BANCO DE ESPAÑA

THE SURVEY OF HOUSEHOLD FINANCES: USES, CHARACTERISTICS AND METHODS

Ernesto Villanueva
Research Division

STATISTICS FOR ECONOMIC AND FINANCIAL ANALYSIS

Banco Central de Chile

Santiago, September 29th, 2015

All views and opinions are my own and do not represent necessarily those of the Banco de España

OVERVIEW

- **The EFF (Encuesta Financiera de las Familias):**
  - –Data and methods available at: http://www.bde.es/estadis/eff/effe.htm
  - –Panel component
  - –Comparison to aggregate statistics

- **Two examples of the policy use of the data**
  - •Changes in the sensitivity of expenditure to income
    - •*Annual report 2014*
  - •Financial fragility
    - •*IMF report*
- **The Household Finance and Consumption Survey**
  - ▪Challenges
  - ▪The distribution of debt across EU countries

1. DESCRIPTION OF THE SURVEY

- **In 2001 the Banco de España decided to conduct the Spanish Survey of Household Finances (EFF)**
  - AIM: Study of distribution of real and financial assets and debts across households.

- **Information about, household's income assets, debts, consumption, demographics.**
  - Wealth concentrated in few households (Spain: 0.4 % of households hold 40% of taxable wealth)
  - A sample that represents the wealth distribution must oversample rich households.
- **This Section:**
  - Sample design, the oversampling of the rich and the fieldwork.
  - Panel component.

1.1 DESCRIPTION OF THE EFF: SAMPLING

Sampling:

- **The oversampling of the rich performed using the Spanish wealth tax.**

- **Blind system of collaboration with the National Statistics Office and the Tax Office:**
  - Must preserve tax confidentiality requirements
  - Maintains a single sampling population frame.
- **Population frame: the Continuous Municipal Census.**
  - For each address, the Tax Office constructed three variables to do the sampling: wealth stratum indicator, income distribution quartile and per capita income of the household.
- **Achieved oversampling in EFF2011**
  - 693 households (out of 6106) have wealth in the top percentile
    - *A random sample would contain 61*
  - Achieved degree of oversampling at the top percentileis 693/61=11.35

Achieved oversampling

Table 8. Degree of oversampling in the final sample

Net worth decile group	EFF 2008		EFF 2011	
	Number of observations	Oversampling rate[1]	Number of observations	Oversampling rate
Bottom 50%	2095	0.68	1904	0.62
50% to 90%	2304	0.93	2161	0.88
90% to 95%	499	1.61	587	1.92
95% to 99%	712	2.87	760	3.11
Top 1%	587	9.47	693	11.35

1.1 DESCRIPTION OF EFF: SAMPLE DESIGN

- **The sampling design was different in:**

i. **Large municipalities: random sampling within the eight wealth strata.**
ii. **Small municipalities: two stage cluster design (within PSU the selection was different according to the number of wealth tax filers).**
iii. **Navarre and Basque country: two-stage stratified cluster design.**

The replacements:

- **Tightly controlled replacement scheme to preserve oversampling of the rich.**
- **Up to 4 replacements: the two households immediately before and the two immediately after the household in a file ranked by income quartile, wealth stratum, and per capita income (in large municipalities and within PSU).**

1.2 PANEL COMPONENT (i)

- **Panels permits analysis of dynamics**
  - Caveat: households change over time
- **Useful to isolate composition effects**
  - Example: Disposable income per household fell by about 4% in Spain during 2002-2005
    - *Comparing EFF2002 and 2005 medians, the drop was 8.5%*
    - *However, the composition of households also changed during that period*
  - Absence of longitudinal household level information at the time
    - *EU-SILC started only in 2004*
- **Bover (2008) EFF 2002-2005 panel, "stable" households**
  - Neither mean or median income grew among those households
    - *Median (mean) income dropped by 6% (3%)*

1.2 PANEL COMPONENT (ii)

- **Initial effort to track respondents in early waves for long period**
  - 2002-2011, 9 years (10 years for some magnitudes)
  - Mostly follow addresses, identifying each household member
    - *If no member from original household -> follow to new address*

- **Representativeness achieved through refreshment samples added to full panel component**
  - Higher response rate of panel component
  - EFF2011: Achieving a representative sample required dropping households, given budget constraints

- **2014 onwards: move to a 4-wave rotation scheme**
  - Rotation helps dealing with selective attrition in very long panels
  - Sample remains representative of the population

1.3. COMPARISON TO OTHER SOURCES

1.Notes of caution

- Concepts in surveys and in National or Financial Accounts may differ
- Example 1: Aggregate housing wealth estimated by BdE using assumptions about

  -Number of houses and price per square meter,

  -Average square meter of houses (interpolated between Censuses)

  -Confidence intervals not available
- Example 2: Valuation of fixed income securities in FA includes accrual of interest rates

  -Survey asks about face value

2. On the other hand, surveys subject to non-response and underreporting

Imputation methods may not fully solve the problem

3. Present comparisons to National Accounts, Financial Accounts and other

- Household Budget Survey (HBS)
- Survey of Living Conditions (SILC).

