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Three Essays on Household Finance and Wealth Accumulation

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Abstract

The common thread connecting the three empirical essays of this dissertation is the analysis of household wealth, carried out from three different perspectives: (1) wealth accumulation through inheritance, (2) wealth creation via the use of debt, and (3) investment management among high-net-worth individuals.

The first essay examines the heterogeneous effect of asset-specific shocks to households' wealth and balance sheet composition. Using a panel dataset from the European Central Bank's Household Finance and Consumption Survey (HFCS), it shows that real-asset bequests are the main driver of wealth accumulation, especially in the short term, while financial transfers do not have a corresponding wealth effect. In addition, real assets contribute to increased investments by providing collateral and relaxing credit constraints, and are associated with new income generation from the rental market.

The second essay investigates household borrowing as an active channel of wealth creation. By distinguishing productive from consumptive debt, and applying linear and conditional fixed-effects models to HFCS data, it finds that loans used for real-estate, education, and business investment raise future income and business wealth, highlighting households' entrepreneurial role in the economy.

The third essay shifts the focus to the top of the wealth distribution, studying Family Offices (FOs) as investment vehicles of ultra-wealthy households. Using an original dataset of over 2,800 FO-backed investments, it reveals that FOs differ from independent venture capitalists in their investment strategy, showing a preference for long-term engagement with portfolio firms, greater diversification, and a tendency to support start-ups operating in ESG-related sectors.

Taken together, the three essays provide new empirical analyses related to the literature of household finance, and offer novel interpretations associated with the mechanisms of wealth accumulation in modern economies.

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General Introduction

In recent years, the succession of economic, financial, and pandemic crises has reignited a phenomenon that, at least in advanced economies, had been gradually fading: economic inequality. As noted by [OECD \(2021\)](#), although wealth inequality had been on a secular decline across countries over the long run, this trend has now reversed. In many Western economies, the bottom 50% of the population owns only a single-digit share of national wealth, whereas the top 10% typically holds well over half ([Chancel et al., 2021](#)).

The systematic analysis of this data, and the publication of seminal works such as [Piketty \(2014\)](#), have brought the issues of economic inequality and household wealth to the forefront of academic and policy debate. This dissertation contributes to this discussion through three empirical essays on household finance. While each chapter addresses a distinct research question, the findings shed light on new dynamics of wealth transmission and creation, offering insights that may inform the broader debate on ways to address existing inequalities.

Inheritance and Household Balance Sheet

The first essay, *Inherited Housing, Collateral, and Household Wealth Accumulation*, investigates the composition of inherited transfers and their impact on household wealth accumulation. Whereas previous literature has typically examined inheritances in aggregate, this study is the first to present a heterogeneous analysis with respect to the type and the time since receipt. This distinction is particularly relevant in light of the increasing contribution of inheritance to aggregate private wealth ([Alvaredo et al., 2017](#)). Policies designed to mitigate existing disparities necessarily rely on micro-level analyses revealing the underlying mechanisms of wealth accumulation associated with each inheritance category.

The results show that real-asset transfers are the dominant drivers of household wealth growth, particularly in the short term, whereas financial inheritances are not statistically different from zero. Moreover, receiving real assets is associated with a greater likelihood of owning additional properties than the main residence, and to leverage these properties for additional investments through collateral and rental income generation.

Productive Borrowing and Household Wealth Creation

The second essay, *What Households Borrow For: The Effects of Debt Composition on Business and Income Outcomes*, offers a different perspective on household debt utilization. Whereas the literature has typically focused on the effects of indebtedness on consumption or on macroeconomic stability, this chapter examines the heterogeneous effects of productive borrowing on household finances. Using data from the Household Finance and Consumption Survey (HFCS), the paper identifies loans used for education, real estate investment, business activity, or the purchase of vehicles as productive categories, that is, those having the potential to generate additional wealth. By applying linear and conditional fixed-effects estimation, the essay shows that productive borrowing significantly enhances households' future income and business wealth, revealing a channel of wealth creation that is often obscured by the conventional assimilation of productive and consumption-related debt.

Family Offices and the Reinvestment of Private Capital

The third essay, *From Private Wealth to Patient Capital: Family Offices in Entrepreneurial Finance*, shifts the focus to the upper tail of the wealth distribution. In recent decades, an increasing number of ultra-wealthy families have chosen to manage their assets internally through the establishment of private investment vehicles known as family offices. Despite their growing financial relevance, there remains limited empirical research on their investment activities, primarily due to data scarcity. Using a dataset from Crunchbase, this essay compiles approximately 2,800 family-office-backed startup investments and analyzes their investment strategies in comparison with those of independent venture capitalists.

The analysis reveals a consistent pattern in the behavior of family offices (FOs): they tend to favor smaller, early-stage deals, exhibit lower home bias, and display a distinct preference for sectors linked to environmental and social objectives. While FO-backed firms are less likely to go public, FO involvement is associated with greater success in raising subsequent private funding rounds, consistent with a model of patient capital oriented toward long-term value creation.

Integrating the Three Essays

Taken together, the three essays offer a unique view into the mechanisms of private wealth accumulation. While the first explores how inherited wealth contributes to households' investment decisions across generations, the second reveals how households can actively

leverage available resources to generate additional wealth through productive borrowing. Lastly, the third shows how ultra-wealthy families reinvest their capital through structured, personalized vehicles. By using micro-level evidence from household surveys and novel data on elite investors, this dissertation contributes to the literature on household finance and reconnects it with the study of capital accumulation and distribution.

Chapter 1

Inherited Housing, Collateral, and Household Wealth Accumulation

Abstract

While an unprecedented amount of real estate is expected to be transferred across generations in the near future, the literature on intergenerational transfers has largely overlooked households' differential responses to asset-specific wealth shocks. This perspective becomes particularly relevant in a context where low-wealth households find it increasingly difficult to access homeownership, which historically represents their primary means of wealth accumulation. Unveiling households' responses to the inheritance of properties can help understand the mechanisms underlying the current housing affordability crisis, and help anticipate the consequences of what has been termed the "Great Wealth Transfer".

Using the panel component of the Household Finance and Consumption Survey (HFCS) and fixed-effects models, this paper decomposes inheritances by asset type and time since receipt, and evaluates their effects on changes in households' net wealth and balance sheet composition. The findings reveal that real assets are the main channel of households' wealth accumulation, especially in the short term. In addition, real-assets inheritance is associated with a higher likelihood of owning other properties than the household main residence, which in turn enables new residential investments by relaxing credit constraints through collateral. Moreover, the analysis shows that households exploit the property shock to earn additional income from real estate, with positive returns emerging in the medium-to-long term.

Keywords: Bequests, Household Assets, Wealth, Mortgages, Investment Decisions.

JEL Classification: D14, D31, G51

1.1 Introduction

In most OECD countries, housing represents the largest component of households’ portfolios (Causa et al., 2019), and high homeownership rates have historically been associated with lower overall wealth inequality (Kaas et al., 2015; Pfeffer and Waitkus, 2021; Darvas et al., 2025). However, rising house prices, limited social housing, and stringent regulations are making homeownership increasingly unaffordable for young and low-wealth households (Licchetta et al., 2025). These developments are threatening housing’s equalizing role, and raising concerns about a growing wealth divide between homeowners and renters (Hick et al., 2024; Balestra et al., 2025).

A large body of literature shows that homeownership is associated with higher long-run wealth accumulation relative to renting. For instance, Di et al. (2007) document that homeowners accumulate significantly more wealth than comparable renters, even during periods when alternative investments other than housing performed well and rents grew slowly. Similarly, Turner and Luea (2009) estimate that each additional year of homeownership increases net wealth by approximately \$13,700 on average. Other studies emphasize the role of parental housing wealth in driving children’s homeownership rates. For example, Mulder et al. (2015) show that growing up in a homeowner household significantly increases the likelihood of becoming a homeowner, particularly in contexts where house prices are high. Likewise, Blanden et al. (2023) find a steady rise through time in the intergenerational persistence of homeownership, while Daysal et al. (2023) demonstrate that parental housing wealth gains during childhood have large causal effects on children’s adult wealth.

While these findings suggest that limited access to housing can exacerbate inequality, fewer studies have looked directly at how the asset composition of intergenerational transfers affects household wealth accumulation. This is particularly relevant in a context where property holdings are frequently inherited (Arrondel et al., 2014), and households’ expenditure share on housing across OECD countries hovers around 40% for the bottom income quintile (OECD, 2020).

This paper fills this gap by studying the wealth-generating mechanisms associated with real estate inheritance in four European countries, namely, Belgium, Cyprus, Germany, and Spain. Using data from the ECB’s Household Finance and Consumption Survey (HFCS), I construct a panel dataset from the subset of households observed in all survey waves (2010, 2014, 2017, and 2020), and ask two main questions: *Does inheriting a real asset open new wealth-generating opportunities?* and *How do these effects vary over time?*

To answer these questions, I exploit the detailed information collected in the interviews on the type of assets received at each wave. While the HFCS reports any bequests received during a person’s lifetime, I follow Mathä et al. (2017) and construct a *time-since-receipt* measure that accounts for time heterogeneity, thereby isolating inheritance movements

over time. Moreover, to identify asset-specific effects, I focus on households that inherit only one type of asset during the observation period, allowing for a clean comparison of asset-specific estimates.

The analysis reveals three main insights into household wealth creation. First, inheritances consisting exclusively of financial assets are not associated with subsequent wealth growth, whereas real estate inheritances are positively related to wealth accumulation in the short term. This confirms the importance of property assets in household balance sheets (Wolff, 2016; Wind et al., 2017). Second, households tend to retain the inherited properties and to engage in leveraged borrowing to expand their real estate holdings, consistent with a borrow-to-invest motive, as developed by Crossley et al. (2024), where increased housing equity relaxes credit constraints and facilitates investment (Goodman and Mayer, 2018). Third, inheriting real assets significantly increases the likelihood of receiving rental income, indicating that households seize the positive property shock as an opportunity to generate additional revenue streams. Unlike financial assets, receiving real estate is associated with an increase in the level of rental income in the medium-to-long term.

This paper makes three main contributions. First, it provides the first empirical evidence on the mechanisms through which real estate inheritances affect household wealth accumulation. In doing so, it bridges the literature on intergenerational transfers and housing wealth. While previous studies have focused primarily on the impact of bequests on wealth inequality (Elinder et al., 2018; Keister et al., 2019; Palomino et al., 2022; Horioka, 2024), less consideration has been given to the channels driving these effects. This omission is particularly relevant given that real assets represent the major mechanism of wealth accumulation in most OECD countries (OECD, 2020). At the same time, house price appreciation and increasingly restricted access to homeownership put further pressure on the inheritance-inequality nexus, reinforcing the need for micro-level, disaggregated analyses of inherited assets.

Second, the findings resonate with studies emphasizing the collateral role of housing equity in relaxing credit constraints and shaping household financial decisions (Mian et al., 2013a; Mian and Sufi, 2014; Aladangady, 2017). By interpreting real estate transfers as a positive, quasi-exogenous shock to households' balance sheets, akin to rises in house prices, the analysis highlights households' investment responses rather than consumption alone, contributing a novel perspective to the literature on household finance and wealth accumulation. While heirs may have expectations regarding future transfers based on parental wealth, the economic implications materialize only once ownership rights are transferred. In particular, inherited property can be pledged as collateral or generate rental income only after the transfer occurs, making the realized inheritance event the relevant moment for households' balance sheet adjustments.

Finally, the paper builds on existing HFCS-based studies (see, among others, Korom,

2016; Humer et al., 2017; Fessler and Schürz, 2018; Spiteri and Von Brockdorff, 2023) by providing the first longitudinal analysis of the dataset. By employing linear and logistic fixed-effects models, the analysis removes time-invariant unobserved heterogeneity from the observed outcomes and offers a novel within-household perspective to the inheritance-wealth relationship. At the same time, as no specific panel weights are available, the HFCS panel is best regarded as experimental (Household Finance and Consumption Network, 2023a), and the findings should be interpreted with caution in terms of national representativeness. Nevertheless, the results provide new insights into how inheritances shape households’ balance sheets, and show that what households inherit, and how much, matters at least as much as whether they inherit.

The remainder of the paper is structured as follows. Section 1.2 reviews the related literature and develops the testable hypotheses. Section 1.3 describes the data and empirical strategy. Section 1.4 presents the results, and Section 1.5 concludes with a summary of the findings and main contributions to the literature.

1.2 Literature Review

Intergenerational transfers have become an increasingly important factor in household wealth accumulation in advanced economies. Recent research shows that the share of inherited wealth relative to total wealth has followed a U-shaped trajectory, reversing the low levels seen in the mid-20th century (Piketty and Zucman, 2014). For instance, France, Germany, and the UK saw the ratio drop under 40% around 1970–1980, then increase substantially to about 50–60% of total wealth by 2010 (Alvaredo et al., 2017).

These trends spurred a growing body of research to capture their effect on wealth accumulation, with results varying according to the methodology used. For example, using Norwegian administrative registers, Black et al. (2020, 2024) find that inheritances play only a limited role in lifetime accumulation of resources, as their size is relatively small compared to other sources of wealth. Similarly, Karagiannaki (2017) leverages the British Household Panel Survey to assess their effect on household wealth accumulation and inequality, revealing that inheritances were too small to substantially affect overall wealth inequality, especially compared to housing wealth dynamics. Conversely, Palomino et al. (2022) build a counterfactual wealth distribution across four OECD countries to quantify how much of observed wealth inequality is associated with intergenerational transfers and family background. The authors show that inheritances matter more than family background, and account for up to 36% of overall wealth inequality¹.

As shown by Boserup et al. (2016), the measure used to evaluate wealth inequality can profoundly impact the results of the analysis. By exploiting Danish population and

¹For other studies documenting a negative impact of wealth transfers on wealth inequality, please refer to Feiveson and Sabelhaus (2018); Adermon et al. (2018); Keister et al. (2019); Horioka (2024).

wealth registers, the authors document that average bequest increases recipients' wealth by roughly 36%. In addition, the authors demonstrate that wealth transfers stretch the wealth distribution to the right, as gains are larger in absolute levels toward the top. At the same time, top wealth shares fall, because middle and lower parts of the distribution gain proportionally more relative to their baseline wealth. This finding suggests that bequests increase absolute levels of inequality while decreasing relative inequality, and is confirmed in a number of other studies (Wolff and Gittleman, 2011; Crawford and Hood, 2016; Elinder et al., 2018).

Nevertheless, Nekoei and Seim (2023) show that this effect is short-lived and tends to disappear within about 10 years after the inheritance receipt. The authors argue that, while the average heir depletes most of the inheritance on consumption, richer heirs earn high rates of return on the transfer, fully reversing the equalizing effect. These findings highlight diverging rates of accumulation along the wealth distribution, and are consistently found in other strands of literature (Fagereng et al., 2020; Bach et al., 2020; Xavier, 2021; Balloch and Richers, 2023).

This heterogeneity resonates with the focus of this paper, where the asset composition of inheritance is analyzed to identify micro-mechanisms that lead to compounding rates of wealth accumulation. In this regard, housing assets are especially relevant since they represent more than half of the total assets of households in the middle three quintiles of the wealth distribution (OECD, 2021). In addition, as noted by Ioannides and Ngai (2025), housing can perpetuate inequality by enabling owners to use it as collateral for other investments or to obtain higher returns to human capital investments. This understanding is crucial in a context where real estate holdings are closely tied to intergenerational transmission of wealth (Arrondel et al., 2014), and transfer wealth is more unequally distributed than non-transfer wealth and total wealth (Nolan et al., 2021; Morelli et al., 2021), threatening to widen the gap between asset-rich and asset-poor families.

The positive role of owning a house on wealth accumulation is broadly acknowledged in the literature². For instance, Rognlie (2015) disputes the *accumulation view* of Piketty (2014), according to which the increase of capital's income share in advanced economies is due to higher saving and a shift of aggregate income from workers to those who own capital. Instead, Rognlie supports a *scarcity view* that follows from limited land availability, the inelasticity of housing supply, and tighter regulation. These factors make residential investment more expensive and rents to rise sharply, increasing the housing's share of income and contributing to wealth redistribution from renters to homeowners. Therefore, as argued by Ioannides and Ngai (2025), policymakers concerned about inequality should monitor housing costs.

Several studies show that housing prices have been steadily increasing in recent decades. For instance, Knoll et al. (2017) compiled very long-run housing price indices for 14 ad-

²See, among others, Killewald and Bryan (2016); Fuller et al. (2020); Wainer and Zabel (2020).

vanced economies and found that real house prices were essentially flat until around 1950. After that, prices rose strongly in almost all countries, mostly due to general scarcity of land. Similarly, [Jordà et al. \(2019\)](#) estimate for the first time the long-run returns of housing across 16 advanced economies, and reveal that housing delivers similar average real returns than equities (around 7% per year), but with much less volatility.

In a life-cycle setting with income risk and borrowing constraints, household wealth accumulation is shaped not only by saving behaviour but also by access to collateral and leverage ([Kiyotaki and Moore, 1997](#)). In this respect, housing plays a dual role as both a consumption good and a form of profitable, collateralizable asset. As a result, by expanding the household’s borrowing capacity and investment opportunities, a real-estate inheritance may affect household accumulation differently from liquid transfers, which primarily relax short-run liquidity constraints.

Hypothesis 1: Real asset inheritances contribute more to wealth accumulation than financial asset bequests, due to differential returns and long-term stability.

This assumption rests on the fact that inheriting a property does not merely change household net wealth, but it impacts the overall structure of its balance sheet. Exploiting a quasi-exogenous variation in homeownership status of tenants of a Swedish municipality, [Sodini et al. \(2023\)](#) show that housing increases net wealth by providing collateral and facilitating access to credit. Similarly, [Crossley et al. \(2024\)](#) develop a borrow-to-invest motive in which the authors challenge the traditional narrative that links household borrowing to consumption spending, and argue that house price increases affect net wealth by relaxing credit constraints for additional residential investments. In other studies, housing value appreciation is associated with job growth and entrepreneurial activity, as households leverage the home equity windfall to open their own small businesses ([Black et al., 1996](#); [Adelino et al., 2015](#)).

Following this logic, I interpret property transfers as a sudden, wealth-enhancing shock to households’ balance sheet that improves credit conditions and enables borrowing against collateral, which leads us to the second hypothesis:

Hypothesis 2: Dwelling bequests increase the likelihood that households leverage inherited housing wealth to expand their real estate holdings.

Albeit largely overlooked by the literature on housing and asset-based welfare, secondary property ownership is strongly conducive to new income generation, as households buy (or inherit) property to let. For instance, in countries like Germany, France, Belgium, and others, well over 50% of secondary properties are utilized as rentals, with Germany reporting nearly 80% of second homes being let to tenants or tourists ([Wind et al., 2020](#)). Single family rentals also represent a large chunk of the housing market in the U.S., where they account for around \$2.3 trillion of total assets, and are highly profitable ([Demers and Eisfeldt, 2021](#)). According to the authors’ estimate, rental yields contribute to roughly half of the average nominal total return (net rental yield + house price appreciation),

which stands at about 8.5% per year, and is comparable to equities.

These findings suggest that rational, asset-rich households have an incentive to enter the rental market to generate additional revenue streams and fully exploit the potential of their property holdings:

Hypothesis 3: Receiving a real asset increases the likelihood that households generate rental income, thereby contributing to further wealth accumulation.

Overall, these hypotheses provide the bedrock of the empirical analysis, and are evaluated in the next sections.

1.3 Data and Empirical Method

1.3.1 Data Source

The dataset used for this analysis is the Household Finance and Consumption Survey (HFCS)³, a recurring survey conducted approximately every three years that investigates the consumption patterns and financial decision-making of households across Europe. In most participating countries, the first wave of data collection was conducted between 2010 and 2011. The second wave took place between 2013 and the first half of 2015, followed by the third wave, which was carried out in 2017. The fourth wave was originally scheduled for 2020 but was disrupted by the outbreak of the COVID-19 pandemic. As a result, fieldwork ultimately occurred between the first half of 2020 and the first half of 2022. While the data are centrally coordinated by the European Central Bank (ECB) and rely on a common template for the country questionnaires and output variables, important aspects of survey implementation remain country-specific, and should therefore warrant caution in the cross-country comparability of simple summary statistics (Fessler and Schürz, 2013).

This paper leverages the longitudinal component of the HFCS, that is, households that are consistently interviewed in all four survey waves. This allows the construction of a balanced panel dataset to measure the within-household changes in the outcome variables over time, a first for this dataset. The countries that provide the mentioned panel component are four: Belgium, Cyprus, Germany, and Spain, for a total sample of around 12,000 observations. To mitigate the well-documented under-reporting of assets and the differential unit non-response affecting surveys, particularly at the top of the wealth distribution (Tiefensee and Grabka, 2016; Vermeulen, 2016), each country implemented ad hoc imputation methods and oversampling strategies that led to diverging sample composition. For instance, while Belgium and Germany used regional indicators to map households with a bigger income dispersion and a higher taxable income, respectively, Spain leveraged per-

³European Central Bank: Household Finance and Consumption Survey (HFCS). https://www.ecb.europa.eu/stats/ecb_surveys/hfcs/html/index.en.html. Accessed 02 March 2025

sonal taxable wealth to progressively oversample households based on wealth and income tax returns. In contrast, Cyprus applied a fixed oversampling rate by taking the top 10% of the distribution of annual domestic electricity consumption as a proxy for wealth (Household Finance and Consumption Network, 2023b). These strategies, although at different country rates, effectively captured a sizable share of wealthy respondents, which is also reflected in the composition of this panel dataset.

Figure 1.1 shows the distribution of households by wealth quintile across countries. The fifth and wealthiest quintile is consistently the longest bar across all countries, with percentages varying according to the measure of oversampling adopted. This suggests that, unlike other survey studies where the rich population tends to be under-represented (Waltl and Chakraborty, 2022), this sample is skewed toward the upper tail of the wealth distribution.

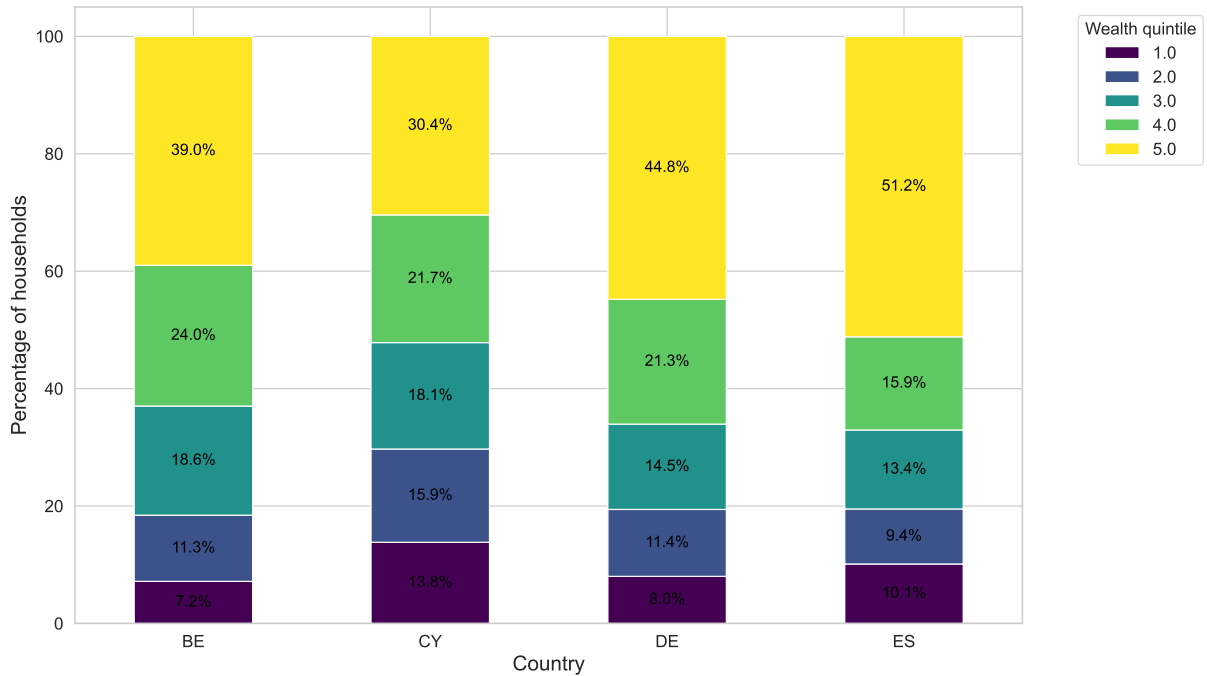


Figure 1.1: Households' Wealth Quintiles, by Country

While the HFCS provides cross-sectional weights to address this distributional unbalance, no dedicated panel weights are available, and, as such, the analysis is best considered experimental and not intended to be nationally representative (Household Finance and Consumption Network, 2023a). Instead, by employing fixed-effects models, the empirical strategy relies on within-household variation, which mitigates concerns related to the over-representation of wealthy households in the balanced panel, as identification does not depend on cross-sectional differences in wealth levels. Therefore, the results are best interpreted as evidence on wealth-generating mechanisms among households that experience intergenerational transfers, rather than as estimates of aggregate effects.

1.3.2 Inheritances and Gifts

As mentioned earlier in the text, one of the distinguishing features of the HFCS is the collection of the specific asset types received at each wave. In the questionnaires, bequests are defined as any substantial gift or inheritance received by a member of the household from someone outside the current household⁴. In addition, the interviewers record information about the net-of-tax value and receipt year of the three largest inheritances *ever* received by the household. As such, households can report transfers that have occurred many years prior to the interview. To account for this timing component, I adopt a similar strategy to Mathä et al. (2017), and identify the most recent inheritance event reported at each wave. Then, I subtract it from the interview year to obtain the number of years elapsed since receipt, and create three timing categories: (1) inheritances received 0 to 2 years since the interview, (2) inheritances received since between 3 and 7 years, and (3) transfers received 8 or more years prior to the interview. This strategy successfully isolates within-household changes in inheritance receipt between consecutive interviews, enabling the evaluation of immediate responses to a recent movement in transfer wealth by comparing it with non-inheritors and inheritances accumulated during a lifetime (Spiteri and Von Brockdorff, 2023).

