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Getting a foot on the housing ladder: The role of parents in giving a leg-up*

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Abstract: In this paper we question whether parental resources are important for first-time buyers? We find a nuanced set of results. First, when parents help out financially, it clearly increases the probability of entering the housing market. Furthermore, some of this help is taken out as lower loan-to-value (LTV) and higher house value, and thus gives a head start on the rungs of the housing ladder. On the other hand, own income is economically much more important for first-time buyers than the potential or implicit help through having wealthy parents. Second, along with a growing gap between income and house prices, parental resources have become more important. Homeownership rates for young households with wealthy parents, or parents helping out financially, are increasing relative to young households without wealthy parents. We find no effect on the age of first entry into the housing market, which has declined for all young buyers, or on housing wealth inequality. Finally, we do not find that recent prudent mortgage-lending practices has caused a decline in the probability of entering the housing market, even for those who do not receive financial help from parents. We conclude that in a country like Norway, where there are well functioning credit markets and high intergenerational mobility, homeownership is still achievable without parental help, even under unfavorable conditions.

Keywords: inter vivos gifts, altruism, housing investment, debt
JEL codes: D64, D91, G28, R21

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1 Introduction

In Norway, a combination of active housing policy and advantageous tax treatment of owner-occupied housing has contributed to high home-ownership rates, also for young households. However, as in many countries, young households in Norway are currently facing increasing difficulties in accumulating own savings to purchase a home as house prices increase at a higher speed than income. At the same time the parental generation are benefiting from corresponding capital gains on housing. This situation has led to increased attention in several countries to the role of parents in providing their children with financial help in connection with house purchases.

The role of parental resources for the life course of children has long been a topic of research in the social sciences. Parents transfer resources in a number of ways; through genes and personality traits, as investment in human capital, by providing contacts/networks and opportunities in general, and finally by direct transfers of financial and real assets. Because of the many unobservable transfers, it is difficult to gauge the causal relationship between incomes and wealth of the parent and the corresponding incomes and wealth of the child. In this paper we study the specific role of parental wealth in overcoming the credit constraint that young persons face when buying their first home. While a pooling of resources across generations may overcome housing finance limitations for young persons, to be effective transfers have to be well timed. Transfers must come when they are needed, i.e. when credit constraints are binding.[1] Bequests (or overall intergenerational correlations in talent or thrift) are less likely to serve this purpose: what are needed are inter vivos gifts or loans, or that the parent provides additional collateral.

Most previous studies conclude that there is a positive effect of parental resources on children's housing demand. Luea (2008) using US data, Spilerman and Wolff (2012) using French data, and Barrett et al. (2015) using Australian data, find that parental transfers increase home-ownership rates and the value of the housing purchased. In their analysis, Spilerman and Wolff (2012) study several outcomes of parental resources; home-ownership, home value, the down-payment proportion, and non-housing consumption. They find that parental wealth has strong effects on the ownership rate of children and on their home value, and they conclude that this is mainly achieved by direct financial transfers rather than indirect transfers of social and human capital. On the other hand, studies done by Guiso and Jappelli (2002) and Engelhardt and Mayer (1998) find primarily an effect on the housing

[1] If young individuals expect an inheritance, it might very well have a negative effect on entering the housing market. They may choose to rent and wait to receive the bequest, meanwhile avoiding the need to save for the down payment.

value and a somewhat small effect on the time spent saving for downpayment.[2] Kolodziejczyk and Leth-Petersen (2013) using Danish data, find less evidence that inter-generational transfers support home ownership. The Danish study has the advantage of using very good administrative register data for a large population of parents and children, plus having the ability to control for unobserved family effects by utilizing the panel structure of the data. Compared to the much smaller survey data used in the other studies, this holds the promise of being a more robust result. Thus, the overall verdict is still out.

In our study, we have similar to Kolodziejczyk and Leth-Petersen (2013) access to a large register based dataset for the entire population. In particular, we are able to link tax register information of grown children with that of their parents, providing quite exact information about the income and wealth of both generations. But contrary to Kolodziejczyk and Leth-Petersen (2013), we also have information about major inter vivos gifts. We therefore need not infer transfers from the first difference in financial wealth measured at the end of the calendar year, which would be subject to considerable measurement error. In sum, we have a very detailed data set on the joint economic resources within the extended family, potential and actual transfers, and the family composition.

We find a nuanced set of results. First, we study the general effect of parental resources on children's likelihood of buying their first home. In particular we investigate three channels of support; parents' financial wealth, parents' housing, i.e. collateral, wealth, and actual inter vivos gifts. We find that the effects of parental resources are positive and significant on the probability of buying a first home, but economically small compared to the effect of the household's own economic resources. Furthermore, we find that direct transfers from parents have the largest impact on the propensity to buy. Those who receive an inter vivos transfer are on average 15 percentage points more likely to buy, all other things equal. However, we also find that some of this help is taken out as lower loan-to-value (LTV) and higher house value.

Second, as own income is a major determinant for first-time buyers, we find that a growing gap between income and house prices have led parental resources to become more important over time. This has caused a gap in homeownership rates between young households with and without wealthy parents, or parents helping out financially. However, we find no effect on the age of first entry into the housing market, which has declined for all young buyers, or on housing wealth inequality.

[2]These two studies only look at time spent saving and house value, not home-ownership rates or other outcomes.

Finally, we do not find that recent prudent mortgage-lending practices has caused a decline in the probability of entering the housing market, even for those who do not receive financial help from parents.

The paper is organized as follows: In Section 2 we present the theoretical framework, in Section 3 we describe the data, in Section 4 we show the general results for the importance of parental resources for first-time buyers, while Section 5 explores the increasing importance of parents helping out over time and the effects on inequality. Section 6 concludes.

2 Theoretical framework

2.1 Altruistic model

Altruistic parents care about their children's well-being, this leads to a pooling of resources across generations (Becker, 1974, 1991; Barro, 1974). In the dynastic model of Barro, there is one-sided altruism, parents caring for children, so that the utility of the parent is a function of the sum of all descendants' utilities. The parent (p) maximizes her utility, a function of her own consumption, C^p, and of the child's (k) consumption, C^k,

$$\max_{C^p} u\left[C^p, \upsilon\left(C^k\right)\right] \tag{1}$$

with $u_{C^p} > 0$ and $u_\upsilon \upsilon_{C^k} > 0$. The intensity of altruism is measured by the derivative $u_\upsilon > 0$. Note that the model of pure altruism is one where the well-being of the child enters her parent's utility function, not the level of consumption directly. The budget constraints are given by

$$C^p = Y^p - T \tag{2}$$

$$C^k = Y^k + T \tag{3}$$

$$T \geq 0 \tag{4}$$

where Y^p and Y^k denote the parent's and child's income respectively. T denotes a transfer from the parent to the child.

The parent chooses her own consumption and the transfer to the child, and thus the child's consumption, by maximizing (1) under the constraints (2)-(4). In that case, the first-order condition predicts that the optimal transfer will equalize the parent's and the child's marginal utilities of consumption, as seen from the parental point of view

$$-u_{C^p} = u_\upsilon \upsilon_{C^k}$$

where the altruism parameter, u_v, indicates the rate at which the parent is ready to give up her consumption for the child's. In this simple representation, the altruism parameter is independent of parental resources. It follows that when there is a positive transfer, the two budget constraints can be pooled into one, and that the levels of consumption can be written as functions of total family income

$$\begin{aligned} C^p &= c^p\left(Y^p + Y^k\right) \\ C^k &= c^k\left(Y^p + Y^k\right) \end{aligned}$$

For the purpose of our analysis we may think of consumption as the sum of housing consumption and other non-housing consumption ($C = C_h + C_o$), where housing consumption is a function of the housing stock (H), $C_h = f(H)$. Furthermore, we may define Y as cash-on-hand, i.e. after-tax income plus financial assets, so that we can express the child's housing consumption as a function of own income and financial assets plus parental income and financial assets.

Allowing for multiple descendants introduces the possibility of unequal transfers. We may easily extend the above model to more than one child ($n > 1$) in which the trade-off that determines whether the transfer is positive will be between parental resources per child, Y^p/n, and the respective child's income. It follows that the parent would choose to transfer more to the child with low income. However, here we assume that parents treat their children equally, see Halvorsen and Thoresen (2011) for evidence, but that multiple descendants will reduce the probability of a transfer and the size of the transfer to each child.[3]

2.2 Children's housing demand

We assume that young households depend on a mortgage for investing in housing. We simplify and assume that mortgages are limited to a certain fraction of the house value

$$M \leq \kappa P^h H$$

where M denotes the mortgage, κ the loan-to-value ratio, and $P^h H$ the market value of housing. Whether or not a young household is constrained by this depends on their preferences and the user cost of housing.[4] However, as shown by Brueckner (1997), when housing is included in the utility function, as we have assumed above,

[3]Keister (2003) shows that siblings dilute both parents' financial resources and non-material resources, such as time. This diminishing of resources reduces in turn educational attainment, inter vivos transfers, and inheritance.

[4] Some may also be constrained by other traditional underwriting criteria such as the amount of annual housing payments relative to income.

the optimal choice will be a corner solution with maximum mortgage. If we add to this the preferential tax treatment of housing investment and the overall return to housing in the last decades, it is not unreasonable to assume that most young households in our sample are constrained by the loan-to-value limitation.

Subsequently, the young household must obtain enough resources to finance the initial down-payment,

$$Z = (1 - \kappa) P^h H.$$

In this setting, parental transfers can have two effects. Firstly, they represent additional wealth for home purchase, whereby children can increase the value of their housing investment (purchase higher priced dwellings) and achieve higher utility. Secondly, by reducing the amount of own saving necessary for reaching the initial down-payment level, alternatively reducing the time spent saving up for the down-payment. Parental transfers may also have an endogenous effect on the children's saving by causing the child to save less than they could, knowing that her parents will provide sufficient resources. However, in this paper we will primarily investigate the effects of parental wealth on the probability of first-time investment in housing, and more briefly touch upon the effects of parental wealth on the relative value of housing and size of the mortgage.[5]

The empirical model in Section 4 is formulated in consistency with the theoretical predictions that parental support should be positively correlated with their wealth if parents behave altruistic due to the combined budget constraint, and that inter vivos gifts may play a significant role for young persons' housing decision. If the child's access to the housing market – and, hence, housing consumption – changes, for example as a consequence of new regulation, parental support would increase its importance and altruistic parents should be expected to respond.