2. DISSEMINATION OF RESULTS AND USES FOR POLICY

- **Bulletin article once a first set of results has been imputed.**
  - Mainly descriptive
  - Key results
- **Monthly bulletin, analytic work and summaries of research articles**
  - Determinants of housing purchases
  - Role of demographics in accounting for differences in wealth
  - Consumption responses to housing wealth/ mortgage conditions
  - Wealth and income dynamics
  - The magnitude of precautionary savings
- **Annual report**
  - The (changing) sensitivity of consumption to income (2014 AR)
- **Other**
  - Assessment of financial fragility of Spanish households (2012 report IMF)

2.1 AN EXAMPLE: BULLETIN ARTICLE

HOUSEHOLD NET WEALTH
Distribution by household characteristics

TABLE 1.B

Thousands of 2011 euro

	EFF2005		EFF2008		EFF2011	
Household characteristics	Median	Mean	Median	Mean	Median	Mean
ALL HOUSEHOLDS	203.8	296.4	191.9	304.9	153.3	266.7
	(6.7) (a)	(8.9)	(5.5)	(9.4)	(4.3)	(9.6)
INCOME PERCENTILE						
Less than 20	107.0	148.4	121.0	149.2	95.9	128.3
Between 20 and 40	139.5	180.3	147.8	188.3	119.5	156.8
Between 40 and 60	179.8	224.2	170.3	229.1	138.6	185.7
Between 60 and 80	243.2	303.2	231.0	303.9	206.5	290.1
Between 80 and 90	306.8	420.7	281.4	383.8	251.4	345.9
Between 90 and 100	474.0	827.6	498.8	919.2	410.4	794.1

2.1. THE INCREASE IN MARGINAL PROPENSITY TO SPEND, 2014 annual report

1. **2008-2013: drop in expenditure, reversed in 2013**
   - Partly attributable to an increase in employment
   - New: Indebtedness relative to disposable income large

     Relative to other recoveries, and to other countries

     (The debt income ratio is falling, however)
2. **What does a higher fraction of indebted households imply for consumption behavior?**
   - Indebted households may want to build up reserves

     -> lower marginal propensity to spend
   - Alternatively, may be more impatient and credit constrained

     -> higher marginal propensity to spend

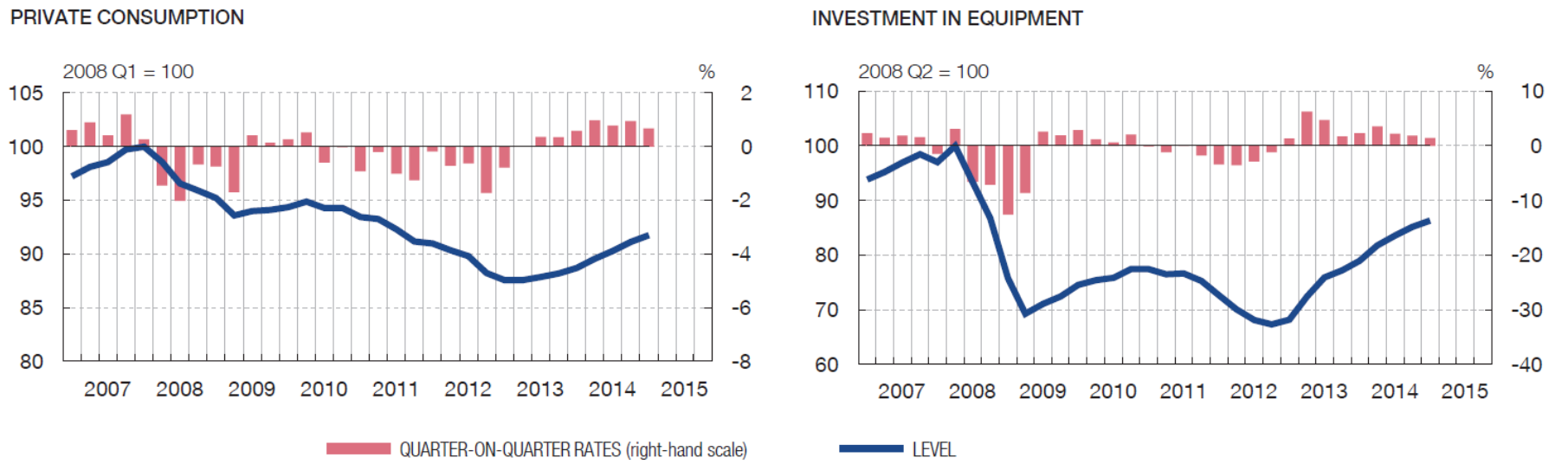
3. Survey data: accounting for heterogeneity and transitions

- Information about labor market status, saving motives, degree of indebtedness
- Panel component permits comparing household-specific income changes to that household's changes in expenditure.

