Use of Financial Instruments among the Chilean households

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Abstract

Financial instruments are an important part of how households protect themselves against the uncertainties of life, such as fluctuations in the prices of rents, unexpected falls in income or health shocks. Using the Chilean Household Finance Survey (EFH), this work shows that the use of financial instruments among Chilean households increased substantially since 2007. The fraction of households with some financial assets (excluding the compulsory pension funds accounts) grew from 19% in 2007 to 34% in 2017, with savings accounts being the most popular type of financial asset. Therefore the number of households with formal voluntary financial savings increased almost twice in just one decade. However, the fraction of households with real assets in the middle and upper income levels fell substantially since 2007. These developments are a sign of the increasing financial development in Chile, with a more significant fraction of people investing in financial assets rather than in home or land ownership. The use of insurance contracts increased substantially from 31.7% in 2007 to 39.3% in 2017. Furthermore, the ownership of different types of financial assets and insurance contracts increased from 2007 to 2017. Finally, while the fraction of households with consumer loans fell in recent years, the number of borrowers with mortgages has steadily increased from 18.2% in 2007 to 21.1% in 2017. In terms of an international comparison with other OECD countries, however, Chile still has a relatively low fraction of mortgages and a high number of households with consumer loans.

Complementing this analysis with the Family Expenditures Survey (EPF) between the years of 1987 to 2017, I show that the share of financial goods in consumption dropped significantly, while the share of insurance products in consumption roughly double in this period. However, it is shown that the users of financial goods or services increased from 59.5% of the families in

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1987 to 91.1% in 2017. This is an indicator that financial goods are now much less expensive and the number of its users increased significantly. The users of insurance products also increased from 10.6% of the families in 1987 to 44.5% in 2017. In fact, the use of the different insurance contracts (Life and Health, Vehicles, Home, Loan insurance) increased across all income levels. Finally, the fraction of families purchasing large durable goods increased from 53.5% in 1987 to 75.3% in 2017, with the share of durables in the consumption of the average household increasing from 5.9% to 12.5% during the same period. Overall, the widespread use of financial goods, insurance contracts and purchase of durable goods among the Chilean population across all the income levels shows that the financial access to goods and services increased significantly over the last 35 years.

JEL Classification: D14; E21; G11; G20; G50; O16; O54.

Keywords: Financial access; Insurance; Credit; Financial markets; Inequality.

1 Introduction

Household finance surveys, such as the Household Finance Consumption Survey in Europe or the Survey of Consumer Finance in the US, are increasingly used to study families' decisions on savings, investments and borrowing (Dynan and Kohn 2007, Christelis, Georgarakos and Haliassos 2013, Christelis, Ehrmann and Georgarakos 2017, Le Blanc et al. 2015, Bover et al. 2016). Survey information on finances is important, especially because many households and small enterprises rely on a diversity of funding sources, including bank and non-bank lenders (Cull et al. 2019, Beck, Lu and Yang, 2015). The fact that households and small firms have a substantial degree of private knowledge about their economic and financial conditions leads to information asymmetries between borrowers and lenders (Beck and Brown 2015), which are best captured with a survey framework that collects information about a diversity of loans. For this reason, in the last 20 years several projects improved the survey measurement of economic and financial variables (Le Blanc et al. 2015). This paper is related to microeconomic studies of household debt (Ampudia et al. 2016, Madeira 2018, 2019a, 2019b). This study is also related to a growing literature on how surveys of small firms and households can inform about the financial problems faced by families and entrepreneurs , especially in developing countries (Beck and Brown 2015, Beck, Lu and Yang 2015, Cull et al. 2019).

The study use the Chilean Household Finance Survey (*Encuesta Financiera de Hogares*, in Spanish, from hence on, EFH) to summarize the ownership of financial assets, loans and insurance contracts since 2007 until 2017. Furthermore, I complement this study with an analysis using the Family Expenditures Survey (*Encuesta de Presupuestos Familiares*, hence on EPF) of how the consumption of financial goods (such as loans, bank accounts, and other services) and insurance products has evolved since 1987 until 2017. I also look at the change in the consumption of durable goods (which are large items, expensive and infrequently purchased) to document if the increased financial access has relaxed the consumption smoothing restrictions of the households.

This work is organized as follows. Section 2 summarizes the EFH dataset. Section 3 shows the fraction of households with different kinds of assets, debts and insurance contracts between 2007 and 2017. I also show an international comparison of the household indebtedness in Chile relative to other OECD countries. Section 4 summarizes the consumption of financial services, insurance

and durable goods in the Santiago capital region. Finally, Section 5 concludes.

2 The EFH dataset

This study uses the cross-sectional national waves of the EFH 2007, 2011, 2014 and 2017, which covered a total of 16,938 urban households. Each sampled household had one member which was selected for the interview, with this member being the household person with the greatest knowledge of the family finances or the highest income. The EFH survey, however, elicits demographic, net wealth, asset, debt and income information for all the household members. The sample selection of the survey was based on an exhaustive list of homes from the Chile Internal Tax Service and is therefore representative of the national urban population after expansion factors are applied to each unit (Madeira 2018). The Chilean Household Finance Survey (EFH) has detailed information on assets, debts, income, insurance contracts and financial behavior, and is broadly comparable to similar surveys in the United States and Europe. This survey has detailed measures of income, assets (financial portfolio, vehicles and real estate) and debts, including mortgage, educational, auto, retail and banking consumer loans. To cover the debts exhaustively, the survey elicits the loan terms (debt service, loan amount, maturity) for the 4 main loans in each category.

The real assets include the main home of the household, plus up to three other properties such as land parcels, agricultural land or industrial property, parking lots, business space, office units or commercial stores, plus hotels or accommodation space. The financial assets include stocks or equity, fixed-income instruments, savings accounts, voluntary pension funds (such as Cuenta 2 or APV), participation in companies, mutual funds or investment vehicles, life insurance contracts with a savings component, and other financial assets (such as derivatives or exotic instruments). The debts of the household include the mortgage of the main home, the mortgages of up to three other real estate properties and debts associated to the mortgage contracts, plus retail store credit cards and loans, banking consumer loans, banking credit cards, union and cooperatives consumer loans, and auto loans. For simplicity, I exclude educational loans (which are repaid several years after the college degrees are obtained) and informal loans (such as loans with relatives or pawn-shops), although such debts are used by only a small fraction of the population. Finally, the EFH survey also

includes information on whether households have life insurance contracts, voluntary auto insurance, fire and earthquake insurance, theft insurance, and other insurance policies.

Since the EFH is a small sample and some variables such as certain types of financial assets are concentrated in a minority of richer households, it is difficult include too many degrees of heterogeneity. For this reason, I report the heterogeneity of results using a classification with just 3 categories based on the total household income: strata 1, corresponding to the percentiles 1 to 50 of the national household income distribution (that is, the poorest households); strata 2, corresponding to the percentiles 51 to 80 of the national household income (that is, the middle class households right above the median income); and the strata 3, corresponding to the families belonging to the top 20 percentiles (81 to 100) of the national household income distribution.

3 Use of Financial Instruments in Chile

3.1 Real Assets, Financial Assets and Debt ownership

Figure 1 shows the asset and debt ownership of households since 2007. The fraction of households with real assets (usually, the main home) and with financial assets increased substantially since 2007, although with a brief fall in 2011 possibly due to the Global Financial Crisis. Around 82.2% of the households had some assets in 2007, a number which increase to 89.5% in 2017. This growth in the households with assets was mostly due to stronger holdings of financial assets. In 2007 only 19% of the households were financial asset owners, a fraction which dropped to 8.5% in 2011, but then increased again to 27.1% in 2014 and reached 34% in 2017 (almost twice as many as in 2007). The fraction of households with real assets grew slightly from 79.9% in 2007 to 81% in 2017. Meanwhile, the fraction of borrowers grew from 66.9% in 2007 to 72.1% in 2014, but then dropped significantly to just 66% in 2017. This reduction is explained by the fall in non-mortgage debts, which fell from 67.6% in 2014 to just 60.5% in 2017. The fraction of households with mortgages grew during the last decade, from 18.2% in 2007 to 21.1% in 2017.

Across income levels in Figures 2 (strata 1), 3 (strata 2) and 4 (strata 3), I find that it was among the poorest households where the ownership of both real assets and financial assets grew the most. Figure 2 shows the evolution of the fraction of households with asset and debt ownership

in the strata 1 (the households below the national median income level). It shows that among the poor Chilean households the fraction of real assets and financial assets ownership grew from 66.7% and 4.9% in 2007 to 80.7% and 25.1% in 2017, respectively. Notice that the current fraction of real assets ownership for the households in strata 1 is now almost the same as for the households in strata 3 (with 84.8% of real assets ownership in 2017, see Figure 4) and strata 2 (with 79% of real assets ownership in 2017, see Figure 3). In fact, the fraction of middle and upper income households with real assets actually fell from 92.1% and 98.1%, respectively, in 2007 to the lower levels around 80% nowadays. This development could be due a to a preference for renting in some of the middle and upper income households in younger generations. The fraction of financial assets ownership is still higher for the middle and upper income households, although just like for the households in strata 1 there was a deep fall in asset ownership in the year 2011, perhaps as a consequence of the financial crisis. In the most recent year of 2017 around 35.4% and 54.3% of the households in stratas 2 and 3 have some financial assets ownership.

