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A FLYING START

THE LONG-RUN EFFECTS OF INTER VIVOS TRANSFERS

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THE LONG-RUN WEALTH EFFECTS OF INTER VIVOS TRANSFERS

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Abstract

This study explores how intergenerational *inter vivos* transfers influence the long-run wealth accumulation of individuals by supporting investments in housing and private business wealth early in the life cycle. A unique Danish policy setting allows me to identify untaxed wealth transfers channeled through housing market entries. Utilizing plausibly exogenous variation in transfer amounts, I find that transfers lead to significant growth in housing wealth, increased business ownership, and higher firm revenues among recipients over the subsequent ten years. The effects are underpinned by greater credit access and lower interest rates stemming from parents' financial support. Benefits of transfers are more pronounced at younger ages, indicating that their timing in the life cycle matters to lifelong wealth building.

Keywords: Intergenerational transmission; wealth; inter vivos transfers; entrepreneurship; credit

JEL codes: D31; G51; J62

1 Introduction

Growing evidence highlights the significant role of inherited wealth in perpetuating inequality and its persistence across generations (Boserup, Kopczuk, and Kreiner, 2016a). There is less evidence, however, on the impact of *inter vivos* transfers—gifts given during the grantor's lifetime—on wealth disparities. Over the past half-century, inter vivos transfers have grown substantially more than end-of-life bequests (Piketty and Zucman, 2015), signalling a shift in the timing of intergenerational transfers. Aside from directly raising wealth levels, inter vivos transfers may shift the slope of recipients financial advancement by facilitating early investments in key assets. Despite their growing importance, the long-term impacts of inter vivos transfers remain underexplored, making it difficut to assess their contribution to intergenerational wealth correlations.[1]

In this study, I use Danish administrative registers to evaluate how parents' inter vivos transfers influence the long-term wealth accumulation of descendants by affecting investments in housing and business ownership. I address two empirical challenges identified in prior research: (1) directly observing the size and timing of intergenerational transfers, and (2) dealing with the potential endogeneity of such transfers, distinguishing the effects of parents' direct financial support from additional human or social capital investments. First, a unique Danish policy setting allows me to identify transfers through initial home purchases. Second, plausibly exogenous variation in transfer amounts makes it possible to separate the effects of direct financial support from other productivity transfers.

I focus on housing and business ownership as these variables have emerged as central determinants of wealth disparities in both Europe (Sierminska and Medgyesi, 2013) and the United States (Jones and Neelakantan, 2023).[2] In particular, individuals from wealthy families are more likely to start a business (Giménez-Nadal, Molina, and Velilla, 2022) or enter the housing market (Daysal, Lovenheim, and Wasser, 2023), thereby accumulating wealth at a faster rate compared to those from less affluent backgrounds (Pfeffer and Killewald, 2018). Moreover,

[1] Intergenerational correlations in wealth and wealth ranks estimated to be between 0.28 (Conley and Glauber, 2008) and 0.37 (Charles and Hurst, 2003) in the US, 0.3–0.4 in Sweden (Adermon, Lindahl, and Waldenström, 2018) and 0.24 in Denmark (Boserup, Kopczuk, and Kreiner, 2014)

[2] Housing wealth is a key factor in wealth inequality among the middle class, while business wealth is more closely associated with the wealth of the top 1%.

buying a house and starting a business involve significant financial barriers, such as initial capital requirements and access to credit. Inter vivos transfers can alleviate these barriers by providing liquid resources, relaxing borrowing constraints, and lowering interest rates by, for example, reducing the informational asymmetry faced by banks.

To identify direct transfers from parents to adult children, I focus on housing market entries of individuals aged 18-50 in years 1995-2020, and utilize a gift tax loophole in the Danish property markets.[3] Specifically, a legal rule permits individuals to purchase and forward-sell housing to immediate family members at a discount, with the discounted amount considered a tax-free gift. The rule creates a popular channel for intergenerational transfers, which can be precisely traced in timing and size in the Danish administrative registers.[4] By linking housing market entrants to their parents' ownership and sales information, I distinguish entrants of intra-family forward sales (transfer recipients, "Family help") from all other housing market entrants (non-recipients, "No help"). Transfer amounts are obtained as the difference between the market value of the purchased unit, and the price paid by the entrant.

I estimate the effect of transfers using two types of variation: The first (part I) exploits (conditional) randomness in the timing of transfers to estimate the average effect of inter vivos transfers on recipients, compared to non-recipients. The second (part II) focuses solely on transfer recipients, utilizing variation in the transfer amount to infer effects.

Part I: Event-study. I employ a dynamic two-way fixed effects (TWFE) model where I compare the housing wealth and business ownership of recipients (treated) and non-recipients (controls) of transfers [-10: +10] years relative to housing market entry. From this exercise, I find that parents give their children a "flying start" by transferring resources when they enter the housing market, as indicated by an average jump in net wealth of 700,000 DKK (USD $107,000) among recipients in the year of entry. Following the wealth transfer, recipients alter their investments and gains from housing and business wealth.

Firstly, transfers result in a significant increase in *gross* housing wealth accumulation among recipients. The increase is underpinned by a wealth effect, where recipients purchase more

[3] In Denmark, individuals are allowed to receive tax-free transfers from their immediate family members up to a specified amount each year. Transfers exceeding the exemption amount are subject to a gift tax, with immediate (extended) family members subject to a gift tax rate of 15% (36%).

[4] I confirm that households are responsive to the rule by making transfers close to their tax-free limit.

expensive housing units upon entry, and an investment effect, where recipients are more likely to acquire new or additional properties in the future. Interestingly, when total liabilities are subtracted, the development of net housing wealth remains flat after entry. This suggests that recipients are leveraging their properties by taking on additional debt to extract liquidity.

Secondly, recipients of transfers demonstrate a higher likelihood of becoming business owners. Business ownership increases by 1 percentage point following the transfer, corresponding to a 54% increase in reference to the average business ownership of the treated population. Examining the established firms more closely, I find a spike in new firm registrations in the year of entry. This indicates that the rise in business ownership is primarily driven by the creation of new firms rather than the intergenerational transfer of existing businesses. For non-recipients, there is no effect on firm registrations at the point of entry. The new firms started by recipients experience faster growth in terms of revenues and assets, and tend to take on more leverage. This suggests that the wealth transfer not only helps the establishment of new firms but also supports sustained growth and financial stability of these firms.

Part II: Two-stage least squares (2SLS) using exogenous variation in transfer amounts. Transfers supporting housing market entries are likely to be correlated with unobserved time-varying factors related to family background, such as abilities, preferences, or additional transfers that impact the outcome variables in the long run. Therefore, in the second part of the estimation, I focus exclusively on transfer recipients, analyzing changes in the outcome variables resulting from variation in transfer amounts. The baseline estimation results show that increasing transfers by DKK 100,000 ($15,300) leads to an increase in housing wealth by DKK 290,000 ($44,340) and an increase in business ownership by 0.22 percentage points (11%).

To account for the potential endogeneity in transfer size, I use the maximum tax-free transfer associated with a forward sale (henceforth the *transfer cap*) as an instrument for realized transfers, combined with a policy reform which introduced exogenous variation in the cap. Thus, within the institutional setting of forward sales, the discount through which parents transfer funds to their children applies to a government-assessed *reference value* of the property, which often differs from the market price. Consequently, the transfer cap varies with the difference between the reference value and the market price of the dwelling. Prior to 2000, the maximum tax free parental contribution of dwellings was constant at approximately 15%

of the market price. A change in the legal definition of the reference value in 2000 generated substantial variation in the transfer cap across dwellings, and hence across families attempting to support their children to enter the housing market. This exercise makes it possible to analyse the trajectory of recipients who receive larger transfers due to a sudden raise in their legal limit, ensuring that the larger transfers do not capture the selection of parents who invest more in their children overall.

The results from the first stage regression indicates a strong relationship between the transfer cap and actual transfers, indicating that the instrument satisfy the relevance restriction. Instrumenting actual transfers with the transfer cap changes the baseline estimates to DKK 278,000 ($42,500) for housing wealth and 0.25 percentage points (13%) for business ownership. The instrumented effects are also robust for firm revenues, assets and liabilities. All estimates remain significant at the 0.1% level, indicating that the observed treatment effects are directly attributable to wealth transfers, rather than to any confounding factors associated with recipients of larger transfers.

Overall, the results suggest that parental wealth transfers provide recipients with a significant financial advantage that influences their housing and business investment decisions. The effects are evident both in the decision to receive a transfer (extensive margin) and in the amount received (intensive margin). Randomizing the transfer size by using the transfer cap as an instrument does not appear to affect long-term outcomes related to housing and business wealth. This suggests that the baseline results are not driven by selection based on specific investment choices made by parents.

Turning to mechanisms, I continue by exploring the plausibility of a lifted credit constraint linking parents' inter vivos transfers to housing wealth and business ownership of their children. Firstly, recipients increase their debt levels by 45 % more than general entrants post-treatment. The increase in borrowing is underpinned by a lifted borrowing constraint, reflected in the comparably low loan-to-value (LTV) ratio among recipients at entry.

Secondly, I find evidence of an interest rate gap of 0.23 percentage points between recipients and non-recipients in the entry year. The interest rate gap widens as the LTV ratio of treated and controls declines, indicating that, as parents pay a larger share of the traded dwelling,

they simultaneously reduce the interest rates faced by descendants. Thirdly, I find a persistent increase of 26,000 DKK ($4,000) in liquid assets for recipients in the transfer year, representing a 24% rise relative to average liquidity holdings. This suggests that recipients have greater resources available for use as startup capital for additional investments in housing or business ownership.

The key takeaway from my study is that inter vivos transfers significantly influence the life trajectories of recipients by lowering the financial barriers associated with early investments in durable goods, such as housing and private businesses. Credit constraints that prevent individuals from purchasing durables are more binding at younger ages. As transfers alleviate such constraints, their impact on lifelong financial optimization is likely amplified when received earlier in the life cycle. To test the latter, I conduct a final exercise where I evaluate the impact of transfer *timing* across the life cycle. By estimating the event-study regressions across age brackets, I find that the effect of inter vivos transfers is largest for individuals aged 25-34, after which the effect declines substantially with age.

My results contribute to the growing literature on intergenerational wealth correlations, mobility, and the transmission of ability, behavior, and money within dynasties (Charles and Hurst, 2003; De Nardi, 2004; Pfeffer and Killewald, 2018; Adermon, Lindahl, and Waldenström, 2018; Palomino et al., 2022). Existing evidence on the role of direct transfers in this area falls into two main categories: one assesses the contribution of transfers to dynastic wealth persistence (Boserup, Kopczuk, and Kreiner, 2016b; Boserup, Kopczuk, and Kreiner, 2018; Black et al., 2020; Fagereng, Mogstad, and Rønning, 2021; Benetton, Kudlyak, and Mondragon, 2022; Daysal, Lovenheim, and Wasser, 2023), while the other attempts to estimate the effects of transfers on spending-saving behavior and financial outcomes (Andersen and Nielsen, 2011; Hwang, 2020; Druedahl and Martinello, 2022; Nekoei and Seim, 2023).

The findings of this paper complement the previous literature in three ways. First, my study identifies the size and timing of intergenerational transfers, which has been a major challenge in preexisting works.[5] Second, by utilizing exogenous variation in transfer amounts,

[5]Exceptions include Poterba, 2001 and Brandsaas, 2018, who observe transfer timing from survey data but cannot observe transfer size nor follow the long-run outcomes of recipients. Andersen, Johannesen, and Sheridan, 2020 directly observe both the timing and size of credit card transactions within social networks; however, these transactions are small in size, implying that their direct impact on financial outcomes or opportunities is limited.

I provide a causal interpretation of these transfers, addressing the endogeneity of parents' financial support. Third, I evaluate the importance of the *timing* of intergenerational transfers within the life cycle by analyzing the impact of receiving transfers at different ages—an aspect that, to my knowledge, has not been previously explored.

Furthermore, my results contributes to the existing literature on intergenerational transfers in the context of financial frictions and entrepreneurship. Numerous studies explore the role of wealth, borrowing, or liquidity constraints in influencing the decision to enter entrepreneurship (see Fazzari, Hubbard, and Petersen, 1987; Evans and Jovanovic, 1989; Gentry and Hubbard, 2000). Cagetti and De Nardi, 2006 predict, using a quantitative life cycle model, that bequests targeting high-ability individuals result in persistently increased or expanded entrepreneurial activity. Holtz-Eakin, Joulfaian, and Rosen, 1993 and Andersen and Nielsen, 2012 empirically confirm this, finding that inheritance bequests substantially increase individuals' entry into entrepreneurship. Hurst and Lusardi, 2004 further find that both past and anticipated inheritances predict current business entry, indicating that transfers provide more than just liquidity. More recent evidence shows an increase in entrepreneurial activities resulting from windfall gains from lotteries (Bermejo et al., 2022) or stock returns (Chodorow-Reich et al., 2024). My findings align with this evidence, showing that inter vivos transfers directly increase business ownership and enterprise gains by easing borrowing constraints and lowering interest rates.