2.1 AGGREGATE EVOLUTION OF CONSUMPTION

PRIVATE CONSUMPTION AND INVESTMENT IN EQUIPMENT

CHART 1.3



2.1. THE INCREASE IN MARGINAL PROPENSITY TO SPEND. 2014 annual report (ii)

Finding 1: Credit applications of indebted households more likely to be rejected or to be granted for a smaller amount than asked for

- Increasingly so between 2002 and 2011

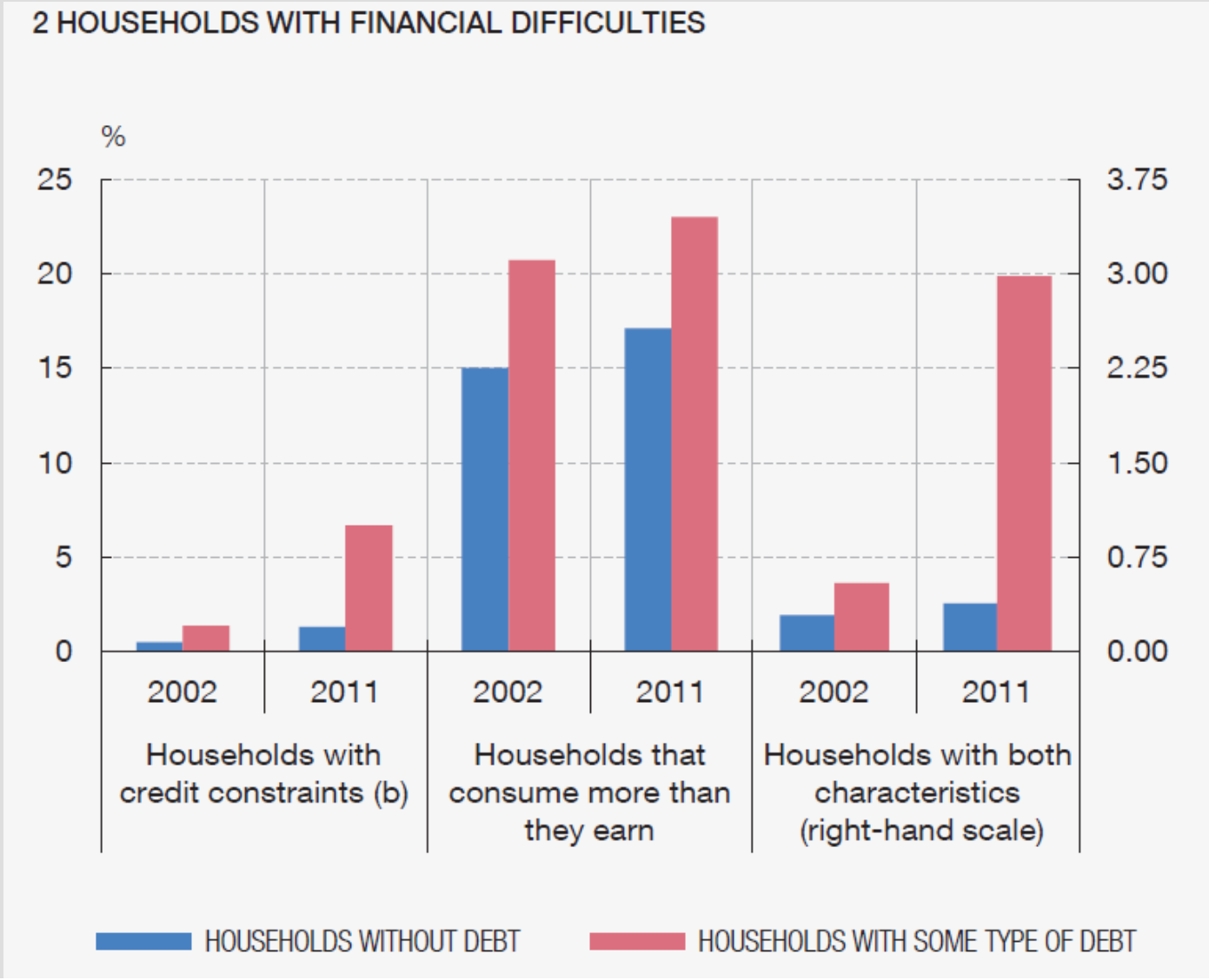
Finding 2: Indebted households more likely to declare that expenditures over the last 12 months exceeded income

