HOUSEHOLD INDEBTEDNESS IN THE SPANISH SURVEY OF HOUSEHOLD FINANCES AND THE CENTRAL CREDIT REGISTER:
A COMPARATIVE ANALYSIS

Olympia Bover, Laura Crespo and Sandra García-Uribe

Presenter: Laura Crespo
Survey of Household Finances Unit
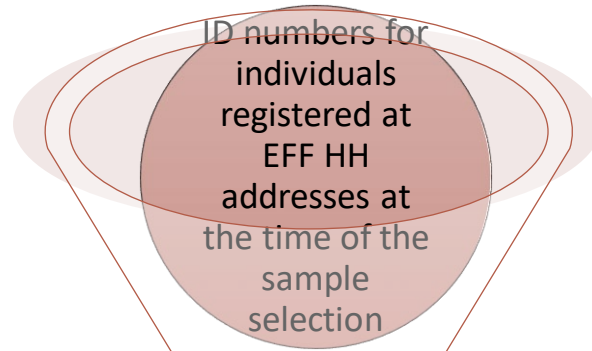Microeconomic Studies Division

2022 FCSM CONFERENCE

27th October 2022

- **The goal of this study is to evaluate the quality of household indebtedness information provided by the Spanish Survey of Household Finances (EFF) at the micro level.**

- **The EFF collects detailed information on household wealth, debt, income and expenditure for a representative sample of households from 2002, every three years.**

- **To compare with, we use admin data from the Central Credit Register (CIR) of Spain which registers monthly information on all outstanding debts (over 6,000 euros) that individuals have with financial institutions.**

- **This exercise is useful to:**
  - Document whether there exist important differences between the debt data provided by each source at the household level (micro approach).
  - Learn about potential bias in how households report information on their debts in the survey.
  - Learn about which household characteristics are associated to those biases or discrepancies.

OUTLINE

1. **Introduction**

2. **Linkage and Comparability methodology**

3. **Indebtedness measures**

4. **Empirical analysis of extensive and intensive margin discrepancies:**

5. **Conclusions**

- **We build a household-interview date level database with comparable measures of indebtedness across EFF and CIR. We pool data from EFF 2002, 2005, 2008 and 2011 and CIR 2002-2011.**

- **To link both databases at the household level, we use a blind linkage based on:**
  - Scrambled ID numbers for the individuals registered at the interviewed household addresses according to the population municipality registers (provided by Spain-Statistics).
  - Scrambled ID numbers from the Central Credit Register.

- **Using the scrambled (based on the same algorithm) numbers from both sources and the date of the interview we merge the individual debt data from CIR and the households who participated in the survey.**

Spain-Statistics sends

Financial institutions send to CIR

ID numbers for individuals registered at EFF HH addresses at the time of the sample selection

ID codes for people having risks at financial institutions

BdE receives: Scrambled numbers for people registered at the EFF participant addresses
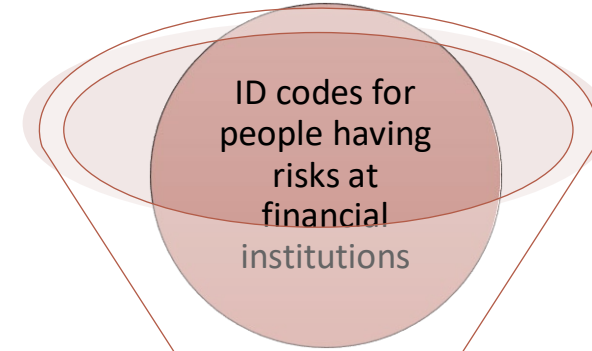
CIR contains: Scrambled numbers of risk holders at financial institutions.

MERGE BY SCRAMBLED NUMBERS AND DATE

THE BLIND LINKAGE PROCEDURE

- **This linkage is not free of problems: for some households we find a discrepancy between the number of household members reported by the survey and the registered inhabitants (for which we have the ID numbers).**

- **Given this:**
    - We quantify the relative importance of these **discrepancies** for each wave.
    - We compare indebtedness measures from EFF and CIR for a **comparable sample** of households with no discrepancies between HH members and registered inhabitants.
    - We perform our **empirical analysis using this sample**.

- **Different sources of discrepancies:**

1. **For some regions (Navarre and Basque Country) there is no available municipal register data for the years 2002 and 2005:**
   - LINKABLE HH: 21,396 / 23,415 → adjust sample weights.

2. **Municipality registers do not always have updated and exact register of people living at each particular address.**

3. **The definition of a household: the EFF measures the number of members belonging to the household, which does not need to be equal to the number of people registered/living at a particular address:**
   - E.g. there can be more than one household registered or living at an address and the survey only interviews one per address.