It is noticeable that the fraction of borrowers fell across all income levels between 2014 and 2017, showing perhaps a more conservative use of this financial instrument. In particular, Figures 2, 3 and 4 show that the share of households with non-mortgage debt fell across all levels in a roughly similar way, from 67.7%, 67.3%, 68.1% in 2014 to 60.7%, 63.3%, 56.1% in 2017 for stratas 1, 2 and 3, respectively. However, the share of mortgages grew across all income levels, from 13.4%, 18.2%, 28.5% in 2014 to 14.1%, 24.8%, 33.2% in 2017 for stratas 1, 2 and 3, respectively. Therefore households are treating debt instruments less as a short-term option for consumption and more as means of financing long-term durables such as home purchases.

3.2 Financial Assets and Insurance contracts by type

Now in Figure 5 I show the financial asset ownership of the Chilean household across different types of asset classes since 2007, while Figure 6 shows the same for the different classes of insurance contracts. As shown before in Figure 1, the fraction of financial asset owning households increased from 19% in 2007 to 34% in 2017. Ownership of financial assets and insurance contracts grew across all contract classes since 2007 to 2017, although all the classes of instruments fell in 2011 after the Great Financial Crisis. This makes sense since households tend to reduce their investments after

Figure 1: Assets and debt ownership since 2007 (all households)

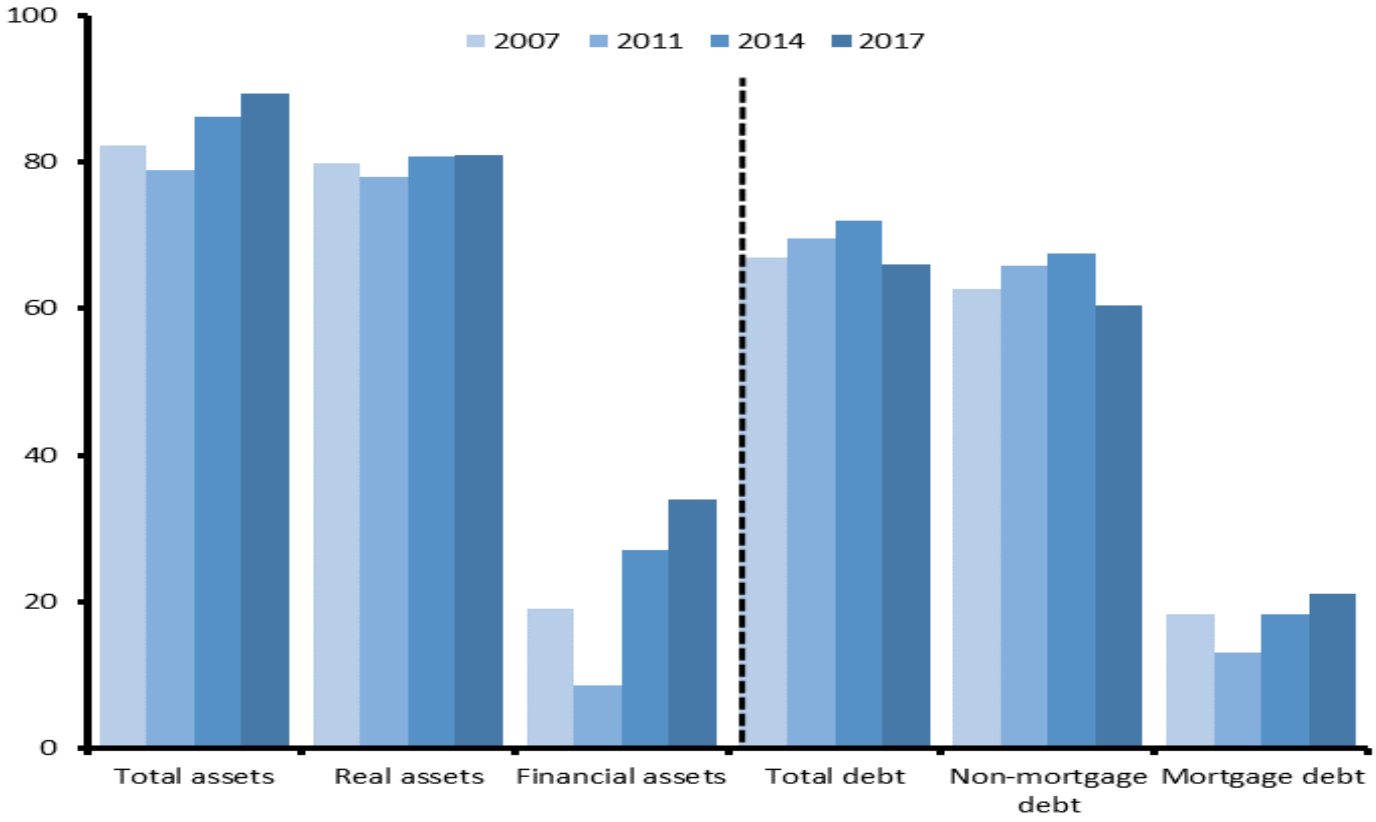


Figure 2: Assets and debt ownership since 2007 (strata 1: percentiles 1 to 50 of the national income, i.e. the poorest households)

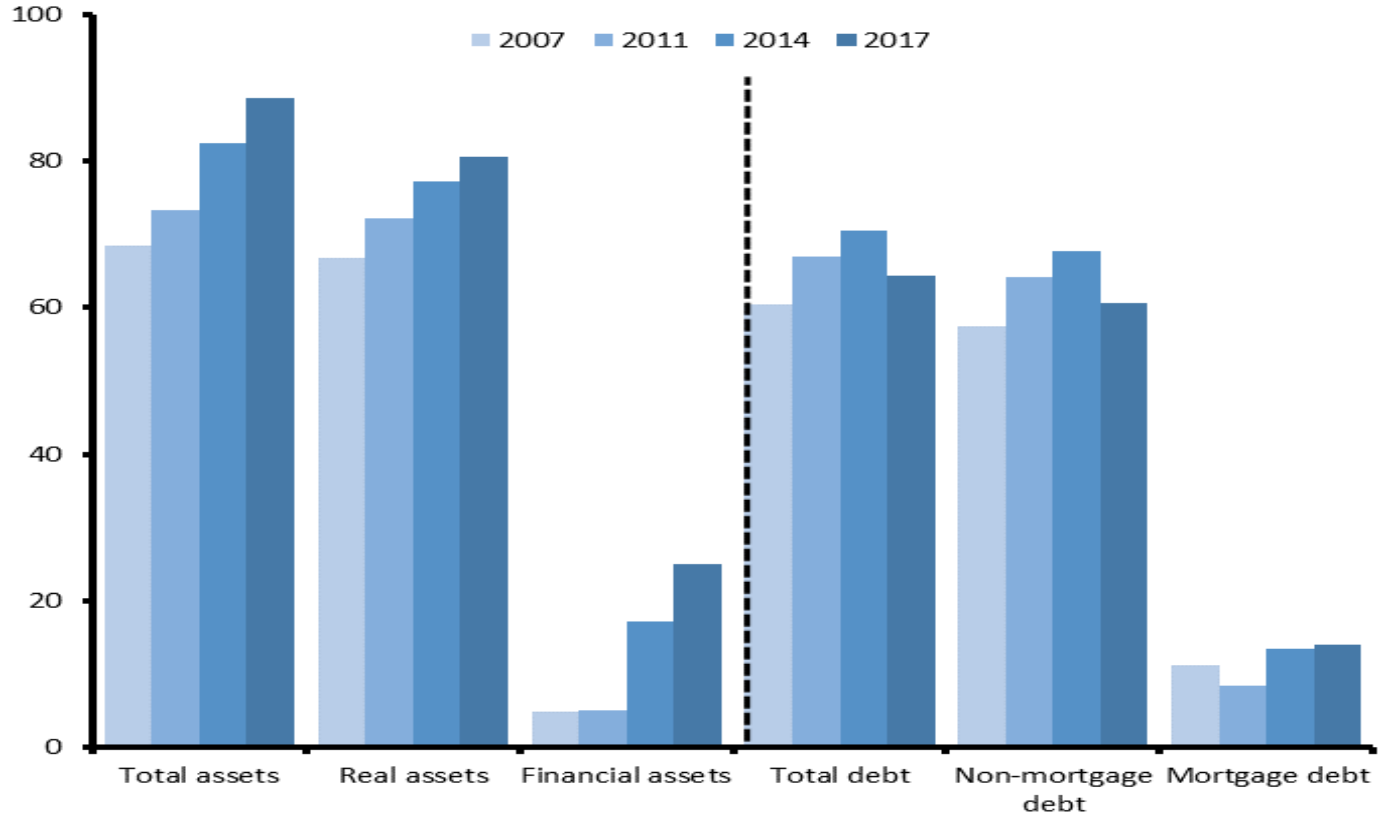


Figure 3: Assets and debt ownership (strata 2: percentiles 51 to 80 of the national income)

