where they are buying their first home typically (expect to) have increasing incomes that they would like to anticipate. This coupled with the down-payment requirement leads them borrow as much as they can and run down their liquid assets when they buy the house. The transaction costs make housing expenditure committed, Chetty and Szeidl (2007), i.e. when adverse income shocks appear, housing is only adjusted if the shock is large. If the shock is small then adjustment is made entirely from nondurable consumption, and this has large welfare costs. Ejarque and Leth-Petersen (2008) show that Danish first-time house owners respond to an income shock appearing soon after the home purchase and decreasing income by 1% by reducing non-housing expenditure by 0.7%. In effect, when making the purchase decision, households optimally decide to take on a credit constraint thereby trading away some capacity to self-insure non-housing expenditure in the event of facing small or medium sized adverse income shocks soon after the house purchase. Cox (1990) finds that parents may act as an insurance device exactly when children are facing constraints. This type of behaviour can be rationalised as having an altruistic motive where parents smooth their children's marginal utility. We denote this as the risk-sharing hypothesis.

Children can also anticipate this motive from their parents. In that case it will affect their willingness to take risks and consequently will affect their wealth accumulation and their willingness to hold risky assets.<sup>10</sup> If parental wealth serves as a buffer, i.e. as a substitute for precautionary

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<sup>10</sup> These two types of behaviour can also be motivated by the existence of exchange of services (Laitner, 1997).

wealth, then people with more wealthy parents will be less risk averse, hold lower levels of liquid assets, and/or hold a larger fraction of risky assets for a given level of wealth. The risk-sharing hypothesis therefore suggests three tests that can be conducted using the wealth data.

1. Are changes in parental wealth correlated with the size of adverse income shocks experienced by the children and appearing soon after the purchase of the house?
2. Is the level of precautionary savings as measured by the level of liquid assets related to the level of parental wealth?
3. Is the share of risky assets out of total liquid assets held by the children correlated with the level of parental wealth?

The first test regresses the change in parental assets on the income shocks that homeowners in our sample experienced after the home purchase, and a set of control variables, as follows.

$$\Delta \ln LA_{it>t0}^P = \beta_0 + \beta_1 \Delta y_{it>t0}^C + \beta_2 X_{it>t0}^P + \beta_3 X_{it>t0}^C + u_{it>t0} \quad (2)$$

$LA_{it>t0}^P$  is liquid asset holdings of the parents measured after the point in time that their children have bought the house.  $t0$  is the point in time that the children purchase the house.  $y_{it>t0}^C$  is the log of disposable income of the children at some time  $t$  after the house purchase.  $X_{it>t0}^P$  and  $X_{it=t0}^C$  are vectors of control variables pertaining to the parents and children, respectively, and their contents correspond to the ones used in the previous test. If there are direct transfers from parents to children then we would expect  $\beta_1 > 0$ . We therefore test  $\beta_1 = 0$  against the alternative that  $\beta_1 > 0$ .

The results of the first test are reported in table 4. In column one the test is conducted exactly as stated in equation (2) by regressing the change in parent's liquid asset holdings on the contemporaneous change in the children's income and control variables. One immediate objection is that income changes can be positive as well as negative, and transfers would not be expected if



the children's income is increasing. In column 2 we add the children's level of liquid assets and their unemployment degree in order to check whether adverse shocks through unemployment trigger parental transfers and to check whether transfers take place to a larger extent if children have low levels of liquid assets. In column 3 we introduce a full set of interactions between the three variables. We also interact the change in the children's income with a dummy for the arrival of children to control for planned income changes associated with family formation. In none of the three estimations do we find evidence that transfers from parents to children are significant. These results suggest that parents do not cover the risk of their children. This is in line with recent evidence by Bentolila and Ichino (2008) suggesting that family transfers constitute a less important insurance device during unemployment shocks in Northern European countries, where unemployment insurance schemes are well developed, compared to Southern European countries.