4. **The number of inhabitants according to the register, even if coinciding at the first interview date with household members, can differ in succesive survey waves due to changes in household composition across time.**

Household members reported in the EFF minus registered inhabitants

Distribution of cases (all waves together):

(percentage points)	Total	Panel	Refreshment
At least four more	1.3	1.3	1.3
Three more	3.4	4.1	2.9
Two more	9.4	10.8	8.3
One more	13.9	14.3	13.7
No difference	42.8	36.0	48.0
One less	16.7	18.5	15.2
Two less	7.5	9.5	6.0
Three less	2.9	3.4	2.5
At least four less	2.1	2.1	2.0
Number of observations	21,396	9,319	12,077

- **To control for the discrepancies between household members and registered inhabitants, we analyze the subset of households with no discrepancy between the number of adult household members and registered inhabitants.**

- This is a **comparable sample** and covers **50.75%** of the original sample of linkable households.

- **From the EFF we use all the following debts that households report to hold with all type of institutions (except for debts held with non-financial corporations and with relative and friends).**

  - Mortgage loan — Other collateralised loans — Personal loan — Credit line — Instalment loan — Current account overdrafts — Advances — Reverse mortgage — Credit card debt

- **From the CIR side, five variables are used to define each risk:** type, currency, maturity, guarantee, and default status.

- **Based on these variables, we select debts classified as "finance credit or credit transferred to third parties" and debts associated to "renting and leasing" since they are the comparable ones to those in the EFF.**

- **To control for the presence of differences between HH members and inhabitants we provide the proportions of indebted HH for the comparable, refreshment and full samples separately:**

	Total	Comparable	Refreshment
EFF	37.0	36.3	37.0
	(0.33)	(0.46)	(0.44)
CIR	49.7	41.8	47.9
	(0.34)	(0.47)	(0.45)
Test statistic	-36.0	-13.3	-18.1

- **The difference between EFF and CIR is 5.5 pp in the "comparable" sample, much lower than the difference observed in the "total" sample of linkable households (12.7 pp).**
  - Proportions in the "total" sample are affected by members discrepancies with the inhabitants register.

- **Sample proportion of indebted households by type of debt:**

	Mortgage debt			Other debt		
	Total	Comparable	Refreshment	Total	Comparable	Refreshment
EFF	25.2	25.8	25.6	19.5	18.5	18.9
	(0.30)	(0.42)	(0.40)	(0.27)	(0.37)	(0.36)
CIR	37.0	29.9	34.8	29.1	23.5	27.6
	(0.33)	(0.44)	(0.43)	(0.31)	(0.41)	(0.41)
Test statistic	-37.6	-11.9	-19.4	-27.0	-11.2	-14.6

Note: In CIR data, "mortgage debt" is defined as financial credit that is fully collateralised and with a maturity of over five years.

- **In the comparable sample, the difference between CIR and EFF is 4.1 pp for mortgage debts and 5 pp for other-debt.**

- **We analyze household indebtedness differences between EFF and CIR by demographic and debt characteristics.**

- **These differences are of two types:**

  1. **Households indebted in CIR but not in EFF.**
  2. **Households indebted in EFF but not in CIR.**

- **For each type, we estimate logit average marginal effects (AME) of a list of demographic and debt characteristics on the probability of discrepancy.**

Type of debts (base = only mortgages)	Comparable
Mortgages and other	-0,05***
	(0.02)
Only other debts	0,06**
	(0.02)
Solidarity debt w non-member	0,08***
	(0.03)
Demographic characteristics	
Education of reference person	
Higher secondary education	-0,01
	(0.02)
University education	-0,01
	(0.02)

Age of the reference person	Comparable
Between 35 and 44 years old	0,02
	(0.02)
Between 45 and 54 years old	0,08***
	(0.03)
Between 55 and 64 years old	0,16***
	(0.03)
Between 65 and 74 years old	0,33***
	(0.04)
Over 75 years old	0,40***
	(0.07)
Gender of the reference person	
Women	0,05***
	(0.02)

The **omission of indebtedness status in the survey** is:

- **Less likely when households have an important source of debt (mortgages) and also when they have various different types of debts, maybe because they are more aware of their debts.**

