Introduction

1.1 Topic background & motivation

Eurostat (2020) documents a sharp decline in household consumption in Italy and across Europe following the 2020 COVID-19 shock, driven mainly by heightened uncertainty and precautionary saving rather than post-pandemic price increases. Consistent with the SHIW 2020 focus on Italy, the Bank of Italy similarly reports a large consumption contraction alongside increased household saving during the pandemic (Bank of Italy, 2023). Consumption is central to macroeconomic performance and household welfare, and it responds quickly to economic shocks, particularly among liquidity-constrained households. Beyond income, debt structure and repayment burdens can directly constrain disposable resources and consumption, especially when debt is variable-rate or short-maturity.

1.2 Literature review

Existing studies show that household consumption is shaped not only by income but also by debt, leverage, and liquidity constraints. However, much of the literature relies on macro-level data, limiting its ability to examine within-country heterogeneity. Using micro-level data from the 2020 Survey on Household Income and Wealth (SHIW), this study focuses on household debt structure and analyses consumption heterogeneity across income, asset, and homeownership groups to provide a more granular view of how balance sheets affect consumption behaviour.

1.3 Research question & hypotheses

The central research question of this report is how household debt structure affects household consumption and whether this effect varies across asset-holding groups. Household debt structure is defined by the presence and size of debt and the associated repayment burden, capturing how debt servicing obligations constrain disposable resources and liquidity beyond income alone. Using Italian micro-level data from the 2020 Survey on Household Income and Wealth (SHIW), debt structure is measured based on households' debt holding status and repayment burden intensity.

Hypothesis 1 (H1: Baseline hypothesis).
Households with higher debt burdens are expected to exhibit lower levels of consumption, ceteris paribus, as debt servicing reduces disposable income and constrains consumption capacity, particularly during adverse economic shocks.

Hypothesis 2 (H2: Conditional hypothesis).
After controlling for income, asset holdings, and demographic characteristics, the negative

relationship between debt structure and consumption is expected to persist, indicating an effect beyond income-related differences.

Hypothesis 3 (H3: Asset-based heterogeneity hypothesis).
The negative impact of debt structure on consumption is expected to be stronger among households with lower asset holdings or without homeownership, as weaker asset buffers limit their ability to smooth consumption when facing debt obligations.

2.1 Dataset description

This study uses data from the 2020 wave of the Survey on Household Income and Wealth (SHIW), conducted by the Bank of Italy. SHIW is a nationally representative micro-level survey that provides detailed information on Italian households' income, consumption, assets, liabilities, and key socio-demographic characteristics. The 2020 wave includes 6,239 households; however, the effective estimation sample is smaller due to missing values and variable construction, such as restricting log income to households with positive income.

In particular, the debt-service measure (RATADEB) is observed for only 1,440 households in the working file, implying a substantial reduction in sample size when analyses are restricted to households with non-missing debt information. The usable sample may shrink further once missing values in consumption, income, and control variables are jointly accounted for, which motivates careful reporting of sample selection and missingness throughout the empirical analysis.

2.2 Consumption variable

The main consumption variable is total household consumption C, drawn from the RISFAM20 dataset. Total consumption is defined as the sum of durable and non-durable consumption and is measured consistently across households in the 2020 cross-section, ensuring comparability. As a household-level variable, $C$is directly suitable for household-level analysis.

To allow fair comparisons across households of different sizes, consumption is equivalised using the square-root scale. Given the highly right-skewed distribution of consumption in 2020 (skewness = 5.39; kurtosis = 55.76), a logarithmic transformation is applied. Although equivalised consumption remains skewed, taking logs substantially reduces skewness and kurtosis, yielding a more stable distribution for empirical analysis. Accordingly, the main dependent variable is log equivalised consumption,

$$\ln(c_{eq}) = \ln\left(\frac{C}{\sqrt{ncomp}}\right).$$

2.3 Debt structure variable

At this stage, household debt structure is proxied by the **Debt-to-Income Ratio (DTI)**, defined as

$$DTI = \frac{PF}{Y},$$

where PF denotes total household financial liabilities and Y represents net disposable income. This measure captures the burden of debt relative to income, with higher values indicating greater repayment pressure and lower resilience to financial shocks. By scaling debt by income, the DTI helps distinguish households facing genuinely high debt burdens from those holding large debts but also earning high incomes.