3 Data and descriptive statistics

While most previous studies on parental financial support and children's housing investment are based on surveys, we have access to a large register based dataset for the entire population. In particular, we are able to link tax register information of grown children with that of their parents, providing information about the income and wealth of both generations. Thus the main analysis is based on tax register information about all individuals aged 21 to 31 years old and their parents. Individual tax returns contain detailed information about income and wealth. These data are of high quality because most information is third-party reported to the tax authorities,

[5] See Section 4.3.

and very little is self-reported. All wealth variables are measured at the end of the previous year and all economic variables are deflated using the consumer price index.

A first-time buyer is defined on the basis of tax values for housing, i.e. when the registered change in tax value of owner-occupied housing goes from zero to non-zero. This restricts our sample to persons with (at a minimum) two succeeding tax reports. Young first-time buyers with income and wealth below the minimum taxable level the previous year are therefore, in general, not included. In 2010 there was a revision in the way tax values for housing was reported, whichcaused a shift in registered home-ownership. This will be taken into account when interpreting the results. We have information about the individual's household composition and are able to link partners within a household to obtain measures of household income and wealth. The buying decision is expected to depend on the household's combined resources. More importantly, we may also use personal identifiers to link each person to their parents, and their respective tax register information. From the number of parent-child linkages we also gather information about how many siblings each person has.

At the outset we keep only young persons living in a single or two-adult persons household, and extended families where the parents are not divorced, i.e. the parents belong to the same household.[6] The latter is to ensure that the sum of parental resources do not include the wealth of a new partner. Restricting the analysis to non-divorced parents reduces the sample by 46 percent. However, as a robustness test, we later include divorced parents and find that this exclusion is not crucial for our results. In the analysis we concentrate on the effects of own parents. Of course, a couple will in general have two sets of parents and two possible sources of parental financial support. In the analysis, we treat both mates of a couple as independent observations. They will have identical household related income and wealth but different parental resources. To check the impact of leaving out potential support from the parents in law, we later present additional results for single households where the child-parent link is clearer.[7] In total we observe 3.3 million child-parent linkages over a period of 10 years, i.e. from 2005 to 2014.

From the tax reports we have in addition information about actual wealth transfers in the form of major inter vivos gifts. Parental support may come in other forms than this registered transfer, however. Parents may also offer their own homes as collateral on the children's mortgage (guarantor mortgages), provide the child with a private loan or invest in secondary housing that the child then may have

[6]This excludes persons living in households with more than two persons older than 17 years.

[7]The drawback with using only single households is that they become fewer as we move towards higher ages.

access to for cheap rent.[8] In the latter two cases, the parents would have to either deplete their stocks of wealth or re-mortgage their own house.

Table 1. Share having received parental support when investing in housing this or previous years, in percent

	2008	2009	2010	2011	2012	2013	2014	2015
Advancement of inheritance	20	49	29	27	28	30	27	34
Money transfer (gift)	36	21	27	25	27	22	34	20
Guarantor mortgages	34	20	34	32	39	52	35	35
Private loan	–	16	20	25	28	19	22	24
Help with current expenses	5	7	3	13	9	9	11	5
Joint mortgage	9	8	12	12	6	9	4	6
Other	15	6	2	8	2	5	8	5
Percent of young home-owners who received support	24	15	21	29	35	41	33	29
No of observations	97	56	62	75	100	108	87	131

Note: Respondents 18-39 years old, multiple answers possible.
Source: Husholdningsundersøkelsen, Finans Norge; Gulbrandsen (2016)

Table 1 shows results from an annual survey by Finans Norge where grown children (below 40 years old) are asked about the type of support from their parents, given that they, in the past, were helped with home purchase. The sample size is small, and multiple choices are possible, but nevertheless the answers are indicative about the main type of support. The survey suggests that direct transfers is the main channel for parental support, although guarantor mortgages are also quite common.[9] This is a direct form of risk sharing over generations where the parents take on some of the default risk and allow the child to obtain a higher loan-to-value ratio. The table suggests that more than half of all young households receive direct transfers from parents (advancement of inheritance and other inter vivos gifts) in connection with housing investment.

In the tax return, one of the few self-reported fields is whether or not the person has received a major inter vivos gift. We may therefore be facing a measurement error problem regarding this variable, but we expect mostly for transfers of minor size. Tax payers are aware that unexplained increases in wealth could raise suspicion by the tax authorities and are likely to report large transfers. On the whole, we

[8]Inter-generational transfers of family homes such as selling the family home to the child for a low price would be classified as inheritance.

[9]This is consistent with the annual residential mortgage lending survey by the Norwegian FSA, which in 2015 found that a significant share of young households with high LTV-loans have additional security backing their mortgage loan, see Finanstilsynet (2015). This survey does not identify the source of the additional security, however.

Table 2. Descriptive statistics by age, 2005-2014

Age	21	22	23	24	25	26	27	28	29	30	31
Fraction:											
First time buyers	.055	.071	.087	.102	.116	.125	.124	.115	.106	.095	.086
Homeowners	.094	.148	.214	.288	.365	.439	.504	.557	.599	.630	.655
In a couple	.019	.032	.051	.077	.108	.146	.187	.230	.275	.320	.359
Has children	.058	.082	.115	.158	.206	.263	.323	.390	.456	.521	.581
Student household	.573	.502	.403	.292	.191	.115	.067	.037	.022	.013	.009
Inter vivos gift	.007	.008	.010	.011	.013	.014	.015	.015	.015	.015	.015
Median. In 1000 2014-NOK:											
Own income	128	152	203	275	340	403	461	509	544	571	593
Financial wealth$_{t-1}$	47	54	61	71	81	93	106	117	127	135	142
No of obs in 1000s	199	219	230	236	243	250	258	264	271	279	288

Note: Only persons whose parents are not divorced (i.e. not split up).
Sources: Statistics Norway and Norges Bank

expect only sizable transfers to matter for young first-time home buyers.[10]

Looking across age, the share of first-time home buyers reaches a top at 12.5 percent at 26 years, see Table 2. About 2/3 of all Norwegian households are homeowners. The share of homeowners increases by age following a convex pattern. Above 31 years the share of first-time buyers declines more rapidly. Both the share of households living in a couple and the share having children in general increase by age. The frequency of receiving inter vivos gifts is highest among households in their late twenties and early thirties.

4 The effect of parental income and wealth on first-time buyers

To assess the effect of parental income and wealth on their children's propensity to enter the housing market, we estimate a simple logit for first-time investment in housing as a function of parental wealth. By including tax-reported inter vivos gifts as a separate explanatory variable, we can estimate the effect of major direct financial

[10]According to Norwegian inheritance law, all offspring are guaranteed an equal share of the estate, and if one child has received advancement of inheritance this will be adjusted for in the final settlement. We expect internal family justice to secure that most is duly reported to the county tax office as obliged. The tax payer is not obliged to report inter vivos gifts to the national tax authority, which is our primary data source. Still, we expect most people to do so, since it is probably unclear to them if national and local tax offices exchange information. We may be facing some under-reporting, however.

transfers. Consistent with the theoretical model, we assume that non-registered support, which are not observable to us, as well as the indirect support, are correlated with parental income and wealth, as a measure of parents' ability to provide support. Parents' housing wealth is included to capture available parental collateral. The overall importance of altruism is assessed by calculating the effect of parental resources on the probability to buy.

$$\Pr\left[\Delta H_{it}=1\right]=\frac{1}{\exp\left\{-\left(\alpha+\beta\ln Y_{it}^{p}+\gamma\ln W_{it-1}^{p}+\varphi X_{it}+extension\right)\right\}-1} \quad (5)$$

$$extension=\delta\ln Y_{it}^{k}+\zeta\ln W_{it-1}^{k}+\tau\ln HW_{it-1}^{p}+\theta T_{it}$$

where ΔH_{it} is equal to 1 if individual i buys a home for the first time in period t.[11] In the first specification we include parental household income after tax (Y_{it}^{p}) and parent's gross financial wealth (W_{it-1}^{p}, measured at the end of the year before), all measured at constant prices. In addition we include a number of control variables X_{it}; the child's age, gender and marital status, whether they have own children or not, whether they live in a big city (Oslo, Bergen, Stavanger or Trondheim), the number of siblings and whether they live in a student-household or not. Time dummies are included to account for fluctuations over time. Parents' and own income and wealth are log-transformed, and wealth is represented by their lagged values so that they represent the pre-investment ability to transfer. Thereafter we sequentially extend the equation and include controls for the child's own household income (Y_{it}^{k}) and lagged household wealth (W_{it-1}^{k}), also log-transformed and measured at constant prices, log of lagged market value of parent housing at constant prices (HW_{it-1}^{p}) and a dummy for inter vivos gift (T_{it}). This dummy equals one if reported financial transfers are positive and zero otherwise.

This sequential procedure helps us identify to which extent parental resources have any independent effect on home investment over and above the effect of the child's own resources. If the coefficient on parental income and wealth falls when we include the child's own income and wealth, this would imply that part of the association between parental wealth and home-ownership status operates through its effect on children's income and wealth.

Table 3 shows that parental resources play a role for the child's probability to enter the housing market. In the first column we present results for parental income

[11] The person then drops out of the sample in the next period, being a homeowner in subsequent periods.