- **More likely when households share a debt with non-hh members.**

- **More likely for elder households.**

- **More likely when the reference person is a woman.**

	Comparable
Percentile of the wealth distribution	
Between 20 and 40	-0,23***
	(0.05)
Between 40 and 60	-0,25***
	(0.04)
Between 60 and 80	-0,24***
	(0.05)
Between 80 and 90	-0,21***
	(0.05)
Between 90 and 100	-0,25***
	(0.05)
Percentile of the income distribution	
Between 20 and 40	-0,07
	(0.04)
Between 40 and 60	-0,13***
	(0.04)
Between 60 and 80	-0,13***
	(0.05)
Between 80 and 90	-0,12**
	(0.05)
Between 90 and 100	-0,10**
	(0.05)

The omission of indebtedness status in the survey is:

- **More likely among the poorest HHs.**
- **Less likely for higher income HHs.**

	Comparable
Number of adults	
Two	-0,01
	(0.02)
Three	0,05
	(0.03)
Four or more	0,01
	(0.03)
At least one self-employed	0,01
	(0.02)
Wave (baseline = wave 2002)	
2005	-0,08***
	(0.02)
2008	-0,06**
	(0.03)
2011	-0,09***
	(0.02)
Comparable	
Total observations	4,539
Dependent variable mean	0.20

The omission of indebtedness status in the survey is:

- **More likely for households in EFF 2002 than subsequent waves (learning effect).**

	Comparable
Type of debts (base = only mortgages)	
Mortgages and other	-0,15***
	(0.02)
Only other debts	0,09***
	(0.03)
Debts under 6000 euros	0,27***
	(0.03)

	Comparable
Gender of the reference person	
Women	0,05***
	(0.02)
Number of adults	
Two	-0,05**
	(0.03)
Three	-0,10***
	(0.03)
Four or more	-0,11***
	(0.03)
At least one self-employed	0,03
	(0.02)
Wave (baseline = wave 2002)	
2005	-0,09***
	(0.02)
2008	-0,07***
	(0.02)
2011	-0,06**
	(0.02)
Total observations	3,936
Dependent variable mean	0.18

The presence of **debts in EFF which are not in CIR** is:

- **More likely for households with only non-mortgage debts.**
- **More likely for debts under six thousand euros.**
- **Less likely for larger households.**
- **More likely when reference person is a woman.**
- **More likely for households in EFF 2002 than subsequent waves (learning effect).**

We have also explored other factors which could affect the chances of discrepancy between CIR and EFF, conditional on demographic and debt factors:

- **Reference period**: No significant effect for the probability that the hh is indebted in CIR but not in EFF. 5.3 pp larger probability of an indebted hh in EFF but not in CIR if hh interviewed the last week and 4.7 pp larger if interviewed the third week wrt to the first week of the month.

- **Time restrictions** to answer the survey: No significant effects for the reference person working more than 45 hours a week or for the presence of children under 16 years old in the HH.

- **Other household composition** effects: siblings that no longer belong to the household or households where a sibling is more than 45 years are not significant characteristics.

- Robustness check of the **kind of institution** providing the loan has been also implemented. Results remained unchanged.

INTENSIVE MARGIN DISCREPANCIES

- **We also look into the differences between the amounts of outstanding debts for indebted households reported in both sources.**

- **We present results in relative terms (differences relative to outstanding debt according to CIR).**

(in percentage points)	10% pctile	25% pctile	Median	75% pctile	90% pctile
All types of debts					
Comparable sample	-75.8	-36.7	-3.8	9.4	83.7
Mortgage debts					
Comparable sample	-56.3	-18.4	-0.5	11.3	94.6
Other debts					
Comparable sample	-85.6	-54.9	-10.2	12.1	95.1

- **Negative values** stand for **larger outstanding volumes in CIR than in EFF.**
- **Positive values** stand for **lower outstanding volumes in CIR than in EFF.**

- **We see that the differences are larger in relative terms for non-mortgage debt.**

- We provide a micro-level comparison for debt data between the Spanish Survey of Household Finances and the CIR register information.

- We document the presence of linkage problems from the use of population municipality registers to link both sources. To avoid these problems, we construct a comparable sample of HHs between the municipality register and the survey data.

- Using the comparable sample, we observe that the difference in the proportion of indebted HHs is only of 5.5 pp, which is even smaller for mortgage debts.

- This shows that the EFF data provide a good measurement of the proportion of indebted HH and also, to a large extent, of the outstanding amounts for indebted HH.

- HHs' characteristics which are more clearly associated to discrepancies between both souces are the wealth and income level of the household, the age of the reference peson, being a woman, debt type, and the survey edition.

More details can be found at:

https://www.bde.es/f/webbde/SES/Secciones/Publicaciones/PublicacionesSeriadas/DocumentosOcasionales/22/Files/do2205e.pdf

THANK YOU FOR YOUR ATTENTION