- Increasing fraction of indebted households in both situations

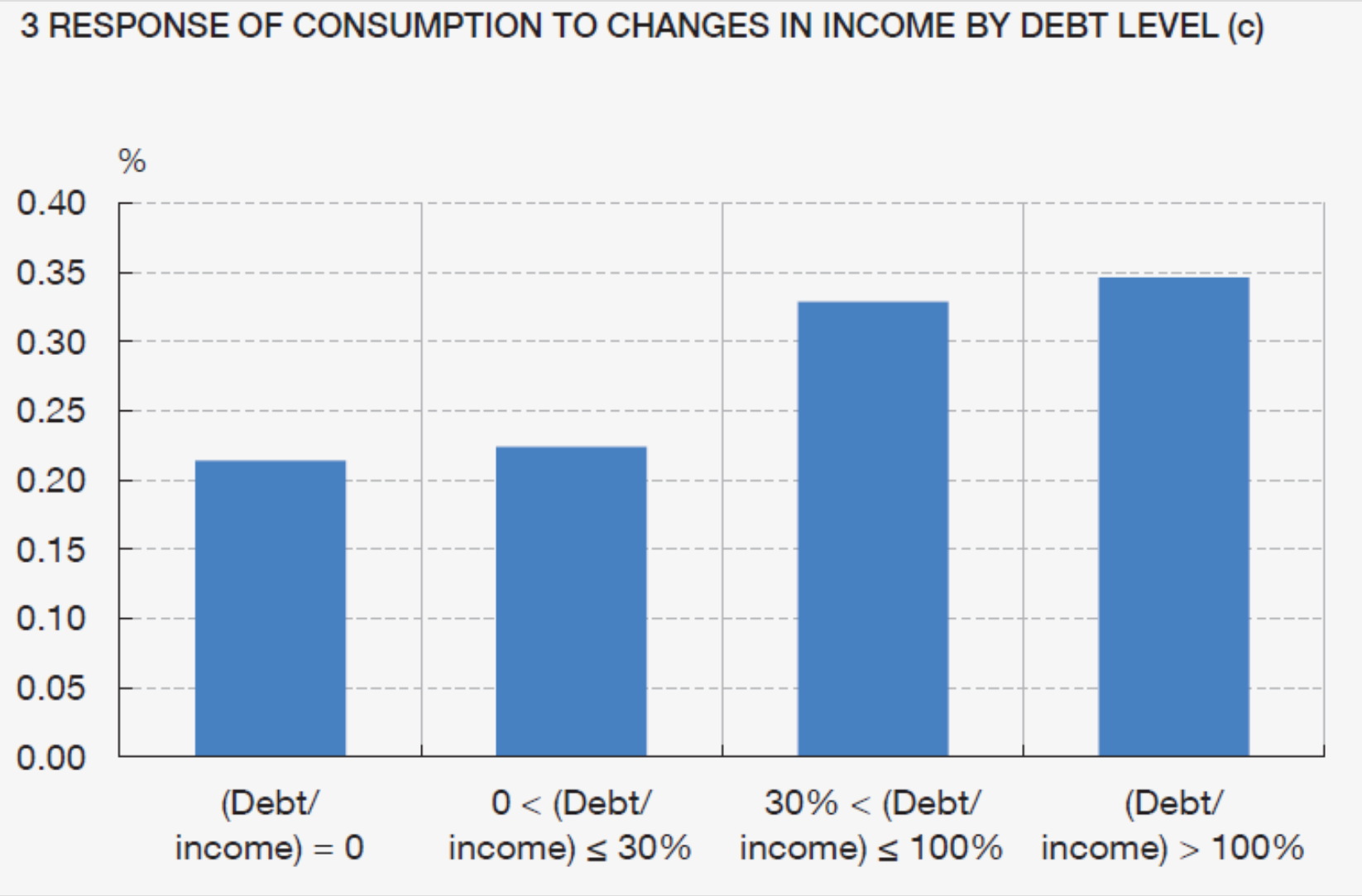
- **Both findings suggest that indebted households have a lower access to external funding (credit) and to "internal" funds**

- **Inability to access to finance may lead to higher correlation between expenditure and income may increase among indebted households**
  - Baker (2014)

2.1 INDEBTED AND NON-INDEBTED HOUSEHOLDS
Differential behavior



2.1 THE INCREASE IN MARGINAL PROPENSITY TO SPEND, by debt over income



2.1. THE INCREASE IN MARGINAL PROPENSITY TO SPEND. 2014 annual report (iii)

- **The overall elasticity of consumption to income increased by 30% between 2002 and 2011**
  - .20 in 2002-2005
  - .20 in 2005-2008
  - .27 in 2008-2011

- **Conclusion : Employment creation may have stronger positive impact on expenditure in the present recovery than in previous ones**
  - The distribution of income changes likely to matter

- **Caution: higher indebtedness also increases households sensitivity to interest rate increases**

2.2 FINANCIAL FRAGILITY OF HOUSEHOLDS

- **Household stress tests routinely conducted with household surveys**
  - Austria, Chile, Euro Area, Sweden, UK
- **IMF conducted such analysis for Spain in 2012, using EFF2008 and extrapolations**
  - Part of the Financial Stability Assessment during a critical period
- **Definition of risk:**
  - Households with 40% debt service to income ratios are vulnerable
  - Compute the % of debt at risk
    - *Share of debt held by vulnerable households*
  - Within those households, share of debt not covered by assets
- **In a second step, the report makes a "stress test"**
  1. Increases interest rates by 100 and 200 bp
  2. 5,10 and 20% (uniform) decline in household income
  3. Unemployment rate increaseof 1 or 5%
  4. Decline in house prices

Box 1. Sensitivity and Scenario Analyses of Household and Corporate Indebtedness (Concluded)

Box Table 3. Spain: Sensitivity Analysis of Household Sector

(In percent, unless otherwise stated)

	Ratio of debt payment to household income	Share of distressed household	Share of debt at risk	Debt at risk not covered by household assets (in percent of total household loans)
	Baseline based on Household Survey 2008			
Baseline	18.1	16.5	45.9	1.1
Interest rate shock:				
100 bps increase in interest rate	19.5	19.6	54.6	2.4
200 bps increase in interest rate	20.6	22.1	58.0	2.5
300 bps increase in interest rate	22.0	27.0	61.8	2.5
Income shock:				
5 percent decline in household income	19.1	18.4	48.1	1.1
10 percent decline in household income	20.2	20.1	50.4	1.2
20 percent decline in household income	22.7	27.6	57.5	1.4
Unemployment shock:				
1 percent increase in unemployment rate	18.2	17.6	45.9	1.1
5 percent increase in unemployment rate	18.3	18.3	46.3	1.1
rate	18.7	18.4	47.1	1.2