Table 3. Logit estimation for first-time buyers 21-31 years old

	(1)	(2)	(3)	(4)	(5)
Parental income$_t$	.254**	–	.174**	.163**	.150**
Parental fin. wealth$_{t-1}$	.078**	–	.036**	.047**	.043**
Parental hous. wealth$_{t-1}$	–	–	–	.124**	.120**
Own income$_t$	–	1.20**	1.20**	1.23**	1.24**
Own fin. wealth$_{t-1}$	–	.117**	.096**	.098**	.096**
Inter vivos gift$_t$	–	–	–	–	1.07**
Male	.264**	.366**	.363**	.377**	.378**
Couple	.333**	.045**	.051**	.059**	.058**
Children	.156**	-.227**	-.211**	-.199**	-.197**
Big city	.012	.094**	.073**	-.004	-.008
Student household	-1.91**	-.605**	-.649**	-.640**	-.632**
No of siblings (ref = 0)					
= 1	-.021	-.002	-.060**	-.085**	-.075**
= 2	-.122**	-.103**	-.163**	-.181**	-.165**
= 3	-.238**	-.205**	-.248**	-.251**	-.233**
= 4+	-.345**	-.288**	-.278**	-.287**	-.267**
Age dummies	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes
Likelihood ratio	142,249	214,256	217,632	174,489	177,361
No of observations	1,774,533	1,765,223	1,765,223	1,291,611	1,291,611

Coefficient significance: ** 1 percent, * 5 percent.
Coefficient standard errors for Eq. (5) is given in Table A.2 in the Appendix.
For a full set of age and year dummies, see Table A.1 in the Appendix.
Note: Only persons whose parents are not divorced.

and wealth only, together with the control variables, and in the second we present results for the child's own resources only. Put together, the coefficient on parental wealth and income falls, while the coefficient on own income and wealth changes less. Despite the obvious correlation between parent and child resources, it appear that parental income and wealth still has an independent effect on the probability of becoming a homeowner.[12]

[12]A low correlation in current incomes does not rule out a higher correlation in lifetime incomes. However, the level of intergenerational income mobility in Norway is found to be quite high, see Bratsberg et al. (2007) and Nilsen et al. (2012). Educational level would be a proxy for expected lifetime income and thus theoretically imply a positive effect on the propensity to buy. Since education is correlated across generations, although less in Norway than in many other countries, parents' income may be picking up the discrepancy between the young person's present income and expected life-time income when education is not included as an explanatory variable. The data set does not include information on education in number of years. However, the dataset does include information about loans from the Norwegian State Educational Loan Fund (Lånekassen). Due to favorable loan terms, it is common to finance education with student loans. Furthermore,

In the fourth column we include also the lagged market value of parent housing.[13] As argued above, the possibility of offering their own home as a collateral for the child's mortgage is an important channel for parental support.[14] High parental housing wealth indicates more ability to put up additional collateral. In the final alternative we include also our measure of direct transfers, the tax return information about major inter vivos gifts (T_{it}). Our analysis shows that these money gifts are to a large degree given in connection with a house purchase. Turning the regression and regressing T_{it} on the other variables gives as a result that a dominant share of those who receive a transfer also invest in housing in the same period, see Table A4 in the Appendix. Hence, when including inter vivos gifts, we are not estimating a causal probability-to-buy relationship in the sense that transfers are assumed to be exogenous. Rather, we are aiming to estimate the quantitative effect of such transfers on the likelihood of buying compared to those who do not receive a transfer, all other being equal.

The number of siblings is included as a separate indicator as siblings may reduce expected transfers and have a negative effect on the probability to buy in several ways; larger families may accumulate less wealth than smaller families, and siblings dilute parents' finite financial resources and non-material resources, such as time. This diminishing of resources reduces educational attainment, inter vivos transfers, and inheritance. Reduced educational attainment and transfers alter financial behavior; saving; and, ultimately, the offspring's own wealth. On the other hand, if high income parents have more children, the number of siblings may rather be an indication of more available resources in the extended family. If this is important, we expect a positive effect from siblings on the probability of becoming a homeowner. Table 3 shows that the probability of becoming a homeowner declines with the number of siblings.

Furthermore, we note that all the control variables – male respondent, being in a couple, having children, living in a big city and whether or not the respondent lives

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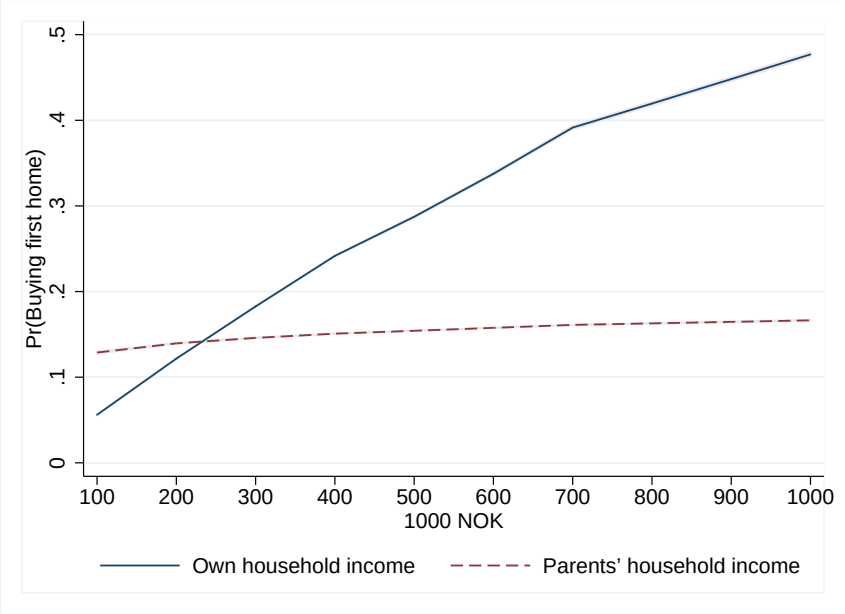
the instalment is relatively small the first years when the borrower starts paying down on the loan. We therefore have experimented with using the level of student loans as a proxy for the level of education. Extending the main equation in Table 3 with this variable gives as a result that the levels of student loans are all insignificant at the five per cent significance level. The other estimated coefficients are basically unaffected.

[13]Housing values are reported in the tax returns, and since 2010 they have been imputed from hedonic price regressions. Prior to 2010 the tax values were less representative of actual value. For years prior to 2010 we therefore use the house price index to backtrack parents' housing values.

[14]At the outset parental collateral was represented by a loan-to-value measure (LTV). A high parental LTV was assumed to indicate less ability to put up additional collateral for the children. A positive, rather than a negative, relationship was found, however. This probably reflects that parents with more debt in general have more resources, both economic and human, and that the positive LTV-effect is picking up this.

Figure 1. Predicted margins of own household's and parent's after-tax income



Note: Grey areas are 95 percent confidence intervals. Measured in 2014-prices. Over 2005-2014, median own household and parental income is NOK 400,000 and NOK 650,000 respectively.

in a student household – are correlated with own household income. The coefficients change therefore markedly from specification (1) to (2). Living in a big city is also clearly correlated with parental housing wealth, as can be seen by comparing specification (3) and (4).[15]

In Table 3 we reported the estimated logit coefficients. When computing the marginal effects corresponding to model (5), we find that those who receive an inter vivos gift has a 15 percentage point higher probability of entering the housing market at a given point in time. Males have a 4.3 percentage point higher probability than females, and those with siblings have a 1-3 percentage point lower probability, depending on the number of siblings.

The marginal effects of own and parental resources are non-linear and will depend

[15]Table A.1 in the Appendix shows all the estimated age and year dummies of the logit estimations in Table 3. In general, the age dummies are significant. The probability to buy the first home increases by age until a top at age 27, and thereafter it decreases. As the group of not home-owners get older, it is likely to be dominated by those who are not capable of buying their own home or who prefer to not own. The year dummies are in general significant, picking up any variation over time in the estimated probability not reflected in the explanatory variables. There is in general a negative effect in 2007 and 2008, i.e. at the outset and first year of the financial crisis when interest rates were increasing and house price growth halted and started to decline. Higher interest rates reduce housing investments because it makes it more expensive to service debt, while an expectation that house prices could decline even further may trigger young persons to postpone their home purchase. The Consumer Confidence Index of Norway confirms that Norwegian households became much less optimistic about the future.

on the level at which we measure them. To take some examples, a young person with parents whose income after tax is approximately NOK 900,000 will have a 0.7 percentage point higher probability of buying compared to a person with parents that have an after-tax income of NOK 600,000, but she again will have a 1.2 percentage points higher probability than a person with parents that have an after-tax income of NOK 300,000. Consequently, a young person with parents whose income after tax is NOK 900,000 will have a 1.9 percentage point higher probability of buying its first home than a person with parents whose income after tax is only NOK 300,000. In comparison, if a person's own income is NOK 900,000, it will have a 27 percentage point higher probability of buying its first home than a person with own income after tax of NOK 300,000. This is illustrated in Figure 1 where we have computed the average marginal effects at different levels of own and parental income. Hence, even if parents' income do matter for offspring's home ownership, the offspring own household income are of far larger importance.

A similar figure could be made comparing the effects of own financial wealth with that of parental financial wealth. As for income, it would show that the effects of own wealth is more important than parents at high levels, but the difference in marginal effects is smaller. In this case, the marginal effects are quite modest. Due to the functional form, the marginal effect of both income and wealth is declining with higher levels.

An inter vivos gift is the single variable that has the largest impact on the probability. This result is in line with Spilerman and Wolff (2012) who find that the effect of parental wealth is mainly achieved by direct financial transfers rather than indirect transfers of social and human capital. The size of the transfer matter. If we, annually, divide those who receive inter vivos gifts among first-time buyers in four groups according to the size of the transfer, we find that the effect on the probability to enter the housing market almost doubles from the lowest to the top quartile.[16]

Finally, we find that the parents' housing wealth has a modest but significant positive effect on the probability of their child to buy a home. As the parents' housing wealth increases from NOK 2 million to NOK 5 million, the probability of buying a house increases by 1.3 percentage points. This is in line with the results in Table 1, which showed that providing additional collateral was a widely used form of support. Note also that adding variables representing alternative ways of sharing wealth, such as additional collateral (parents' housing wealth) and direct transfers (inter vivos gifts), reduces the coefficient value on parent's income and increases that

[16]The median non-zero inter vivos gift among first-time buyers in 2014 was NOK 400,000, and NOK 200,000 and NOK 700,000 at the 25 and 75 percentile respectively.

on financial wealth, but not by very much. This indicates that parental support is correlated with their income, but not strongly.

