

# Survey of Household Finances: the case of Chile

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The opinions expressed in this presentation are my own and do not necessarily represent those of the Central Bank of Chile or its Board.



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# Outline

- ❖ Background
- ❖ Objectives and content
- ❖ Implementation strategy
- ❖ Sampling
- ❖ Panel component
- ❖ Related research
- ❖ Future challenges





# Background

- Until 2006, there was a lack of comprehensive data on the financial situation of households in Chile.
- The Central Bank of Chile developed the SHF in order to gather better information on household finances.
- The SHF is the main survey in the country that collects household-level data on different aspects of household balance sheets.
- The first survey took place at the end of 2007 and we are currently in the final stages of the third national urban survey (2014).





# Objectives and Content





# Objectives of the SHF

- Generate a *corpus* of information that would allow us to:
  - Provide detailed information on the balance sheet and the financial behavior of households.
  - Assess the situation of the general population in relation to debt.
    - This is particularly relevant due to the importance of non-bank providers of credit, whose information is not currently collected by supervisors.
  - Do research to understand the financial behaviour of households.
    - Motivation and propensity to save and to go into debt.
    - Causes of credit defaults.
  - Understand households' access to financial products (a view from the demand side).





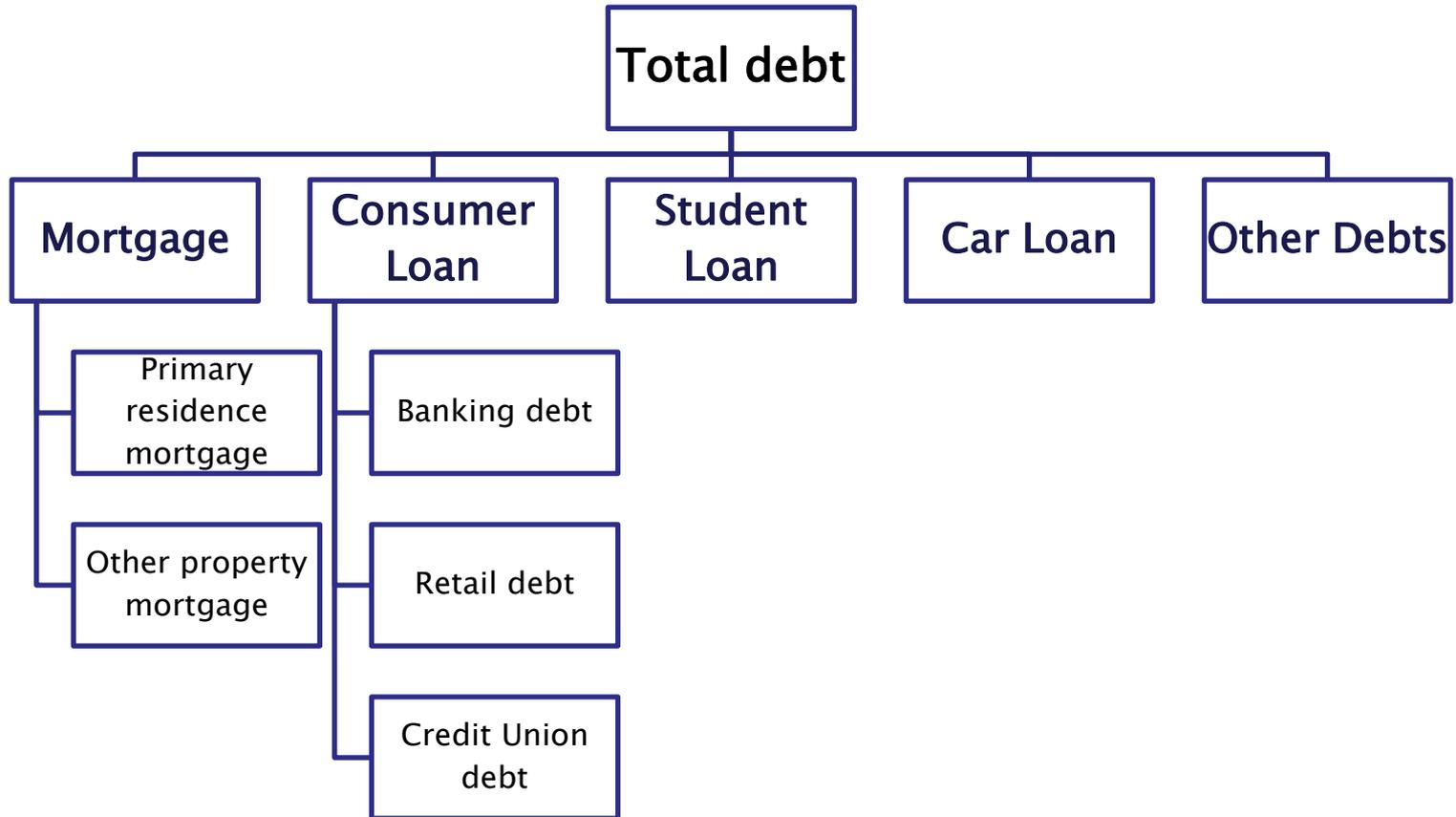
# Information collected by the SHF

- The questionnaire is based on similar financial surveys (EFF, SCF, HFCS), covering different topics regarding household finances, such as borrowing and saving patterns.
- In particular, the survey captures information on:
  - Demographic characteristics (age, gender, marital status, education)
  - Assets (real assets, financial assets, pensions)
  - Debts (mortgages, consumer loans, student loans)
  - Income (labor earnings, subsidies, rental, financial income)
  - Means of payment (use of cash, debit and credit card, bank transfers, e-banking)
  - Financial behavior (default, access to banking and credit, motivations for going into debt, expectations)



