UNIVERSITÀ di VERONA | Department of ECONOMICS

Working Paper Series
Department of Economics
University of Verona

Exposure to Traumatic Events and Financial Risk Attitudes: The Role of Locus of Control

Alessandro Bucciol, Silvana Robone, Luca Zarri

WP Number: 4 August 2026

ISSN: 2036-2919 (paper), 2036-4679 (online)

Exposure to Traumatic Events and Financial Risk Attitudes: The Role of Locus of Control*

Alessandro Bucciol
University of Verona

Silvana Robone
University of Eastern Piedmont

Luca Zarri†
University of Verona

Abstract

Major life events are widely recognized as important determinants of individuals' risk attitudes. However, the empirical evidence does not point to a clear directional effect, with studies documenting both *increases* and *decreases* in risk taking following exposure to adverse events. This paper investigates whether individual differences in Locus of Control (LoC) – a psychological trait capturing the extent to which individuals perceive life outcomes as contingent on their own actions rather than on external forces – may help account for this heterogeneity when financial risk attitudes are considered. Using original survey data on a sample of 1,827 individuals representative of the Italian population, we investigate how exposure to different traumatic life events is associated with a series of measures of financial risk attitudes, including both incentive-compatible and self-reported measures, and whether these associations vary by individuals' LoC and gender. Results reveal substantial heterogeneity that would remain hidden in models considering only the average association between events and risk attitudes. In line with prior work, our findings show that behavioral responses to traumatic experiences are to a large extent event-, measure- and gender-specific, and suggest that LoC can help explain the mixed evidence documented in the existing literature. By highlighting the role of subjective, individual-specific resources in shaping responses to extremely adverse life events, our results help reconcile seemingly conflicting findings in prior work and suggest that understanding the consequences of traumatic experiences requires moving beyond a "one-size-fits-all" perspective.

Keywords: Financial Risk Attitudes; Traumatic Events; Locus of Control; Personality Traits.

JEL Classification: D81; D91; G11; G41.

* We thank participants in the 2026 IAREP Conference in Castellón de La Plana for useful comments. The usual disclaimers apply. Generative AI tools were used to assist with the organization of the manuscript, and language editing. All scientific content, analyses, interpretations, and conclusions remain the sole responsibility of the authors, who reviewed and verified all AI-assisted contributions.

† Corresponding author. University of Verona, Dept. of Economics, Via Cantarane 24, 37129 Italy. Email address: luca.zarri@univr.it. Phone: +39 045 802 8101.

1. Introduction

Willingness to take risks is one of the most fundamental dimensions economists investigate to explain heterogeneity in behavior. It shapes a wide range of consequential decisions, including educational attainment, career choice, entrepreneurship, investment behavior, health, migration, and environmental actions. Influenced by the long-held *economic-preferences-as-stable-as-rocky-mountains* view (Stigler & Becker, 1977), economists traditionally regarded preferences as deeply rooted and largely unaffected by external circumstances (Giuliano & Spilimbergo, 2025). Over the past 15 years, however, a rapidly expanding empirical literature has challenged this idea, highlighting instead the role of major life experiences in shaping risk-taking behavior (Ayton et al., 2020).

Special attention has been devoted to highly adverse events such as natural disasters, economic crises, wars, major bereavements, physical violence, and life-threatening illnesses. Because these largely uncontrollable experiences often represent dramatic turning points in people's lives, they can reasonably be regarded as *traumatic*.[1] Yet, despite the growing interest in this topic, the available evidence on the relationship between exposure to traumatic life events and risk preferences remains surprisingly mixed and inconclusive (Giuliano & Spilimbergo, 2025).[2] While some studies find that after exposure to traumatic events individuals take on more risks, others document the opposite effect. This lack of consensus extends across different populations, countries, and types of traumatic experiences, and emerges in both developed and developing economies. Consequently, understanding the sources of this heterogeneity has become one of the central challenges for this line of inquiry.