The remaining part of the paper is structured as follows. Section 2 illustrates the Danish institutional context and the identification of inter vivos transfers. Section 3 describes the data and the main outcome variables. Section 4 outlines the two empirical strategies used to estimate the effect of receiving inter vivos transfers. Section 5 presents the results from the estimations, discusses mechanisms and heterogeneity by age. Section 6 concludes.

2 Institutional context

2.1 The Danish tax framework for inheritances and gifts

The existing tax policy framework generally limits large intergenerational transfers in Denmark. Individuals are allowed to receive tax-free transfers from their immediate family members up

to a specified amount each year[6]. Transfers exceeding the exemption amount are subject to a gift tax of 15% (36.25% for relatives outside the closest family), which is equivalent to the tax rate for end-of-life bequests (Inheritance law, § 22, 1995).[7] The tax, which is paid by the giver, introduces a transfer constraint which is particularly binding in scenarios where transfers are needed to support large purchases, such as housing market entries.[8] Financial gifts are registered in a digital system governed by the Danish tax authorities, where taxes must be paid on the same date as the gift is transferred. Non-compliance with the tax obligation leads to significant fines in less serious cases and imprisonment for more severe instances, if discovered.

2.2 Identifying inter vivos transfers through a tax loophole

I identify transfers from parents to children through a tax-loophole in the Danish property markets. Since 1982, a legal framework, referred to as the "15 % rule", has permitted forward sales of family-owned property below or above market value in Denmark (Inheritance law, §6, 1982). Specifically, the rule allows parents to forward-sell housing to their children at ± 15% of a government-listed reference value attached to the unit (P^{REF}). The difference between the market value (P^M) and the purchase price (P^P) is considered a tax-free gift, equal to the inter vivos transfer for recipient i at time t:

$$Transfer_{i,t} = P^M_{i,t} - P^P_{i,t} \tag{1}$$

The transfer cap, which represents the maximum tax-free transfer amount tied to a specific unit, is obtained by replacing the purchase price in equation (1) with the minimum forward selling price following from the rule:

$$Transfer^{max}_{i,t} = P^M_{i,t} - 0.85 \times P^{REF}_{i,t} \tag{2}$$

[6]Immediate family includes children, step-children, parents, step-parents, grandparents and spouses cohabiting for +2 years. The reference amount was DKK 58.700 (USD$ 8.980) in 2010, and is adjusted yearly to account for inflation.

[7]The tax framework for end-of-life bequests is similar to that of gifts. Following the death of a deceased person, the estate duty is determined based on the total value of assets left behind. If the total value of the inherited estates exceeds a specific amount, the close family members are subject to a 15% inheritance tax (Inheritance law, Chapter V, 1995).

[8]Kolodziejczyk and Leth-Petersen, 2013 confirm in their study that general (taxed) wealth transfers from parents to children at housing market entries in Denmark is limited.

where the lowest possible forward price $P_{i,t}^{P}$ is equal to $0.85 \times P_{i,t}^{REF}$, corresponding to a 15% discount of the publicly listed reference value. An important implication of the rule is that the transfer cap decreases in the distance between the market and the reference value tied to the dwelling. Thus, dividing both sides of equation (2) by $P_{i,t}^{M}$ yields a linear relationship between the normalized transfer cap (τ_{it}^{max}) and the reference-to-market value ratio (RTM):

$$\tau_{it}^{max} = \frac{Transfer_{i,t}^{max}}{P_{i,t}^{M}} = 1 - 0.85 \times \underbrace{\frac{P^{REF}}{P_{i,t}^{M}}}_{RTM} \tag{3}$$

Figure 1 theoretically depicts the relationship between the transfer cap and the reference-to-market value ratio, as outlined in equation (3). Whenever the government listed reference value matches the value of the market for a given dwelling, such that RTM= 1, the tax-free discount parents are allowed equals 15%, representing the foundation of the policy rule. Furthermore, when RTM $\neq$ 1, the maximum parental contribution is linearly increasing as the RTM declines (i.e. distance between the reference value and the market price increases). Section 5.1 illustrates and discusses the empirical representation of the policy-based relationship governed by the rule, and examines the responsiveness of inter vivos transfers to the size of the tax loophole.

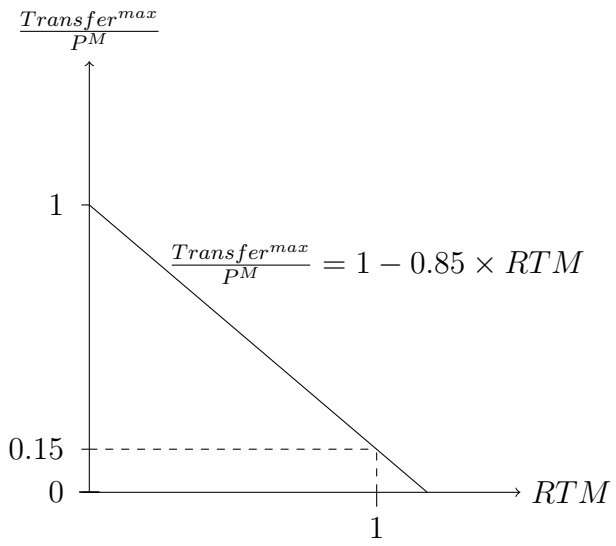

Figure 1: Theoretical illustration of the 15 % rule

2.3 Registration of private businesses

In the analysis of firm balance sheets, only firms that are listed in the official firm registry are observable. In Denmark, new businesses are required to register for VAT if their taxable turnover exceeds 50,000 DKK ($7,650) within a 12-month period. For businesses with a taxable turnover below this threshold, VAT registration is voluntary. In addition, entrepreneurs have the option to register a personally owned small business and obtain a Central Business Register (CVR) number without the need to register for VAT or fulfill other obligations.

3 Data

I utilize Danish administrative population, housing, income and firm registers from Statistics Denmark to identify parental transfers and estimate their long-run effect on housing and business wealth. A unique personal (firm) identification number, CPR (CVR), is assigned to all Danish citizens (enterprises). The population registry also list the corresponding id of parents, allowing me to map dynastic links for all individuals born after 1962. This dataset is subsequently linked to other public administrative registers providing information on annual income, wealth, debt, interest rate payments as well as demographic variables.

3.1 Recipients of inter vivos transfers

I define recipients of inter vivos transfers (treated) as those entering the housing market through a forward sale from their parents, involving a positive discount ($T > 0$).[9] For general entrants (controls), the transfer amount is assumed to be zero.

To identify the treated population for the initial exercise - entrants of intra-family forward sales - I obtain data on housing market entrants using the ownership registry which includes information on all housing units in Denmark as well as their year-specific owner. An individual is considered to have entered the housing market if their CPR is linked to their living unit in the ownership registry in a given year. Additionally, I label an entry as an intra-family

[9]Forward sales involving a negative or no discount (implying transfers from children to their parents) are excluded from the analysis.

sale (treated) when the previous owner of the unit is identified as a parent of the entrant. All remaining entrants are considered general entrants (controls). Finally, price information is obtained for each individual property transaction ($P^P_{i,t}$), allowing for a calculation of the size of inter vivos transfers as the difference between the realized price and the market price ($P^M_{i,t}$) for intra-family sales, as outlined in equation (1). Since intra-family forward sales are not traded in the general property markets, the market price of the unit needs to be estimated. I impute market prices of housing following the method of Andersen et al., 2021, with the full procedure outlined in Online Appendix A.

The inter vivos transfer amount received by individual i at time t is calculated as the difference between the market price and the purchase price, as defined in equation 1.

3.2 Main variables

The analysis focuses on two key outcomes: individual housing wealth and business ownership, with the latter also encompassing details on firm performance. The variables used in the analysis are obtained as follows:

Housing wealth. Housing wealth is calculated as the sum of the market values of all owned dwellings, multiplied by individuals' ownership share in each property. Market prices are estimated using the method described by Andersen et al., 2021.

Business ownership. Individuals are defined as business owners if they are registered as self-employed in the employment register and have at least one employee besides themselves in their firm. Notably, only 1% of my sample qualifies as business owners under this definition, while a significantly larger share (7%) is registered as self-employed.

Firm balance sheet information. As described in Section 2.3, registering a business for VAT is mandatory if its taxable turnover is above than 50,000 DKK (approximately $7.645) within a 12-month period. I match individuals with their corresponding firm id (CVR) for all newly registered establishments during my sample period. Data on individual ownership of firms is only available after 2000, allowing me to observe firm-owner pairs 2001-2020. For this sample, I obtain balance sheet information from the firm registers, which includes revenues, total asset holdings, and liabilities of each firm.

3.3 Other variables

Net wealth. Net wealth is calculated as the sum of deposits, savings, and assets (stocks and housing) minus any liabilities (mortgage and non-mortgage debt). Data on debt, stocks, and deposits is obtained from the tax-income register (SKAT). Importantly, the definition of net wealth in the Danish registers does not incorporate private business wealth, as the wealth tax was abolished in 1997. To infer the total wealth holdings of individuals, it is therefore necessary to observe the wealth data of their owned enterprises.

Liabilities. Data on debt is directly obtained from SKAT, and corresponds to the outstanding amount in December each year. I focus on total leverage which includes mortgage debt, debt from financial institutions, pension funds, insurance and financing companies, debit card schemes, as well as student loans.

Interest rates. To calculate interest rates at the individual level, I utilize aggregate interest payment data from SKAT, as well as the register for individual loans, which list end-of-year outstanding debt amounts and interest payments for all bank loans from 2004 to 2020. The interest rate for individual i in year t is estimated following Kreiner, Leth-Petersen, and Willerslev-Olsen, 2020 as $r_{i,t} = \frac{R_{i,t}}{D_{i,t}}$, where $R_{i,t}$ represents the total interest payments and $D_{i,t}$ denotes the outstanding balance at the end of each year. The analysis is restricted to interest rates ranging from 0.5% to 15%, for accounts with an outstanding debt of at least 10,000 DKK (USD $1,530). Using this definition, I calculate both the overall interest rate and the non-mortgage interest rate. Histograms showing the distribution of non-mortgage interest rates across the treated (Family help) and control (No help) populations before and after housing market entry are depicted in Online Appendix Figure B.18.

Education. I categorize individuals into 5 education categories based on the level of completed studies: i) primary and lower secondary, ii) high school, iii) tertiary and college (BA), iv) college (MA), and v) Ph.D. The categories are included as dummies in the main specification.

Disposable income. Disposable income is obtained directly from SKAT, and corresponds to the yearly individual income after tax.

Marital status. I categorize individuals as married or single depending on if they were

registered as married in December in a given year.

Ownership share. Individuals typically enter the housing market either alone or with a partner, which affects the impact of their ownership share of the property. Those owning a larger share of the home may experience different magnitudes of treatment effects. To control for this variation, I include the ownership share of each dwelling as a control variable in my estimations. This variable is directly obtained from the housing ownership register.

3.4 Sample selection

The main sample is limited to individuals aged 18-50 with at least one living parent who entered the housing market during the years 1995-2020. I follow the outcomes of entrants described in Section 3.2 in the 10 years before and after their first home purchase, resulting in a maximum span of 20 event years per individual in the sample. Renters are excluded from the analysis.[10] The maximum entry-age restriction combined with the overall age restriction implies that individuals are observed in ages 18-50.[11] The analysis considering the effect on firm performance are limited to years 2001-2020 due to limited data availability before 2001. All monetary variables are expressed in thousands of DKK and are inflated to 2020 levels. Whenever expressed in $USD, I adopt the 2020 exchange rate ($\frac{DKK}{\$USD} = 6.54$).

Table 1 lists the averages of variables in the main sample across all event years, split by general entrants (control sample, "No help") and intra-family sales entrants (treated sample, "Family help"). There are in total 13,544,123 observations (905.970 individuals), out of which 624.152 (42.867 individuals) are transfer recipients. The two groups are similar in terms of age and education, but differ in terms of wealth, business ownership, and credit variables. Specifically, entrants receiving transfers have on average lower salary income, higher net wealth, and are more likely to be business owners. In addition, they face lower interest rates and hold greater amounts of leverage. The central question is whether the observed differences stem from the entry-associated inter vivos transfer or if such distinctions would have existed in the

[10] The average share of homeowners in Denmark (ages 18-35, years 1995-2020) equals 24%, implying that I include 1/4 of all Danish young adults in my study.