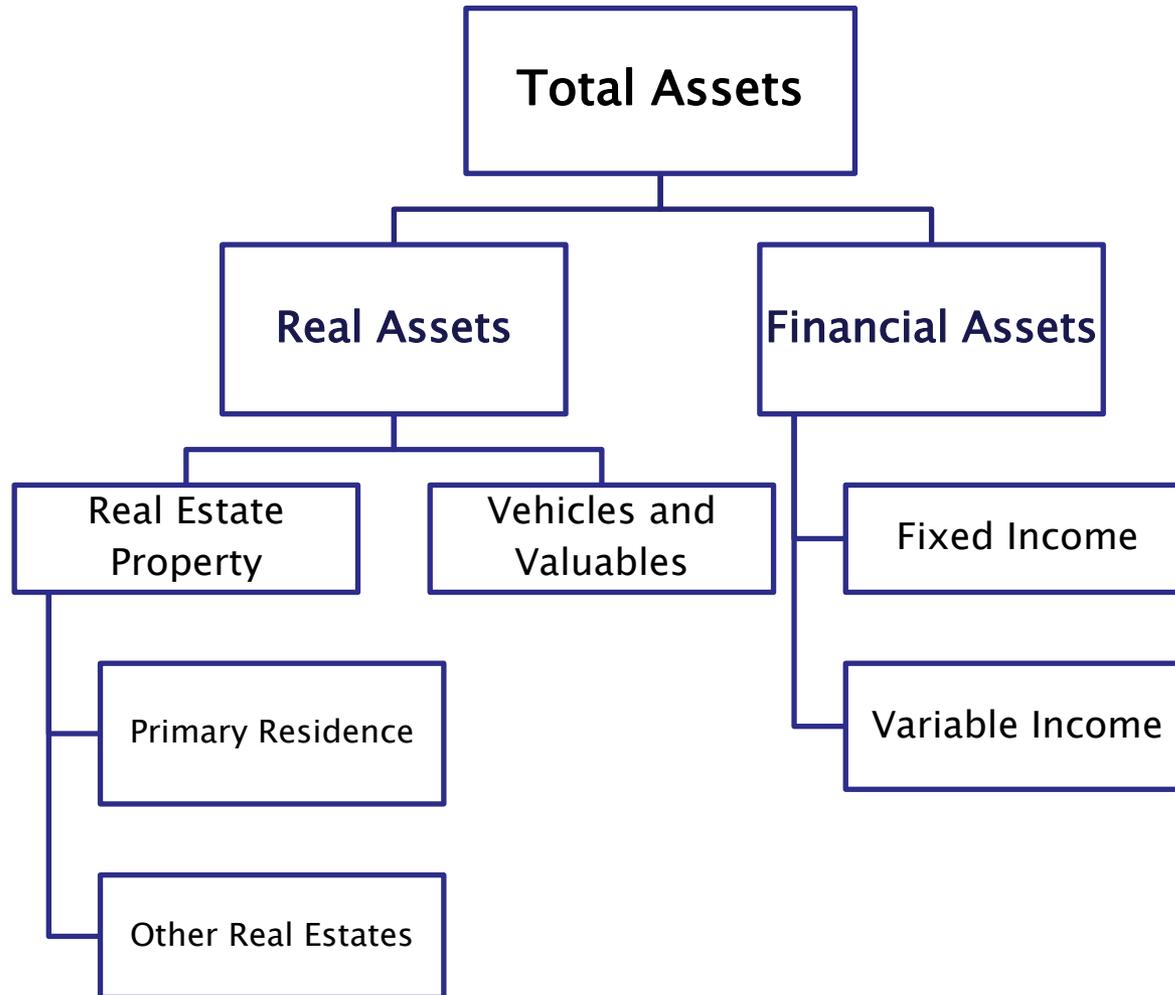


# Debt Holding Structure





# Asset Holding Structure





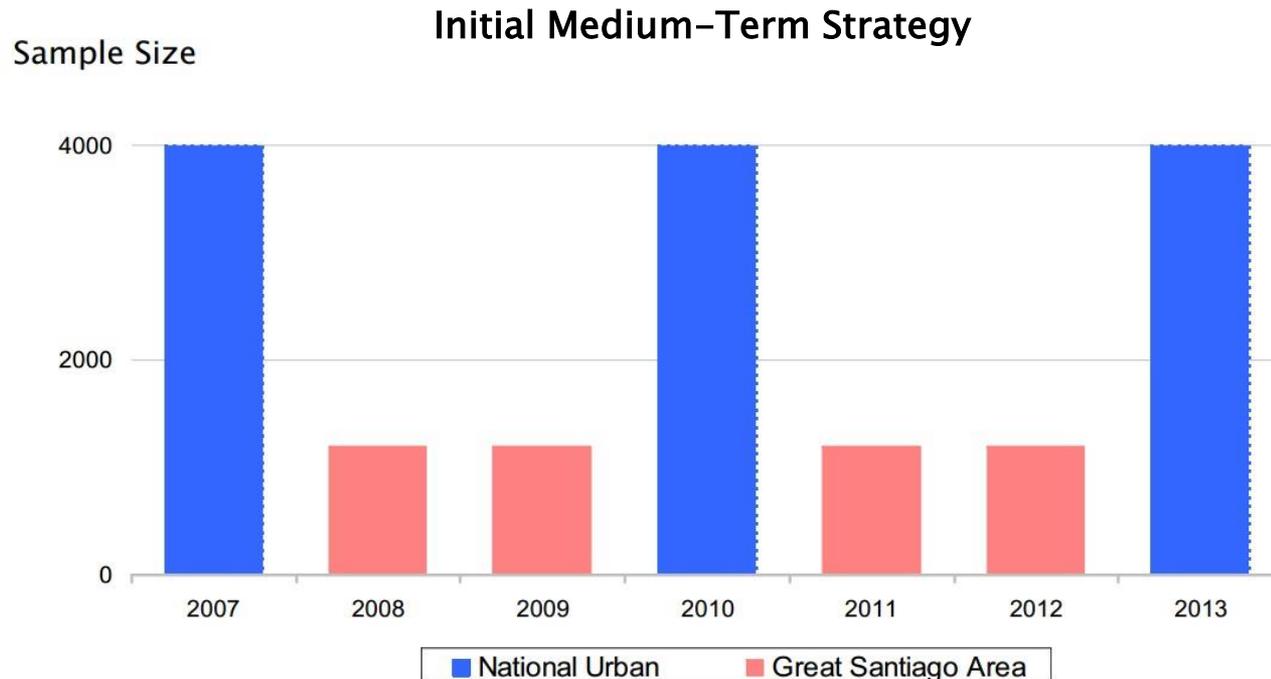
# Implementation Strategy





# Initial Medium-Term Strategy

The initial medium term strategy