4.1 Other sample selections

In Table 4 we present some robustness tests of these results using other sample selections. Since becoming a homeowner is an absorbing state (for most people), the sample size declines with age. In other words, the control group is made up by predominantly young persons, students and persons in low income households (the non-buyers). One may suspect that this affects the results. As a consequence we have also performed the regression separately at each age. Instead of reporting all results, in the first two columns of Table 4 we split our sample in two age groups. Most results are robust, but among the very youngest[17], living in a big city reduces the probability of entering the housing market, while the opposite is true among the older. The big city effect is insignificant in the preferred equation (5) of Table 3. Transfers and siblings have a stronger effect on the probability to buy a first home for the younger group, the same is true for living in a couple.

In the third column we check how the results hold up when we consider single persons only. As argued above, we suspect that potential transfers from the spouse's parents may weaken the link between parental resources and the probability of buying a home. The general result is that most variables relating to available resources, both own and parents', become increasingly important for the single, as for the young. A caveat is that the sample of single persons is overall younger than the full sample, and, despite the inclusion of age dummies, we may be picking up effects of being younger rather than being single.

In the fourth column we investigate if the results change when we do not restrict the analysis to young persons whose parents are still living together, i.e. we include also parents that are divorced. Despite being divorced we still sum their resources in terms of the individual income and wealth reported in their tax returns. Because parents may have new spouses or partners, we may be facing a measurement error problem here. This is particularly true for the tax reported wealth measures. This illustrates how the situation becomes more complicated with divorced parents. There may also be more cases where the number of siblings differ between the mother and the father. We have chosen to set the number of siblings equal to the largest number of siblings. In this sample we find a significant big city effect, but the remaining

[17] A predominant share of students belongs to this group. Although students are controlled for in the regressions, we check the robustness of the negative big-city effect by re-running the regression with students excluded. The result holds.

Table 4. Logit estimation for first-time buyers. Different sample selections

Age	21-25	26-31	21-31	21-31	21-31
Child status	All	All	Single	All	Gift>0
Parents' status	Cohab.	Cohab.	Cohab.	All	Cohab.
Parental income$_t$	.136**	.169**	.160**	.159**	.153**
Parental fin. wealth$_{t-1}$	.051**	.037**	.048**	.053**	.049**
Parental hous. wealth$_{t-1}$	.123**	.117**	.119**	.017**	.147**
Own income$_t$	1.31**	1.17**	1.24**	1.04**	.620**
Own fin. wealth$_{t-1}$	.108**	.090**	.111**	.104**	.053**
Inter vivos gift$_t$	1.32**	.881**	1.15**	1.13**	–
Male	.418**	.347**	.358**	.236**	.135**
Couple	.234**	.018	–	.208**	-.147*
Children	-.151**	-.184**	-.198**	-.101**	-.006
Big city	-.174**	.128**	.044	.059**	.209**
Student household	-.542**	-.562**	-.630**	-.557**	-.638**
No of siblings					
= 1	-.127**	-.020	-.070**	.086**	-.328**
= 2	-.249**	-.085**	-.162**	.019	-.484**
= 3	-.302**	-.168**	-.255**	-.081**	-.609**
= 4	-.380**	-.182**	-.337**	-.114**	-.464**
Age dummies	yes	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes	yes
Likelihood ratio	92,243	54,403	160,081	245,657	2,718
No of observations	776,965	514,646	1,169,451	2,306,836	15,199

Coefficient significance: ** 1 percent, * 5 percent.

effects are robust.

Finally we split our sample into two groups, receivers and non-receivers of inter vivos gift, to check if the gift "tells it all" and the impact from other explanatory variables is very different. Most results are robust, but the effect of being a couple turns negative and the negative effect of siblings increases. The latter may reflect that having siblings reduces the size of the inter vivos gift, see Table A4 in the Appendix. We do not find corresponding evidence of a negative relationship between inter vivos gift and cohabitation that could help explain the negative couple effect among those receiving a gift.

4.2 Secondary housing

In Table 1 we presented some survey evidence on the forms of parental support as stated by the recipients. The same survey also questioned parents about the

type of support, given that they had, in the past, helped their children with home purchase. The answers differs somewhat from Table 1 since parents may have helped more than one child, but the overall picture remains. One form of support, that is only suggested in the question directed at parents, is whether they have invested in secondary housing that the child may live in. Approximately 10 percent answers that they have used this form of support, see Table A.3 in the Appendix.

Table 5. Logit estimation for fist-time buyers 21-31 years old using data from years 2011-2014. Without and with control for parent's ownership of secondary housing

	Without	With
Parental income$_t$	.189**	.198**
Parental financial wealth$_{t-1}$	.040**	.045**
Parental hous. wealth$_{t-1}$	.129**	.156**
Own income$_t$	1.19**	1.19**
Own financial wealth$_{t-1}$	.132**	.132**
Inter vivos gift$_t$	1.63**	1.62**
Secondary housing$_t$	–	-.179**
Likelihood ratio	76,347	76,659
No of observations	536,761	536,761

Coefficient significance: ** 1 percent, * 5 percent.
Other controls are as in previous tables:
male, couple, children, big city, student, siblings, age and year.

As of 2010, our data include information on secondary housing ownership. The share of parents owning a secondary housing has increased over time, from approximately 18 percent in 2010 to 20 percent in 2014. Not all secondary housing provides an opportunity for the children to use as their own permanent residence.[18] The secondary dwelling may be unattractive due to its geographical location, there may be other siblings using it, or the parents may be using it themselves or renting it out. The data do not enable us to identify how the secondary dwelling is being used. To assess the impact of parents' secondary dwelling ownership on the probability of buying, we include a dummy variable capturing this ownership in the main equation. The results are shown in Table 5.[19]

The probability of buying the first residence is lower among young people with parents owning a secondary housing compared to those with parents not owning such a dwelling. The marginal effect is -2 percentage points. This effect may reflect that the secondary housing is made available for the child to live in and therefore reduces

[18]Secondary housing does not include holiday homes.

[19]We start the estimation in 2011 to avoid effects from a technical revision of home-ownership in 2010. The estimated model in the first column is identical to that of the last column of Table 3.

the incentive to buy, but may alternatively reflect that the parents' investments in a secondary housing has reduced its ability or willingness to give support to the child's own housing investment. However, among those with parents owning a secondary housing, the share having received an inter vivos gift is higher and also both the mean and median amount received are larger, see Table 6. The likelihood of child support seems not to be reduced as a consequence of secondary housing ownership. Therefore we may conclude that the negative effect on the probability to buy is mainly through secondary housing being made available for the child to live in.

Table 6. Descriptive statistics of different groups. Age 21-31, 2010-2014

Group	Age	Loan-to-income	Loan-to-value[1]	Inter vivos gift		
	Mean	Median	Median	%	Median[2]	Mean[2]
Ftb. & no sec. hous.	26.4	4.8	.95	2.8	326	519
Ftb. & sec. hous.	26.3	5.0	.94	4.0	458	616
Renter & no sec. hous.	25.0	1.2	–	0.5	213	372
Renter & sec. hous.	25.0	1.4	–	0.7	255	427

[1] Total loans less student loans. [2] Of positive values. 1000 2014-NOK.
Ftb. is short for first-time buyer.
Sec. hous. is short for parental secondary-housing ownership.

4.3 Effect of transfers on the LTI, LTV and housing value of young households

Parental support may affect not only the propensity to enter the housing market, but also the indebtedness (LTI), the loan-to-value (LTV) ratio, and the house value of young first-time buyers.[20] At the outset, it is not clear if the effect would be positive or negative. On the one hand, we would expect that parental financial support may reduce the amount of mortgage necessary to obtain the desired level of housing. On the other hand, it is possible that the desired level of housing is so high that the young home-buyer would in any case choose the maximum mortgage, as described in Section 2. The main effect of parental support can then be only to increase the housing value.

[20]Loan-to-market value is only measurable since 2010 when the tax returns began using tax values based on imputed market values for housing. A comparison of the imputed tax values with registered sale values (www.Ambita.com) shows that the imputed tax values, on average, track the sale values. However, the tax register data do not include additional collateral, and calculated LTVs of households making use of that will be too high. The applied LTV-measure relates own debt to own collateral.

Table 7. Tobit estimation of LTI and LTV, and OLS estimation of log real housing value, of first-time home-buyers 21-31 years old

Left hand side variable	Loan-to-income[1]	Loan-to-income[2]	Loan-to-value[3]	Log real housing value[4]
Parental income$_t$	.075**	.106**	.054**	.058**
Parental financial wealth$_{t-1}$	.022**	.027**	-.019**	.039**
Parental hous. wealth$_{t-1}$	.052**	.059**	-.056**	.112**
Own income$_t$	-.514**	-.533**	.669**	-.394**
Own financial wealth$_{t-1}$	.015**	.016**	-.030**	.023**
Inter vivos gift$_t$	-.005	-.012	-.189**	.073**
Male	.329**	.307**	.211**	.176**
Couple	-.060**	-.069**	.169**	-.140**
Children	-.034**	-.061**	.108**	-.147**
Big city	.051**	.083**	-.093**	.170**
Student household	.087**	.100**	.524**	-.449**
No of siblings				
= 1	-.039**	-.049**	.031	-.056**
= 2	-.035**	-.041*	.044*	-.067**
= 3	-.043**	-.050*	.047*	-.069**
= 4	-.024	-.046*	.015	-.025**
Age dummies	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes
Likelihood ratio	28,610	13,097	9,221	–
No of observations	183,761	79,714	79,650	85,398

Coefficient significance: ** 1 percent, * 5 percent.

[1] Total debt less student debt to after-tax income. 2005-2014.

[2] Total debt less student debt to after-tax income. 2011-2014. Included to be comparable with the LTV-regression.

[3] Total debt less student debt to housing values. 2011-2014.

[4] 2011-2014.