[11] The imposition of age restrictions leads to an unbalanced sample. To safeguard against potential biases stemming from the sample composition, I conduct several robustness exercises involving variations in age cutoffs. For instance, I incorporate observations before age 18 into the pre-trends in one exercise. In another, I eliminate the age 35 cutoff to consider entrants aged 18 to 45. The results remain robust to these exercises.

absence of the transfer.

4 Empirical design

4.1 Extensive margin: Event study

I begin by employing a dynamic two-way fixed effects (TWFE) design with staggered adoption to estimate the average effect of receiving an inter vivos transfer on the outcomes of recipients:

$$y_{i,t} = \alpha_i + \lambda_{t,a} + \sum_{\substack{\tau=-6 \\ \tau\neq-1}}^{10} \gamma_\tau \mathbf{1}(T_{i,t} = \tau) \quad + \\ \sum_{\substack{\tau=-6 \\ \tau\neq-1}}^{10} \theta_\tau (\mathbf{1}(T_{i,t} = \tau) \times \mathbf{1}\{Transfer_i > 0\} + \beta X_{i,t} + \epsilon_{i,t} \tag{4}$$

Where $y_{i,t}$ denotes the dependent variable (housing wealth, business ownership or firm performance) of individual i at time t. $\lambda_{t,a}$ is a vector of year-age fixed effects. τ denotes years relative to housing market entry ([-10] to [+10]), where I exclude $\tau = -1$ and $\tau < -6$ to avoid multicollinearity (Borusyak, Jaravel, and Spiess, 2021). $T_{i,t}$ denotes the date relative to housing market entry of individual i and $\mathbf{1}(T_{i,t} = \tau)$ represents presence of period $T_{i,t}$. $\mathbf{1}\{Transfer_i > 0\}$ is an indicator for treatment and is equal to one if individual i received a transfer upon entry, and zero otherwise. Once interacted with the treatment lags, it signals the housing market entry of treated individuals who receive a transfer at $\tau = 0$. θ_τ accordingly captures the treatment coefficients of interest, signalling the additional effect on $y_{i,t}$ from entering the housing market with the help of a substantial transfer. Event study coefficients are expressed in relation to the linear trend arising from the inclusion of the two normalizations. $\epsilon_{i,t}$ is an error term assumed to be independently identically distributed (iid).

To account for time-invariant variation in my sample, I include individual fixed effects α_i. This ensures that the results are not influenced by individual-specific, time-invariant characteristics such as gender, IQ, or genetic traits. Additionally, $X_{i,t}$ is a vector of controls that includes the log of disposable income, dummy variables for current education enrollment, completed education and marital status, and a variable indicating the ownership share of individuals in their

dwellings (if the unit is shared).

The average treatment effect on the treated (ATT) is recovered as a weighted average of the post-treatment coefficients θ_τ from specification (4), where ω_τ correspond to treatment weights, equalling the share of treated units in each event year:

$$ATT = \sum_{\tau=1}^{10} \omega_\tau \times \theta_\tau \tag{5}$$

The identification of θ_τ in Equation (4) hinges on the assumptions of (1) parallel trends and (2) no anticipation. The prior posits that, in the absence of the transfer, treated and control units would have followed comparable trajectories over time. This implies that, on average, unobserved time-varying characteristics do not systematically differ between treated and controls. I assess the validity of this assumption by including a set of lead indicators in the main specification to test whether pre-trends show any significant difference in outcomes between treated and controls prior to treatment $\tau = 0$. Results from F-tests on the pre-event coefficients are presented in the Online Appendix Table B.8.

The second assumption, that there is no anticipation of treatment, implies that intra-family transfers (treatment) should be unexpected by recipients and that the variation in transfer timing should be effectively random, conditional on fixed effects and controls. This is a strong assumption, as recipients often benefit from additional parental investments, such as social and human capital, which can influence their financial behavior and outcomes. Accordingly, the following sections address the identification of treatment effects by utilizing plausibly exogenous variation in transfer amounts.

4.2 Intensive margin: Transfer amounts

4.2.1 Baseline specification

Transfers supporting entry into the housing market risk being correlated with unobserved, time-varying factors related to family background. To mitigate this concern, I conduct a second estimation exercise where I focus solely on recipients of inter vivos transfers, using transfer amounts as the relevant treatment variation. While the event study estimations capture the

extensive margin of transfers by utilizing variation in transfer timing, this approach estimates the intensive margin effects of inter vivos transfers. The specified regression takes the following form:

$$y_{it} = \alpha_i + \lambda_{at} + \theta_1(Transfer_{it}) + \gamma_1 X_{it} + \epsilon_{1,it} \tag{6}$$

where $Transfer_{it}$ denotes the transfer amount received by individual i at time t. The control variables and fixed effects are the same as in specification (4), including individual fixed effects α_i, year-age fixed effects λ_{at}, and the vector of controls X_{it}.

Although the intensive margin analysis is restricted to recipients only, selection concerns with respect to θ_1 persist. Specifically, recipients of larger transfers may differ from those receiving smaller transfers due to unobserved factors, such as a greater unobserved need for transfers, which could potentially influence the outcome variables. To mitigate these concerns, next section presents an identification strategy addressing potential biases arising from unobserved characteristics.

4.2.2 Using the transfer cap as exogenous variation in transfer amounts

To address the endogeneity of transfer amounts that may bias θ_1 in specification (6), I conduct an additional analysis using a two-stage least squares (2SLS) approach. Specifically, I employ the transfer cap as an instrument for realized transfers. The transfer cap can be derived for each dwelling based on the 15% rule underpinning tax-free transfers of discounted forward sales within the family, as outlined in Section 2.2.

To reinforce the exogeneity of the instrument, I leverage a policy reform in 2000 that introduced exogenous variation in the transfer cap. Equation (3) in shows that the transfer cap for dwelling (recipient) i at time t is a function of the reference value of housing (P^{REF}).

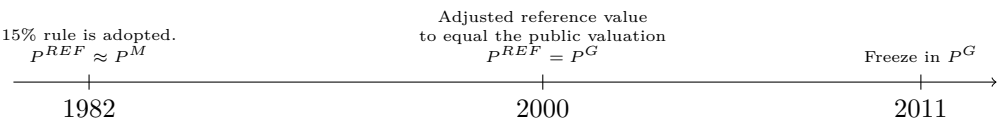

Figure 2: Timeline of events

The reference value has undergone changes over time, as illustrated by the timeline in

Figure 2. From 1982 to 2000, the reference value for a given unit was determined by estimating a "cash value" of the relevant property, based on the face value of bonds and underlying assets. As a result, P^{REF} was typically close to the market value of housing ($P^{REF} \approx P^{M}$), limiting the amounts of tax-free transfers running through the loophole. In 2000, P^{REF} was redefined to equal the tax assessment value of the unit P^{G}, corresponding to a government listed value at which housing wealth is taxed (CIR nr 45 af 28/03/2000, §2, 2000), introducing large sudden variation in the transfer cap across dwellings. Finally, in 2011, there was no further updates to P^{REF}, resulting in a rapid increase in the transfer cap in the following years. Inserting the corresponding values of P^{REF} into the expressions of equation (3), I obtain the (normalized) transfer cap before and after the reform as:

$$\tau_{it}^{max} = \begin{cases} 0.15 & \text{if year} \leq 2000 \\ 1 - 0.85\frac{P_{i,t}^{G}}{P_{i,t}^{M}} & \text{if year} > 2000 \end{cases} \tag{7}$$

where $\frac{P^G}{P^M}$ is the ratio of the tax assessment value and the market price, tied to the property.

Figure 8 illustrates the development in the median transfer cap and realized transfers over time. From 1996 to 2000, the median transfers from parents to children associated with housing market entries remained constant at around 200,000 DKK ($30,500). However, post-2000, the median transfers rose substantially, peaking at 700,000 DKK ($107,000) in 2006. This was followed by a decline in the transfer cap due to lower house prices during the Great Financial Crisis of 2008-2010. Subsequently, transfers began to increase again after 2011. Figure 9 further illustrates the policy variation in transfer amounts induced by the reform. The left panel shows that, in the years 1995-2000, the transfer cap was constant at 0.15, implying that parents could contribute with 15% of the dwelling sold. As a result, there was limited variation in the transfer amounts associated with intra-family sales. In the years 2000-2020, however, there was significant variation in $\tau_{it}^{\max}$, which also increased the transfer amounts, as shown in the right panel.

4.2.3 2SLS specifications

I restrict the sample for the 2SLS estimations to individuals who lived in a parent-owned unit in 2000. This restriction helps to avoid any selection effects into the treatment group arising from the policy reform. This reduces the sample size to $N = 62,594$ observations.[12]

The first stage regression model is specified as follows:

$$\text{Transfer}_{it} = \alpha_i + \lambda_{at} + \theta_2 Transfer_{it}^{max} + \gamma_2 X_{it} + \epsilon_{2,it} \tag{8}$$

where the dependent variable Transfer_{it} represents the transfer amount received by individual i at time t. $Transfer_{it}^{max}$ represents the transfer cap (instrument). The model includes individual fixed effects (α_i) and year-age fixed effects (λ_{at}). The vector of controls (X_{it}) account for other time-varying individual characteristics, and is the same as in specification (4). The parameter θ_2 captures the relationship between the transfer cap and realized transfers received upon housing market entry. The second stage regression model is then specified as:

$$y_{it} = \alpha_i + \lambda_{at} + \theta_3 (\widehat{Transfer}_{it}) + \gamma_3 X_{it} + \epsilon_{3,it} \tag{9}$$

where y_{it} represents the outcome variable of interest (e.g., housing wealth, business ownership) for individual i at time t. The variable $\widehat{Transfer}_{it}$ denotes the predicted values of the transfer amount from the first stage regression. The coefficient θ_3 is the 2SLS estimator, capturing the causal effect of the transfer amount on the outcome variable y_{it} of interest.

The unbiased estimation of θ_3 relies on the relevance and exclusion restrictions of the instrument. The relevance condition implies that the transfer probability significantly increases with the transfer cap. This is tested by estimating θ_2 in equation (8). The exclusion restriction requires that, conditional on fixed effects and controls, the transfer cap is unrelated to the outcome variables except through their effects on the transfer amount.

[12] Online Appendix Table B.9 show the descriptive means for the restricted sample.

5 Results

This section presents the results from the main estimations, relating inter vivos transfers to long run housing and private business wealth of recipients. I first introduce the descriptive evidence of transfers channeled through the gift tax loophole. Subsequently, I present the results from the main estimations, which are divided into two main parts. The first part introduces the extensive margin results from the event study regressions of specification (4), along with the regression results of the intensive margin using specification (6). The second part presents the results from the 2SLS analysis of specification (8) and (9), where transfer amounts are randomized across the restricted sample using the transfer cap as an instrument. Finally, I examine the plausibility of credit constraints as an explanation for the observed treatment effects on housing wealth and business ownership, and discuss heterogeneity in the treatment effects by age.

5.1 Inter vivos transfers channeled through the housing market

The tax loophole for intergenerational transfers described in Section 2.2, has a significant impact on dynastic wealth flows in Denmark. Online Appendix Figure B.15 shows that 5-8% of individuals in my sample entered the housing market through a discounted forward sale in years 1995-2020, and accordingly received a substantial illiquid inter vivos transfer from their parents. The popularity of intra-family sales increased rapidly between 1995 and 2006, then declined during the financial crisis, and began to recover after 2010.

Turning to tax-free transfer amounts, Figure B.14 shows that realized transfers (normalized by the market value of the dwelling) closely follows the policy relationship governing the 15% rule, as illustrated in Figure 1. The transfer contribution decreases linearly as the RTM approaches 1, indicating that the transfer cap is binding and that parents adjust their financial contributions accordingly.

Finally, Figure 3 depicts the average development in net wealth across event years, illustrating the impact of inter vivos transfers at housing market entry. General entrants ("No help") have zero net wealth holdings in the decade before becoming homeowners and start ac-

cumulating wealth shortly after entry. In contrast, recipients of transfers ("Family help") have slightly positive net wealth prior to entry and experience an average jump of 700,000 DKK (USD $107,000) at event year $\tau = 0$, illustrating the direct effect of the transfer on net wealth. Over the subsequent 10 years, recipients of transfers show a u-shaped mean net wealth development: their net wealth initially decreases by 100,000 DKK (USD $15,300) before rising again five years after entry. Importantly, the net wealth measure solely captures deposits, financial assets and housing wealth, meaning that any discrepancy in wealth arising from business ownership is not included in the figure. Additional insights about the effects on business assets are presented in the next section.

