

Ownership of Privately Held Companies in Finland, 2006–2022*

Samuli Knüpfer

Abstract

Using comprehensive register data on the shareholders of Finnish limited liability firms in 2006–2022, this paper studies the prevalence and importance of privately held firms and documents patterns and trends in their ownership. In 2022, privately held firms account for 86 % of companies, 30 % of revenue, and 49 % of employment. Only 3 % of the population own shares in these firms with 81 % of owners holding just one firm. Men, Swedish-speakers, and Master's degree holders are more likely to own privately held firms. The wealthiest 1 % of owners account for 48 % of business wealth, with average business wealth being the highest in Helsinki, Joensuu, Vaasa, and Turku. Owners are responsible for 12 % of the country's personal income tax bill and 31 % of corporate income taxes. The owner population shows significant turnover with only 35 % of its members in 2006 surviving as owners until 2022. Emigrating owners have moved to foreign ownership an estimated 6 % of total business wealth during the sample period.

Keywords:

Privately held firm, ownership, wealth concentration

Samuli Knüpfer is Professor of Ownership at Aalto University School of Business. He is also Adjunct Professor of Finance at BI Norwegian Business School, Norway, and Research Affiliate at the Research Institute of Industrial Economics (IFN), Sweden.

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1 Introduction

Almost everything we know about stock ownership stems from studies on publicly traded firms. However, privately held firms—an integral part of any market economy—also have shareholders. How many owners are there in such firms? What are their socioeconomic characteristics? How is their business wealth distributed? How much turnover occurs within the owner population over time? Are owners likely to move abroad? This paper is the first to comprehensively document patterns and trends in the ownership of privately held firms. Using detailed ownership data from Finland over the 2006–2002 period, coupled with comprehensive records of firm financials, I explore various aspects of ownership in these firms.

I classify each firm according to the type of its majority owners and document the prevalence and economic significance of privately held firms. I report the number of owners in these firms and compare their socioeconomic characteristics to the general population. By valuing the equity stakes held by each owner, I study the level and concentration of business wealth. The long time series allows me to document how these key patterns have evolved, how owners have transitioned into and out of their shareholder positions over time, and whether they have emigrated.

This paper is related to the work that analyzes ownership in publicly traded firms and mutual funds (Badarınza, Campbell, and Ramadorai, 2016; Bretkopf, Knüpfer, and Rantapuska, 2021; Campbell, 2006; Keloharju and Lehtinen, 2021). This study also connects with papers studying the concentration of wealth and its drivers (Bach, Calvet, and Sodini, 2020; Fagereng, Guiso, Malacrino, and Pistaferri, 2020). A few papers investigate the behavior of privately held firms, but their focus is not on the firms' owners (Asker, Farre-Mensa, and Ljungqvist, 2015; Brav, 2009; Gilje and Taillard, 2016; Michaely and Roberts, 2012; Saunders and Steffen, 2011; Sheen, 2020).

The remainder of the paper unfolds as follows. Section 2 describes the data, Section 3 presents the results, and Section 4 summarizes the findings.

2 Data and definitions

2.1 Data sources

The data for this study are sourced from Statistics Finland (SF). It provides qualified researchers with access to comprehensive register-based data on firms and individuals in Finland. These statistical units are linked by pseudonymized, unique identification numbers, which allows the merging of information from various government registers. The sample period spans 2006–2022, determined by the availability of ownership data.

Ownership data. Ownership of privately held companies originates from the annual tax returns companies are required to file with the Finnish Tax Administration (FTA). Active firms classified as limited liability companies by the FTA must report all their shareholders and the number of shares they hold, provided they have no more than ten shareholders. Firms exceeding this limit report shareholders who hold at least 10 % of the company's shares or have a shareholder loan from the company.

The shareholder reporting requirement applies to both natural and legal persons. Because legal-person shareholders are typically companies that must also report their own shareholders, I can identify the natural persons that are the ultimate beneficiary owners. The only excep-

tion is when the beneficiary owner does not appear in Finnish registers, such as foreign firms and individuals not having to report to the FTA. I allow for a maximum of ten layers of firms in the ownership chain to identify the ultimate owner.

SF also hosts additional data that helps in identifying shareholders who do not meet the reporting requirement. Business groups file consolidated accounts with the Finnish Patent and Registration Office. These accounts need to detail the parent company's ownership stakes in the group subsidiaries. Firms must also report to the FTA the dividends they pay to their shareholders. These tax filings identify each shareholder and the number of shares they hold. I use these additional sources of data to supplement the original ownership records. Although this addition identifies some new shareholders, particularly in privately held firms with dispersed ownership, it does not significantly alter the conclusions of this study. This minor improvement is expected, given the high coverage of shareholder reporting documented by the FTA.¹

Firm data. SF compiles extensive information on all Finnish companies. From these data, I extract information on industry, institutional sector, ownership category, number of employees, standard financials (including revenue, book value of equity, EBITDA, and corporate income taxes), and public listing status. For business groups, the financials refer to the unconsolidated accounts of each firm within the group. This lack of consolidation, along with the focus on the beneficial ultimate owners, may lead to some inflation of book value due to the assets of a holding and an operating company being counted twice and some inflation of revenue in cases of intra-group transactions. SF also uses unconsolidated accounts in preparing their official statistics, explaining that evolving business group structures make consolidation challenging. I restrict the analysis to firms with strictly positive revenue and at least one-half full-time equivalent employee during the year. The latter restriction is also used by SF to determine whether a firm qualifies as a statistical unit for the purposes of official statistics, among other criteria. For the purposes of this study, these restrictions help in excluding the large number of firms that are either inactive or are set up as a holding company that ultimately leads to the beneficial owner.

Individual data. From SF's comprehensive individual data, I extract information on gender, birth year, native language, level of education, province and municipality of residence, and labor and capital income, along with income taxes paid. This information is available for individuals that belong to the officially defined population of Finnish residents.

2.2. Definitions of ownership types

I classify firms into five ownership types based on detailed ownership data and the information on the ownership category and listing status supplied by SF. The ownership category allows for the separate identification of firms controlled by foreign shareholders and by state and local governments. The listing status, combined with the business group data, makes it possible to indicate publicly traded firms and their subsidiaries. Because the ownership data do not record the voting rights associated with each share, I assume they align perfectly with cash flow rights.

Privately held. In these companies, natural persons hold more than 50 % of the shares, either directly in own names or indirectly through a corporate entity. This definition ensures that in-

¹ An FTA report, "Omistajat osakeyhtiön organisaatiohenkilönä", documents that 9 % of the 175,455 active registered firms that needed to report shareholders in 2012 missed the information. My sample includes only 100,586 firms in 2012 because it omits firms with no revenue or less than 0.5 FTE employees. These restrictions likely increase the coverage of shareholder data because the operationally active firms more likely file their tax return correctly.

dividuals collectively can control the most important governance aspects of the firm, including the election of the board.

Foreign. SF classifies these firms as being majority-controlled by foreign shareholders.

Other. In these domestically controlled firms, the collective ownership of individual shareholders does not meet the majority threshold, or no individuals appear as shareholders in the ownership data. Examples of firms in this category include companies controlled by institutional investors, private equity firms, co-operatives, and charitable foundations.

Government. SF classifies these firms as being majority-controlled by either the state or local governments.

Listed. These firms have their shares quoted on the national stock exchange. The business group data expand the set of firms in this category to include the listed parent and its subsidiaries. The listing status takes precedence over all the other ownership types, ensuring that no firms in the other categories are publicly listed. For example, a publicly traded firm that is controlled by the government is categorized as a listed rather than a government-controlled firm.

3 Results

3.1 Prevalence and importance of privately held firms

Table 1 presents an overview of firm characteristics stratified by ownership type in 2022. The ownership types are categorized into non-listed firms (privately held, foreign, other, and government), listed firms, and all firms combined. The key metrics analyzed include the number of firms, revenue, and number of employees. The table also reports on book value of equity, EBITDA, and corporate income taxes.

Table 1 Firm characteristics by ownership type, 2022

This table reports the number of firms, revenue, book value of equity, EBITDA, number of employees, and corporate income taxes, categorized by ownership type in 2022. Privately held firms are defined as those majority-owned by individuals. The categories of foreign and government refer to firms majority-owned by foreign shareholders and by local or state governments, respectively. Other non-listed firms include companies that do not fall into any of the three non-listed categories. Listed firms are publicly listed on NASDAQ Helsinki and take precedence over other ownership types; for example, a government-owned listed firm is classified as a listed firm. Subsidiaries are categorized based on the ownership type of their parent company.

	OWNERSHIP TYPE				LISTED FIRMS	ALL FIRMS
	PRIVATELY HELD	FOREIGN	OTHER	GOVERNMENT		
Totals, mill. euros / persons						
Revenue	146,590	114,603	51,615	27,663	142,144	482,615
Book value of equity	61,712	52,535	24,401	22,848	107,558	269,053
EBITDA	9,881	9,843	2,229	3,177	5,420	30,551
Corporate income taxes	1,983	1,507	519	302	1,703	6,013
Number of employees	626,568	283,515	168,499	58,001	154,301	1,290,884
Means, th. euros / persons						
Revenue	1,596	38,163	5,082	34,708	228,528	4,534
Book value of equity	672	17,494	2,402	28,668	172,922	2,528
EBITDA	108	3,278	219	3,987	8,715	287
Corporate income taxes	22	509	51	383	2,774	57
Number of employees	7	94	17	73	248	12
Medians, th. euros / persons						
Revenue	323	7,548	439	2,935	8,884	355
Book value of equity	78	1,819	57	1,679	2,755	83
EBITDA	20	321	10	180	197	21
Corporate income taxes	1	21	0	0	7	1
Number of employees	2	26	3	12	40	2
Number of firms	91,855	3,003	10,157	797	622	106,434

The overall sample includes 106,000 firms, with their total sales amounting to 480 billion euros. Official aggregate statistics from SF report 570,000 firms generating 580 billion euros in revenue in 2022. Out of these firms, 230,000 are limited liability firms with 520 billion euros in revenue.² These numbers show that the choice of restricting attention to active firms with positive employment and revenue only removes 7 % of the sales of all the limited liability firms in Finland.

Privately held firms account for 86 % of all firms. The average privately held firm has annual sales of two million euros and it employs seven people. Both the high frequency and the small size distinguish privately held firms from the other ownership types. Listed firms have the highest average revenue at 229 million euros, followed by 38 million for foreign-controlled firms, 35 million for government-controlled firms, and five million for other firms. Listed firms are also the fewest in number with 622 firms, followed by 797 government-controlled firms, 3,003 foreign firms, and 10,157 other firms. The number of listed firms is higher than that appearing at NASDAQ Helsinki because it includes any subsidiaries of listed companies.

The lower medians reflect a skewed distribution of firm size. Privately held firms have the lowest median sales at 0.3 million euros followed by other firms at 0.4 million. The median government-controlled firm has a revenue of 3 million whereas foreign-controlled and listed firms have 8 million and 9 million, respectively. This ranking remains similar for employment.

Despite their small size, privately held firms collectively matter the most. Their aggregated sales amount to 147 billion, and they employ 627,000 people. Listed firms have 142 billion in revenue, but they employ only 154,000 people in Finland. Foreign-owned firms are the third most important category with total sales of 115 billion euros. Their employment with 284,000 employees puts them at the second place. Government-controlled firms generate 28 billion euros in revenue and employ 58,000 people whereas the residual category of other firms has 52 billion euros in sales and 169,000 employees.

