SAVING BEHAVIOUR IN MALTA: INSIGHTS FROM THE HOUSEHOLD BUDGETARY SURVEY

BOX 1: SAVING BEHAVIOUR IN MALTA: INSIGHTS FROM THE HOUSEHOLD BUDGETARY SURVEY[1]

Household saving and consumption behaviour play a key role in macroeconomic analysis – explaining wealth accumulation in the wake of economic shocks – and have been the subject of extensive theoretical and empirical research. The theoretical starting point that underpins most empirical research on consumption and saving behaviour is the Life Cycle hypothesis, which postulates that rational, forward-looking agents attempt to avoid excessive swings in consumption expenditure over time. To do this, households borrow in advance of future income when they are young, save in middle age and dissave in retirement, implying that the main saving motive under the Life Cycle hypothesis is retirement saving. Other saving motives have since been incorporated in theoretical models, primarily the precautionary saving and bequest motives, as well as saving due to liquidity constraints, down payment requirements and medical expenses among others.

Despite its importance, few studies have explored saving behaviour in Malta. In turn, available studies have either analysed aggregate saving rates or, in the case of studies looking at household behaviour, have been limited to simple analysis of mean and median saving rates conditional on one household characteristic at a time.[2] This box summarises the results of a study conducted with the aim of bridging this gap.[3] The study uses granular information from the Household Budgetary Survey (HBS) to explore the full saving rate distribution of Maltese households and map the probability of saving over a range of household characteristics.

The HBS, carried out by the National Statistics Office (NSO), tracks patterns and trends in household expenditure in Malta for the purpose of calibrating expenditure weights in official statistics.[4] Nevertheless, the rich dataset collected by the survey can serve several other purposes and is particularly suitable for economic research relating to consumption and saving. The analysis is based on household-level saving rates, which are calculated by using the difference between income and expenditure as a proxy for saving. Although it is a good proxy, there are some limitations with this measure of saving, primarily concerning the issue of potential under-reporting of income. Although recent HBS data are available for 2008 and 2015, in this box the main analysis is conducted using the 2015 HBS wave.

[2] Gatt, W. (2014). "The determinants of household saving behaviour in Malta", Central Bank of Malta *Working Paper* WP/03/2014, explores determinants of the aggregate saving rate of Maltese households. Mean and median saving rates by certain household characteristics have been analysed in Gatt, W. (2015). "A profile of household saving behaviour in Malta", in Central Bank of Malta *Quarterly Review* 2015:1, pages 35-38, and Abela, G. and Gatt, W. (2020). "A cross-sectional saving profile of Maltese households", in Central Bank of Malta *Quarterly Review* 2020:1, pages 35-39. See also Le Blanc, J., Porpiglia, A., Teppa, F., Zhu, J., and Ziegelmeyer, M. (2016). "Household saving behaviour in the euro area", International Journal of Central Banking, 12(2):15-69.

[3] Abela, G. and Gatt, W. (2021). "Saving behaviour in Malta: Insights from the Household Budgetary Survey", Central Bank of Malta *Working Paper* WP/02/2021.

[4] NSO (2018). *Household Budgetary Survey* 2015, Technical report.

Table 1
SUMMARY STATISTICS

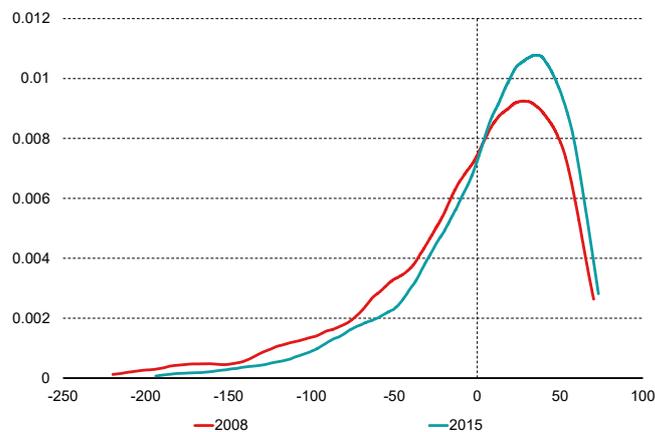|	2008		2015	
	Mean	Median	Mean	Median
Income	€20,853	€18,591	€28,158	€24,285
Expenditure	€19,784	€16,830	€23,006	€19,710
Saving	€1,069	€1,301	€5,152	€3,721
Saving rate	-4.5%	8.6%	8.2%	18.4%

Sources: HBS (2008, 2015) and authors' calculations.

The data

Table 1 shows summary statistics relating to the income, expenditure, saving level and saving rates of households in each wave.[5] Income rises faster than expenditure between the two waves, which is reflected in higher saving levels and saving rates in 2015. In both instances, the mean saving rate is lower than the median, indicating that the saving rate distribution is negatively skewed. This characteristic appears to be a general feature of the data.