Box Table 3. Spain: Sensitivity Analysis of Household Sector

(In percent, unless otherwise stated)

	Ratio of debt payment to household income	Share of distressed household	Share of debt at risk	Debt at risk not covered by household assets (in percent of total household loans)
	Baseline extrapolated Household Survey 2008 to 2011			
Baseline	18.3	21.8	40.0	2.0
Interest rate shock:				
100 bps increase in interest rate	23.1	28.8	58.9	3.7
200 bps increase in interest rate	24.7	31.6	62.7	3.8
Income shock:				
5 percent decline in household income	22.9	27.6	52.6	2.3
10 percent decline in household income	24.2	30.0	55.0	2.5
Unemployment shock:				
1 percent increase in unemployment rate	22.0	26.0	50.8	2.3
5 percent increase in unemployment rate	22.1	26.5	51.6	2.3
rate	22.3	27.2	54.6	2.4

3. SURVEYS OF HOUSEHOLD FINANCE IN THE EURO AREA: THE HFCS

- **Coordinated effort of the Eurosystem to measure the assets, debts and consumption of households**
  - Each National Central Bank in the Eurosystem involved
- **Ex-ante harmonized**
  - Common questionnaire
  - Comparable sampling and imputation methods
- **Permits comparing asset and debt levels across countries, as well as its distribution along key covariates**
  - Age
  - Income

3. THE HOUSEHOLD FINANCE AND CONSUMPTION SURVEY: CONTENTS

1. ASSETS

1.1 Information about main house and other real estate

- Businesses held by the household, listed and unlisted

1.2 Financial assets

- Deposits, directly held shares and bonds, mutual funds
- Pension funds at individual level

2. DEBTS: for up to three main loans

- Collateralized or not
- Initial and outstanding amount
- Interest rate fixation mode, level, maturity
- For loans colateralized on HMR, current and original Loan to Value

3. Earnings of each household member

3. HOUSEHOLD FINANCE AND CONSUMPTION SURVEY: CHALLENGES

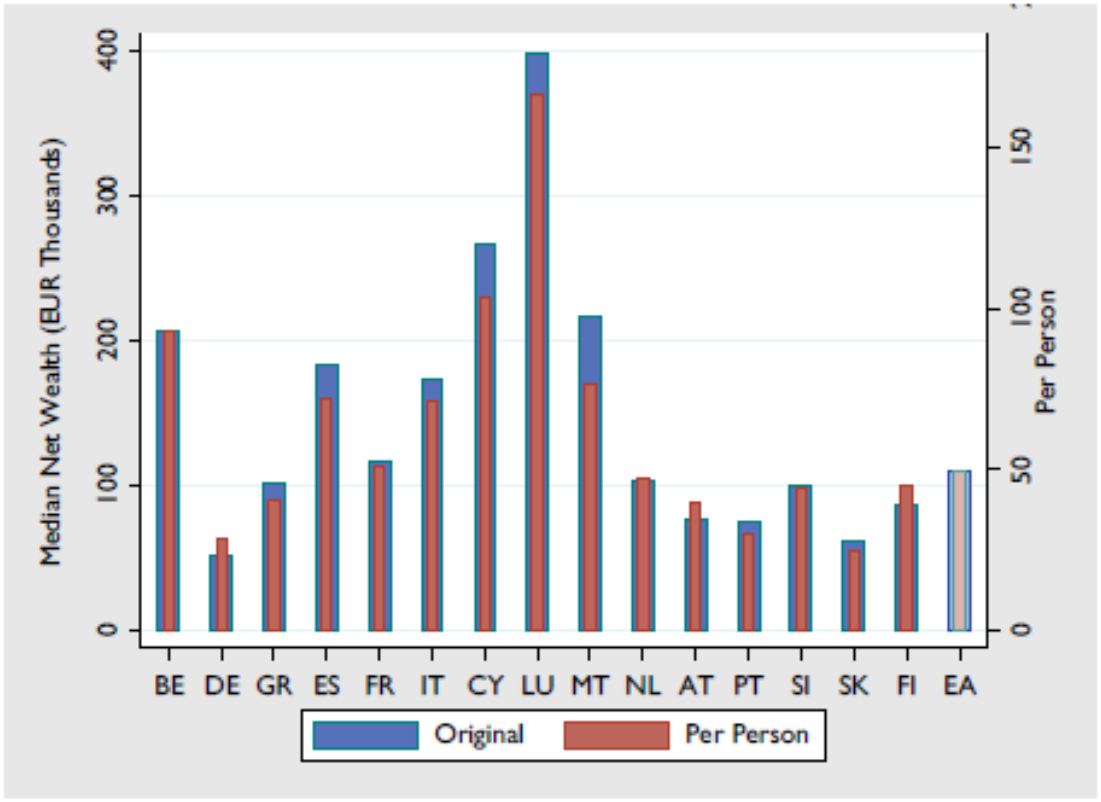
1. **Many countries adapt existing surveys**
   - ES, FR, FI, IT, NL
   - Existing calendars pose challenges to fieldwork synchronization