In addition, to evaluate the impact of property transfers on households' financial decisions, I adopt the categorization provided by the European Central Bank (2023) to group asset specific inheritances into real and financial assets. Specifically, the HFCS collects ten types of transfers: (1) money, (2) dwelling, (3) dwelling use⁵, (4) land, (5) business, (6) securities & shares, (7) valuables, (8) life insurance, (9) vehicles, and (10) other assets. Among them, money, securities & shares, and life insurance make up the *financial assets* category, while the remaining bequests are grouped as *real assets*.

Figure 1.2 shows the percentage of households included in the panel that have inherited at least once. A few things are noteworthy: first, for Belgium and Spain, nearly three quarters of households have received at least one bequest during their lifetime, while Germany and Cyprus display lower values, at 57.1% and 50.8%, respectively. Due to the greater representation of the wealthy population in the sample, these figures are naturally higher than those found in other studies (Tiefensee and Westermeier, 2016; OECD, 2021). At the same time, the higher frequency of the inheritance events observed in the panel ensures sufficient within-household variation in the empirical analysis, hence resulting in fewer dropped units. For instance, as indicated by the white diamond on each bar, almost one in two families in Belgium and Spain receives a transfer at any given wave, whereas the figure is closer to one in four in Germany and Cyprus.

⁴For the purpose of this study, inheritances and gifts will be treated interchangeably.

⁵*Dwelling* refers to the transfer of ownership rights over a residential property. By contrast, the category *dwelling use* refers to the transfer of usufruct or similar rights granting the beneficiary the right to occupy or benefit from the property without transferring ownership.

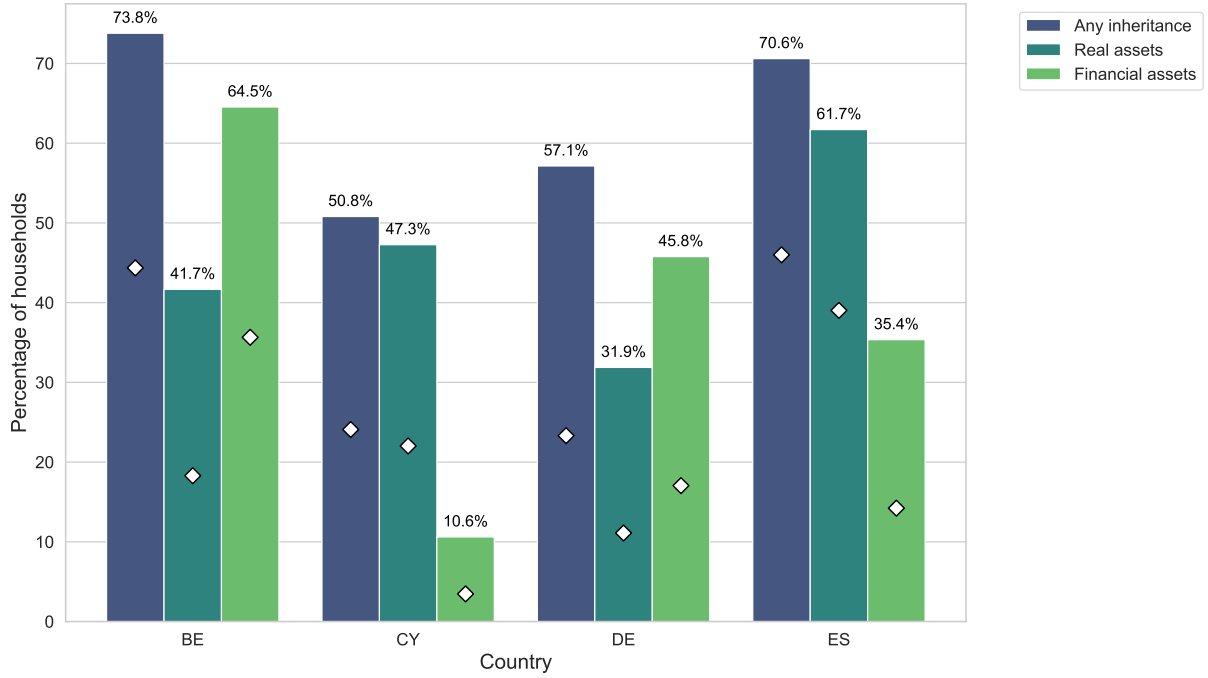


Figure 1.2: Bars report the percentage of households that ever received an inheritance of a given asset type during the observation period. White diamonds indicate the percentage of households that received an inheritance in a given survey wave.

In addition, the asset composition of the inheritance varies widely across countries. While real assets dominate the transfer distribution in Cyprus and Spain, they only account for slightly more than half of the transfers in Belgium and Germany. In contrast, financial bequests are very common in Belgium and Germany, with around 65% of households declaring to have received them at least once in Belgium and roughly 47% in Germany, whereas they represent only a small portion of inheritance in Cyprus (10.6%), and, to a lesser extent, in Spain (35.4%).

When looking at the single inherited assets, dwellings and money are the most frequently observed events overall, having been received at least once by slightly more than one third of households each. Land follows closely behind, with around 23.5% of households having inherited it at least once, while the other assets are observed less often, ranging from about 6% for securities and shares to less than 1% of households for vehicles and life insurance. Figure A.1 in Appendix A shows the cross-country distribution of the three most common bequests: dwellings, land, and money.

Finally, to examine how the value of each inherited asset impacts households' wealth decisions, I identify households that reported receiving only one type of asset across the entire observation period. This restriction ensures that the recorded transfer value can be attributed solely to that specific asset type, revealing novel insights into households' investment responses based on the asset received. Table 1.1 shows detailed summary statistics of each asset category among inheriting households. While focusing on house-

holds inheriting a single asset type enhances interpretability of asset-specific effects, it reduces the sample at the cost of external validity, which is mitigated through complementary specifications using total inheritance.

Table 1.1: Inheritance Value and Timing Distribution by Asset Type

Asset type	Inheritance value among recipients (>0)					Timing composition (%)		
	Obs.	Mean (all >0)	0–2 years	3–7 years	8+ years	0–2 years	3–7 years	8+ years
Total inheritance	3,682	269,354	419,074	192,009	233,561	24.8	24.7	50.5
Real assets only	1,345	211,885	207,344	241,908	201,972	14.6	23.0	62.5
Financial assets only	777	50,971	45,947	47,977	57,890	36.1	26.3	37.6
Dwellings only	348	123,830	138,585	137,666	111,658	21.9	24.2	53.9
Land only	245	117,194	192,415	139,748	102,157	8.8	18.8	72.4
Money only	699	43,557	30,508	43,300	56,436	36.8	25.5	37.7

Notes: Means are computed for the most recent observations (by receipt year) with positive inheritance value. Asset-specific rows further restrict to households inheriting only one type of asset.

1.3.3 Empirical Methodology

To test the validity of the hypotheses stated in the previous sections, I start by evaluating the impact of the total amount of inheritance on two measures of household wealth accumulation: (1) changes in net wealth levels between consecutive survey waves, and (2) changes in a household’s relative position within the national wealth distribution. In the HFCS, net wealth is defined as total household assets excluding public and occupational pension wealth, minus total outstanding household liabilities, and its change in levels between consecutive waves is given by:

$$\Delta \text{Levels}_{i,t} = \text{Net Wealth}_{i,t} - \text{Net Wealth}_{i,t-1}, \quad (1.1)$$

where i denotes the household and t the survey wave.

The second measure of wealth accumulation is captured by the households’ rank in the national wealth distribution. The ranks are normalized into percentile scores on a 0–100 scale, such that the wealthiest household approaches 100 and the least wealthy approaches 0. The change in these percentile ranks between waves provides the second dependent variable:

$$\Delta \text{Rank}_{i,t} = \text{Wealth Percentile}_{i,t} - \text{Wealth Percentile}_{i,t-1}. \quad (1.2)$$

This measure accounts for differences in sample size across countries and waves, and reflects shifts in households’ relative position in the wealth distribution. Focusing on two metrics of wealth *change* in the analysis addresses the possibility that the effects are driven by richer households inheriting assets of greater value (Spiteri and Von Brockdorff, 2023), and provides robustness checks across specifications. In addition, Wooldridge tests for autocorrelation in panel data indicate that first-order serial correlation may be present in

some specifications, and a Hausman specification test strongly rejects the null hypothesis that the random-effects estimator is consistent, suggesting that unobserved household heterogeneity is correlated with the regressors. Accordingly, standard errors clustered at the household level are reported throughout the analysis, and the empirical specifications are estimated using household fixed effects, as shown in Equation 1.3:

$$Y_{it} = \beta_1 \text{Inh}_{it} + \beta_2 [\text{Inh}_{it} \times A_{it}] + \mathbf{X}'_{it}\gamma + \alpha_i + \lambda_t + \varepsilon_{it}, \quad (1.3)$$

where Y_{it} is one of the two measures of net wealth change for household i at time t . The variable Inh_{it} captures inheritance exposure and is measured in two alternative ways. In one specification, it is defined as the cumulative value of inheritances received, capturing variation in the intensive margin of inherited wealth. In other specifications, Inh_{it} is defined as a binary indicator equal to one if the household reports having received an inheritance by time t , capturing the extensive margin of inheritance receipt.

Following [Pence \(2006\)](#), all monetary variables are transformed using the Inverse Hyperbolic Sine (IHS) function because, unlike the logarithmic transformation, the IHS can handle zero and negative values without requiring data truncation, and has become standard practice in the wealth literature ([Causa et al., 2019](#)). For large values, the IHS behaves similarly to the logarithmic transformation, allowing coefficients to be interpreted approximately as elasticities, while remaining closer to a linear transformation for small values ([Burbidge et al., 1988](#)). One limitation of the IHS transformation is that when the share of zero observations is large, estimated coefficients combine changes along both the extensive margin (whether the variable is zero or positive) and the intensive margin (variation among positive values), which may complicate interpretation ([Bellemare and Wichman, 2020](#)). Nevertheless, the IHS transformation allows the full distribution of wealth and inheritance to be retained without imposing arbitrary adjustments for zero or negative values.

The coefficient of interest β_1 captures within-household changes in inheritance exposure over a lifetime rather than a pure contemporaneous shock. Therefore, it represents the reference model, whose estimates are assessed against models that include receipt-year indicators, to evaluate the extent to which the effects are driven by differential time response. In addition, $\beta_1 + \beta_2$ represents the effect for individuals with $A_{it} = 1$, where $A_{it} \in \{\text{Real Asset}_{it}, \text{Financial Asset}_{it}\}$, depending on the specification, and $A_{it} = 0$ in the baseline specification.

The control vector $\mathbf{X}'_{i,t}$ comprises financial and demographic covariates as traditionally found in the household wealth literature, such as age, age squared, household size, gender, labor status, education, marital status, household income, and household wealth quintile in the country wealth distribution. In addition, α_i are household fixed effects, which absorb unobserved, time-invariant heterogeneity, and λ_t account for time fixed effects,

that is, macroeconomic shocks common to all households. Lastly, $\varepsilon_{i,t}$ denotes the residual.

The timing component is then introduced in Equation 1.4. While the timing of the inheritance event is plausibly exogenous, as it is largely driven by family deaths or arbitrary transfers (Spiteri and Von Brockdorff, 2023), the inclusion of household fixed effects and common time shocks further mitigates concerns related to unobserved heterogeneity and macroeconomic conditions coinciding with receipt. Therefore, $\widetilde{\text{Inh}}_{it}$ calculates the inheritance effect of the most recent transfers only, effectively isolating heterogeneous wealth responses to inheritance shocks between consecutive interviews. In particular, the coefficient β_b identifies the effect for households whose inheritance falls in timing category b , where $b \in \{0-2, 3-7, 8+\}$ years since receipt, while A indexes the asset dimension of the specification (total inheritance, real assets, or financial assets).

$$Y_{it} = \sum_b \beta_b^{(A)} \left[\widetilde{\text{Inh}}_{it} \times \mathbb{1}\{\text{Time}_{it}^{(A)} = b\} \right] + \mathbf{X}_{it}'\gamma + \alpha_i + \lambda_t + \varepsilon_{it}. \quad (1.4)$$

In addition, to evaluate how bequests affect households' investment decisions, I estimate conditional fixed-effects logistic regressions on a number of I_{it} outcomes, where I_{it} takes the form of binary indicators capturing (1) ownership of other properties, (2) mortgages using other properties as collateral, and (3) rental income receipt. Consequently, the model relies on households that change outcome status over time and ensures robustness to time-invariant unobserved heterogeneity.

In Equation 1.5, Inh_{it} corresponds to one of the two inheritance specifications, and does not account for years since receipt. As such, it corresponds to the reference model of balance sheet exposure to a lifetime of accumulated transfers.

$$\Pr(I_{it} = 1 \mid \mathbf{X}_{it}) = \Lambda\left(\alpha_i + \beta_1 \text{Inh}_{it}^{(a)} + \mathbf{X}_{it}'\gamma + \lambda_t\right). \quad (1.5)$$

Moreover, the model examines different samples based on a , where $a \in \{\text{Total Inheritance, Real Asset, Financial Asset, Dwelling, Land, Money}\}$. Specifically, to highlight the effect of each inherited asset type, I restrict the sample to households that inherit only one kind of asset during the entire observation period, thereby isolating the investment responses associated with each inherited asset a . While this restriction might undermine the external validity of the results, it represents a complementary analysis to the total inheritance specification, and provides novel insights into households' investment responses to asset-specific bequest.

Equation 1.6 replicates the same model, while including the time component b :

$$\Pr(I_{it} = 1 \mid \mathbf{X}_{it}) = \Lambda\left(\alpha_i + \sum_b \theta_b^{(a)} \widetilde{\text{Inh}}_{it}^{(a)} \mathbb{1}\{\text{Time}_{it} = b\} + \mathbf{X}_{it}'\gamma + \lambda_t\right). \quad (1.6)$$

To complement these extensive-margin outcomes, I also examine the intensive margin

of households' real estate investment behavior by estimating linear fixed-effects models for two continuous outcomes: the IHS-transformed outstanding balance of mortgages collateralized by other properties and used to finance additional real estate purchases, and the IHS-transformed value of gross rental income from real estate property. These estimations provide additional evidence on the extent to which inheritance affects the scale, rather than only the incidence, of investment activity, and therefore complement the extensive-margin responses identified in the logistic regressions.

$$R_{it} = \beta_1^{(a)} \text{Inh}_{it}^{(a)} + \mathbf{Z}'_{it} \delta + \alpha_i + \lambda_t + \varepsilon_{it}. \quad (1.7)$$

In this setting, R_{it} denotes either the IHS-transformed outstanding balance of mortgages used to finance additional real estate purchases or the IHS-transformed value of gross rental income. The corresponding control vector $\mathbf{Z}'_{i,t}$ includes the same baseline demographics as $\mathbf{X}'_{i,t}$, with adjustments reflecting the household income control. As before, (1.7) serves as the reference model measured without the years-since-receipt indicator, which is then included in Equation 1.8:

$$R_{it} = \sum_b \beta_b^{(a)} \widetilde{\text{Inh}}_{it}^{(a)} \mathbb{1}\{\text{Time}_{it} = b\} + \mathbf{Z}'_{it} \delta + \alpha_i + \lambda_t + \varepsilon_{it}. \quad (1.8)$$

1.3.4 Descriptive Statistics

In choosing the set of control variables to be included in the regressions, I follow standard economic reasoning and practices in the household wealth literature (Killewald and Bryan, 2016; Karagiannaki, 2017; Goodman and Mayer, 2018). Table 1.2 presents summary statistics for the variables used in the analysis. To mitigate the impact of item non-response, the monetary values are multiply imputed using Rubin's rules (Rubin, 1987), inferring their imputed value from a set of observable variables that yield five complete datasets.

While household net wealth represents the dependent variable of model (1.3) and (1.4), three binary variables are used as regressand in the fixed-effects logistic models (1.5) and (1.6). In particular, *Owns Other Property* is equal to 1 if the household possesses any properties other than the Household Main Residence (HMR), including real estate outside the survey country, and is used to evaluate the heterogeneous effects of asset-specific inheritances on households' balance sheet composition. Moreover, these other properties can be leveraged to open new credit channels, as captured by *Mortgage on Other Property*, which reports whether the household has, at the time of the interview, any outstanding mortgages or loans using other property as collateral. Furthermore, the HFCS collects information on households using mortgages on other property to purchase additional real estate, and their outstanding balance is captured in *Mortgage Outstanding Balance*. Together, these variables test the validity of *Hypothesis 2*, according to which

receiving a real asset is equivalent to an increase in house prices, that relaxes credit constraints and enables new property investments.

Table 1.2: Descriptive Statistics

Variables	Obs.	Mean	SE	Min	Max
<i>Dependent variables</i>					
Net Wealth (€)	11,932	1.10m	68.20k	-57.3m	355.0m
Owns Other Property	11,932	0.46	0.0046	0	1
Mortgage for Additional Real Estate	11,932	0.04	0.0018	0	1
Mortgage Outstanding Balance (€)	11,932	6.67k	0.60k	0	2.81m
Receives Rental Income	11,932	0.22	0.0038	0	1
Gross Rental Income (€)	11,932	3.92k	0.17k	0	650.0k
<i>Controls</i>					
Total Gross Income, Equalized (€)	11,932	40.3k	0.76k	-965.0k	5.03m
Wealth Quintile	11,932	3.75	0.013	1	5
Nr. Household Members	11,932	2.62	0.012	1	10
Age	11,932	57.79	0.132	19	100
Age Squared	11,932	3.54k	15.141	361	10.0k
Married	11,732	0.69	0.004	0	1
Tertiary Education	11,700	0.48	0.004	0	1
Female	11,736	0.29	0.004	0	1
Employed	11,922	0.57	0.004	0	1

Notes: Means and standard errors are obtained from five multiply imputed datasets using Rubin's rules. Binary variables take value 1 if the condition is satisfied and 0 otherwise. Monetary values are reported in euros.

Finally, two measures of *Rental Income* assess the soundness of *Hypothesis 3*, which states that rational households exploit the sudden property shock to generate additional revenue streams by renting their real estate. The impact is evaluated both on the extensive margin, through the dummy variable that identifies the inheritance effect on market entrance, as well as on the intensive margin, via the continuous value of gross rental income.

The estimates control for a number of economic confounders, such as the total gross annual household income, which is equalized by the number of economically active members in the household. The latter is constructed by summing several revenue streams that might influence wealth accumulation, such as labor wage, income from financial assets and pensions, regular social and private transfers, rental income from real estate, and other sources of income. For the purpose of models (1.7) and (1.8), total income control is net of rental earnings, so as to avoid misspecification.

In addition, dummies for the country wealth quintile, among households, serve as a proxy for initial wealth, and ensure that the inheritance effect is not inflated by factors such as differing saving behaviors or the receipt of larger transfers. The fifth quintile represents the richest part of the population, while the first the poorest.

The models also control for several demographic covariates known for being associated with wealth and financial outcomes, such as household size, age, age squared, education,

gender, marital status, and labor status (Fessler and Schürz, 2018; Spiteri and Von Brockdorff, 2023). Following the UNECE (2011) guidelines, these are defined according to the household reference person’s responses, and may therefore vary over time⁶. Table A.1 reports the HFCS survey items and definitions for the variables used.

1.4 Estimation Results

This section introduces the results of the models outlined above. Specifically, Section 1.4.1 shows that real-assets inheritance is the primary contributor to wealth accumulation in the short term, whereas receiving financial assets does not significantly improve households’ financial conditions at any time point. In addition, Section 1.4.2 evaluates households’ investment responses to asset-specific inheritances, demonstrating that inheritors of real assets are significantly more likely to hold additional properties other than the HMR, and to leverage these properties as collateral for new investments. Finally, Section 1.4.3 reveals that receiving real assets has an immediate and persistent impact on the likelihood of earning income from the rental market, with increasing returns especially found in the long term.

1.4.1 Wealth Accumulation

Table 1.3 provides the results of the models on households’ net wealth change. *Inheritance receipt* is the binary variable indicating whether the household has received an inheritance, and captures the extensive-margin effect of inheritance on the outcome. *Inheritance value* is the IHS-transformed amount of transfers received during the household’s lifetime and measures the intensive margin of inheritance exposure. Accordingly, the first two rows capture wealth exposure to inheritance rather than a sudden shock between successive survey waves. Since the monetary amounts of both inheritance and wealth are IHS-transformed variables, the specifications behave similarly to a log-log model for large values, allowing coefficients to be interpreted approximately as elasticities, while remaining closer to a linear relationship for small values (Burbidge et al., 1988).

The estimates show that measuring inheritance in its aggregate form does not reveal significant wealth effects, as reported in the first two rows of columns 1 and 4. Across the baseline specifications, the coefficients remain statistically insignificant for both inheritance measures, suggesting that receiving a transfer does not generate measurable improvements in household wealth accumulation. These findings are consistent with the

⁶The reference person is uniquely determined by applying the following sequential criteria: first, a partner in a de facto or registered marriage with dependent children; then, a partner in such a union without dependent children; next, a lone parent with children; if none of these apply, the person with the highest income; and finally, the oldest individual in the household.

results of Black et al. (2020, 2024), who argue that other sources of wealth play a more important role than inheritance in shaping wealth accumulation over the life cycle.

Table 1.3: Inheritance Type, Timing, and Wealth Accumulation

	Δ Wealth Levels			Δ Wealth Rank		
	Total (1)	Real Assets (2)	Financial Assets (3)	Total (4)	Real Assets (5)	Financial Assets (6)
Inheritance receipt						
<i>Extensive margin</i>	0.123 (0.484)	0.553 (0.599)	−0.501 (0.558)	0.342 (0.521)	1.130* (0.651)	−0.192 (0.597)
Inheritance value						
<i>Intensive margin</i>	0.030 (0.044)	0.065 (0.052)	−0.034 (0.051)	0.057 (0.046)	0.113** (0.056)	0.014 (0.053)
Observations	8,622	8,622	8,622	8,622	8,622	8,622
Timing since receipt						
<i>Extensive margin</i>						
0–2 years	0.951 (0.586)	1.413* (0.805)	0.108 (0.685)	1.138 (0.743)	2.256** (1.044)	0.698 (0.832)
3–7 years	0.023 (0.827)	0.233 (1.054)	0.566 (0.921)	−0.451 (0.799)	0.047 (1.017)	−0.167 (0.909)
8+ years	−0.596 (0.660)	0.167 (0.755)	−2.028** (0.981)	0.011 (0.725)	0.874 (0.851)	−1.299 (0.875)
Observations	8,613	8,617	8,618	8,613	8,617	8,618
<i>Intensive margin</i>						
0–2 years	0.098* (0.052)	0.123* (0.057)	0.025 (0.063)	0.120* (0.069)	0.190** (0.087)	0.095 (0.075)
3–7 years	0.020 (0.052)	0.041 (0.087)	0.064 (0.081)	−0.017 (0.069)	0.021 (0.083)	0.014 (0.078)
8+ years	−0.031 (0.061)	0.035 (0.067)	−0.167* (0.092)	0.027 (0.063)	0.092 (0.073)	−0.079 (0.077)
Observations	8,608	8,608	8,608	8,608	8,608	8,608
Household controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: The table reports household fixed-effects estimates of the effect of inheritance receipt and inheritance value on wealth outcomes. The first block reports extensive-margin effects of receiving an inheritance, while the second block reports intensive-margin effects of inheritance value. The timing specifications allow the effects to vary by time elapsed since receipt (0–2, 3–7, and 8+ years). Estimation is performed using multiple imputation across five complete datasets. Standard errors clustered at the household level are reported in parentheses.

Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

However, the interaction with the real-assets inheritance indicator reveals statistically significant effects on households’ relative position in the wealth distribution. Specifically, receiving a real asset is associated with climbing 1.13 percentile points in the national wealth distribution, with increasing returns from larger inheritance amount. This result suggests that real-asset inheritances, such as housing or land, provide stronger leverage for upward wealth mobility than financial transfers.

Allowing the inheritance effect to vary by time since receipt reveals additional heterogeneity. The estimates indicate that the impact of inheritance is largely concentrated in

the short term. In the extensive-margin specification, households that receive real-asset inheritances experience a short-run increase in both wealth measures within the first two years following receipt. However, these effects fade over time and become statistically insignificant in later periods.

A similar pattern emerges for the intensive margin. Increases in the value of inheritance received are associated with higher wealth growth and improvements in wealth rank primarily within the first two years after receipt, again driven mainly by real-asset transfers. In contrast, financial inheritances do not appear to generate significant changes in either wealth levels or relative wealth position. The absence of significant effects in the medium and long term suggests that the contribution of inheritance to wealth accumulation is largely transitory rather than persistent.

The following sections examine the channels through which households can convert these transfers into longer-term investment strategies and potential mechanisms of wealth accumulation.

1.4.2 Balance Sheet Composition

The central argument of this paper is that receiving real assets affects not only households' net wealth but also the composition of their balance sheets, thereby facilitating access to credit and expanding investment opportunities. In this regard, Table 1.4 reports conditional fixed-effects logit estimates for the likelihood of owning at least one property other than the HMR, distinguishing effects by asset type and years since receipt. To capture lifetime exposure to transfers, the *No timing* column measures inheritance without distinguishing the timing of receipt, whereas the remaining columns allow effects to vary with years elapsed since receipt. The results are reported in odds ratios. Coefficients greater than 1 indicate a positive relationship, while those lower than 1 indicate a negative relationship.

Overall, receiving any type of inheritance significantly increases households' odds of owning additional properties, with the effect being persistent even for inheritances received more than 8 years before the interview. In particular, having received an inheritance 8+ years ago increases the odds of owning other properties about 3.7 times compared to households that have not received any, and these odds increase with inheritance value.