included a national panel of urban population every 3 years, and a smaller survey in the Greater Santiago area in the interim years.





# 2010 Earthquake changed the original plan

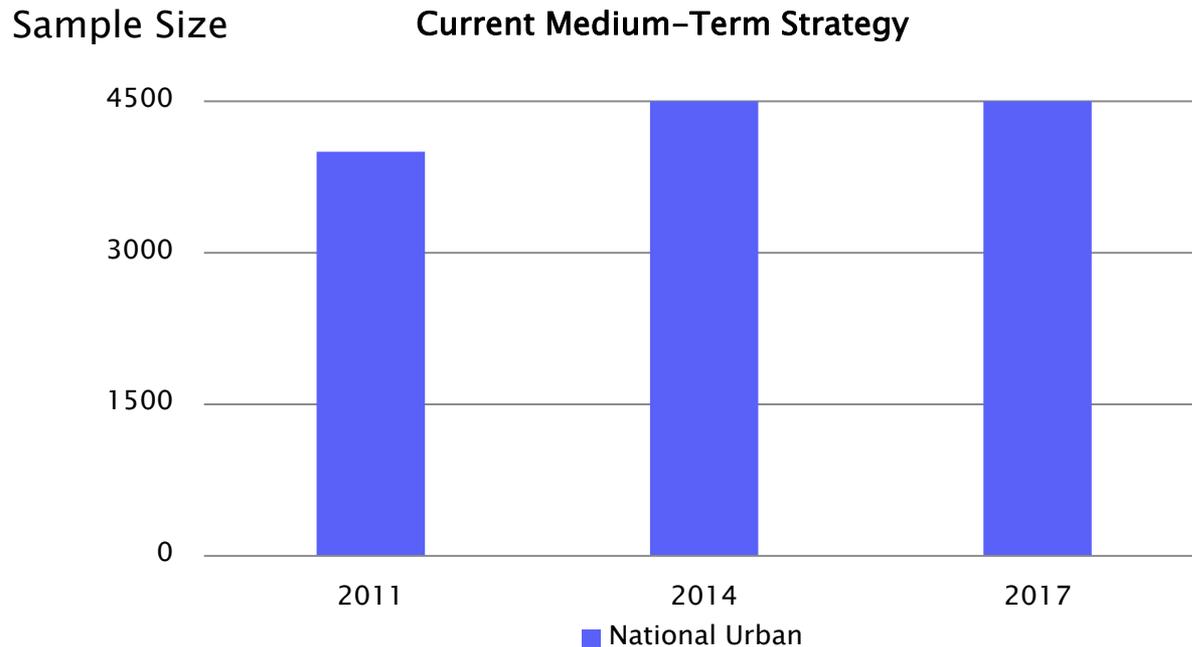
Instead of the 2010 national wave, we implemented the survey only in the Gran Santiago area, doubling the size of the usual interim surveys.





# Current Medium-Term Strategy

The new strategy only incorporates national urban surveys every 3 years.