2. **Remaining differences in:**
   - Sampling strategies
     - *Probability sampling strongly recommended*
     - *Different degrees/methods of oversampling*
   - Data collection
     - *Example: asking about debts by purpose (ES) vs asking by type of collateral*
   - Imputation methods
     - *Needed, as non-response is an issue in wealth surveys*

3. **Relatively little information about household expectations and attitudes**
   - EFF2011-2014 include subjective probabilistic expectations
   - Questionnaire currently being revised

3.1 HFCS FINDINGS: HETEROGENEITY IN WEALTH HOLDINGS

Chart 4.4 Median net wealth and the role of household size



Notes: This chart shows the breakdown across countries of the median value of net wealth per household and per person. The medians were calculated using household weights. The scales of the two statistics differ; they have been chosen so that they perfectly overlap for the euro area figures.

3.1 HOUSEHOLD FINANCE AND CONSUMPTION SURVEY: FINDINGS (II)

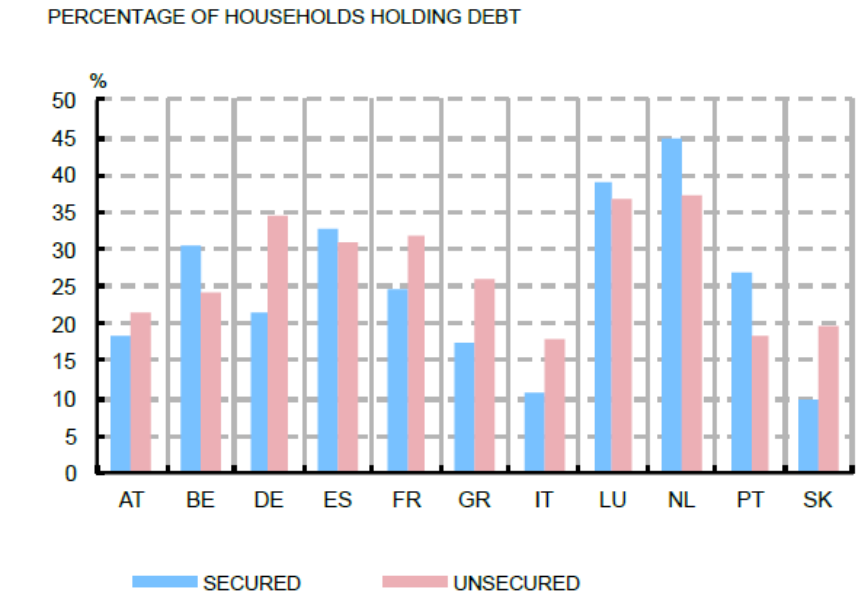
1. **Housing wealth prominent in household portfolios**
   - Across income and age groups

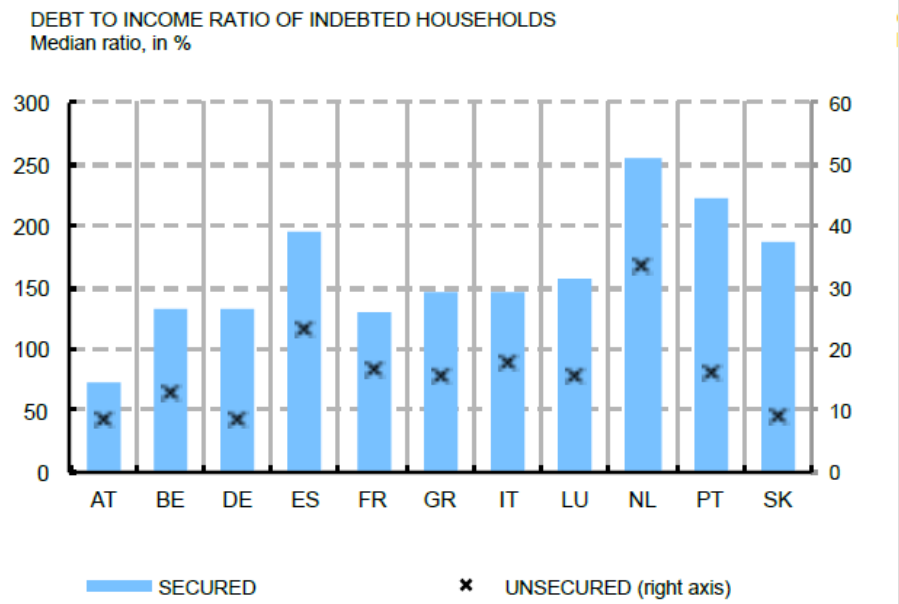
2. **Differences in household indebtedness**
   - Composition-adjusted
   - Age and income profiles vary across countries

3. **Portfolio composition matters**
   - Fraction of households with high illiquid investments but small liquid holdings

     Their consumption is very responsive to income (Violante et al.)
   - Changes in inflation

