

Household Size and Risk Aversion of Households in European Union

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Abstract – The paper examines the effect of household size on risk aversion using data from the Household Finance and Consumption Survey (HFCS) conducted in European Union (EU) countries in 2010, 2014, 2017, and 2021. We assume that larger households are more risk averse meaning that households with more members are less likely to invest in shares, which are among the riskiest instruments. We test our assumption using the percentage of households owning shares as an inverse proxy for risk aversion in each household size group. We use regression analysis, the results of which show that from 2010 to 2017 there was a downward trend in the percentage of households owning shares, which can be explained by the accession of new EU members, whose households tend to be less inclined to invest. In terms of household size, the groups with one and five or more members had the lowest proportions of households owning shares throughout the investigated period. In addition to risk aversion, it can be assumed that one-member households have less reason to invest as they have no dependents, while households with five or more members do not have sufficient resources to invest due to high expenses.

Keywords – Household Size, Risk Aversion, Household Finance, Household Financial Decision Making, HFCS Data

I. INTRODUCTION

Household decisions affect the functioning of government and the economy, and thus the welfare of the nation. For this reason, the decision-making process of households is of increasing interest to researchers. According to the theory, a household is a microeconomic unit that makes its financial decisions under budgetary constraints, taking into account certain risk conditions. Household financial decisions are influenced by various factors, such as household structure, number of members, their relationships, age and number of dependents, gender of a household head, cognitive and numerical skills, education, attitudes towards risk, etc. [1-6]. The focus of this study is on household size as a factor influencing risk aversion in household financial decision making.

A lot of scientists consider the impact of household size examining household financial decisions. Vaitilingam (2016) argues that richer households have more sophisticated financial decision making, which helps them avoid investment mistakes, and at the same time, the larger the household size and the more children in the household, the more sophisticated the household finances are [7]. Abreu and Mendes (2011) examined how the frequency of information search affects the amount of trading in financial markets. Household size (measured by the number of household members) acted as one of the socio-

economic variables in their model. It was empirically shown that the number of trades closed per month decreases as the number of household members increases [8]. Kachepa and Mumtaz (2023) studied household financial decision making in Malawi using micro data on household behaviour. The results of the data analysis showed that the willingness to generate savings decreases as the number of household members and remittances increase. When analysing differences in household financial decision making between rural and urban households, these differences were reduced when additional control variables, including household size, were added [9]. Guvuriro and Booysen (2021) focused on family-type public goods decision making in South African households, where household size was just one of the control variables. They showed empirically that when the woman is the financial decision maker, the household allocates more resources to family-type public goods [10].

Regarding risk aversion in household decision making, Gao and Fok (2015) investigated household financial decision making in China and confirmed that household size is a determinant affecting risk aversion in financial decision making. They also confirmed that larger households, with more social interaction, have lower risk aversion and invest in riskier assets [11]. A relatively large study was conducted by Mumtaz and Smith (2021), who examined the impact of various demographic factors on the financial decision making of households in Pakistan. Their analysis showed that as the number of household members increases, the ability of the household to participate in financial markets disappears. They also showed that the financial burden of a household increases with household size and the ability to save and invest in risky assets decreases. Conversely, the demand for short-term financial credit increases, and this effect also depends on other socio-demographic variables [12]. An interesting contribution to this issue is the research by Gallier and Rutström (2021), who examined the relationship between the risk aversion of the household head and the number of household members. They showed that household size is positively correlated with risk aversion. However, household composition is also an important determinant of the relationship, including the number of dependents and dependent children. An important finding is that household size and children may be related to the risk attitude of the household head, and the risk attitude of the household head may be related to household size, especially the number of children in the household [13]. Thus, from the above review of empirical studies, we can conclude that household size is an important factor in determining both the financial disposition and the risk aversion of households. An equally important part of this process is the household composition effect, with an emphasis on the number of dependent children in the household.