Since we expect parental support to serve as an addition to own resources in most cases, we start by assessing the importance of the home buyers' own resources. We find that persons belonging to households with higher income tend to borrow less relative to own household income but more relative to the collateral value of the dwelling, see Table 7. Higher financial savings up-front helps reduce the buyer's LTV but increases its LTI and housing value. Hence, it seems that first-time buyers with savings use them to finance a more expensive dwelling, but also to some degree to reduce their leverage. Gifts appear primarily to affect the possibility of buying a more expensive or larger home, and since the recipients do not take up more debt their leverage is automatically reduced. Our interpretation of these results is that

young first-time buyers maximise the value of the house but are constrained by LTV, i.e. the ability to finance the down payment. Savings and gifts reduce this constraint. At low income levels the ability to service debt, and also to save, are smaller, and income seems to be a binding constraint.

Young persons with parents with high income and wealth have higher LTI and higher house values.[21] A negative relationship between own LTV and parental housing wealth is consistent with available parental collateral being used as alternative collateral by the offspring. The same is the strong positive effect of parental housing wealth on the house value. Overall, the results are consistent with the hypothesis that parents behave altruistic and help their children if needed, and that children take that into account when deciding on their own LTI and LTV. Couples and those with children have lower LTI but higher LTV than singles and those without children respectively, and those who buy their first home in a big city have higher LTI but lower LTV. The latter probably reflects that house prices and therefore mortgages are higher in central areas, at the same time as the debt servicing capacity of own income to a larger extent is a binding constraint.

5 Increased importance of parental help over time and effects on inequality

In many countries, high house prices and modest income growth create important distributional issues across generations, but parental help is increasing. According to the English Housing Survey Headline Report for 2014/15, there was an increase in the proportion of first-time buyers that received help from friends and family (from 21 percent to 27 percent) and those that used inherited money (from 3 percent to 10 percent). At the same time the average age of a first-time buyer in the UK has risen from 30 to 33 over the past 20 years. In Australia, the number of first-time buyers has declined by 50 percent since 2009[22], while the fraction of first-time buyers receiving help from parents has risen from about 5 percent in 2010 to almost 55 percent by the end of 2016.[23] In Sweden, the fraction young homeowners have also declined and the majority now needs help from family to achieve sufficient funds for the down-payment.[24]

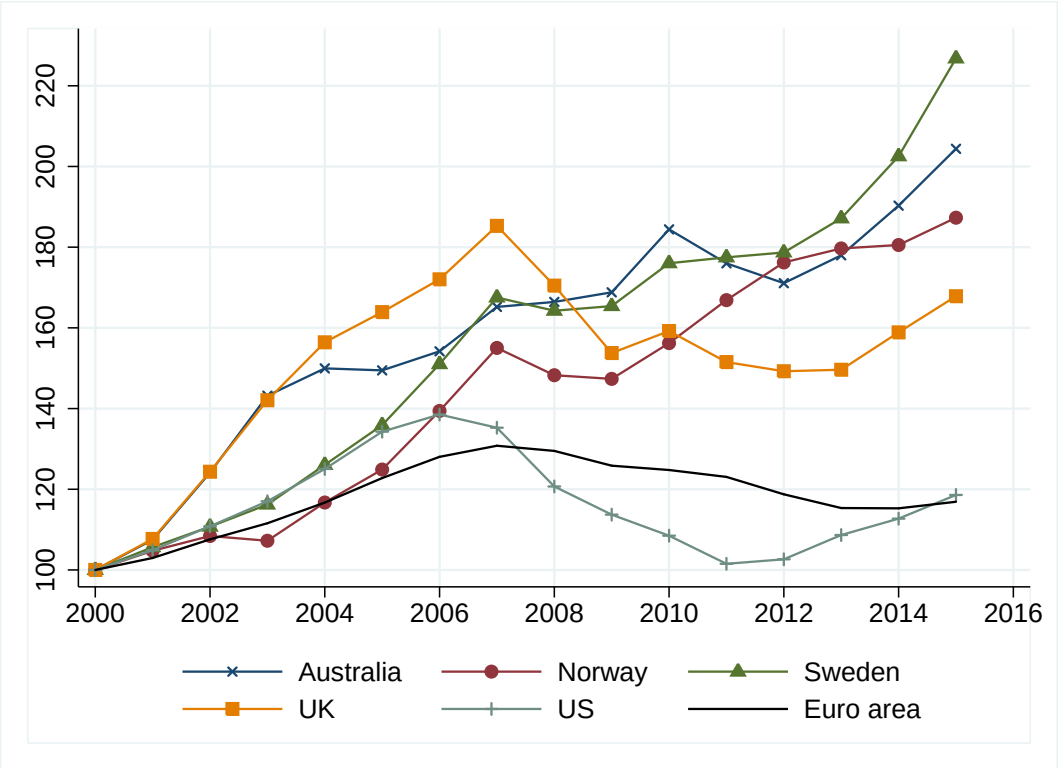
[21]The negative effect of own income on the house value is unexpected, but is robust across alternative sub-samples of first-time buyers and also if estimating reduced specifications as well as specifications extended to include debt. If estimating the house value equation using a sample that includes all young homeowners, the income effect is positive.

[22]Bankwest First Time Buyers Deposit Report 2016

[23]http://www.digitalfinanceanalytics.com/blog/tag/first-time-buyers/

[24]Mäklarsamfundet: "Dags att slå larm. Om unga vuxnas situation på bostadsmarknaden. 2013:3 (in Swedish).

Figure 2. Real house price growth in selected countries. 2000-2015

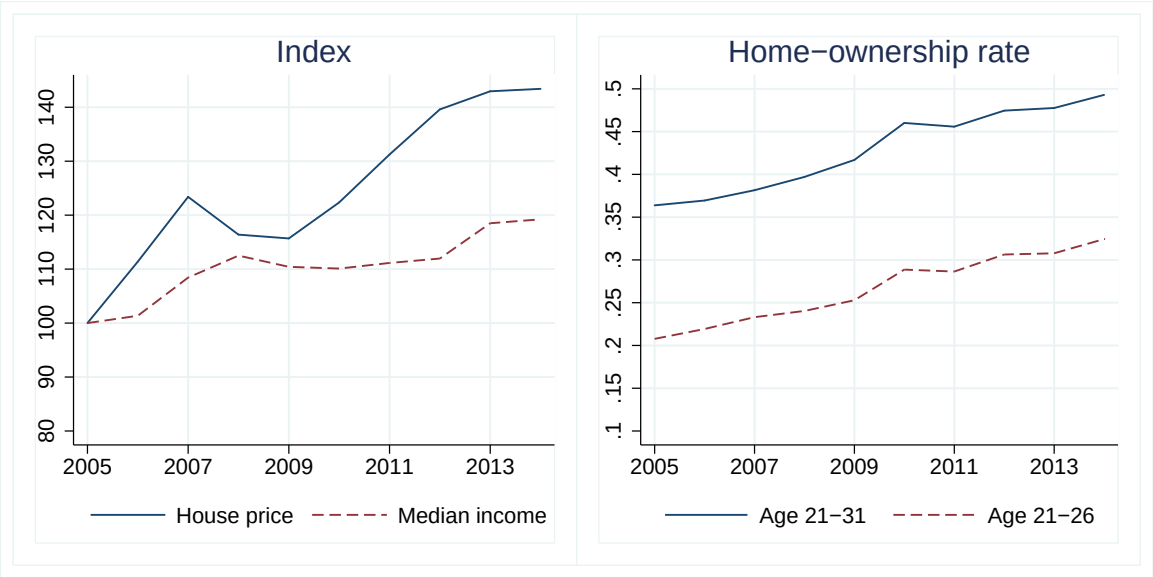


Source: OECD (https://stats.oecd.org/Index.aspx?DataSetCode=HOUSE_PRICES)

Figure 2 shows how these countries together with Norway represent countries where - despite a set-back during the financial crisis - house prices continued to grow at a high pace. In Norway the development has been less extreme, however. House price growth has been high in some years but more moderate in others, and according to the survey responses in Table 1, the proportion of first-time buyers that reports receiving help from parents has remained fairly stable in recent years. Furthermore, the fraction young homeowners is actually increasing in Norway (see Figure 3). Nevertheless, Figure 3 shows the development in house prices and income after tax of young households in Norway in the period 2005-2014, and we note that the gap between house price growth and income growth is increasing also in Norway. In percent, house prices have grown more than twice as much as young households' income since 2005. In addition, a number of conditions affecting credit constraints and the conditions for transferring wealth across generations clearly indicate that parental help is likely to have played a more important role in young households' housing investment over time.

Housing-finance regulation, such as limitations on the LTV-ratio, i.e. the κ in our theory model, may affect the decision and ability of young to invest in housing and also their parents' decision and ability to provide support. In Norway, guidelines and

Figure 3. House prices, income and home-ownership rates in Norway 2005-2014



Note: House price index, median after-tax income of 21-31 year old, and home-ownership rates 2005-2014. Constant prices. 2005=100

regulation for prudent mortgage-lending practises by banks to improve the quality of mortgagors have been implemented in later years.

The first guidelines, introduced in spring 2010, stated that the LTV-ratio of a new mortgage loan should in general not exceed 0.9. In addition, banks were expected to make a thorough assessment of the debt-servicing capacity of loan-applicants. The autumn 2010 mortgage-loan survey of the FSA showed a decline in loans with a high LTV, in particular for younger home buyers, see Financial Supervisory Authority (2011). The volume of additional collateral rose somewhat. The favorable development in LTVs did not last, however, and as a response, the guidelines were tightened in late 2011. The normal LTV limit was set to 0.85. In addition, banks were asked to explicitly assess the borrower's ability to pay if the interest rate were to increase by 5 percentage points. In the event of deviation from the guidelines, additional collateral, a guarantor or special prudential assessment of the borrower were required, increasing the benefit of access to parental collateral.[25]

It is not clear cut how, and to what degree, these regulations affected first-time buyers. Reports by the banks indicate that the tightening in guidelines affected their mortgage lending the most in 2012 and 2013 (see Lindquist et al., 2016). An evaluation done by Norges Bank found that the regulations primarily affected the concentration in mortgages at the new LTV limit, but that the fraction of young

[25]Regulation based on the residential mortgage lending guidelines were introduced by the Ministry of Finance July 2015 and January 2017. The motivation was that the guidelines were not effective in hampering the growth in credit and house prices. Our data stop in 2014, however.

first-time buyers was not affected.[26]

Another condition that is likely to have influenced the importance of parental help is the tax on inter vivos gifts. Until 2014, Norway had a tax that was levied on gifts (and inheritance) above a certain threshold. In 2009 this threshold was raised considerably, from NOK 500,000 to NOK 940,000. In 2014 it was abolished entirely. Thus, we expect this change to have had the largest impact in the years 2009 and 2014, and to affect primarily the willingness to transfer wealth as a gift.