Table 1.4: Inheritance Type, Timing, and Ownership of Other Property

	Ownership of other property (FE logit)			
	No timing	0–2 years	3–7 years	8+ years
Panel A: Total inheritance				
<i>Extensive margin</i>	3.308*** (0.382)	2.777*** (0.491)	3.561*** (0.609)	3.690*** (0.588)
<i>Intensive margin</i>	1.111*** (0.011)	1.100*** (0.017)	1.116*** (0.016)	1.122*** (0.016)
Observations	3,534	3,531	3,531	3,531
Panel B: Real Assets				
<i>Extensive margin</i>	10.944*** (2.667)	21.855*** (8.992)	9.457*** (3.290)	10.215*** (3.572)
<i>Intensive margin</i>	1.222*** (0.026)	1.317*** (0.046)	1.203*** (0.037)	1.214*** (0.038)
Observations	2,129	2,127	2,127	2,127
Panel C: Financial Assets				
<i>Extensive margin</i>	1.302 (0.290)	0.786 (0.265)	2.143** (0.791)	1.593 (0.499)
<i>Intensive margin</i>	1.026 (0.020)	0.980 (0.030)	1.075** (0.037)	1.048 (0.030)
Observations	1,670	1,669	1,669	1,669
Household controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes	Yes	Yes

Notes: The dependent variable is an indicator for owning at least one property other than the household main residence. All columns report odds ratios from conditional fixed-effects logistic regressions with standard errors clustered at the household level in parentheses. The *extensive margin* captures the effect of receiving an inheritance, measured by a binary indicator for inheritance receipt. The *intensive margin* captures the effect of inheritance size, measured by the inverse hyperbolic sine transformation of inheritance value. Timing specifications allow the effects of inheritance to vary by the time elapsed since receipt (0–2, 3–7, and 8+ years). Identification relies on within-household variation over time. Estimation is performed using multiple imputation across five complete datasets.

Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Although financial assets do show some significant effect 3 to 7 years after receipt, the main driver of this pattern is real-asset inheritance, whose largest magnitude is found in the years immediately following the receipt, where the odds of owning other properties are about 21.8 times higher compared to those that have not inherited a real asset. As the argument of this paper goes, households might exploit these additional properties as leverage for new investments. This relationship is captured in Table 1.5, where the dependent variable takes value 1 if the household uses other properties than HMR as collateral for any mortgage or loan.

The results of the model without the time indicator reveal that inherited-wealth exposure is positively and significantly associated with the likelihood of having an outstanding mortgage using other properties as collateral. This pattern holds for both total inheritance and real assets, validating the hypothesis according to which receiving real estate improves households' balance sheets by relaxing credit constraints and opening new wealth-generating channels.

Furthermore, accounting for the years since receipt uncovers additional insights. Specifically, the effect in the 0–2 years category is exclusively significant in Panel B, where inheriting a real asset increases the odds of having a mortgage using other properties as collateral by 2.10 times, suggesting that households are quick at capitalizing the property windfall into collateralized investments. The results hold over time, and increase with the amount of the inheritance received. While financial assets do not show significant results in most specifications, their effect becomes statistically significant in the medium-to-long term, indicating that households need more time to accumulate additional capital for investments when inheriting liquid assets.

Table 1.5: Inheritance Type, Timing, and Mortgages on Other Property

	Mortgage on other property (FE logit)			
	No timing	0–2 years	3–7 years	8+ years
Panel A: Total inheritance				
<i>Extensive margin</i>	1.579*** (0.217)	1.216 (0.232)	2.136*** (0.442)	1.564** (0.281)
<i>Intensive margin</i>	1.039*** (0.012)	1.017 (0.016)	1.064*** (0.018)	1.037** (0.016)
Observations	2,087	2,083	2,083	2,083
Panel B: Real Assets				
<i>Extensive margin</i>	2.362*** (0.486)	2.110** (0.744)	2.300*** (0.975)	2.190*** (0.516)
<i>Intensive margin</i>	1.070*** (0.018)	1.062** (0.030)	1.090*** (0.030)	1.062*** (0.020)
Observations	1,306	1,302	1,302	1,302
Panel C: Financial Assets				
<i>Extensive margin</i>	1.122 (0.333)	0.697 (0.306)	2.329* (1.080)	1.239 (0.613)
<i>Intensive margin</i>	1.013 (0.026)	0.967 (0.039)	1.083* (0.045)	1.024 (0.044)
Observations	884	884	884	884
Household controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes	Yes	Yes

Notes: The dependent variable is an indicator for holding a mortgage using other properties as collateral. All columns report odds ratios from conditional fixed-effects logistic regressions with standard errors clustered at the household level in parentheses. The *extensive margin* captures the effect of receiving an inheritance, measured by a binary indicator for inheritance receipt. The *intensive margin* captures the effect of inheritance size, measured by the inverse hyperbolic sine transformation of inheritance value. Timing specifications allow the effects of inheritance to vary by the time elapsed since receipt (0–2, 3–7, and 8+ years). Identification relies on within-household variation over time. Estimation is performed using multiple imputation across five complete datasets.

Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Moreover, the HFCS registers the purpose for which the mortgage was taken in a factor variable of nine categories. Category two corresponds to mortgages collateralized with other properties and used to purchase additional real estate. This category therefore provides a direct test of the collateral-driven real estate investment channel outlined in the previous hypotheses.

In particular, the IHS-transformed outstanding amount of this type of mortgage represents the dependent variable of the estimates shown in Table 1.6, capturing within-household variations corresponding to the receipt of inheritance. The findings reveal opposite effects according to the asset received. While the results are not statistically distinguishable from zero in most specifications, financial assets received 8+ years ago decrease the outstanding balance of the mortgage, suggesting that households used the additional liquidity to pay down the debt. In contrast, receiving a dwelling corresponds to a positive and statistically significant effect on the mortgage amount soon after receipt, confirming the previous finding that households rapidly capitalize the windfall into renewed real estate investments. As households start to repay the mortgage, the effects are not significant in the longer time horizons. The findings corroborate the hypotheses stated in the previous sections, and are consistent with studies highlighting the role of home equity gains for wealth accumulation ([Sodini et al., 2023](#); [Crossley et al., 2024](#)).

Table 1.6: Inheritance Type, Timing, and Outstanding Balance on Mortgage

	Mortgage for additional real estate (FE linear)			
	No timing	0–2 years	3–7 years	8+ years
Panel A: Total inheritance				
<i>Extensive margin</i>	-0.051 (0.070)	0.066 (0.105)	-0.010 (0.111)	-0.152* (0.084)
<i>Intensive margin</i>	-0.004 (0.006)	0.008 (0.009)	0.001 (0.009)	-0.013* (0.007)
Observations	11,337	11,326	11,326	11,326
Panel B: Dwellings				
<i>Extensive margin</i>	0.101 (0.187)	0.628* (0.355)	0.132 (0.308)	-0.164 (0.221)
<i>Intensive margin</i>	0.010 (0.016)	0.054* (0.030)	0.010 (0.026)	-0.011 (0.019)
Observations	4,906	4,904	4,904	4,904
Panel C: Financial Assets				
<i>Extensive margin</i>	-0.086 (0.105)	0.008 (0.163)	0.054 (0.207)	-0.301** (0.127)
<i>Intensive margin</i>	-0.008 (0.010)	0.001 (0.016)	0.004 (0.019)	-0.029** (0.012)
Observations	6,303	6,301	6,301	6,301
Household controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes	Yes	Yes

Notes: The dependent variable is the outstanding balance of mortgage using other properties as collateral to purchase additional real estate. All columns are fixed-effects (within) linear regressions, with standard errors clustered at the household level in parentheses. Estimation is performed using multiple imputation across five complete datasets.

Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

1.4.3 Income from Real Estate

The last set of models evaluates *Hypothesis 3*, which claims that real-asset inheritance is associated with a greater likelihood of being a landlord. Table 1.7 reports the odds ratios of conditional fixed-effects logit estimates across specifications. Overall, receiving an inheritance is associated with having rental income, particularly in the medium-to-long term. The odds of earning income from real estate are 2.220 times higher 3 to 7 years after receiving an inheritance compared to the reference group, and larger inheritance amounts further increase this likelihood, as highlighted by the intensive-margin results.

However, the effect is mostly driven by real-asset inheritances, which are positive and statistically significant in all specifications. In particular, the odds of having rental income 0 to 2 years after receiving a real asset are about 1.9 times higher compared to non-inheriting households, corresponding to an 88.4% increase in the likelihood of earning rental income. The effects persist over time and increase with inheritance value.

In contrast, financial assets show negative odds in the first two years after receipt, while becoming positive and significant only in the longer term. This pattern mirrors the results in the previous table, where households took longer to convert liquid inheritances into wealth-generating investments through collateralized mortgages, reflecting the different adjustment paths associated with liquid assets. In addition, these effects later disappear, suggesting that the results are not as robust or consistent as those found for real assets.

Table 1.7: Inheritance Type, Timing, and Rental Income

	Received Rental Income (FE logit)			
	No timing	0–2 years	3–7 years	8+ years
Panel A: Total inheritance				
<i>Extensive margin</i>	1.755*** (0.205)	1.135 (0.190)	2.220*** (0.371)	1.993*** (0.295)
<i>Intensive margin</i>	1.052*** (0.010)	1.015 (0.014)	1.072*** (0.015)	1.063*** (0.013)
Observations	2,628	2,625	2,625	2,625
Panel B: Real Assets				
<i>Extensive margin</i>	2.471*** (0.489)	1.884** (0.580)	2.740*** (0.788)	2.601*** (0.618)
<i>Intensive margin</i>	1.076*** (0.018)	1.055** (0.026)	1.081*** (0.025)	1.079*** (0.021)
Observations	1,420	1,418	1,418	1,418
Panel C: Financial Assets				
<i>Extensive margin</i>	0.944 (0.232)	0.358*** (0.134)	2.524** (1.135)	1.237 (0.449)
<i>Intensive margin</i>	0.999 (0.022)	0.905*** (0.031)	1.089** (0.046)	1.032 (0.034)
Observations	1,019	1,019	1,019	1,019
Household controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes	Yes	Yes

Notes: The dependent variable is an indicator for receiving rental income from real estate property. All columns report odds ratios from conditional fixed-effects logistic regressions with standard errors clustered at the household level in parentheses. The *extensive margin* captures the effect of receiving an inheritance, measured by a binary indicator for inheritance receipt. The *intensive margin* captures the effect of inheritance size, measured by the inverse hyperbolic sine transformation of inheritance value. Timing specifications allow the effects of inheritance to vary by the time elapsed since receipt (0–2, 3–7, and 8+ years). Identification relies on within-household variation over time. Estimation is performed using multiple imputation across five complete datasets.

Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

This finding is confirmed by Table 1.8, which estimates fixed-effects linear models on the IHS-transformed value of gross rental income. Financial assets are negative and significant at the 1% level shortly after receiving an inheritance, while real assets are largely associated with increasing rental income across specifications. To compute proportional effects when the dependent variable is IHS-transformed income, I apply the expression proposed by [Bellemare and Wichman \(2020\)](#):

$$\bar{R} \approx e^{\hat{\beta} - 0.5 \widehat{\text{Var}}(\hat{\beta})}, \quad (1.9)$$

where $\bar{R}$ represents the ratio of conditional means. Applying the transformation shows that the estimates for the 3–7 and 8+ year categories correspond to ratios of conditional means of roughly 2.02 and 2.00, respectively. These magnitudes imply that rental income approximately doubles relative to the pre-inheritance baseline several years after inheriting a real estate asset. Taken together, these results suggest that inheriting at least one property is strongly associated with increases in rental income over time. This pattern further supports the mechanism proposed in this paper, whereby inherited real estate expands households’ asset portfolios and creates new income-generating opportunities through property ownership.

Table 1.8: Inheritance Type, Timing, and Gross Rental Income

	Gross Rental Income (FE linear)			
	No timing	0–2 years	3–7 years	8+ years
Panel A: Total inheritance				
<i>Extensive margin</i>	0.352*** (0.079)	-0.008 (0.116)	0.544*** (0.132)	0.490*** (0.107)
<i>Intensive margin</i>	0.036*** (0.007)	0.003 (0.010)	0.052*** (0.011)	0.048*** (0.009)
Observations	11,337	11,326	11,326	11,326
Panel B: Real Assets				
<i>Extensive margin</i>	0.629*** (0.146)	0.310 (0.274)	0.710*** (0.235)	0.700*** (0.177)
<i>Intensive margin</i>	0.055*** (0.013)	0.030 (0.023)	0.058*** (0.020)	0.061*** (0.016)
Observations	6,898	6,892	6,892	6,892
Panel C: Financial Assets				
<i>Extensive margin</i>	-0.065 (0.115)	-0.400*** (0.151)	0.268 (0.209)	0.075 (0.170)
<i>Intensive margin</i>	-0.003 (0.011)	-0.040*** (0.014)	0.027 (0.020)	0.012 (0.016)
Observations	6,303	6,301	6,301	6,301
Household controls	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes	Yes	Yes

Notes: The dependent variable is the inverse-hyperbolic-sine transformation of gross rental income from real estate property. All models are fixed-effects (within) linear regressions, with standard errors clustered at the household level reported in parentheses. Estimation is performed using multiple imputation across five complete datasets.

Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

1.5 Conclusions

Recent projections estimate that by 2030, approximately \$10.6 trillion will be transferred across generations in the U.S., \$3.5 trillion in Europe, and \$2.8 trillion in Asia⁷. A substantial share of these transfers is expected to take the form of real estate, bringing about an unprecedented level of change to inheriting households' balance sheets. Nevertheless, the literature has paid relatively little attention to the asset composition of inheritance, leaving one to wonder how households adjust their portfolios according to the different asset inherited. This becomes particularly important in a scenario where transfer wealth is consistently more unequally distributed than both non-transfer wealth and total wealth (Nolan et al., 2021), and the richest 10% of households in OECD countries own roughly 69% of secondary properties (Causa et al., 2019). Perpetuating asset disadvantages across generations might worsen the already concerning housing affordability crisis experienced today in many urban centers, where young people and low-wealth households are forced to spend more than 40% of their income on rent (Licchetta et al., 2025).

By leveraging the longitudinal component of the Household Finance and Consumption Survey (HFCS), this paper provides the first systematic analysis of the asset composition of inheritance, and shows that what is inherited matters at least as much as whether one inherits. In particular, by employing linear and logistic fixed-effects models, the results reveal that real-asset inheritances are the dominant channel of household wealth accumulation, especially in the short term, whereas receiving financial assets is not associated with a corresponding wealth increase.

In addition, the findings demonstrate that households' balance sheets respond differently based on the asset type and temporal dimension of the transfer received. For instance, unlike most financial assets specifications, receiving real assets largely increases the households' odds of owning other properties than the household main residence (HMR). In turn, this affects the possibility to use the property windfall as collateral for additional investments. Indeed, the estimates show that receiving real assets is associated with a higher likelihood of having a mortgage using other properties as collateral at all time horizons. This suggests that inheriting real assets opens new wealth-generating opportunities, by relaxing credit constraints and facilitating borrowing against collateral. The paper provides direct evidence of this collateral channel by regressing the inheritance of dwellings on the outstanding balance of mortgages secured on other properties and used to purchase additional real estate. The results show a positive and statistically significant effect of dwellings receipt on the mortgage amount, particularly in the years immediately following the event (0–2 years after receipt). This reflects the use of dwellings as lever-

⁷Vanguard: The Great Wealth Transfer. <https://d1e00ek4ebabms.cloudfront.net/production/uploaded-files/The%20Great%20Wealth%20Transfer-f910ae70-5ab7-4ba4-a3f7-e86377ecc56d.pdf>. Accessed 02 March 2025.

age to increase the share of housing in the households' portfolio soon after the property windfall, while the effects are not distinguishable from zero in later years, reflecting that households start to pay down the mortgage.

Finally, the analysis also reveals that receiving properties is strongly associated with a higher likelihood of having rental income, reflecting households' decision to exploit home equity gains by generating rental income. The results are particularly significant in the medium-to-long term, suggesting that after a necessary period of adjustment, for example by renovating the property or reallocating its use, households can benefit from a new source of revenue.

Overall, this paper contributes the first empirical analysis of the asset composition of inheritance, and shows how its distribution affects households' wealth and financial decisions. By linking the literature of intergenerational transfers and housing wealth, this work represents a relevant stepping stone for future analyses of inheritance and the housing market. Given the unprecedented amount of real estate that is about to be passed across generations, micro-level studies of households' responses to asset-specific bequests can help understand future local market dynamics, a particularly salient subject given the affordability crisis affecting many cities around the world. As families with access to inherited real estate can fully leverage the property transfer for additional investment, those without risk being left further behind, especially in contexts where property prices rise more quickly than earnings. This raises concerns about social cohesion, and may exacerbate existing inequalities in access to housing and investment opportunities.

Similar to what was done by [Mian and Sufi \(2014\)](#), future research could also evaluate how the transfer of ownership of major assets affects macro-outcomes, for instance by increasing consumption spending or relaxing credit constraints.

Finally, the findings speak to ongoing policy debates on the expansion of short-term rental (STR) platforms and their impact on housing markets ([Bei and Celata, 2023](#); [Duso et al., 2024](#); [Colomb, 2025](#)). By showing that real estate inheritances facilitate property accumulation and the generation of rental income, the paper opens the door to future work that links intergenerational transfers to STR participation more directly, potentially revealing insights about who is able to benefit from the growing monetization of housing services and why.

Chapter 2

What Households Borrow For: The Effects of Debt Composition on Business and Income Outcomes

Abstract

The literature on household borrowing has primarily focused on two strands: the first analyzes the economic consequences of excessive household leverage and its determinants; the second evaluates the consumption behavior of highly indebted households and its spillovers on the aggregate economy.

Using the Household Finance and Consumption Survey (HFCS), this paper examines the underlying reasons for household borrowing and shows that the economic effects of household debt depend critically on its allocation across purposes, rather than on its aggregate level alone. By employing linear and conditional fixed-effects models across five European countries, the analysis provides novel empirical evidence on the composition of household debt and its effects on households' business and income outcomes.

The results reveal that households rely on external credit to fund secondary business activities beyond their primary wealth source, while borrowing for educational purposes is significantly associated with self-employment and higher employee income. In addition, households compensate for large expenditures such as purchasing the main residence by increasing rental income, although this effect dissipates for households able to borrow larger amounts. Overall, access to credit has stronger effects than the amount borrowed, suggesting that improving credit availability for productive uses may support household-level financial development and broader economic activity.

Keywords: Household Finance; Borrowing; Household Assets; Investment Decisions;

Mortgages.

JEL Classification: D14, G51

2.1 Introduction

In the aftermath of the global financial crisis of 2007-2008, scholarly attention turned to household debt and the risks associated with excessive lending for the economy. For instance, [Jordà et al. \(2013\)](#) find that business cycles characterized by intensive credit expansions preceded steep downturns and slow recoveries. Similarly, [Schularick and Taylor \(2012\)](#) show that credit growth is a strong predictor of financial crises, arguing that modern economic recessions are essentially “credit booms gone wrong”.

While uncontrolled lending and weak screening protocols represent an undeniable threat to financial stability, other authors claim that household leverage alone cannot explain the severity of the global recession. For example, [Jones et al. \(2022\)](#) demonstrate that household deleveraging explains only a small fraction of the aggregate employment decline in 2007–2010. Likewise, [Gorton and Ordoñez \(2020\)](#) argue that it is not credit growth alone that predicts crises, but rather its combination with deteriorating productivity. This argument suggests that the resilience of the credit market depends critically on the quality of the investments financed, which do not necessarily result in financial crises. Rather, a sustainable funding structure and solid underwriting standards can well support even instances of high aggregate debt ([André, 2016](#)).

Nevertheless, the prevailing academic narrative surrounding household borrowing primarily underlines its macroeconomic risks, emphasizing in particular the spending cuts of highly levered households associated with negative exogenous shocks, which may further amplify economic downturns ([Dynan and Edelberg, 2013](#); [Mian et al., 2013b](#); [Zabai, 2017](#)). While these studies provide welcome and relevant evidence on the negative consequences of unchecked credit supply, less attention has been devoted to the micro-level allocation of borrowed funds. This distinction is crucial, as different uses of credit may have markedly different implications for both household-level outcomes and aggregate economic dynamics.

Using the longitudinal component of the ECB’s Household Finance and Consumption Survey (HFCS), this paper revisits the narrative associating household borrowing with consumption-led uses of leverage, and argues that households borrow to improve their finances by investing in revenue-generating activities. In doing so, the paper argues that the economic effects of household debt depend critically on how credit is allocated across purposes, rather than on its aggregate level alone. This logic follows the “borrow to invest motive” developed by [Crossley et al. \(2024\)](#), where the authors show that, once credit

constraints are relaxed through house price increases, leveraged households borrow to invest in additional housing rather than to increase consumption.

This paper exploits the detailed information collected in the HFCS about households' borrowing behavior to identify wealth-generating mechanisms across five European countries – namely, Belgium, Cyprus, Germany, Italy, and Spain – in a period between 2010 and 2020. In particular, the HFCS questionnaire asks if and how the respondents accessed a loan at the time of the interview, and for what purpose. These responses provide a clean way of disentangling productive uses of financial leverage – that is, investments with the potential to generate additional wealth in the future – from purely consumptive debt. This design represents a key distinction from other works analyzing household borrowing, where the latter is either evaluated in its aggregate form at the country level (Mian et al., 2017; Lombardi et al., 2017; Berisha and Meszaros, 2018), or limited to mortgage debt (Corradin and Popov, 2015; Di Maggio et al., 2017; Bracke et al., 2017).

Using linear and conditional fixed-effects regressions, this paper examines both the extensive and intensive margin effect of purpose-specific borrowing on household business and income outcomes, revealing novel degrees of granularity both in terms of investments and financing channels. To mitigate simultaneity concerns and reverse causality, the analysis uses a rich set of controls and lagged values of the explanatory variables, thus following established approaches in the household finance literature (Dynan, 2012; Du Caju et al., 2023).

The results confirm that the economic implications of household debt strongly depend on its intended purpose. Specifically, households collateralize secondary properties to purchase additional real estate for business activities. In addition, they rely on a range of financing instruments to renovate or refurbish the property used for business, which is in turn associated with significant increases in value. Furthermore, borrowing for business purposes and for vehicle purchases are associated with non-self employment business wealth, suggesting that loans fund secondary activities beyond the primary source of household wealth. By contrast, loans taken for education correspond to a higher probability of having self-employment wealth and employee income, reflecting the relevant role of human capital in employment opportunities. Finally, households cushion the impact of housing purchases by turning to rental income generation, although this effect does not hold for households able to access large credit amounts.

This study makes three important contributions to the literature. First, it demonstrates that the composition of household debt is central to understanding its economic effects. By examining each purpose behind a household's decision to take on debt, the analysis documents substantial heterogeneity in how leverage is allocated across consumption, real estate investment, entrepreneurial activity, and human capital accumulation. This distinction provides a more precise assessment of how debt contributes to wealth accumulation at the household level, which is typically obscured when debt is measured

at the aggregate level or proxied through consumption metrics.

Second, the paper contributes to the literature on household leverage and entrepreneurship by identifying multiple financing channels beyond home equity extraction. While prior work emphasizes the role of housing collateral in facilitating entrepreneurial entry (Schmalz et al., 2013; Adelino et al., 2015; Jensen et al., 2022), this study considers collateralized and non-collateralized borrowing instruments and links each financing channel to specific investment purposes and wealth outcomes. In doing so, the analysis provides a more comprehensive view of how households mobilize credit to support income-generating activities, expanding the entrepreneurial scope of household leverage.

Third, the paper contributes to the growing literature using the HFCS as reference data (Bover et al., 2016; Du Caju et al., 2023). By constructing a balanced panel dataset that includes only households interviewed in all survey waves, this work represents one of the first attempts at analyzing the longitudinal component of the data. While the absence of panel weights limits external generalizability, the within-household design provides new evidence on the dynamic relationship between borrowing decisions and subsequent wealth changes.

The remainder of the paper proceeds as follows. Section 2.2 reviews the related literature and develops the hypotheses. Section 2.3 describes the data and variable construction. Section 2.4 outlines the empirical strategy. Section 2.5 presents the results, and Section 2.6 concludes.

2.2 Literature Review

A large literature studies the determinants and macroeconomic consequences of household debt. One strand attributes the rapid expansion of credit prior to the global financial crisis primarily to supply-side factors. Mian and Sufi (2009) show that mortgage growth across U.S. counties was driven mainly by an outward shift in credit supply rather than improved borrower fundamentals. Keys et al. (2010) document that securitization weakened lenders' screening incentives, increasing default risk, while Justiniano et al. (2019) emphasize financial liberalization and looser borrowing constraints as central drivers of the housing boom. More broadly, house price dynamics and monetary conditions have been identified as key long-run determinants of household leverage (Jordà et al., 2015; Moore and Stockhammer, 2018). Cross-country evidence further highlights the role of legal institutions, bankruptcy regimes, and financial structures in shaping borrowing patterns (Bover et al., 2016; Coletta et al., 2019).

A second strand focuses on the macroeconomic consequences of rising household indebtedness. Jordà et al. (2016) document the central role of mortgage credit in financial instability, and Mian and Sufi (2018) argue that recessions are amplified by deleveraging among highly indebted households. Numerous studies show that debt can amplify

downturns by concentrating spending cuts among high marginal-propensity-to-consume households (Dynan, 2012; Mian et al., 2013b; Zabai, 2017; Du Caju et al., 2023). Related work documents heterogeneous consumption responses to mortgage refinancing and interest rate changes (Di Maggio et al., 2017; Cloyne et al., 2020).

While this literature provides compelling evidence on the systemic risks associated with excessive leverage, it typically treats household debt as a relatively homogeneous aggregate. Less attention has been devoted to the microeconomic allocation of borrowed funds and to whether different forms of credit serve distinct economic functions. Some studies suggest that the relationship between debt and spending is more nuanced than aggregate measures imply. Andersen et al. (2016) argue that high debt levels may reflect intertemporal spending normalization rather than persistent vulnerability. Baker (2018) show that consumption sensitivity depends critically on liquidity and borrowing constraints, while Mason (2018) document that only a small share of borrowing is directly used for consumption expenditures. Together, these findings suggest that the economic consequences of debt may depend on how credit is allocated across uses.