[Table 4 about here]

In the second test for risk sharing we test whether the level of liquid assets held by the children is related to the level of parental wealth. One way to test this hypothesis is to take a sample of households who have just bought a house and relate their level of assets to parental wealth. If people use parental wealth as a buffer, then they will anticipate this and reduce the level of liquid assets, *ceteris paribus*. If this mechanism is at work we expect a negative correlation between the level of liquid assets and parental wealth. To conduct the test we use the following regression.

$$\left( LA_{it>t0}^C / H_{it=t0} \right) = \beta_0 + \beta_1 \ln LA_{it>t0}^P + \beta_2 X_{it>t0}^P + \beta_3 X_{it>t0}^C + u_{it>t0} \quad (3)$$

The dependent variable  $\ln(LA_{it>t0}^C/H_{it=t0})$  measures the level of liquid asset holdings of the children after the purchase  $LA_{it>t0}^C$  as a proportion of  $H_{it=t0}$ , the value of the house at purchase. We regress this on the log level of parental liquid assets, and a set of parental control variables,  $X_{it>t0}^P$ , and a set of child control variables,  $X_{it>t0}^C$ .  $X_{it>t0}^P$  and  $X_{it=t0}^C$  contain the same variables as in the previous tests. In practice we also add the change in log disposable income and the unemployment rate to the set of child controls as these variables are expected to directly influence children's holdings of liquid assets. If children anticipate that parents will transfer funds in the case of emergencies then we would expect to see a negative correlation between parental wealth and the level of liquid assets held by the children. We therefore test the hypothesis of no risk sharing by testing  $\beta_1 = 0$  against  $\beta_1 < 0$ .

The dependent variable is censored at zero, and we therefore apply estimators that deal with the censoring. First, we estimate the model using a random effects tobit estimator. Estimation results are reported in table 5, columns 1-3. Next, we estimate the model using a fixed effects censored regression model, and the results from those estimations are reported in table 5, columns 4-6. In column 1 the children's level of liquid asset holdings is regressed on the parents' liquid asset holdings using the random effects estimator. Here we find a positive and significant correlation. Our null hypothesis is that children's and parents' liquid assets are negatively correlated if the risk sharing hypothesis is important, and finding a positive correlation may be due to confounding factors. In the second column we add the unemployment degree and the change in log income as these factors directly influence the level of assets held by the children. In the third column we add a full set of interactions. In all cases we find a significant and positive correlation between the liquid asset holdings of the children and of the parents. A positive correlation between parental wealth and the level of liquid assets of their children could indicate that the preferences and/or permanent income/productivity of children and parents are positively correlated, and that this effect dominates the effect of the children anticipating their parents being willing to transfer funds in the

case of an emergency situation. The first explanation is due to time constant unobserved factors. The random effects estimator assumes that time constant unobserved factors are uncorrelated with the regressors, and this is unrealistic if such factors include information about preference parameters and/or productivity. We therefore do a fixed effect censored regression, Alan, Honoré, Hu and Leth-Petersen (2011), to control for such fixed unobserved factors, and the results are reported in columns 4-6 of table 5. The results from this estimation suggest that there is no relationship between parental liquid assets and the level of liquid assets held by the children.

[Table 5 about here]

The third test of the risk-sharing hypothesis tests whether children are more willing to take risks if parents are wealthier. We do this by checking whether the share of risky assets in the portfolio of the children is positively related to the level of parental wealth. To conduct the test we run regression (4).

$$s_{it>t0}^C = \beta_0 + \beta_1 \ln LA_{it>t0}^P + \beta_2 X_{it>t0}^P + \beta_3 X_{it>t0}^C + u_{it>t0} \quad (4)$$

Where  $s_{it>t0}^C$  is the share of risky assets held by the children,  $LA_{it>t0}^P$  is the liquid asset holdings of the parents,  $X_{it>t0}^P$  and  $X_{it>t0}^C$  are the usual set of parental and children control variables. We also include controls for income, unemployment and a full set of interactions.