Marginal effects over time

As a first approach to reveal possible changes over time we simply run our base specification (5) from Table 3 for two separate time periods. The results are presented in Table 8.

Table 8. Logit estimation for first-time buyers 21-31 years. Different sample periods

Period	2005-2009	2011-2014
Parental income$_t$	.111**	.189**
Parental financial wealth$_{t-1}$	.036**	.040**
Parental hous. wealth$_{t-1}$	.117**	.129**
Own income$_t$	1.26**	1.19**
Own financial wealth$_{t-1}$	.059**	.132**
Inter vivos gift$_t$	.627**	1.63**
Likelihood ratio	74,857	76,347
No of observations	619,214	536,761

Coefficient significance: ** 1 percent, * 5 percent
Other controls are as in previous tables:
male, couple, children, city, student, siblings, age and year.
2010 is excluded due to a technical revision of home-ownership.

There is an increase in the logit coefficients related to parental income, collateral wealth and direct transfers from the first to the second period. The same is true for own financial wealth, which may reflect an increase in the amount needed to cover the initial down payment. In 2014, the median first-time buyer entered the year with a financial wealth of NOK 135,000, the double of the 2005 amount (measured in fixed prices). The coefficient on own income has declined. However, comparing coefficients from logit models across separate sample periods is not straightforward, and the marginal contribution to the propensity to buy from explanatory variables

[26]See http://www.norges-bank.no/Publisert/Brev-og-uttalelser/2016/2016-10-21-Brev/ (in Norwegian).

is non-linear and depending on the level at which we measure them.[27]

To more precisely study changes in the importance of parental resources and support over time we group the parent's income, financial wealth and housing wealth into quintiles of the distribution. We compare the marginal effects of the dummy variable representing the top quintile over time by letting these interact with the estimated year dummies.[28]

The interaction effects in non-linear models such as logit models do not equal the marginal effect of the interaction term, and can be of opposite sign, see Ai and Norton (2003). We therefore present the average marginal effects measured over time. Note that with binary independent variables, marginal effects measure discrete change, i.e. how the predicted probabilities change as the binary independent variable changes from 0 to 1. Figure 4 shows the results. The upper left figure shows the marginal effects on the propensity to buy of having parents in the upper income quintile, the upper right figure shows the marginal effects of having parents in the upper financial wealth quintile, and the lower left figure shows the marginal effect of having parents with the highest housing wealth quintile. The bottom right figures differ somewhat from the other three by not sorting parents into quintiles, but into those who have and have not given an inter vivos gift. Notice also the the marginal effects of gifts have different scale on the y-axis.

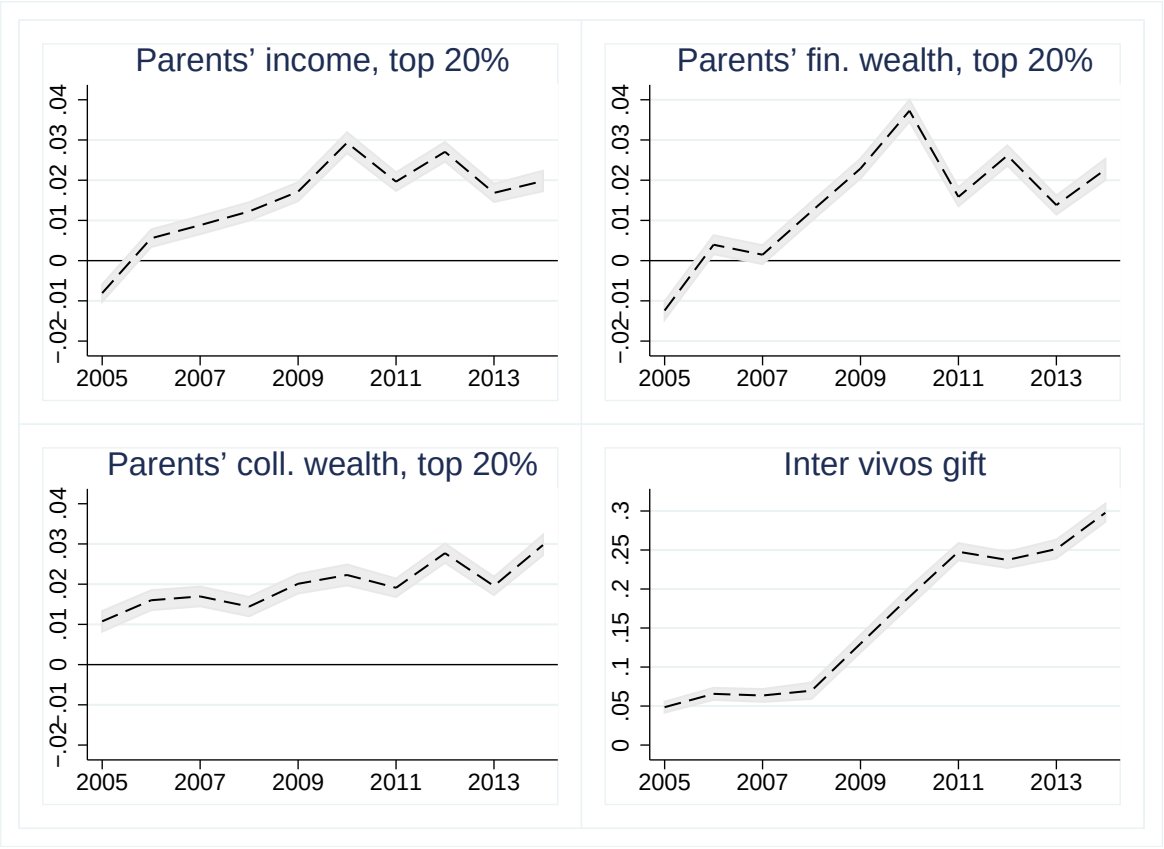
The patterns are similar in the respect that they all show an increasing importance over time. The figures with respect to parental income and financial wealth show that young with parents in the upper quintile are on average about 2-3 percentage points more likely to buy a home after 2009, compared to young with less rich parents. The difference was less clear in preceding years, and even approximately zero in 2006 with respect to top parental income and financial wealth.[29] The effect

[27]To assess the economic significance of the change in the logit coefficients on own and parental incomed from the first to the second period, we have, by year, calculated predicted margins using the period-specific equations. The ten (fixed-price adjusted) income levels in Figure 1 are used. When comparing the 2005-2009 margins with the 2011-2014 margins, we find that, on average, the margins on own and parental income are respectively 3 and 2 percentage points higher in the second period. This is in line with the results in Figure 4. The difference is continuously increasing in parental income, while the increase on own income stops at around twice the median income. Hence, the importance of having relatively richer parents has increased, and so has also own richness up to a point.

[28]We have also estimated the model annually and calculated year-specific curves as in Figure 1. We found the computed year specific predicted margins of parent's income and financial wealth by using this approach to be less visually informative, however. Quantitatively the effects of the two approaches are comparable.

[29]Narrowing the definition of parents with a potential to transfer to the top decile or even the top 5 percent does not change the results much. The pattern over time remains, and while offspring of parents in the top 5 percent of the income distribution have 3-4 percentage points higher probability of buying their first home after the financial crisis compared to other young persons, those with parents in the top 5 percent of the wealth distribution are still about 2-3 percentage points more

Figure 4. Average marginal effect of parental resources 2005-2014



Note: Average marginal effect on the propensity to buy the first home of having parents that belong to the top quintile of the income, financial, and collateral wealth distribution respectively, plus being a recipient of an inter vivos gift. Grey areas are 95 percent confidence intervals. Age 21-31 years.

of parental collateral wealth has also increased over time. While young persons with parents in the top housing wealth quantile were around 1.5 percentage points more likely to buy their first home in the early years of the sample, in 2014, this difference in the probability had increased to 3 percentage points.

The marginal effects of an inter vivos transfer on the probability of buying has clearly increased over time (the lower right panel of Figure 4). The estimate of 2005 shows that those who receive a direct transfer on average are about 5 percentage points more likely than non-recipients to buy a home. In 2014, young households are 30 percentage points more likely to invest in their first home if they receive a direct transfer. The confidence intervals (marked gray in the figure) shows that the effect is significantly different from zero in all years.[30]

likely to buy a home after 2008, even when employing a more narrow definition.

[30]The capital, Oslo, has seen the highest rise in house prices, and the share of single person, and hence single income, households is relatively high. The latter is true also also among the young. The housing market affordability index (HAI), see Norges Bank (2013), shows that, compared to

Which factors have contributed?

Identifying the factors that may have caused the increased importance in parental wealth over time is not straightforward, as there are several changes appearing more or less simultaneously. However, we noted that the relief and abolishment of the tax on gifts is likely to affect the propensity to buy especially in 2009 and 2014, and is also likely to primarily affect the direct transfers (since our measure of inter vivos gifts is under-reported, we might also see an effect for parents' financial wealth). From Figure 4 we observe clear increases in the propensity to buy when receiving an inter vivos gift from 2008 to 2009, and from 2013 and 2014, which may be attributed to the change in taxation of inter vivos gifts.