A growing body of research points to specific channels through which household borrowing may support income-generating activities. One prominent mechanism operates through housing collateral. Access to home equity relaxes borrowing constraints and increases entrepreneurial entry and business investment (Schmalz et al., 2013; Adelino et al., 2015; Corradin and Popov, 2015; Jensen et al., 2022). This evidence implies that households with access to financing invest in productive endeavors such as self-employment activities rather than merely to finance consumption.

Hypothesis 1: Borrowing, particularly when supported by collateral, is positively associated with business-related activities.

Beyond housing collateral, borrowing may also enhance labor market opportunities. Van Doornik et al. (2024) show that access to credit for transportation investments expands commuting possibilities and raises wages and formal employment. Similarly, vehicle ownership reduces spatial mismatch and increases employment prospects (Baum, 2009), while low-cost financing has enabled participation in gig economy activities (Buchak, 2020). These studies suggest that loans for transportation may generate income gains by expanding access to labor markets and business opportunities.

Hypothesis 2: Borrowing to finance transportation is positively associated with additional income-generating activities.

Real estate investments represent another potentially productive use of leverage. Homeownership may contribute to wealth accumulation through capital gains, forced savings, tax advantages, and rental income (Goodman and Mayer, 2018; Jordà et al., 2019; Demers and Eisfeldt, 2021). The expansion of buy-to-let activity and short-term rental markets further indicates that households may actively use debt to generate rental income streams (Bø, 2026).

Hypothesis 3: Borrowing to finance housing purchases is positively associated with rental income generation.

Finally, borrowing for education may increase human capital and long-term earnings. Black et al. (2023) show that expanded student loan access raises degree completion and lifetime income, while Avery and Turner (2012) document heterogeneous borrowing patterns linked to expected returns. These findings underscore that educational debt may represent an investment in future income rather than a purely consumption-oriented liability.

Hypothesis 4: Borrowing for educational purposes is positively associated with higher employment outcomes and earnings over time.

Taken together, this literature suggests that the effects of household debt depend critically on its purpose and allocation. However, systematic evidence distinguishing borrowing by purpose within a longitudinal European household panel remains scarce. This paper contributes to filling this gap by directly linking purpose-specific borrowing to subsequent business and income outcomes. By testing the related hypotheses, the paper evaluates whether and how different components of household debt contribute to wealth and income dynamics.

2.3 Data and Descriptive Statistics

2.3.1 Data Source

The dataset used for this analysis is the Household Finance and Consumption Survey (HFCS)¹, a recurring survey conducted approximately every three years that examines the consumption behavior and financial practices of European households. A key feature of the HFCS for this study is that it records not only households' borrowing decisions, but also the stated purpose of each loan and the type of financing instrument used. To date, four survey waves have been conducted by the central banks of participating countries. For most countries, fieldwork for the first wave took place between 2010 and 2011 (2011 wave), between 2013 and the first half of 2015 for the second wave (2014 wave), and in 2017 for the third wave (2017 wave). The fourth wave, originally planned for 2020, was conducted throughout 2020 and 2021 due to disruptions caused by the COVID-19 pandemic (2020 wave). To ensure comparability across waves, all nominal variables are adjusted for inflation using the Harmonised Index of Consumer Prices (HICP).²

An important aspect of the dataset is the presence of repeated households, that is, households interviewed in all survey waves. The resulting balanced panel includes ap-

¹European Central Bank: Household Finance and Consumption Survey (HFCS). https://www.ecb.europa.eu/stats/ecb_surveys/hfcs/html/index.en.html. Accessed 02 March 2025

²The values of assets, debt, income and consumption have been adjusted by multiplying earlier-wave figures by the ratio of average price levels in the corresponding reference years.

proximately 16,500 household-wave observations across five euro area countries: Germany (1,216 households), Italy (1,129 households), Spain (809 households), Cyprus (623 households), and Belgium (335 households). This longitudinal structure enables the analysis of within-household changes over time, which forms the empirical basis of the study. While survey weights are provided for cross-sectional analysis to ensure representativeness of the target population, no corresponding panel weights are available. Accordingly, the empirical analysis prioritizes internal validity through within-household variation using fixed-effects models, rather than external generalizability.

To address missing data and item non-response, the HFCS provides five multiply imputed datasets based on observable characteristics. Following [Rubin \(1987\)](#), all estimates are computed separately for each imputed dataset and combined using Rubin’s rules. The construction of key variables is described in detail in the following subsection.

2.3.2 Descriptive statistics

A list of the main variables used in the analysis is reported in Table 2.1. In particular, panel A describes the dependent variables examined across various empirical specifications. These are a mix of business- and income-related outcomes. For instance, *Has properties for business* is a dummy indicating whether the household owns any real estate, such as houses, apartments, garages, offices, hotels, farms, and land used for business activities. The corresponding value of the estate is captured by *Value of properties for business*. Similarly, *Has SE business* is a binary indicator reflecting whether the household actively run all or part of a self-employment (SE) activity, and *Has non-SE business* refers to a household being a private investor or silent partner of a non-self employment business. In addition, *Value of non-SE business* captures the monetary amount of the household’s share in the non-self employment business, while *Has income from non-SE business* is a dummy revealing whether the household received any income from these private activities in the last calendar year. These variables capture household participation in entrepreneurial activities and the corresponding value of business-related assets and income.

Moreover, four dependent variables refer to earnings outcomes. *Has rental income* is a binary indicator for households receiving any income from renting real estate in the last 12 months, and *Value of rental income* captures the corresponding monetary amount. Likewise, *Has employee income* indicates whether the household received any sort of employee income during the last calendar year, and *Value of employee income* reflects its worth.

Table 2.1: Summary statistics

Variable	Mean	SE	Min	Max	N
<i>Panel A. Dependent variables</i>					
Has properties for business	0.04	0.0015	0	1	16,448
Value of properties for business	14,778.20	1,940.2360	0	17,000,000	16,448
Has SE business	0.16	0.0028	0	1	16,448
Has non-SE business	0.03	0.0013	0	1	16,448
Has income from non-SE business	0.03	0.0014	0	1	14,190
Value of non-SE business	106,090.90	33,759.4600	0	350,000,000	16,448
Has rental income	0.18	0.0030	0	1	16,448
Value of rental income	3,030.52	125.6956	0	650,000	16,448
Has employee income	0.57	0.0039	0	1	16,448
Value of employee income	28,879.31	671.6569	0	7,276,530	16,448
<i>Panel B. Loan purpose (Extensive margin)</i>					
To buy the HMR	0.18	0.0030	0	1	16,448
To buy other real estate	0.04	0.0016	0	1	16,448
Property renovation	0.04	0.0016	0	1	16,448
Vehicle	0.06	0.0018	0	1	16,448
Business activity	0.02	0.0011	0	1	16,448
Refinancing debt	0.01	0.0007	0	1	16,448
Education	0.01	0.0008	0	1	16,448
Consumption	0.03	0.0013	0	1	16,448
<i>Panel C. Outstanding balances (Intensive margin)</i>					
Outstanding HMR loans	7,143.84	576.6548	0	4,195,000	16,448
Outstanding other real estate loans	6,164.54	472.7645	0	2,816,000	16,448
Outstanding renovation loans	1,628.66	114.0888	0	580,000	16,448
Outstanding vehicle loans	526.01	25.0035	0	111,000	16,448
Outstanding business loans	3,560.17	1,575.0490	0	23,180,000	16,448
Outstanding refinancing loans	371.07	539.0930	0	3,000,000	16,448
Outstanding education loans	276.86	37.5743	0	240,000	16,448
Outstanding consumption loans	295.53	47.8762	0	490,850	16,448
<i>Panel D. Financing</i>					
HMR mortgage	0.19	0.0031	0	1	16,447
Other property mortgage	0.07	0.0021	0	1	16,436
Non-collateralized loan	0.13	0.0026	0	1	16,410
Private loan	0.02	0.0012	0	1	12,240
<i>Panel E. Controls</i>					
Total household income	35,156.55	561.7567	-965,000	5,032,354	16,448
Optimistic	0.13	0.0027	0	1	16,118
Wealth quintile	3.63	0.0110	1	5	16,448
Household size	2.61	0.0101	1	10	16,448
Age	59.02	0.1104	19	100	16,448
Female	0.30	0.0037	0	1	16,252
Married	0.70	0.0036	0	1	16,224
Employed	0.54	0.0039	0	1	16,438
Tertiary education	0.39	0.0038	0	1	16,181

Notes: Summary statistics and standard errors are calculated using multiple imputations across five complete datasets. Variable definitions and survey questions are reported in Table B.1 and Table B.2.

As mentioned earlier in the text, one of the novelties introduced by this study is the focus on the underlying motivations behind household borrowing. The HFCS collects eight possible reasons for taking out loans: (1) to purchase or construct the Household Main Residence (HMR), (2) to purchase other real estate, (3) to refurbish or renovate the residence, (4) to buy a vehicle or other means of transport, (5) to finance a business or professional activity, (6) to consolidate or refinance debts, (7) for education purposes, and (8) to cover living expenses or other purchases. The frequency of each loan is described in panel B, where around one fifth of households reports having a loan taken to purchase or construct the HMR at any given survey wave (Mean = 0.18). In contrast, the occurrence of the other purposes is lower, consistent with other studies finding that housing debt is the most common form of household borrowing (Causa et al., 2019). While the HFCS allows households to report multiple loan purposes simultaneously, the analysis focuses on single-purpose loans to ensure a clear mapping between borrowing motives and subsequent outcomes, thereby reducing ambiguity in the interpretation of estimated effects.

A similar strategy is implemented for the variables presented in panel C, which describes the euro amount still owed on the purpose-specific loan at the time of the interview. The availability of both the binary indicator and the monetary value of each loan allows the analysis of both the extensive margin (whether a household borrows for a given purpose) and the intensive margin (the amount borrowed for that purpose). This ensures robustness of the results and adds transparency and granularity to the findings.

In addition, panel D shows the summary statistics concerning the instruments used by households to access credit. The HFCS identifies four financing channels available to households, each represented as a binary indicator: (1) mortgages or loans using the HMR as collateral, (2) mortgages or loans using other property as collateral, (3) non-collateralized loans, and (4) private loans. While the latter is the least common borrowing type, with just 2% of households reporting having loans from relatives or friends that are expected to be repaid, mortgages using the HMR as collateral is the most frequent one, reflecting the central role of housing collateral in household borrowing (Adelino et al., 2015; Sodini et al., 2023).

Finally, panel E describes the rich set of covariates included in the empirical specifications. In particular, *Total household income* represents the gross annual aggregate household income, and controls for differential access to credit across income levels. Similarly, *Wealth quintile* is a categorical variable of 5 values, with 5 representing the wealthiest quintile and 1 the least wealthy, and it controls for initial wealth levels and differing saving behaviors. Furthermore, *Optimistic* is a binary indicator equal to 1 if the household expects its total income to increase more than prices over the next year, while it takes value 0 if the household expects a future income level about the same as prices or lower than prices. This variable reflects households' general attitude towards their future finances, which may affect their risk propensity in taking out loans, and becomes particularly rel-

evant for the earnings models.

Additional demographic controls traditionally found in the wealth and income literature are also included. Following the [UNECE \(2011\)](#) guidelines, these are defined according to the household reference person’s responses, and may therefore vary over time³. Importantly, to reduce noise and sparse within-household variation in the estimations, *Married*, *Employed*, and *Tertiary education* are binary indicators constructed from categorical variables of the household reference person. In particular, *Married* equals 1 for individuals in a registered marriage and 0 otherwise; *Employed* equals 1 for employees or self-employed individuals and 0 for all other labour statuses; and *Tertiary education* equals 1 for individuals with tertiary qualifications and 0 for lower education levels. A detailed description of the survey questions and variable definitions is provided in Table B.1 and Table B.2 in Appendix B.1.

Lastly, the conditional distribution of purpose-specific loans across the various financing instruments, and their respective mean outstanding amounts, are presented in Table 2.2. The left panel shows the shares attributable to each financing instrument and loan purpose combination, conditional on having the corresponding loan. Similarly, the right panel reports the mean conditional outstanding amount across each financing-purpose pair.

Table 2.2: Financing mix and outstanding balances by loan purpose (conditional on having the loan)

Loan purpose	Obs.	Financing instrument							
		Financing shares (%)				Mean outstanding balance (EUR)			
		HMR	OTP	NCL	PL	HMR	OTP	NCL	PL
HMR loan	2,963	85.4	16.6	2.7	1.1	16,547	21,086	1,507	476
Other real estate loan	675	15.2	72.9	13.0	4.0	17,052	119,066	10,998	2,086
Renovation loan	688	50.5	11.3	36.0	6.2	23,528	8,941	5,404	895
Vehicle loan	912	0.5	1.0	94.0	7.2	170	144	8,798	354
Business loan	299	17.3	22.3	57.1	15.9	19,693	120,154	46,339	8,396
Refinancing loan	119	11.7	6.7	74.0	8.7	10,155	7,165	31,835	1,894
Education loan	184	18.9	7.6	68.8	8.0	11,593	4,067	7,771	1,159
Consumption loan	485	2.5	3.3	86.8	13.1	1,634	513	7,226	612

Notes: Entries are computed using multiple imputation. Financing shares (left panel) are conditional means of financing indicators, conditional on having the corresponding loan purpose. Shares may sum to more than 100 percent because households can use multiple instruments for the same loan purpose. Mean outstanding balances (right panel) are conditional means of outstanding amounts by financing type, also conditional on having the corresponding loan purpose. “Obs.” reports the number of observations used for each purpose-specific conditioning sample.

As observed in Table 2.1, main residence purchases constitute the most frequent mo-

³The reference person is uniquely determined by applying the following sequential criteria: first, a partner in a de facto or registered marriage with dependent children; then, a partner in such a union without dependent children; next, a lone parent with children; if none of these apply, the person with the highest income; and finally, the oldest individual in the household.

tivation to take out a loan, with nearly 3,000 observations. Their financing is almost exclusively granted through real estate collateral (HMR or other property (OTP)), while the share of non-collateralized loans (NCLs) and private loans (PLs) is negligent.

A similar situation applies to loans taken to purchase other real estate, where the bulk of the financing comes from collateralizing OTP (72.9%), although the share of NCLs increases to 13%. By contrast, a mixed set of instruments is used for loans taken to renovate the residence – albeit collateralizing the HMR still constitutes half of the financing – and for business loans. For the latter, NCLs are the preferred instrument of credit, although the share of other financing resources is more evenly distributed compared to other types of loans.

Finally, borrowing to purchase vehicles, to refinance debt, to improve human capital through education, and to cover living expenses all reveal a penchant for using NCLs as financing instrument. These patterns highlight the importance of considering multiple financing channels when analyzing household borrowing behavior. The empirical framework therefore distinguishes borrowing along three dimensions: purpose, financing instrument, and borrowing intensity.

2.4 Model Specification

The methodology used for the analysis is illustrated in Eq. 2.1:

$$\tilde{Y}_{it} = \alpha_i + \beta \text{Loan}_{i,t-1}^{(p)} + \mathbf{X}_{it}'\gamma + \delta_t + \varepsilon_{it} \quad (2.1)$$

where $\tilde{Y}_{it}$ is one of the dependent variables introduced in panel A of Table 2.1. The specification exploits within-household variation over time, effectively controlling for all time-invariant household characteristics that may jointly affect borrowing decisions and economic outcomes. When $\tilde{Y}_{it}$ is binary, equation (2.1) is estimated as a linear probability model with fixed-effects α_i . For continuous outcomes, it corresponds to a linear fixed-effects (within) model.

The key explanatory variable $\text{Loan}_{i,t-1}^{(p)}$ is the lagged value of the loan variable corresponding to purpose–financing combination p . The reason behind using its lagged value is twofold: (1) it allows time for the effects of borrowing to materialize in subsequent outcomes; (2) it mitigates concerns related to the correlation between credit access and economic variables. By regressing borrowing decisions at time $t - 1$ to outcomes at time t , the specification reduces concerns related to simultaneity and reverse causality (Dynan, 2012; Du Caju et al., 2023).

In addition, for the specifications using continuous dependent variables, the variable is differenced with its value in the previous wave. This strategy is adopted to further reduce the influence of persistent levels of the outcome variable, increasing consistency

and robustness of the results. Furthermore, $\mathbf{X}'_{it}$ controls for initial levels of wealth and income, along with the other demographic variables described in panel E of Table 2.1. Finally, δ_t are time fixed effects, controlling for macroeconomic shocks common to all households, while ε_{it} denotes the residual.

Following [Pence \(2006\)](#), the monetary variables are transformed using the Inverse Hyperbolic Sine (IHS) function to retain zero and negative values included in the dataset. Unlike the logarithmic transformation, the IHS accommodates zero and negative values without requiring arbitrary adjustments, and has become standard practice in the wealth literature ([Causa et al., 2019](#)). For large values, the IHS behaves similarly to the logarithmic transformation, allowing coefficients to be interpreted approximately as elasticities, while remaining closer to a linear transformation for small values ([Burbidge et al., 1988](#)).

Finally, regarding the specifications having a binary indicator as dependent variable, the analysis estimates conditional fixed-effects logistic models to provide additional robustness checks, as shown in Eq. 2.2 below:

$$\mathbb{P}\left(Y_{it}^{(b)} = 1 \mid \mathbf{X}_{it}, \alpha_i\right) = \Lambda\left(\alpha_i + \beta \text{Loan}_{i,t-1}^{(p)} + \mathbf{X}'_{it}\gamma + \delta_t\right). \quad (2.2)$$

where the parameters are the same as above. A key feature of these regressions is that the estimation relies exclusively on within-household variation in the dependent variable, while non-varying observations are dropped. As a result, the number of observations reduces significantly, and the estimates are less precise than in a linear probability model. Therefore, the latter is used as reference specification in the main text, while the results from the conditional fixed-effects logistic models are provided in Appendix B.3. Importantly, the results are consistent in sign and statistical significance across specifications.

2.5 Estimation Results

The results are presented as follows. Subsection 2.5.1 examines the relationship between borrowing for real estate purposes and business-related outcomes. Subsection 2.5.2 focuses on the association between purpose-specific borrowing and entrepreneurial activity, distinguishing between self-employment (SE) and non-SE business outcomes. Subsection 2.5.3 analyzes the link between borrowing and rental income generation, while Subsection 2.5.4 investigates the relationship between education-related borrowing and employee income outcomes.

2.5.1 Properties for business

The first set of models evaluates whether households use leveraged real estate investments for business activities. The results provided below focus on the key explanatory variables, while the tables with full controls can be found in Appendix B.2. The dependent variable

analyzed in Table 2.3 is the binary *Has properties for business* introduced in Section 2.3.2, which captures ownership of real estate used for business activities. To evaluate the hypothesis that households also use securitized borrowing for entrepreneurial activities rather than consumption alone, the explanatory variables of interest are the lagged value of loans collateralized by other properties used to purchase additional real estate (columns 1 and 2), and the lagged value of loans taken using the HMR as collateral to renovate or refurbish the property (columns 3 and 4).

Table 2.3: Collateral Channels, Loan Purpose, and the Probability of Holding Real Estate for Business

Financing channel	DV: Holding real estate for business			
	Purpose: Buy other properties		Purpose: Renovation	
	(1) Dummy	(2) Debt Level	(3) Dummy	(4) Debt Level
Other property _{<i>t</i>-1}	0.033** (0.015)	0.003** (0.001)		
Main residence _{<i>t</i>-1}			0.025* (0.014)	0.002* (0.001)
Observations	12,286	12,298	12,297	12,298
Controls	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Notes: Entries are coefficients from multiple-imputation linear probability models with household fixed effects. The dependent variable is a binary indicator equal to one if the household holds real estate for business purposes. Columns are grouped by the *purpose of the collateralized loan*. “Dummy” indicates whether the household holds a collateralized loan for the stated purpose (extensive margin). “Debt Level” is the inverse hyperbolic sine (IHS) transformation of the outstanding balance of the collateralized loan for the stated purpose (intensive margin). “Other properties” refers to loans collateralized by other real estate; “Main residence” refers to loans collateralized by the HMR. All main regressors are lagged by one survey wave. Coefficients can be interpreted as changes in probability. Standard errors clustered at the household level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

The results report both the extensive margin (Dummy) and the intensive margin (Debt Level) effects of the loans.

Column (1) shows that having a mortgage to purchase additional properties at $t - 1$ increases the probability of holding real estate for business activities in the next period by 3.3 percentage points. In addition, a 10% increase in the outstanding loan amount is associated with approximately a 0.03 percentage point increase in probability (column 2). These results suggest that borrowing for real estate acquisition is positively associated with subsequent ownership of business-related real estate.

While the magnitudes are modest, the robustness checks using conditional fixed-effects logit models suggest economically meaningful effects. In fact, analyzing the same effect exclusively among households switching the outcome shows that the odds of holding real estate for business are approximately 98% higher (column 1, Table B.9, Appendix B.3),

consistent with the linear probability estimates.

Similarly, the coefficient in column (3) indicates that households' decision to collateralize the HMR for renovation purposes in period $t - 1$ is associated with a 2.5 percentage point higher probability of owning real estate for business in the next period, while the intensive margin effect is small in magnitude ($\beta = 0.002$). These findings highlight the relevant role of collateral availability in supporting entrepreneurial activities, and the importance of considering a wider range of purposes of household borrowing beyond consumption.

Moreover, Table 2.4 examines the effect of these renovation loans on the value change of the property used for business. For columns (2) and (4), since the monetary amounts of both property and loans are IHS-transformed variables, the specifications behave similarly to a log-log model for large values, allowing coefficients to be interpreted approximately as elasticities, while remaining closer to a linear relationship for small values (Burbidge et al., 1988). By contrast, to compute proportional effects when the independent variable is a dummy (columns 1 and 3), I apply the expression proposed by Bellemare and Wichman (2020):

$$\bar{R} \approx e^{\hat{\beta} - 0.5 \widehat{\text{Var}}(\hat{\beta})}, \quad (2.3)$$

where $\bar{R}$ represents the ratio of conditional means. Accordingly, the coefficient in column (1) reveals that, on average, having a mortgage using the HMR as collateral for renovation purposes increases the value change of the real estate used for business activities by approximately 55%. Similarly, non-collateralized borrowing to renovate the property is associated with an increase in the value change of the business estate by approximately 50%. The incremental impact of the outstanding loan amount is also positive and statistically significant, hovering around 4-5% for both financing instruments.

Overall, these results show that households use housing collateral to support real estate investments related to business activities, and indicate that the decision to access credit is more strongly associated with entrepreneurial outcomes than the amount borrowed, suggesting that credit access itself may be a key determinant.

Table 2.4: Renovation Borrowing and the Change in the Value of Real Estate for Business

Financing channel	DV: Δ IHS value of real estate for business			
	Purpose: Renovation			
	(1) Dummy	(2) Debt Level	(3) Dummy	(4) Debt Level
Main residence _{$t-1$}	0.469** (0.232)	0.041** (0.020)		
Non-collateralized loan _{$t-1$}			0.439* (0.244)	0.050** (0.024)
Observations	12,297	12,298	12,265	12,298
Controls	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Notes: Dependent variable is defined as the change in the inverse hyperbolic sine (IHS) value of other real estate property used for business activities between survey waves. Entries are coefficients from multiple-imputation fixed-effects (within) regressions with standard errors clustered at the household level in parentheses. “Dummy” indicates the presence of a renovation loan (extensive margin). “Debt Level” is the IHS-transformed outstanding renovation debt (intensive margin). All main regressors are lagged by one survey wave. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

2.5.2 Private business wealth

This section further explores the purpose-specific effects of household borrowing on business-related outcomes by distinguishing between self-employment (SE) and non-SE business wealth. The former implies that the household has an active role in running the business, while in the latter the household acts as an investor or silent partner.

In particular, columns (1) and (2) reveal that non-collateralized borrowing for educational purposes is positively and significantly associated with having SE business wealth in the next period. The probability increases by approximately 7.2 percentage points in the extensive margin model, while the magnitude of the intensive effect of a larger outstanding amount of the loan is comparatively smaller ($\beta = 0.008$). This finding is consistent with the role of human capital investment in facilitating entry into self-employment, as documented also in other studies (Block et al., 2013; Millán et al., 2014; Elert et al., 2015).

On the other hand, columns (3) and (4) show that, across all available financing instruments, borrowing to purchase a vehicle or other means of transport at time $t - 1$ is associated with a higher probability of having non-SE business wealth at time t by approximately 1.3 percentage points. Again, the magnitude of a larger borrowed amount is economically smaller ($\beta = 0.001$), suggesting that access to credit plays a more important role than the amount borrowed in enabling households’ investments in business activities. These results are consistent with other studies, where low-cost financing and vehicle ownership is associated with participation in the gig economy and higher employment prospects (Baum, 2009; Buchak, 2020; Van Doornik et al., 2024).

Table 2.5: Collateral Channels, Loan Purpose, and Business Wealth Ownership

Financing channel	DV: SE business wealth		DV: Non-SE business wealth		DV: Income from non-SE business	
	Purpose: Education		Purpose: Vehicle		Purpose: Business	
	(1) Dummy	(2) Debt Level	(3) Dummy	(4) Debt Level	(5) Dummy	(6) Debt Level
Non-collateralized loan _{<i>t</i>-1}	0.072** (0.033)	0.008** (0.003)				
All vehicle loans _{<i>t</i>-1}			0.013* (0.007)	0.001* (0.001)		
Main residence _{<i>t</i>-1}					0.156* (0.085)	0.014* (0.007)
Observations	12,265	12,298	12,298	12,298	11,168	11,169
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Entries are coefficients from multiple-imputation linear probability models with household fixed effects. Columns are grouped by *loan purpose*. “Dummy” indicates the presence of the corresponding loan for the stated purpose (extensive margin). “Debt Level” is the inverse hyperbolic sine (IHS) transformation of the outstanding balance (intensive margin). All main regressors are lagged by one survey wave. Coefficients can be interpreted as changes in probability. Standard errors clustered at the household level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

In addition, columns (5) and (6) show that households using the HMR as collateral to finance a business activity are more likely to receive income from non-SE business in the next period. The linear probability model indicates that the likelihood increases by approximately 15.6 percentage points, while the intensive margin effect is smaller in magnitude. This is consistent with households using borrowing to support additional income-generating activities other than their primary wealth source, and corroborates the hypothesis that confining household borrowing to consumption purposes only overshadows households’ entrepreneurial scope and capacity.