The share of risky assets is a quantity between zero and one, but, in practice, censoring appears only at zero. The model is first estimated using a random effects tobit specification. Results are reported in table 6 columns 1-3 where in each column we have based the regressions on different definitions of risky assets. The different definitions of the risky assets are explained in the

appendix. Irrespective of the definition of risky assets, the results indicate that the parameter measuring the effect of parental resources on the share of risky assets is positive. This suggests that the more assets held by the parents, the more risk is taken by the children, and this appears to support the risk-sharing hypothesis.

[Table 6 about here]

The random effects specification assumes that time constant factors, such as the children's risk preferences, are uncorrelated with the asset holdings of the parents, which is itself a function of the preferences of the parents. This could induce a positive correlation if parents and children share preferences for saving. We therefore re-estimate the model using a fixed effects censored regression specification. This last specification tries to control for unobserved fixed heterogeneity and this should control for the confounding effects of similar preferences shared by parents and children. Results from estimating fixed effects are presented in table 6, columns 4-6, and the parameter estimate of parents' asset holdings is now insignificant in all cases. This suggests that the correlation found in columns 1-3 is due to similarities in preferences between parents and children.

## 5. Conclusion

In this paper we have tested for the importance of direct parental transfers targeted to the purchase of the house and to buffer income shocks when households become unemployed for a sample of Danish first-time homeowners. This is a point where children are particularly likely to be affected by constraints and, therefore, potentially make use of parental resources for alleviating constraints. The analysis is based on a data set with panel information about wealth for a group of first-time house owners and their parents. Based on this data set we document that (housing) wealth is

correlated across generations. However, when we condition on observed as well as fixed unobserved factors then we find no evidence that direct transfers have been important for Danish first-time homebuyers. We have also investigated whether the house buyers anticipate financial help from their parents in the event they become unemployed. The results gave little support for this hypothesis as well. These results suggest that intergenerational correlations in (housing) wealth are caused by transfers of preferences and/or productivity rather than by direct financial transfers.

The results, which suggest that there are no direct transfers for the house purchase or for supporting the children after the purchase of the house when the children's own buffer capacity is limited, are likely to be related to institutional factors characterizing Denmark. Although there is a positive intergenerational correlation of wealth, credit markets are well developed in Denmark and a great deal of risk sharing is provided by the government through a generous unemployment insurance scheme and other transfer schemes. This is likely to reduce the importance of direct financial transfers across generations even for households under financial stress. An interesting agenda for future research would be to investigate how intra family risk sharing patterns differ between countries with different levels of insurance provided through the welfare state.

## Appendix

[table A1 here]

### Definitions of risky assets

We define liquid assets to include assets that can be relatively easily realised, i.e. cash, bonds, securities, shares and high value items. In some of the tests we perform the focus is on the allocation of the portfolio into risky/non-risky assets. For this purpose we define the share of risky assets in financial wealth. This can be done in several ways, and we therefore choose to make three different definitions, cf. table A2, of risky assets and perform the test using all the definitions.

[table A2 about here]

[table A3 about here]