Chart 1 shows the unconditional saving rate distributions across the two waves. The distribution of saving rates has shifted upwards between the two waves, with a greater mass of households having positive saving rates in 2015. However, both distributions also exhibit fat left tails, reflecting the

Chart 1
UNCONDITIONAL SAVING RATE DENSITIES
(Kernel density; saving rate in per cent)

Sources: HBS (2008, 2015) and authors' calculations.

Chart 2
SAVING RATE KERNEL DENSITIES BY INCOME QUINTILE
(Kernel density; saving rate in per cent)
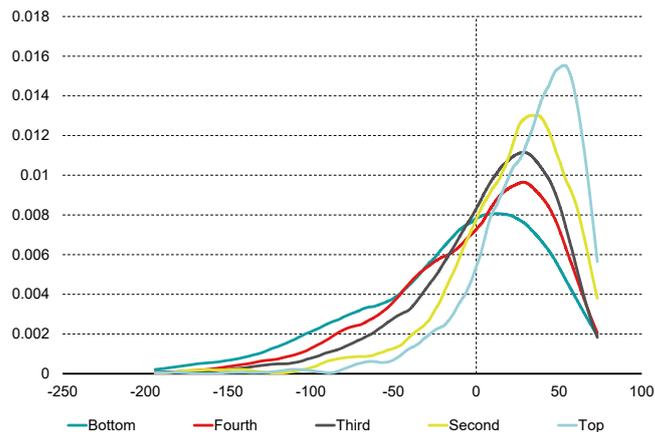
Sources: HBS (2015) and authors' calculations.

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[5]   In the paper, we also present summary statistics pertaining to each household characteristic in the dataset.

strongly negative saving rates exhibited by some households in both waves, despite the removal of outliers.

Chart 3
SAVING RATE KERNEL DENSITIES BY AGE GROUP
(Kernel density; saving rate in per cent)

Sources: HBS (2015) and authors' calculations.

The conditional saving rate distributions yield a number of interesting preliminary observations. Firstly, saving rate distributions by income quintiles suggest that, as expected, higher income households are progressively more likely to have positive saving (see Chart 2). Another key observation relates to age, where the saving rate densities by age group indicate that those in the 55-64 year age bracket and retired households are somewhat more likely to save than relatively younger households (see Chart 3).

Similar conditional saving rate distributions over other characteristics – such as educational attainment and residential tenure status – also reveal that a small share of households have high negative saving rates. The fat left tail in saving rates appears to be a general feature of the data, rather than being limited to a specific sub-group.

Probability of positive saving across household characteristics

An econometric model was developed to estimate the probability of a household having positive saving while controlling for all key household characteristics captured in the dataset simultaneously. A Logit model was fitted to each wave. The model estimates the probability of saving p_i for a household conditional on its set of characteristics as follows:

$$p_i = Pr(s_i = 1|\mathbf{x_i}) = \Lambda(\mathbf{x_i'}\beta) \tag{1}$$

where s_i takes a value of 1 if a household's income is larger than its expenditure and 0 otherwise, x_i is a vector of household characteristics and a constant, β is a vector of coefficients and $\Lambda(.)$ is the logistic function. The covariates included in the vector x_i are based on both theoretical and empirical considerations. Apart from income, the model controls for key predictors such as age, employment status, education, marital status, housing tenure status and household size. In the absence of wealth data in the HBS, the type of residential property occupied, the ownership of a second house and the rental of other property are included as proxies for wealth.
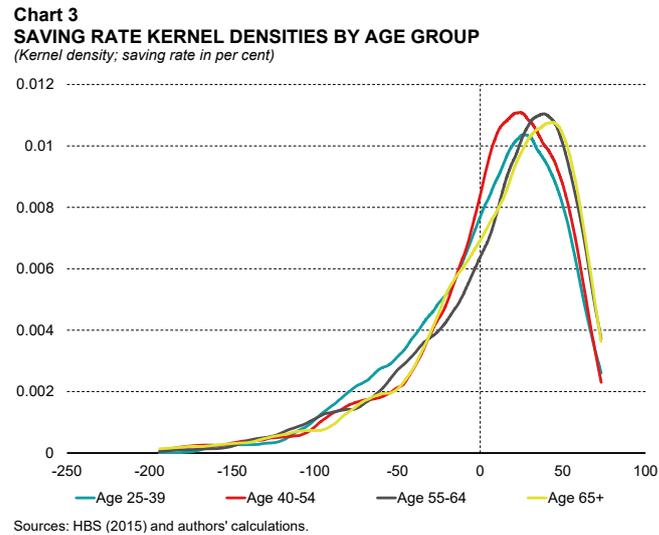
The estimation results are presented as average marginal effects relative to a baseline household.[6] The baseline household belongs to the middle-income quintile and has a representative person aged 40-54 who is married, is employed or self-employed, holds a secondary or post-secondary level of education, owns and lives in a terraced house without an outstanding mortgage, does not rent other property and does not own a second house. Table 2 shows a subset of the estimation results, focusing on the 2015 HBS wave.[7]