Despite its usefulness, the DTI has several limitations. It does not account for liquid asset holdings that may ease debt servicing, nor does it distinguish between different debt types or maturity structures. In addition, because it is based on income observed at a single point in time, it does not capture income volatility or temporary income fluctuations.

2.4 Asset-based heterogeneity definition

In this study, household assets are classified into **low-risk** and **high-risk** categories based on their risk characteristics, following standard practice in the household finance literature (Campbell, 2006; HFCS, 2016). Low-risk assets include liquid assets with a low probability of capital loss, such as bank deposits and government securities. High-risk assets are exposed to market price fluctuations and include assets with higher volatility, such as equities, investment funds, and corporate bonds.

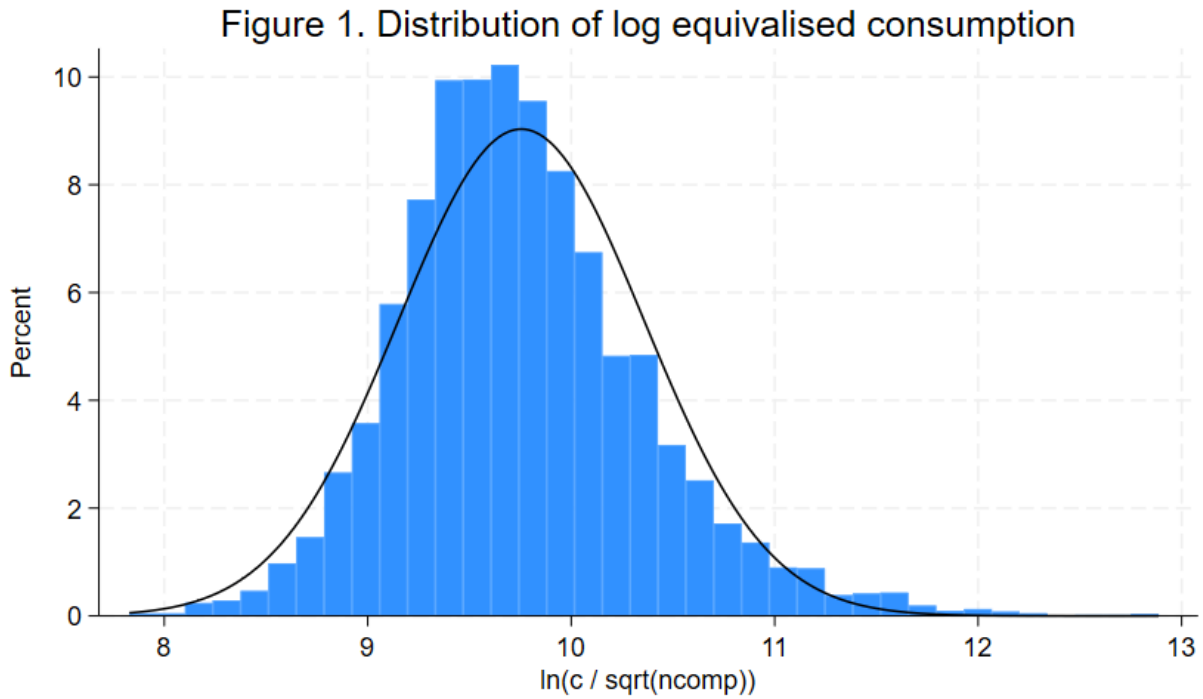
2.5 Descriptive statistics & figures

Table 1. Descriptive statistics of household consumption and size

Variable	N	Mean	SD	Median
Total consumption (c)	6239	32028.48	30557.84	23600
Equivalised consumption (c_eq)	6239	21314.60	19502.79	16281.28
Log equivalised consumption (ln_c_eq)	6239	9.755	.6039518	9.697771
Household size (ncomp)	6239	2.44	1.209279	2

Notes: $c$is total household consumption (euros). $c_{eq} = c/\sqrt{ncomp}$. $ln_{c_e}q = l\,n(c_{eq})$. N=6,239 households.