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## Tables and figures

**Table A1: Diverse measures of financial wealth around the time of purchase for children and parents**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	t=-5	t=-4	t=-3	t=-2	t=-1	t=0	t=1	t=2	t=3	t=4	t=5	t=6	t=7
Children's liquid assets	59.54	59.36	61.20	65.17	71.82	50.12	44.82	43.93	44.35	48.28	48.45	53.23	55.84
	(80.32)	(73.14)	(78.14)	(79.28)	(84.47)	(63.07)	(62.99)	(65.25)	(68.54)	(73.03)	(71.29)	(77.99)	(81.68)
	[28.51]	[32.03]	[32.72]	[36.17]	[43.25]	[28.62]	[23.51]	[21.86]	[21.93]	[22.67]	[22.32]	[22.86]	[23.06]
Children's house value	0.00	0.00	0.00	0.00	0.00	535.09	539.08	566.43	609.81	627.55	658.33	677.47	711.36
						(177.73)	(187.57)	(220.37)	(249.94)	(272.37)	(291.61)	(316.69)	(328.16)
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[522.58]	[524.89]	[546.02]	[587.75]	[609.90]	[642.32]	[676.20]	[700.93]
Children's total wealth	59.54	59.36	61.20	65.17	71.82	585.21	583.90	610.35	654.16	675.83	706.78	730.70	767.20
	(80.32)	(73.14)	(78.14)	(79.28)	(84.47)	(201.75)	(209.59)	(242.14)	(270.77)	(294.75)	(311.66)	(335.53)	(350.53)
	[28.51]	[32.03]	[32.72]	[36.17]	[43.25]	[564.67]	[563.02]	[583.98]	[627.37]	[650.68]	[685.34]	[721.78]	[747.67]
Children's total net wealth	-84.63	-59.15	-43.14	-22.51	-11.95	-5.99	-18.65	15.65	60.83	79.12	108.98	126.21	125.80
	(203.39)	(175.97)	(214.99)	(169.61)	(156.90)	(249.86)	(196.35)	(207.15)	(216.68)	(240.83)	(245.45)	(262.74)	(292.84)
	[-33.61]	[-25.35]	[-19.62]	[-14.19]	[-9.38]	[-18.34]	[-15.82]	[11.20]	[48.26]	[61.23]	[96.95]	[110.31]	[117.16]
Parents' liquid assets	352.62	348.82	348.08	336.17	323.69	333.18	335.41	344.11	349.68	339.44	337.61	357.75	344.95
	(609.12)	(724.45)	(748.04)	(616.55)	(569.27)	(702.53)	(709.47)	(730.61)	(737.80)	(564.14)	(570.16)	(578.45)	(444.83)
	[177.84]	[171.82]	[175.34]	[171.12]	[161.83]	[159.58]	[157.23]	[156.98]	[157.37]	[162.43]	[163.96]	[177.82]	[183.44]
Parents' house value	900.03	894.43	881.47	853.79	820.56	790.15	767.24	753.29	779.35	773.09	766.11	779.54	796.36
	(596.72)	(605.68)	(584.71)	(567.55)	(546.77)	(527.91)	(520.06)	(515.97)	(531.44)	(531.67)	(536.78)	(550.69)	(573.85)
	[886.41]	[864.96]	[834.44]	[805.08]	[779.73]	[751.81]	[719.68]	[708.74]	[728.70]	[723.18]	[717.17]	[726.13]	[726.13]
Parents' total wealth	1252.65	1243.25	1229.54	1189.96	1144.25	1123.33	1102.65	1097.40	1129.03	1112.53	1103.73	1137.29	1141.31
	(978.45)	(1048.53)	(1046.67)	(949.57)	(901.95)	(982.48)	(983.97)	(999.75)	(1024.64)	(893.10)	(904.79)	(916.23)	(839.24)
	[1145.67]	[1106.45]	[1071.72]	[1044.70]	[1003.52]	[990.73]	[954.87]	[950.21]	[972.62]	[964.51]	[945.04]	[984.58]	[1007.79]
Parents' total net wealth	701.01	703.73	703.70	668.19	653.44	647.24	647.52	660.16	703.22	705.38	716.24	768.47	737.73
	(877.31)	(795.56)	(852.62)	(836.28)	(787.55)	(840.91)	(830.64)	(836.16)	(868.12)	(843.61)	(843.24)	(861.00)	(1175.24)
	[570.42]	[559.40]	[548.35]	[525.29]	[516.43]	[502.86]	[486.85]	[496.62]	[525.99]	[546.87]	[546.25]	[607.34]	[619.44]
Observations	770	1552	2743	4502	4502	4502	4502	4502	4238	3104	2200	1315	597

Note: t=0 is time of purchase  
mean,(standard-deviation),[median]

**Table A2: Definitions of risky assets**

Portfolio shares	I		II		III	
	Risky assets	Financial wealth	Risky assets	Financial wealth	Risky assets	Financial wealth
Cash		X		X		X
Shares	X	X	X	X	X	X
Bonds		X		X		X
Securities	X	X	X	X	X	X
High-value items			X	X	X	X
Shares in ships					X	X