Higher levels of income and older age are strongly associated with a higher probability of positive saving. Further analysis reveals that these two characteristics are associated with a higher probability of households being strong savers. The positive correlation between income levels and the probability of saving is in line with economic theory. On the contrary, the association between older age and higher saving probability runs counter to the basic Life Cycle model, although it is a common empirical finding in similar studies in the

Table 2
REGRESSION RESULTS

	2015			2015
Income		**Marital Status**		
Bottom quintile	-0.321 ***	Single	0.056 *
Fourth quintile	-0.116 ***	Married (benchmark)	-
Third quintile (benchmark)	-	Sep./widowed/divorced	0.058 **
Second quintile	0.147 ***		
First quintile	0.254 ***	**Housing tenure**		
		Owned with mortgage	0.07 **
Life Cycle		Owned w/o mortgage (benchmark)	-
Age 25-39	-0.032	Rented	0.079 ***
Age 40-54 (benchmark)	-	Used/Given for free	0.047 *
Age 55-64	0.048 *		
Age 65+	0.129 ***	**Owns second house**		
		No (benchmark)	-
Employment status		Yes	-0.062 **
Employed/self-emp. (benchmark)	-		
Unemployed	0.099 **	**Household size**		
Retired	0.005	No. of adults	-0.051 ***
Inactive	0.034	No. of children	-0.036 ***
Education			
Low education	0.112 ***	**Observations**	3461
Medium education (benchmark)	-	**Log-Likelihood**	-87,883
High education	0.019	**Area Under ROC**	0.726

Source: Authors' calculations.

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literature.[8] This finding likely reflects precautionary and bequest motives as well as saving brought on by credit constraints that old-age households are likely to face. An unemployed household is about 10 percentage points more likely to save. Conversely, having medium or higher educational attainment is negatively associated with higher saving when compared to households with lower-educated representative persons. Neither of these results are common in the literature, although they have been replicated in another unrelated study.[9] Households with unemployed reference persons could be more likely to save by cutting back on expenditure, driven by precautionary motives. Similarly, precautionary motives might be behind the higher probability of saving by lower-educated households, who might face higher income and unemployment risks, all else being equal.[10] Under-reporting of income could also be behind some of these results. Unmarried households are more likely to be savers relative to the benchmark group, while larger households are also less likely to be savers, all else being constant.

Turning to indicators of housing tenure, the probability of saving rises if the representative person either owns their property with an outstanding mortgage, rents the property or uses it without cost.[11] Owning a second property is associated with a drop of 6.2 percentage points in the probability of saving. The latter result suggests that, controlling for other factors, wealthier households are less likely to save, possibly because they have a bigger stock of wealth to fall back on in the event of a negative economic shock. This result should nevertheless be interpreted with caution since ownership of other property is an imperfect wealth proxy. Further research is needed to assess whether this result holds if one uses actual data on wealth, which is available from other surveys like the Household Finance and Consumption Survey (HFCS).

Conclusion

This box summarises the results of a study aimed at understanding the cross-sectional saving behaviour of Maltese households. The key findings are generally in line with theory and empirical literature, showing how rising income and age are associated with a higher likelihood of saving. The study is also important as it sheds light on the heterogeneity in saving patterns across different household characteristics. It therefore can serve as a useful input to model development as well as policy formation. Future work will investigate these patterns further using alternate data sources, like the HFCS, as well as focusing on and addressing relevant policy questions.

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[8]   See Alves, N. and Cardoso, F. (2010). "Household saving in Portugal: Micro and macroeconomic Evidence", *Economic Bulletin* 16 (4), Banco de Portugal; Harris, M. N., Loundes, J., and Webster, E. (2002). "Determinants of household saving in Australia", *Economic Record*, 78(241):207-223; and Le Blanc, J., Porpiglia, A., Teppa, F., Zhu, J., and Ziegelmeyer, M. (2016). "Household saving behaviour in the euro area", International Journal of Central Banking, 12(2):15-69.

[9]   See Le Blanc, J., Porpiglia, A., Teppa, F., Zhu, J., and Ziegelmeyer, M. (2016). "Household saving behaviour in the euro area", International Journal of Central Banking, 12(2):15-69.

[10]   Higher employment risk may also be associated with a higher propensity for a household to be credit-constrained. This can be another channel that raises the saving rate of such households. This hypothesis also extends to the behaviour of households with high educational attainment. If the latter face fewer employment risks, then they are likely to be less credit-constrained, and therefore have a less pressing need to save.

[11]   The HBS dataset only includes the interest component of mortgage repayments in household expenditure. Therefore, intuitively, the increased saving by mortgagors likely corresponds to an allocation for debt financing. Meanwhile, as argued in Abela, G. and Gatt, W. (2021). "Saving behaviour in Malta: Insights from the Household Budgetary Survey", Central Bank of Malta *Working Paper* WP/02/2021, most renters in the sample pay social rents. These, together with dwellers who reside in a property without cost, are likely to save more due to lower housing costs.