Finally, Table 2.6 evaluates whether these business loans have a positive effect on the value change of the non-SE business wealth. The findings reveal that, while collateralized borrowing may be more determinant in start-up capital, non-collateralized loans (NCLs) are associated with positive and statistically significant value changes. Specifically, having a NCL to finance a business in the previous period corresponds to approximately a 70% higher value change in non-SE business wealth in the next period. A 1% increase in the loan amount is associated with approximately a 7.1% increase in business value. These results are sizable, suggesting that such borrowing is associated with substantial increases in business asset values.

Table 2.6: Business and Renovation Borrowing and the Change in Non-SE Private Business Wealth

Financing channel	DV: Δ IHS value of non-SE private business wealth			
	Purpose: Business		Purpose: Renovation	
	(1) Dummy	(2) Debt Level	(3) Dummy	(4) Debt Level
Non-collateralized loan _{<i>t</i>-1}	0.600* (0.364)	0.071* (0.043)	0.317* (0.186)	0.036* (0.020)
Observations	12,265	12,298	12,265	12,298
Controls	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Notes: Dependent variable is defined as the change in the IHS-transformed value of non-self-employment private business wealth between survey waves. Entries are coefficients from multiple-imputation fixed-effects (within) regressions with standard errors clustered at the household level in parentheses. Columns are grouped by *loan purpose*. “Dummy” indicates the presence of a non-collateralized loan for the stated purpose (extensive margin). “Debt Level” is the IHS-transformed outstanding balance for the stated purpose (intensive margin). All key regressors are lagged by one survey wave. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Moreover, the coefficients in columns (3) and (4) reveal that renovation loans are significantly linked to non-SE private business wealth. Specifically, the extensive margin effect of borrowing for renovation or refurbishing purposes increases the value change of the non-SE business by approximately 35%, while larger loans contribute approximately 3.6% for a 1% increase in the loan amount. This finding circles back to the results observed in Tables 2.3 and 2.4, and suggests that renovating properties used for business activities mainly serves supplementary wealth-generating ventures rather than primary businesses.

Taken together, these results show that the economic effects of household borrowing differ substantially across purposes, underscoring the importance of distinguishing debt by its intended use.

2.5.3 Rental Income

This section analyzes the hypothesis that housing purchases are related to rental income generation. The key explanatory variable is the lagged value of loans collateralized using the HMR to purchase or construct the HMR. As observed in Section 2.3.2, this is the most frequent loan-financing combination and represents the largest liability in household portfolios (Causa et al., 2019). Consequently, households may use housing assets to generate additional income flows, for instance by renting spare rooms or additional properties.

The coefficients in columns (1) and (2) report estimates from a linear probability model where the dependent variable is an indicator for receiving income from renting real estate at time t , upon borrowing to purchase the HMR at time $t - 1$. The estimates are

positive and statistically significant, and correspond to an increase of approximately 2.4 percentage points in probability. Similar to previous findings, the intensive margin effect indicates a smaller effect in magnitude ($\beta = 0.005$), suggesting that access to credit plays an important role for income-generating activities.

In addition, estimates of value changes in rental income are reported in columns (3) and (4). The extensive margin effect is associated with an approximately 41.5% increase in rental income, suggesting a strong relevance of the leveraged investment in pursuing additional income. By contrast, the intensive margin effect is negative and statistically significant. The result indicates that a 1% increase in the outstanding mortgage amount is associated with approximately an 8% decrease in rental income. This pattern may reflect heterogeneity in the reliance on rental income across the mortgage distribution. In fact, larger mortgages are likely associated with wealthier households, who may rely less on rental income as a source of financing to cushion the impact of the mortgage on their portfolios. This suggests that the relationship between borrowing and rental income is not monotonic, with credit access enabling rental activity while larger debt levels are associated with lower reliance on such income.

Table 2.7: Household Main Residence and Rental Income

Financing channel	DV: Rental income		DV: Δ IHS value of rental income	
	Purpose: Buy HMR		Purpose: Buy HMR	
	(1) Dummy	(2) Debt Level	(3) Dummy	(4) Debt Level
Main residence $_{t-1}$	0.024* (0.013)	0.005* (0.003)	0.365** (0.183)	-0.080* (0.045)
Observations	12,297	12,298	12,297	12,298
Controls	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Notes: Columns (1)–(2) report coefficients from multiple-imputation linear probability models with household fixed effects, where the dependent variable is a binary indicator equal to one if the individual receives rental income. Columns (3)–(4) report coefficients from multiple-imputation fixed-effects regressions where the dependent variable is the change in the inverse hyperbolic sine (IHS) of rental income. “Dummy” indicates whether the household holds a collateralized loan to purchase the HMR. “Debt Level” denotes the IHS-transformed outstanding balance of the collateralized loan. All main regressors are lagged by one survey wave. Standard errors clustered at the household level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

2.5.4 Employee Income

This last section tests the hypothesis that borrowing for educational purposes is associated with improved employment outcomes and higher future earnings. Table 2.8 shows the effect of education loans taken at time $t - 1$ on employee income at time t , across all

financing instruments available to households.

The results are positive and statistically significant in all specifications. In particular, having taken a loan to increase human capital in the previous period is associated with a 7 percentage point higher probability of having employee income in the next period. Albeit weaker in magnitude ($\beta = 0.006$), the intensive margin effect is also positive and statistically significant.

Table 2.8: Education Borrowing and Employee Income

Education borrowing	Employee income		Δ IHS value of employee income	
	(1) Dummy	(2) Debt Level	(3) Dummy	(4) Debt Level
Has education loan $_{t-1}$	0.069** (0.031)		1.102* (0.572)	
Outstanding education debt $_{t-1}$		0.006** (0.003)		0.113* (0.058)
Optimistic $_{t-1}$	-0.006 (0.009)	-0.006 (0.009)	0.049 (0.156)	0.049 (0.156)
Observations	12,085	12,085	12,084	12,084
Controls	Yes	Yes	Yes	Yes
Household FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Notes: Columns (1)–(2) report coefficients from multiple-imputation linear probability models with household fixed effects, where the dependent variable is a binary indicator equal to one if the individual receives employee income. Columns (3)–(4) report coefficients from multiple-imputation fixed-effects regressions where the dependent variable is the change in the inverse hyperbolic sine (IHS) of employee income. “Dummy” indicates the presence of any education loan. “Debt Level” denotes the IHS-transformed outstanding balance of education loans. All main regressors are lagged by one survey wave. Coefficients in columns (1)–(2) can be interpreted as changes in probability. Standard errors clustered at the household level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

While more capable households may self-select into borrowing for education, the specification controls for future income expectations through the variable *Optimistic*. This variable captures households’ expectations about future income growth, revealing their attitude toward future promotions and employment prospects, which may also affect their decision to borrow. However, its coefficient is small and statistically insignificant across all specifications, suggesting that expectations do not drive the main results.

By contrast, the extensive margin effect of the lagged value of education loans contributes significantly to the value change in employee income. Specifically, using the transformation proposed by [Bellemare and Wichman \(2020\)](#), having a loan for educational purposes corresponds to approximately a 155% increase in the value change of employee income. The significance of the effect is consistent with the role of education in improving labor market outcomes, as also shown in other studies analyzing the relationship ([Avery and Turner, 2012](#); [Black et al., 2023](#)).

In addition, larger investments in education also show sizable earnings effects, implying that a 1% increase in the borrowed amount is associated with approximately an 11% increase in employee income. These results suggest that education-related borrowing is

associated not only with higher employment likelihood, but also with substantial increases in earnings among employed households.

Overall, these findings underscore the importance of distinguishing household borrowing by its intended purpose, and offer relevant empirical evidence that favors a more nuanced approach to the analysis of household credit.

2.6 Conclusions

Before the global financial crisis of 2007-2008, the European securitization market was about three-quarters the size of U.S. issuance; by 2020, it had dropped to just 6%⁴. This difference reflects the profound impact that the crisis has had on the European lending market, which also transpires in the post-crisis academic literature. In fact, while much of the existing literature analyzes the macroeconomic consequences associated with excessive household debt, less attention has been paid to how households allocate their borrowing across functions and financing instruments. This analysis is particularly relevant at a time when most European countries are looking for ways to inject fresh cash into their struggling economies, with European policy makers debating how to incentivize households to invest their substantial savings into productive activities. This paper argues that one step in that direction is to revisit the traditional association between household borrowing and consumption spending, providing novel evidence regarding the motivations behind household leverage.

Using panel data from the HFCS across five European countries, this paper examines how purpose-specific borrowing relates to business and income outcomes. The analysis relies on fixed-effects models and clustered standard errors that exploit within-household variation over time.

The results provide consistent evidence in support of the proposed hypotheses. In particular, the findings reveal that households collateralize real estate other than the HMR to purchase additional properties destined to business activities. Moreover, loans taken to renovate or refurbish the property are associated with both a higher likelihood of holding real estate for business and with an increase in its value. In addition, the renovated properties contribute to household non-self employment (SE) wealth, consistent with households using renovation loans to generate additional revenue beyond the primary wealth source.

Similarly, borrowing to finance a business or a professional activity corresponds to both a higher likelihood of receiving non-SE income and an increase in non-SE business wealth. This reinforces the relevant role of borrowing as an external source of funding used by households to generate additional revenue streams rather than for living expenses

⁴European Stability Mechanism: Reviving securitization in Europe for CMU. <https://www.esm.europa.eu/blog/reviving-securitisation-europe-cmu>. Accessed 10 March 2025

or similar purchases. Likewise, loans to purchase a vehicle or other means of transport are associated with a higher probability of having non-SE business wealth, suggesting that owning a vehicle reduces spatial constraints and increases business opportunities (Baum, 2009; Buchak, 2020; Van Doornik et al., 2024). By contrast, borrowing for educational purposes is linked with a higher probability of having SE business wealth, consistent with the role of human capital development in spurring entry into self-employment (Block et al., 2013; Millán et al., 2014; Elert et al., 2015). In addition, leveraged investments in education are associated with both a higher probability of receiving employee income and with substantial increases in future earnings, even after controlling for initial wealth levels, employment status, and future income expectations.

Finally, collateralized investments in housing are associated with a higher likelihood of receiving rental income from real estate, indicating that households look to the rental market as an additional income source to offset the impact of what for many is their largest liability (Causa et al., 2019). However, this pattern does not hold along the entire mortgage distribution, as larger outstanding mortgage amounts are negatively associated with value changes in rental income. Since wealthier households are more likely to obtain access to more credit, the finding reveals less reliance on rental income across the mortgage distribution.

A key finding consistent across models and specifications is that the extensive margin is more strongly associated with the corresponding outcomes than the intensive margin. This heterogeneity in magnitude reflects the relevance that credit availability plays in households' ability to create additional wealth, rather than the actual amount borrowed, and suggests that tight provisions of start-up capital may excessively limit households' financial growth.

Overall, the findings highlight that the economic effects of household borrowing depend critically on how credit is used, rather than on its aggregate level alone. While much of the existing literature emphasizes the risks deriving from excessive leverage, this paper documents several channels through which borrowing is associated with wealth accumulation and income generation. Turning the spotlight onto these mechanisms is especially relevant today, as European economies look for investments to revitalize a market union battered by many crises. As stringent financial regulations and the limited availability of resources constrain governments' ability to expand public spending, the results suggest that facilitating access to credit for productive uses may support household-level financial development and broader economic activity, while preserving safeguards against excessive risk-taking.

Chapter 3

From Private Wealth to Patient Capital: Family Offices in Entrepreneurial Finance

Abstract

Family Offices (FOs) are influential yet opaque investors whose strategies remain underexplored. Drawing on 2,800 FO-backed direct investments identified from the Crunchbase database and manually verified with supplementary information on family background and wealth generation, this study compares FOs with Independent Venture Capitalists (IVCs). FOs prefer larger syndicates, reflecting a cautious, risk-sharing approach. They avoid highly competitive sectors, participate in smaller funding rounds, and tend to invest in slightly earlier-stage ventures located farther from where their families are based, suggesting deliberate geographic diversification. Their portfolios also exhibit stronger alignment with societal goals, showing higher odds of ESG investments. Although FO-backed firms are generally less likely to go public, this gap disappears for ESG ventures, which achieve higher IPO success under FO support.

Keywords: Private Financial Institutions; Family Office; Startup Financing; Institutional Investors; IPO; Venture Capital.

JEL Classification: G23, G24, M13.

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3.1 Introduction

In recent years, increasing concentration at the top of the wealth distribution has been accompanied by a rapid proliferation of Family Offices (FOs), increasingly sought-after solutions for managing the enormous wealth accumulated in a personalized manner. While there is an ongoing debate about the best way to define these entities (Rivo-López et al., 2017), and consequently about how to count them (Kenyon-Rouvinez and Park, 2020), an apparently irreversible trend is the continued rise of these bespoke financial services around the globe. According to Deloitte (2024), in 2019 an estimated 6,130 FOs existed globally. By 2024, that estimate had grown to about 8,030, a 31% increase in five years. The same report pinpoints their assets under management (AUM) at around \$3.1 trillion, but because they are private, an exact figure is difficult to determine. For example, other studies suggest estimates even exceeding \$11 trillion². Surveys indicate that, on average, 10% of these assets are earmarked for private, early-stage startup deals³.

Despite their growing influence in the global economy and entrepreneurial ecosystem, FOs remain relatively understudied in the literature. For example, Schickinger et al. (2023)⁴ identified only nine relevant academic articles on FOs in leading journals. It is mainly due the secrecy of FO activities and their exemption from disclosure requirements that reliable data are scarce, making rigorous empirical analysis extremely difficult (Amit et al., 2007).

This study aims to open an empirical window into the otherwise opaque world of FO start-up investing. Drawing on an original Crunchbase extract and complementary hand-collected information, we identify more than 2,800 FO-backed deals, an order of magnitude larger than any sample previously analysed (Schickinger et al., 2023). By tracing where, when, and how FO deploy their own capital, the paper offers the first large-scale evidence on their screening criteria, syndication preferences, and exit paths, thereby transforming what has largely been anecdotal or proprietary insight into a systematic, testable dataset.

A key distinction in the venture capital ecosystem concerns the structural differences between Family Offices (FOs) and independent venture capitalists (IVCs). While IVCs typically manage externally raised funds from limited partners and operate under fixed investment horizons and exit requirements, FOs invest proprietary family wealth and

²With Intelligence: Future of Family Offices: Global Market to Surge to \$11.41 Trillion in Two Years. <https://www.withintelligence.com/insights/global-family-offices-to-double-by-2026/>. Accessed 20 May 2025

³Silicon Valley Bank: Family office investment and allocation to venture capital on the rise. <https://www.svb.com/news/company-news/family-office-investment-and-allocation-to-venture-capital-on-the-rise-according-to-svb-and-campden-wealth-report/>. Accessed 30 September 2025

⁴Most existing papers on the subject primarily aim to clarify what these entities actually are (Decker and Lange, 2013; Kenyon-Rouvinez and Park, 2020), how they are structured (Wessel et al., 2014; Rosplock and Hauser, 2014; Schickinger et al., 2023), and what their functions are (Rivo-López et al., 2017; Rottke and Thiele, 2018).

often adopt longer-term investment perspectives. FO capital is usually evergreen, owner-managed, and frequently motivated by inter-generational or impact considerations (Wessel et al., 2014; Block et al., 2019; Schickinger et al., 2023). We therefore expect that FOs follow investment policies and achieve exit patterns that differ systematically from those of IVCs, whose strategies are bounded by finite fund lives and periodic fundraising. From the empirical investigation, we do find that FOs differ significantly in their investment strategies from IVCs. Specifically, FOs prefer funding rounds with larger syndicates, highlighting a more cautious approach to investment-selection based on risk-sharing. In addition, they avoid investing in companies facing high local sectoral competition, and favor funding rounds of smaller size than those targeted by IVCs. They also tend to invest in slightly less mature firms at earlier stages than IVCs, and to invest further away from their home country. They show a stronger inclination to invest in startups addressing ESG-related issues, reflecting a broader societal orientation.

Regarding investment outcomes, we find that FO-backed firms generally have a lower probability of going public than those backed by IVCs across all time horizons. However, this disadvantage disappears in the case of ESG sector firms. In fact, when backed by FOs, ESG companies exhibit even higher IPO odds than their counterparts, underscoring the pivotal role of FO involvement in this sector.

Lastly, we find no significant difference in M&A exit outcomes between investor types. However, firms initially backed by FOs tend to raise substantially more capital in subsequent funding rounds than those first financed by IVCs. This pattern suggests that FO-backed ventures are more successful in sustaining investor confidence and securing continued financing over time. Rather than interpreting this as evidence of an explicit exit preference, we view it as consistent with FOs' broader orientation toward patient capital and long-term relationship building, reflecting their emphasis on stability, legacy preservation, and sustained value creation.

While FOs differ from traditional family businesses in their focus on wealth deployment rather than wealth creation, both are embedded in the same family system and shaped by similar socioemotional and stewardship logics. FOs represent a natural evolution of the enterprising family, a professionalized vehicle through which families continue to exert economic and social influence beyond their operating firms. By examining FOs, this study extends the family business literature into the domain of capital markets, showing how legacy preservation, long-term orientation, and mission-driven goals manifest in investment behavior. In doing so, it bridges the study of family business and family wealth management, highlighting how family influence persists even after the transition from ownership of firms to ownership of capital.

Our paper contributes to the following literature. First, our study contributes to the small but rapidly emerging literature on FOs by providing the first large-scale empirical evidence on their investment strategies, exit outcomes, and underlying family character-

istics in the start-up financing market. To date, only two studies, [Block et al. \(2019\)](#) and [Schickinger et al. \(2022\)](#), have systematically examined FOs. [Block et al. \(2019\)](#), based on interviews with a limited subsample of investors from PitchBook, show that FOs emphasize current profitability over revenue growth, reflecting their caution in protecting family wealth and future generations’ well-being. Similarly, [Schickinger et al. \(2022\)](#) find that FOs prefer internal financing over external debt, consistent with transgenerational control and non-economic goals. Building on these insights, we manually compile and verify data on 2,800 direct FO-backed investments and link them to information about the founding families or individuals behind each office. This unique dataset provides the first large-sample view of what these FOs look like: who they are, where their wealth originates, and how family legacies translate into distinct investment behaviors.

Second, our paper contributes to entrepreneurial financing in general. Classic work in this field centers on venture-capital and private-equity funds ([Gompers and Lerner, 2001a](#); [Kaplan and Strömberg, 2009](#)) as the dominant outside financiers of high-growth firms. More recent studies extend the map to crossover investors: mutual funds ([Chernenko et al., 2021](#)), hedge funds ([Lerner and Nanda, 2020](#)), and sovereign vehicles ([Cumming and Monteiro, 2023](#)), which have pushed into late-stage venture rounds. As family-office AUM surge, this study offers the first empirical evidence on how FOs engage in start-up investing, uncovering a distinctive investment logic marked by early-stage participation, cautious risk management through syndication and strong impact orientation.

Lastly, this study contributes to the expanding social impact finance literature by linking it to FO investing. While qualitative accounts suggest many families pursue legacy or mission goals when allocating capital, systematic empirical evidence has been scant. Research on impact investing more broadly shows that impact-seeking funds often differ from traditional investors: they are more likely to invest in under-served regions, pioneer new industries, and accept longer horizons or greater risk for social as well as financial returns ([Barber et al., 2020](#); [Cole et al., 2023](#); [Kaya and Orpiszewski, 2025](#)). However, little is known about how family-owned investment vehicles behave in this regard. We fill this gap by providing the first large-sample empirical test showing that FO portfolios tilt toward education, health, and environmental sectors, and away from winner-takes-all races, even after controlling for deal size, stage, and geography. This offers scale-based evidence that FOs act as providers of “patient impact capital,” thereby enriching the social-investment literature with hard data rather than relying solely on survey impressions.

The paper proceeds as follows. Section 2 develops the theoretical framework and hypotheses grounded in family business, stewardship, and impact investing literatures. Section 3 details the data collection, empirical design, and variable definitions. Section 4 presents the main results on FO investment behavior, sectoral focus and exit outcomes. Section 5 concludes with key contributions, limitations, and directions for future research.

3.2 Theory and Hypotheses

Family Offices (FOs) can be viewed as an evolved form of family enterprise operating in the financial domain. Like family firms, they intertwine family and business interests, with ownership and control concentrated within the family. Thus, FOs extend family firm logics: long-term orientation, socioemotional wealth preservation, and stewardship, into investment activities, making family business theories applicable to understanding their governance and decision-making.

For instance, [Sirmon and Hitt \(2003\)](#) identify patient financial capital as a unique family firm resource, and argue that family-controlled investors adopt longer-term investment horizons due to their intergenerational goals. Similarly, [Lumpkin and Brigham \(2011\)](#) develop the concept of long-term orientation (LTO) to explain family firms intertemporal decision-making. LTO is a multidimensional construct characterized by futurity, continuity, and perseverance, which serves as a dominant logic guiding choices that favor the long run ([Brigham et al., 2013](#)). [Carney \(2005\)](#) notes that families often enjoy a competitive advantage in contexts where social capital, long-term orientation, and efficiency dominate over scale and capital. As a result, we anticipate systematic differences in FO vs. IVC activity:

Hypothesis 1: FOs adopt a longer-term, patient investment approach than IVCs, consistent with a future-oriented investment stance.

In addition, we hypothesize FOs to be guided by socioemotional wealth (SEW) priorities, that is, the family’s desire to maintain positive emotional outcomes, identity, and legacy through their business endeavors ([Berrone et al., 2012](#)). As shown by [Zellweger and Kammerlander \(2015\)](#), FOs are often established with the goal of wealth preservation across generations in mind. This emphasis is rooted in SEW principles, and also shapes FOs’ approach to risk ([Gómez-Mejía et al., 2007](#)). For example, [Naldi et al. \(2007\)](#) demonstrate that risk-taking in family firms reduces performance due to strong aversion to jeopardizing family wealth and socioemotional goals. Likewise, [Duran et al. \(2025\)](#) use SEW theory as the primary lens to examine how family control among publicly listed firms in high-technology sectors affects investments in corporate venture capital (CVC). Their findings reveal that family-controlled firms engage less in CVC activities as they entail risks, and when they do, they make larger investments to exert greater influence.

Hypothesis 2: FOs exhibit a more risk-averse investment style than IVCs, favoring risk-sharing and wealth preservation.

Successful family businesses are built around the concept of stewardship, where altruism, legacy, and identity lead to sustainable, long-term investments ([Davis et al., 1997](#); [Miller and Breton-Miller, 2006](#)). One important manifestation of these considerations is a stronger commitment toward environmental, social, and governance (ESG) causes ([Berrone et al., 2010](#)). [Cruz et al. \(2021\)](#) develop a theoretical framework where some

families are thought to pursue impact investing for legitimacy and image, others as local legacy continuation, and a few as strategic innovation. Moreover, [Steier \(2003\)](#) shows that family financing of new ventures represents a unique hybrid of altruism and market rationality, governed by social and emotional motives alongside economic ones. In addition, [Sharma and Sharma \(2019\)](#) note that family firms are willing to forego short-term returns to preserve family identity and legacy.

Hypothesis 3: FOs place a greater emphasis on ESG and impact investments in their portfolios than IVCs, reflecting the influence of family socioemotional and legacy goals.

3.3 Data and Methodology

3.3.1 Dataset Description

The number of FOs has expanded rapidly over the past two decades. Figure 3.1 illustrates this trend, highlighting the growing relevance of FOs as institutional investors in the venture capital landscape. While FOs vary in structure depending on their client base, governance, and service offerings ([Rosplock and Hauser, 2014](#); [Rivo-López et al., 2017](#)), this paper focuses specifically on Single Family Offices (SFOs), thereby excluding multi-family organizations. This choice is motivated by the fact that investment strategies in SFOs are directed by a single family, thus SFO investments can be more clearly connected to the family’s business background and values, an alignment that is far more difficult to establish for Multi-Family Offices (MFOs). Because MFOs pool capital from multiple families and typically do not disclose which family is behind each investment, it is challenging to link any specific deal to a particular family’s history, objectives, or governance traditions.

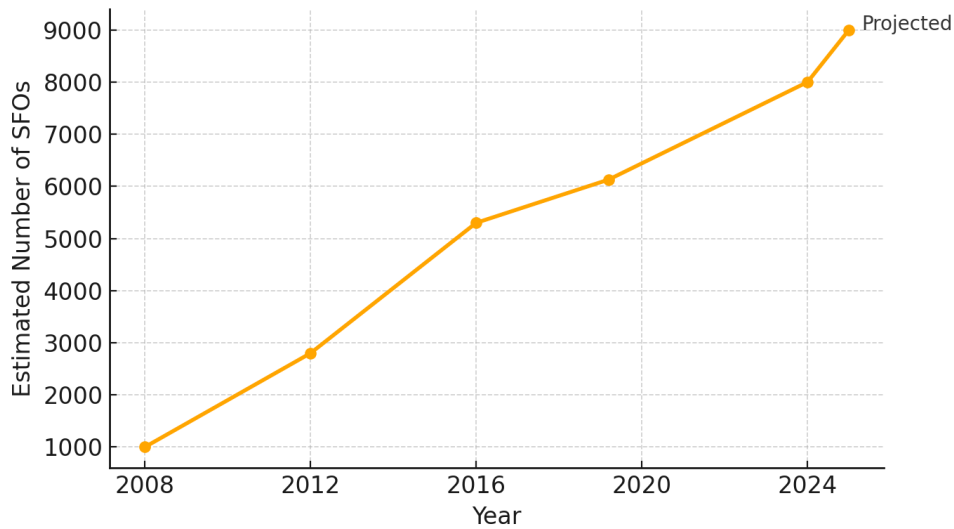


Fig. 3.1: Global Growth in the Number of Family Offices, 2008–2025

Source: (*The Economist Intelligence Unit*, 2020; *Deloitte*, 2024).