The broad conjecture we test in this paper is that individuals do not respond uniformly to the same traumatic experience. Research in personality psychology has increasingly emphasized that behavioral responses to major life events arise from the interaction between objective exposure and individual-specific psychological resources, rather than from exposure *per se* (Bleidorn et al., 2020). In other words, the consequences of a traumatic event depend not only on what objectively happened but also on how individuals psychologically experience, interpret, and cope with that event. This perspective suggests that the heterogeneous findings documented in the economics literature may partly reflect differences in the subjective resources individuals mobilize when facing adverse experiences.

To date, however, the economics literature on major life events and risk attitudes has devoted relatively little attention to individual differences in subjective resources. We hypothesize that person-specific characteristics may mediate or moderate the relationship between traumatic experiences and financial risk preferences (Bucciol et al., 2026). Against this background, we focus on Locus of Control (LoC), a psychological resource that is particularly relevant to understanding how individuals cope with unexpected, adverse, and largely uncontrollable life events. LoC refers to the extent to which individuals perceive life outcomes as contingent upon their own actions rather than on external forces such as luck, chance, or fate (Rotter, 1966; Lachman, 2006). Individuals with a more *internal* LoC perceive

[1] Traumatic events involve "exposure (or occurrence to a close family member) to actual or threatened death, serious injury, or sexual violence" (APA, 2010).

[2] As pointed out by Kettlewell (2019), "There is little understanding about the channels between life events and risk preferences, yet this information is critical if we are to predict when life events will matter, who are most vulnerable and whether and how the effect of life events can be managed".

life outcomes as contingent on their own actions, whereas those with a more *external* LoC attribute them primarily to external forces such as luck, chance, or fate.

In this study, we use original data from an online survey whose sample is nationally representative of the Italian adult population. The final sample consists of 1,827 individuals. Our major goal is to examine whether individuals' LoC, viewed as a subjective personal resource, amplifies or buffers the effects of traumatic life events on multiple measures of financial risk attitudes. Importantly, we also investigate the role of gender.[3]

Our results reveal substantial heterogeneity that would remain hidden in models considering only the *average* association between traumatic events and risk attitudes. Among internally oriented males, a health shock is associated with a higher probability of choosing the riskiest option in the incentivized investment game, whereas externally oriented males display a more cautious response to physical attacks. Among internally oriented females, robbery or fraud is associated with a higher probability of holding risky financial assets, and exposure to natural disasters is positively associated with risky holding among externally oriented females. We also show that the same event may have different associations across risk attitude measures: for example, health shocks increase incentivized risk taking but reduce risky holding among internally oriented males. Taken together, our findings indicate that individual responses to traumatic experiences are to a significant extent event-, measure-, and gender-specific, and suggest that LoC is one of the subjective resources that can help explain the mixed evidence documented in the existing literature.

The remainder of the paper is organized as follows. Section 2 reviews the relevant strands of the literature. Section 3 illustrates the data, the construction of the main variables, and the descriptive evidence. Section 4 presents the empirical results, while Section 5 discusses the findings and concludes. Details on the construction of the key variables are provided in the Appendix.

2. Related Literature

The present study relates to two strands of literature. The first examines the influence of traumatic events on risk taking and forms part of the broader research agenda on "experience effects" (Section 2.1), while the second relates to the rapidly growing economics literature on LoC and its role in shaping economically relevant behaviors and outcomes (Section 2.2).

2.1. Experience effects, traumatic events, and risk attitudes

By showing that life experiences can exert persistent influences on preferences and beliefs and that individuals do not merely update information following life events, the literature on so called "experience effects" (Malmendier, 2026) has challenged the traditional view that

[3] Several influential studies document substantial gender heterogeneity in the impact of major life events on risk preferences (Eckel et al., 2009; Hanaoka et al., 2018; Magnusson & Roth, 2024), including when individual preferences are measured in the financial domain (Banks et al., 2020; Rice & Robone, 2022; Cheng & Lu, 2024).

economic preferences are largely stable over time.[4] Within this broad research area, a rapidly expanding line of inquiry has investigated whether exposure to highly adverse life experiences influences individuals' willingness to take risks. Besides their obvious economic relevance, these experiences are especially attractive from an empirical perspective because they often constitute exogenous shocks that are precisely dated and affect large groups of individuals simultaneously, thereby mitigating some of the endogeneity concerns that typically arise when studying the determinants of preferences (Giuliano & Spilimbergo, 2025).