5.2 Effects on housing wealth and business ownership

5.2.1 Event study and baseline model

The average development in housing wealth and business ownership of recipients across event years are illustrated in Online Appendix Figure B.16. Recipients of transfers on average hold slightly higher levels of housing wealth (panel a) and are somewhat more likely to be business owners prior to entry (panel b). In the year of entry, there is an average shift in both variables, and a diverging development over the following 10 years amongst treated and controls. This gives a first indication that inter vivos transfers have a positive impact on the outcome variables. Results from the empirical estimations are presented below.

Housing Wealth. Figure 4 depicts the estimated treatment coefficients for gross and net housing wealth, plotted over event years. The coefficients indicate a significant impact of inter vivos transfers on housing wealth accumulation among recipients. First, the transfers result in a substantial increase in gross housing wealth of 750,000 DKK ($114,000) at the point of entry, which continues to grow by an additional 500,000 DKK ($76,500) over the following 10 years. This increase can be attributed to two key factors: a pure wealth effect, where recipients purchase more expensive housing units upon receiving the transfer, and an investment effect, where recipients are more likely to acquire new or additional properties in the future. Figure 5 illustrates the latter, showing that the propensity to own more than one property increases by an average of 3.4 percentage points following the transfer, representing a 58% increase in

relative terms. This suggests that the transfer plays a significant role in enabling recipients to advance in their housing careers. Despite the growth in gross housing wealth, net housing wealth remains flat at 500,000 DKK ($76,500) after entry, when total liabilities are subtracted. This suggests that recipients leverage their properties by taking on additional debt to extract liquidity. The effects of inter vivos transfers on credit market variables is discussed further in Section 5.3: Mechanisms.

Although pre-trends appear parallel in Figure 4, Online Appendix Table B.8 shows that the coefficients in the pre-treatment years are jointly significant (F-statistic = 5.84, p-value = 0.00), indicating that the treatment and control groups may have different developments in their housing wealth already prior to treatment. To improve the comparison between treated and control groups, I turn to the estimation results where the sample is limited to recipients only. Column 3 of Table 4 shows that when inter vivos transfers increase by 100,000 DKK, average housing wealth over the following 10 years increases by 291,000 DKK. This illustrates that the average wealth returns from investing in housing is approximately 290% over the observed horizon for the restricted sample.

Business Ownership. Recipients of inter vivos transfers exhibit a higher likelihood of becoming business owners. As illustrated in Figure 6, business ownership increases by 0.25 percentage points in the entry year and continues to rise to a steady state level of +1 percentage points during the subsequent ten years following the transfer. In reference to the average business ownership of the treatment group, this corresponds to an average increase by 54%. A joint significance test of pre-treatment coefficients indicates no signs of pre-trends (F-statistic = 0.13, p-value = 0.99). Turning to the results from the treated-only sample in Table 4, column 3 shows that a 100,000 DKK ($15,300) increase in inter vivos transfers results in an increase in business ownership by 0.22 percentage points.

Firm Performance. Panel a of Figure 7 displays a spike in new firm registrations at the time of the transfer, indicating that financial support from parents facilitates the initiation of new businesses, rather than intergenerational transfers of preexisting business. Moreover, using matched balance sheet data for these new establishments, panel b demonstrates that new firms exhibit faster growth in terms of revenues (31.34%), assets (142%), and leverage (145%) compared to the firms of non-recipients. This suggests that the transfers provide a robust

foundation for sustained business growth and financial stability.

5.2.2 2SLS results

To assess endogeneity of the treatment effects presented above, Table 2 presents the estimation results from the first stage regression of equation (8), using the transfer cap as an instrument for realized transfers. The coefficient equals 0.97 and is significant at the 0.1% level. This indicates that, on average, if the transfer cap increases by 100,000 DKK, parents will adjust their transfers by 97,000 DKK. [13] The large and significant first stage coefficient indicates that the relevance condition discussed in Section 4.2.3 is satisfied.

The results from the second stage estimations, shown in column 4 of Table 3 and 4, shows that instrumenting realized transfers with the corresponding transfer cap for the unit does not substantially influence the OLS coefficients on housing wealth or business ownership. Larger transfers arising from adjustments in the tax-free limit leads to slightly reduced gains from housing wealth (from 291,000 to 278,000 DKK), and to slightly amplified entrepreneurship entry (from 0.22 to 0.253 percentage points). Although a very limited sample, the estimation results depicted in Table 5, 6 and 7 shows that the impact on firm assets, revenues and liabilities also remain positive and significant once transfers are instrumented with the legal cap.

Overall, the results indicate that inter vivos transfers lead to significant increases in housing wealth, business ownership, and firm performance over the ten years following the transfer. The fact that exogenous variation in transfer amounts does not significantly alter the baseline coefficients suggests that the observed treatment effects are the result of the transfers themselves, rather than confounding variables associated with greater parental financial support.

[13] The high correlation between the instrument and realized transfer amounts is likely explained by the time period of the estimation. Specifically, the sample is restricted to individuals who resided in a parent-owned unit in the year 2000. During this period, the baseline transfer cap was relatively low, prompting most households to maximize their transfers up to the legal limit. This context explains the high first stage coefficient, as households closely adjusted their transfer amounts in accordance with the legal constraints.

5.3 Mechanisms

5.3.1 The role of credit constraints

I explore the possibility that the effects on housing wealth and business ownership stems from a relaxed credit constraint as a result from the inter vivos transfer. I do this by estimating the effects of transfers on borrowing, interest rates and liquid wealth holdings.

Borrowing. In Denmark, individuals can typically borrow up to 4 times their annual income. In addition to this limit, it is possible extract equity from illiquid resources. It is likely that transfers influence the latter since it provides recipients with illiquid wealth, effectively lowering their LTV ratio. Figure B.17 shows that the composition of financing sources are different for recipients of transfers and non-recipients. While recipients take on similar debt levels upon entry as general entrants, they hold a large amounts of illiquid wealth in the debt-equity mix.

I investigate impact on credit access of recipients by running two additional analyses. I begin by estimating the effect of transfers on total borrowing of recipients. Subsequently, I estimate the average interest rate gap of individuals at entry depending on the LTV ratio, by running separate cross-sectional regressions as defined in specification (4). Amongst recipients of transfers, a lower LTV is associated with larger transfer amounts.

Figure 10 demonstrates that recipients of transfers increase their outstanding debt by 386,000 DKK ($59,000) in the post-entry years, representing a 45% increase compared to general entrants. When observing average debt levels across event years, borrowing remains flat for general entrants in the ten years following entry, while it rises for transfer recipients. This suggests the presence of an underlying borrowing constraint, which is alleviated through the wealth transfer. A plausible explanation is that individuals purchasing units without financial support maximize their loan-to-value (LTV) ratio at the point of entry, restricting them from taking additional loans.

Interest rates. Turning to effects on interest rates, panel a of Figure 11 shows the overall interest rate gap between recipients and non-recipients. The overall interest rate in the entry year is 0.23 percentage points lower for recipients on average, as is illustrated by the horizontal

line. Importantly, the interest rate gap is reduced as the LTV ratio approaches 1. This implies that, as inter vivos transfers grow larger ($LTV \downarrow$), the interest rate wedge between treated and controls entrants increases.

Secondly, I focus solely on the non-mortgage interest rate of individuals, which should be not be directly impacted by the change in debt composition of mortgage and non-mortgage debt stemming from entry to the housing market. The observations pre-treatment allows me to analyze the change in interest rate within individuals, accounting for time-invariant traits.

Panel b of Figure 11 shows that the interest rate on non-mortgage debt drops by 0.25 percentage points on average for recipients of transfers in the year following entry, and then increases in subsequent years, maintaining a lower level than general entrants up to 7 years after entry.[14] While the magnitude of the effect is small, the ATT is statistically significant at the 0.1% level. There are no signs of pre-trends.

Liquid assets. As a final step, I explore the effect on *liquid* wealth holdings of recipients. Higher amounts of liquidity signals that individuals are less constrained, and have a greater possibility to cushion against unexpected negative shocks. I run a regression of specification (4), with liquid assets, defined as the sum of deposit, stocks and bonds, as dependent variables.

Figure 12 shows that the transfer not only influences inaccessible wealth tied to housing, but also the liquid resources held by individuals. The treatment coefficients indicate a persistent increase in liquid wealth of 26,000 DKK (4,000$) in the 10 years after entry. This corresponds to an increase of 24% in reference to the baseline average liquid assets in the treatment group.

Overall, the evidence suggests that parental resources help descendants secure lower interest rates by signaling a lower default probability to lenders. This results in lower credit costs and grants greater borrowing capacity for the same monthly payments as general entrants in the short and medium run.

[14] The effect is underpinned by a shift in the median rate, rather than in the tails, as illustrated by the histogram before and after entry, shown in Online Appendix Figure B.18.

5.3.2 The effect of inter vivos transfers across the life cycle

Prior literature on intergenerational wealth flows has primarily focused on the role of bequests in determining wealth accumulation or spending-saving behavior of recipients (Druedahl and Martinello, 2022; Nekoei and Seim, 2023). However, bequests are typically received at later stages of the life cycle, where their effects might differ from those of earlier financial support. As discussed in Section 5.3.1, credit constraints likely underpin these effects. Given that such constraints are generally more binding earlier in the life cycle, it raises the question of whether intergenerational transfers have different impacts on recipients' lifetime optimization depending on the timing of the transfer.

To address this question, I explore the heterogeneity in treatment effects by age to evaluate the impact of inter vivos transfers across the life cycle. This is done by estimating treatment effects on housing wealth and business ownership for six age categories in my sample, considering only treated and control individuals entering the housing market within the relevant age group.

The results, shown in panels a and b of Figure 13, indicate substantial variation in treatment effects on housing wealth and business ownership across the life cycle. Transfer recipients aged 18-24 experience an average increase in housing wealth by 750,000 ($114,700) (60% in reference to the baseline average) and an increase in business ownership by 1 percentage point (50%) over the 10 treatment years relative to entrants in the same age group. For recipients aged 25-35, the corresponding treatment effects are larger at 1,100,000 (90%) and 1.8 percentage points (100%) respectively. Beyond this age range, treatment effects decline substantially as individuals grow older, dropping to 250,000 (30%) for housing wealth and to -1.4 for business ownership among recipients aged 45-50. While effects on housing wealth remain significant for all age categories, the effects on business ownership turns insignificant after individuals reach age 40.

The results show that the timing of inter vivos transfers plays an important role in shaping the economic outcomes of recipients, with earlier transfers leading to more significant impacts on housing wealth and business ownership. This finding supports the idea that transfers, aside from influencing the immediate (level) financial standing of recipients, also affect the slope of their economic advancement. Accordingly, economic models of overlapping generations that

incorporate dynastic wealth flows should adopt a dynamic, rather than static, perspective of transfers when explaining intergenerational correlations in net worth.

6 Conclusion

This study uses Danish administrative data to examine how inter vivos transfers affect long-term wealth accumulation through investments in housing and business ownership. The results show that inter vivos transfers leads to significant increases in the housing wealth and business ownership of recipients. Recipients invest in higher-value homes and are more likely to engage in additional property investments, leading to substantial growth in housing equity. Additionally, transfers lower barriers to entrepreneurship, resulting in more business startups and sustained business growth. Randomizing transfer amounts does not influence the main treatment effects, indicating that the baseline estimates are not driven by confounding variables associated with recipients of larger transfers.

The treatment effects diminishes with age, suggesting that the impact of inter vivos transfers on dynastic wealth disparities varies depending on the stage of the life cycle at which they are received. One explanation to this may be that credit constraints are more binding earlier in the life-cycle. I find evidence in favor of relaxed credit constraints explaining the treatment effects on individual investments and wealth accumulation: transfers lead to increased borrowing, lower interest rates, and higher liquid asset holdings.

Overall, my study illustrates that inter vivos transfers alter individual life trajectories by lowering the barriers associated with early investments in durable goods, granting recipients access to opportunities that would otherwise have been out of reach. The results are informative for policymakers, highlighting that the shift towards earlier transfers, (Piketty and Zucman, 2015), may have substantial impacts on dynastic wealth disparities and intergenerational wealth correlations, particularly at the top.