Our primary data source is the Crunchbase (CB) database⁵, one of the most comprehensive repositories of information on private-market activities worldwide. Originally developed as a crowd-sourced platform tracking technology ventures, CB has evolved into a structured database containing detailed firm-level and investor-level information on funding rounds, investment amounts, deal dates, investor identities, and geographic and sector classifications. It covers companies and investors across more than 200 countries and has been widely used in recent studies on venture capital, crowdfunding, and entrepreneurial finance (Ryu et al., 2022; van den Heuvel and Popp, 2023; Kalhor and Bahrak, 2024).

From this database, we identify approximately 2,800 direct investments backed by 335 SFOs. Each entry is manually verified through triangulation with multiple public sources, including company websites, press releases, and financial databases, to ensure that the investor qualifies as a SFO rather than MFO, or another form of private equity or institutional fund. In addition, we collect supplementary information on the founding families or individuals behind each SFO, including details on wealth origin, generation, and family business background. This manual effort provides the first large-sample view of what these family offices look like, how they are structured, and how their family heritage may shape investment decisions.

As shown in Table 3.1, well over half of families in our sample have an industry background in tech and finance, while their legal residence is highly skewed towards the United States.

⁵Crunchbase: Make better decisions, faster. <https://www.crunchbase.com>. Accessed 01 June 2025

Table 3.1: Distribution of Single Family Offices by Industry and Country

Rank	Family Sector	Headquarter
1	Tech (31.23%)	United States (142)
2	Finance (27.33%)	United Kingdom (18)
3	Industrial & Energy (14.71%)	Germany (17)
4	Consumer & Retail (11.11%)	Sweden (9)
5	Other (5.71%)	Switzerland (9)
6	Health & Biotech (5.11%)	France (8)
7	Media & Entertainment (3.30%)	Australia (5)
8	Services (1.50%)	Singapore (5)

Notes: The first column reports the distribution of the industry sector of the family business, while the second column shows the the top eight countries for concentration of family offices headquarters.

To analyze the main factors that differentiate SFO investments from those of other investors, we linked each investor to their direct investments in startups over time. This allows us to evaluate the factors that drive SFOs to invest in a company compared to other investors. To avoid potential bias from staged financing rounds, we retained only the first recorded investment per investor–startup pair (Gompers, 1995; Li et al., 2023).

To test our hypotheses, we use the investment stage at which the investor enters the deal to proxy for the long-term focus of SFO vs. IVC investments. Crunchbase reports the exact venture financing round in which an investor first participates. These stages are captured in the analysis through the indicators *Seed*, *Series A*, *Series B*, *Series C*, and *Series D*, which correspond to standard venture capital funding rounds. In addition, we construct the aggregate category *Early rounds*, which groups together *Seed*, *Series A*, and *Series B* investments. Significant early entries are associated with a more supportive backing from the initial stages of the business, indicating a long-term commitment in the success of the enterprise (Klingler-Vidra, 2016). In addition, for both investor types, we construct the variable *Follow-on Rounds* that counts the number of funding rounds that the start-up raises after their first backing. A higher number of rounds raised associated with the investor reflects an early, enduring involvement in the company affairs (Carpentier and Suret, 2013; Zheng, 2022).

We further evaluate the validity of the risk-averse hypothesis through the inclusion of the variable *Investor Count*, which captures the number of investors participating in a deal. Larger syndicates are evidence of risk sharing among investors (Wilson, 1968), suggesting substantial pooling of resources and information that minimizes risk (Sah and Stiglitz, 1986; Gompers and Lerner, 2001b). Furthermore, to assess the diversification of investments across fields, the factor variable *Firm Sector* identifies the industry of the start-up. Cross-sectoral investments offer a safeguard against idiosyncratic industry downturns, effectively reducing the negative risk of business concentration (Goetzmann

and Kumar, 2008). Appendix C, Table C.3 shows the categories used for the construction of each sector. Similarly, the variable *Home Bias* equals one when the investor and the startup share the same country, providing additional information on the risk management strategy implemented by SFOs across geographic areas (Fang and van Lelyveld, 2014; Bacsosz, 2019).

Additionally, we capture differences in local investment environments by including *Sector Density*, a measure of local industry concentration. It is calculated by dividing the number of firms active in a given sector within a city by the total number of firms across all sectors in that city. Thus, *Sector Density* approaches 1 when a city’s economic activity is heavily concentrated in a single sector, and approaches 0 when it is more evenly distributed across multiple industries, and it provides an additional proxy for the appetite of sectoral concentration among investors.

Finally, we check for a preference among family offices of impact investing by constructing the binary variable *ESG Sector*, which equals one when the firm operates in industries linked to social or environmental well-being. In defining what constitutes an ESG investment, we followed the exemplary lists provided by Clarkson (1995) and Wood (2010). The specific categories included in this variable are detailed in Appendix C, Table C.2.

In addition, we follow the standard literature and construct the following variables to proxy for investor’s experience and investment performance: *Investor Experience* measures the time elapsed between the fund’s establishment date and the day the deal was closed. Likewise, *Firm Age* captures the time from the company’s founding until the day it received the investment. Finally, *Raised Amount* is the total capital raised by the startup in each funding round, while the binary variables of *IPO* and *M&A* transaction capture the exit outcomes of each investment.

Table 3.2 provides descriptive differences between IVCs and SFOs. SFOs are significantly more active in Seed rounds and provide substantially more follow-on financing, indicating deeper long-term engagement. IVCs show slightly greater participation in Series A, but later-stage rounds are similar across investor types. SFO-backed deals involve larger syndicates and younger firms, yet exhibit a higher IPO probability, suggesting that SFOs may play an important role in supporting firms through to successful exits. IVCs, conversely, tend to invest in firms located in denser sectors and display greater home bias. Overall, the summary statistics point to distinctive investment patterns between SFOs and IVCs. Nonetheless, these patterns are descriptive in nature; additional regression analysis is required to control for variation in firm, deal, and sector characteristics.

Table 3.2: Descriptive Statistics

Variables	Deal Count	IVC	Mean (IVC)	SFO	Mean (SFO)	Difference	t-statistics
Single Family Office	141,185	138,826	0.000	2,359	1.000	-1.000	.
Seed	141,185	138,826	0.198	2,359	0.290	-0.092***	-11.10
Series A	141,185	138,826	0.264	2,359	0.235	0.029***	3.19
Series B	141,185	138,826	0.155	2,359	0.138	0.017**	2.24
Series C	141,185	138,826	0.074	2,359	0.073	0.001	0.15
Series D	141,185	138,826	0.031	2,359	0.031	0.000	0.01
Early Rounds	141,185	138,826	0.617	2,359	0.663	-0.046***	-4.56
Follow-on Rounds	141,185	138,826	0.392	2,359	0.813	-0.422***	-22.11
Investor Count	141,185	138,826	4.363	2,359	5.421	-1.058***	-13.20
Firm Sector	141,185	138,826	3.148	2,359	3.451	-0.303***	-6.92
ESG Sector	141,185	138,826	0.066	2,359	0.067	-0.001	-0.24
IPO	141,185	138,826	0.034	2,359	0.017	0.018***	4.73
M&A	141,185	138,826	0.077	2,359	0.077	-0.000	-0.03
Home Bias	141,185	138,826	0.756	2,359	0.736	0.020**	2.22
Sector Density	141,185	138,826	0.059	2,359	0.054	0.005***	4.21
Raised Amount	141,185	138,826	1.51e+08	2,359	3.23e+07	1.19e+08	0.44
Investor Experience	126,195	123,995	14.634	2,200	15.910	-1.276***	-3.24
Firm Age	141,185	138,826	4.997	2,359	4.178	0.819***	4.80

3.3.2 Empirical Methodology

To examine the odds that, for observation i , the primary investor is a Single Family Office (SFO) rather than an Independent Venture Capitalist (IVC), we estimate the logistic model in Eq. 3.1. The dependent variable SFO equals one when the deal involves a Single Family Office and zero otherwise. Because the unit of observation is the unique investor–company pair at the first recorded investment, the model captures the probability that deal i involves an SFO, conditional on the included covariates.

$$\begin{aligned}
\Pr(SFO_i = 1 \mid \mathbf{X}_i) = & \Lambda \left(\alpha + \beta_1 \text{Home Bias}_i + \beta_2 \text{Sector Density}_i \right. \\
& + \beta_3 \text{Investor Experience}_i + \beta_4 \text{Firm Age}_i \\
& + \beta_5 \log(\text{Raised Amount}_i) + \beta_6 \text{Investor Count}_i \\
& + \gamma \text{Investment Stage}_i + \delta \text{Primary Sector}_i \\
& \left. + \lambda \text{Location}_i + \eta \text{Year}_i + \epsilon_i \right)
\end{aligned} \tag{3.1}$$

The analysis incorporates a combination of location characteristics and a set of firm- and investor-level controls that tailor the empirical framework to our setting. This enables a thorough assessment of the main determinants of SFO investments relative to the control group. To assess the stability of the baseline models, we conducted several diagnostic checks. In particular, Variance inflation factors (VIF) indicate low multicollinearity among the core regressors, while receiver operating characteristic (ROC) curves and the corresponding area under the curve (AUC) show strong discrimination for the main mod-

els. Detailed diagnostic results are reported in Appendix C.

To measure investors' early engagement with portfolio companies, we further estimate a Poisson model where the dependent variable is the number of subsequent funding rounds a firm raises after the initial investment, as shown in Eq. 3.2:

$$\begin{aligned}\mathbb{E}[y_i | \mathbf{X}_i] = \mu_i = \exp \bigg(& \alpha + \theta_1 \text{SFO}_i + \theta_2 \text{Home Bias}_i \\ & + \theta_3 \text{Sector Density}_i + \theta_4 \text{Investor Experience}_i \\ & + \theta_5 \text{Firm Age}_i + \theta_6 \log(\text{Raised Amount}_i) \\ & + \theta_7 \text{Investor Count}_i + \boldsymbol{\phi}^\top \text{Investment Stage}_i \\ & + \boldsymbol{\delta}^\top \text{Primary Sector}_i + \lambda \text{Location}_i + \boldsymbol{\eta}^\top \text{Year}_i + \epsilon_i \bigg) \quad (3.2)\end{aligned}$$

This will help us evaluate the long-term orientation of SFO in their investment strategies, as early entrances are associated with long-lasting firm support ([Klingler-Vidra, 2016](#)).

Furthermore, we assess the likelihood that an investment targets firms operating in ESG-related sectors by means of Eq.3.3, thereby capturing differences in environmental and social investments preferences across investors.

$$\begin{aligned}\Pr(\text{ESG Firm}_i = 1 | \mathbf{X}_i) = \Lambda \bigg(& \alpha + \beta_1 \text{SFO}_i + \beta_2 \text{Home Bias}_i + \beta_3 \text{Sector Density}_i \\ & + \beta_4 \text{Investor Experience}_i + \beta_5 \text{Firm Age}_i \\ & + \beta_6 \log(\text{Raised Amount}_i) + \beta_7 \text{Investor Count}_i, \\ & + \gamma \text{Investment Stage}_i + \delta \text{Primary Sector}_i \\ & + \lambda \text{Location}_i + \eta \text{Year}_i + \epsilon_i \bigg) \quad (3.3)\end{aligned}$$

Finally, consistent with prior work in venture capital and entrepreneurial finance, we assess investment performance using the IPO exit rate, which is broadly regarded as the most reliable indicator of financial returns to venture investors ([Barry, 1994](#); [Black and Gilson, 1999](#)).

$$\begin{aligned}
\Pr(\text{IPO}_i = 1 \mid \mathbf{X}_i) = & \Lambda \left(\alpha + \beta_1 \text{SFO}_i + \beta_2 \text{Home Bias}_i \right. \\
& + \beta_3 \text{ESG Firm}_i + \beta_4 \text{Sector Density}_i \\
& + \beta_5 \text{Investor Experience}_i + \beta_6 \text{Firm Age}_i \\
& + \beta_7 \log(\text{Raised Amount}_i) + \beta_8 \text{Investor Count}_i, \\
& + \gamma \text{Investment Stage}_i + \delta \text{Primary Sector}_i \\
& \left. + \lambda \text{Location}_i + \eta \text{Year}_i + \epsilon_i \right)
\end{aligned} \tag{3.4}$$

Together, these specifications provide a comprehensive view of how family offices differ from independent venture investors in investment selection, ESG orientation, performance outcomes, and persistence. The next section presents the estimation results.

3.4 Empirical Results

The regression results reinforce the core patterns identified earlier. In Section 3.4.1, the determinants of investment choice remain distinct, with Single Family Offices continuing to favour earlier-stage and younger firms even after controlling for other characteristics. Section 3.4.2 provides further evidence of their patient-capital orientation, showing that SFO-backed startups are significantly more likely to receive additional funding rounds than those backed by Independent VCs. Section 3.4.3 indicates that SFOs also display a stronger inclination toward impact-aligned investments. Finally, while IPO outcomes are generally difficult for ESG-related startups, Family Office involvement substantially increases the likelihood that these ventures ultimately achieve an IPO.

3.4.1 Determinants of Investment

Table 3.3 reports the odds ratios of an investment being led by a SFO as opposed to an IVC. The results provide a comprehensive picture of the main determinants shaping SFOs' investment behavior. In particular, SFOs display higher odds of participating in *Seed* rounds, whereas IVCs appear more concentrated in *Series A* rounds, providing evidence in support of the long-term view surrounding SFO investment strategies. SFOs are also more likely to participate in larger syndicates than IVCs, validating our initial hypothesis that SFOs tend to avoid risks and diversify funding in response to their SEW priorities.

Table 3.3: Odds Ratios of Single Family Office Deal Involvement (vs. IVC)

	(1)	(2)	(3)	(4)
Home Bias	0.857*** (−3.00)	0.849*** (−3.19)	0.843*** (−3.21)	0.835*** (−3.40)
Sector Density	0.152*** (−3.06)	0.157*** (−3.04)	0.140*** (−3.14)	0.144*** (−3.12)
Investor Experience			1.009*** (9.65)	1.009*** (9.66)
Firm Age	0.989*** (−2.59)	0.989*** (−2.75)	0.988*** (−2.82)	0.988*** (−2.98)
Investor Count	1.036*** (13.30)	1.037*** (13.44)	1.038*** (13.31)	1.039*** (13.32)
Ln(Raised Amount)	0.907*** (−7.44)	0.910*** (−8.24)	0.897*** (−7.97)	0.901*** (−8.66)
Seed	1.182** (2.38)		1.169** (2.11)	
Series A	0.999 (−0.01)		1.004 (0.05)	
Series B	1.194** (2.23)		1.207** (2.31)	
Series C	1.290** (2.49)		1.265** (2.24)	
Series D	1.337** (2.03)		1.345** (2.03)	
Early Rounds		1.035 (0.68)		1.037 (0.69)
<i>Industry sector (ref. = Tech)</i>				
Health & Biotech	0.922 (−1.02)	0.924 (−0.99)	0.909 (−1.16)	0.912 (−1.12)
Finance	1.432*** (3.77)	1.419*** (3.68)	1.443*** (3.73)	1.431*** (3.65)
Consumer & Retail	1.350*** (4.56)	1.346*** (4.53)	1.354*** (4.46)	1.351*** (4.43)
Media & Entertainment	1.137 (1.40)	1.128 (1.31)	1.150 (1.47)	1.142 (1.40)
Industrial & Energy	1.503*** (3.97)	1.487*** (3.88)	1.551*** (4.15)	1.534*** (4.06)
Services	1.388*** (4.29)	1.384*** (4.25)	1.427*** (4.53)	1.425*** (4.50)
Other	0.911 (−0.46)	0.904 (−0.51)	0.907 (−0.47)	0.900 (−0.51)
Constant	0.067*** (−11.09)	0.070*** (−11.94)	0.070*** (−10.34)	0.071*** (−11.21)
Location controls	Yes	Yes	Yes	Yes
Investment-year controls	Yes	Yes	Yes	Yes
Observations	141,070	141,070	126,099	126,099

Notes: Dependent variable is a dummy for Single Family Office as primary investor. Results are reported as odds ratios. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. Robust standard errors used. *z*-statistics in parentheses.

This is confirmed by a greater distribution of investments across sectors and geographies. For instance, the value for *Home Bias* is below unit and statistically significant, indicating that SFOs are more likely than IVCs to invest outside their home markets. In addition, with the exception of *Health & Biotech* and *Other*, all coefficients for the industry sector are positive and significant, reflecting a more diversified choice of portfolio companies compared to IVCs, which appear more reliant on the *Tech* sector. *Sector Density* also shows how SFO have significantly lower odds of investing in sectors that dominate the local ecosystem, reinforcing the argument that sees SFOs favoring less concentrated, more niche deals.

Finally, the results for *Firm Age* suggest that SFOs tend to invest in less mature companies than their peers, while *Investor Experience* indicates that their investment vehicles have been around for longer than IVCs. SFOs also commit, on average, smaller amounts of capital relative to the control group.

3.4.2 Additional Funding Rounds

To evaluate the long-term orientation of SFO investment strategies, we construct a variable that counts the number of fundraising rounds raised by the start-up after the first investment received. This outcome provides a measure of the long-term value brought by different investors, captured through the firm’s ability to secure subsequent financing rounds. Table 3.4 reports the results from the Poisson regressions. The estimates indicate that SFO-backed firms are significantly more likely than IVC-backed firms to complete additional funding rounds. The effect is statistically significant at the 1% level and corresponds to an expected increase of roughly 35% in the number of follow-on rounds. The findings can be interpreted as reflecting the long-term, patient-capital orientation of SFO investments, which often diverges from standard market dynamics and the shorter time horizons of conventional venture investors. *Sector Density* is also associated to a higher expected number of funding rounds, suggesting that local sectoral concentration may be inductive to stronger competition and a fight for capital for survival.

Table 3.4: Incidence Rate Ratios of Additional Fundraising Rounds vs. IVC

	(1)	(2)	(3)	(4)	(5)	(6)
SFO	1.357*** (9.04)	1.336*** (8.63)	1.402*** (5.52)	1.381*** (5.29)	1.406*** (5.47)	1.383*** (5.22)
Home Bias	0.995 (−0.40)	0.995 (−0.38)	0.996 (−0.27)	0.997 (−0.26)	0.997 (−0.20)	0.998 (−0.16)
SFO × Home Bias			0.956 (−0.61)	0.956 (−0.62)	0.956 (−0.60)	0.956 (−0.60)
Sector Density	1.797*** (5.78)	1.796*** (5.72)	1.797*** (5.77)	1.796*** (5.72)	1.669*** (4.77)	1.669*** (4.74)
Investor Experience					1.000 (0.78)	1.000 (0.64)
Firm Age	0.949*** (−19.74)	0.946*** (−20.53)	0.949*** (−19.74)	0.946*** (−20.53)	0.947*** (−19.18)	0.944*** (−19.98)
Investor Count	1.021*** (18.79)	1.022*** (18.95)	1.021*** (18.79)	1.022*** (18.94)	1.021*** (17.39)	1.021*** (17.52)
Ln(Raised Amount)	1.071*** (18.56)	1.056*** (15.95)	1.071*** (18.56)	1.056*** (15.95)	1.071*** (17.63)	1.056*** (15.17)
Seed	1.795*** (30.09)		1.795*** (30.09)		1.797*** (28.56)	
Series A	1.656*** (31.42)		1.656*** (31.42)		1.662*** (29.72)	
Series B	1.300*** (11.72)		1.300*** (11.72)		1.294*** (10.71)	
Series C	1.039 (1.04)		1.039 (1.04)		1.059 (1.41)	
Series D	1.166 (1.60)		1.167 (1.60)		1.186* (1.65)	
Early Rounds		1.613*** (33.37)		1.613*** (33.37)		1.615*** (31.29)
Industry controls	Yes	Yes	Yes	Yes	Yes	Yes
Location controls	Yes	Yes	Yes	Yes	Yes	Yes
Investment-year controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	83,684	83,684	83,684	83,684	74,090	74,090

Notes: Dependent variable is the count of additional fundraising rounds a firm completed after its first deal with the respective investor. Results are reported as incidence rate ratios (IRRs). *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. Robust standard errors used. *z*-statistics in parentheses.

3.4.3 Impact Investing

Table 3.5 presents the results on the likelihood of participating in a deal involving a firm active in the ESG domain. Across all specifications, *SFO* status is positively associated with ESG investment. In the baseline models (Columns 1–2), SFOs are roughly 18% more likely than IVCs to fund ESG-oriented startups. When allowing for an interaction between *SFO* status and *Home Bias* (Columns 3–6), the magnitude of the effect increases, indicating that SFOs do not display a stronger home-country preference for ESG firms than IVCs; in contrast, their ESG inclination appears slightly weaker in domestic markets. These results provide the first empirical evidence for a relationship that has so far been discussed primarily in anecdotal terms, and complement recent work by [Schickinger et al. \(2022\)](#), who highlight the influence of non-economic goals in SFO investment strategies. These findings also connect the analysis to the growing literature on impact investing. Qualitative accounts often suggest that families allocate capital with legacy, reputation, or mission considerations in mind, yet systematic empirical evidence remains limited. Research on impact-oriented investment funds shows that such investors frequently differ from traditional venture capitalists: they tend to invest in underserved regions, pioneer emerging industries, and accept longer investment horizons or higher uncertainty in exchange for social as well as financial returns ([Barber et al., 2020](#); [Cole et al., 2023](#); [Kaya and Orpiszewski, 2025](#)). The results presented here are consistent with this perspective. Even after controlling for deal size, stage, and geographic characteristics, Family Offices display a greater propensity to invest in firms operating in sectors associated with environmental or social objectives. This evidence therefore suggests that family-controlled investment vehicles may act as providers of relatively “patient” capital in socially oriented sectors.

Table 3.5: Odds Ratios of ESG Sector Investment (SFO vs. IVC)

	(1)	(2)	(3)	(4)	(5)	(6)
SFO	1.183*	1.187*	1.373*	1.371*	1.420*	1.415*
	(1.72)	(1.76)	(1.69)	(1.67)	(1.82)	(1.80)
Home Bias	1.276***	1.273***	1.280***	1.277***	1.285***	1.281***
	(8.63)	(8.54)	(8.68)	(8.58)	(8.32)	(8.23)
Home Bias $\times$ SFO			0.819	0.824	0.800	0.806
			(-0.91)	(-0.88)	(-0.99)	(-0.95)
Sector Density	0.025***	0.025***	0.025***	0.025***	0.020***	0.020***
	(-15.89)	(-15.94)	(-15.89)	(-15.94)	(-15.86)	(-15.91)
Investor Experience					0.998**	0.998**
					(-2.61)	(-2.64)
Firm Age	1.004***	1.004***	1.004***	1.004***	1.004***	1.004***
	(3.49)	(3.40)	(3.49)	(3.41)	(3.63)	(3.66)
Investor Count	0.938***	0.942***	0.938***	0.942***	0.941***	0.944***
	(-13.41)	(-13.15)	(-13.40)	(-13.14)	(-12.12)	(-11.93)
Ln(Raised Amount)	0.939***	0.938***	0.939***	0.938***	0.937***	0.935***
	(-8.05)	(-9.14)	(-8.05)	(-9.13)	(-7.79)	(-8.88)
Seed	0.965		0.965		0.933*	
	(-0.92)		(-0.92)		(-1.69)	
Series A	0.892***		0.892***		0.857***	
	(-3.55)		(-3.55)		(-4.54)	
Series B	0.952		0.952		0.928*	
	(-1.29)		(-1.29)		(-1.87)	
Series C	1.057		1.057		1.003	
	(1.14)		(1.15)		(0.06)	
Series D	1.227***		1.227***		1.237***	
	(3.11)		(3.12)		(3.08)	
Early Rounds		0.902***		0.902***		0.880***
		(-4.23)		(-4.23)		(-4.97)
Constant	0.054***	0.056***	0.054***	0.056***	0.060***	0.062***
	(-20.12)	(-21.82)	(-20.13)	(-21.84)	(-18.21)	(-19.74)
Industry controls	Yes	Yes	Yes	Yes	Yes	Yes
Location controls	Yes	Yes	Yes	Yes	Yes	Yes
Investment-year controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	141,223	141,223	141,223	141,223	126,227	126,227

Notes: Dependent variable is a dummy for ESG sector (1 = ESG, 0 = non-ESG). Main regressor is SFO (vs. IVC). “Home Bias” is an indicator for investor and company being in the same country. “Home Bias $\times$ SFO” is their interaction. Results are reported as odds ratios. Robust standard errors; z -statistics in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

In addition, we assess the financial performance of SFO investments by relying on two binary variables as proxies for investment success. Specifically, the dependent variables take value 1 if a portfolio company goes public (IPO), or is acquired through an M&A transaction within three years of the deal closing, and 0 otherwise. This approach allows us to evaluate both the foresight and effectiveness of SFOs compared to the control group, while also identifying the characteristics most strongly associated with successful exits.

Table 3.6 reports the results for the IPO model. The findings indicate that SFO-backed investments have statistically significant lower odds of culminating in an IPO across all model specifications compared to IVC-backed investments. In particular, the odds are about 36% lower in the first two models and roughly 40% lower in the four remaining specifications. By contrast, while *ESG Sector* is negatively correlated with IPO likelihood overall, the positive and significant interaction with SFO implies that patient family capital may be particularly effective in supporting the long-term growth of impact-oriented startups, increasing their chances of eventually going public.

Among the control variables, both *Investor Count* and *Investment Amount* are positively and significantly associated with IPO outcomes, highlighting that larger syndicates and greater capital commitments tend to signal stronger market expectations of public listing. Furthermore, the positive effect of *Sector Density* suggests that firms located in highly concentrated local markets are more likely to go public than those operating in more diversified environments, pointing to the role of competitive local ecosystems in fostering IPO-ready companies.