Despite the growing number of contributions, however, the empirical evidence remains remarkably mixed and inconclusive. A group of studies reports that exposure to traumatic experiences is associated with *greater* willingness to take risks. Evidence in this direction has been documented following major natural disasters (Eckel et al., 2009; Page et al., 2014; Hanaoka et al., 2018; Ingwersen et al., 2023), civil conflict (Voors et al., 2012) and major health shocks (Gassmann et al., 2022; Aragon et al., 2024). By contrast, another group of studies documents *the opposite pattern*. Growing up during periods characterized by poor stock market performance or severe macroeconomic downturns leads individuals to display persistently lower financial risk tolerance and lower stock market participation (Malmendier & Nagel, 2011). Similarly, reduced willingness to take risks has been documented following natural disasters (Cameron & Shah, 2015; Said et al., 2015), major bereavements (Bucciol & Zarri, 2015), civil wars (Kim & Lee, 2014), violence (Callen et al., 2014) and health shocks (Rice & Robone, 2022; Priebe et al., 2024). Overall, these studies suggest that traumatic experiences often generate more cautious behavior, particularly in financially relevant domains.

Therefore, taken together, the available evidence does not point to a clear directional effect of traumatic experiences on risk taking. As Giuliano and Spilimbergo (2025) conclude in their recent review, the literature has established that major life experiences matter for preferences and beliefs, but much less is understood about the conditions under which similar shocks produce different behavioral consequences.

One possible explanation concerns the way risk preferences are measured. The aforementioned studies rely on substantially different methods to elicit risk attitudes. Some employ experimental tasks designed to measure *revealed* risk preferences through incentive-compatible choices, whereas others rely on survey questions eliciting *stated* willingness to take risks. Only a handful of contributions simultaneously exploit both behavioral and survey-based measures within the same study (e.g., Callen et al., 2014; Said et al., 2015; Priebe et al., 2024). These two measurement traditions are only weakly related and often capture different aspects of individuals' attitudes toward risk (Frey et al., 2017; Mata et al., 2018; Chapman et al., 2025; Kosfeld et al., 2026). Consequently, as highlighted by the well-known "risk elicitation puzzle" (Crosetto & Filippin, 2016; Pedroni et al., 2017), at least part of the heterogeneity documented in the literature may reflect differences in the instruments used to measure risk preferences rather than genuine differences in behavioral responses.

Methodological differences, however, are unlikely to provide the whole explanation. Remarkably, heterogeneous responses have also been documented among individuals exposed

[4] More broadly, the growing recognition that major life experiences may permanently alter individuals' economic trajectories is extending beyond the literature on preferences and beliefs. For example, recent work has begun to incorporate large health shocks explicitly into dynamic life-cycle models (Freiberger et al., 2026).

to the same event, suggesting that *exposure alone* cannot fully account for the observed variation in risk taking. An increasingly influential perspective, originating primarily in personality psychology, argues that behavioral responses to major life events should be understood as the outcome of *person-environment interactions*, whereby objective exposure interacts with individuals' subjective psychological resources (Bleidorn et al., 2020; Bucciol et al., 2026). From this perspective, the same traumatic event may have markedly different consequences depending on how it is perceived, interpreted, and psychologically managed by the individual experiencing it.

Against this background, a growing literature has begun to argue that understanding heterogeneous behavioral responses requires moving beyond the mere occurrence of life events and paying greater attention to *subjective resources*. These resources encompass both event-specific perceptions – for example, the perceived intensity or severity of an earthquake or hurricane – and broader but person-specific characteristics, including Big Five personality traits (Bucciol et al., 2026), emotions (Meier, 2022), resilience (Etilé et al., 2021), dispositional optimism (Dohmen et al., 2023), and other relatively stable psychological resources.

Among these subjective resources, one appears particularly well suited to understanding heterogeneous risk-taking responses following highly adverse experiences: individuals' LoC.