Figure 1 summarizes these statistics by reporting the fraction of revenue, employment, and number of firms in privately held firms, compared separately to all firms, domestic firms, and domestic non-listed firms. Privately held firms account for 30 % of the revenue and 49 % of the employment of all firms. Excluding foreign-controlled firms increases these fractions to 40 % and 62 % whereas further removing listed firms results in fractions of 65 % and 73 %, respectively.



Figure 1. Importance of privately held firms compared to all firms, domestic firms, and non-listed domestic firms, 2022

This figure illustrates the total revenue and the number of employees in privately held firms, along with the number of these firms, as a fraction of those for all firms, domestically owned firms, and domestically owned non-listed firms.

² The aggregate statistics cited in this paper are from the StatFin database at https://stat.fi/tup/statfin/index_en.html.

Figure 2 reports the development in these fractions over time. From 2006 to 2022, privately held firms have somewhat increased in importance, both in numbers and fraction of revenue and employment. The revenue share has grown from 28 % to 30 % whereas employment has increased from 46 % to 49 %. These findings show that privately held firms are significant for the Finnish economy, particularly so when focusing on the domestically controlled non-listed business sector. Their importance has remained high throughout the sample period and has somewhat increased over time.

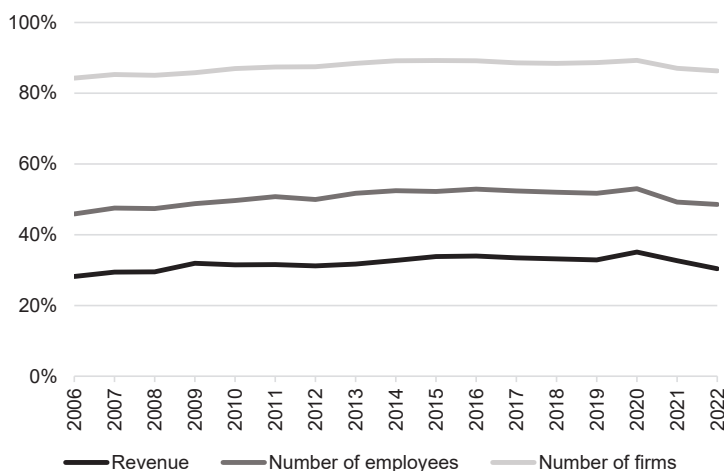


Figure 2. Importance of privately held firms compared to all firms, 2006–2022

This figure illustrates the total revenue and the number of employees in privately held firms, along with the number of these firms, as a fraction of those for all firms over time.

Table 2 analyzes the importance of privately held firms and the other ownership types across the firm size distribution. The table breaks down firms into five categories by their number of employees and calculates the fraction of firms, revenue, and employment in each category by ownership type. In the smallest firms of 1–9 employees, privately held firms account for 90 % of firms, 74 % of revenue, and 88 % of employment. At the other end of the spectrum in the largest firms employing at least 500 people, these fractions are only 16 %, 6 %, and 12 %, respectively. 48 % of the medium-sized firms with 50–249 employees are privately held. These 1,432 firms account for 27 % of revenue and 44 % of employment in their size category.³

³ Adding the firms employing 250–499 people, there are 1,527 privately held firms that loosely qualify for the “Mittelstand” definition used by Confederation of Finnish Industries (EK). EK estimates, based on a combination of business surveys and official statistics, that there are about 1,500 Mittelstand firms in Finland. Scaling the revenue and employment fractions by the fractions reported in the last column of Table 2 shows that Mittelstand firms account for 9 % of revenue and 12 % of employment of all the firms in my sample.

Table 2 Ownership types by firm size, 2022

This table reports the fraction of firms, revenue, and number of employees in each firm size category by ownership type. Each row in the table sums up to 100%, with the last column reporting the fraction of firms, revenue, and number of employees accounted for by each firm size category. The measure of firm size is number of employees, broken down into 1–9, 10–49, 50–249, 250–499, and at least 500 employees. Refer to Table 1 for definitions of the ownership types.

	OWNERSHIP TYPE					FRACTION OF FIRMS, REVENUE, OR EMPLOYEES IN EACH SIZE CATEGORY
	NON-LISTED FIRMS				LISTED FIRMS	
	PRIVATELY HELD	FOREIGN	OTHER	GOVERNMENT		
Fraction of firms						
1–9 employees	90 %	1 %	9 %	0.4 %	0.2 %	83 %
10–49	77 %	8 %	12 %	2 %	1 %	14 %
50–249	48 %	25 %	17 %	4 %	5 %	3 %
250–499	25 %	37 %	14 %	7 %	16 %	0.4 %
500–	16 %	43 %	12 %	7 %	22 %	0.3 %
Fraction of revenue						
1–9 employees	74 %	8 %	13 %	3 %	3 %	13 %
10–49	59 %	18 %	14 %	4 %	5 %	18 %
50–249	27 %	31 %	12 %	6 %	24 %	26 %
250–499	18 %	40 %	8 %	8 %	26 %	11 %
500–	6 %	22 %	8 %	7 %	58 %	33 %
Fraction of employees						
1–9 employees	88 %	2 %	9 %	1 %	0.3 %	18 %
10–49	73 %	10 %	13 %	2 %	2 %	23 %
50–249	44 %	28 %	17 %	4 %	7 %	22 %
250–499	26 %	36 %	15 %	7 %	17 %	10 %
500–	12 %	36 %	12 %	9 %	32 %	27 %

As expected based on the patterns of firm size across ownership types reported in Table 1, the other ownership types show much less concentration towards small firms. Among the largest firms of at least 500 employees, 43 % are foreign-controlled and 22 % are listed. These two ownership types account for 22 % and 58 % of revenue and 36 % and 32 % of employment in the largest firms.

Table 3 illustrates the industry distribution of revenue and employment for privately held firms and all other ownership types in 2022. Privately held firms are particularly dominant in several industries. They have a strong presence in the construction sector, and they are significantly engaged in wholesale and retail trade. Privately held firms are also involved in professional, scientific, and technical activities, as well as administrative and support services. Their notable presence in the accommodation and food service activities sector underscores their role in hospitality and tourism.

Table 3 Fraction of firm revenue and employees by industry, 2022

This table reports the share of revenues and employees for privately held firms and the other four ownership types by industry in 2002. Refer to Table 1 for definitions of the ownership types.

INDUSTRY CODE AND NAME		PRIVATELY HELD		OTHER OWNERSHIP TYPES	
		REVENUE	EMPLOYEES	REVENUE	EMPLOYEES
A	Agriculture, forestry and fishing	2.0 %	2.2 %	0.2 %	0.2 %
B	Mining and quarrying	0.5 %	0.4 %	0.6 %	0.4 %
C	Manufacturing	21.3 %	18.6 %	46.3 %	27.7 %
D	Electricity, gas, steam and air conditioning	0.1 %	0.1 %	6.6 %	1.7 %
E	Water supply, sewerage, waste management	0.8 %	0.6 %	0.6 %	0.9 %
F	Construction	18.6 %	17.7 %	4.5 %	5.9 %
G	Wholesale and retail trade	29.3 %	14.5 %	21.0 %	12.9 %
H	Transportation and storage	5.9 %	7.6 %	4.8 %	7.4 %
I	Accommodation and food service activities	2.8 %	4.9 %	0.8 %	2.9 %
J	Information and communication	3.0 %	4.5 %	6.3 %	10.6 %
K	Financial and insurance activities	1.2 %	0.2 %	0.1 %	0.1 %
L	Real estate activities	1.2 %	1.1 %	0.4 %	1.0 %
M	Professional, scientific, and technical activities	6.9 %	10.0 %	3.0 %	7.7 %
N	Administrative and support service activities	3.3 %	10.9 %	1.9 %	9.2 %
P	Education	0.2 %	0.5 %	0.1 %	0.5 %
Q	Human health and social work activities	1.9 %	4.2 %	2.0 %	9.8 %
R	Arts, entertainment and recreation	0.6 %	1.0 %	0.5 %	0.9 %
S	Other service activities	0.6 %	1.1 %	0.1 %	0.2 %

Privately held firms are much less common in the manufacturing industry that typically requires substantial capital and a large scale. The electricity, gas, steam, and air conditioning supply sector has minimal involvement from privately held firms, reflecting government control of this infrastructure. Similarly, the information and communication industry shows more participation from other ownership types, possibly due to its high-tech nature and the need for substantial R&D investments.

These patterns indicate that privately held firms are more dominant in industries that require less physical capital and that are easier to enter. They are also more likely to be found in consumer-driven, service-oriented, and human-capital intensive industries.

Table 4 takes a closer look at the ownership structure of privately held firms in 2022. 49 % of these firms are owned by just one individual with a further 27 % owned by two individuals. These firms account for 41 % of sales and 47 % of employees of privately held firms. Only 2 % of the firms have ten or more owners with but these firms account for 17 % of revenue and 14 % of employees. Accordingly, the mean revenue and employment increase in the number of owners whereas the fraction of shares held by individuals declines. These patterns show large differences in ownership structure that correlate with differences in firm financials.

Table 4 Privately held firms by number of owners, 2022

This table reports the number of firms, the fractions of total revenue and employment, the average revenue and employment, and the average fraction of the firm's shares held by individuals, categorized by the number of individual shareholders in the firm

NUMBER OF OWNERS	NUMBER OF FIRMS	FRACTION OF TOTAL		MEAN		
		REVENUE	EMPLOYEES	REVENUE, TH. EUROS	EMPLOYEES	INDIVIDUAL OWNERSHIP SHARE
1	44,678	21 %	25 %	688	4	99 %
2	25,185	21 %	22 %	1,193	5	98 %
3	8,810	13 %	13 %	2,184	9	98 %
4	4,977	10 %	9 %	2,871	11	97 %
5	4,689	14 %	14 %	4,513	19	95 %
6–9	1,331	4 %	4 %	4,572	17	95 %
10–19	1,332	6 %	6 %	6,920	28	91 %
20–49	515	5 %	4 %	15,243	44	88 %
50–	338	5 %	4 %	23,529	78	81 %

3.2. Number of owners in privately held firms

Table 5 shows that privately held firms have 169,000 unique individuals registered as owners in 2022. This number represents 3.0 % of the population. Table 5 and Figure 3 show an increase from the 2.6 % rate observed in 2006, reflecting a 17 % increase in relative terms. Interestingly, there was a temporary increase in 2020, possibly due to the abolishment of the minimum equity capital requirement for limited-liability firms in 2019, and the COVID-19 period that saw many employees laid off or furloughed.

Table 5 Number of individual owners, their business wealth, and number of firms per owner, 2006–2022

This table reports the number of individual owners in privately held firms in 2006–2022. It also reports the mean and median business wealth, defined as the book value of equity attributable to each owner based on her ownership stake, and the mean number of firms held by an individual owner.