Here, $c$denotes total household consumption, including both durable and non-durable goods. Consumption is equivalised by household size using the square-root scale, $c_{eq} = c/\sqrt{ncomp}$, where $ncomp$is the number of household members. The main outcome variable is the natural logarithm of equivalised consumption, $\ln(c_{eq})$, which is used to reduce right skewness and the influence of extreme values.



C is total household consumption and ncomp is household size.

Figure 1 presents the distribution of log equivalised consumption. Compared with raw consumption, the distribution is substantially more symmetric, indicating that the log transformation effectively mitigates right skewness. Accordingly, log equivalised consumption is used as the primary consumption measure in the subsequent analysis.

3.1 Differences in means

To examine differences in consumption levels by asset composition, households are divided into two groups. High-risk asset holders are defined as households that hold at least one financial asset exposed to market risk—such as equities or mutual funds—operationalised as $af3 > 0$. Non-holders are households that do not hold any high-risk assets ($af3 = 0$). This binary classification provides a transparent and intuitive measure of households' exposure to risky asset portfolios.

Table 2. Mean differences in log equivalised consumption by asset group

Asset group	N	Mean	SD
No high-risk assets	4580	9.596	.525
High-risk asset holders	1659	10.193	.592
Difference (High − No)		.596	

Notes: Mean refers to ln(c/sqrt(ncomp)). Observations with missing asset information are excluded. Difference reports High − No. Welch two-sample t-test with unequal variances. Significance: *** (p = 0.0000).

Based on the t-test, the sample includes 5,768 households, fewer than the full sample due to missing values in the high-risk asset variable. High-risk asset holders exhibit significantly higher mean log equivalised consumption than non-holders ($p < 0.001$), with an implied consumption gap of about **73%**. As this comparison is purely descriptive, subsequent analysis employs multivariate regressions to control for income and other household characteristics.

3.2 Regression framework

To examine differences in consumption across asset groups (high-risk asset holders vs non-holders) while accounting for observable household characteristics, we estimate the following baseline regression:

$$ln\left(\frac{c_i}{\sqrt{ncomp_i}}\right) = \alpha + \beta\, HighRisk_i + \gamma ln(Y_i) + \mathbf{X}_i'\boldsymbol{\delta} + \varepsilon_i.$$

Coefficient of interest (β)

The coefficient β measures the conditional difference in average consumption between high-risk asset holders and non-holders. As the dependent variable is in logs, β can be interpreted as an approximate percentage difference in equivalised consumption. Income is controlled for to avoid overstating the asset-holding effect, since higher-income households both consume more and are more likely to hold high-risk assets. Additional controls account for key household characteristics that jointly affect consumption and asset participation, improving comparability across households.

Table A1. Pairwise correlations among main variables

	(1)					
	highrisk	ln_c_eq	lny	eta	qual	sex
highrisk	1					
ln_c_eq	0.436***	1				

lny	0.432***	0.714***	1			
eta	0.0134	0.0643***	-0.0706***	1		
qual	-0.00419	-0.0196	-0.182***	0.631***	1	
sex	-0.0990**	-0.106***	-0.213***	0.0456***	0.0704***	1

t statistics in parentheses * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

The coefficient β captures the conditional consumption difference between high-risk asset holders and non-holders. With a log-dependent variable, β is interpreted as an approximate percentage difference. Income and other household characteristics are controlled for to avoid overstating the asset-holding effect and to improve comparability across households.

