Improving survey information on household debt using granular credit databases*

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The Survey on Household Income and Wealth (SHIW) of the Bank of Italy is the primary source of information for computing distributional indicators on the debt held by households and on the characteristics of the debtors. SHIW-based estimates, however, are affected by non-sampling errors inevitably associated to wealth surveys. In this work we use information from granular credit registers to improve SHIW-based debt estimates and assess for which households' debt estimates are more likely to be affected by measurement errors. The results show that integrating the SHIW with such information results in an increase of the estimates of both the number of indebted households and the amount of debt. We also find that households belonging to the wealthiest quintiles of the population, residing in Southern Italy, and for which the reference person's financial education is low are more likely to not report their mortgages in surveys.

Introduction

Distributional information on the debt held by households and on the characteristics of debtors is fundamental for creating and updating policy-relevant indicators and models. The primary source for this information in Italy is the Survey on Household Income and Wealth (SHIW), held periodically by the Bank of Italy (see for example Baffigi et al, 2016, and Gambacorta and Porreca, 2022). The survey comprises about 7,000 households distributed over approximately 300 Italian municipalities, and contains information on households' demographic characteristics and their consumption, income, wealth, and liabilities.

The SHIW estimates are affected by several types of non-sampling errors (D'Alessio and Faiella, 2002; Biancotti et al, 2008; Neri and Ranalli, 2012), the most severe of which are: i) unit nonresponse (caused by some households refusing to participate in the survey); ii) measurement error, which includes non-reporting (caused by the fact that some participating households avoid reporting information) and misreporting (caused by the fact that some households fail to report the correct information).

We use granular records present in the Italian Credit Register (CR) and a database on consumer credit belonging to Consorzio per la Tutela del Credito (CTC) to mitigate these errors and recover more accurate estimates of Italian households' debt participation and of the total amount of debt they hold. Focusing on the 2020 edition of the SHIW, our new estimates show a significant increase in both the share of households participating in the credit market and the amount of debt they hold with respect to the unadjusted SHIW estimates.

Methodology

We use two different procedures to correct loans for property purchases and consumer credit, depending on the characteristics of the related credit registers.

To correct loan survey data on property purchases we use the information available in CR, which contains all loans above 30,000 euros made by Italian intermediaries to households and firms. The information available in CR is unencrypted, allowing us to match CR and SHIW data at an individual level. Due to the presence of the threshold, we consider the SHIW data to be correct if the reported value of the loan is under 30,000 euros and does not appear in CR; otherwise, we input the CR amount. The matching corrects for both non-reporting errors (a debt is found in CR but the household does not report it in SHIW) and for misreporting errors (a different amount is found in CR for a debt reported in SHIW by the household).

The information on consumer credit available in CTC is instead encrypted and accounts for only about 61 percent of all consumer credit granted in Italy. We use this dataset to obtain a lower bound of the number of households with consumer credit and impute consumer credit to SHIW households in a model based way. We adopt a three-step estimation process:

1. estimation of the share of households participating in consumer credit using information derived from CTC;
2. development of a model that associates to each household, based on its characteristics, the probability of resorting to consumer credit. The model is used to assign consumer credit to households that do not declare it but have a high estimated probability of having it, until the overall participation share is equal to the one estimated in the previous point;
3. assignment to each "new" household participating in consumer credit of the amount borrowed, based on the amount held in SHIW by households with similar characteristics.

The final result of the process is an adjusted value of the consumer credit borrowed by each SHIW household that partially corrects for non-reporting errors.

Results

Figure 1 shows that the share of households with debt based on unadjusted SHIW data is 11 percent lower than the one obtained after the corrections (26.9 and 37.8 percent, respectively). The increase is mainly due to an underestimation of the share of households that own consumer credit, which increases from 14.3 to 31.7 percent, and to a lesser extent to an underestimation of the participation in the loans for property purchases, which increases from 15.2 to 20.3 percent.