YEAR	OWNERS		BUSINESS WEALTH, EUROS		MEAN NUMBER OF FIRMS PER OWNER
	NUMBER	FRACTION OF POPULATION	MEAN	MEDIAN	
2006	136,532	2.6 %	175,393	22,991	1.39
2007	146,995	2.8 %	191,455	23,573	1.53
2008	153,488	2.9 %	204,053	23,720	1.44
2009	155,142	2.9 %	208,099	22,714	1.44
2010	159,490	3.0 %	213,255	22,531	1.44
2011	163,126	3.0 %	213,448	22,958	1.48
2012	164,420	3.0 %	211,954	23,581	1.45
2013	166,733	3.1 %	217,901	23,561	1.46
2014	167,873	3.1 %	228,661	24,122	1.48
2015	166,469	3.0 %	236,291	25,789	1.50
2016	170,063	3.1 %	246,296	26,314	1.65
2017	171,436	3.1 %	258,595	27,911	1.61
2018	173,490	3.1 %	280,919	29,515	1.59
2019	172,751	3.1 %	299,074	31,544	1.62
2020	183,536	3.3 %	302,968	31,655	1.65
2021	164,709	3.0 %	329,375	35,159	1.64
2022	168,703	3.0 %	337,278	36,798	1.53

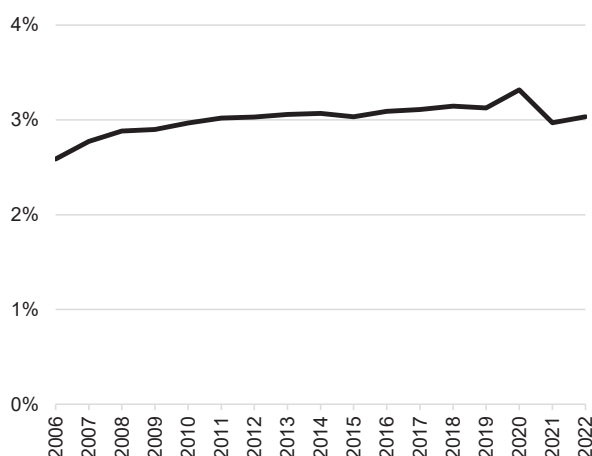


Figure 3. Number of owners as a fraction of population, 2006–2022

This figure reports the fraction of population who own shares in privately held firms over time.

The scarcity of owners is striking when compared to the fraction of the population that holds equity in publicly listed companies. In 2022, Statistics Finland reports 15 % of the population holds publicly traded stock. Many individuals also hold shares through mutual funds. Breitkopf, Knüpfer, and Rantapuska (2021) find a 12 % participation rate in directly held stock in 2016, which increases to 18 % when holdings in equity mutual funds are included. The relatively few individuals in ownership positions, coupled with the substantial footprint of privately held firms in the economy, show that this small owner segment of the population matters greatly for economic growth and job creation.

Table 5 also reports the mean business wealth for each owner, defined as the value of each owner’s equity stake in a firm multiplied by the company’s book value of equity and summed up across all firms held by an individual. For example, an individual holding 70 % of the shares in firm A and 20 % of firm B with both firms having a book value of equity of 10 million euros would result into $0.7 \times 10 + 0.2 \times 10 = 9$ million euros of business wealth. The lack of readily available measures of market values for non-listed firms dictates the use of book values. Because market values exceed book values, barring unusual cases such as financial distress, the resulting business wealth estimates are conservative.

The average owner holds 337,000 euros of business wealth whereas the median equals 37,000 euros. Applying a conservative market-to-book ratio of two and a typical 20 % discount for illiquidity would yield market values of 540,000 and 59,000 for the mean and median owner, respectively. These estimates are an order of magnitude larger than the portfolio values of public equity investors. Breitkopf, Knüpfer, and Rantapuska (2021) report that the mean portfolio value of individuals investing in directly held stock or equity mutual funds is 49,000 euros, with a median of 6,000 euros.

Table 5 also shows that each owner holds shares in an average of 1.5 firms. Table 6 stratifies the owners by the number of firms in which they hold equity stakes. The vast majority, 81 %,

are shareholders in just one firm. These owners account for 36 % of total business wealth. An additional 11 % of owners hold shares in two firms whereas those with more than two holdings account for the remaining 8 %. Despite their small number, serial owners account for a large fraction of business wealth. Those with at least ten holdings represent 1 % of owners but account for 19 % of business wealth. Not surprisingly, these serial owners are substantially wealthier than one-firm owners, with a mean business wealth of 7 million euros.

Table 6 Number of firms held, 2022

This table reports the number and fraction of owners, along with the total and mean business wealth, categorized by the number of firms held by an individual owner. Business wealth is defined as the book value of equity attributable to an owner based on her ownership stake.

NUMBER OF FIRMS HELD	NUMBER OF OWNERS	FRACTION OF OWNERS	FRACTION OF BUSINESS WEALTH	MEAN BUSINESS WEALTH, EUROS
1	135,967	81 %	36 %	152,352
2	18,457	11 %	15 %	473,252
3	5,726	3 %	9 %	909,249
4	2,667	2 %	5 %	1,124,211
5	1,755	1 %	4 %	1,357,581
6	946	0.6 %	4 %	2,652,948
7	827	0.5 %	2 %	1,633,016
8	342	0.2 %	2 %	3,129,812
9	458	0.3 %	2 %	2,072,856
10-	1,558	1 %	19 %	7,049,443

3.3 Owners in privately held firms compared to the population

Figure 4 reports the fraction of the population who are owners in privately held firms in 2022, stratified by gender, native language, and level of education. The highest ownership rates are obtained for men, Swedish-speakers, and Master's degree holders. Although all these rates are small in absolute terms, their relative differences are large. The 4 % ownership rate for men is double the 2 % rate for women whereas the 4 % rate for Swedish-speakers is one third higher than the 3 % rate for Finnish-speakers. The differences are particularly pronounced in education: Master's degree holders have an ownership rate of 6 %, compared to just 1 % for those with basic education.

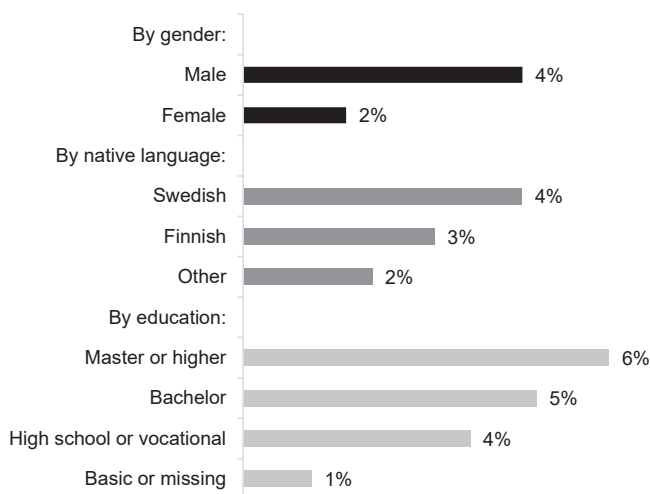


Figure 4. Owners as a fraction of population by gender, native language, and education

This figure reports the fraction of population who own shares in privately held firms, categorized by gender, native language, and level of education.

Table 7 shows ownership rates over time. The fraction of owners has increased the most, 40 % in relative terms, among those whose native language is neither of the two official languages. Men have increased their ownership rates by 19 % whereas the increase for women is only 11 %. Those with a basic or Master's education have experienced a small drop in ownership whereas those with secondary or Bachelor's education have increased their rate.

Table 7 Fraction of owners by individual characteristics, 2006–2022

This table reports the fraction of owners within subgroups of the population categorized by gender, native language, and level of education, in 2006–2022.

YEAR	GENDER		NATIVE LANGUAGE			LEVEL OF EDUCATION			
	MALE	FEMALE	FINNISH	SWE-DISH	OTHER	BASIC OR MISSING	HIGH SCHOOL OR VOCATIONAL	BACHELOR	MASTER OR HIGHER
2006	3.7 %	1.5 %	2.5 %	3.9 %	1.5 %	1.2 %	3.4 %	4.6 %	6.2 %
2007	4.0 %	1.6 %	2.7 %	4.2 %	1.6 %	1.2 %	3.6 %	4.8 %	6.5 %
2008	4.2 %	1.6 %	2.8 %	4.3 %	1.7 %	1.3 %	3.7 %	4.8 %	6.7 %
2009	4.2 %	1.6 %	2.9 %	4.4 %	1.7 %	1.3 %	3.7 %	4.8 %	6.7 %
2010	4.3 %	1.7 %	2.9 %	4.5 %	1.7 %	1.3 %	3.8 %	4.8 %	6.8 %
2011	4.4 %	1.7 %	3.0 %	4.7 %	1.7 %	1.3 %	3.8 %	4.8 %	6.8 %
2012	4.4 %	1.7 %	3.0 %	4.7 %	1.7 %	1.3 %	3.8 %	4.8 %	6.8 %
2013	4.5 %	1.7 %	3.0 %	4.7 %	1.8 %	1.2 %	3.8 %	4.8 %	6.8 %
2014	4.5 %	1.7 %	3.1 %	4.7 %	1.8 %	1.2 %	3.8 %	4.8 %	6.7 %
2015	4.4 %	1.7 %	3.0 %	4.7 %	1.8 %	1.2 %	3.8 %	4.7 %	6.6 %
2016	4.5 %	1.7 %	3.1 %	5.0 %	1.8 %	1.2 %	3.8 %	4.7 %	6.7 %
2017	4.6 %	1.7 %	3.1 %	4.9 %	1.9 %	1.2 %	3.8 %	4.8 %	6.6 %
2018	4.6 %	1.7 %	3.1 %	4.8 %	1.9 %	1.2 %	3.8 %	4.8 %	6.6 %
2019	4.6 %	1.7 %	3.1 %	4.8 %	2.0 %	1.2 %	3.7 %	4.8 %	6.6 %
2020	4.9 %	1.8 %	3.3 %	5.0 %	2.2 %	1.2 %	3.9 %	5.1 %	6.8 %
2021	4.4 %	1.6 %	3.0 %	4.4 %	2.0 %	1.1 %	3.5 %	4.6 %	5.8 %
2022	4.5 %	1.6 %	3.0 %	4.4 %	2.1 %	1.1 %	3.6 %	4.7 %	5.8 %

Figure 5 analyzes the age-gender distribution of owners compared to the general population, with a detailed breakdown of the numbers appearing in Table 8. The left side of the figure shows the fraction of the population and the fraction of owners falling into each age category for men whereas the right side provides corresponding statistics for women. The figure shows that the distribution of owners is heavily skewed towards men, with only 27 % of owners being women. This gender disparity is even more striking when considering wealth shares: women account for only 23 % of business wealth of all owners. Thus, women are underrepresented in numbers and particularly in economic significance.