2.2. Locus of Control as a subjective psychological resource

Originally introduced by Rotter (1966), LoC refers to the extent to which individuals perceive life outcomes as contingent upon their own actions rather than on external forces such as luck, chance, or fate. Individuals with a predominantly *internal* LoC tend to believe that their choices and efforts substantially influence subsequent outcomes, whereas individuals with a more *external* LoC are more likely to attribute outcomes to circumstances beyond their personal control (Lachman, 2006). Because traumatic experiences are largely unexpected and uncontrollable, LoC provides a particularly natural framework for understanding why similar events may generate markedly different reactions across individuals.

Compared with the Big Five personality traits, LoC has received considerably less attention in economics despite its substantial predictive power for psychological resilience following adverse life events (Etilé et al., 2021) and for a wide range of socioeconomic outcomes. Individuals with a more internal LoC are better able to cope with negative life events, experience more favorable labor-market trajectories, display healthier behaviors, save more, and are more likely to participate in financial markets (Buddelmeyer & Powdthavee, 2016; Salamanca et al., 2020; Clark & Zhu, 2024; Cobb-Clark, 2015; Cobb-Clark et al., 2016; Schurer, 2017; Bucciol & Trucchi, 2021).

An important feature of LoC is its relative stability over the life cycle. While it is not immutable, empirical evidence indicates that LoC develops early in life and changes only gradually, with most variation occurring among younger and older individuals (Cobb-Clark & Schurer, 2013; Fitzenberger et al., 2022). This relative stability makes LoC particularly appealing in studies examining the consequences of subsequent life experiences. Rather than representing a short-run emotional reaction to an adverse event, LoC can be interpreted as a relatively enduring psychological resource through which individuals perceive and respond to changing circumstances.

In this paper, we wonder whether a key psychological resource such as LoC helps explain part of the heterogeneity documented in the literature on traumatic life events and risk taking recalled in the previous subsection – with special regard to financial risk preferences.

3. Data

To address our research question, we commissioned a specialized survey firm (Demetra S.r.l.) to collect through its profiled online panel "Opinioni.net" [5] a sample of Italian adults representative by age, gender and region of residence. The survey was administered between June and September 2025. Our questionnaire collected detailed information on several dimensions: risk attitudes, personality traits (Big Five and LoC), life events, cultural norms and beliefs, financial literacy, financial experience, health status and socio-demographic characteristics.[6] We have full information on a sample of 1,827 individuals.

3.1. Dependent variables: Financial risk attitudes

This dataset allows us to draw on a rich array of financial risk attitude measures. In particular, we consider four different measures of financial risk attitudes: i) an incentive-compatible measure based on the "investment game" (Gneezy & Potters, 1997; Cohn et al., 2015); ii) a self-reported measure recorded through a Likert "DOSPERT scale" (Weber et al., 2002); iii) a categorical and self-reported measure of financial risk tolerance (Charness et al., 2013); (iv) a dummy variable that captures "risky participation" in the household financial portfolio (Malmendier & Nagel, 2011; Bucciol & Zarri, 2017). In Appendix we describe the variables in detail. Descriptive statistics for these variables are reported in Table 1.

Table 1. Summary statistics of the key variables (1,827 observations)

Sample	Full Mean	Full Std. dev.	Full Min.	Full Max.	Females Mean	Males Mean
			Financial risk attitudes			
Investment game	2.58	1.39	1	5	2.53	2.62
DOSPERT scale	13.90	7.96	0	36	12.33	15.44
Risk tolerance	1.78	0.64	1	3	1.65	1.91
Risky holding	0.51	0.50	0	1	0.44	0.58
			Traumatic life events			
Health shock	0.05	0.22	0	1	0.05	0.05
Natural disaster	0.14	0.34	0	1	0.11	0.16
Physical attack	0.08	0.28	0	1	0.08	0.09
Robbery or fraud	0.09	0.28	0	1	0.08	0.10
			Locus of Control (LoC)			
External LoC	2.55	0.67	1	5	2.58	2.51

Note. The last column reports the p-value of a two-sided t-test on the equality of the mean in the two groups of females and males.