II. MATERIALS AND METHOD

To estimate the effect of household size on risk aversion, we used the data from the HFCS, which collects data on household finances and consumption at the household level. The survey is conducted by the European Central Bank in cooperation with the national central banks of each Member State of the EU. Four waves of the survey have been carried out so far (2010, 2014, 2017, and 2021). Although the survey is conducted at the level of individual households, in this paper we focus on aggregated data for specific EU Member States (countries that have participated at least once in one of the above-mentioned waves include Belgium, the Czech Republic, Germany, Estonia, Ireland, Greece, Spain, France, Croatia, Italy, Cyprus, Lithuania, Latvia, Luxembourg, Hungary, Malta, the Netherlands, Austria, Portugal, Slovenia, Slovakia, Finland, and Poland). We chose the percentage of households out of all households in the household size group holding shares in their portfolio as a proxy for risk aversion, which works in the opposite direction as shares are generally considered to be a riskier financial instrument than bonds. We then examined whether the percentage of households holding any type of shares increases with increasing household size by running linear regressions for the years in which the HFCS surveys were conducted (2010, 2014, 2017, 2021). Household size is expressed in terms of the number of household members (where the observed values are 1, 2, 3, 4, 5+). This variable takes the form of dummy variables in the linear regression. Our assumption is that as the number of household members increases, risk aversion increases and therefore households will invest less in risky financial instruments such as shares and will prefer to choose other financial market instruments that are associated with less investor risk (such as bonds).

III. RESULTS

To estimate the effect of household size on risk aversion, we used a regression analysis, the results of which are presented in the table below for each year of observation.

Table 1. Impact of household size on risk aversion

	Dependent variable: percentage of households owning shares			
	(1) 2010	(2) 2014	(3) 2017	(4) 2021
Independent variable: household size				
1	8,43*** (0,0008)	6,31*** (0,0000)	4,92*** (0,0002)	5,42*** (0,0001)
2	11,99*** (0,0000)	9,54*** (0,0000)	7,93*** (0,0000)	8,87*** (0,0000)
3	11,76*** (0,0000)	9,13*** (0,0000)	6,82*** (0,0000)	8,11*** (0,0000)
4	14,80*** (0,0000)	9,29*** (0,0000)	7,71*** (0,0000)	9,70*** (0,0000)
5+	11,39*** (0,0000)	8,44*** (0,0000)	7,37*** (0,0000)	7,50*** (0,0000)
Multiple R	0,7954	0,7933	0,7650	0,8062
R Square	0,6327	0,6294	0,5852	0,6500
Adjusted R Square	0,5974	0,6033	0,5598	0,6272
Standard Error	9,3443	6,7866	6,0633	6,0464
Observations	75	100	110	110

Source: authors' calculations based on HFCS [14].

The table shows the percentage of the households with shares in the years 2010, 2014, 2017 and 2021 for five household size groups. In year 2010, 8,43% of one-member households had shares. As the table shows, this percentage decreases until 2017 and increases slightly in 2021. This trend applies to all five household types.

One-member households and households with five or more members are the groups with the lowest percentage of households owning shares over the observation period. The two-member and four-member groups have the highest percentage of households with shares.

IV. DISCUSSION

Based on our assumptions, we would expect that households with more members would be less likely to invest in shares, which are among the riskier instruments, or that large households would be more risk averse. This assumption is contradicted by the results in 2021 and 2010, as in these years the highest percentage of households owning shares are four-member households. Conversely, in 2014 and 2017, two-member households make up the largest share of households owning shares. Thus, the results can be seen as ambiguous as there does not seem to be a clear relationship between household size and risk aversion. However, it should be noted here, that there are large differences between the so-called new and old EU Member States, with the proportion of households holding shares in new EU Member States generally a few percentage points lower across all household categories. The household composition pointed out by Galliera and Rutström (2021) may also be relevant in this case [13], but cannot be used in this particular context because the aggregated data from the HFCS do not contain information on how many of the subject household members concerned are dependent children.

V. CONCLUSION

Household financial decisions are an important part of the national economy and are influenced by many factors, one of which is household size. Using data from the HFCS, we examined whether there is a relationship between household size and risk aversion over the period 2010-2021. According to the

regression analyses, there was a tendency for the percentage of households owning shares to decrease from 2010 to 2017, which could be explained by the accession of new EU members, whose households generally have a lower propensity to invest. In terms of household size groups, the groups with one and five or more members had the lowest percentage of households with shares throughout the period. Apart from the risk aversion reason for such behaviour, it can be assumed that one-member households have less reason to invest because they have no dependents, and households with five or more members do not have enough resources to invest because of high expenses.

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