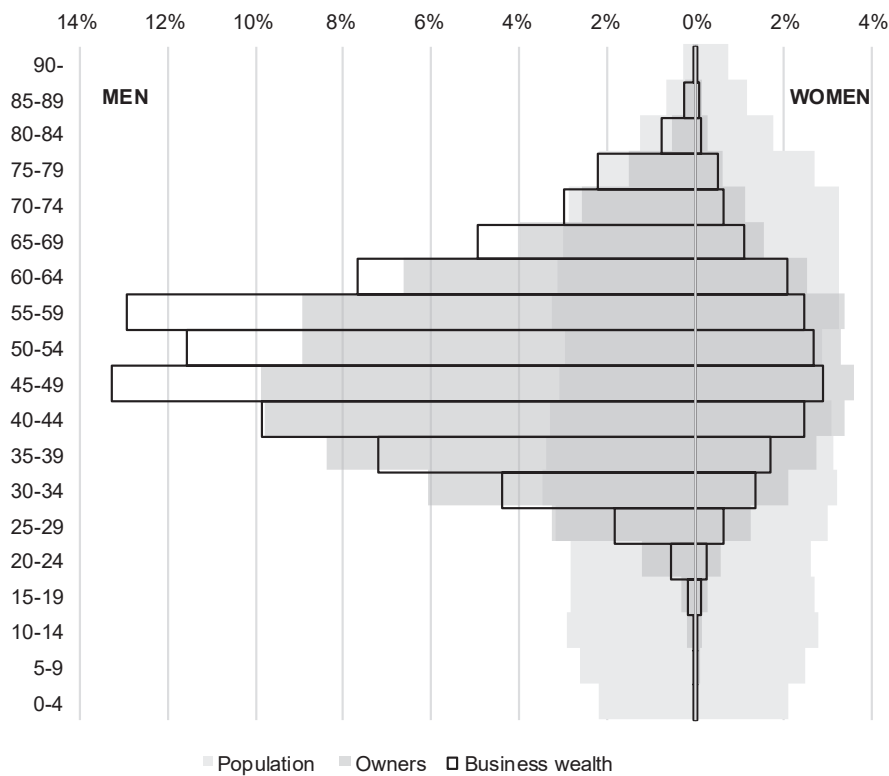


Figure 5. Fraction of population, owners, and business wealth by age and gender, 2022
This figure displays the fraction of the population and owners within each of the 19 age categories, stratified by gender. It also reports business wealth—defined as the book value of equity attributable to an owner based on her ownership stake—across these age-gender groups.

Figure 5 also shows that owners are concentrated in the middle of the age pyramid. Individuals under 40 years old comprise 46 % of the population but only 27 % of the owners. Similarly, those aged 65 and above make up 23 % of the population but only 13 % of the owners. In contrast, individuals between these bottom and top age groups represent 31 % of the population but account for 60 % of owners. This age group becomes even more significant in terms of business wealth, contributing 64 % of the total. The sharp drop for owners and business wealth starting at the age of 60 likely reflects owners retiring from their roles by selling or closing their business or transferring it to the next generation.

Table 8 Population, owners, and business wealth by age and gender, 2022

This table reports the fractions of the population, owners, and business wealth within each of the 19 age categories, stratified by gender in 2022. Business wealth is defined as the book value of equity attributable to an owner based on her ownership stake.

AGE GROUP	POPULATION		OWNERS		BUSINESS WEALTH	
	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN
90–	0.3 %	0.8 %	0.1 %	0.1 %	0.0 %	0.0 %
85–89	0.7 %	1.2 %	0.2 %	0.2 %	0.7 %	0.1 %
80–84	1.2 %	1.8 %	0.5 %	0.3 %	1.0 %	0.2 %
75–79	2.2 %	2.7 %	1.5 %	0.6 %	4.3 %	0.7 %
70–74	2.9 %	3.3 %	2.6 %	1.1 %	3.5 %	1.3 %
65–69	3.0 %	3.3 %	4.0 %	1.6 %	5.6 %	1.9 %
6–64	3.1 %	3.2 %	6.6 %	2.5 %	7.4 %	2.3 %
55–59	3.3 %	3.3 %	8.9 %	3.4 %	12.0 %	2.6 %
50–54	3.0 %	2.9 %	8.9 %	3.3 %	10.7 %	2.6 %
45–49	3.1 %	2.9 %	9.9 %	3.6 %	12.3 %	3.2 %
40–44	3.3 %	3.1 %	9.8 %	3.4 %	7.8 %	3.3 %
35–39	3.4 %	3.2 %	8.4 %	2.8 %	5.6 %	1.8 %
30–34	3.5 %	3.2 %	6.1 %	2.1 %	3.4 %	1.7 %
25–29	3.2 %	3.0 %	3.3 %	1.3 %	1.9 %	0.7 %
20–24	2.8 %	2.6 %	1.2 %	0.6 %	0.6 %	0.3 %
15–19	2.8 %	2.7 %	0.3 %	0.3 %	0.2 %	0.2 %
10–14	2.9 %	2.8 %	0.2 %	0.2 %	0.0 %	0.0 %
5–9	2.6 %	2.5 %	0.1 %	0.1 %	0.0 %	0.0 %
0–4	2.2 %	2.1 %	0.0 %	0.0 %	0.0 %	0.0 %
Total	49.5 %	50.5 %	72.6 %	27.4 %	77.1 %	22.9 %

Table 9 reports on the geographical distribution of owners and the population across provinces. The largest province of Uusimaa is broken down into the Greater Helsinki Area and the rest of the province. Predictably, population size explains differences in the number of owners across provinces. However, some provinces stand out in the prevalence of owners relative to their population. These differences are particularly large when judged by business wealth attributable to owners across provinces.

Table 9 Owners in provinces, 2022

This table displays the fractions of the population, owners, and business wealth in each province in 2022. It also reports the number of owners scaled by the number of inhabitants, as well as the mean business wealth in each province. Business wealth is defined as the book value of equity attributable to an owner based on her ownership stake.

PROVINCE	FRACTION OF POPULATION	FRACTION OF NUMBER OF OWNERS	FRACTION OF BUSINESS WEALTH	NUMBER OF OWNERS PER INHABITANTS	MEAN BUSINESS WEALTH, EUROS
Uusimaa, Greater Helsinki Area	22.0 %	25.0 %	38.4 %	3.5 %	517,020
Uusimaa, others	9.2 %	10.7 %	7.7 %	3.5 %	242,400
Varsinais-Suomi	8.7 %	9.5 %	9.6 %	3.3 %	340,882
Satakunta	3.8 %	3.4 %	2.6 %	2.7 %	259,115
Kanta-Häme	3.0 %	2.8 %	2.1 %	2.8 %	248,965
Pirkanmaa	9.6 %	9.8 %	8.1 %	3.1 %	279,109
Päijät-Häme	3.7 %	3.3 %	2.7 %	2.7 %	278,723
Kymenlaakso	2.9 %	1.9 %	1.2 %	2.0 %	209,394
Etelä-Karjala	2.3 %	1.6 %	1.1 %	2.1 %	242,659
Etelä-Savo	2.3 %	1.9 %	1.3 %	2.4 %	241,935
Pohjois-Savo	4.5 %	3.5 %	2.4 %	2.4 %	229,409
Pohjois-Karjala	2.9 %	2.2 %	2.6 %	2.2 %	412,382
Keski-Suomi	4.9 %	4.1 %	2.6 %	2.5 %	212,906
Etelä-Pohjanmaa	3.4 %	4.0 %	3.4 %	3.5 %	287,211
Pohjanmaa	3.2 %	3.7 %	3.7 %	3.5 %	339,152
Keski-Pohjanmaa	1.2 %	1.3 %	0.9 %	3.1 %	244,874
Pohjois-Pohjanmaa	7.5 %	7.0 %	5.3 %	2.8 %	255,232
Kainuu	1.3 %	0.9 %	0.9 %	2.1 %	352,965
Lappi	3.2 %	2.7 %	2.1 %	2.6 %	266,071
Ahvenanmaa	0.5 %	0.8 %	1.2 %	4.6 %	479,929
Total	100.0 %	100.0 %	100.0 %	3.0 %	337,278

Figure 6 depicts these differences by dividing the fraction of business wealth held by owners in a province by the fraction of the population residing in that province. Ratios above one indicate provinces that have more business wealth than expected based on their population size whereas the reverse applies for ratios below one. Ahvenanmaa, Greater Helsinki Area, Pohjanmaa, and Varsinais-Suomi emerge as hot spots for business wealth creation whereas Kymenlaakso, Etelä-Karjala, Keski-Suomi, and Pohjois-Savo have particularly little wealth.

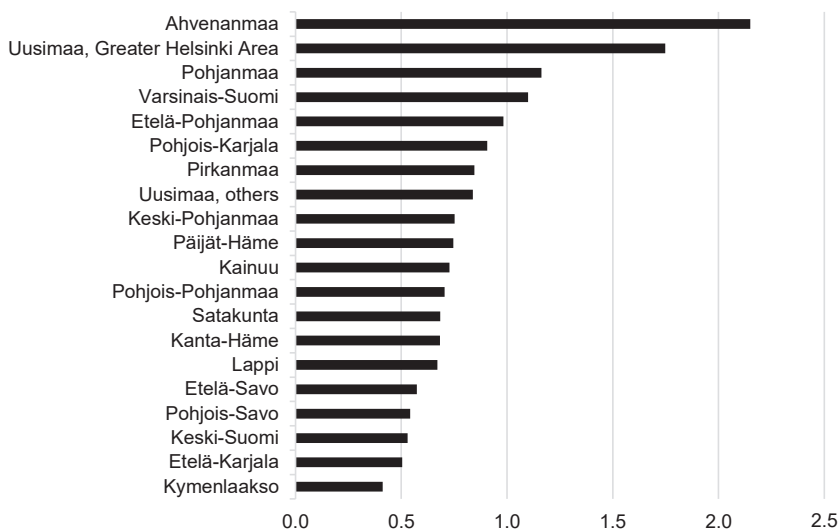


Figure 6. Fraction of business wealth divided by fraction of population, by province, 2022

This figure plots the ratio of business wealth in each province—defined as the book value of equity attributable to owners residing in that province—divided by the fraction of the population living in the province. Ratios above one indicate that the province has more business wealth than expected based on its population size, while ratios below one indicate the opposite.

Table 10 conducts a similar analysis of the 30 most populous municipalities. Figure 7 shows that Helsinki, Espoo, Joensuu, Nurmijärvi, Kirkkonummi, Vaasa, and Salo punch above their population weight. Conversely, the business wealth shares in Kotka, Kouvola, Kerava, Hämeenlinna, and Vantaa are well behind their population share.

Table 10 Owners in the 30 largest municipalities, 2022

This table displays the fractions of the population, owners, and business wealth in each of the 30 most populous municipalities in 2022. It also reports the number of owners scaled by the number of inhabitants, as well as the mean business wealth in each municipality. Business wealth is defined as the book value of equity attributable to an owner based on her ownership stake.