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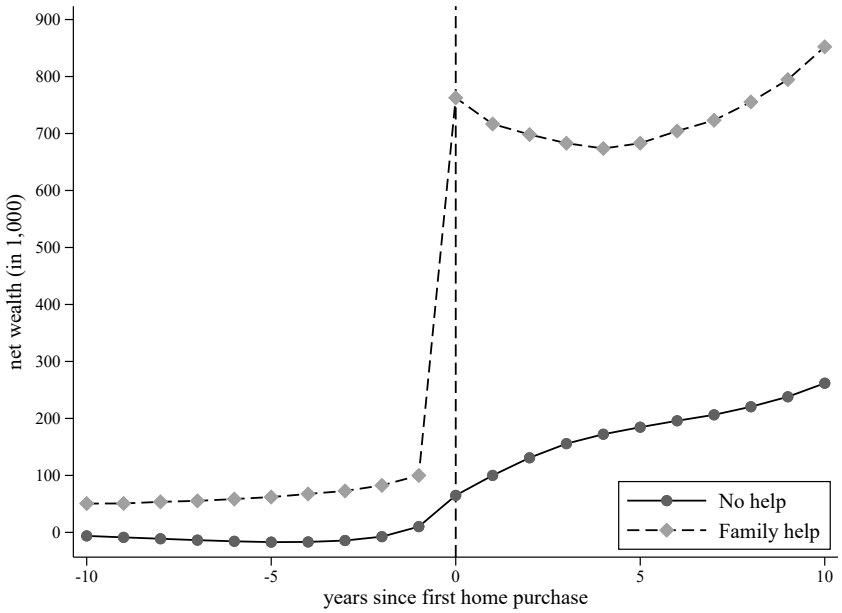


Figure 3: Net wealth (The flying start)

Notes: This figure shows the average net wealth in Danish kroner, defined as total assets minus debt, for treated (Family help) and controls (No help) 10 years before and after housing market entry. An individual is defined as receiving help if they entered the housing market through a discounted intra-family forward sale. The sample includes ages 18-50, years 1995-2020. Obs: 624.152 for treated and 12.919.971 for controls. Data is obtained from Danish administrative registers (Statistics Denmark).

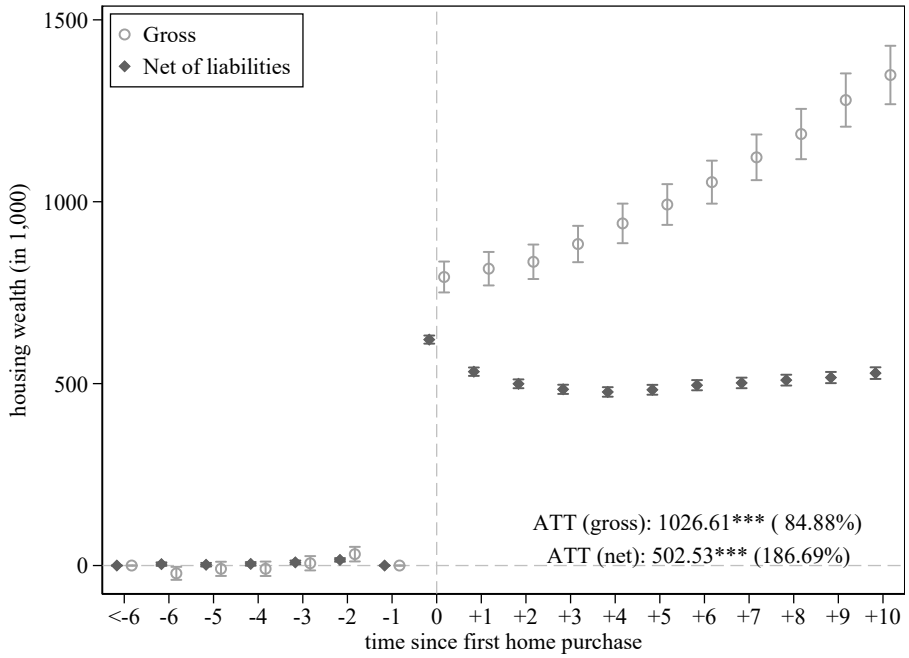


Figure 4: Main results, housing wealth

Notes: This figure shows the main estimation results from specification (4) for the full sample with 95% CIs. The first dependent variable is gross housing wealth in Danish kroner, defined as the aggregate market value of owned properties. The second dependent variable is net housing wealth, calculated as gross housing wealth minus total liabilities. The treatment group consists of individuals receiving a transfer upon housing market entry, while the control group includes general entrants. The regression includes year-age fixed effects and individual fixed effects. Included controls are education, marital status, income and property ownership share. The ATT, reported in the bottom right corner of each panel, is calculated as a weighted average of post-treatment period coefficients, with weights equal to the share of treated units in each event year. Observations: 624,152 for treated individuals and 12,919,971 for controls. ***, **, * indicate statistical significance at the 0.1%, 1%, and 5% levels, respectively. Data is obtained from Danish administrative registers (Statistics Denmark).

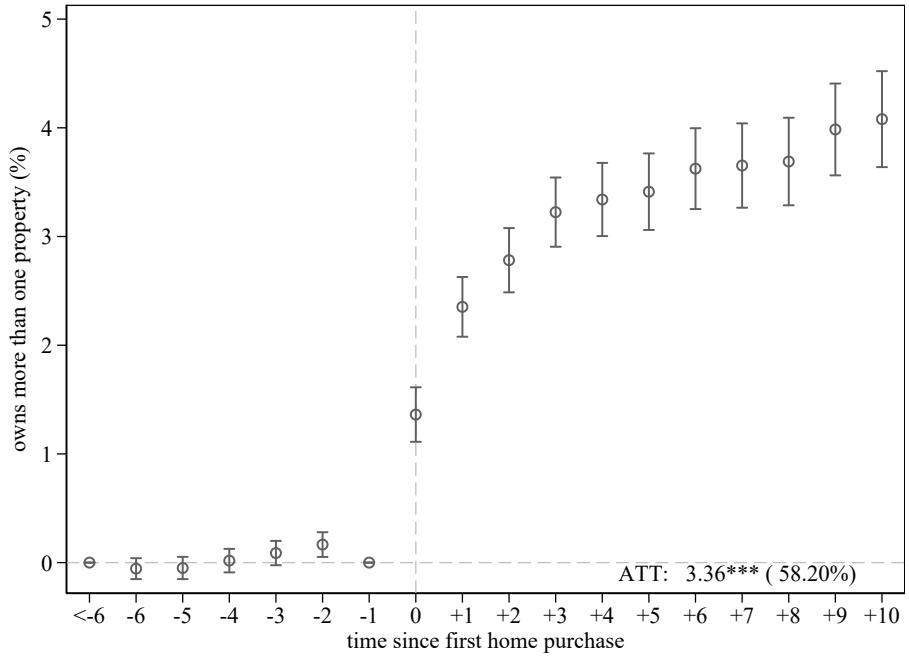


Figure 5: Effect on propensity to own more than one property

Notes: This figure shows the main estimation results from specification (4) for the full sample with 95% CIs. The dependent variable is a dummy variable which equals 100 if the individual owns more than one property. The treatment group consists of individuals receiving a transfer upon housing market entry, while the control group includes general entrants. The regression includes year-age fixed effects and individual fixed effects. Included controls are education, marital status, income and property ownership share. The ATT, reported in the bottom right corner, is calculated as a weighted average of post-treatment period coefficients, with weights equal to the share of treated units in each event year. Observations: 624,152 for treated individuals and 12,919,971 for controls. ***, **, * indicate statistical significance at the 0.1%, 1%, and 5% levels, respectively. Data is obtained from Danish administrative registers (Statistics Denmark).

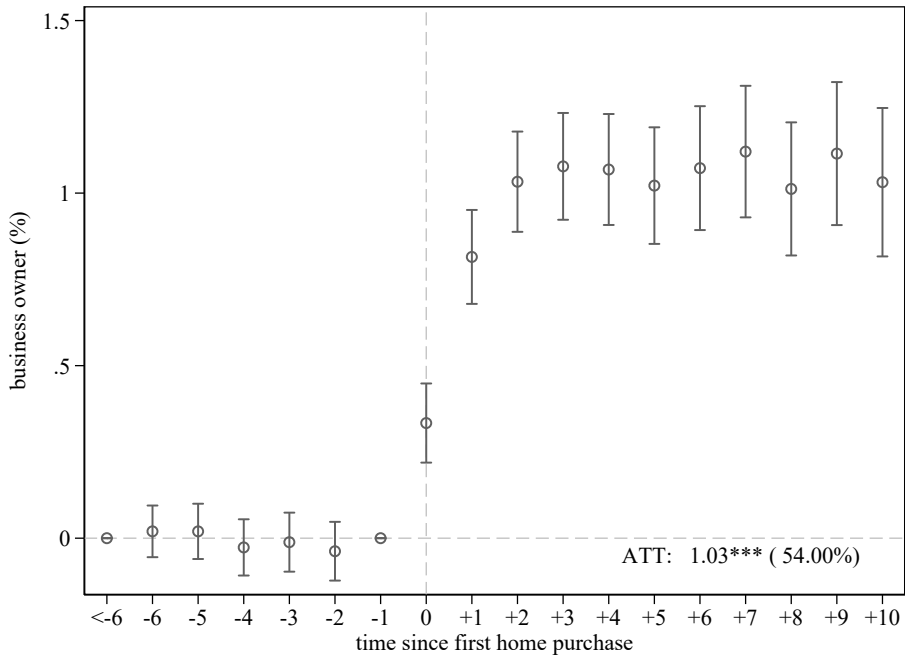
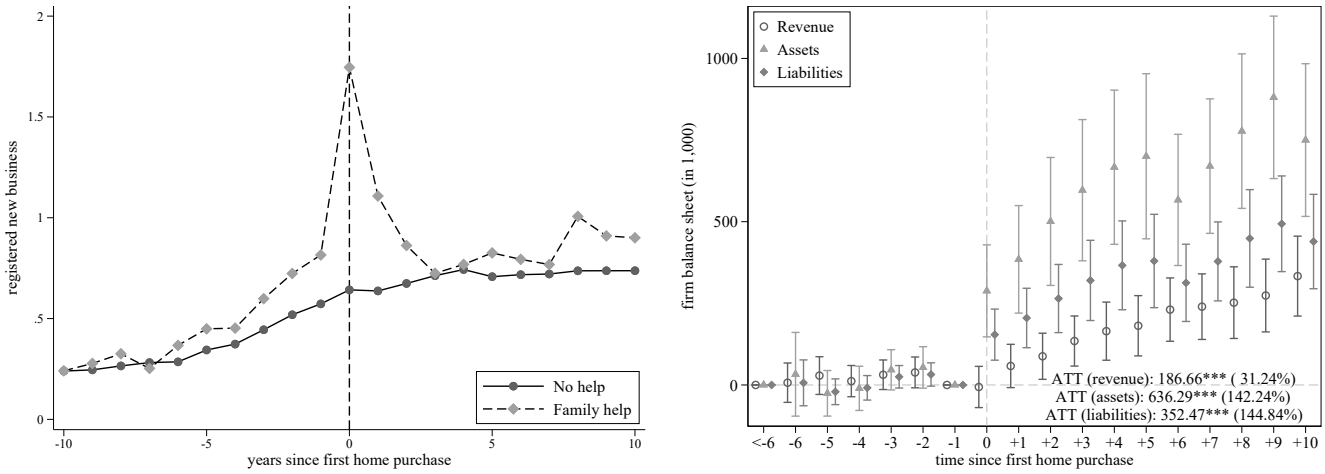


Figure 6: Main results, business ownership

Notes: This figure reports the main estimation results from specification (4) for the full sample with 95% CIs. The dependent variable is business ownership, defined as owning a firm with at least one (additional) employee. The treatment group consists of individuals receiving a wealth transfer upon housing market entry, while the control group includes general entrants. The regression includes year-age fixed effects and individual fixed effects. Included controls are education, marital status, income and property ownership share. The ATT, reported in the bottom right corner of each panel, is calculated as a weighted average of post-treatment period coefficients, with weights equal to the share of treated units in each event year. Observations: 624,152 for treated individuals and 12,919,971 for controls. ***, **, * indicate statistical significance at the 0.1%, 1%, and 5% levels, respectively. Data is obtained from Danish administrative registers (Statistics Denmark).