3.3 Baseline regression results

To establish whether there is a raw association between high-risk asset holding ($highrisk$) and consumption ($\ln(c_{eq})$), we first estimate a specification without controls. This serves as a benchmark against which the results from specifications with controls can be compared.

$$\ln(c_{eq,i}) = \alpha + \beta\, highrisk_i + \varepsilon_i$$

Table 3. Baseline regression results (Column 1)

ln_c_eq	Coefficient	Robust std. err.	t	P>|t|	[95% conf.	interval]
highrisk	.5963927	.0164791	36.19	0.000	.5640881	.6286973
_cons	9.596178	.0077528	1237.77	0.000	9.58098	9.611376

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Dependent variable: log equivalised consumption (ln_c_eq),

The coefficient on high-risk asset holding ($highrisk$) is positive and highly statistically significant ($\beta = 0.596$, robust SE = 0.016, $p < 0.001$). The corresponding 95% confidence

interval excludes zero, indicating that the consumption difference between households with and without high-risk assets is precisely estimated.

3.4 Multivariate regression results

In Column 2, we control for household income (lny) to assess whether the consumption difference observed in Column 1 is driven by income heterogeneity rather than an independent effect of high-risk asset holding.

$$++\ln(c_{eq,i}) = \alpha + \beta\, highrisk_i + \gamma \ln(y_i) + \varepsilon_i$$

Table 3. Baseline regression results

	(1) ln_c_eq	(2) ln_c_eq
highrisk	0.596***	0.214***
	(0.0165)	(0.0183)
lny		0.433***
		(0.0179)
Constant	9.596***	5.130***
	(0.00775)	(0.186)
Observations	6239	6227
R-squared	0.190	0.530

Standard errors in parentheses * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, Notes: The dependent variable is log equivalised consumption (ln_c_eq). Robust standard errors are reported in parentheses. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively

In Column 2, the sample includes 6,227 households after excluding observations with missing or non-positive income. Controlling for income, high-risk asset holding remains positive and highly significant ($\beta = 0.214$, robust SE = 0.018, $p < 0.001$), implying that asset holders consume about **24%** more than non-holders conditional on income. Log income is also positive and significant ($\gamma = 0.433$, $p < 0.001$). The decline in the high-risk coefficient from 0.596 to 0.214 relative to Column 1 indicates that much of the raw consumption gap reflects income differences, though a significant residual association remains.

3.5 Heterogeneity analysis

This stage examines asset-based heterogeneity by estimating the regression separately for low- and high-buffer households to assess whether the $highrisk$coefficient differs across

groups. Low-buffer households are defined as those with financial assets (af) at or below the median, and high-buffer households as those above the median.

Table 4. Heterogeneity by financial buffers

	(1) Low buffer group	(2) High buffer group
	ln_c_eq	ln_c_eq
highrisk	0.279***	0.0943***
	(0.0447)	(0.0161)
lny	0.330***	0.474***
	(0.0271)	(0.0173)
_cons	6.114***	4.791***
	(0.274)	(0.187)
Observations	3111	3116
R-squared	0.317	0.462

Standard errors in parentheses * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

The heterogeneity analysis indicates that the consumption gap associated with high-risk asset holding is larger among low-buffer households, with high-risk asset holders consuming about **32%** more than non-holders, compared with roughly **10%** among high-buffer households.

3.6 Model fit & inference

All regressions report heteroskedasticity-robust (Huber–White) standard errors. The R-squared indicates the share of variation in log equivalised consumption explained by the model, increasing from 0.190 in Column 1 to 0.530 in Column 2 after controlling for income, reflecting the strong explanatory power of income rather than causality. The estimated coefficients should be interpreted as conditional correlations, as unobserved heterogeneity, reverse causality, and selection into risky-asset holding may bias the results.

4. Conclusion

Using SHIW 2020 data, this study finds that higher debt burdens are associated with lower household consumption, even after controlling for income and household characteristics. The effect is stronger among households with weaker financial buffers, highlighting the importance of balance-sheet conditions for consumption behaviour.

Reference List

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