MUNICIPALITY	FRACTION OF POPULATION	FRACTION OF NUMBER OF OWNERS	FRACTION OF BUSINESS WEALTH	NUMBER OF OWNERS PER INHABITANTS	MEAN BUSINESS WEALTH, EUROS
Helsinki	11.9 %	14.0 %	27.8 %	3.5 %	671,874
Espoo	5.5 %	6.7 %	7.2 %	3.7 %	362,411
Tampere	4.5 %	4.1 %	3.4 %	2.8 %	281,436
Vantaa	4.4 %	3.9 %	2.0 %	2.7 %	173,280
Oulu	3.8 %	3.5 %	2.4 %	2.8 %	237,381
Turku	3.6 %	3.1 %	3.5 %	2.7 %	376,900
Jyväskylä	2.6 %	2.2 %	1.4 %	2.5 %	213,437
Kuopio	2.2 %	1.8 %	1.4 %	2.5 %	253,952
Lahti	2.2 %	1.7 %	1.7 %	2.4 %	327,004
Pori	1.5 %	1.2 %	0.8 %	2.4 %	237,345
Kouvola	1.4 %	1.0 %	0.5 %	2.0 %	187,717
Joensuu	1.4 %	0.9 %	1.7 %	2.0 %	626,308
Lappeenranta	1.3 %	0.9 %	0.7 %	2.1 %	275,072
Hämeenlinna	1.2 %	1.1 %	0.6 %	2.6 %	174,051
Vaasa	1.2 %	1.0 %	1.3 %	2.5 %	446,099
Seinäjoki	1.2 %	1.1 %	1.2 %	2.9 %	353,771
Rovaniemi	1.2 %	1.0 %	0.8 %	2.5 %	276,817
Mikkeli	0.9 %	0.7 %	0.5 %	2.4 %	228,096
Porvoo	0.9 %	1.2 %	0.9 %	3.8 %	261,451
Salo	0.9 %	1.0 %	1.0 %	3.4 %	326,699
Kotka	0.9 %	0.5 %	0.3 %	1.8 %	207,455
Kokkola	0.9 %	0.9 %	0.7 %	3.0 %	268,489
Hyvinkää	0.8 %	0.7 %	0.6 %	2.7 %	287,899
Lohja	0.8 %	0.8 %	0.5 %	3.0 %	200,212
Järvenpää	0.8 %	0.8 %	0.5 %	2.9 %	196,138
Nurmijärvi	0.8 %	1.1 %	0.9 %	4.1 %	285,503
Kirkkonummi	0.7 %	1.0 %	0.8 %	4.0 %	289,932
Tuusula	0.7 %	1.0 %	0.7 %	4.1 %	254,245
Rauma	0.7 %	0.5 %	0.6 %	2.3 %	377,323
Kerava	0.7 %	0.6 %	0.3 %	2.5 %	182,122
Total	58.8 %	56.9 %	64.4 %	3.3 %	381,717

Two forces may drive the geographical distribution of business wealth. An area may have more owners than implied by its population share. Alternatively, owners in an area may have more valuable ownership stakes, resulting in higher wealth shares. Table 10 shows, for example, that Nurmijärvi and Tuusula have the highest ownership rates but their owners are not particularly wealthy. On the other hand, Joensuu and Vaasa have wealthy owners but their ownership rates are particularly high. The top municipalities in terms of average business wealth are Helsinki, Joensuu, Vaasa, Rauma, and Turku.

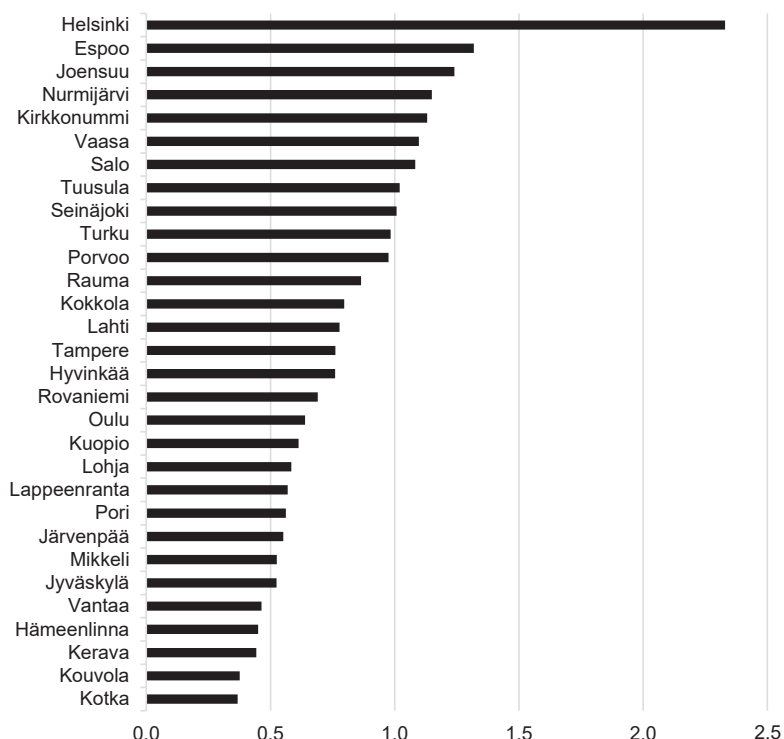


Figure 7. Fraction of business wealth divided by fraction of population, by municipality, 2022

This figure plots the ratio of business wealth in each municipality—defined as the book value of equity attributable to owners residing in that province—divided by the fraction of the population living in the municipality. Ratios above one indicate that the municipality has more business wealth than expected based on its population size, while ratios below one indicate the opposite. The figure shows the 30 most populous municipalities.

3.4 Concentration of business wealth among owners of privately held firms

Table 11 analyzes wealth concentration among owners in 2022 by ranking owners by their business wealth and grouping them according to percentiles of the business wealth distribution. This categorization starts from the bottom 30 % of the distribution and proceeds up to the 90th percentile in intervals of 10 %. To gain more insight into the distribution at the top, I further divide the top 10 % into the 90th to 95th percentiles, the 95th to 99th percentiles, and the top 1 %.

Table 11 Distribution of business wealth among owners, 2022

This table reports the number of owners, the fraction of business wealth, and mean business wealth within groups of owners defined by various percentiles of the business wealth distribution. Business wealth is defined as the book value of equity attributable to an owner based on her ownership stake.

	NUMBER OF OWNERS	BUSINESS WEALTH			MEAN NUMBER OF FIRMS
		SHARE OF TOTAL	MEAN, EUROS	MEDIAN, EUROS	
Bottom 30%	50,612	0.2 %	2,501	1,206	1.30
30%-40%	16,871	0.4 %	14,592	14,369	1.28
40%-50%	16,870	1 %	27,937	27,665	1.39
50%-60%	16,869	1 %	49,378	48,787	1.41
60%-70%	16,872	3 %	86,300	84,962	1.47
70%-80%	16,869	5 %	156,104	152,905	1.56
80%-90%	16,870	10 %	325,161	310,452	1.64
90%-95%	8,435	10 %	701,755	678,132	1.94
95%-99%	6,748	22 %	1,865,096	1,610,212	2.83
99%-100%	1,687	48 %	16,089,516	7,998,589	5.87

The distribution of business wealth is heavily skewed towards the top. The bottom 50 % accounts for only 2 % of business wealth in privately held firms. In contrast, the top 10 % holds 80 % of business wealth, with the top 1 % alone accounting for 48 %. The average wealth of the 1,700 owners in the top 1 % is 16 million euros whereas the average for the bottom 30 % is only 2,500 euros. The medians are 8 million euros and 1,200 euros, respectively. Figure 8 illustrates these patterns by plotting the cumulative wealth distribution among owners, showing a steep increase in the cumulative wealth share starting not until the 80th percentile.

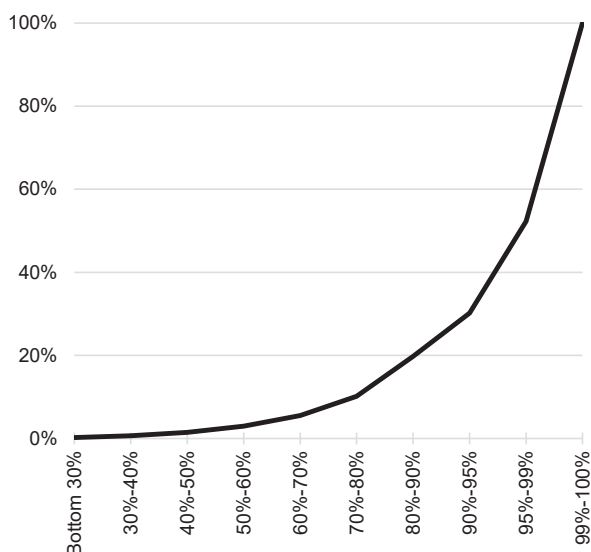


Figure 8. Cumulative distribution of business wealth among owners

This figure shows the cumulative distribution of business wealth, defined as the book value of equity attributable to an owner based on her ownership stake. Each owner is assigned to a group corresponding to various percentiles of the business wealth distribution.

How do these numbers compare with the concentration of wealth in publicly listed firms? Within shareholders of publicly listed firms, Keloharju and Lehtinen (2021) find that the top 1 % holds 48 % of wealth. This number is coincidentally the same as the top 1 % share I find among owners of privately held firms. However, within the entire population, business wealth in privately held firms is naturally more concentrated because all such wealth is held by 3 % of the population whereas 15 % of the population holds listed shares in 2022, according to Statistics Finland. Keloharju and Lehtinen (2021) report that the top 1 % of the population holds 78 % of publicly traded stock wealth. Table 11 shows that the top 30 % of owners in privately held firms, which roughly corresponds to the top 1 % of the entire population, hold 94 % of business wealth in privately held firms. Business wealth is thus more heavily concentrated in the population, largely because there are fewer owners in privately held firms than in publicly listed companies.

Another point of comparison is the total value of stock holdings in the household sector. Statistics Finland reports that publicly traded stock wealth amounts to 46 billion euros in 2022 whereas the total business wealth in privately held firms held by individuals equals 57 billion euros. Using the top 1 % wealth shares in the population reported above implies that the top 1 % holds 36 billion euros in publicly traded stocks whereas the corresponding top 1 % share in business wealth would equal 54 billion. Because business wealth in privately held firms is based on book values, the top 1 % of owners in privately held firms likely holds substantially more wealth than the corresponding public-market investors.

Figure 9 analyzes the evolution of wealth concentration over time. The top wealth shares have remained remarkably stable throughout the 2006–2022 period. The share of the bottom 90 % has hovered around 20 % whereas the top 1 % share has varied between 45 % to 48 %.

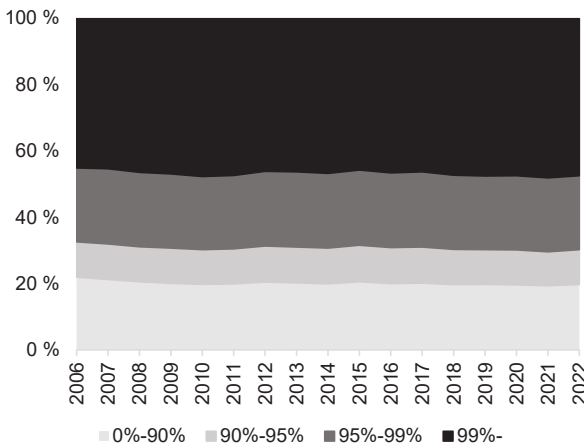


Figure 9. Top business wealth shares among owners over time

This figure illustrates the distribution of business wealth, defined as the book value of equity attributable to an owner based on her ownership stake, in 2006–2022. Each owner is assigned to a group corresponding to various percentiles of the business wealth distribution. The groups displayed are the bottom 90%, 90%–95%, 95%–99%, and the top 1%.

These analyses reveal that the owners' economic footprint varies significantly across individuals. Another way to assess the societal impact of ownership is to analyze the taxes owners pay on their income. Table 12 reports the total income taxes paid by each wealth group, both in euros and as a fraction of the national totals. The table reports two income tax measures. The first measure includes personal income taxes levied by the municipal and state governments. Because the tax return data do not separately identify income derived from ownership stakes in privately held firms, the personal tax measures necessarily include all sources. The second measure allocates the corporate income taxes paid by the firms that the owners hold to each owner according to their ownership stake.