**Table A3: Evolution of liquid assets around the time of purchase**

	(1)	
	$\Delta \ln(LA)/(H t=0)$	
	b	se
5 years before purchase	0.0176**	0.0058
4 years before purchase	0.0055	0.0037
3 years before purchase	0.0092**	0.0032
2 years before purchase	0.0122***	0.0025
1 year before purchase	0.0192***	0.0026
Year of purchase	-0.0344***	0.0031
1 year after purchase	-0.0074*	0.0031
2 years after purchase	0.0005	0.0032
3 years after purchase	0.0037	0.0033
4 years after purchase	0.0057	0.0037
5 years after purchase	0.0012	0.0040
6 years after purchase	0.0025	0.0045
7 years after purchase	-0.0012	0.0055
Child born 5 years before purchase	-0.0469**	0.0161
Child born 4 years before purchase	-0.0095	0.0080
Child born 3 years before purchase	-0.0080	0.0063
Child born 2 years before purchase	-0.0036	0.0034
Child born 1 year before purchase	-0.0066	0.0034
Child born year of purchase	-0.0053	0.0046
Child born 1 year after purchase	0.0012	0.0030
Child born 2 years after purchase	0.0025	0.0034
Child born 3 years after purchase	-0.0008	0.0031
Child born 4 years after purchase	0.0029	0.0039
Child born 5 years after purchase	0.0013	0.0062
Child born 6 years after purchase	-0.0048	0.0092
Child born 7 years after purchase	-0.0071	0.0128
Year==1989	-0.0055*	0.0027
Year==1990	0.0018	0.0027
Year==1991	0.0002	0.0029
Year==1992	-0.0210***	0.0030
Year==1993	0.0008	0.0032
Year==1994	-0.0019	0.0033
Year==1995	0.0063	0.0035
Year==1996	0.0011	0.0038
Observations	34803	

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table 1: Diverse measures of financial commitments around the time of purchase

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	t=-5	t=-4	t=-3	t=-2	t=-1	t=0	t=1	t=2	t=3	t=4	t=5	t=6	t=7
LA/(H t=0)	0.103 (0.126) [0.051]	0.110 (0.126) [0.059]	0.115 (0.135) [0.063]	0.124 (0.141) [0.071]	0.136 (0.149) [0.085]	0.096 (0.113) [0.057]	0.086 (0.108) [0.047]	0.084 (0.113) [0.044]	0.085 (0.118) [0.043]	0.093 (0.131) [0.045]	0.094 (0.129) [0.046]	0.099 (0.139) [0.046]	0.100 (0.138) [0.044]
Y t/(H t=0)	0.359 (0.157) [0.332]	0.378 (0.156) [0.351]	0.395 (0.179) [0.367]	0.407 (0.181) [0.375]	0.431 (0.188) [0.395]	0.487 (0.203) [0.448]	0.535 (0.213) [0.494]	0.545 (0.222) [0.501]	0.554 (0.234) [0.507]	0.564 (0.247) [0.518]	0.577 (0.241) [0.529]	0.560 (0.237) [0.511]	0.566 (0.283) [0.494]
Earnings t/(H t=0)	0.465 (0.240) [0.444]	0.498 (0.250) [0.482]	0.529 (0.285) [0.511]	0.550 (0.290) [0.525]	0.598 (0.305) [0.569]	0.637 (0.311) [0.606]	0.658 (0.327) [0.631]	0.672 (0.337) [0.642]	0.687 (0.358) [0.655]	0.705 (0.379) [0.674]	0.728 (0.387) [0.697]	0.713 (0.386) [0.679]	0.720 (0.449) [0.662]
Debt t/(H t=0)	0.270 (0.376) [0.139]	0.234 (0.332) [0.131]	0.207 (0.354) [0.124]	0.178 (0.276) [0.119]	0.171 (0.243) [0.118]	1.165 (0.609) [1.116]	1.190 (0.572) [1.102]	1.180 (0.571) [1.102]	1.180 (0.582) [1.104]	1.203 (0.659) [1.104]	1.222 (0.682) [1.106]	1.200 (0.758) [1.062]	1.254 (0.968) [1.060]
Portfolio share I	0.055 (0.173) [0.000]	0.051 (0.156) [0.000]	0.048 (0.145) [0.000]	0.040 (0.130) [0.000]	0.032 (0.116) [0.000]	0.048 (0.153) [0.000]	0.042 (0.148) [0.000]	0.030 (0.125) [0.000]	0.023 (0.108) [0.000]	0.026 (0.121) [0.000]	0.026 (0.121) [0.000]	0.025 (0.121) [0.000]	0.028 (0.127) [0.000]
% Unemployed	0.429 [0.000]	0.445 [0.000]	0.448 [0.000]	0.471 [0.000]	0.473 [0.000]	0.473 [0.000]	0.432 [0.000]	0.406 [0.000]	0.396 [0.000]	0.379 [0.000]	0.357 [0.000]	0.355 [0.000]	0.350 [0.000]
Unemployment duration	0.155 (0.242) [0.009]	0.156 (0.243) [0.016]	0.160 (0.250) [0.015]	0.170 (0.258) [0.019]	0.172 (0.261) [0.019]	0.176 (0.266) [0.019]	0.161 (0.262) [0.000]	0.148 (0.252) [0.000]	0.140 (0.246) [0.000]	0.130 (0.243) [0.000]	0.113 (0.225) [0.000]	0.109 (0.218) [0.000]	0.084 (0.180) [0.000]
Observations	770	1552	2743	4502	4502	4502	4502	4502	4238	3104	2200	1315	597