(a) New firm registrations

(b) Firm performance

Figure 7: Effects on firm registrations and performance

Panel a shows the average percentage flow of new firm registrations in each event year. Panel b presents the main estimation results from specification (4) for the full sample with 95% CIs. The dependent variables are firm revenues, assets and liabilities, expressed in Danish kroner. Observations: 10,293,082 (panel a); 373,609 (panel b). ***, **, * indicate statistical significance at the 0.1%, 1%, and 5% levels, respectively. Data is obtained from Danish administrative registers (Statistics Denmark).

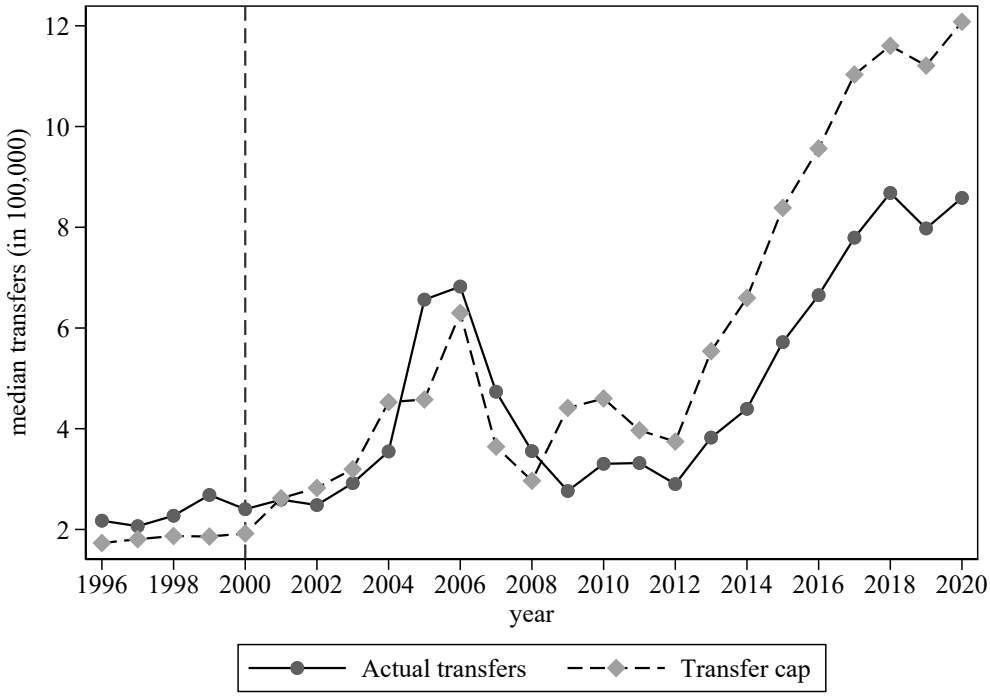


Figure 8: Transfer cap and actual transfers across time

Notes: The figure is showing the median transfer cap (instrument) and realized transfers in years 1996-2020. Obs: 13,544,123. Data is obtained from Danish administrative registers (Statistics Denmark).

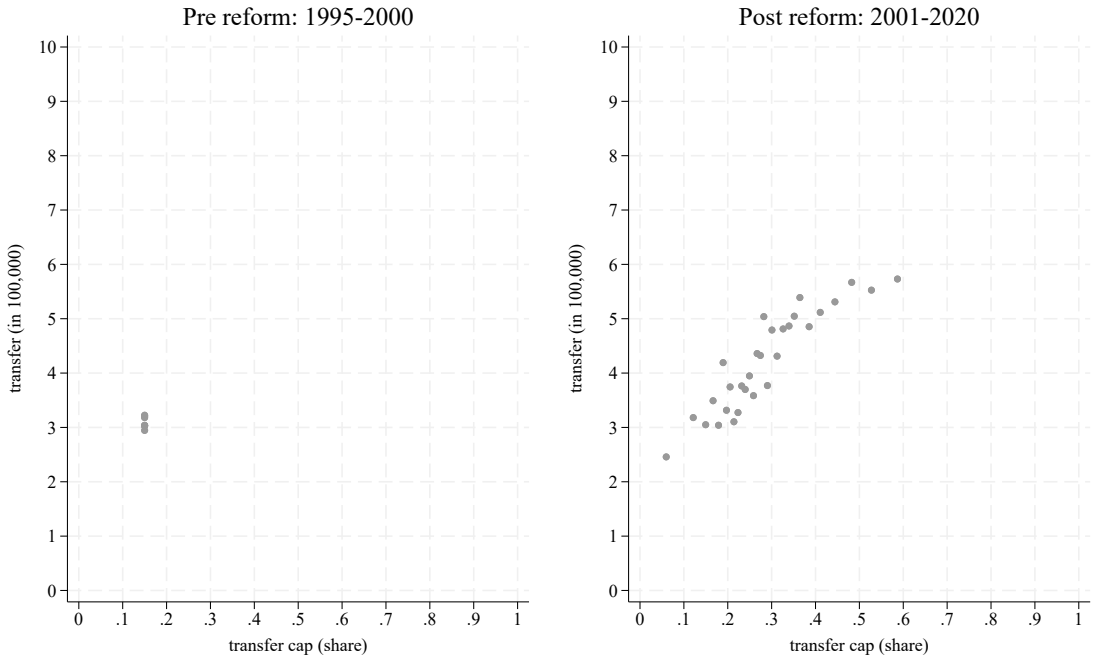


Figure 9: Policy variation in instrument before and after reform

Notes: This figure illustrates binscatter plots mapping the transfer cap normalized by house prices (τ_{it}^{max}) to realized transfers. The left panel shows the relationship before the reform (1995-2000), while the right panel shows the relationship after the reform (2001-2020). Observations: 62,594. Data is obtained from Danish administrative registers (Statistics Denmark).

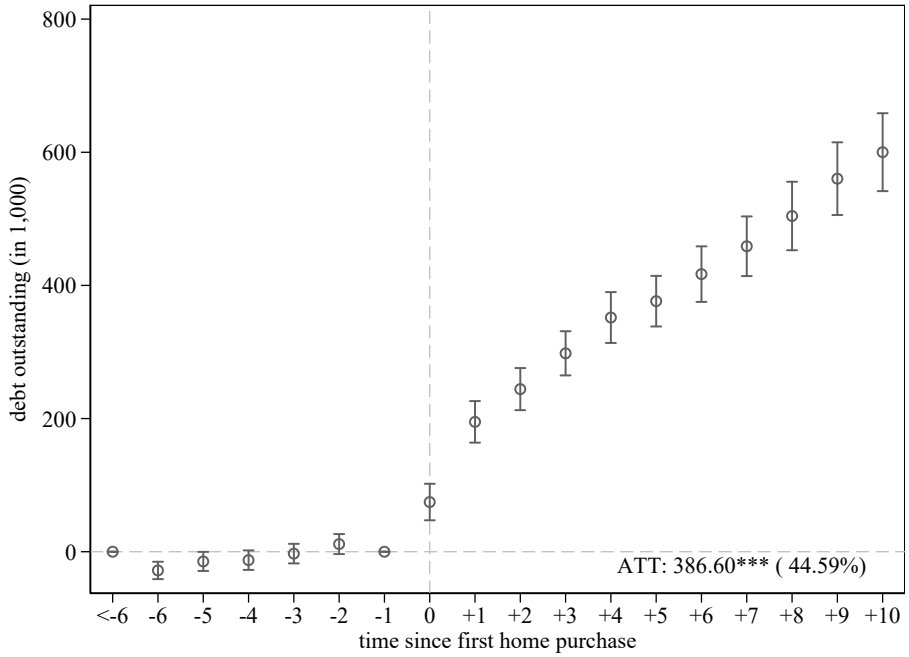
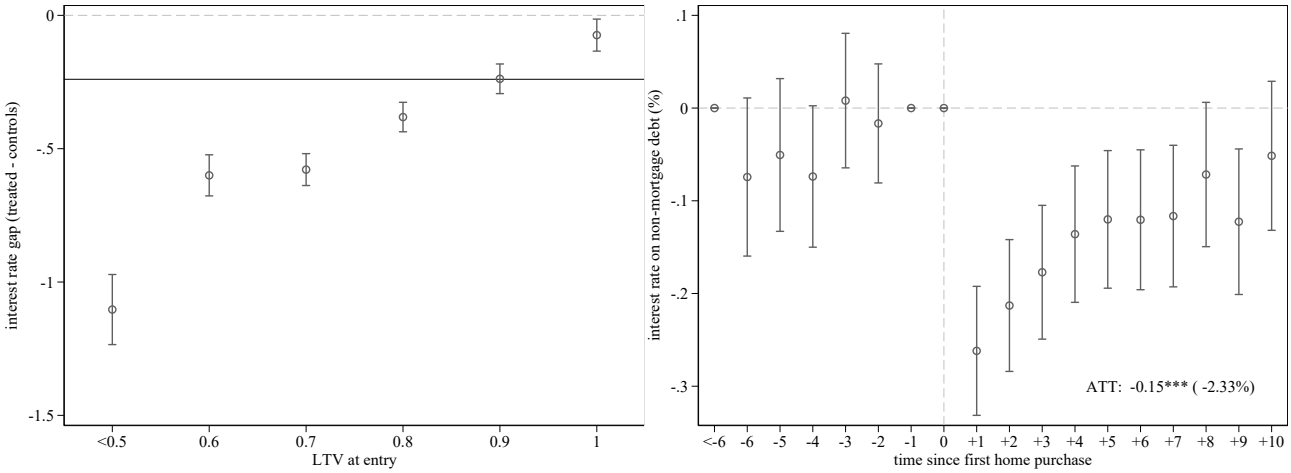


Figure 10: Effects on borrowing

Notes: This figure reports the main estimation results from specification (4) for the full sample with 95% CIs. The dependent variable is total borrowing, defined as the sum of mortgage and non-mortgage debt, expressed in thousands of DKK. The treatment group consists of individuals receiving a wealth transfer upon housing market entry, while the control group includes general entrants. The regression includes year-age fixed effects and individual fixed effects. Included controls are education, marital status, income and property ownership share. The ATT, reported in the bottom right corner of each panel, is calculated as a weighted average of post-treatment period coefficients, with weights equal to the share of treated units in each event year. Observations: 624,152 for treated individuals and 12,919,971 for controls. ***, **, * indicate statistical significance at the 0.1%, 1%, and 5% levels, respectively. Data is obtained from Danish administrative registers (Statistics Denmark).



(a) Interest rate gap at entry

(b) Effect on non-mortgage interest rate

Figure 11: Effects on interest rates

Notes: This Figure reports the effect of inter vivos transfers on interest rates. Panel a illustrates the gap between transfer recipients and general entrants in the entry year, plotted across the LTV of entrants. The average interest rate gap is represented by the horizontal line. Panel b shows the estimated coefficients with 95% CIs from specification (4), using non-mortgage rates as the dependent variable. Obs: 4,537,948. ***, **, * indicate statistical significance at the 0.1%, 1%, and 5% levels, respectively. Data is obtained from Danish administrative registers (Statistics Denmark).