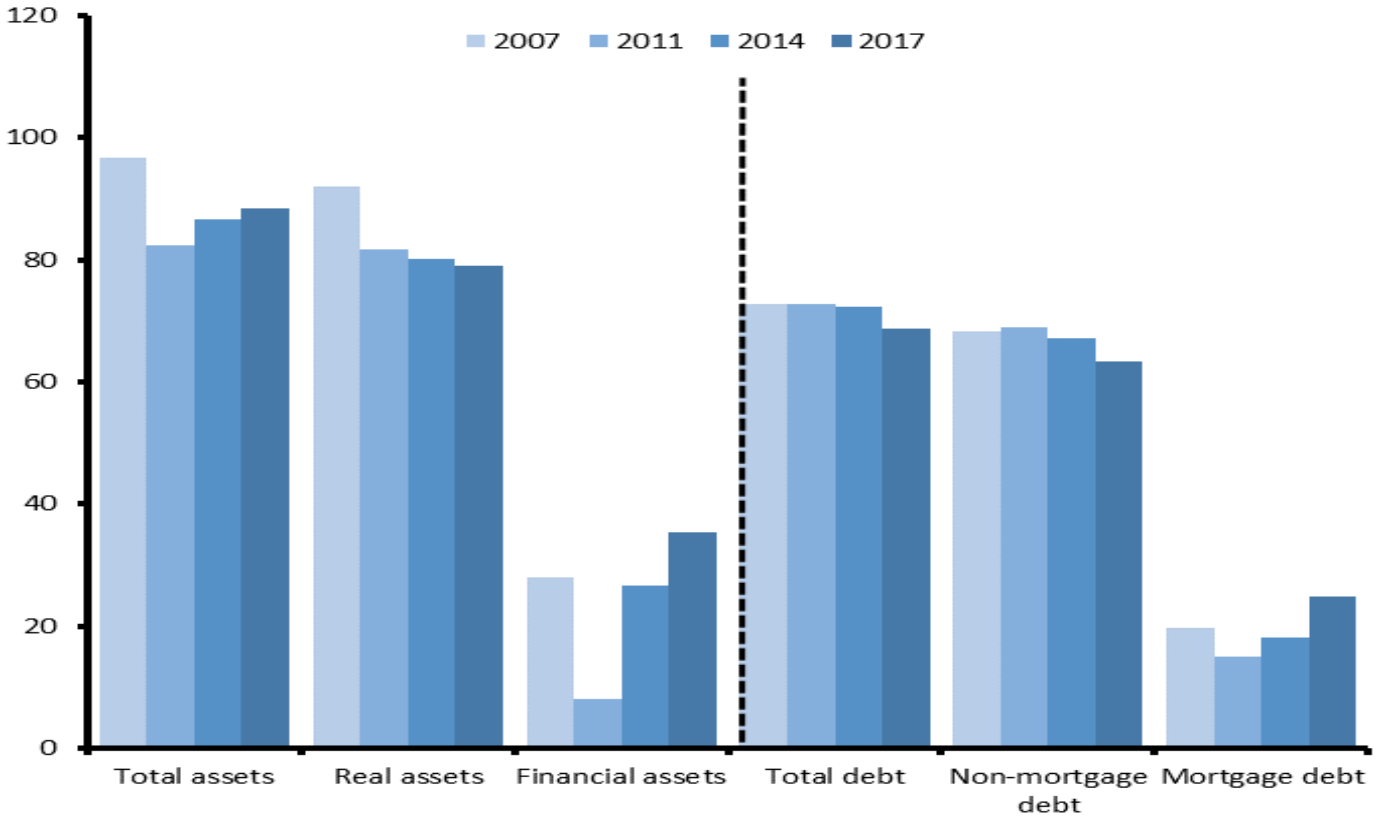
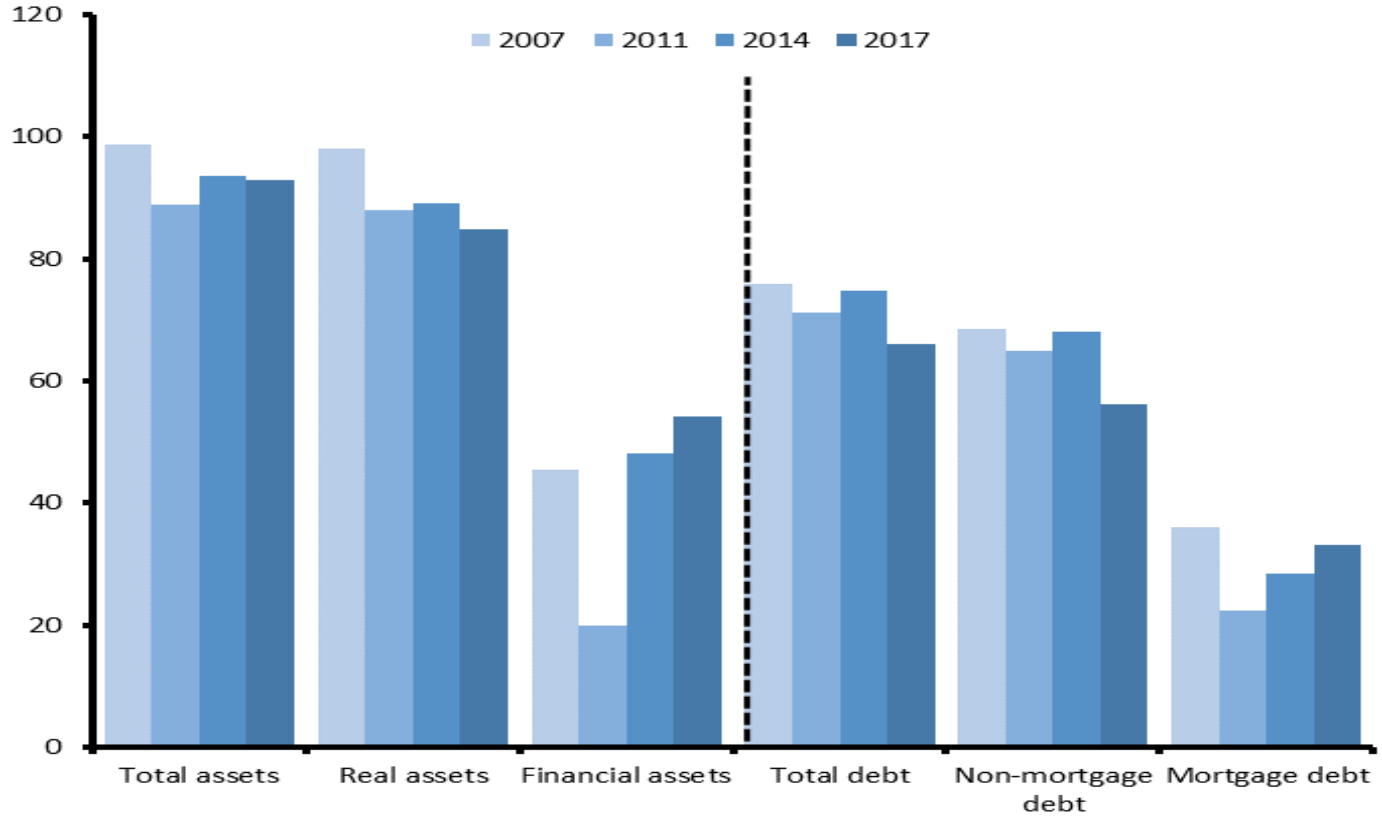


Figure 4: Assets and debt ownership since 2007 (strata 3: percentiles 81 to 100 of the national income, i.e. the richest households)



being scarred by a financial crisis (Malmendier 2021). Savings accounts are by far the most popular type of financial asset, having grown from 9.1% of the households in 2007 to 18.1% in 2017. In fact, savings account have been the preferred financial savings of households in every year since 2007.

In the most recent year of 2017, the fraction of households with any type of financial asset was 34%. Across each type of asset in 2017, the ownership of assets in 2017 is higher in terms of managed and diversified investments instruments, with 18.1%, 10.6%, 8.6%, 6.1%, 5.3% of the households having savings accounts, mutual funds, voluntary pension funds, fixed-income, and life insurance with savings. The fraction of households in 2017 with investments in equities and other financial assets (such as exotic instruments), respectively, is just 2.9% and 1.2%.

The use of insurance contracts grew from 31.7% in 2007 to 39.3% in 2017, with life insurance being the most important class in every year. Again, the use of all insurance contracts fell significantly in 2011 after the Great Financial Crisis. The use of life insurance contracts grew from 21.1% of the households in 2007 to 24% in 2017. The use of voluntary auto insurance and fire-earthquake home insurance are the second and third types of most common insurance contracts, having grown from 9% and 6.3% in 2007 to 18.7% and 14% in 2017, respectively. In the most recent year of 2017 there is also a significant fraction of households with theft insurance (5.8%) and other insurance (6.1%), but the use of these insurance types has remained stable over the last decade (theft and other insurance represented 11.8% of the households in both 2007 and 2017).

3.3 Debts

As seen in Figure 1 there was a reduction in the fraction of households with consumer loans since 2014, although the fraction of mortgages has kept steadily increasing. Now in Figure 7 I show the evolution of debt ownership in the recent years across different loan types. It shows that there was an increase in bancarization. The fraction of borrowers with consumer loans only in banks increased since 2014, while the fraction of borrowers with consumer loans in retail stores only or with a mix of loans in both retail stores and banks decreased. Furthermore, there was also a small reduction in the number of borrowers with loans in both retail stores and non-banking lenders.