In 2010, when explicit guidelines for prudent mortgage-lending practices first were introduced by the FSA, the year effect is relatively large and positive. As already explained, at least to some degree, this may be attributed to a change in the registration of home-ownership. However, potential first-time buyers may have advanced their home-buying if they feared a gradual tightening of banks' lending practices that would reduce their prospects of a near entrance in the housing market. This would help explain a higher propensity to buy in 2010 and a subsequent lower in 2011. The 2010 effect may also be picking up a positive effect on the propensity to buy from interest rates which had come down again during the previous year and were expected to stay relatively low for a while. We do not have access to individual interest rates and are therefore unable to assess this empirically.

The change from 2011 to 2012 and 2013 may therefore serve as an approximation when assessing the effect of the guidelines. Looking at Figure 4 it is difficult to conclude that the tightening have contributed to enhancing the importance of parental transfers. In particular, we would expect that the effect on parental collateral wealth to be primarily affected by the prudent mortgage-lending practices, and not by i.e. inheritance taxes. Although only modest in 2013, the effect on the propensity to buy has been increasing somewhat since 2011. The scope of this paper is not to identify the causal effect of a tightening of the guidelines, but it is safe to say that even though it is likely to have contributed to the increased importance of

other household, young households and households in Oslo are less capable of entering the housing market based on own income. Still, more than 20% of the first-time buys in our sample is in Oslo, and one may suspect first-time buyers in Oslo to be helped by their parents to an even higher degree than elsewhere. To assess this hypothesis we conduct the analysis of this Section using the sub-sample Oslo. The results show that the assumption does hold, but the difference between Oslo and the whole sample is, in general, not very large and significant. One can add 1 1/2 - 2 percentage points to the importance of parental income and financial wealth after 2009. The importance of receiving inter vivos gifts is clearly higher in Oslo after 2009, however. In 2014 the average marginal effect is 34 percentage points, which should be compared with 30 percentage points.

parental help it does not seem to have had a large impact.

On the other hand, we expect the house price growth to have had a negative impact on the propensity to become a homeowner. In our main analysis, the effects of house prices are assumed controlled for by the inclusion of time dummies and the city control variable. In Table A.5 in the Appendix we investigate more carefully whether the coefficients in our model are sensitive to the inclusion of a variable for house price growth that varies not only over time, but also across different regions. In addition, we include regional variation in youth unemployment rates as control variables. We find a significant negative effect on the probability to enter the housing market of regional house price growth, while the unemployment rate is not significant. In general, the inclusion of more detailed house price growth variation does not alter the coefficients on the other variables in the model. We have also estimated the marginal effects in Figure 4 with the inclusion of regional house price growth and regional youth unemployment and find no difference in the marginal effects of parental income and collateral wealth, and inter vivos transfers over time.[31]

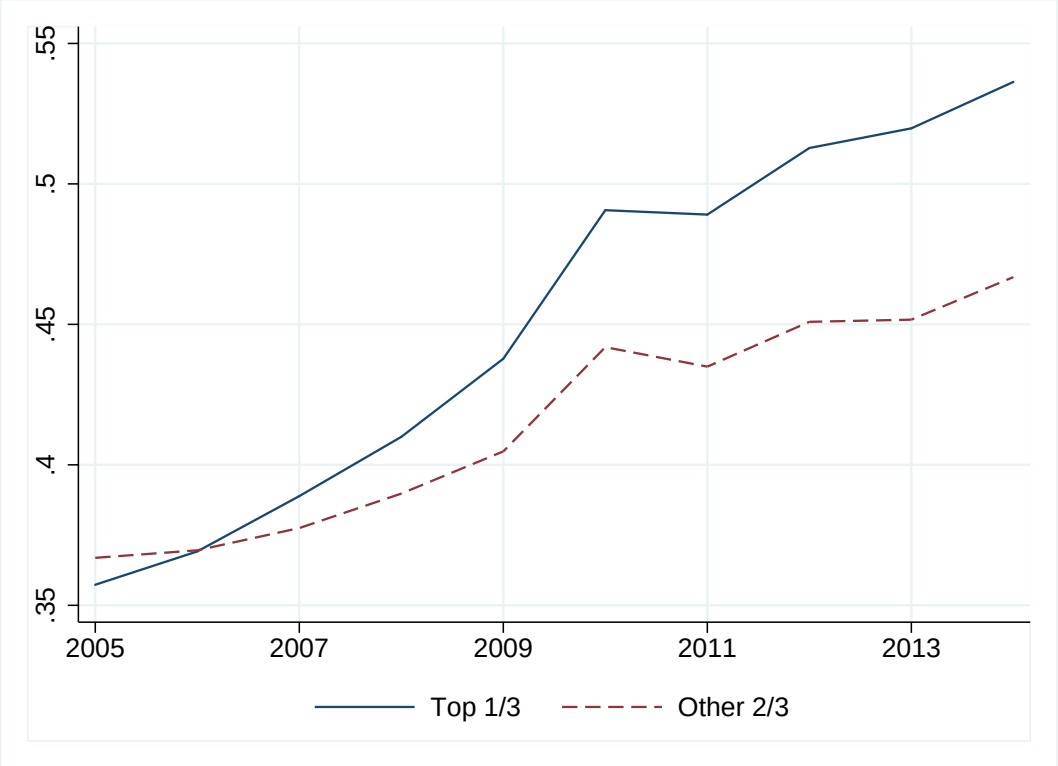
Increasing inequality?

In addition to secure tenure, home ownership is traditionally an important wealth accumulator over the life-cycle. Home-ownership also provides a hedge against rent and other consumption risk (Sinai and Souleles, 2005; Ortalo-Magne and Rady, 2002). Thus, early entry in the housing market may have profound effects on lifetime inequality. Therefore, we investigate whether differing access to parental help may cause children with no help to become disadvantaged in the housing market. If the main motive for parental financial help is to relax the borrowing constraint, we would expect that young persons that do not receive help to a larger degree will be forced to postpone their housing investment when down payment requirements are tightened or if house prices are high. In other words, that parents who give support are able to cushion their children against unfavorable credit or housing market conditions.

Despite the negative contribution from house price growth, the overall fraction of first-time buyers is not declining over the period. The predicted margins vary more from year to year after 2009, but are on average around the same level as before, i.e. about 15 percent. And, as shown in Figure 3, the fraction young homeowners is actually increasing. We therefore conclude by investigating whether differing access to parental help cause children with no help to become disadvantaged in the housing

[31] Although, the marginal effects of parents' financial wealth in the top quintile become 1 percentage point lower when we include regional house price variation.

Figure 5. Mean home-ownership rate by parental wealth position



Note: Top 1/3 is defined as having either a) parents in the top financial quintile, b) parents in the top collateral wealth quintile, or c) received an inter vivos gift.

market and if the difference between children with no help and others has increased.

Based on the previous results we illustrate this by grouping young households into two groups, and define those likely to receive help as those who have either a) parents in the top financial quintile, b) parents in the top housing wealth quintile, or c) received an inter vivos gift. The selection criteria a)-c) can be overlapping, and we find that approximately 1/3 of the young households qualify to the "likely to receive help" group. We denote this the "top 1/3"-group. In Figure 5 we present differences in mean homeownership rates between the two groups.

We find that for the propensity to buy there was a difference in means between the two groups going from 1 to 3 percentage points per year over the period 2005-2014 (see Table A.6 in the Appendix). Since there will be an accumulated effect for the homeownership rate, we thus find a growing gap in home-ownership rates between young households with more wealthy parents and less wealthy parents, increasing from 0 in 2006 to 7 percent in 2014. The t-test shows that the difference is insignificantly different from zero in 2006 but significantly positive in all subsequent years. The gap is illustrated in Figure 5.

We find a tendency for the average age of first-time buyers to declining (see Table A.6 in the Appendix). An explanation could be that increasing house prices create an incentive to become a homeowner as early as possible as a hedge against further house price increase in the future, see Banks et al. (2016) and Agarwal et al. (2016). Even increased house price risk may induce early entry. Banks et al. (2016) show that this feature is supported empirically, as increases in house price volatility are shown to increase ownership and to increase the quantity of housing wealth conditional on ownership in earlier periods of the life-cycle. However, we do not find any change in the difference in age of first-time buyers in the top-group compared to the rest. We have also explored potential differences in means with respect to the average LTI. The results are not shown, but the t-tests reject any differences between the two groups with respect to average LTI.

In Section 4 we found that some of the financial help from parents is taken out as lower loan-to-value (LTV) and higher house value. This leads us to finally exploring whether we see an increase in the inequality of housing values for young first-time buyers. Since we only have market values for housing from 2010 we are restricted to the period 2010-2014. In these years the Gini-coefficient of housing wealth is stable at about 0.375 with no indication of rising over the period. As a next step, we calculated the between-group inequality between the top 1/3 and the remaining 2/3 using the more easily decomposable inequality measure of Theil and Atkinson. These between-inequality measures confirmed our previous finding of no increase in house wealth inequality over the years 2010-2014.

6 Conclusion

In this paper we use detailed Norwegian register data on income, wealth, and demographics of both young adults and their parents to study the role of parental support when young household buy their first home. The data include actual wealth transfers in the form of large inter vivos gifts.

We find that the effects of parental resources are positive and significant on the probability of buying a first home, but economically small compared to the effect of the young household's own resources. Their own resources is obviously correlated with their parents', but the coefficient on own resources is only slightly affected by the inclusion of parental income and wealth in the regression. In addition, we measure indirectly the effect of parental resources through the effect of siblings on one's own probability of entering the housing market. Having siblings has a clear negative effect, and is increasing in the number of siblings. The dilution of parental resources is an explanation for such relationships.

Not surprisingly, we find that direct transfers from parents have the largest impact on the propensity to buy. Those who receive an inter vivos transfer are on average 15 percentage points more likely to buy, all other things equal. However, we also find that inter vivos gifts tend to spill over into both higher housing values and lower leverage.

Because of an increasing house price to income ratio, tightened mortgage-lending practice and a relief in transfer taxes, we find that the role of parental help has increased over time. The effect of parental resources is contributing to an increase in the propensity to buy of about 2-3 percentage points per year over the period 2005-2014. As an accumulated effect there is a growing gap in homeownership rates between young households with and without wealthy parents, or parents helping out financially. On the other hand, we find no clear effect of parental resources on the age of first entry into the housing market, which has declined for all young buyers, or on housing wealth inequality.