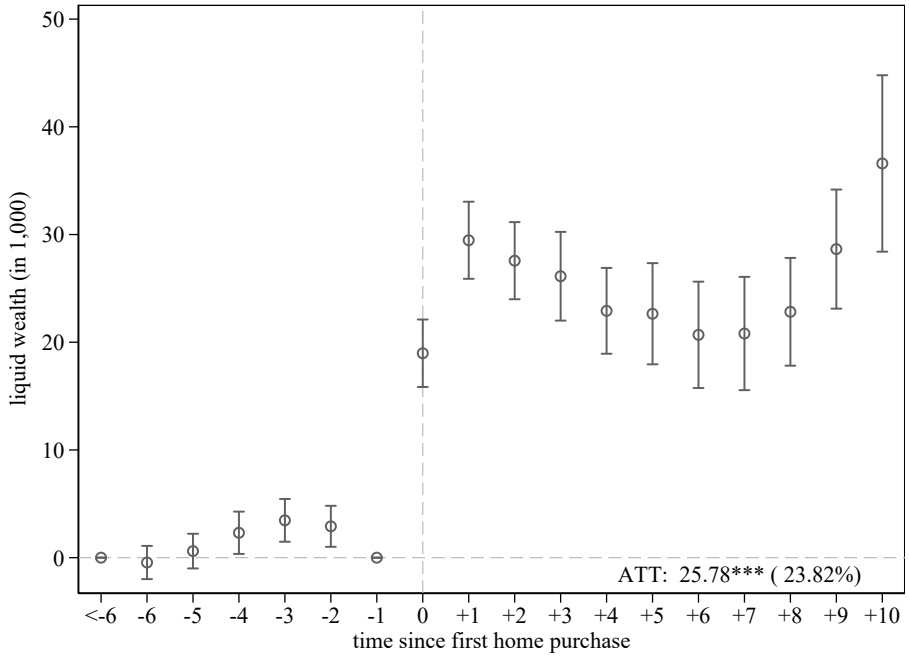
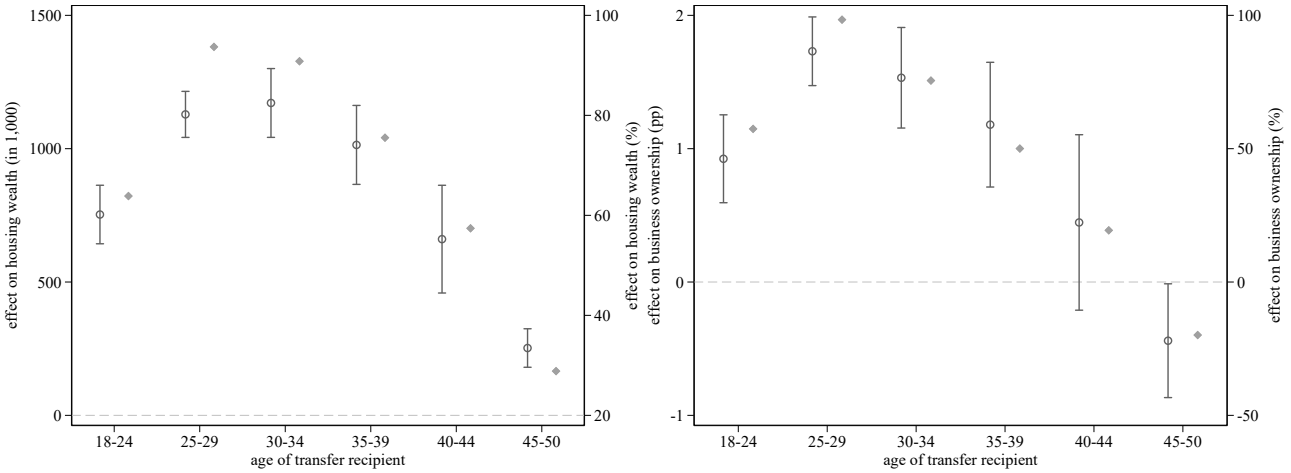


Figure 12: Effects on liquid wealth

Notes: This figure reports the main estimation results from specification (4) for the full sample. The dependent variable is liquid wealth, defined as the sum of deposits, stocks and bonds, expressed in thousands of DKK. The treatment group consists of individuals receiving a wealth transfer upon housing market entry, while the control group includes general entrants. The regression includes year-age fixed effects and individual fixed effects. Included controls are education, marital status, income and property ownership share. The ATT, reported in the bottom right corner of each panel, is calculated as a weighted average of post-treatment period coefficients, with weights equal to the share of treated units in each event year. Observations: 624,152 for treated individuals and 12,919,971 for controls. ***, **, * indicate statistical significance at the 0.1%, 1%, and 5% levels, respectively. Data is obtained from Danish administrative registers (Statistics Denmark).



(a) Housing wealth

(b) Business ownership

Figure 13: Heterogeneity in treatment effects by age

Notes: This Figure reports the average treatment effects on the treated (cicles) and the relative treatment effects (diamonds) from estimations of specification (4) across entry-age brackets of the full population sample. 95% confidence intervals are reported alongside the treatment effects. Panel a shows the treatment effects for housing wealth. Panel b shows the estimation results for business ownership. Obs: 2,087,383 for 18-24; 3,573,395 for 25-29; 3,058,850 for 30-34; 1,632,132 for 35-39; 832,186 for 40-44 and 400,952 for 45-50. Data is obtained from Danish administrative registers (Statistics Denmark).

	(1)	(2)
	No help	Family help
Age	31.55	31.74
Female (d)	0.49	0.44
Has college degree (d)	0.35	0.34
Salary income	309.40	271.43
Net wealth	97.49	433.29
Housing wealth	670.37	1209.47
Financial wealth	96.73	197.67
Interest rate (%)	5.73	5.07
Debt outstanding	654.57	866.95
Business owner (d)	0.01	0.02
Revenue firm	300.54	597.48
Assets firm	166.30	447.33
Liabilities firm	94.93	243.35
Parent transfer sum		698.00
Observations	12,919,971	624,152
Nr. individuals	863,103	42,867

Table 1: Summary statistics (Main sample)

Notes: The table presents averages of financial and demographic variables for the full population sample across the 20 [-10:+10] event years. Variables are observed at annual frequency. Column 1 and 2 distinguishes between averages for treated individuals who entered the housing market through an intra-family forward sale (Family help) and controls who are general entrants (No help). The sample is limited to ages 18-50 in years 1995-2020. Firm assets and revenues are available 2000-2020. All financial variables are expressed in thousands of DKK and are inflated to 2020 levels. Interest rates are estimated following Kreiner, Leth-Petersen, and Willerslev-Olsen, 2020 as end-of-year aggregate interest rate payments divided by outstanding debt. Obs total: 13,544,123. Obs firm characteristics: 384,008. Data is obtained from Danish administrative registers (Statistics Denmark).

Dependent variable: realized transfers (in 100.000)	(1)
Transfer cap (in 100.000)	0.970***
	(19.50)
N	62594

t statistics in parentheses

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

Table 2: Results 2SLS, first stage

Notes: The table presents the results from the first stage regression of specification (8). The dependent variable is the realized wealth transfer associated with an intra-family forward sale. The instrument (regressor) is the transfer cap $Transfer_{it}^{max}$ equalling the level of maximum transfers associated with a particular dwelling. Obs: 62594. Data is obtained from Danish administrative registers (Statistics Denmark).

	(1)	(2)	(3)	(4)
Outcome: Housing wealth (in 1.000)	OLS	OLS	OLS	2SLS
Transfer (in 100.000)	286.1***	279.8***	290.8***	278.5***
	(11.46)	(11.20)	(11.11)	(9.15)
Intercept	53.58***	-3764.0**	-454.2	
	(4.72)	(-3.06)	(-0.40)	
N	62594	62594	62594	62594
R^2	0.276	0.305	0.661	0.208
Individual controls	No	Yes	Yes	Yes
Time and Age FE	No	Yes	Yes	Yes
Individual FE	No	No	Yes	Yes
Instrument: Transfer cap	No	No	No	Yes

t statistics in parentheses

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

Table 3: Housing wealth, regression results

Notes: The table presents the results from regression specification (9) using the restricted sample. The dependent variable is gross housing wealth, expressed in thousands of DKK. Columns 1-3 use the (uninstrumented) transfer amount associated with an intra-family sale, expressed in 100,000s of DKK. Column 4 regresses the transfer amount instrumented with the transfer cap $Transfer_{it}^{max}$. Observations: 62,594. Data is obtained from Danish administrative registers (Statistics Denmark).

Outcome: Business ownership	(1) OLS	(2) OLS	(3) OLS	(4) 2SLS
Transfer (in 100.000)	0.299***	0.291***	0.220***	0.253***
	(0.0520)	(0.0522)	(0.0462)	(0.0750)
Intercept	0.970***	-7.736	-0.369	
	(0.158)	(4.955)	(3.091)	
N	62594	62594	62594	62594
R^2	0.020	0.046	0.574	0.010
Individual controls	No	Yes	Yes	Yes
Time and Age FE	No	Yes	Yes	Yes
Individual FE	No	No	Yes	Yes
Instrument: Transfer cap	No	No	No	Yes

Standard errors in parentheses

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

Table 4: Business ownership, regression results

The table presents the results from regression specification (9) using the restricted sample. The dependent variable is business ownership, which takes a value of 1 if an individual is self-employed and have at least one additional employee hired in their firm. Columns 1-3 use the (uninstrumented) transfer amount associated with an intra-family sale, expressed in 100,000s of DKK. Column 4 regresses the transfer amount instrumented with the transfer cap $Transfer_{it}^{max}$. Observations: 62,594. Data is obtained from Danish administrative registers (Statistics Denmark).

Outcome: Firm assets (in 1,000)	(1) OLS	(2) OLS	(3) OLS	(4) 2SLS
Transfer (in 100.000)	64.84**	58.18**	55.44**	69.24***
	(19.62)	(20.10)	(17.36)	(19.64)
Intercept	65.49	-5676.9	-2123.7	
	(33.23)	(3561.0)	(1449.5)	
N	2188	2188	2188	2188
R^2	0.050	0.235	0.532	0.031
Individual controls	No	Yes	Yes	Yes
Time and Age FE	No	Yes	Yes	Yes
Individual FE	No	No	Yes	Yes
Instrument: Transfer cap	No	No	No	Yes

Standard errors in parentheses

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

Table 5: Firm assets, regression results

The table presents the results from regression specification (9) using the restricted sample. The dependent variable is total business assets. Columns 1-3 use the (uninstrumented) transfer amount associated with an intra-family sale, expressed in 100,000s of DKK. Column 4 regresses the transfer amount instrumented with the transfer cap $Transfer_{it}^{max}$. Observations: 2,188. Data is obtained from Danish administrative registers (Statistics Denmark).

Outcome: Firm revenues (in 1,000)	(1) OLS	(2) OLS	(3) OLS	(4) 2SLS
Transfer (in 100.000)	46.54***	39.20**	24.82	50.43*
	(12.01)	(12.01)	(14.49)	(25.47)
Intercept	154.8**	-1513.0	-1640.1	
	(56.35)	(1556.6)	(1162.1)	
N	2717	2717	2717	2717
R^2	0.095	0.302	0.793	0.026
Individual controls	No	Yes	Yes	Yes
Time and Age FE	No	Yes	Yes	Yes
Individual FE	No	No	Yes	Yes
Instrument: Transfer cap	No	No	No	Yes

Standard errors in parentheses

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

Table 6: Firm assets, regression results

The table presents the results from regression specification (9) using the restricted sample. The dependent variable is total firm revenues. Columns 1-3 use the (uninstrumented) transfer amount associated with an intra-family sale, expressed in 100,000s of DKK. Column 4 regresses the transfer amount instrumented with the transfer cap $Transfer_{it}^{max}$. Observations: 2,717. Data is obtained from Danish administrative registers (Statistics Denmark).

Outcome: Firm liabilities (in 1,000)	(1) OLS	(2) OLS	(3) OLS	(4) 2SLS
Transfer (in 100.000)	37.00***	33.09**	30.24**	37.97**
	(10.87)	(10.56)	(9.679)	(11.38)
Intercept	33.98*	-2464.4	-633.6	
	(17.07)	(1738.2)	(672.0)	
N	2188	2188	2188	2188
R^2	0.053	0.242	0.517	0.027
Individual controls	No	Yes	Yes	Yes
Time and Age FE	No	Yes	Yes	Yes
Individual FE	No	No	Yes	Yes
Instrument: Transfer cap	No	No	No	Yes

Standard errors in parentheses

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

Table 7: Firm liabilities, regression results

The table presents the results from regression specification (9) using the restricted sample. The dependent variable is total business liabilities. Columns 1-3 use the (uninstrumented) transfer amount associated with an intra-family sale, expressed in 100,000s of DKK. Column 4 regresses the transfer amount instrumented with the transfer cap $Transfer_{it}^{max}$. Observations: 2,188. Data is obtained from Danish administrative registers (Statistics Denmark).

A Online Appendix: Imputing market prices of housing

To impute the market value of housing, I follow the method developed by Andersen et al., 2021. The procedure is summarized as follows.