Note: t=0 is time of purchase  
mean,(standard-deviation),[median]

Table 2: Intergenerational correlation income, liquid assets and house value

	(1)	(2)	(3)	(4)
	ln(LA)	ln(H)	ln(H)	ln(dispos.in)
ln(LA parents)	0.167*** (33.62)	0.132*** (9.33)		0.0782*** (15.55)
ln(H parents)			0.0833*** (5.61)	
Observations	39321	4502	4502	39321
Adjusted R2	0.028	0.019	0.007	0.006

t statistics in parentheses. \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001

Table 3: Are there direct parental transfers at time of purchase?

	(1)	(2)	(3)	(4)
	$\Delta \ln(\text{LA parents, } t_0)$	$\Delta \ln(\text{LA parents, } t_0)$	$\Delta \ln(\text{LA parents, } t_0)$	$\Delta \ln(\text{LA parents, } t_0)$
Ln(H, t0)	0.019 (0.36)	0.010 (0.18)	0.017 (0.30)	
Ln(mortgage, t0)			-0.008 (-1.39)	
Ln(Home equity)				0.002 (0.39)
parental controls(i)	No	Yes	Yes	Yes
Child Control variables(ii)	No	Yes	Yes	Yes
Year dummies	No	Yes	Yes	Yes
Adj. R2	-0.000	0.003	0.003	0.003
N	4502	4502	4502	4502
Log-likelihood	-7533.414	-7513.026	-7511.978	-7512.956
F	0.131	1.512	1.497	1.509

t statistics in parentheses, \* p<0.05, \*\* p<0.01, \*\*\* p<0.001

(i) age, age2, education dummies, unemployment rate, d disp. Income.

(ii) age, age2, education dummies, number of adults, number of children in different age groups, dummy for new child

Table 4: Parental transfers when unemployed

	(1)	(2)	(3)
	$\Delta \ln(\text{LA par.})$	$\Delta \ln(\text{LA par.})$	$\Delta \ln(\text{LA par.})$
$\Delta \ln(Y)$	-0.074 (-1.04)	-0.073 (-1.02)	-0.165 (-1.45)
Unemployment rate		0.001 (0.02)	0.014 (0.31)
Liquid asset/(H t=0) (LA/H0)		-0.102 (-1.46)	-0.085 (-1.12)
Unemp. rate* $\Delta \ln(Y)$			-0.043 (-0.15)
Unemp. rate*1(New child)			0.067 (0.69)
$\Delta \ln(Y)$ *1(New child)			0.074 (0.42)
Unemp. rate*(LA/H0)			-0.364 (-1.08)
$\Delta \ln(Y)$ *LA/H0)			0.556 (1.03)
Unemp. rate* $\Delta \ln(Y)$ *LA/H0)			1.906 (1.45)
parental controls(i)	Yes	Yes	Yes
Child Control variables(ii)	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes
N	20458	20458	20458
Log-likelihood	-33060.407	-33059.399	-33056.739

t statistics in parentheses, \* p<0.05, \*\* p<0.01, \*\*\* p<0.001

(i) age, age2, education dummies, unemployment rate,  $\Delta$  disp. Income.