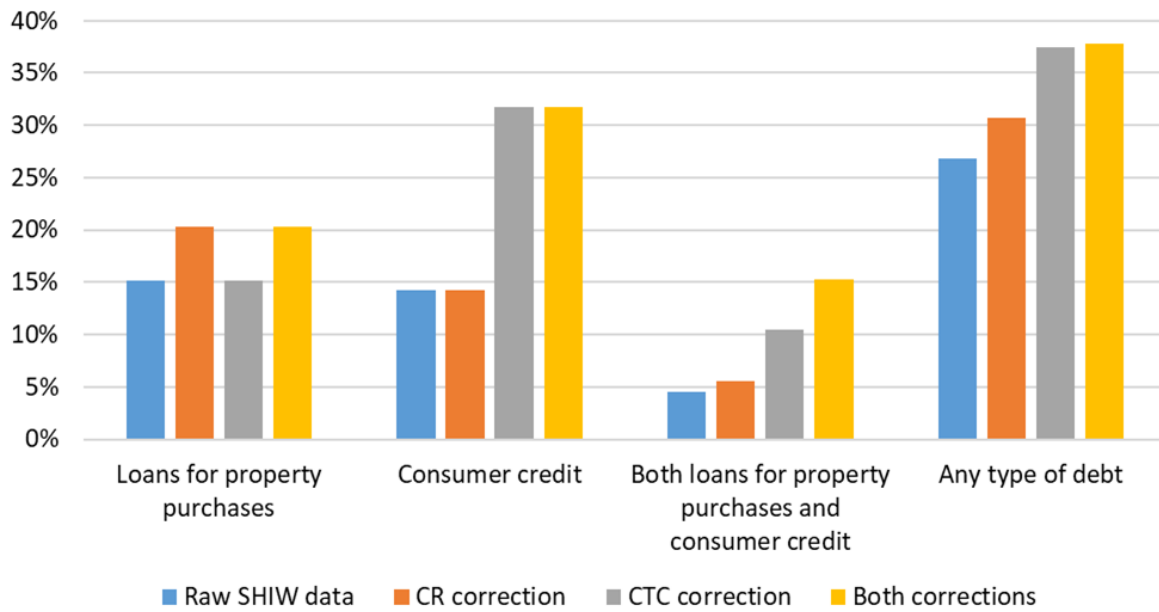**Figure 1: Share of households participating to the debt market**

Figure 2 shows the total amount of debt held by households. According to the new estimates, consumer credit increases from 27.6 to 65.1 billion, going from 21.9 to 51.6 percent of the official Financial Accounts macro data[1]. Part of the remaining gap is related to the inability to fully adjust misreporting and to the conservative choices made in the estimation of household participation to the consumer credit market. As to the loans for property purchases, the corrections increase the total debt from 428 to 661 billion (the estimate now exceeds the Financial Account data of 451 billion; the reason for this difference is connected to the one-time oversampling of indebted households in the 2020 SHIW survey, which led to an artificially high total debt in raw SHIW data).

Figure 2: Share of households participating to the debt market
(billions of euro)

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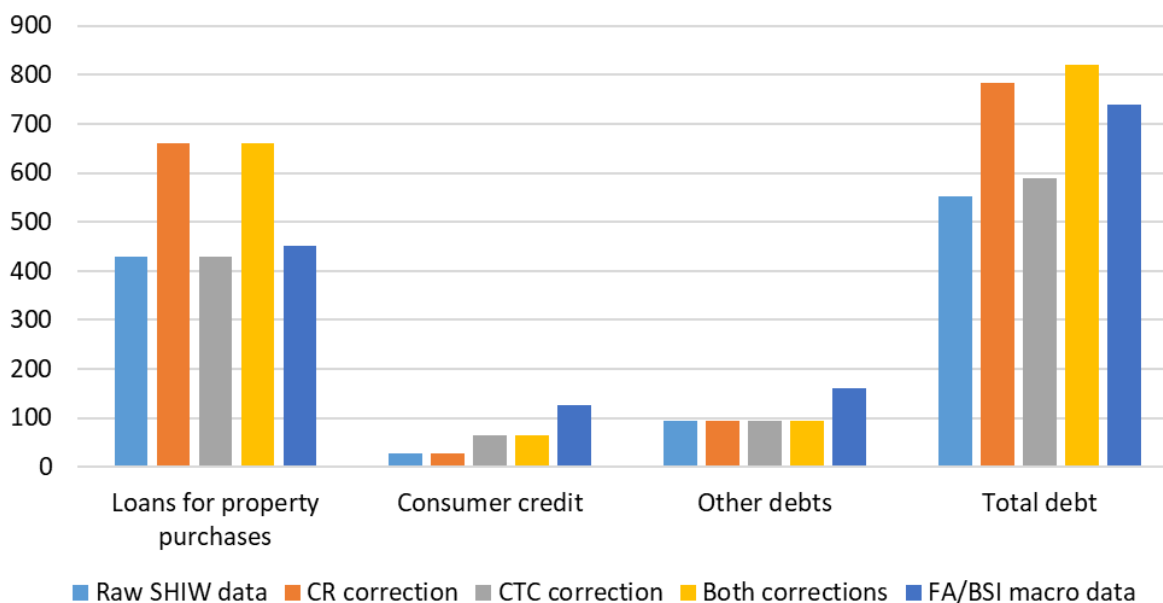
[1] Since the Financial Accounts do not distinguish household debts in consumer credit, loans for property purchases and other loans, the amount is obtained by re-proportioning the total debt obtained from the Financial Accounts with the relative shares obtained from the MFI balance sheet statistics.