[5] For more information, see the company's website: https://www.demetra.com/panel-online-profilato/

[6] The questionnaire includes also two "flag check" questions designed to assess the reliability of the responses provided by the respondent. Although seemingly trivial, these questions serve as important attention checks. The first asks about the colour of the sky on a clear day. The second requires a simple arithmetic calculation: how much money remains when €100 is reduced by €40.

3.2. Explanatory variables: Traumatic life events and Locus of Control

The main independent variables in our models are traumatic life events. We focus on traumatic life events that can be hardly controlled by individuals (although no event can be claimed to be completely random) and therefore can be considered as exogenous variables in our model. The traumatic events we examine include a major *health shock* (i.e., a diagnosis of cancer, heart attack, or stroke within the past three years), exposure to *natural disasters*, experiencing a *physical attack*, and being a victim of *robbery* or *fraud*. The corresponding dummy variables are inspired by the US Health and Retirement Study and are equal to one in case the individual has experienced the traumatic event at some point in life (for natural disasters and physical attack) or during the last five years (for robbery and fraud).[7] In Appendix A.2, we report the survey questions from which the traumatic-event variables were derived.

As to LoC, we refer to a standard measure with 10 categorical items (illustrated in Appendix A.3) replicating the scale for perceived mastery and constraints on personal control (as in the US Health and Retirement Study). The average of these items is an index taking values in the 1-5 scale, with 1 denoting Internal LoC and 5 denoting External LoC. Starting from this, we create a dummy variable for External LoC equal to one when the index is above the median value 2.5.[8] Descriptive statistics are also reported in Table 1.

3.3. Control variables

Table 2 reports a list of further variables together with their summary statistics. These characteristics, used as controls in our regression model, include standard socio-demographic variables, such as *female* (a dummy variable equal to one if the individual is female), *age* (continuous variable ranging from 25 to 80 years), *high education* (dummy variable equal to one if the individual has a university degree or above), *not married* (dummy variable equal to one if the individual is not married), *high income* (dummy variable equal to one if the individual has a monthly net income of 2,500 euros or above), *not employed* (dummy variable equal to one if the individual is not employed), *high wealth* (dummy variable equal to one if the total wealth of the individual is above 35,000 euros), *financially frail* (dummy variable equal to one if the respondent states he/she is unlikely to be able to have 2,000 euros in case of emergencies), and macro geographical area of residence (dummy variables for *North West, North East*, *Centre* and *South*). We also control for variables that are related to the financial sphere of the respondents and could affect their financial risk attitudes, such as *low financial literacy* and *no*

---

[7] The survey also provides information on the timing of each traumatic event, although the distinction between "recent" and "earlier" exposure varies across events because of differences in the available survey questions. For each event, the cutoff was chosen so as to obtain two subsamples of approximately equal size. Two-sided t-tests and Wilcoxon rank-sum tests indicate that the measures of financial risk preferences do not differ significantly between individuals who experienced the event relatively recently and those who experienced it earlier. The tests are conducted separately for each traumatic event and each measure of financial risk preference. Detailed results are available upon request.

[8] One potential concern is that LoC may itself be affected by exposure to traumatic events. Although our data do not allow us to address this issue conclusively, we explored it by estimating a series of regressions of External LoC separately on each traumatic event, controlling for the same covariates included in the main analysis. None of the event indicators was statistically significant; results are available upon request. This provides no evidence of a systematic association between traumatic-event exposure and LoC in our sample, although it does not rule out such a relationship.

financial experience. The former variable aims at assessing the objective financial knowledge, through a battery of validated questions, including those on interest compounding, inflation, and risk diversification (Lusardi & Mitchell, 2008; OECD/INFE, 2020); it is a dummy equal to one if the individual makes some mistakes in answering correctly to the previous. The latter variable is a dummy equal to one if the individual states to have no previous experience in financial markets. Moreover, we also measure if the individual is the decision maker for financial matters in the household by including in the regression model the variable *financial decision maker* (a dummy equal to one if the individual reports that he/she is the only financial decision maker in the household).