1. Obtain the transaction price and tax based (public listed) values of housing, as well as information on square meters.
2. Restrict the sample to private transactions, one-family homes, traded no more than twice per year, 25-750 square meters, prices between 100,000 and 25,000,000 DKK, square meter prices between 1,000 and 200,000 DKK.
3. Calculate sales price per square meter and tax value per square meter. Winsorize both at the 2.5th percentile and the 97.5th percentile.
4. Calculate an adjustment factor for each municipality and year by dividing the total sales price per square meter by the total tax values per square meter.
5. Adjust all housing units in within the same municipality using the same adjustment factor

B Online Appendix: Additional Tables and Figures

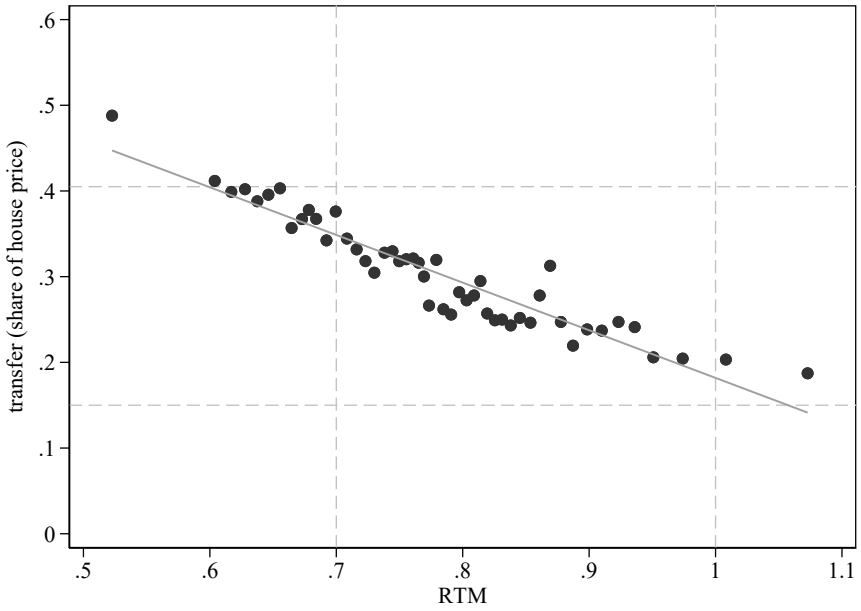


Figure B.14: Empirical illustration of the 15% rule

Notes: The Figure illustrates the empirical relationship between parental transfers tied to intra-family forward sales (normalized by the market price), and the reference-to-market value (RTM).

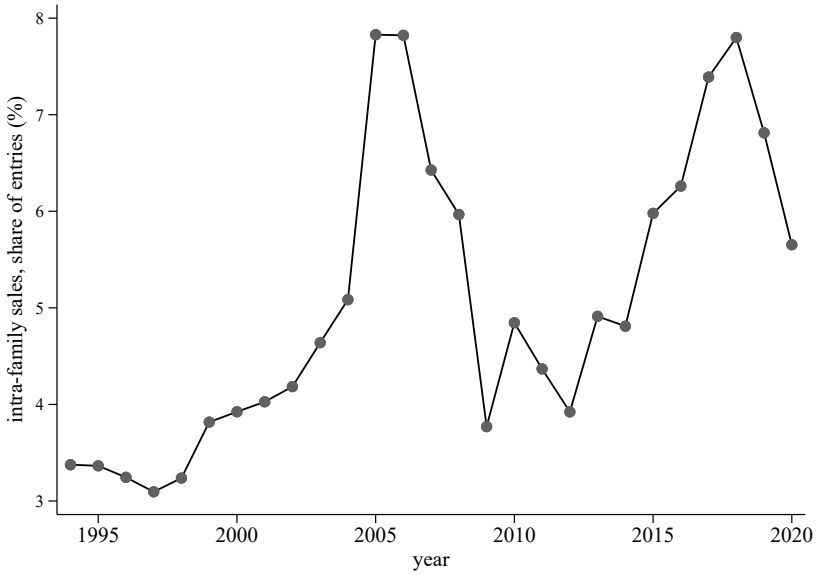
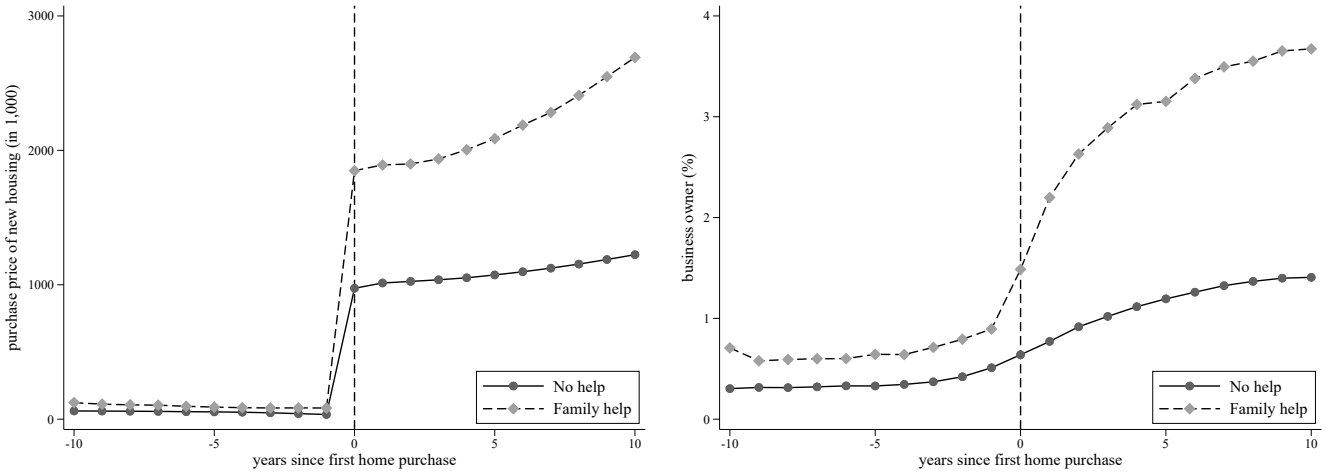


Figure B.15: Intra-family sales (inter vivos wealth transfers) over time

Notes: The Figure shows intra-family forward sales as a share of total housing market entries in the main sample in the time period 1995-2020. Data is obtained from Danish administrative registers (Statistics Denmark).



(a) Housing wealth (b) Business ownership

Figure B.16: Descriptive averages of main variables

Notes: The Figure shows the averages of housing wealth (panel a) and business ownership (panel b) for recipients (Family help) and non-recipients (No help) across event years. Obs: 13,544,123. Data is obtained from Danish administrative registers (Statistics Denmark).

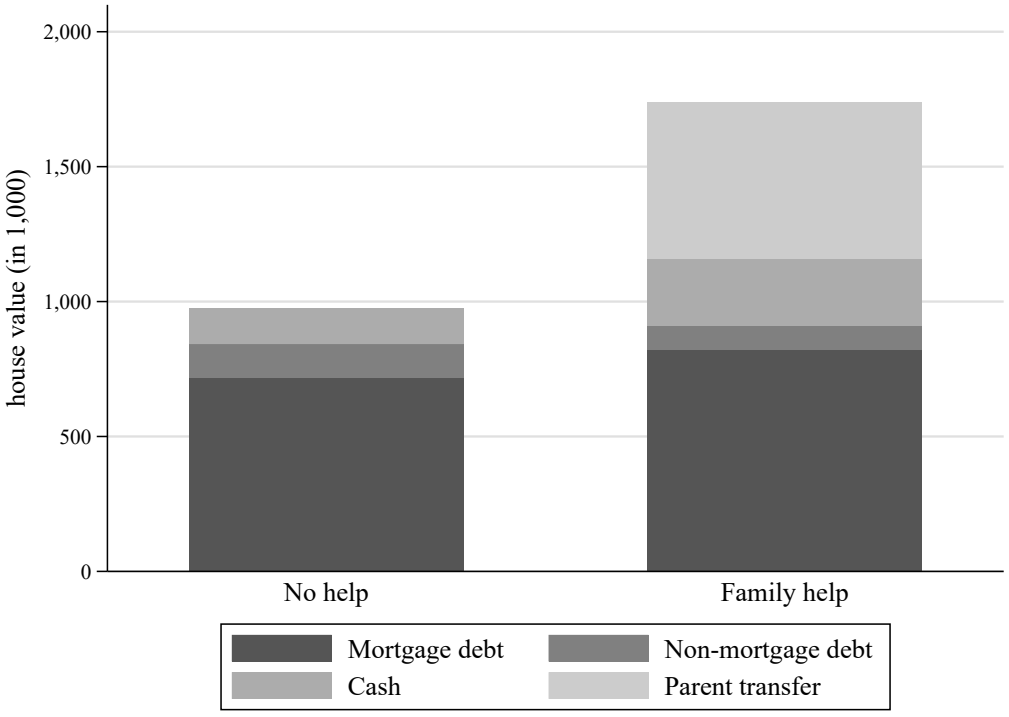
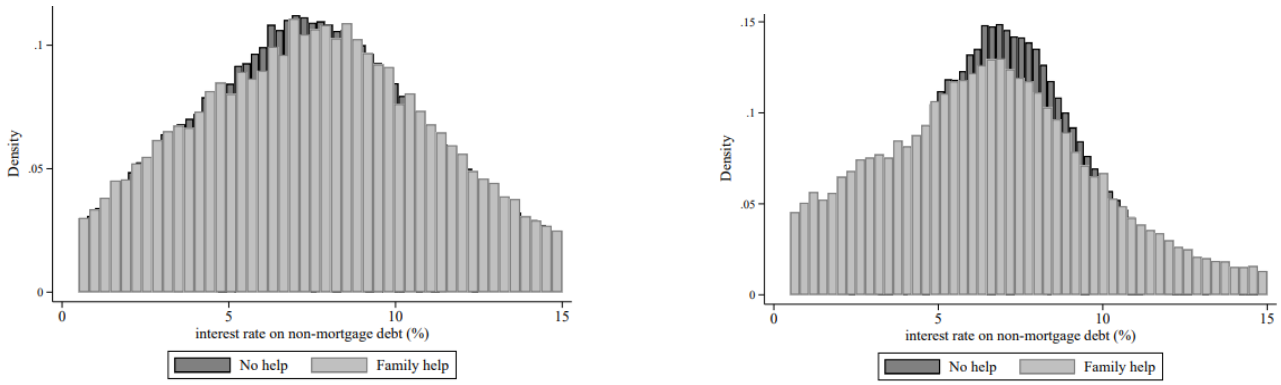


Figure B.17: Financing sources at entry

Notes: The Figure depicts the average house value the year of housing market entry for treated (Family help) and controls (No help), divided into mortgage debt, bank debt (non-mortgage debt), cash and parental transfers. Cash, which reflects the down payment of the unit, is imputed by taking the market price of the purchased unit, subtracting the change in debt at the year of entry. Obs: 13,544,123. Data is obtained from Danish administrative registers (Statistics Denmark).



(a) Before entry

(b) After entry

Figure B.18: Distribution of interest rates before and after entry

Notes: This Figure shows the density histogram for annual interest rates on non-mortgage debt for treated ("Family help") and controls ("No help") respectively. Panel a) shows the distribution of rates prior to housing market entry, in event years $\tau = -10$ to $\tau = -1$. Panel b) shows the distribution of rates after housing market entry, in event years $\tau = +1$ to $\tau = +10$. Individual interest rates are estimated following the method of Kreiner, Leth-Petersen, and Willerslev-Olsen, 2020 as interest rate payments divided by outstanding debt at end of year. Obs: 13,544,123. Data is obtained from Danish administrative registers (Statistics Denmark).

	Housing wealth	Business owner	Firm revenue	Firm assets	Firm liabilities
	(1)	(2)	(3)	(4)	(5)
F-stat	5.84	.13	.85	2.46	2.78
p-value	.00	.99	.528	.031	.012

Table B.8: F-tests for treatment leads, event-study results

Notes: The table presents the results from F-tests of the 5 treatment lead coefficients from Equation (4) with the dependent variable being total housing wealth (column 1), business ownership (column 2), firm revenues (column 3), firm assets (column 4) and firm liabilities (column 5). Obs total: 13,544,123. Obs firm characteristics: 384,008. Data is obtained from Danish administrative registers (Statistics Denmark).

	(1)
	mean
Age	32.82
Female (d)	0.49
Has college degree (d)	0.49
Salary income	299.87
Net wealth	446.61
Housing wealth	1273.02
Financial wealth	173.22
Interest rate (%)	4.81
Debt outstanding	907.09
Business owner (d)	0.01
Revenue firm	621.26
Assets firm	505.23
Liabilities firm	269.61
Parent transfer sum	777.40
Observations	62,594
Nr. individuals	4,244

Table B.9: Summary statistics (Restricted sample)

Notes: The table presents averages of financial and demographic variables for the restricted sample across the 20 [-10:+10] event years. Variables are observed at annual frequency. The sample is limited to ages 18-50 in years 1995-2020. Firm assets and revenues are available 2000-2020. All financial variables are expressed in thousands of DKK and are inflated to 2020 levels. Interest rates are estimated following Kreiner, Leth-Petersen, and Willerslev-Olsen, 2020 as end-of-year aggregate interest rate payments divided by outstanding debt. Obs total: 62,594. Obs firm characteristics: 2,188. Data is obtained from Danish administrative registers (Statistics Denmark).