In 2017 around 21.1% of the households had some type of mortgage debt (Figure 1). Now Figure 8 shows the evolution of households with other properties and mortgage debt for other properties,

Figure 5: Financial assets ownership by type since 2007 (all households)

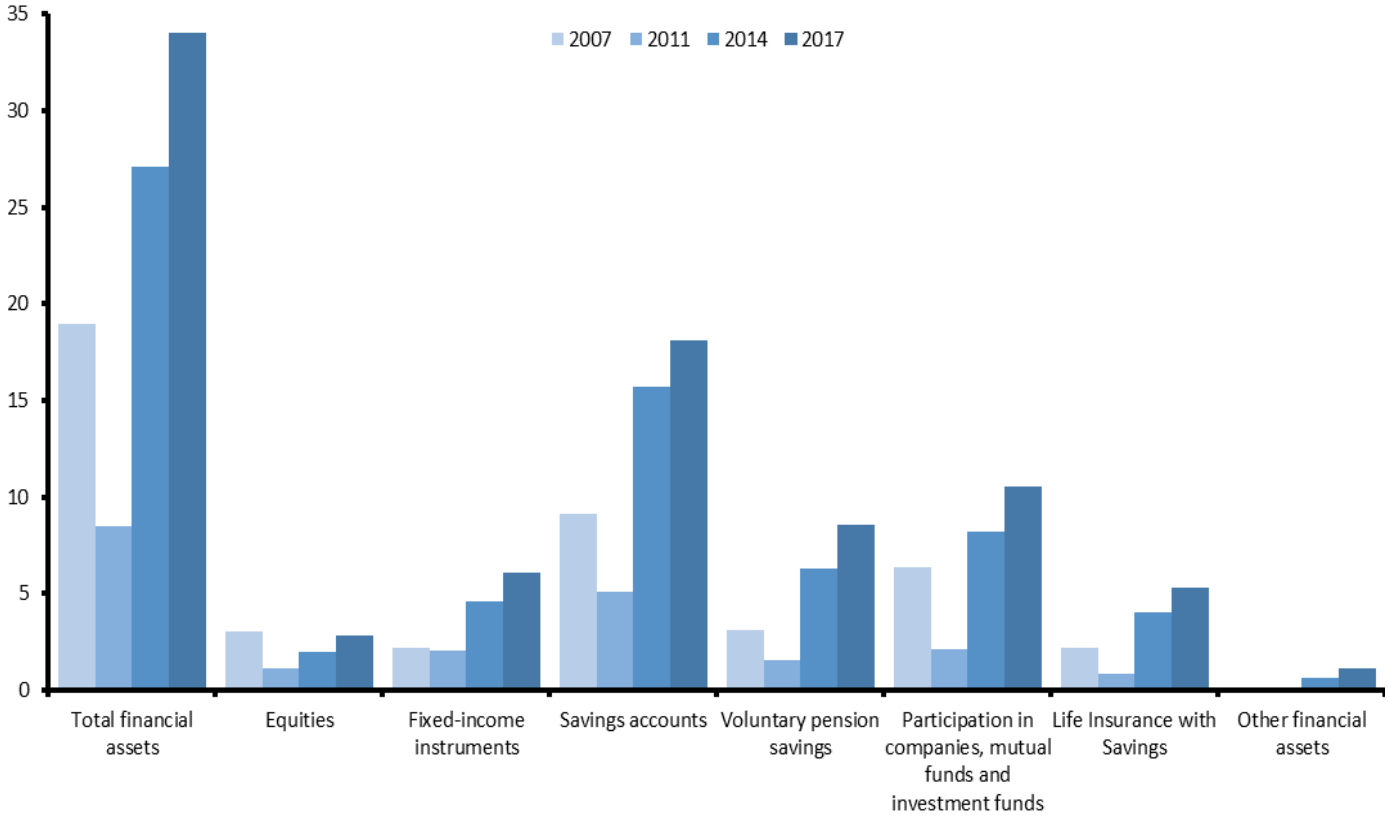
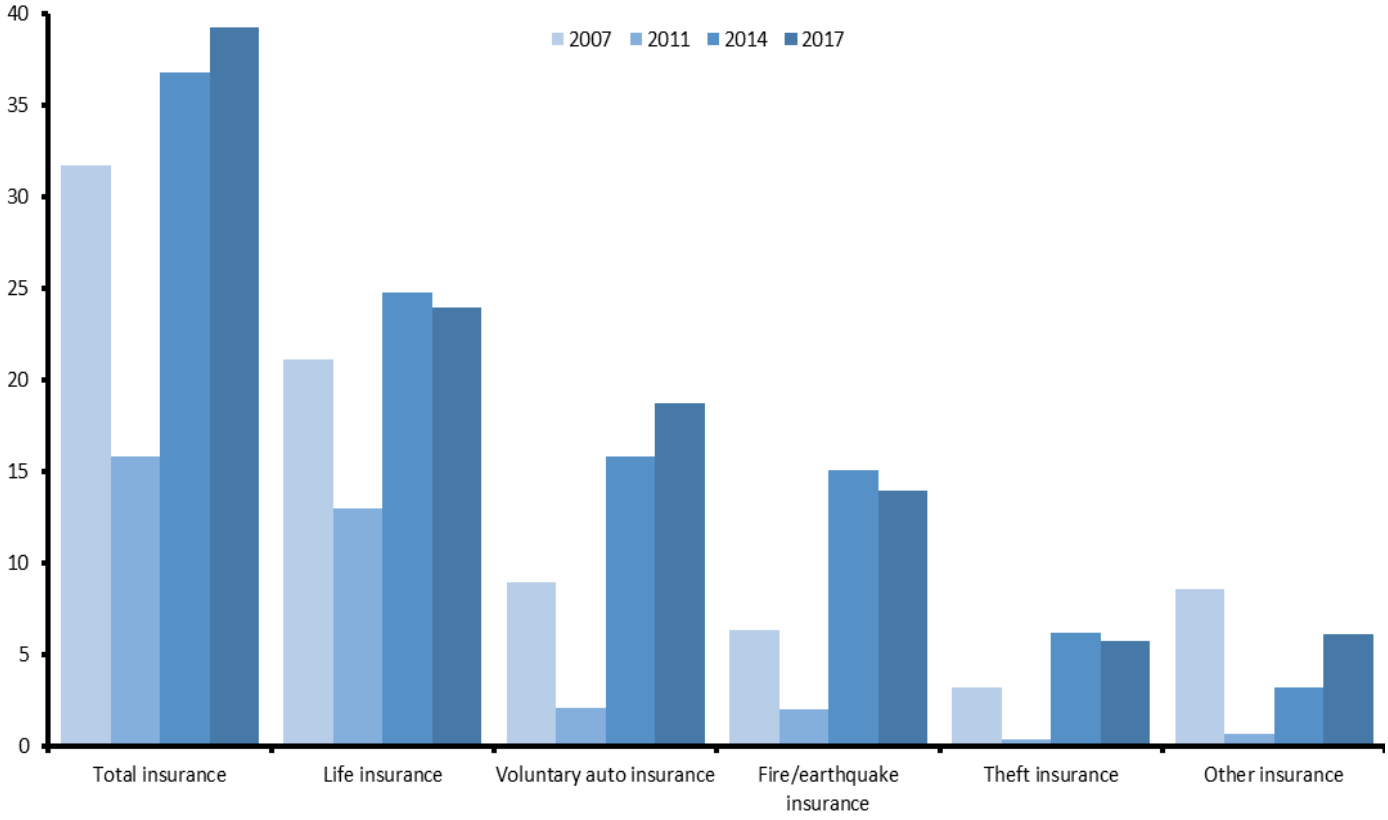


Figure 6: Insurance ownership by type since 2007 (all households)



which show a steady increase for both the median and upper income households (strata 2 and 3). In fact for the upper income households in Chile it is now very common to have secondary properties besides their main home. In 2017 around 41% of the households in the upper income strata owned other properties and 18.5% of those households had mortgages that were contracted for the purchase of those properties. This illustrates that Chile is now a country with many small investors in real estate investors. This aspect could present a risk for financial stability, since this phenomenon of households buying properties as a rental investment (despite large fractions of unused properties) was one of the factors during the last subprime crisis (Albanesi 2018).

Finally, Figure 9 shows that the indebtedness ratios of the median borrower increased between 2007 and 2017. In terms of the ratio of monthly debt service (interest plus loan amortization) to income (DSR), its value increased from 21.1% in 2007 to 24.7% in 2017. The DSR is a measure of the liquidity of the household, since it measures the payment necessary to fulfill the loan commitments this period. As a measure of long-term solvency, I also report the debt to assets ratio (DAR, for the households with both debts and assets), which has also increased from 11% in 2007 to 14.9% in 2017. Furthermore, the total debt to annual income ratio (DIR) of the median borrower also increased from 2.43 in 2007 to 3.45 in 2017. Therefore not only did households increase their financial access in terms of mortgages over the last decade, but households also increased their overall debt amounts, whether as a ratio of their income or of their assets.

To summarize the households' balance sheets, I calculate each household's real assets (main home, other properties, and vehicles) plus its financial assets and the debts in terms of their monetary amounts. The financial assets include 9 distinct categories of assets, including stocks, mutual funds, bonds and savings accounts, voluntary pension funds, exotic instruments (such as derivatives, swaps or forward-future contracts), equity in non-public companies and funds[1], insurance contracts with savings components, and uncategorized financial contracts. Among the financial assets, the categories of stocks, mutual funds, bonds and savings accounts, plus voluntary pension funds, are considered to be liquid financial assets, since those accounts can be withdrawn in an emergency with a small penalty. Table 1 summarizes the fraction of households with different categories of assets (real assets, financial assets, and financial liquid assets) and the ratio of asset

[1] Here non-public equity is defined as equity in companies that are not tradeable in the stock market, for instance, ownership or participation of your family's company or participation in a society with other entrepreneurs.