3.2 HFCS: VARIATION IN DEBT OUTCOMES





3.3 VARIATION IN DEBT OUTCOMES

1. Large differences in the *fraction* of indebted households or in the median debt-income ratio

2. Partly due to composition effects.

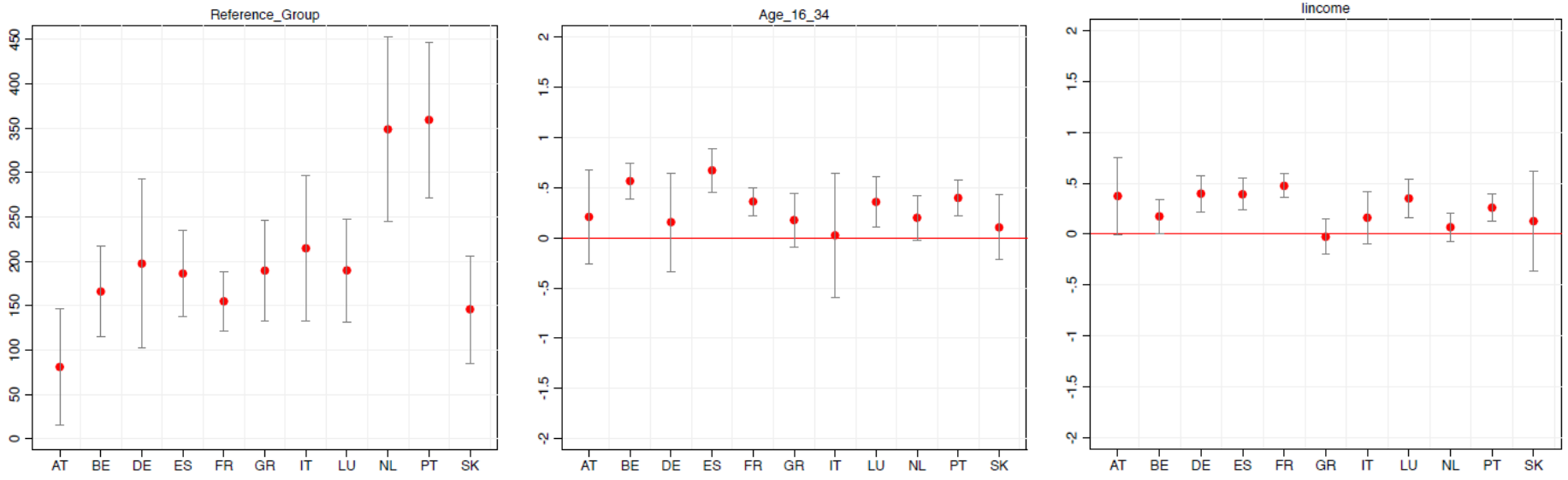
- In Germany young households are less likely to hold secured debt than young households in Spain
- Debt-income ratios generally fall with the age of the household head
- Mechanically, median debt-income ratios will be smaller in Germany

3. Can be due to differences in institutions as well

- If a borrower does not repay, banks take 5 (56) months to repossess in NL (IT)
- The cost of issuing a mortgage possibly larger in Italy
- Holding other characteristics constant, banks may grant lower debt-income ratios in Italy.

3.3 COMPOSITION EFFECTS DO NOT EXPLAIN VARIATION IN DEBT OUTCOMES

Figure 2: DEBT BALANCE OF SECURED DEBT.



- **Similar groups in different EU countries have very different mean debt-income ratios**
- **Mean debt-income ratios vary differently across income groups in EU countries**

3.3 VARIATION IN DEBT OUTCOMES

Euro-area countries differ along a wide number of institutions

- Regulatory LTVs
- Tax relief
- Availability of information about borrowers
- …

- **QUESTION: What institutions account for the variation in debt outcomes across countries in the Euro-area?**

- Bover et al (2015) "The distribution of debt across EU countries: the role of household characteristics, institutions and credit conditions"

3.3 THE DISTRIBUTION OF DEBT ACROSS EU COUNTRIES (Bover et al., 2015)

Differerent institutions affect the distribution across age groups of the cost and the amount of debt differently

- **Longer repossession periods** increase the mortgage interest rates charged by young households.

  Riskier-than-average borrowers (as a group)

- **Longer repossessions** lead to lower incidence of secured debt among those groups.

  Intuition: a drop in the supply of credit increases costs and diminishes debt granted to vulnerable groups (Chatterjee et al, 2007)

- **Prediction**: As repossession periods get lengthy, young households should pay **higher** rates, be **less likely to borrow** and **borrow less**
  - *Relative to prime-age households*

TESTABLE HYPOTHESIS: <u>Negative</u> cross-country correlation between the relative interest rate paid by youths and their chances to obtain debt.

If the length of repossession periods plays a role.

3.3 THE DISTRIBUTION OF DEBT ACROSS EU COUNTRIES Bover et al, 2015

1. **Other institutions predict opposite patterns**
   - A **higher mortgage tax relief** increases the incidence of secured debt among young households

     Increases the return to housing -relative to other investments.