Finally, we do not find that recent prudent mortgage-lending practices has caused a decline in the probability of entering the housing market, even for those who do not receive financial help from parents.

We conclude that in a country like Norway, where there are well functioning credit markets and high intergenerational mobility, homeownership is still not that difficult to achieve without parental help, even under unfavorable conditions. The stricter regulation of banks' mortgage-lending practises as of 2015 may affect these conclusions, however.

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Appendix

Table A.1 Logit estimation for first-time buyers 21-31 years old. Full set of age and year dummies of the regressions in Table 3.

	(1)	(2)	(3)	(4)	(5)
Age					
22	.238**	.144**	.148**	.142**	.141**
23	.398**	.232**	.237**	.225**	.223**
24	.518**	.289**	.295**	.286**	.282**
25	.628**	.335**	.341**	.336**	.329**
26	.728**	.369**	.375**	.357**	.350**
27	.785**	.374**	.381**	.362**	.353**
28	.787**	.334**	.344**	.315**	.306**
29	.778**	.292**	.306**	.272**	.263**
30	.725**	.212**	.229**	.187**	.177**
31	.692**	.159**	.179**	.134**	.124**
Year					
2006	.053**	.031**	.034**	.013	.018
2007	.091**	-.004	-.017*	-.046**	-.034**
2008	.119**	-.012	-.032**	-.086**	-.063**
2009	.240**	.124**	.108**	.063**	.085**
2010	.603**	.512**	.494**	.460**	.484**
2011	.194**	.071**	.048*	.005	.025
2012	.429**	.300**	.270**	.229**	.248**
2013	-.042**	-.238**	-.273**	-.338**	-.315**
2014	.376**	.173**	.136**	.075**	.097**
Likelihood ratio	142,249	214,256	217,632	174,489	177,361
No of observations	1,774,533	1,765,223	1,765,223	1,291,611	1,291,611

Coefficient significance: ** 1 percent, * 5 percent

Table A.2 Standard errors of all the estimated coefficients of the logit estimation for first-time buyers 21-31 years old, specification (5) in Table 3.

	Coef.	St.err.		Coef.	St.err.
Parental income$_t$	.150	.007	Age 22	.141	.015
Parental financial wealth$_{t-1}$	.043	.002	Age 23	.223	.014
Parental LTV$_{t-1}$	.120	.004	Age 24	.282	.014
Own income$_t$	1.24	.007	Age 25	.329	.014
Own financial wealth$_{t-1}$	.096	.002	Age 26	.350	.014
Inter vivos gift$_t$	1.07	.019	Age 27	.353	.014
			Age 28	.306	.014
Male	.378	.005	Age 29	.263	.015
Couple	.058	.008	Age 30	.177	.016
Children	-.197	.007	Age 31	.124	.016
Big city	-.008	.006			
Student household	-.632	.013	2006	.018	.014
No of siblings (ref = 0)			2007	-.034	.013
= 1	-.075	.015	2008	-.063	.013
= 2	-.165	.015	2009	.085	.013
= 3	-.233	.016	2010	.484	.013
= 4+	-.267	.019	2011	.025	.013
			2012	.248	.013
			2013	-.315	.014
			2014	.097	.013
Likelihood ratio	177,361				
No of observations	1,291,611		Constant	-22.51	.126

Table A.3 Share of parents having given support to children this or previous years, in percent

	2008	2009	2010	2011	2012	2013	2014	2015
Money transfer (gift)	53	52	56	49	40	49	40	54
Advancement of inheritance	15	30	18	24	24	25	24	20
Guarantor mortgages	24	25	19	8	28	23	27	34
Private loan	–	18	19	12	21	16	16	19
Invested in secondary housing	13	10	10	8	9	14	12	6
Help with current expenses	10	22	21	17	12	17	16	11
Joint mortgage	11	9	9	6	5	9	5	9
Other	12	4	7	11	9	4	6	3

Source: Husholdningsundersøkelsen, Finans Norge; Gulbrandsen (2016)

Table A.4 Estimating the probability (logit) and the size (robust ordinary least squares) of inter vivos gift to households 21-31 years

	Prob gift	Prob gift	Size gift[1]	Size gift[1]
First-time buyer$_t$	–	.926**	–	.255**
Parental income$_t$	.324**	.321**	.132**	.127**
Parental fin. wealth$_{t-1}$	.284**	.286**	.110**	.112**
Parental hous. wealth$_{t-1}$	.229**	.225**	.145**	.143**
Own income$_t$	-.118**	-.182**	-.031*	-.037*
Own fin. wealth$_{t-1}$	.142**	.133**	.021**	.018**
D09(=1, t>=2009)	–	–	–	–
First-time buyer#D09	–	–	–	–
D14 (=1, t=2014)	–	–	–	–
First-time buyer#D14	–	–	–	–
Male	-.042**	-.051**	.027*	.028*
Couple	.130**	.149**	.012	.025
Children	-.207**	-.158**	.036*	.046**
Big city	.240**	.233**	.087**	.081**
Student household	-.268**	-.206**	-.125**	-.089**
No of siblings				
= 1	-.359**	-.361**	-.263**	-.255**
= 2	.657**	-.659**	-.403**	-.393**
= 3	-.891**	-.892**	-.478**	-.466**
= 4	-1.42**	-1.42**	-.574**	-.572**
Age dummies	yes	yes	yes	yes
Year dummies	yes	yes	yes	yes
Likelihood ratio /R^2	19,386	22,244	.2159	.2267
No of observations	1,976,786	1,976,786	24,040	24,040

Coefficient significance: ** 1 percent, * 5 percent

[1]Constant 2014-prices.

Table A.5 Logit estimation of first-time buyers 21-31 years with regional house price growth and regional youth unemployment rates and with a dummy if parents' real deposits decline

	Prob first-time home buyer	Prob first-time home buyer
Parental income$_t$	.153**	.160**
Parental financial wealth$_{t-1}$	.043**	.039**
Parental hous. wealth$_{t-1}$	.121**	.120**
Own income$_t$	1.23**	1.24**
Own financial wealth$_{t-1}$	.097**	.097**
Inter vivos gift$_t$	1.06**	1.08**
Regional house price growth	-.905**	–
Youth unemployment[1]	-.024	–
Decline in parents' deposits	–	.087**
Male	.378**	.378**
Couple	.058**	.057**
Children	-.197**	-.198**
Big city	-.016**	-.008
Student household	-.611**	-.632**
No of siblings		
= 1	-.075**	-.076**
= 2	-.164**	-.167**
= 3	-.232**	-.235**
= 4	-.265**	-.270**
Age dummies	yes	yes
Year dummies	yes	yes
Likelihood ratio	174,100	177,628
No of observations	1,278,620	1.291,611

Coefficient significance: ** 1 percent, * 5 percent

[1] Registered unemployment rate among 18-29 years old, regional.

Table A.6 Mean home-ownership rate by parental wealth position

	Home-ownership rate				First-time-buyers			
	Top 1/3[1]	Other 2/3	Diff.	t-test	Top 1/3[1]	Other 2/3	Diff.	t-test
2005	.36	.37	-.01	-5.0	.14	.13	.01	6.8
2006	.37	.37	-.00	-0.2	.15	.13	.01	7.8
2007	.39	.38	.01	5.9	.16	.14	.01	8.7
2008	.41	.39	.02	10.4	.16	.14	.02	9.4
2009	.44	.40	.03	16.9	.17	.15	.02	12.9
2010	.49	.44	.05	24.7	.22	.19	.03	15.2
2011	.49	.43	.05	27.6	.16	.14	.02	11.6
2012	.51	.45	.06	31.6	.19	.16	.03	13.8
2013	.52	.45	.07	33.8	.14	.12	.02	11.4
2014	.54	.47	.07	34.3	.19	.16	.03	13.0

	Mean age of first-time-buyers			
	Top 1/3[1]	Other 2/3	Diff.	t-test
2005	26.7	27.0	-.27	-7.17
2006	26.6	26.9	-.31	-8.62
2007	26.6	26.8	-.24	-6.72
2008	26.6	26.9	-.27	-7.51
2009	26.5	26.8	-.30	-8.49
2010	26.5	26.8	-.25	-8.03
2011	26.2	26.3	-.07	-1.70
2012	26.2	26.3	-.10	-2.97
2013	26.1	26.2	-.14	-3.26
2014	26.2	26.3	-.19	-5.30

[1]Top 1/3 is defined as having either a) parents in the top financial quintile, b) parents in the top collateral wealth quintile, or c) received an inter vivos gift. The quintiles are re-calculated for each sample, i.e. the fraction homeowners is calculated on the basis of the whole sample 21-31 years old (N=2,737,979), the fraction first-time-buyers on the basis of the sample that are not home-owners in the previous period (N=1,774,533), and mean age on the basis of the sample of first-time-buyers (N=272.819).

Table A.7 Descriptive statistics of first-time home-buyers age 21-31, by years

All	Fraction of potential buyers, %	Age	Loan-to-income[1]	Loan-to-value[2]	Inter vivos gift		
		Mean	Median	Median	%	Median[3]	Mean[3]
2005	13.3	26.9	4.1	–	3.6	208	312
2006	13.8	26.8	4.3	–	3.0	232	320
2007	14.7	26.7	4.4	–	2.6	289	372
2008	15.0	26.8	4.2	–	1.6	278	548
2009	15.9	26.7	4.4	–	2.1	327	508
2010	20.3	26.7	4.5	.93	2.0	319	528
2011	14.3	26.3	4.8	.98	3.3	395	492
2012	17.2	26.2	4.9	.94	3.3	348	524
2013	12.3	26.2	5.0	.96	3.3	405	546
2014	17.3	26.3	5.1	.93	3.6	400	618

Note: Only persons whose parents are not divorced (i.e. not split up).

[1] Total debt to after-tax income.

[2] Total debt less student debt to market value.

[3] Of positive values.

Sources: Statistics Norway and Norges Bank