Figure 7: Debt ownership by lender type

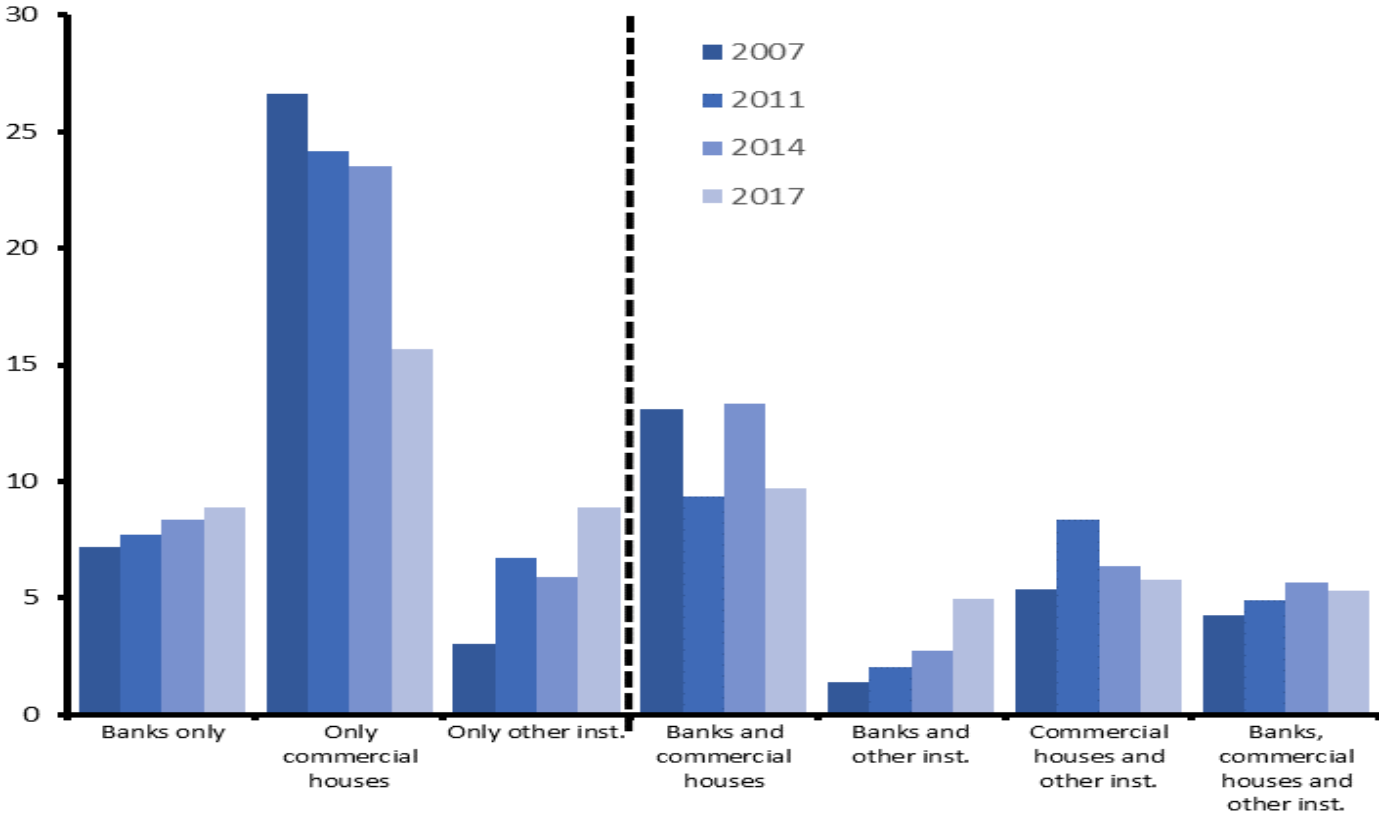


Figure 8: Ownership of other properties and mortgage debt for other properties

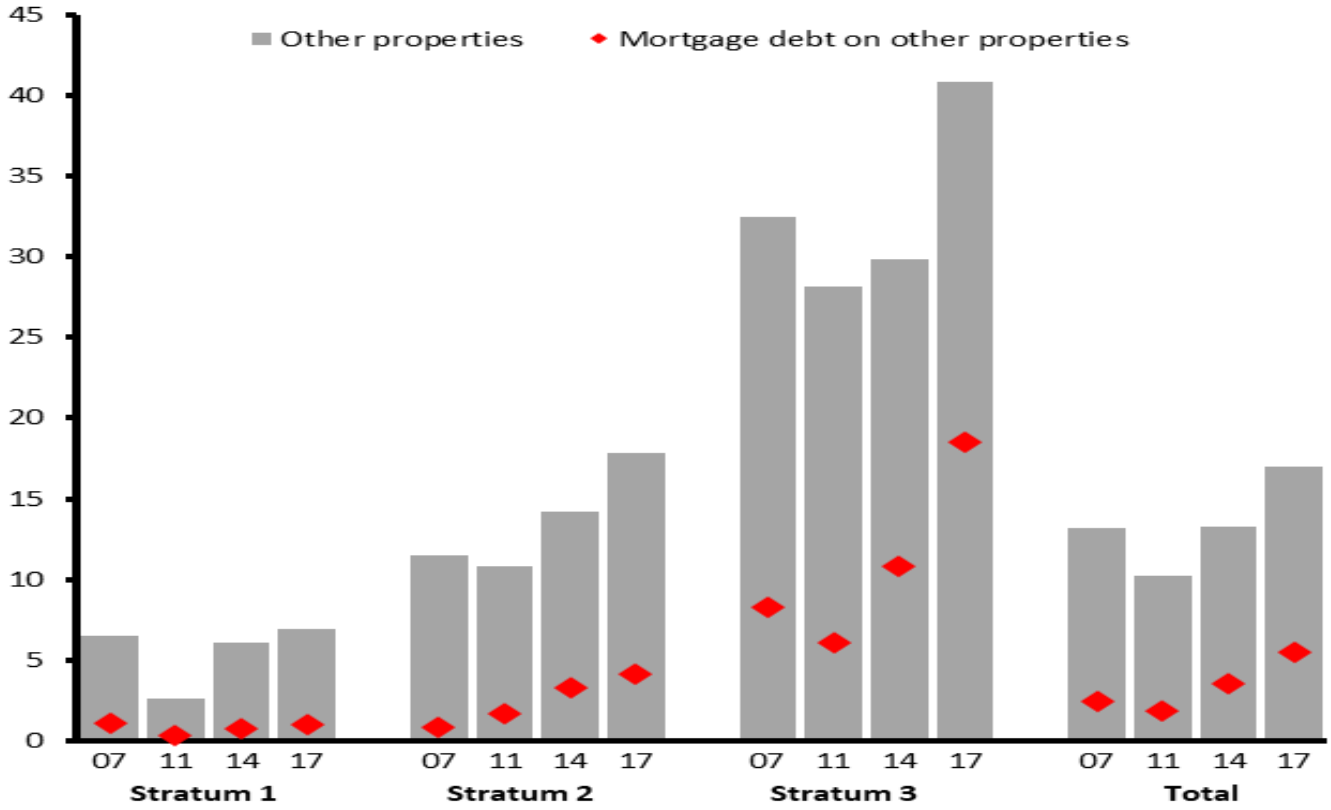


Figure 9: Indebtedness ratios: Debt service to monthly income ratio (DSR), Total debt to monthly income ratio, Debt to assets ratio (median values for the borrowing households)