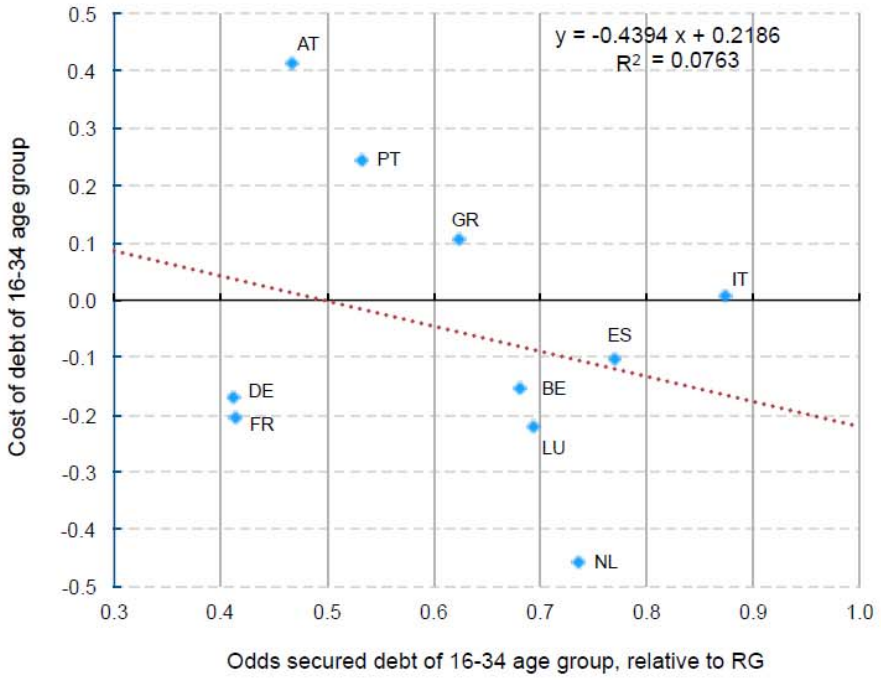
     Profitable to benefit from the excess return early -Gervais (2002)
   - Tax reliefs may be passed onto **higher mortgage rates**

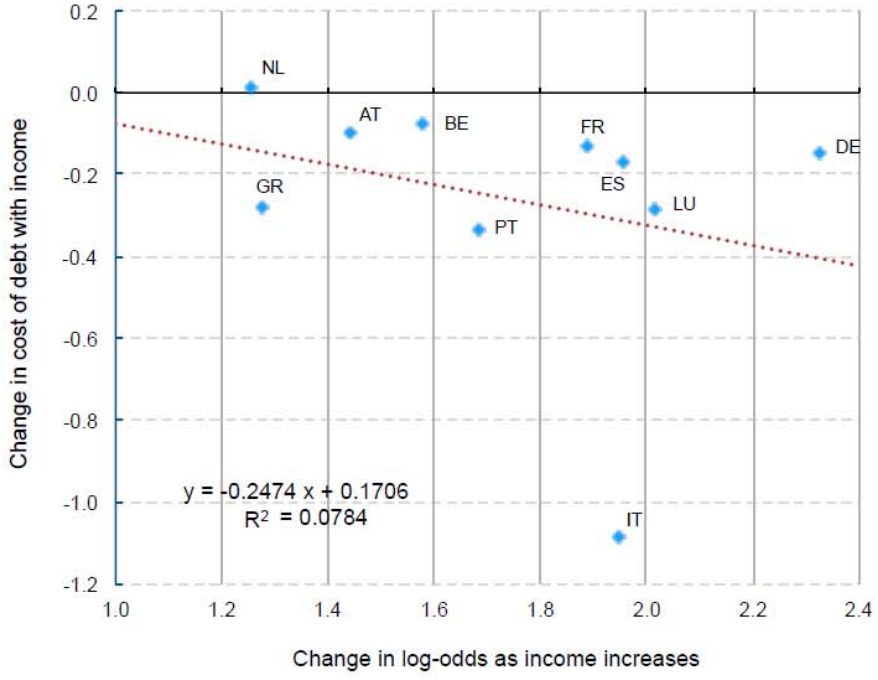
     Devereaux and Langot (2003)
   - **Prediction**: As tax relief increases, young households should pay **higher** rates, be **more likely to borrow** and **borrow more**
     - *Relative to prime-age households*

2. **FINDING: The correlation between the relative cost paid by youths and the relative odds of borrowing secured is negative**
   - Tentative: the length of repossession period may account for the cross country distribution of debt outcomes
   - In Bover et al (2015) use formal methods to establish the point.

3.3 THE DISTRIBUTION OF DEBT ACROSS EU COUNTRIES: THE ROLE OF… (2015)

Figure 4: RELATIVE CHANCES OF HOLDING DEBT VS RELATIVE COST





4. CONCLUSIONS

- **We have reviewed the main challenges faced in conducting the Spanish Survey of Household Finances:**
  - The design of the sample
  - Panel component
  - Consistency with aggregate statistics

- **Description of possible policy uses of the Survey of Household Finances**
  - Sensitivity of expenditure to household income (Annual Report 2014)
  - Household's financial fragility (IMF Financial Stability Report)

- **Description of the Household Finance and Consumption Survey**
  - Description and challenges
  - The distribution of debt across EU countries.

THANKS FOR YOUR ATTENTION!