Table 12 Owners' income taxes, 2022

This table reports owners' personal income taxes (state and municipal) and their firms' corporate income taxes, stratified by owner groups across the business wealth distribution. It also details their contributions to the total personal income taxes paid by the population and the total corporate income taxes paid by the firms included in Table 1, respectively. Business wealth is defined as the book value of equity attributable to an owner based on her ownership stake.

BUSINESS WEALTH PERCENTILE	FRACTION OF POPULATION	PERSONAL INCOME TAXES		CORPORATE INCOME TAXES	
		TOTAL, MILL. EUROS	FRACTION OF POPULATION TOTAL	TOTAL, MILL. EUROS	FRACTION OF FIRM TOTAL
Bottom 30 %	0.9 %	695	2.2 %	14	0.2 %
30 %–40 %	0.3 %	228	0.7 %	16	0.3 %
40 %–50 %	0.3 %	263	0.8 %	27	0.4 %
50 %–60 %	0.3 %	287	0.9 %	46	0.8 %
60 %–70 %	0.3 %	322	1.0 %	78	1.3 %
70 %–80 %	0.3 %	403	1.3 %	133	2.2 %
80 %–90 %	0.3 %	481	1.5 %	261	4.3 %
90 %–95 %	0.2 %	318	1.0 %	247	4.1 %
95 %–99 %	0.1 %	371	1.2 %	443	7.4 %
99 %–100 %	0.03 %	360	1.1 %	610	10.1 %
Owner total	3.0 %	3,728	11.9 %	1,874	31.2 %
Population total		31,446		6,013	

The owners in privately held firms are responsible for 12 % of the national personal income taxes of 31 billion euros and 31 % of the national corporate income taxes of 6 billion euros. Across the wealth distribution, owners in the bottom 30 % contribute the largest share of personal taxes whereas those in the top 1 % pay the most in corporate taxes. More informative comparisons emerge when the tax shares of each wealth group are scaled by their population shares. Figure 10 depicts these ratios for each wealth group by adding together their personal and corporate income taxes. The contribution to national totals monotonically increases in business wealth and is substantially larger for more affluent owners. Income taxes paid by owners in the top 1 % are 85 times their population share. Even in the bottom 30 % of the distribution, this ratio equals two.

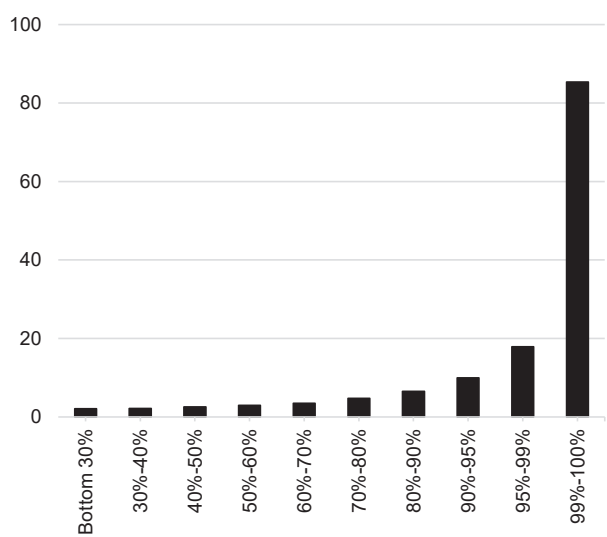


Figure 10. Fraction of owners' income taxes divided by their fraction in population

This figure presents the ratio of the fraction of owners' income taxes to the fraction of owners in the population, stratified by owner groups across the business wealth distribution. Income taxes include the owners' personal income taxes (state and municipal), and the firms' corporate income taxes are allocated to each owner based on her ownership stake. The national total encompasses the personal income taxes paid by the population and the corporate income taxes paid by the firms included in Table 1.

Table 13 examines the characteristics of owners across the business wealth distribution. 67 % of owners in the bottom 30 % are men whereas this fraction rises to 81 % at the 90th percentile. Interestingly, the male ratio drops to 76 % in the top 1 %. The fraction of Swedish-speakers doubles from the 7 % fraction at the bottom of the distribution to 14 % in the top 1 %. An opposite pattern obtains for owners with native languages other than Finnish or Swedish, with only 2 % of the top 1 % belonging to this group. The fraction of Master's degree holders hovers around 20 % up to the 90th percentile with a steep increase to 35 % in the top 1 %.

Table 13 Owner characteristics compared to the population, 2022

This table reports mean age, and fractions by gender, native language, and level of education among owners, categorized by groups across the business wealth distribution, and among the general population. Business wealth is defined as the book value of equity attributable to an owner based on her ownership stake.

	MEAN AGE	GENDER		NATIVE LANGUAGE			LEVEL OF EDUCATION			
		MALE	FEMALE	FINNISH	SWE- DISH	OTHER	BASIC OR MIS- SING	HIGH SCHOOL OR VOCA- TIONAL	BAC- HELOR	MASTER OR HIGHER
Population	43.2	49 %	51 %	86 %	5 %	9 %	37 %	43 %	11 %	10 %
Owners	48.6	73 %	27 %	86 %	8 %	6 %	13 %	51 %	17 %	20 %
By wealth:										
Bottom 30 %	47.2	67 %	33 %	84 %	7 %	9 %	15 %	49 %	17 %	19 %
30 %–40 %	47.2	69 %	31 %	85 %	7 %	7 %	14 %	52 %	16 %	18 %
40 %–50 %	48.1	72 %	28 %	86 %	7 %	7 %	13 %	52 %	17 %	18 %
50 %–60 %	48.4	74 %	26 %	87 %	8 %	6 %	13 %	53 %	17 %	18 %
60 %–70 %	49.2	75 %	25 %	87 %	8 %	5 %	12 %	53 %	17 %	19 %
70 %–80 %	49.9	77 %	23 %	88 %	8 %	4 %	12 %	52 %	17 %	19 %
80 %–90 %	50.5	79 %	21 %	89 %	8 %	3 %	12 %	51 %	16 %	21 %
90 %–95 %	51.2	81 %	19 %	89 %	8 %	3 %	12 %	50 %	16 %	22 %
95 %–99 %	51.6	81 %	19 %	88 %	10 %	2 %	11 %	47 %	17 %	25 %
99 %–100 %	53.0	76 %	24 %	85 %	14 %	2 %	8 %	38 %	19 %	35 %

Table 14 reports the distribution of business wealth by owner characteristics. If business wealth were distributed similarly as the number of owners across different characteristics, the two fractions reported in the first two columns would be identical. This is usually not the case: several owner groups emerge as more significant holders of business wealth than their frequency suggests. These differences reflect variation in average business wealth held by each group. Men average a business wealth of 358,000 euros with women having 75,000 euros less. Swedish-speakers have 580,000 euros whereas Finnish-speakers and speakers of other native languages own stock worth of 332,000 and 105,000 euros, respectively. Higher education is accompanied by greater business wealth with Master's degree holders having a mean wealth of 530,000 euros whereas those with basic education have 247,000 euros. The medians are an order of magnitude lower but the differences between groups remain. These differences explain why business wealth is disproportionately held by men, Swedish-speakers, and Master's degree holders.

Table 14 Business wealth by owner characteristics, 2022

This table reports the fraction of owners, the fraction of business wealth, and the mean business wealth by gender, native language, and level of education among owners. Business wealth is defined as the book value of equity attributable to an owner based on her ownership stake.

	FRACTION OF OWNERS	FRACTION OF BUSINESS WEALTH	MEAN BUSINESS WEALTH, EUROS	MEDIAN BUSINESS WEALTH, EUROS
Gender				
Male	73 %	77 %	357,736	43,857
Female	27 %	23 %	282,943	22,910
Native language				
Finnish	86 %	85 %	332,380	38,635
Swedish	8 %	13 %	579,950	44,284
Other	6 %	2 %	104,651	14,970
Level of education				
Basic or missing	13 %	10 %	246,991	28,380
High school or vocational	51 %	42 %	281,102	37,563
Bachelor	17 %	17 %	353,812	36,633
Master or higher	20 %	31 %	530,165	41,830

Table 15 reports on the business wealth distribution by using cutoffs defined by absolute values of business wealth in lieu of percentiles. 5 % of owners have at least one million euros in business wealth whereas those with at least 10 million euros amount to 0.4 % of owners. These two groups hold 70 % and 36 % of business wealth, respectively. The differences in characteristics become more pronounced at the very top of the distribution. Among those having at least 10 million euros, 16 % are Swedish-speaking and 40 % have completed a Master's degree. The reversal of the increase in the gender gap at the top of the distribution also becomes stronger.

Table 15 Owners at different business wealth cutoffs, 2022

This table reports the number of owners, the share of total business wealth, and the mean business wealth within groups of owners defined by different cutoffs of business wealth. It also reports the fraction of owners by gender, native language, and level of education in each wealth group. Business wealth is defined as the book value of equity attributable to an owner based on her ownership stake.

	BUSINESS WEALTH, EUROS				
	-10,000	10,000–100,000	100,000–1 MIL.	1 MIL.–10 MIL.	10 MIL.–
Number of owners	27,021	63,315	45,633	7,895	643
Share of total business wealth	0.2 %	5 %	25 %	34 %	36 %
Mean business wealth, euros	2,588	41,401	313,668	2,447,007	31,902,432
Median business wealth, euros	1,264	35,011	234,887	1,763,700	16,849,062
Fraction by gender	0	0	0	0	0
Male	67 %	72 %	79 %	80 %	75 %
Female	33 %	28 %	21 %	20 %	25 %
Fraction by native language	0 %	0 %	0 %	0 %	0 %
Finnish	84 %	86 %	89 %	88 %	83 %
Swedish	7 %	7 %	8 %	10 %	16 %
Other	9 %	6 %	4 %	2 %	1 %
Fraction by level of education	0 %	0 %	0 %	0 %	0 %
Basic or missing	15 %	13 %	12 %	10 %	7 %
High school or vocational	49 %	52 %	51 %	46 %	34 %
Bachelor	17 %	17 %	16 %	18 %	18 %
Master or higher	19 %	18 %	20 %	26 %	40 %

Figure 11 reports the number of owners with business wealth below and above the one-million cutoff over time. The number of owners below the one-million cutoff has increased by 20 % whereas owners with at least one million euros have witnessed a growth rate of 150 %, from 3,400 to 8,500 owners. This large increase likely reflects growth in firm values, entry of new owners of highly successful companies, and the transfer of family business ownership to the members of the next generation.

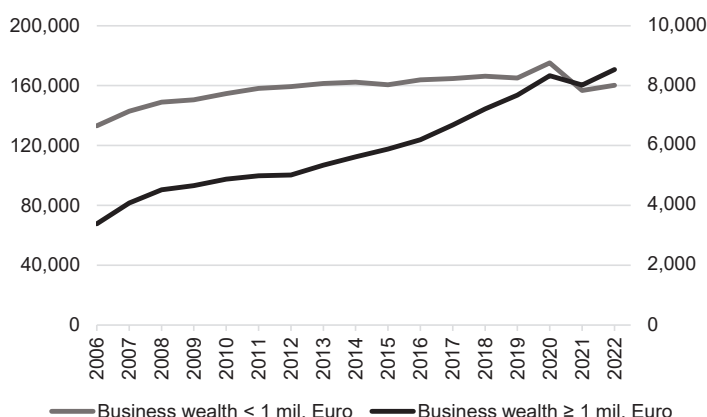


Figure 11. Number of owners with less than and at least one million euros in business wealth

This figure illustrates the number of owners whose business wealth either is below or exceeds one million euros by year. Business wealth is defined as the book value of equity attributable to an owner based on her ownership stake.