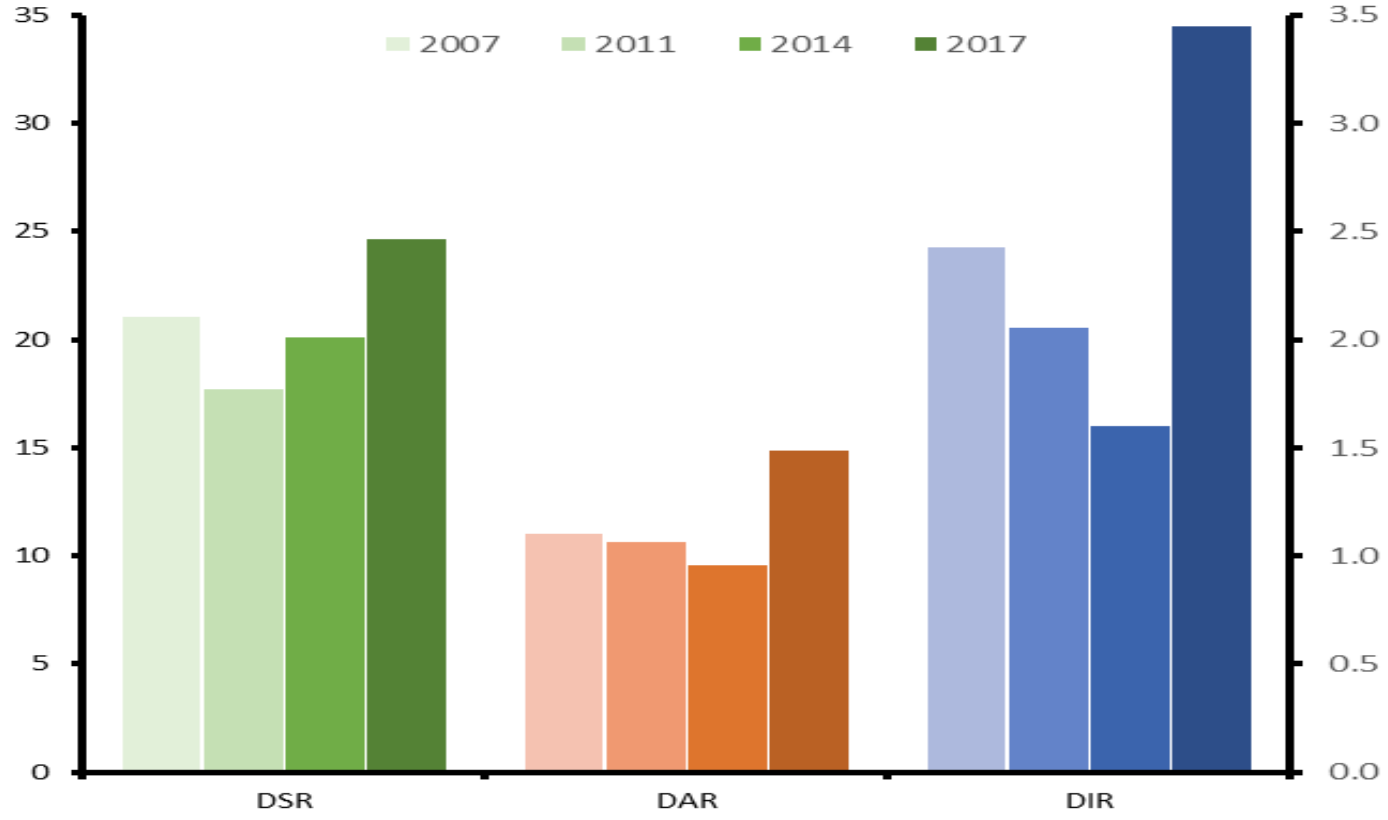


Table 1: Real and Financial Assets by borrower type

	Fraction of households (in %) with no assets across asset classes				Ratios of Assets to Debt[a)] (for households with assets)								
					Real assets to debt			Financial assets to debt			Liquid assets to debt		
Borrower type:	Any	Real	Financial	Liquid	P25	P50	P75	P25	P50	P75	P25	P50	P75
Non debtor	31.2	34.5	81.8	86.2		N/A			N/A			N/A	
Any debt	15.4	18.3	70.9	81.4	2.04	6.00	33.90	0.02	0.15	1.29	0.03	0.17	0.97
Consumer	16.5	19.6	71.6	82.0	2.04	6.73	40.48	0.02	0.16	1.51	0.03	0.19	1.25
Mortgage	3.4	4.3	60.9	77.1	1.70	2.69	5.31	0.00	0.05	0.26	0.01	0.06	0.25
Consumer & Mortg.	3.0	3.6	59.5	77.8	1.60	2.43	4.71	0.00	0.04	0.21	0.01	0.05	0.24
Borrowers By Income Strata:													
Strata 1 (pc 1-50)	26.3	30.1	82.0	86.8	2.77	13.50	63.32	0.03	0.22	1.92	0.04	0.23	1.56
Strata 2 (pc 51-80)	12.1	15.6	74.5	83.6	1.85	5.30	30.10	0.01	0.11	0.97	0.02	0.14	1.00
Strata 3 (pc 81-100)	4.9	6.0	51.8	71.3	1.86	3.59	13.83	0.02	0.17	0.98	0.03	0.16	0.67
All households:													
Strata 1 (pc 1-50)	32.7	36.5	85.3	88.6									
Strata 2 (pc 51-80)	14.3	17.7	74.5	82.9									
Strata 3 (pc 81-100)	7.6	8.9	54.7	72.6									
All households	21.1	24.2	74.9	83.1									

EFH (2017). *a*) Values are in number, meaning that 1 implies Assets equal Debts. All values use household weights (not adjusted for the size of the household debt).

value relative to debt (for the households with both positive assets and debts). As an emerging economy, the Chilean households have few financial assets (such as stocks, bonds or savings accounts) in comparison with developed countries (Le Blanc et al. 2015, Christelis et al. 2013). Almost 75% of the Chilean population have no financial assets at all and 83% of the households have no liquid financial assets. Among households with some debt, less than 19% of them have liquid financial assets, and even the median household with some liquid assets can only cover 17% of its debts by using such assets. For most households their only asset is the main home, with Chile having a high fraction of home-ownership due to state subsidized low cost housing. 76% of the households have some real assets and even the borrowers with the lowest real assets (those in the percentile 25 of the real asset to debt ratio) can cover more than twice their debts. Therefore the large majority of the Chilean borrowers are solvent if they can tap into their real wealth.

3.4 International comparison of the Chilean household debt use

Now I compare Chile with other countries with similar household finance surveys, using data from the Wealth Distribution Database of the OECD (based on surveys mostly from 2014), the USA's

Survey of Consumer Finances (wave 2013), the ECB's Household Finance and Consumption Survey (using the wave 2, based on surveys implemented mostly in 2013 and 2014), and Uruguay's *Encuesta Financiera de Hogares Uruguayos* (EFHU, from 2014). The samples includes 31 countries, mostly developed economies from the OECD, although some variables are not available for all countries. Table 2 compares the Chilean household indebtedness in 2017 relative to the other countries, but the results are similar with the Chilean 2014 survey. Since most countries in the sample are richer than Chile, the last column includes the predictions made from an OLS and Quantile (QREG) linear regressions of each debt statistic and the GDP per capita (in PPP measured in USD) estimated from all countries in the sample, but with the outcome prediction for a country with the same GDP per capita as Chile. Therefore I compare the Chilean debt statistics with the range of countries in the sample (summarized by their minimum, median and maximum statistics) and with an hypothetical country similar to Chile obtained from the OLS and QREG predictions. The OLS gives a comparable prediction for a country similar to Chile, while the quantile 75 give a high indebtedness value for countries with similar GDP per capita as Chile.

Relative to a country of similar GDPpc, Chile has a large fraction of households with any debt, non-mortgage debt and debt in credit cards/lines, since these values are well above the quantile 75 of similar countries and also well above the median in the sample of all countries. The percentage of Chilean households with a mortgage is close to the quantile 75 of similar countries, while the share of households with "No access to credit" is slightly below its quantile 75. Also, the share of non-mortgage debt in terms of the aggregate household debt of 24.6% is slightly above the quantile 75 of similar countries, confirming that Chile is a country with a large use of non-mortgage (or consumer) debt. Chile is also below the median country in terms of the Debt to Income Ratio, whether one uses the median (p50) or the percentiles 75 and 90 of the population of borrowers. However, Chile is very close to the median country in terms of its population's Debt Service to Income Ratio. Finally, in terms of the debt motives, relative to comparable countries, the Chilean borrowers are less likely to use consumer loans for expenses related to their home and real estate, but they are more likely to use debt for both "Pay other debts" and "Education" purposes.

In summary, Chile is a country with a large number of borrowers with non-mortgage and credit card debt, besides a robust fraction of mortgage borrowers. However, Chile has a normal debt amount and debt service (as measured by the DIR and DSR) relative to comparable countries.

Table 2: Comparison of household debt indicators in Chile versus other countries

Indicators (in %)	Nr of countries	Chile (2017)	Min	Median	Max	OLS*	Q-75*
Households with:							
Any debt	31	66.4	21.2	47	84.9	42.2	46.2
Mortgages	30	21.2	6.5	25	47.6	17.4	18.9
Non-mortgage debt	30	60.9	10.3	33.2	68	33.8	37
Debt in credit cards and lines	23	44.1	3.8	13.2	81.6	19.2	22.6
No credit access	21	8.7	3.4	7.6	20.8	8.2	9
Non-Mortgage Debt / Household Debt:							
Aggregate Ratio	27	24.6	1.6	14.2	63.5	20.9	24.2
Debt to Income Ratio:							
p50 of country's debtors	22	24.8	11.5	63.4	242.8	57.2	54.3
p75 of country's debtors	21	88.6	54.7	188.2	611.7	164.4	173
p90 of country's debtors	21	191.7	149.6	343.2	1450.6	356.5	406.1
Debt Service Ratio (no credit cards and lines of credit):							
p50 of country's debtors	22	14.0	8.4	13.4	35.3	14.4	16.2
p75 of country's debtors	21	24.5	15.8	23	62.5	25.3	26.6
p90 of country's debtors	21	41.3	26.2	38.3	143	47.5	51.2
Debt motivations (as a % of the total consumer debt in the country):							
Residence and real estate	21	8.9	1.4	20.8	50.2	24.1	32.6
Vehicles	21	15.7	6.6	24.5	70.3	13.9	20.6
Entrepreneurship/Investment	21	5.6	0.2	2.7	16.4	5.6	5.6
Pay other debts	21	19.1	0	5.4	25.2	9.7	13.5
Education	21	21.7	0	7.2	38.3	8.4	13.8

Sources: EFH (Chile), EFHU (Uruguay), HFCS (Europe), Survey of Consumer Finances (USA), Wealth Distribution Database (OECD).

* The OLS and Quantile regression use a constant and $\ln(GDP_{c,t}^{PPP,pc})$ as controls. The models then provide a prediction for a generic country $\ln(GDP_{c,t}^{PPP,pc}) = GDP_{Chile,2017}^{PPP,pc}$.