(ii) age, age2, education dummies, number of adults, number of children in different age groups, dummy for new child

Table 5: Liquid asset holdings, tobit random effects and censored fixed effects

	(1)	(2)	(3)	(4)	(5)	(6)
	LA/(H t0)	Random Effects LA/(H t0)	LA/(H t0)	LA/(H t=0)	Fixed Effects LA/(H t=0)	LA/(H t=0)
Ln(LA parents)	0.002*** (4.20)	0.002*** (4.19)	0.003*** (4.54)	-0.001 (-1.50)	-0.001 (-1.48)	-0.001 (-0.98)
Unempl. rate		-0.009** (-2.97)	0.026 (1.66)		-0.005 (-1.13)	0.025 (1.09)
$\Delta \ln(Y)$		0.021*** (4.25)	0.027 (0.66)		0.030*** (3.52)	0.022 (0.31)
Unempl. rate * $\Delta \ln(Y)$			-0.166 (-1.49)			-0.239 (-0.80)
$\Delta \ln(Y) * \ln(LAp)$			-0.000 (-0.01)			0.001 (0.20)
Unempl. rate * $\ln(LAp)$			-0.003* (-2.21)			-0.003 (-1.28)
Unempl. rate * $\Delta \ln(Y) * \ln(LAp)$			0.012 (1.26)			0.017 (0.72)
Constant	-0.105 (-1.43)	-0.106 (-1.44)	-0.116 (-1.56)			
Parental controls(i)	Yes	Yes	Yes	Yes	Yes	Yes
Child Control variables(ii)	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
$\sigma_u$	0.092*** (80.65)	0.092*** (80.62)	0.092*** (80.64)	-	-	-
$\sigma_e$	0.076*** (176.45)	0.075*** (176.43)	0.075*** (176.43)	-	-	-
Observations	20456	20456	20456	20456	20456	20456
Log-likelihood	18562.925	18577.226	18582.314	-	-	-

t statistics in parentheses, \* p<0.05, \*\* p<0.01, \*\*\* p>0.001

(i) age, age2, education dummies, unemployment rate, d disp. Income.

(ii) age, age2, education dummies, number of adults, number of children in different age groups, dummy for new child



Table 6: Share of risky assets in portfolio, tobit random effects and censored fixed effects