Table 2. Summary statistics of the control variables

Sample	Full Mean	Full Std. dev.	Full Min.	Full Max.	Females Mean	Males Mean
North-West	0.26	0.44	0	1	0.25	0.26
North-East	0.20	0.40	0	1	0.20	0.20
Centre	0.21	0.41	0	1	0.21	0.21
South	0.33	0.47	0	1	0.33	0.33
Female	0.49	0.50	0	1	1	0
Age	48.42	13.55	25	80	47.44	49.38
High education	0.44	0.50	0	1	0.45	0.43
Not married	0.22	0.41	0	1	0.20	0.23
High income	0.28	0.45	0	1	0.19	0.37
Financially frail	0.11	0.31	0	1	0.13	0.09
High wealth	0.31	0.46	0	1	0.21	0.41
Not employed	0.32	0.47	0	1	0.38	0.26
No fin. experience	0.54	0.50	0	1	0.64	0.43
Low fin. literacy	0.40	0.49	0	1	0.46	0.34
Bad/fair health	0.24	0.43	0	1	0.26	0.22
Hospitalization	0.05	0.22	0	1	0.05	0.05
BMI	25.12	4.59	13.73	69.53	24.45	25.78
Smoker in the past	0.20	0.40	0	1	0.18	0.21
Smoker now	0.30	0.46	0	1	0.28	0.32
Fin. decision maker	0.39	0.49	0	1	0.20	0.59
Extraversion	2.79	0.78	1	5	2.88	2.71
Agreeableness	3.58	0.78	1	5	3.71	3.46
Conscientiousness	4.03	0.80	1	5	4.08	3.98
Neuroticism	2.62	0.87	1	5	2.77	2.48
Openness	3.51	0.79	1	5	3.51	3.51

Note. Sample size: 1,827 observations. The last column reports the p-value of a two-sided t-test on the equality of the mean in the two groups of females and males.

Since the health conditions and health behaviours of the individuals can be correlated a priori with their financial risk attitudes,[9] we also control for these factors (Rice & Robone, 2022). Therefore, we include in our regression model *bad/fair health* (a dummy variable equal to one is the individual rate his/her health as very bad/bad/ fair), *hospitalization* (dummy variable equal to one if the individual reports he/she has had an unplanned hospitalization in the last 6 months), *BMI* (the body mass index, computed as the ratio between weight and

[9] Individuals who are more risk tolerant in general could take less care of themselves, thus being in worse health.

squared height), *smoker now* and *smoking in the past* (dummy equal to one if the individual is a current smoker or has smoked in the past).

As a robustness check, we also take into consideration the possible influence of personality traits on financial risk attitudes (as shown by Bucciol & Zarri, 2017, and Rice & Robone, 2022) by controlling for personality traits. We do that by including in our regression model the so called Big Five personality traits (*Neuroticism, Extroversion, Agreeableness, Conscientiousness, Openness*), measured through the Ten-Item Personality Inventory (TIPI) scale (Gosling et al., 2003).

4. Results

We consider the following model specification:

$$y = \beta_1 LoC + \beta_2 T + \beta_3 LoC \times T + \beta_4 X + \varepsilon$$

where y is one out of four latent variables for financial risk attitudes, LoC measures Locus of Control, T is a vector including traumatic events, and X is a vector containing a list of control variables related to socio-demographics, financial behavior and health status; $\{\beta_1, \beta_2, \beta_3, \beta_4\}$ are unknown coefficients and ε is the error term.

We estimate the models using OLS (DOSPERT scale), probit (risky holding) and ordered probit (investment game and risk tolerance) depending on the nature of the dependent variables (respectively continuous, dummy and categorical in the last two cases).

4.1. Main results

Table 3 reports the full sample estimates of the models with and without interactions between traumatic events and External LoC. The table shows only the coefficients which are the most relevant for our research question; the full output of the estimated models is reported in Appendix Table A.1.

Overall, the results provide limited evidence of unconditional associations between traumatic experiences and financial risk attitudes. External LoC is not significantly associated with any of the four outcomes, suggesting that control beliefs alone do not systematically predict financial risk attitudes once the full set of covariates is taken into account.