4 Consumption of financial goods and insurance

How much do households spend on financial assets and insurance ? To answer this question I use the Chilean Expenditure Survey (EPF) waves of 1987, 1997, 2007, 2012 and 2017. This survey was implemented every 10 years until 2007[2] and every 5 years since then, collecting information from 5076, 8445, 10092, 10473 and 15239 households in the years of 1987, 1997, 2007, 2012 and 2017. This study uses the pooled cross-section waves between 1987 and 2017, with a total of 49325 household observations. Since expenditure surveys are expensive, requiring a mix of recall and diary measurement of expenditures (Battistin et al. 2020), the 1987 and 1997 waves only cover the Great Santiago capital area, which concentrates around 40% of the country's population, but with survey waves since 2007 collecting around 1/3 of their samples in the other regions. The EPF survey provides a high quality measure of durable and non-durable expenditures classified for a list of 1570 product categories, with interviewers visiting households multiple times during a period of one month, asking for their bills and receipts from expenditures, plus memory reports of non-receipt expenses made during the period and of infrequent expenses, similar to the best international procedures (Battistin et al. 2020). One extremely relevant difference regarding the EFH survey is that the EPF registers all the expenses of the household, but it does not denote whether the products such as Life, Home and Loan Insurance were voluntary or compulsory associated with other goods such as the mortgage. Since the EFH survey register voluntary insurance, then its numbers are likely to be somewhat smaller than in the EPF survey.

To obtain comparable measures of income and consumption across households, I express all household income and consumption variables in terms of their equivalized measures (Krueger et al. 2010, OECD 2008). The equivalized measures are similar to a "per capita" measure, but, instead of dividing by the total number of household members n_i, the equivalized measures take into account that there are some scale economies in terms of the consumption of joint goods within the household. In this paper I apply the OECD-modified scale (OECD 2008), which assigns a value of 1 to the household head, 0.5 to each additional adult member (above age 15) and 0.3 to each child: $ne_i^{OECD} = 1 + 0.5(adults_i - 1) + 0.3(children_i)$. Other measures are possible, with for instance some articles using the square-root of all household members ($ne_i = \sqrt{n_i}$) or the Oxford

[2] There were also EPF surveys in 1967 and 1977, but the microdata for those waves is no longer available.

scale which assigns a value of 1 to the first household member, 0.7 to each additional adult and 0.5 to each child ($ne_i^{Oxford} = 1 + 0.7(adults_i - 1) + 0.5(children_i)$). The results in this article are qualitatively similar if one uses the Oxford or the square-root household equivalence measures.

To analyze the consumption of different goods in real value over time, I apply different CPI indexes to each good (Krueger and Perri 2006). This option is made to take into account that some goods may have decreased or increased their prices relative to the general CPI, with for example computers becoming cheaper, while healthcare and education becomes more expensive. There is not an individual CPI for each product category (1570 product categories), therefore I match each product category to one of the 144 CPI categories published by Carlomagno, Fornero and Sansone (2021) with a standardization of 1 in december of 2007. Therefore the consumption of household i at time t for each product j is calculated as: $c_{i,j,t} = \frac{\exp_{i,j,t}}{CPI_{j,t} \times ne_i^{OECD}}$ and the total consumption of household i at time t is given by $c_{i,t} = \sum_j c_{i,j,t}$. Another reasonable option is to calculate the total consumption standardized by the CPI of the period t (instead of the individual CPIs): $\hat{c}_{i,t} = \frac{\sum_j \exp_{i,j,t}}{CPI_t \times ne_i^{OECD}}$. However, both measures of consumption, $c_{i,t}$ and $\hat{c}_{i,t}$, are very similar, showing a correlation coefficient of 98.6% for the pooled EPF dataset (1987-2017).

I then classify the product lists in terms of their use, with three categories: medical expenses, financial, insurance. Table 3 shows the share of expenditures dedicated to these 3 different uses as a fraction of the total household consumption in the Great Santiago area. It shows that households have been devoting a stronger fraction of their consumption to medical expenses since 1987, with this share increasing from 2.4% to 4.2% for the average household. Furthermore, since 1987 more than 60% of the households put some out of the pocket expenditures for medical consumption. Although the share of households with some out of the pocket medical expenditures fell between 1987 and 1997 due to the expansion of the state-sponsored medical program FONASA (Sapelli and Vial 2003, Sapelli 2004), the share of households with medical expenditures grew again in 2007, 2012 and 2017, reaching 84.8% of the households in the most recent year. Even today Chile has the fifth highest out of pocket payments among OECD countries (OECD 2019).

The share of financial expenditures in total consumption actually dropped substantially from 2.5% in 1987 to 1.4% in 1997 and then persisting at a similar level afterwards, with a value of 1.5% in 2017. Therefore financial products became less important relative to other goods, which makes sense, since financial products are mostly an expense made by households in order to transfer

income to other time periods. If households can now devote less expenses to such products due to their relative decreasing costs over time, then this implies a welfare gain. In fact, the share of households with some financial expenses grew throughout this period from 59.5% of the households in 1987 to 91.1% in 2017, therefore there is more widespread access to financial services now. The fraction of consumption dedicated to insurance products increased from 0.3% in 1987 to 0.7% in 2017, while the fraction of households with insurance products grew from 10.6% in 1987 to 44.5% in 2017. In summary, this shows that in 2017 there is more widespread access to both insurance products (44.5% of the population) and other financial products (91.1% of the population).

Finally, the consumption of medical goods and services, financial products, and insurance is increasing with household income, even taking into account that values are standardized as a fraction of the total household consumption. For instance, the share of medical, financial and insurance products in total consumption in 2017 was 5.1%, 2.3%, 1.5% for strata 3 (the upper income), 4.1%, 1.6%, 0.5% for strata 2 (the upper middle class income households), and 3.8%, 1.0%, 0.2% for the strata 1 (households below the median income). The out-of-the-pocket medical expenses grew for all the income strata between 1987 and 2017, in the same way as the insurance expenses increased during the same period. Since Life and Health insurance are also related to medical expenses, then it is possible that the ageing of the Chilean society is a factor pushing up both the consumption of medical and insurance goods (Madeira 2021). However, it is also noticeable that the consumption of financial goods (as a share of the total consumption in the average household of each strata) fell 0.9% to 1.2% across all income levels. This fall in the consumption of financial goods could be explained by a reduction in fees for such goods and services over the last few decades. In fact, the number of households with positive consumption of financial goods increased across al income levels, changing from 50.6%, 67.9%, 67.5% in 1987 to 83.4%, 96.4%, 96.4% in 2017 for the strata 1, 2 and 3, respectively. This confirms that in 2017 the access to financial goods is almost universal in Chile, even among the lower income households (strata 1). The share of households with out-of-the-pocket medical expenses was high already in 1987, but it dropped significantly in 1997 (perhaps due to the expansion of the FONASA) and it increased since then across all income levels. Finally, the number of households consuming insurance products also grew across all income levels, but especially among the higher income families (strata 3). The fraction of households consuming insurance increased from 3.1%, 8.6%, 37% in 1987 to 19.6%, 44.5%, 81.7%

Table 3: Consumption dedicated to medical, financial and insurance as a fraction of the total household consumption (in %) in the Great Santiago region - mean statistics for all the households and across household income levels

Year	Income Strata	Consumption as a fraction of total consumption (in %)			Fraction of households with positive consumption (in %)		
		Medical	Financial	Insurance	Medical	Financial	Insurance
1987	All households	2.4	2.5	0.3	74.9	59.5	10.6
1997	All households	3.9	1.4	0.4	63.1	51.3	24.1
2007	All households	3.8	1.4	0.6	66.3	61.5	35.6
2012	All households	3.7	2.0	0.6	71.2	73.6	38.1
2017	All households	4.2	1.5	0.7	84.8	91.1	44.5
1987	Strata 1 (pc 1-50)	1.8	1.9	0.1	63.9	50.6	3.1
1997	Strata 1 (pc 1-50)	2.8	0.9	0.2	52.5	38.3	15.8
2007	Strata 1 (pc 1-50)	2.7	1.4	0.4	54.4	52.5	20.9
2012	Strata 1 (pc 1-50)	2.9	1.2	0.3	59.6	61.3	21.7
2017	Strata 1 (pc 1-50)	3.8	1.0	0.2	74.1	83.4	19.6
1987	Str. 2 (pc 51-80)	2.7	2.8	0.2	81.6	67.9	8.6
1997	Str. 2 (pc 51-80)	4.3	1.5	0.3	68.8	57.5	27.3
2007	Str. 2 (pc 51-80)	4.3	1.4	0.6	72.1	69.0	41.6
2012	Str. 2 (pc 51-80)	4.1	2.1	0.6	76.1	81.3	45.6
2017	Str. 2 (pc 51-80)	4.1	1.6	0.5	88.9	96.4	44.5
1987	Str. 3 (pc 81-100)	3.3	3.3	0.9	90.3	67.5	37.0
1997	Str. 3 (pc 81-100)	5.8	2.5	0.9	78.4	71.0	37.8
2007	Str. 3 (pc 81-100)	5.2	1.3	1.1	82.7	70.0	57.3
2012	Str. 3 (pc 81-100)	5.0	3.7	1.2	91.1	91.4	65.6
2017	Str. 3 (pc 81-100)	5.1	2.3	1.5	95.8	96.4	81.7

2017 for stratas 1, 2, 3, respectively. Therefore in 2017 the consumption of insurance products is quite common among the middle class (44.5% of the families in strata 2) and almost universal among the upper income families (81.7% of the households in strata 3).