Table 3.6: Odds Ratios of IPO Exits (SFO vs. IVC)

	(1)	(2)	(3)	(4)	(5)	(6)
SFO	0.636** (−2.56)	0.641** (−2.51)	0.584*** (−2.88)	0.589*** (−2.83)	0.590*** (−2.79)	0.597*** (−2.71)
Home Bias	1.062* (1.67)	1.044 (1.18)	1.063* (1.68)	1.044 (1.19)	1.081** (2.04)	1.061 (1.55)
ESG Sector	0.328*** (−14.96)	0.322*** (−15.12)	0.324*** (−15.01)	0.318*** (−15.17)	0.315*** (−14.59)	0.310*** (−14.71)
SFO × ESG Sector			3.149** (2.04)	3.057** (1.99)	3.469** (2.19)	3.337** (2.13)
Sector Density	3.657*** (7.57)	4.116*** (8.24)	3.657*** (7.57)	4.117*** (8.24)	3.562*** (7.01)	4.005*** (7.63)
Investor Experience					1.000 (−0.40)	1.000 (−0.22)
Firm Age	0.998 (−1.30)	0.999 (−0.73)	0.998 (−1.30)	0.999 (−0.74)	0.997 (−1.47)	0.998 (−0.95)
Investor Count	1.054*** (20.26)	1.052*** (20.87)	1.054*** (20.26)	1.052*** (20.87)	1.054*** (19.47)	1.053*** (20.14)
Ln(Raised Amount)	1.507*** (45.79)	1.575*** (53.92)	1.507*** (45.79)	1.575*** (53.91)	1.517*** (43.72)	1.585*** (51.22)
Seed	0.102*** (−16.25)		0.102*** (−16.25)		0.102*** (−15.29)	
Series A	0.387*** (−19.03)		0.387*** (−19.03)		0.384*** (−18.11)	
Series B	0.679*** (−9.14)		0.680*** (−9.13)		0.683*** (−8.59)	
Series C	1.008 (0.16)		1.007 (0.15)		1.020 (0.38)	
Series D	1.447*** (6.11)		1.448*** (6.12)		1.443*** (5.72)	
Early Rounds		0.448*** (−23.36)		0.448*** (−23.35)		0.449*** (−22.14)
Constant	2.6e-06*** (−54.28)	1.2e-06*** (−58.90)	2.6e-06*** (−54.28)	1.2e-06*** (−58.90)	2.0e-06*** (−51.69)	9.3e-07*** (−56.05)
Industry controls	Yes	Yes	Yes	Yes	Yes	Yes
Location controls	Yes	Yes	Yes	Yes	Yes	Yes
Investment-year controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	141,238	141,238	141,238	141,238	126,241	126,241

Notes: Dependent variable is IPO success (1 = IPO, 0 = no IPO) within three years after the initial investment. Results are reported as odds ratios. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. Robust standard errors used. *z*-statistics in parentheses.

Conversely, the likelihood that SFO investments result in an M&A compared to IVC-backed investments show no statistically significant difference, as presented in Table 3.7. However, the interpretation of acquisition outcomes as signals of good performance is contested (Li et al., 2023). Pressures to liquidate may result in discounted sales, while disagreements among investors can affect acquisition terms (Masulis and Nahata, 2011).

Among the control variables, a few factors are positively and significantly associated with M&A outcomes. These include *Investor Experience* and *Investor Count*, suggesting that seasoned and larger syndicates may facilitate successful acquisitions. In addition, both *Sector Density* and *Home Bias* are positively correlated with M&A, consistent with the idea that firms embedded in specialized local markets, and those with investors from the same country, are more likely to attract acquisition opportunities.

Finally, later-stage funding rounds are associated with higher odds of M&A, whereas early-stage rounds are comparatively less likely to result in an acquisition. To verify that the main findings are not driven by the specific model choice, Appendix C reports results from Cox proportional-hazards models examining the timing of IPO and M&A exits. The results are consistent with the baseline specifications.

Table 3.7: Odds Ratios of M&A Exits (SFO vs. IVC)

	(1)	(2)	(3)	(4)	(5)	(6)
SFO	1.064 (0.72)	1.069 (0.77)	1.072 (0.78)	1.077 (0.84)	1.046 (0.50)	1.052 (0.55)
Home Bias	1.097*** (3.68)	1.088*** (3.34)	1.097*** (3.68)	1.088*** (3.34)	1.103*** (3.69)	1.094*** (3.39)
ESG Sector	0.982 (−0.38)	0.983 (−0.35)	0.984 (−0.34)	0.985 (−0.30)	0.958 (−0.82)	0.960 (−0.79)
SFO × ESG Sector			0.865 (−0.36)	0.862 (−0.37)	0.925 (−0.19)	0.920 (−0.20)
Sector Density	2.161*** (4.42)	2.212*** (4.59)	2.162*** (4.42)	2.212*** (4.59)	2.228*** (4.38)	2.278*** (4.53)
Investor Experience					1.004*** (7.73)	1.004*** (7.82)
Firm Age	1.000 (0.26)	1.000 (−0.14)	1.000 (0.26)	1.000 (−0.14)	1.000 (−0.12)	0.999 (−0.47)
Investor Count	1.040*** (15.10)	1.042*** (15.44)	1.040*** (15.10)	1.042*** (15.44)	1.039*** (14.29)	1.041*** (14.60)
Ln(Raised Amount)	1.000 (−0.04)	1.012** (2.13)	1.000 (−0.04)	1.012** (2.13)	0.986** (−2.00)	0.998 (−0.34)
Seed	0.965 (−1.04)		0.965 (−1.04)		0.961 (−1.09)	
Series A	0.888*** (−4.15)		0.888*** (−4.15)		0.887*** (−3.97)	
Series B	1.081** (2.41)		1.081** (2.41)		1.076** (2.13)	
Series C	1.305*** (6.78)		1.306*** (6.78)		1.288*** (6.06)	
Series D	1.288*** (4.52)		1.288*** (4.51)		1.264*** (3.92)	
Early Rounds		0.894*** (−5.25)		0.894*** (−5.25)		0.894*** (−4.94)
Constant	7.8e-04*** (−15.49)	6.9e-04*** (−15.85)	7.8e-04*** (−15.49)	6.8e-04*** (−15.85)	1.0e-03*** (−14.83)	9.1e-04*** (−15.17)
Industry controls	Yes	Yes	Yes	Yes	Yes	Yes
Location controls	Yes	Yes	Yes	Yes	Yes	Yes
Investment-year controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	141,233	141,233	141,233	141,233	126,236	126,236

Notes: Dependent variable is M&A success (1 = successful M&A, 0 = no M&A) within three years after the initial investment. Results are reported as odds ratios. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively. Robust standard errors used. *z*-statistics in parentheses.

3.5 Conclusions

In 2023, ultra-high-net-worth individuals (UHNWIs) collectively owned about \$49.2 trillion in assets⁶, and their combined wealth is set to grow. For example, some analysts predict that the global UHNWI cohort will expand by roughly 28.5% by 2027⁷. This implies the world could see on the order of 750,000 individuals with \$30M+. In turn, the rise of the ultra-wealthy will further fuel demand for bespoke wealth management, which represents the perfect backdrop for understanding how FOs have evolved and why their role has become more crucial than ever.

However, the literature offers few insights on the subject. This is notoriously due to the difficulties of fitting the varied structures of family offices into a single legal and operational framework. The relative regulatory freedom enjoyed by these financial entities allows them to operate more privately than other institutional actors, resulting in decreased transparency of their activities and few available data.

This paper seeks to fill that gap by studying the determinants and the objectives behind FO investment activities. In particular, using a dataset from the Crunchbase data platform, we are able to identify around 2,800 FO direct investments. By employing a logistic regression that measures the odds that an investment has a FO as an investor, we initially compared these odds with those of IVCs.

The results indicate that FOs prefer to invest alongside a greater number of co-investors and have more investment experience than their comparators. This suggests greater caution and a preference for risk sharing in their investments. In addition, FOs differ from the control group in their choice of investment locations. Specifically, the odds that an investment involves a FO decrease the higher the sectoral density of the portfolio company, holding all else constant. This indicates that FOs seek out less competitive and more sector-diversified areas. In addition, they tend to invest less in their home country than their peers. Their different investment strategies are also reflected in the timing of their entry into a company. Specifically, FOs back companies earlier in the funding stage, indicating less liquidity constraints in the short-term.

Moreover, we assessed the effect of each investor type on the number of funding rounds completed by a portfolio company after the initial deal. The results provide both empirical and theoretical evidence consistent with the arguments described above. Specifically, IVCs are less able than FOs to increase the expected count of additional funding rounds for the companies they invest in. This indicates that FOs prefer to rely on privately raised funds for a longer period than their peers. In addition, FOs demonstrate a larger preference for ESG causes, as the odds of FOs' participation in a deal increase by about 19% for

⁶Altrata: World Ultra Wealth Report 2024. <https://altrata.com/reports/world-ultra-wealth-report-2024>. Accessed 19 May 2025

⁷Knight Frank: The Wealth Report. https://www.knightfrank.ie/wp-content/uploads/2023/06/Knight-Frank-Wealth-Report-May-Insight_FINAL.pdf. Accessed 13 June 2025

a company operating in an ESG sector, compared to IVCs. This suggests a longer term perspective in the outcome of their investments, and a commitment to positively impact broader societal goals.

Finally, to assess how FOs' portfolio companies compare with those of the other investors in the success of their ventures, we analyzed their performance in terms of IPO and M&A exits. This lets us infer FOs' strategic objectives relative to their peers and the likely outcomes of their investments. While the findings show no statistical difference in terms of M&A exits, FOs have lower odds of taking their portfolio companies public compared to IVCs. This changes, however, when the start-up operates in an ESG sector. In this case, FOs show significant ability to bring the backed company on the public market, revealing their unique expertise in long-term, sustainable support.

Taken together, these results make a significant contribution to the FO literature. This paper is not only the first of its kind to outline the investment determinants of FOs relative to other investor types, but also to analyze their strategic objectives and financial performance. By leveraging an unprecedented sample of approximately 2,800 hand-shake FO-backed investments, this study provides a uniquely granular view of FO deal-flow. What emerges is a comprehensive picture of FOs' preferences that enhances our understanding of these increasingly relevant financial actors, and paves the way for their gradual exposure to a broader audience.

Appendix A

Additional Tables and Figures for Chapter 1

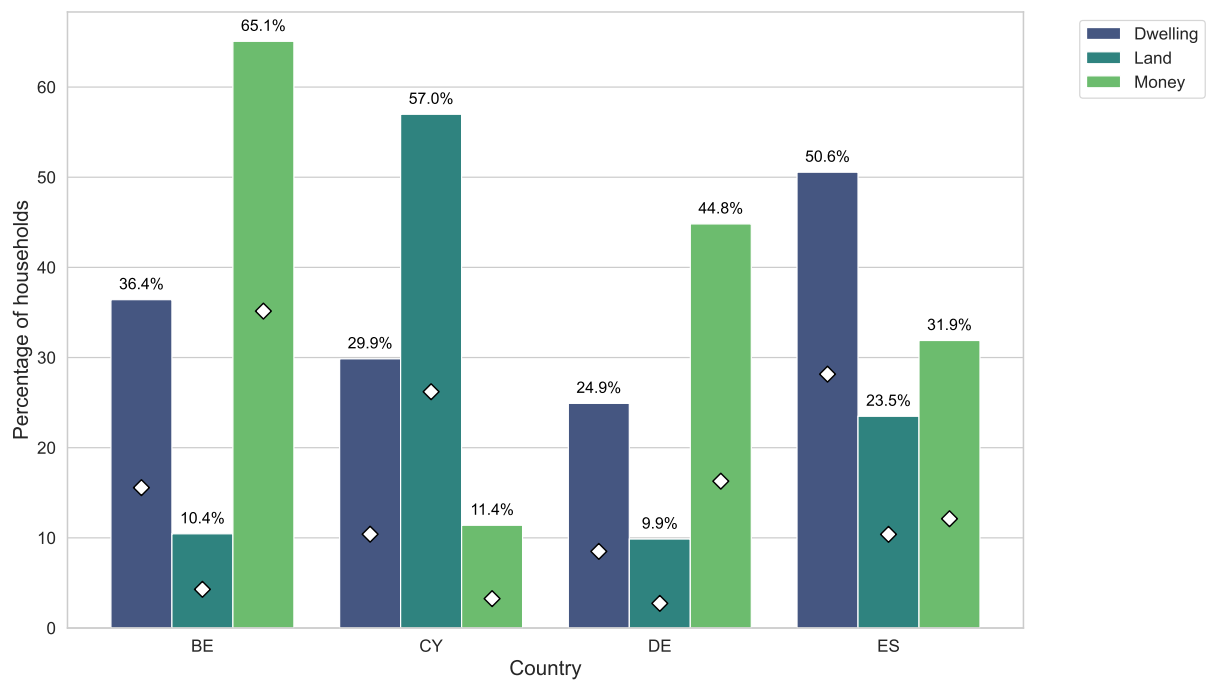


Fig. A.1: Bars show the percentage of households that ever received a dwelling, land, or monetary transfer at least once during the observation period. White diamonds report the corresponding wave-level incidence of each transfer type.

Table A.1: HFCS variable definitions

Analysis variable	Survey question / definition	Coding
Wealth outcomes		
Net wealth	Total household assets excluding public and occupational pension wealth minus total outstanding household liabilities.	Numeric (EUR)
Real estate outcomes		
Owns other properties	“Apart from your house/apartment, do you/does your household own any (other) properties, such as houses, apartments, garages, offices, hotels, other commercial buildings, farms, land, etc.?” Includes properties in the survey country and abroad. ^a	1=Yes, 0=No
Mortgage on other property	“Are there currently any outstanding mortgages or loans that use this property as collateral?” (asked for each other property).	1=Yes, 0=No
Mortgage on other property: purpose of the loan	“When you/your household first took out this mortgage, what was the purpose for which the money was used?” Set of up to four items (a–d), with (a) main purpose. Category 2 corresponds to “To purchase other real estate.”	1–9 categories ^b
Mortgage on other property: current amount outstanding	“What is the amount still owed on the loan?” (outstanding principal excluding interest/fees).	Numeric (EUR)
Received rental income	“Did you/your household receive any income from renting real estate in the last 12 months / the last calendar year?”	1=Yes, 0=No
Gross rental income	“What was the total gross amount over the last 12 months / the last calendar year?”	Numeric (EUR)
Income and baseline wealth controls		
Gross household income, equivalised	Total gross annual household income aggregate, equalised using the modified OECD equivalence scale.	Numeric (EUR)
Wealth quintile (1–5)	Household position in the national net wealth distribution, computed within country.	1–5
Demographic controls (reference person, Canberra definition)		
Household size	Number of household members.	Numeric
Age of reference person	Age of the household reference person.	Numeric (years)
Marital status	“What is X’s (your) marital status?”	Ordered categories ^c
Labour status	Main labour status of the reference person.	Ordered categories ^d
Gender	Gender of the reference person.	0=Male, 1=Female
Education	Highest educational attainment of the reference person (Canberra definition).	Ordered categories ^e
Inheritance receipt and characteristics		
Any inheritance / substantial gift	“Have you/has any member of the household ever received an inheritance or a substantial gift, including money or any other assets (from someone not part of your current household)?”	1=Yes, 0=No
Year of receipt	“In what year did you/your household receive it?” (asked for up to three most important inheritances).	Numeric (year)
Type of assets received	“What kinds of assets were received?” Multiple answers allowed; records whether each asset category was included.	Binary indicators ^f
Value at receipt (net of tax)	“At the time you/your household received it, how much was it worth?” Net of inheritance or donation taxes at the time of receipt.	Numeric (EUR)

Notes: The household reference person follows the UN/Canberra definition. Questions referring to inheritances are asked for up to the three most important gifts or inheritances reported by the household.

^a Business properties are included only if fully or partially owned directly by the household; properties owned by a business are excluded.

^b Purpose categories: (1) purchase/construct this property; (2) purchase other real estate; (3) refurbish/renovate residence; (4) vehicle/transport; (5) finance business/professional activity; (6) consolidate/refinance debts; (7) education; (8) living expenses/other purchases; (9) other.

^c Marital status coding: 1=Single, 2=Married, 3=Consensual union, 4=Widowed, 5=Divorced

^d Labour status coding: 1=Employee, 2=Self-employed, 3=Unemployed, 4=Retired, 5=Other

^e Education coding: 0=Early childhood/no education; 1=Primary or no formal education; 2=Lower secondary; 3=Upper secondary or post-secondary; 5=Tertiary education.

^f Asset categories recorded through binary indicators (1=Yes, 2=No): money; dwelling; use of a dwelling (usufruct or similar); land; business; securities or shares; jewellery, furniture, artwork; life insurance; car/vehicle; other assets.

Appendix B

Additional Tables and Figures for Chapter 2

B.1 Supplementary Tables

Table B.1: HFCS variable definition: outcomes and controls

Analysis variable	Survey question / definition	Coding
Business outcomes		
Has other real estate property for business	Indicator for whether the household holds any (other) properties used for business activities, such as houses, apartments, garages, offices, hotels, other commercial buildings, farms, land, etc. Includes properties in the survey country and abroad.	1=Yes, 0=No
Value of other real estate property for business activities	“What is the value of this property, i.e. if you could sell it now how much do you think would be the price of the property?”	Numeric (EUR)
Has self-employment business wealth	“(Do you/Does anyone in your household) own all or part of any business that is not publicly traded where you have an active role in running the business?”	1=Yes, 0=No
Has income from private business other than self-employment	“(Other than self-employment income I have already recorded, did/Did) (you/your household) receive any income from a private business or partnership in (the last 12 months / the last calendar year)?”	1=Yes, 0=No
Has non-SE private business wealth	“(Do you/Does anyone in your household) own any business that is not publicly traded where you/they act only as an investor or silent partner?”	1=Yes, 0=No
Value of non self-employment not publicly traded businesses	“What is the value of your (your household’s) share of (this business/these businesses)?”	Numeric (EUR)
Earnings outcomes		
Received rental income	“Did you/your household receive any income from renting real estate in the last 12 months / the last calendar year?”	1=Yes, 2=No
Gross rental income	“What was the total gross amount over the last 12 months / the last calendar year?”	Numeric (EUR)
Received employee income	“Did you receive any sort of employee income during (last 12 months / last calendar year)?”	1=Yes, 2=No
Gross cash employee income	“What was the total gross amount over (the last 12 months / last calendar year)?” (regular wages/salaries, overtime, tips, bonuses, profit sharing benefits unless part of pension arrangements).	Numeric (EUR)
Income and baseline wealth controls		
Gross household income, equivalised	Total gross annual household income aggregate, equalised using the modified OECD equivalence scale.	Numeric (EUR)
Future income expectations	“Over the next year, do you expect your (household’s) total income to go up more than prices, less than prices, or about the same as prices?”	1=More than prices, 2=Less than prices, 3=About the same as prices
Wealth quintile (1–5)	Household position in the national net wealth distribution, computed within country.	1–5
Demographic controls (reference person, Canberra definition)		
Household size	Number of household members (all household members included).	Numeric
Age of reference person	Age of the household reference person.	Numeric (years)
Marital status	“What is X’s (your) marital status?”	Ordered categories ^a
Labour status	Main labour status of the reference person.	Ordered categories ^b
Gender	Gender of the reference person.	0=Male, 1=Female
Education	Highest educational attainment of the reference person (Canberra definition).	Ordered categories ^c

Notes: The household reference person follows the UN/Canberra definition.

^a Marital status coding: 1=Single, 2=Married, 3=Consensual union, 4=Widowed, 5=Divorced.

^b Labour status coding: 1=Employee, 2=Self-employed, 3=Unemployed, 4=Retired, 5=Other.

^c Education coding: 0=Early childhood/no education; 1=Primary or no formal education; 2=Lower secondary; 3=Upper secondary or post-secondary; 5=Tertiary education.

Table B.2: HFCS variable definition: financing and purposes

Analysis variable	Survey question / definition	Coding
Financing and purposes		
HMR collateralised mortgages/loans	“Are there currently any outstanding mortgages or loans that use the residence as collateral?”	1=Yes, 2=No
HMR mortgage: purpose of the loan	When first taking out this mortgage, what was the purpose for which the money was used? Set of up to four items (a–d), with (a) main purpose.	Purpose categories ^a
HMR mortgage: current amount outstanding	“What is the amount still owed on the loan?” (outstanding principal excluding interest/fees).	Numeric (EUR)
Other property: collateralised mortgages/loans	“Are there currently any outstanding mortgages or loans that use this property as collateral?”	1=Yes, 2=No
Other property mortgage: purpose of the loan	When first taking out this mortgage, what was the purpose for which the money was used? Set of up to four items (a–d), with (a) main purpose.	Purpose categories ^a
Other property mortgage: current amount outstanding	“What is the amount still owed on the loan?” (outstanding principal excluding interest/fees).	Numeric (EUR)
Has any non-collateralised loans	“(Other than loans I have already recorded), do you have any (other) loans or owe any (other) money (e.g. car loans, consumer loans, instalment loans, employer loans, etc.)?”	1=Yes, 2=No
Non-collateralised loan: purpose of the loan	Why did you take on this loan? Set of up to four items (a–d), with (a) main purpose.	Purpose categories ^b
Non-collateralised loan: outstanding balance	“What is the outstanding balance on the loan?”	Numeric (EUR)
Has private loans	“(Other than loans I have already recorded), do you have loans from relatives or friends that you are expected to repay?”	1=Yes, 2=No
Private loan: purpose of the loan	Why did you take on this loan? Set of up to four items (a–d), with (a) main purpose.	Purpose categories ^a
Private loan: outstanding amount	“How much is the (total) outstanding balance?/How much are you still expected to repay?”	Numeric (EUR)

Notes: Each loan instrument records up to four purposes (a–d); (a) is the main purpose.

^a Purpose categories (HMR mortgages; other-property mortgages; private loans): (1) purchase/construct (HMR / this property); (2) purchase other real estate; (3) refurbish/renovate property; (4) vehicle/transport; (5) finance business/professional activity; (6) consolidate/refinance debts; (7) education; (8) living expenses/other purchases; (9) other.

^b Purpose categories (non-collateralised loans): (1) purchase/construct the HMR; (2) purchase other real estate; (3) refurbish/renovate residence; (4) vehicle/transport; (5) finance business/professional activity; (6) consolidate debts; (7) education; (8) living expenses/other purchases; (9) other; (10) support relatives and friends.

B.2 Regressions with Controls

Table B.3: Collateral Channels, Loan Purpose, and the Probability of Holding Real Estate for Business

	DV: Holding real estate for business			
	Purpose: Buy other properties		Purpose: Renovation	
	(1) Dummy	(2) Debt Level	(3) Dummy	(4) Debt Level
<i>Financing channel</i>				
Other properties _{t-1}	0.033** (0.015)	0.003** (0.001)		
Main residence _{t-1}			0.026* (0.015)	0.002* (0.001)
<i>Controls</i>				
Wealth quintile	0.012*** (0.003)	0.012*** (0.003)	0.012*** (0.003)	0.012*** (0.003)
Equivalised income	0.002 (0.002)	0.002 (0.002)	0.002 (0.002)	0.002 (0.002)
Household members	0.002 (0.002)	0.002 (0.002)	0.003 (0.002)	0.003 (0.002)
Age	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Tertiary education	-0.002 (0.007)	-0.002 (0.007)	-0.002 (0.007)	-0.002 (0.007)
Employed	0.025*** (0.008)	0.026*** (0.008)	0.026*** (0.008)	0.026*** (0.008)
Female	-0.006 (0.007)	-0.006 (0.007)	-0.006 (0.007)	-0.006 (0.007)
Married	0.007 (0.007)	0.007 (0.007)	0.008 (0.007)	0.008 (0.007)
<i>Year dummies</i>				
2017	0.005 (0.004)	0.005 (0.004)	0.004 (0.004)	0.004 (0.004)
2020	0.004 (0.004)	0.003 (0.004)	0.003 (0.004)	0.003 (0.004)
Observations	12,286	12,298	12,297	12,298
Household FE	Yes	Yes	Yes	Yes

Notes: Entries are coefficients from multiple-imputation linear probability models with household fixed effects. The dependent variable is a binary indicator equal to one if the household holds real estate for business purposes. Columns are grouped by the *purpose of the collateralized loan*. “Dummy” indicates whether the household holds a collateralized loan for the stated purpose (extensive margin). “Debt Level” is the inverse hyperbolic sine (IHS) transformation of the outstanding balance of the collateralized loan for the stated purpose (intensive margin). All main regressors are lagged by one survey wave. Coefficients can be interpreted as changes in probability. Standard errors clustered at the household level in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B.4: Renovation Borrowing and the Change in the Value of Real Estate for Business

	DV: Δ IHS value of real estate for business			
	Purpose: Renovation			
	(1) Dummy	(2) Debt Level	(3) Dummy	(4) Debt Level
<i>Financing channel</i>				
Main residence _{<i>t</i>-1}	0.470** (0.232)	0.041** (0.021)		
Non-collateralized loan _{<i>t</i>-1}			0.439* (0.244)	0.050** (0.024)
<i>Controls</i>				
Wealth quintile	0.205*** (0.055)	0.205*** (0.055)	0.208*** (0.056)	0.207*** (0.055)
Equivalised income	0.039 (0.040)	0.039 (0.040)	0.040 (0.041)	0.038 (0.040)
Household members	0.036 (0.080)	0.036 (0.080)	0.037 (0.081)	0.038 (0.080)
Age	0.008 (0.009)	0.008 (0.009)	0.008 (0.009)	0.008 (0.009)
Tertiary education	-0.065 (0.132)	-0.065 (0.132)	-0.059 (0.132)	-0.060 (0.132)
Employed	0.263* (0.157)	0.263* (0.156)	0.256 (0.157)	0.264* (0.156)
Female	-0.089 (0.136)	-0.089 (0.136)	-0.077 (0.135)	-0.088 (0.136)
Married	0.049 (0.140)	0.049 (0.140)	0.035 (0.141)	0.042 (0.140)
<i>Year dummies</i>				
2017	0.120 (0.078)	0.120 (0.078)	0.127 (0.078)	0.125 (0.078)
2020	0.056 (0.076)	0.056 (0.076)	0.053 (0.077)	0.058 (0.076)
Observations	12,297	12,298	12,265	12,298
Household FE	Yes	Yes	Yes	Yes