# Observations per wave

SFH Wave	Coverage	Panel 2007	Panel 2008	Panel 2011	Cross-Section	Total
2007	National				3,828	3,828
2008	GSA				1,150	1,150
2009	GSA		947		243	1,190
2010	GSA				2,037	2,037
2011	National	1,792			2,267	4,059
2014	National	994		766	2,742	4,502

Total: 16,766 observations





# Sampling





# Sampling strategy

- The sampling strategy takes into account income (2007–2009) or a proxy of wealth that is highly correlated with income (eg. home value).
- The SHF has a double sampling framework:
  1. Stratified sampling for the whole population.
  2. Oversampling of the top income quintile.
- Oversampling of the top quintile obeys the interest in having richer information for those who may have more debts.





# Sampling strategy: stratification

- The sampling only covers urban areas (regional capitals and other important cities in each region): representativity of financial phenomena, accessibility, cost.
- We use three types of stratification:
  1. Geographical stratification: we stratify using Macrozone, Region, Commune, and Block.
  2. Income or wealth stratification: we determine the income/wealth strata at the macrozone level.
  3. Combination of geographical and income/wealth stratification: within each block, we randomly choose the households according to the distribution of each stratum (inverse probability of selection).





# Sampling strategy: oversampling

- Oversampling of high income or wealth households is common in this type of surveys (eg. EFF, SCF)
- We concentrate in the top income quintile, which represent around 45% of the total sample in each wave.
- Assuming that richer people may have more debts/assets, we focus the survey on this group in the hope of getting a better understanding of the financial behavior.
- This group is difficult to reach:
  - Requires more extensive samples (replacement)
  - Longer, harder field work
  - More difficult to keep track of the panel component





# Sampling strategy: income/wealth

- Over time, the survey has changed the anchor of the sampling model:
  - 2007–2009: based on census population distribution, adjusted to the sampling framework of the CASEN survey, plus high income income group oversampling using information from the local IRS.
  - 2010–2014: based on appraisal for taxation purposes of the property.
- The general sampling framework of the SHF assumes that:
  - Debt holding is highly and positively correlated to income
  - Income is highly and positively correlated to wealth, proxied by home value





# Sampling strategy: post-stratification

- Representation of the sample is adjusted with post-stratification fitting:
  - Population subtotals by Region, Gender, Age Group
  - Number of households by Macrozone and Region
- We use calibration to deal with both constraints and obtain the expansion factors.
- Expansion factors are particularly useful in the current sampling framework to account for the oversampling of the top income/wealth quintile.