What kinds of financial goods and services and insurance products are purchased by the Chilean households? Table 4 shows that in 1987 the most common type of financial products were "Mortgages and Bank Loans", which were used by 46.1% of the households, while "Credit cards, retail loans, and other non-bank lenders" were used by 28.9% of the families. By 2017 the use of "Credit cards, retail loans, and other non-bank lenders" had grown to 80.8% of the population, while "Bank accounts and other financial products" grew from almost 0% (between 1987 to 2007) to 51.7% of the population. However, the share of households paying mortgages or other bank loans in the Santiago capital area had fallen from 46.1% in 1987 to 26.5% in 1997 and 22.6% in 2017. This pattern was common to families across all income levels. The share of families using

"Mortgages and other bank loans" fell substantially (especially among the poor income families in strata 1), while the share of users of "Credit cards, retail loans, and other non-bank lenders" and "Bank accounts and other financial products" grew significantly.

In terms of insurance, there are no categories in 1997 and 2007 because the EPF survey questionnaire was reduced substantially in those waves and there is not enough detail to know which insurance products were being used. However, for the waves of 1987, 2012 and 2017 the use of insurance products is classified in 4 categories: i) Life, health and personal accidents insurance, ii) Home and property insurance, iii) Automobiles, vehicles and travel insurance, iv) other financial insurance (such as insurance for the delinquency of loan products). Just like in the EFH survey depicted in Figure 6, the most popular insurance products are Life and Vehicles insurance. The results show that all the types of insurance products grew substantially between 1987 to 2012 and 2017. Life and Health insurance grew from 4.5% of the households in 1987 to 5.8% in 2012 and 24.4% in 2017. Vehicle and Travel insurance grew from 4.0% of the families in 1987 to 9.7% in 2012 and 22.1% in 2017. Home and other insurance products grew respectively from 1.8% and 0.3% in 1987 to 6.0% and 19.9% in 2017, although the category of other loan insurance fell a bit since 2012. This drop in the use of other insurance since 2012 is consistent with the fall in the use of consumer loans in recent years (as shown in Figure 1), perhaps as a result of the lower interest rate ceiling introduced in 2013 and which substantially reduced the use of high cost small loans (Madeira 2019b). Just like for each type of financial goods, the use of all the types of insurance products increases with the income level and therefore all the insurance products are more widely used among the upper income (strata 3) than the middle class (strata 2) and more common among the middle class than the low income (strata 1) families. The evolution of insurance use is similar across all income strata, with the use of all insurance products increasing between 1987 to 2017, while other insurance fell a bit in use since 2012. However, it is noticeable that Life and Health is more common than Vehicle insurance for the strata 1 and 2, while Vehicle insurance is more common than Life and Health for the upper income families (strata 3).

Are households able to purchase more durable goods in recent years due to their access to finance? To answer this question I classify the product lists of the EPF surveys in terms of their durability, with 4 categories: Services (non-durable), Non-Durable goods, Semi-Durable goods (goods that can last more than one year but less than 3 years), Durable (goods that can last more

Table 4: Fraction of the households (in %) purchasing different financial and insurance products

Year	Education	in the Great Santiago region Financial products			Insurance products			
		Mortgages & Bank Loans	Credit cards, Retail & other lenders	Bank accounts & other products	Life & Health	Home	Vehicle & Travel	Other (ex: loan insurance)
1987	All households	46.1	28.9	0.3	4.5	1.8	4.0	0.3
1997	All households	26.5	35.4	1.1				
2007	All households	24.0	54.6	0.0				
2012	All households	24.5	67.2	29.6	5.8	2.8	9.7	31.1
2017	All households	22.6	80.8	51.7	24.4	6.0	22.1	19.9
1987	Strata 1 (pc 1-50)	34.3	27.6	0.0	0.7	0.1	0.2	0.1
1997	Strata 1 (pc 1-50)	22.2	20.6	0.4				
2007	Strata 1 (pc 1-50)	11.9	48.9	0.0				
2012	Strata 1 (pc 1-50)	10.7	55.5	19.6	1.3	0.2	1.8	19.1
2017	Strata 1 (pc 1-50)	10.0	65.2	56.1	8.7	1.6	4.9	8.7
1987	Str. 2 (pc 51-80)	52.4	41.8	0.0	2.9	1.2	1.6	0.2
1997	Str. 2 (pc 51-80)	27.7	42.5	0.5				
2007	Str. 2 (pc 51-80)	26.4	62.4	0.0				
2012	Str. 2 (pc 51-80)	28.8	74.6	35.8	6.5	1.7	6.2	38.6
2017	Str. 2 (pc 51-80)	23.0	90.2	58.6	23.2	3.4	15.3	20.4
1987	Str. 3 (pc 81-100)	63.9	12.8	1.5	15.7	6.6	16.1	1.0
1997	Str. 3 (pc 81-100)	34.2	57.9	3.4				
2007	Str. 3 (pc 81-100)	45.2	56.0	0.0				
2012	Str. 3 (pc 81-100)	50.7	83.8	44.0	15.1	10.4	32.8	48.5
2017	Str. 3 (pc 81-100)	41.0	92.9	36.7	49.5	15.8	56.0	36.1

than 3 years). Durable goods can be more affected by financial conditions, because these products are more expensive, infrequently purchased and their use must be smoothed over longer periods. Table 5 confirms that the share of durable goods increased from 5.9% of the consumption in 1987 to 12.5% in 2017, while the number of households with positive consumption of durable goods increased from 53.7% in 1987 to roughly 75% during the period of 2007 to 2017. The share of non-durables and semi-durables in consumption decreased between 1987 and 2017, although the share of services increased substantially. This pattern is similar across all income levels, with the share of durables in consumption roughly doubling between 1987 and 2017 for each income strata. It is noticeable, however, that the share of upper income families consuming durables remained roughly constant around 90% during this period, while the share of families with positive durables consumption in the low income (strata 1) and middle class (strata 2) increased significantly from 31% and 62.2% in 1987 to 61.5% and 78.1% in 2017, respectively. Durables are therefore twice as widespread among poor families in recent years. This is an indicator that financial access and credit constraints fell significantly in Chile during this period, especially among poor families.

5 Conclusions

Using the Chilean Household Finance Survey (EFH), this work shows that the use of financial assets, insurance and mortgage loans increased substantially since 2007, although there was some fall in the use of non-bank consumer debt, perhaps as a consequence of an increased bancarization. Financial owners and users of insurance contracts grew, respectively, from 19% and 31.7% in 2007 to 34% and 39.3% in 2017, with savings accounts and life-health insurance being the most popular types of financial assets and insurance. Relative to other OECD countries, however, Chile still has a low fraction of mortgages and a high number of households with consumer loans.

Complementing this analysis with the Family Expenditures Survey (EPF), I show that the share of financial goods in consumption dropped significantly, while the share of insurance products in consumption roughly double in this period. However, the users of financial services and insurance increased from 59.5% and 10.6% of the families in 1987 to 91.1% and 44.5% in 2017, respectively, with usage of financial instruments being now common among all income levels. Finally, the results also show that the share of durable goods in the total consumption of the average household grew

Table 5: Consumption (in %) dedicated to Services (non-durable), Non-Durable Goods, Semi-Durable and Durable Goods in the Great Santiago region - mean statistics for all the households and across household income levels

Year	Education	Consumption as a fraction of total consumption (in %)				Households with positive Durables consumption (in %)
		Services	Non-Durable	Semi-Durable	Durable	
1987	All levels	25.3	40.0	28.8	5.9	53.7
1997	All levels	34.2	53.0	9.3	3.5	49.4
2007	All levels	42.7	41.1	6.8	9.3	75.6
2012	All levels	52.6	29.4	8.0	10.0	73.8
2017	All levels	51.1	25.1	11.2	12.5	75.3
1987	Strata 1 (pc 1-50)	23.1	47.7	25.5	3.7	32.0
1997	Strata 1 (pc 1-50)	30.6	58.2	8.7	2.5	36.1
2007	Strata 1 (pc 1-50)	39.8	46.7	6.2	7.3	66.6
2012	Strata 1 (pc 1-50)	52.6	33.1	6.7	7.7	62.7
2017	Strata 1 (pc 1-50)	51.1	28.7	11.1	9.0	61.5
1987	Str. 2 (pc 51-80)	25.2	37.8	30.1	6.8	62.2
1997	Str. 2 (pc 51-80)	33.3	52.7	10.1	3.9	55.1
2007	Str. 2 (pc 51-80)	43.6	39.4	7.1	9.9	81.3
2012	Str. 2 (pc 51-80)	50.9	29.6	9.2	10.2	80.0
2017	Str. 2 (pc 51-80)	49.4	25.6	11.7	13.3	78.1
1987	Str. 3 (pc 81-100)	30.6	25.3	34.3	9.8	91.3
1997	Str. 3 (pc 81-100)	43.4	42.1	9.5	5.1	70.8
2007	Str. 3 (pc 81-100)	47.6	32.1	7.7	12.6	86.6
2012	Str. 3 (pc 81-100)	54.9	20.6	9.5	15.0	90.9
2017	Str. 3 (pc 81-100)	53.3	19.2	10.7	16.8	92.5

from 5.9% to 12.5% between 1987 and 2017, while the fraction of households reporting purchase of durables increased from 53.% to 75.3% during the same period. This is a reliable indicator that households are better able to use available financial instruments for consumption smoothing and to finance purchases of better goods. In summary, the access to financial assets, financial services and insurance products grew substantially in Chile over the last 35 years. This expansion in the access to finance in Chile (Berstein and Marcel 2019) may have important implications for future growth and a reduction in inequality (Demirgüç-Kunt and Levine 2009, Cihak and Sahay 2020).

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