Notes: Dependent variable is defined as the change in the inverse hyperbolic sine (IHS) value of other real estate property used for business activities between survey waves. Entries are coefficients from multiple-imputation fixed-effects (within) regressions with standard errors clustered at the household level in parentheses. “Dummy” indicates the presence of a renovation loan (extensive margin). “Debt (IHS)” is the IHS-transformed outstanding renovation debt (intensive margin). All renovation borrowing variables are lagged by one survey wave. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B.5: Collateral Channels, Loan Purpose, and Business Wealth Ownership

Financing channel	DV: SE business wealth		DV: Non-SE business wealth		DV: Income from non-SE business	
	Purpose: Education		Purpose: Vehicle		Purpose: Business	
	(1) Dummy	(2) Debt Level	(3) Dummy	(4) Debt Level	(5) Dummy	(6) Debt Level
Non-collateralized loan _{t-1}	0.072** (0.033)	0.008** (0.003)				
All vehicle loans _{t-1}			0.013* (0.007)	0.001* (0.001)		
Main residence _{t-1}					0.156* (0.085)	0.014* (0.007)
<i>Controls</i>						
Household size	0.033*** (0.006)	0.033*** (0.006)	-0.002 (0.003)	-0.002 (0.003)	0.000 (0.004)	0.000 (0.004)
Wealth quintile	0.038*** (0.005)	0.037*** (0.005)	0.003 (0.002)	0.003 (0.002)	0.011*** (0.003)	0.011*** (0.003)
Equivalised income	0.004 (0.003)	0.004 (0.003)	0.000 (0.002)	0.000 (0.002)	—	—
Age	0.001* (0.001)	0.001* (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Tertiary education	-0.027** (0.012)	-0.027** (0.012)	0.014** (0.007)	0.014** (0.007)	-0.003 (0.008)	-0.003 (0.008)
Employed	0.121*** (0.013)	0.122*** (0.013)	-0.006 (0.006)	-0.006 (0.006)	0.007 (0.007)	0.007 (0.007)
Female	-0.012 (0.011)	-0.012 (0.011)	-0.008 (0.005)	-0.008 (0.005)	0.010 (0.007)	0.010 (0.007)
Married	-0.005 (0.014)	-0.005 (0.014)	-0.003 (0.007)	-0.003 (0.007)	0.007 (0.008)	0.007 (0.008)
<i>Year dummies</i>						
2017	-0.014*** (0.005)	-0.014*** (0.005)	0.009*** (0.003)	0.009*** (0.003)	0.012*** (0.004)	0.012*** (0.004)
2020	-0.019*** (0.007)	-0.020*** (0.007)	0.003 (0.003)	0.003 (0.003)	0.016*** (0.004)	0.016*** (0.004)
Observations	12,265	12,298	12,298	12,298	11,168	11,169
Household FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Entries are coefficients from multiple-imputation linear probability models with household fixed effects. Columns are grouped by *loan purpose*. “Dummy” indicates the presence of the corresponding loan for the stated purpose (extensive margin). “Debt Level” is the inverse hyperbolic sine (IHS) transformation of the outstanding balance (intensive margin). All main regressors are lagged by one survey wave. Coefficients can be interpreted as changes in probability. Standard errors clustered at the household level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B.6: Business and Renovation Borrowing and the Change in Non-SE Private Business Wealth

	DV: Δ IHS value of non-SE private business wealth			
	Purpose: Business		Purpose: Renovation	
	(1) Dummy	(2) Debt Level	(3) Dummy	(4) Debt Level
<i>Financing channel</i>				
Non-collateralized loan _{<i>t</i>-1}	0.600* (0.364)	0.071* (0.043)	0.317* (0.186)	0.036* (0.020)
Controls				
Wealth quintile	-0.021 (0.048)	-0.021 (0.048)	-0.021 (0.048)	-0.021 (0.048)
Equivalised income	0.016 (0.039)	0.016 (0.039)	0.016 (0.039)	0.016 (0.039)
Household members	-0.021 (0.048)	-0.020 (0.048)	-0.021 (0.048)	-0.021 (0.047)
Age	0.002 (0.006)	0.002 (0.006)	0.001 (0.006)	0.001 (0.006)
Tertiary education	0.213** (0.107)	0.212** (0.107)	0.214** (0.107)	0.214** (0.107)
Employed	-0.078 (0.131)	-0.078 (0.130)	-0.075 (0.131)	-0.074 (0.130)
Female	-0.196* (0.102)	-0.195* (0.102)	-0.191* (0.102)	-0.190* (0.101)
Married	-0.029 (0.117)	-0.030 (0.117)	-0.032 (0.117)	-0.031 (0.117)
<i>Year dummies</i>				
2017	0.140** (0.057)	0.139** (0.057)	0.138** (0.057)	0.137** (0.057)
2020	-0.022 (0.058)	-0.022 (0.057)	-0.024 (0.058)	-0.024 (0.057)
Observations	12,265	12,298	12,265	12,298
Household FE	Yes	Yes	Yes	Yes

Notes: Dependent variable is defined as the change in the IHS-transformed value of non-self-employment private business wealth between survey waves. Entries are coefficients from multiple-imputation fixed-effects (within) regressions with standard errors clustered at the household level in parentheses. Columns are grouped by loan purpose. “Dummy” indicates the presence of a non-collateralized loan for the stated purpose (extensive margin). “Debt (IHS)” is the IHS-transformed outstanding balance for the stated purpose (intensive margin). All key regressors are lagged by one survey wave.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B.7: Household Main Residence and Rental Income

	DV: Rental income		DV: Δ IHS value of rental income	
	Purpose: Buy HMR		Purpose: Buy HMR	
	(1) Dummy	(2) Debt Level	(3) Dummy	(4) Debt Level
<i>Financing channel</i>				
Main residence _{<i>t</i>-1}	0.025* (0.013)	0.005* (0.003)	0.365** (0.183)	-0.081* (0.045)
<i>Controls</i>				
Household members	0.003 (0.005)	0.003 (0.005)	0.046 (0.068)	0.056 (0.068)
Wealth quintile	0.039*** (0.005)	0.039*** (0.005)	0.449*** (0.067)	0.452*** (0.067)
Age	0.002*** (0.001)	0.002*** (0.001)	0.027*** (0.010)	0.028*** (0.010)
Tertiary	0.016 (0.014)	0.016 (0.014)	0.044 (0.195)	0.047 (0.195)
Employed	0.019* (0.010)	0.019* (0.010)	0.361** (0.140)	0.374*** (0.141)
Female	-0.002 (0.011)	-0.002 (0.011)	-0.099 (0.151)	-0.099 (0.150)
Married	0.033** (0.015)	0.034** (0.016)	0.120 (0.208)	0.104 (0.207)
<i>Year dummies</i>				
2017	0.012** (0.005)	0.012** (0.005)	-0.002 (0.078)	-0.022 (0.078)
2020	0.005 (0.007)	0.004 (0.007)	-0.211** (0.088)	-0.232*** (0.087)
Observations	12,297	12,298	12,297	12,298
Household FE	Yes	Yes	Yes	Yes

Notes: Columns (1)–(2) report coefficients from multiple-imputation linear probability models with household fixed effects, where the dependent variable is a binary indicator equal to one if the individual receives rental income. Columns (3)–(4) report coefficients from multiple-imputation fixed-effects regressions where the dependent variable is the change in the inverse hyperbolic sine (IHS) of rental income. “Dummy” indicates whether the household holds a collateralized loan to purchase the HMR. “Debt Level” denotes the IHS-transformed outstanding balance of the collateralized loan. All main regressors are lagged by one survey wave. Standard errors clustered at the household level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B.8: Education Borrowing and Employee Income

	Employee income		Δ IHS value of employee income	
	(1) Dummy	(2) Debt Level	(3) Dummy	(4) Debt Level
<i>Education borrowing</i>				
Has education loan _{<i>t</i>-1}	0.069** (0.031)		1.102* (0.572)	
Outstanding education debt _{<i>t</i>-1}		0.007** (0.003)		0.113* (0.058)
<i>Controls</i>				
Optimistic _{<i>t</i>-1}	-0.006 (0.009)	-0.006 (0.009)	0.049 (0.156)	0.049 (0.156)
Household members	0.071*** (0.007)	0.071*** (0.007)	1.147*** (0.096)	1.148*** (0.096)
Wealth quintile	0.006 (0.005)	0.006 (0.005)	-0.108 (0.080)	-0.108 (0.080)
Age	-0.004*** (0.001)	-0.004*** (0.001)	-0.033** (0.013)	-0.033** (0.013)
Tertiary education	0.015 (0.014)	0.015 (0.014)	0.144 (0.255)	0.145 (0.255)
Employed	0.330*** (0.018)	0.330*** (0.018)	4.010*** (0.244)	4.009*** (0.244)
Female	0.005 (0.012)	0.005 (0.012)	0.183 (0.195)	0.183 (0.195)
Married	0.013 (0.017)	0.012 (0.017)	-0.203 (0.264)	-0.203 (0.264)
<i>Year dummies</i>				
2017	-0.009 (0.006)	-0.009 (0.006)	0.611*** (0.102)	0.610*** (0.102)
2020	-0.009 (0.008)	-0.009 (0.008)	1.048*** (0.118)	1.047*** (0.118)
Observations	12,085	12,085	12,084	12,084
Household FE	Yes	Yes	Yes	Yes

Notes: Columns (1)–(2) report coefficients from multiple-imputation linear probability models with household fixed effects, where the dependent variable is a binary indicator equal to one if the individual receives employee income. Columns (3)–(4) report coefficients from multiple-imputation fixed-effects regressions where the dependent variable is the change in the inverse hyperbolic sine (IHS) of employee income. “Dummy” indicates the presence of any education loan. “Debt Level” denotes the IHS-transformed outstanding balance of education loans. All main regressors are lagged by one survey wave. Coefficients in columns (1)–(2) can be interpreted as changes in probability. Standard errors clustered at the household level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

B.3 Conditional Fixed-Effects Logit Estimates

Table B.9: Collateral Channels, Loan Purpose, and the Odds of Holding Real Estate for Business

	DV: Holding real estate for business			
	Purpose: Buy other properties		Purpose: Renovation	
	(1) Dummy	(2) Debt Level	(3) Dummy	(4) Debt Level
<i>Financing channel</i>				
Other properties _{t-1}	1.982** (0.649)	1.054* (0.028)		
Main residence _{t-1}			5.179** (3.826)	1.159** (0.075)
<i>Controls</i>				
Wealth quintile	1.901*** (0.314)	1.884*** (0.309)	1.903*** (0.303)	1.907*** (0.303)
Equivalised income	1.037 (0.044)	1.036 (0.045)	1.029 (0.045)	1.029 (0.045)
Household members	1.015 (0.136)	1.025 (0.136)	1.025 (0.139)	1.026 (0.139)
Age	1.005 (0.019)	1.010 (0.019)	1.012 (0.019)	1.012 (0.019)
Tertiary education	1.009 (0.379)	1.017 (0.382)	0.982 (0.383)	0.983 (0.381)
Employed	2.314** (0.749)	2.320*** (0.719)	2.424*** (0.758)	2.421*** (0.757)
Female	0.912 (0.281)	0.936 (0.281)	0.910 (0.273)	0.910 (0.273)
Married	2.128 (1.259)	2.168 (1.296)	2.236 (1.336)	2.220 (1.322)
<i>Year dummies</i>				
2017	1.277 (0.210)	1.286 (0.211)	1.266 (0.204)	1.268 (0.205)
2020	1.347 (0.284)	1.308 (0.271)	1.287 (0.266)	1.286 (0.266)
Observations	829	837	837	837
Household FE	Yes	Yes	Yes	Yes

Notes: Entries are odds ratios from multiple-imputation conditional fixed-effects logit models. Columns are grouped by the *purpose of the collateralized loan*. “Dummy” indicates whether the household holds a collateralized loan for the stated purpose (extensive margin). “Debt Level” is the IHS-transformed outstanding balance of the collateralized loan for the stated purpose (intensive margin). “Other properties” refers to loans collateralized by other real estate; “Main residence” refers to loans collateralized by the household main residence. All main regressors are lagged by one survey wave. Standard errors clustered at the household level in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B.10: Collateral Channels, Loan Purpose, and Business Wealth Ownership

	DV: SE business wealth		DV: Non-SE business wealth		DV: Income from non-SE business	
	Purpose: Education		Purpose: Vehicle		Purpose: Business	
	(1) Dummy	(2) Debt Level	(3) Dummy	(4) Debt Level	(5) Dummy	(6) Debt Level
<i>Financing channel</i>						
Non-collateralized loan _{t-1}	5.663 (7.337)	1.218 (0.183)				
Vehicle loan _{t-1}			2.394* (1.236)	1.094* (0.057)		
Main residence _{t-1}					8.008** (7.936)	1.190** (0.093)
<i>Controls</i>						
Household size	1.453*** (0.157)	1.447*** (0.155)	0.846 (0.159)	0.846 (0.159)	0.948 (0.142)	0.947 (0.142)
Wealth quintile	2.445*** (0.329)	2.374*** (0.312)	1.259 (0.246)	1.255 (0.245)	1.845** (0.425)	1.852** (0.430)
Equivalised income	1.067 (0.043)	1.075 (0.049)	1.009 (0.031)	1.009 (0.031)	—	—
Age	0.989 (0.015)	0.990 (0.015)	0.993 (0.024)	0.993 (0.024)	1.010 (0.022)	1.010 (0.022)
Tertiary education	0.593* (0.163)	0.603* (0.165)	2.225** (0.879)	2.221** (0.877)	0.843 (0.344)	0.853 (0.349)
Employed	5.389*** (1.202)	5.367*** (1.195)	0.717 (0.244)	0.713 (0.242)	1.843 (0.344)	1.364 (0.496)
Female	0.804 (0.167)	0.795 (0.164)	0.539 (0.235)	0.539 (0.236)	1.317 (0.464)	1.322 (0.465)
Married	1.294 (0.437)	1.281 (0.431)	1.004 (0.580)	1.008 (0.581)	1.611 (1.030)	1.627 (1.041)
<i>Year dummies</i>						
2017	0.811* (0.098)	0.800* (0.096)	1.728*** (0.333)	1.733*** (0.334)	1.710** (0.371)	1.702** (0.370)
2020	0.717** (0.111)	0.702** (0.109)	1.258 (0.307)	1.258 (0.307)	2.373*** (0.658)	2.361*** (0.655)
Observations	1,700	1,710	636	636	559	559
Household FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Entries are odds ratios from multiple-imputation conditional fixed-effects logit models. Columns are grouped by *loan purpose*. “Dummy” indicates the presence of the corresponding loan for the stated purpose (extensive margin). “Debt Level” is the inverse hyperbolic sine (IHS) transformation of the outstanding balance (intensive margin). All main regressors are lagged by one survey wave. Standard errors clustered at the household level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B.11: Collateralized Borrowing and Income Outcomes

	DV: Rental income		DV: Employee income	
	Purpose: Buy HMR		Purpose: Education	
	(1) Dummy	(2) Debt Level	(3) Dummy	(4) Debt Level
<i>Financing channel</i>				
Main residence _{t-1}	1.679** (0.366)	1.060** (0.027)		
All education loans _{t-1}			5.626** (4.148)	1.168** (0.073)
<i>Controls</i>				
Wealth quintile	2.100*** (0.208)	2.097*** (0.202)	1.044 (0.090)	1.044 (0.091)
Household members	1.091 (0.118)	1.072 (0.112)	2.941*** (0.398)	2.936*** (0.340)
Age	1.026* (0.014)	1.027** (0.013)	0.956*** (0.013)	0.956*** (0.013)
Tertiary education	1.368 (0.328)	1.379 (0.304)	1.166 (0.299)	1.159 (0.296)
Employed	1.253 (0.259)	1.250 (0.260)	10.038*** (1.856)	9.999*** (1.763)
Female	1.000 (0.188)	0.999 (0.183)	1.158 (0.228)	1.159 (0.220)
Married	1.462 (0.408)	1.516 (0.389)	1.658 (0.624)	1.636 (0.547)
<i>Year dummies</i>				
2017	1.348*** (0.141)	1.360*** (0.150)	0.858 (0.092)	0.859 (0.096)
2020	1.198 (0.163)	1.178 (0.153)	0.772* (0.111)	0.772* (0.105)
Observations	1,896	1,896	2,685	2,685
Household FE	Yes	Yes	Yes	Yes

Notes: Entries are odds ratios from multiple-imputation conditional fixed-effects logit models. Columns (1)–(2) examine the relationship between borrowing for main residence purchase and the probability of receiving rental income. Columns (3)–(4) examine the relationship between education borrowing and the probability of receiving employee income. “Dummy” indicates the presence of the corresponding loan (extensive margin). “Debt Level” denotes the inverse hyperbolic sine (IHS) of the outstanding balance (intensive margin). All regressors are lagged by one survey wave. Standard errors clustered at the household level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Appendix C

Additional Tables and Figures for Chapter 3

Table C.1: Variable Definitions

Variable	Definition	Type
<i>Single Family Office (SFO)</i>	Indicator equal to 1 if the investor in the deal is a Single Family Office; 0 if the investor is an Institutional Venture Capital (IVC) fund.	Binary
<i>Seed</i>	Indicator equal to 1 if the investment round is classified as a Seed round. Represents early-stage entry.	Binary
<i>Series A</i>	Indicator equal to 1 if the investment is made at Series A stage.	Binary
<i>Series B</i>	Indicator equal to 1 if the investment is made at Series B stage.	Binary
<i>Series C</i>	Indicator equal to 1 if the investment is made at Series C stage.	Binary
<i>Series D</i>	Indicator equal to 1 if the investment is made at Series D stage.	Binary
<i>Early Rounds</i>	Indicator equal to 1 if the investor enters at Seed, Series A, or Series B.	Binary
<i>Follow-on Rounds</i>	Number of funding rounds the start-up completes after the investor's first recorded investment. Reflects endurance of investor involvement.	Count
<i>Investor Count</i>	Number of investors participating in the same deal. Captures the degree of syndication and risk pooling.	Count
<i>Firm Sector</i>	Categorical variable capturing the industry of the start-up.	Categorical
<i>ESG Sector</i>	Indicator equal to 1 if the start-up operates in an industry identified as socially or environmentally oriented.	Binary
<i>M&A</i>	Indicator equal to 1 if the start-up exits via a mergers and acquisitions (M&A) transaction.	Binary
<i>IPO</i>	Indicator equal to 1 if the start-up exits via an initial public offering (IPO).	Binary
<i>Home Bias</i>	Indicator equal to 1 if the investor and the start-up are headquartered in the same country.	Binary
<i>Sector Density</i>	Share of firms in a given city that operate in the start-up's sector. High values indicate sectoral concentration in the local economy.	Continuous (0–1)
<i>Raised Amount</i>	Total amount of capital raised by the start-up in the funding round corresponding to the deal.	Continuous
<i>Investor Experience</i>	Number of years between the fund's establishment date and the investment date. Measures track record and maturity of the investor.	Continuous
<i>Firm Age</i>	Number of years between the start-up's founding date and the investment date.	Continuous

Table C.2: Sectors Included in ESG Variable

ESG Category	Sector Name
Environmental/Energy	Clean Energy, Renewable Energy, Solar, Wind Energy, Biomass Energy, GreenTech, CleanTech, Recycling, Water, Water Purification, Waste Management, Environmental Consulting, Environmental Engineering, Pollution Control, Green Building, Energy Efficiency, Electric Vehicle, Biofuel, Forestry, Organic Food, Organic, Horticulture, Aquaculture, Sustainability
Social/Education/Health	Health Care, Education, Higher Education, Primary Education, Impact Investing, Elder Care, Assisted Living, Social Impact, Humanitarian, Charter Schools, Social Entrepreneurship
<i>Notes:</i> Following the exemplary lists provided by Clarkson (1995) and Wood (2010) , this table lists all primary sector categories included in the construction of the ESG variable.	

Table C.3: Company Activity by Sector Group

Group #	Sector Group	Company Activity
1	Tech	Software, Hardware, Information Technology, Artificial Intelligence, Data and Analytics, Platforms, Internet Services, Mobile, Apps, Messaging and Telecommunications, Navigation and Mapping, Privacy and Security
2	Health & Biotech	Biotechnology, Health Care, Science and Engineering
3	Finance	Financial Services, Payments
4	Consumer & Retail	Commerce and Shopping, Consumer Electronics, Consumer Goods, Food and Beverage, Clothing and Apparel
5	Media & Entertainment	Media and Entertainment, Content and Publishing, Advertising, Gaming, Sports
6	Industrial & Energy	Manufacturing, Energy, Transportation, Natural Resources, Agriculture and Farming
7	Services	Professional Services, Administrative Services, Education, Travel and Tourism, Community and Lifestyle, Events, Government and Military, Sales and Marketing, Design
8	Other	Other, Sustainability, Real Estate
<i>Notes:</i> This table maps each company activity to its corresponding sector group (1–8).		

Variance inflation factors are well below conventional thresholds, indicating no evidence of problematic multicollinearity.

Table C.4: Variance Inflation Factor (VIF) Diagnostics

Model	Mean VIF	Max VIF
SFO investment model	1.24	1.69
ESG sector model	1.23	1.69
IPO success model	1.23	1.69
M&A success model	1.23	1.69

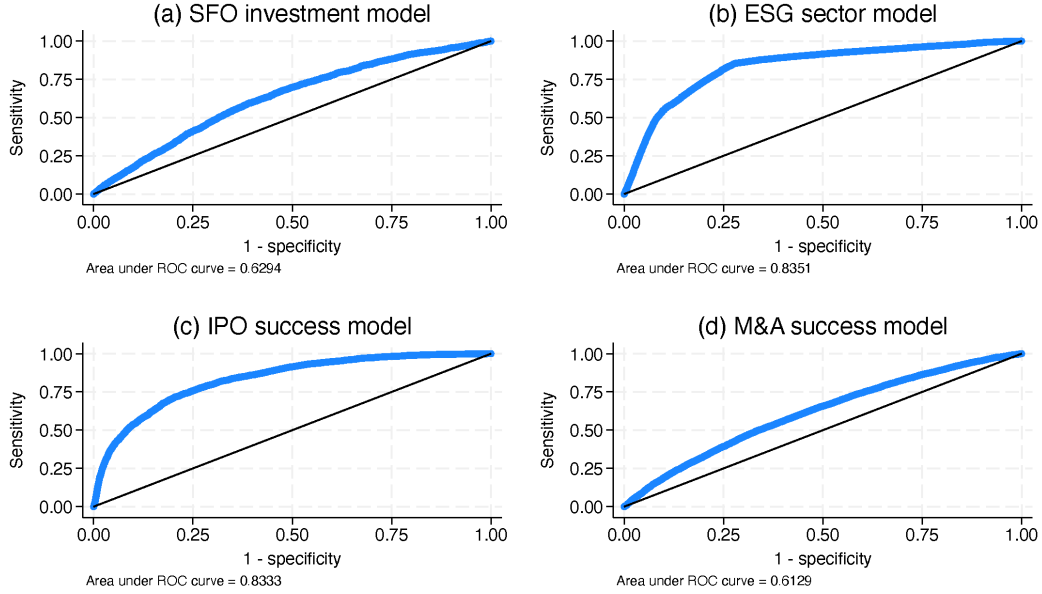


Fig. C.1: ROC Curves for Baseline Logit Specifications

To further validate the results, we estimate Cox proportional-hazards models to examine the hazard ratios of exit for both IPO and M&A outcomes. Table C.5 reports the estimates censored at different time intervals, offering a more nuanced picture of investment survival rates. The findings confirm the earlier results. For IPOs, IVC-backed investments consistently reach public listing faster than those backed by SFOs across all time horizons, with the exception of the first year. The gap is particularly pronounced after three years, when SFOs exhibit approximately 40% lower hazard rates relative to IVCs, though the effect diminishes over time while remaining statistically significant. Panel B provides additional confirmation for the M&A outcomes, showing no statistically significant differences between SFO- and IVC-backed investments at any horizon.

Table C.5: Cox Hazard Ratios of Exit Outcomes at Different Intervals

	1 Year	3 Years	5 Years	10 Years
Panel A: IPO Outcome				
SFO (vs IVC)	0.69 (−1.49)	0.62*** (−2.74)	0.79* (−1.84)	0.80* (−1.90)
Controls	Yes	Yes	Yes	Yes
Observations	123,928	123,928	123,928	123,928
Panel B: M&A Outcome				
SFO (vs IVC)	0.87 (−0.62)	1.05 (0.61)	1.00 (0.12)	0.98 (−0.24)
Controls	Yes	Yes	Yes	Yes
Observations	124,520	124,520	124,520	124,520

Notes: The model reports hazard ratios from Cox proportional hazards regressions for time to IPO (Panel A) and time to M&A (Panel B) exits *. **, *** indicate significance at the 10%, 5%, and 1% levels, respectively. Robust standard errors used. *z*-statistics in parentheses.

General Conclusions

This dissertation has explored the mechanisms through which households redistribute, accumulate, and invest wealth across countries and generations. By integrating three empirical essays, it has revealed how households interact with the financial system both as managers of their own fortunes and as borrowers for productive investments.

The first essay has shown that inheritances remain a crucial determinant of household wealth accumulation. By distinguishing across asset categories and temporal dimensions, it demonstrated that transfers of real estate have a substantial effect on households' balance sheet. In contrast, financial transfers tend to display more limited wealth benefits.

The second essay shifted the focus from wealth transfers to wealth creation, arguing that debt can serve productive as well as consumptive purposes. By disaggregating household borrowing into investment- and consumption-related components, it found that “productive” loans significantly increase future income and business wealth. This evidence emphasized that access to credit can empower households as active investors, provided that borrowing is channeled into productive uses.

The third essay extended the analysis to the upper end of the wealth distribution, examining how Family Offices (FOs) behave in the market of start-up financing. These entities, though relatively opaque, have emerged as important players in private capital markets. The study documented that FOs prefer smaller, earlier-stage deals, and ESG-oriented ventures, as well as a longer investment horizon. The findings provide the first empirical evidence of a model of patient capital that prioritizes intergenerational wealth preservation and social objectives over short-term returns.

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