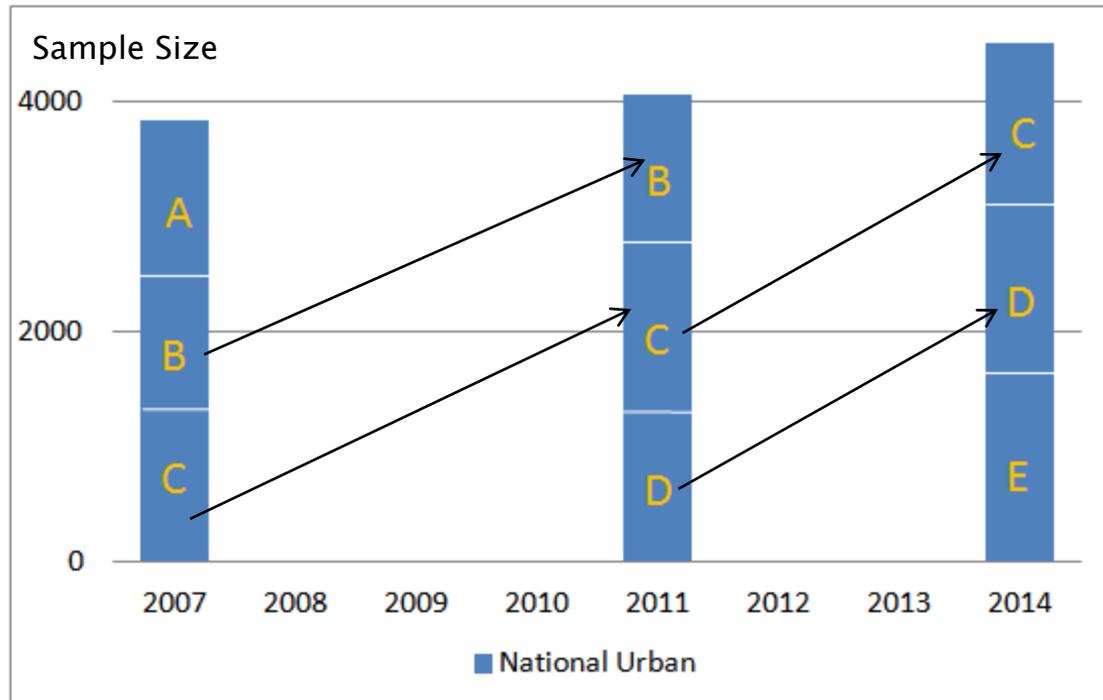
# Panel Component





# Rotating Sample (3 surveys, 7 years)

## Structure of the Rotating Panel





# Tracking households

- Main problem with panels: keeping track of respondent households
  - Definition of respondent
  - Identification of the household
  - Attrition bias (specially due to self-selection in the top quintile group)
  - Household change of residence (migration to bigger cities or rural areas)
  - Rapidly-growing real estate market
- The SHF is not an exception.
- Key action: closely work with the provider of the field work





# Definition of respondent

- Over time, the SHF has changed the definition of the respondent:
  - 2007: who makes the greatest monetary contribution to the household
  - 2011: who better knows the financial situation of the household
  - 2014: who has a deep knowledge of the financial situation of the household; or who has the largest amount of debt; or who has the largest amount of assets; or who makes the greatest monetary contribution to the household
- Household members identify themselves as respondents.
- For the same household, respondents between waves may differ.





# Finding the panel household

- Panel households must match any of the respondents of previous waves
  - name, date of birth, age, gender, education, number of members of the household, other available demographic characteristics
- If previous respondents are no longer members of the household, the observation is discarded.
- Households that moved away are tracked before replacing them.
- People tend to forget (or lie about) they were previously interviewed.
- Good news: once the household is identified, the response rate is very high.





# Related Research





# Related Research

- Default and Financial Vulnerability
  - Fuenzalida, Ruiz–Tagle (2009) “Households’ Financial Vulnerability”
  - Alfaro, Gallardo, Stein (2010) “The Determinants of Household Debt Default”
  - Martinez, Cifuentes, Madeira, Poblete (2013) “Measurement of Household Financial Risk with the Survey of Household Finances”
  - Madeira (2014) “Explaining the volatility of consumer debt default in Chile”
  - Avanzini, Martinez, Perez (2014) “A Micro–powered model of mortgage default risk”





# Related Research

- Over-indebtedness

- Chovar, Elgueta and Salgado (2010) “How much credit card and mortgages explain the over-indebtedness of households in Chile?”
- Ruiz-Tagle et al. (2013) “Indebtedness and over-indebtedness process of Chilean households”
- Cifuentes y Martínez (2014) “Over-indebtedness of the Chilean households”

- Borrowing Constraints

- Ruiz-Tagle, Vella (2010) “Borrowing Constraints and Credit Demand”
- Madeira (2012) “Risk-adjusted interest rates and evaluation of interest-rate ceiling policies”





# Future Challenges





# Future challenges

- Review the sampling strategy and design
  - Representativity of the sample, sample size, panel component, stratification strategy, definition of household and respondent
- Review the questionnaire
  - Topics, extension, questions with low response rate, wording
- Enhance statistical analysis
  - intervals for different standard measures (mean, median, quartiles), bootstrap sample, evaluation of variance behavior overtime for panel component
- Promote the SHF to get more people involved in research using the available datasets



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# ANNEX





# Geography and demography of Chile

- Big country, but sparsely populated.
- Roughly 17 million people, 4.25 million households.
- 15 Regions, 54 Provinces, 346 Towns.
- IRS Home List includes 4.25 million properties and 95 thousand Census blocks.
- We select only 80 towns, which comprise almost 94 thousand blocks (32 properties per Block, on average).