Among the traumatic events, robbery or fraud displays the most robust direct association. It is positively associated with risky-asset holding in both specifications. This traumatic event is also positively associated with the DOSPERT scale in the specification without interactions; moreover, a health shock is also positively associated with the investment game in the interaction model. The remaining event coefficients are generally imprecisely estimated.

The interaction estimates provide some initial evidence that the association between traumatic events and financial risk attitudes may be related to LoC. In particular, the negative interaction between a health shock and External LoC in Column 2 indicates that the positive association observed among internally-oriented respondents is significantly attenuated – and potentially reversed – among externally oriented respondents. The other interaction coefficients are not statistically significant at conventional levels. Thus, in the aggregate sample, the moderating role of LoC appears relatively weak and concentrated in a specific combination of event and outcome.

Table 3. Full sample estimates

	Investment game		DOSPERT scale		Risk tolerance		Risky holding	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
External LoC	0.049	0.095	0.130	0.195	0.004	0.009	-0.092	-0.077
	(0.052)	(0.060)	(0.353)	(0.401)	(0.058)	(0.066)	(0.070)	(0.080)
Health shock	0.174	0.431*	0.389	1.220	0.261	0.115	-0.214	-0.402
	(0.123)	(0.178)	(0.833)	(1.210)	(0.136)	(0.199)	(0.168)	(0.251)
Robbery or fraud	0.056	0.173	1.063*	1.293	0.078	0.154	0.288**	0.437**
	(0.074)	(0.104)	(0.502)	(0.708)	(0.082)	(0.115)	(0.101)	(0.148)
Natural disaster	0.055	-0.100	0.226	-0.856	-0.084	-0.123	0.172	0.031
	(0.093)	(0.136)	(0.625)	(0.907)	(0.103)	(0.150)	(0.121)	(0.180)
Physical attack	-0.135	-0.038	-0.332	0.270	-0.029	-0.012	0.046	0.147
	(0.091)	(0.130)	(0.609)	(0.864)	(0.101)	(0.143)	(0.121)	(0.178)
Health shock * LoC		-0.459*		-1.489		0.263		0.313
		(0.232)		(1.564)		(0.256)		(0.319)
Robbery or fraud * LoC		-0.229		-0.442		-0.156		-0.284
		(0.148)		(0.999)		(0.163)		(0.202)
Natural disaster * LoC		0.302		2.073		0.075		0.256
		(0.185)		(1.242)		(0.205)		(0.243)
Physical attack * LoC		-0.176		-1.145		-0.030		-0.175
		(0.180)		(1.208)		(0.200)		(0.242)

*Note. Sample size: 1,827 observations. Ordered probit (Columns 1-2, 5-6), OLS (Columns 3-4), probit (Columns 7-8). The specification also includes variables on socio-demographics (age, gender, education, marital status and geographical area), economic condition (occupation, income and wealth), financial habits (fragility, decision making, experience and literacy), health condition (status, hospitalization, BMI and smoking). Standard errors in parentheses. Significance levels: *: 0.05; **: 0.01; ***: 0.001.*

Our previous evidence may, however, conceal meaningful heterogeneity, in particular related to gender. Therefore, Table 4 replicates the estimates for the main specification separately for females and males. Again, the table only reports the key coefficients; the full output is reported in Appendix Table A.2.

The results reveal substantial gender, event, and outcome heterogeneity: no statistically significant association is common to both genders, and the most informative results are concentrated in the investment game and risky holding measures.

For males, a health shock is positively associated with the investment game among individuals with an Internal LoC, as indicated by the positive coefficient on the health shock variable. The negative health shock interaction shows that this association is significantly weaker among externally oriented males. A similar pattern emerges for physical attacks: although the estimated association is not significant among internally oriented males, the negative interaction indicates a significantly less risk-tolerant response among those with an External LoC. External LoC itself is also positively associated with the investment game among males who did not experience the relevant traumatic events, although this main effect should be interpreted conditionally because the model includes interactions.