3.5 Turnover among owners of privately held firms

Table 16 examines the turnover in the owner population over time by reporting the number of individuals becoming owners and the number of owners ceasing to their ownership position each year. Averaged over all years, the number of new owners, scaled by the number of owners at the start of the year, equals 12.5 %. Conversely, about 11.1 % of existing owners exit their position annually. The net entry rate, which is the difference between the entry and exit rates, is thus 1.4 %. These results show that the relatively small net entry rate masks substantial turnover within the owner population.

Table 16 Number of entering and exiting owners by year, 2007–2022

This table reports the number of owners at the start and end of each year in 2007–2022. It also details the number of entering and exiting owners, along with their fraction relative to the number of beginning-of-year owners. Net entry is calculated as the difference between the number of entering and exiting owners.

YEAR	OWNERS, START OF YEAR	ENTERING OWNERS		EXITING OWNERS		NET ENTRY		OWNERS, END OF YEAR
		NUMBER	%	NUMBER	%	NUMBER	%	
2007	136,532	23,491	17 %	13,028	10 %	10,463	8 %	146,995
2008	146,995	20,620	14 %	14,127	10 %	6,493	4 %	153,488
2009	153,488	18,161	12 %	16,507	11 %	1,654	1 %	155,142
2010	155,142	18,719	12 %	14,371	9 %	4,348	3 %	159,490
2011	159,490	19,432	12 %	15,796	10 %	3,636	2 %	163,126
2012	163,126	17,929	11 %	16,635	10 %	1,294	1 %	164,420
2013	164,420	19,129	12 %	16,816	10 %	2,313	1 %	166,733
2014	166,733	18,346	11 %	17,206	10 %	1,140	1 %	167,873
2015	167,873	16,814	10 %	18,218	11 %	-1,404	-1 %	166,469
2016	166,469	21,475	13 %	17,881	11 %	3,594	2 %	170,063
2017	170,063	20,832	12 %	19,459	11 %	1,373	1 %	171,436
2018	171,436	21,337	12 %	19,283	11 %	2,054	1 %	173,490
2019	173,490	21,106	12 %	21,845	13 %	-739	0 %	172,751
2020	172,751	27,614	16 %	16,829	10 %	10,785	6 %	183,536
2021	183,536	16,363	9 %	35,190	19 %	-18,827	-10 %	164,709
2022	164,709	24,998	15 %	21,004	13 %	3,994	2 %	168,703
Average			13 %		11 %		1 %	

Does the high turnover in the owner population align with other data sources? Statistics Finland reports that 16,200 new firms are established and 9,800 firms cease to exist in 2022. In addition, 3,600 firms experience an ownership transition due to an acquisition or a family firm succession. Assuming these firms have the average 1.5 owners reported in Table 5 and that the ownership transition does not lead to new net entry suggests about 30,000 entering owners and 20,000 exiting owners in 2022. These numbers are broadly in line with those reported in Table 16.

Table 17 studies the survival of owners over the entire 2006–2022 period. The sample includes individuals who were owners in 2006. For each business wealth group in 2006, it reports the fraction of owners who have passed away and the ownership and residence status of the surviving individuals. The table also reports the owners' average percentile rank in the wealth distribution in 2022.

Table 17 Survival of owners over time, 2006–2022

This table shows the survival rates of owners within percentile groups of the business wealth distribution in 2006. It reports ownership and residence status and position within the business wealth distribution in 2022 for individuals who are owners in 2006. The 2006 owners who are alive in 2022 are separately split into owners or non-owners and to those who reside in Finland or abroad. The average percentile rank refers to the rank in the business wealth distribution among all owners in 2022, including those who became owners after 2006. Business wealth is defined as the book value of equity attributable to an owner based on her ownership stake.

	NUMBER OF OWNERS IN 2006	DECEASED	STATUS OF OWNERS ALIVE IN 2022				AVERAGE PERCENTILE RANK IN 2022
			OWNER		RESIDENT IN FINLAND		
			YES	NO	YES	NO	
Bottom 30 %	40,982	9 %	28 %	72 %	98 %	2 %	42 %
30 %–40 %	13,632	8 %	34 %	66 %	99 %	1 %	50 %
40 %–50 %	13,653	8 %	36 %	64 %	99 %	1 %	54 %
50 %–60 %	13,657	9 %	39 %	61 %	99 %	1 %	59 %
60 %–70 %	13,649	9 %	40 %	60 %	99 %	1 %	63 %
70 %–80 %	13,653	9 %	42 %	58 %	99 %	1 %	69 %
80 %–90 %	13,653	9 %	47 %	53 %	99 %	1 %	75 %
90 %–95 %	6,827	10 %	52 %	48 %	99 %	1 %	81 %
95 %–99 %	5,461	10 %	58 %	42 %	98 %	2 %	84 %
99 %–100 %	1,365	12 %	74 %	26 %	96 %	4 %	90 %
Total	136,532	9 %	38 %	62 %	99 %	1 %	61 %

In 2022, 9 % of the owners of 2006 are deceased. Mortality is higher at the top of business wealth distribution presumably because these owners are older. Out of the individuals alive in 2022, 38 % have remained as owners. This survival rate strongly increases in business wealth, with the bottom and top segments of the wealth distribution emerging as their mirror images. Only 28 % of owners in the bottom 30 % retain their ownership status whereas the corresponding figure for the top 1 % is 74 %. Figure 12 illustrates these numbers.

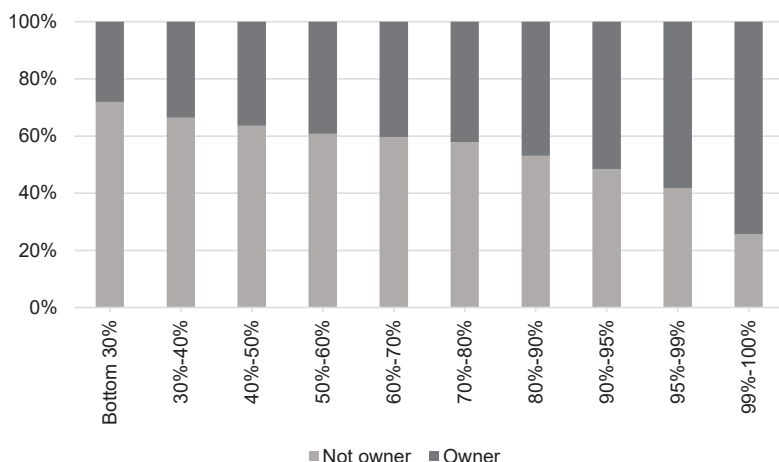


Figure 12. Ownership status in 2022 by business wealth in 2006

This figure shows the ownership status in 2022 as a function of business wealth percentile in 2006. The sample includes individuals who are owners in 2006 and are alive in 2022. These 2006 owners are split into two based on whether they are owners or not. Business wealth is defined as the book value of equity attributable to an owner based on her ownership stake.

The surviving owners' position in the wealth distribution is highly persistent. The average surviving owner is at the 61th percentile of the 2022 distribution. This percentile is not exactly at the middle of the distribution because the sample of owners used to calculate the percentiles in 2022 also includes individuals who became owners after 2006. This inclusion makes it possible to conclude that the rank of the surviving owners of 2006 is on average higher than that of the more recent owners. Owners in the bottom 30 % in 2006 are on average at the 42nd percentile of the 2022 distribution whereas those in the top 1 % are at the 90th percentile. This strong persistence in wealth rank is suggestive of successful owners possessing a unique bundle of ownership skills that allow them to retain their position in the wealth distribution.

3.6 Emigration of owners of privately held firms

Table 17 also splits the 2006 owners by their residence status in 2022 and shows that emigration is much more likely at the top of the distribution. In the top 1 %, 4 % of owners reside abroad in 2022 whereas this rate is about 1 % across much of the other parts of the distribution. The exception to this pattern is the bottom 30 % that shows an emigration rate of 2 %.

Table 18 analyzes emigration patterns across all the owners in the 2006–2022 period. It calculates the average probability that an owner resident in Finland moves abroad during a year. This probability obtains from looking at all owners resident in Finland at the beginning of each year and tracking their residence status at the end of the year. The table averages the annual probability over all the years and across the owner's beginning-of-year position in the business wealth distribution.

Table 18 Owner emigration, 2007–2022

This table shows the fraction of owners resident in Finland by their residence status at the end of a year. It also calculates the fraction of beginning-of-year business wealth attributable to owners by their end-of-year resident status and the average beginning-of-year business wealth of each owner. Owners are stratified by their position in the business wealth distribution at the beginning of each year, and the sample only includes owners who remain alive throughout the year. The table displays the average annual fractions over the 2007–2022 period. Business wealth is defined as the book value of equity attributable to an owner based on her ownership stake.

	FRACTION OF OWNERS		FRACTION OF BUSINESS WEALTH		AVERAGE BUSINESS WEALTH, EUROS	
	RESIDENT	NOT RESIDENT	RESIDENT	NOT RESIDENT	RESIDENT	NOT RESIDENT
Bottom 30 %	99.7 %	0.3 %	99.8 %	0.2 %	1,742	1,606
30 %–40 %	99.8 %	0.2 %	99.8 %	0.2 %	10,039	9,718
40 %–50 %	99.8 %	0.2 %	99.8 %	0.2 %	19,473	19,441
50 %–60 %	99.9 %	0.1 %	99.9 %	0.1 %	34,887	34,774
60 %–70 %	99.9 %	0.1 %	99.9 %	0.1 %	61,593	61,732
70 %–80 %	99.9 %	0.1 %	99.9 %	0.1 %	112,846	110,883
80 %–90 %	99.9 %	0.1 %	99.9 %	0.1 %	236,565	238,388
90 %–95 %	99.9 %	0.1 %	99.9 %	0.1 %	509,961	524,770
95 %–99 %	99.8 %	0.2 %	99.8 %	0.2 %	1,347,617	1,491,848
99 %–100 %	99.6 %	0.4 %	99.4 %	0.6 %	11,444,337	18,458,232
Total	99.8 %	0.2 %	99.6 %	0.4 %	240,088	498,722

Like the analysis in Table 17 that focuses on the 2006 owners, Table 18 shows that owners in the top 1 % are most likely to emigrate, with their annual probability of moving equaling 0.4 %. This probability also attracts high values in the bottom half of the wealth distribution, but does not reach the level observed for the top 1 %. The business wealth held by the emigrating top 1 % prior to their move amounts to 0.6 % of the total business wealth of that wealth group. This fraction is higher than the average probability of moving because the mean wealth of the emigrating owners is 18 million euros whereas it is only 11 million for the remaining ones.

These numbers allow one to calculate a back-of-the-envelope estimate of how much business wealth has transferred to foreign ownership due to owner emigration. The 0.4 % moving probability for the top 1 % emanates from about 100 moving owners over the 2007–2022 period. Multiplying this frequency with the emigrating owners' mean business wealth prior to their move results into an estimate of 1.8 billion euros. Using all the 4,900 moving owners across the wealth distribution and multiplying their frequency with their average wealth of 499,000 euros yields an estimate of 2.4 billion euros. In relative terms, Table 18 reports that emigrating owners' business wealth represents 0.4 % of the annual stock of business wealth. The corresponding cumulative rate over the sample period multiplies the annual rate by the number of years in the sample, suggesting 6.2 % of the total stock of wealth has left the country.