Characteristics of non-reporting households

Finally, we address the issue of whether the non-reporting of debt, i.e. households which have debts but do not declare them in SHIW, is related to specific characteristics of the household. We focus on loans for property purchases, for which it is possible to make a matching at the household level between CR and SHIW data.

Table 1 shows the results of a logistic regression on the subset of households that have a loan for property purchase in CR, where the dependent variable is the presence of a loan for property purchase in SHIW and the covariates are several characteristics of the household. The probability of non-reporting a loan for a property purchase is significantly higher for households belonging to the wealthiest quintiles of the population, residing in the South and Islands, and for which the reference person has low financial education.

Table 1: Logistic model of the probability of non-reporting a loan for property purchase

Variable	Coeff.	Std. Err.	p-value	
Constant	-0.42	0.74	0.572	
35 <= Age <= 44	-0.57	0.32	0.073	*
45 <= Age <= 54	-0.33	0.31	0.287	
55 <= Age <= 64	0.18	0.31	0.560	
Age >= 65	0.74	0.36	0.040	**
Middle school	-0.24	0.54	0.660	
High school	-0.53	0.54	0.324	
University degree	-0.65	0.54	0.226	
Self-employed	0.57	0.16	0.000	***
Not employed	0.34	0.23	0.146	
2nd wealth quintile	0.57	0.26	0.031	**
3rd wealth quintile	1.08	0.26	0.000	***
4th wealth quintile	1.47	0.25	0.000	***
5th wealth quintile	1.10	0.26	0.000	***
5,000<=Municipality size<=20,000	-0.60	0.47	0.202	
20,000<=Municipality size<=40,000	0.06	0.41	0.877	
40,000<=Municipality size<=500,000	0.11	0.41	0.792	
Municipality size>=500,000	-0.21	0.41	0.608	
Center	0.25	0.16	0.123	
South and Islands	0.88	0.16	0.000	***
Proxy respondent	0.16	0.13	0.238	
Good financial education	-1.08	0.16	0.000	***

Observations: 1220. Pseudo-R² (McFadden) = 0.144. The individual characteristics in the table refer to the household head, identified as the primary income earner.

It is important to emphasize that the factors that increase the probability of non-reporting loans for property purchases (which we can estimate using CR data) are not necessarily the same that characterize the non-reporting of other types of loans such as low-amount consumer credit, for which other factors, such as for example the fact that the debtor is not the person responding to the survey (since the latter might not be aware of small debts held by other households members), are likely to be way more important.

Conclusions

We use the information available in two granular credit databases available to the Bank of Italy, namely the Italian Credit Register and the CTC consumer credit database, to mitigate non-sampling errors of survey debt estimates.

According to the new estimates, debt participation increases significantly and the total amount of debt held is larger, showing that the survey measurement error on debt is non-negligible. Moreover, households belonging to the wealthiest quintiles of the population, residing in the South and Islands, and for which the reference person has a low degree of financial education are more likely not to report a loan for their property purchase.

The new estimates can be used, among other things, to obtain more accurate policy-relevant indicators (such as financial vulnerability, inequality, and characteristics of debtors) and as input for constructing the Distributional Wealth Accounts (Ahnert et al, 2020; ECB, 2020; Engel et al, 2022; Neri et al, 2024). ■

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