Working Party on Financial Statistics

Household debt sustainability. A microeconomic approach

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Household debt sustainability. A microeconomic approach

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DG ECONOMICS, STATISTICS AND RESEARCH
1. Introduction

- Usually, sectoral debt sustainability is assessed
  - on the basis of aggregate data
  - by comparing debt to income ratios with their historical values or with the level in other countries

- This traditional approach might be valid for very specific sectors – such as the public sector –

- However, for the household sector this approach faces important limitations to extract conclusions regarding debt sustainability
  - The household sector is compound by very heterogeneous agents with significant differences in their financial position
  - The larger the dispersion, the less useful are aggregate indicators to identify potential vulnerabilities
1. Introduction (II)

- Micro data becomes essential to make a proper analysis of potential vulnerabilities in the household sector. It is relevant to know
  - how indebtedness and debt burden indicators are distributed across income, age and wealth groups,
  - the proportion of households with potentially high indebtedness and debt burden
  - It is relevant to look at indicators other than debt levels, as well as to analyse the sensitivity of household financial position to adverse shocks
2. Heterogeneity in household indebtedness: share of indebted households

- Implications of a given aggregate level of aggregate indebtedness are very different depending on whether this debt is shared amongst a large part of the population or concentrated on a very limited proportion of families.

![Graph showing the proportion of individuals holding debt with respect to population over 18 years in Spain, and the debt/GDI aggregate ratio in Spain.](image)

- Source: CIR, EFF 2008 (for Spain), IBF 2008 (for Italy), SCF 2007 (for the US) and Banco de España.
2. Heterogeneity in household indebtedness: dispersion in indebtedness and debt burden amongst indebted households

- Also amongst indebted households there exists significant dispersion in financial position

![Debt Burden Distribution](image1)

*DEBT BURDEN DISTRIBUTION. SPAIN (a)*

![Debt to Income Distribution](image2)

*DEBT TO INCOME DISTRIBUTION. SPAIN (a)*

a. Debt burden is the ratio of debt payments (interest plus principal repayment over gross disposable income).

Source: EFF 2008

- Dispersion in financial position indicators tends to increase in recessions
3. Other relevant indicators relevant to identify potential vulnerabilities in the household sector

- Debt burden is the main indicator to identify potential debt repayment problems in the short run

- Apart from looking at the debt burden distribution, it is also relevant to look at other ratios such as the debt to income ratio, as well as their distribution across income and age groups

  - from the point of view of debt sustainability, it might be better that indebtedness is shifted towards younger households

  - from the point of view of assessing the vulnerability to adverse shocks, it will be relevant to make a distribution analysis across income groups. For the same level of financial pressure indicators, low-income households are likely to have lower capacity of adjustment to face adverse shocks

- The implications of a given debt to income ratio are different depending on whether indebted households hold assets or not
3. Other relevant indicators relevant to identify potential vulnerabilities in the household sector (II)

DEBT TO INCOME RATIO OF INDEBTED HOUSEHOLDS

ACCORDING TO INCOME PERCENTILE

ACCORDING TO AGE OF HOUSEHOLD HEAD

Sources: EFF 2002 (Spain), SCF 2001 (US), SHIW 2002 (Italy), BHPS 2000 (UK)
3. Other relevant indicators relevant to identify potential vulnerabilities in the household sector (II)

DEBT TO GROSS WEALTH RATIO OF INDEBTED HOUSEHOLDS

ACCORDING TO INCOME PERCENTILE
- Spain
- Italy (a)
- United States
- United Kingdom (b)

ACCORDING TO AGE OF HOUSEHOLD HEAD
- Spain
- Italy (a)
- United States
- United Kingdom (a)

(a) The wealth figures for Italy do not include pension schemes; Wealth figures for UK do not include pension schemes or values of businesses.

Sources: EFF 2002 (Spain), SCF 2001 (US), SHIW 2002 (Italy), BHPS 2000 (UK)
3. Other relevant indicators relevant to identify potential vulnerabilities in the household sector (III)

- Housing investment translates in the case of the main residence in lower renting costs
  - Should be taken into account when comparing financial pressure faced by households in countries with very different proportions of owners and renters

![Percentage of Households Owning Their Main Residence](chart.png)

Sources: European Central Bank, EUROSTAT y U.S. Census Bureau

Data refer to year 2009, except for Germany for which data refer to year 2006
3. Other relevant indicators relevant to identify potential vulnerabilities in the household sector (III)

- Apart from looking at the joint distribution of debt and assets, it is important to analyse wealth diversification and its liquidity.
  - A large concentration in a specific asset (usually housing) implies a larger sensitivity to its price
  - In the case of housing wealth, lower ability to use it to face unexpected shocks, since it is less liquid than other assets (and in the case of the main residence covers, at the same time, accommodation needs)
4. Identifying financially vulnerable households

- The link between financial pressure and financial vulnerability is likely to be non-linear; useful to look at percentage of households showing financial ratios above certain thresholds. These thresholds should depend on household characteristics.

a. DB is the ratio of debt payments linked to the main residence over income.

b. P25, P50 and P75 stand for the 25th, 50th and 75th percentiles of the income distribution, respectively.

Source: ECHP
5. Analyzing the sensitivity of household financial position to unexpected shocks

- Apart from analysing the percentage of household that might be currently under distress, it is also relevant to quantify the percentage of families likely to surpass thresholds in the event of adverse shocks. Specifically:
  - Income risk (e.g: unemployment rise)
  - Interest rate increase
  - Reduction in asset prices

- With respect to income risk,
  - look at income diversification (number of people employed in the household)
  - Probability of income reduction. Simulate the impact of an increase in unemployment on financial pressure on the basis of historical transition probabilities to unemployment, as a function of individual characteristics such as age, gender, occupation, type of contract…
5. Analyzing the sensitivity of household financial position to unexpected shocks (II)

- With respect to interest rate risk,
  - Simulate the impact on household financial pressure of an increase in financing costs, taking in consideration the individual characteristics of the loans granted (volume of debt, residual maturity, interest rate and the nature of the loan agreement –fixed or variable).
  - Impact on the percentage of households likely to be under stress

![Graph showing the proportion of households with debt burden above 40% of their gross income.](image)

Source: EFF (2005) and own calculations.
Conclusions

- **Micro data** are essential to assess household debt vulnerability. The large heterogeneity in household financial position implies that aggregate indicators are not valid for this analysis.

- The analysis of potential debt vulnerabilities should be based **not only on debt indicators** but should be complemented. In particular, it will be relevant to look at wealth indicators.

- The **analysis** of household financial **vulnerability** should place special emphasis on the **upper part of the distribution of financial pressure indicators**, and, specifically, on the proportion of households for which these indicators surpass certain **thresholds**. These thresholds should be **dependent on household characteristics**.

- **Simulation exercises** can be useful to identify **potential vulnerabilities**.

- As a result, **household survey data becomes essential to make a proper assessment of potential vulnerabilities** in the household sector. The forthcoming survey at euro area level will be very useful in this respect.