Table 19 documents the characteristics of owners by their residence status. It calculates the same characteristics as in Table 13 for owners who have moved abroad taking the characteristic's value from the beginning of the year of the move. It also calculates the non-moving owners characteristics across all the annual observations from 2007–2022. In addition to describing the owners, the table also calculates how business wealth of moving and non-moving is distributed among owners of different types.

Table 19 Owner characteristics by emigration, 2007–2022

This table shows owner characteristics by emigration status, defined in the same way as in Table 18. Characteristics includes mean age, being aged 60 or above, native language, and level of education. The last two rows in the table calculate the fraction of business wealth held by different types of owners. Numbers for the non-movers in this table are not the same as in Table 13 because this table include owners from all the years 2007–2022 whereas Table 13 focuses on 2022. Business wealth is defined as the book value of equity attributable to an owner based on her ownership stake.

	MEAN AGE	AGED 60 OR ABOVE	GENDER		NATIVE LANGUAGE			LEVEL OF EDUCATION			
			MALE	FEMALE	FINNISH	SWEDISH	OTHER	BASIC OR MISSING	HIGH SCHOOL OR VOCATIONAL	BACHELOR	MASTER OR HIGHER
Moved	39.0	7 %	70 %	30 %	71 %	15 %	14 %	18 %	38 %	16 %	28 %
Not moved	47.9	20 %	72 %	28 %	88 %	8 %	3 %	16 %	52 %	14 %	18 %
Moved, wealth			64 %	36 %	62 %	35 %	4 %	7 %	47 %	23 %	22 %
Not moved, wealth			76 %	24 %	83 %	16 %	1 %	12 %	44 %	16 %	27 %

Table 19 refutes two hypotheses about the identity of moving owners. First, it shows that moving owners are generally not close to retirement. The mean age of movers is 39 years and only 7 % of them are aged 60 years or above. The corresponding stayers are on average 48 years old, with one fifth of them having reached the age of 60. Second, movers typically are not non-natives of Finland. Although non-speakers of the two native languages of Finland represent a much larger fraction among movers than stayers, 86 % of them still likely are Finnish natives. Moreover, the fraction of business wealth possessed by non-speakers of the two native languages is a mere 4 %.

Table 19 also reveals other interesting patterns. Female owners are somewhat more likely to move and women command a larger fraction of business wealth among movers than non-movers. Moving owners are more likely to speak Swedish than non-movers, possibly because mastering Swedish greatly eases the transition to neighboring Nordic countries. Movers also have a considerably higher level of education.

Figure 13 plots the rates of emigration for owners over time by averaging the emigration rates in the 2007–2014 and 2015–2022 periods. To gain insights into the differences in emigration by wealth, it plots the rates separately for owners who are below and in the top 1 % of the business wealth distribution at the time of emigration. It also multiplies the annual rates by the number of years in the period to arrive at a cumulative emigration rate. The fraction of emigrating owners below the top 1 % remains stable around 1.5 %. The owners in the top 1 % display a substantial increase in the emigration rate with the 2015–2022 rate more than doubling to 4.2 % from the 2007–2014 period. The increasing rate for the top 1 % suggests that the wealthiest owners have become disproportionately more likely to move abroad over time, with much of their higher overall emigration rate emanating from more recent years.

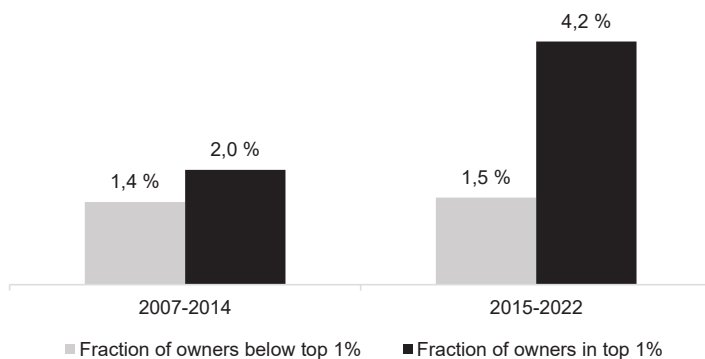


Figure 13. Fraction of emigrating owners over time

This figure plots the fraction of emigrating owners separately for the 2007–2014 and 2015–2022 periods and for the owners below and in the top 1 % of the business wealth distribution. The emigration rate plotted is the annual fraction of moving owners multiplied the number of years in the period.

4 Summary

The key findings of this study are the following:

- Privately held firms are important for the Finnish economy. In 2022, they represent 86 % of the 106,000 active limited liability firms studied in this paper. They account for 30 % of revenue and 49 % of employment. Excluding foreign-owned and publicly listed firms, these fractions are 65 % and 73 %, respectively. Privately held firms have mildly increased their importance in 2006–2022.
- Privately held firms represent sizeable fractions of firms and their activities across the firm size distribution, with the largest prevalence among small firms. They account for 90 % of firms, 74 % of revenue, and 88 % of employment in firms employing 1–9 workers. The corresponding fractions for firms employing at least 500 people are 16 %, 6 %, and 12 %.
- The industry distribution of privately held firms differs from that of other ownership types. They are particularly common in construction, trade, and professional services. This overrepresentation is made up with them being less common in manufacturing, utilities, and ICT.
- About 169,000 individuals own shares in privately held firms in 2022. This number amounts to 3 % of the population and it has increased from the rate observed in 2006.
- The average owner has 337,000 euros in business wealth according to her ownership stakes across all firms in 2022. The median is an order of magnitude lower at 37,000 euros. The average owner has equity stakes in 1.5 companies with 81 % of owners holding shares in just one firm. At the other extreme, 1 % of owners hold stakes in ten or more companies. The average business wealth of these serial owners is 7 million euros.
- Owners in privately held firms are more likely to be men than the population. Men represent 73 % of owners and their equity stakes amount to 77 % of business wealth.
- Owners are disproportionately likely to be between the ages of 40 and 64. This group accounts for 31 % of the population, but 60 % of owners and 64 % of business wealth. Those aged 65 or above represent 23 % of the population, but only 13 % of owners and 19 % of business wealth. The scarcity of this age group among owners likely reflects selling or closing the business at retirement or successions in family firms.
- Owners are unevenly distributed across the country. Ahvenanmaa, Greater Helsinki Area, Pohjanmaa, and Varsinais-Suomi have more business wealth than what would be expected based on their population size. Across the 30 largest municipalities, Helsinki, Espoo, Joensuu, Nurmijärvi, Kirkkonummi, Vaasa, and Salo punch above their population weight. Conversely, the business wealth shares are well behind population shares in the provinces of Kymenlaakso, Etelä-Karjala, Keski-Suomi, and Pohjois-Savo and the cities of Kotka, Kouvola, Kerava, Hämeenlinna, and Vantaa. The average owner is the most affluent in Helsinki, Joensuu, Vaasa, Turku, and Rauma.
- Business wealth is unevenly distributed among owners. The 1,700 owners in the top 1 % account for 48 % of total wealth in 2022 whereas the cumulative top 5 % and top 10 % shares are 70 % and 80 %, respectively. These shares have remained virtually unchanged since 2006. The average wealth in the top 1 % is 16 million euros.
- Owners' income taxes contribute substantially to national totals. Their personal income tax bill amounts to 12 % of the national total whereas their firms' corporate

income taxes represent 31 % of those paid by all limited liability firms. The owners in top 1 % of business wealth contribute 85 times their population share to personal and corporate income taxes.

- Wealthier owners differ in their characteristics from less affluent owners. The share of women among owners is 33 % in the bottom 30 % of the wealth distribution whereas it is 24 % in the top 1 %. Native language also differs across the wealth distribution. Wealthier owners are much less likely to speak a native language other than Finnish or Swedish. This decline by wealth is partly offset by an increase in Swedish-speaking owners with them accounting for 14 % of owners in the top 1 %. Education also sets wealthier owners apart from less affluent owners. 19 % of owners in the bottom 30 % hold a Master's degree whereas this fraction is 35 % in the top 1 %.
- One in twenty owners has at least one million euros in business wealth whereas those with at least 10 million euros amount to 0.4 % of owners. The number of millionaire owners has increased from 3,400 to 8,500 in 2006–2022. This increase likely reflects growth in firm values, entry of new owners of highly successful companies, and successions in family firms.
- The owner population displays considerable turnover over time. Every year, about 11 % of existing owners cease their ownership status whereas the corresponding rate for new entering owners is 13 %. Each year thus sees a positive 1 % net entry rate. From 2006 to 2022, the owner population retains only 35 % of its members. This rate is much higher for more affluent owners with the top 1 % having a survival rate of 67 %. Business wealth is highly persistent, with the wealth rank in 2006 strongly predicting the corresponding rank in 2022.
- Emigration is more likely among the wealthiest owners. The probability of moving in a year for the wealthiest 1 % is four times the equivalent probability for owners at the middle of the business wealth distribution. Emigrating owners have moved to foreign ownership an estimated 2.4 billion euros worth of business wealth, equivalent to 6 % of the total. About 80 % of this wealth is attributable to the owners in the top 1 % having an average business wealth of 18 million at the time of their move. This tendency of the wealthiest owners being disproportionately more likely to move has strengthened over time.

References

- Asker, J., Farre-Mensa, J., & Ljungqvist, A. (2015). Corporate investment and stock market listing: A puzzle? *Review of Financial Studies* 28, 342–390.
- Badarinza, C., Campbell, J., & Ramadorai, T. (2016). International comparative household finance. *Annual Review of Economics* 8, 111–144.
- Bach, L., Calvet, L. & Sodini, P. (2020). Rich pickings? Risk, return, and skill in household wealth. *American Economic Review* 110, 2703–47.
- Brav, O. (2009). Access to capital, capital structure, and the funding of the firm. *Journal of Finance* 64, 263–308.
- Breitkopf, N., Knüpfer, S. & Rantapuska, E. (2021). Mutual fund and share ownership in Finland: Trends and patterns in 2004–2016. *Nordic Journal of Business* 70, 287–308.
- Campbell, J. (2006). Household finance. *Journal of Finance* 61, 1553–1604.
- Fagereng, A., Guiso, L., Malacrino, D., & Pistaferri, L. (2020). Heterogeneity and persistence in returns to wealth. *Econometrica* 88, 115–170.
- Gilje, E., & Taillard, J. (2016). Do private firms invest differently than public firms? Taking cues from the natural gas industry. *Journal of Finance* 71, 1733–1778.
- Keloharju, M. & Lehtinen, A. (2021). A quarter century of shareholdings and trades of Finnish stocks. *Nordic Journal of Business* 70, 5–38.
- Michaely, R., & Roberts, M. (2012). Corporate dividend policies: Lessons from private firms. *Review of Financial Studies* 25, 711–746.
- Saunders, A., & Steffen, S. (2011). The costs of being private: Evidence from the loan market. *Review of Financial Studies* 24, 4091–4122.
- Sheen A. (2020). Do public and private firms behave differently? An examination of investment in the chemical industry. *Journal of Financial and Quantitative Analysis* 55, 2530–2554.