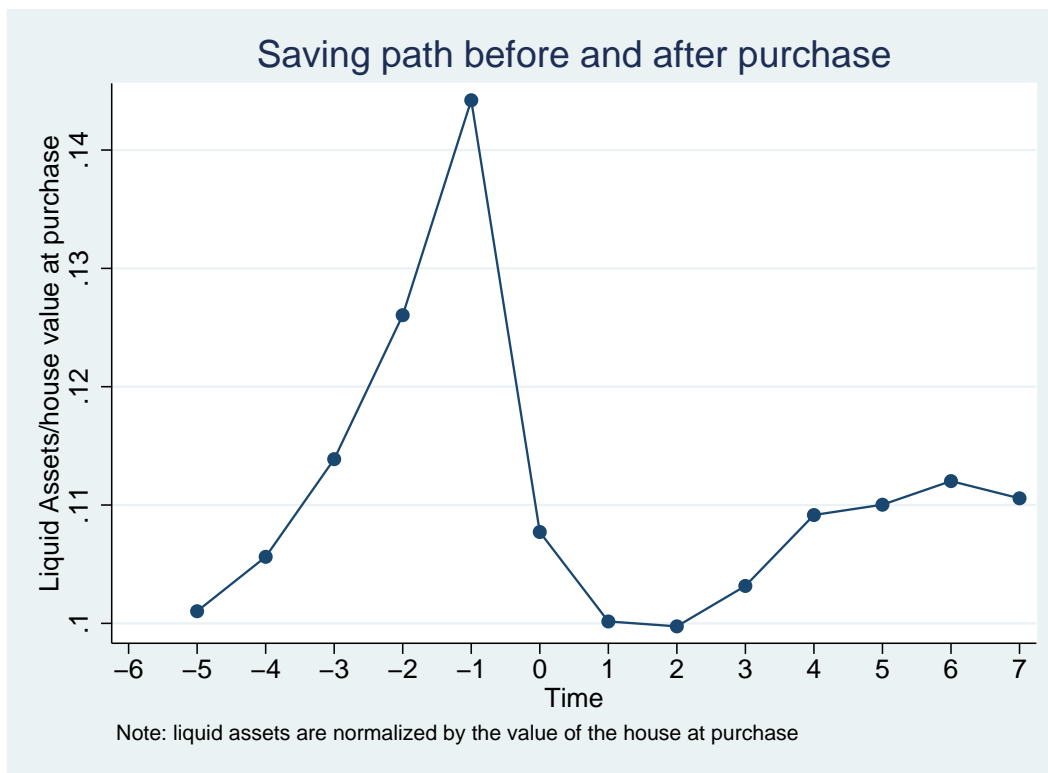
	(1)	(2)	(3)	(4)	(5)	(6)
	Random Effects			Fixed Effects		
	Portfolio share I	Portfolio share II	Portfolio share III	Portfolio share I	Portfolio share II	Portfolio share III
Ln(LA parents)	0.057*** (3.42)	0.050*** (6.02)	0.041*** (5.70)	-0.071 (-1.07)	0.004 (0.19)	0.006 (0.31)
Unempl. rate	-1.024 (-1.77)	0.090 (0.38)	0.221 (1.07)	-2.163 (-1.51)	-0.055 (-0.09)	0.084 (0.25)
$\Delta \ln(Y)$	1.070 (1.09)	0.232 (0.52)	0.169 (0.41)	0.604 (0.36)	0.547 (0.43)	0.097 (0.15)
Unempl. rate * $\Delta \ln(Y)$	0.130 (0.04)	1.401 (1.02)	2.014 (1.57)	-5.026 (-0.86)	0.733 (0.34)	1.828 (1.10)
$\Delta \ln(Y) * \ln(LAp)$	-0.096 (-1.19)	-0.014 (-0.39)	-0.007 (-0.20)	-0.056 (-0.45)	-0.039 (-0.38)	0.000 (0.00)
Unempl. rate * $\ln(LAp)$	0.072 (1.44)	-0.021 (-1.08)	-0.031 (-1.81)	0.171 (1.34)	-0.008 (-0.15)	-0.019 (-0.67)
Unempl. rate * $\Delta \ln(Y) * \ln(LAp)$	-0.051 (-0.18)	-0.124 (-1.08)	-0.181 (-1.70)	0.373 (0.80)	-0.069 (-0.38)	-0.166 (-1.14)
Constant	-4.231** (-3.08)	-4.055*** (-4.88)	-4.069*** (-5.11)			
Parental controls(i)	Yes	Yes	Yes	Yes	Yes	Yes
Child Control variables(ii)	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
$\sigma_u$	0.598*** (16.97)	0.804*** (42.34)	0.786*** (42.92)	-	-	-
$\sigma_e$	0.368*** (23.52)	0.483*** (69.15)	0.481*** (71.55)	-	-	-
Observations	10415	19678	20402	10415	19678	20402
Log-likelihood	-1408.822	-7784.716	-8126.414	-	-	-

t statistics in parentheses, \* p<0.05, \*\* p<0.01, \*\*\* p>0.001

(i) age, age2, education dummies, unemployment rate, d disp. Income.

(ii) age, age2, education dummies, number of adults, number of children in different age groups, dummy for new child

Figure 1: Liquid asset holdings at different points in time relative to home purchase



Note: This figure is based on parameters of the regression presented in table A3.