For females, the clearest interaction result concerns physical attacks and the DOSPERT scale. The positive event coefficient combined with the large negative interaction suggests opposite responses across LoC groups: exposure is associated with higher self-reported financial risk attitude among internally oriented females, but with a substantially lower outcome among externally oriented females. In the risky-holding model, robbery or fraud is

positively associated with participation in risky assets among internally oriented females, while the negative interaction indicates that this association is considerably weaker among externally oriented females. The results for risky holding also reveal event-specific gender differences. A health shock is negatively associated with risky asset participation among internally oriented males, whereas robbery or fraud is positively associated with participation among internally oriented females. Therefore, our findings caution against treating the four dependent variables as interchangeable indicators of a single underlying construct.

Compared to Table 3, we find that two of the previous significant coefficients are gender-driven: the coefficient of health shock on the investment game, driven by males, and the coefficient of robbery or fraud on risky holding, driven by females.

Table 4. Estimates by gender

	Investment game		DOSPERT scale		Risk tolerance		Risky holding	
	Female	Male	Female	Male	Female	Male	Female	Male
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
External LoC	-0.011	0.202*	0.180	0.116	-0.027	0.028	-0.116	-0.055
	(0.085)	(0.085)	(0.578)	(0.565)	(0.094)	(0.093)	(0.112)	(0.118)
Health shock	-0.049	0.865***	1.624	0.363	0.212	0.002	-0.010	-0.733*
	(0.270)	(0.246)	(1.835)	(1.644)	(0.296)	(0.275)	(0.379)	(0.352)
Robbery or fraud	0.255	0.113	1.098	1.408	0.111	0.219	0.755***	0.236
	(0.171)	(0.134)	(1.179)	(0.894)	(0.189)	(0.147)	(0.243)	(0.190)
Natural disaster	-0.058	-0.145	-1.351	-0.613	-0.234	0.007	0.172	-0.162
	(0.202)	(0.188)	(1.368)	(1.227)	(0.227)	(0.203)	(0.257)	(0.251)
Physical attack	-0.153	0.092	2.336	-0.781	-0.040	0.030	0.212	0.107
	(0.210)	(0.168)	(1.415)	(1.105)	(0.236)	(0.184)	(0.286)	(0.234)
Health shock * LoC	-0.079	-0.762*	-0.926	-1.665	0.301	0.221	0.202	0.553
	(0.335)	(0.334)	(2.273)	(2.218)	(0.366)	(0.368)	(0.465)	(0.469)
Robbery or fraud * LoC	-0.232	-0.254	-0.135	-0.700	-0.076	-0.264	-0.633*	-0.033
	(0.229)	(0.199)	(1.577)	(1.322)	(0.255)	(0.218)	(0.316)	(0.274)
Natural disaster * LoC	0.248	0.383	2.391	2.068	0.073	0.079	0.338	0.238
	(0.272)	(0.259)	(1.853)	(1.710)	(0.309)	(0.282)	(0.349)	(0.345)
Physical attack * LoC	0.104	-0.485*	-4.423*	0.892	0.140	-0.168	-0.413	0.026
	(0.278)	(0.245)	(1.882)	(1.614)	(0.314)	(0.267)	(0.383)	(0.329)

*Note. Sample size: 902 observations (females); 925 observations (males). Ordered probit (Columns 1-2, 5-6), OLS (Columns 3-4), probit (Columns 7-8). The specification also includes variables on socio-demographics (age, education, marital status and geographical area), economic condition (occupation, income and wealth), financial habits (fragility, decision making, experience and literacy), health condition (status, hospitalization, BMI and smoking). Standard errors in parentheses. Significance levels: *: 0.05; **: 0.01; ***: 0.001.*

Coefficients do not allow to make a sense of the size of the effects, either because of the non-linear nature of the probit and ordered probit models, or because of the presence of interactions in the specification. For this reason, Table 5 reports the average marginal effects derived from the results reported in Table 4. When considering the ordered probit models of Columns 1-2 and 5-6, marginal effects have been computed as the change in probability of being in the category of highest risk attitude.

Table 5. Marginal Effects from Table 4

	Investment game		DOSPERT scale		Risk tolerance		Risky holding	
	Female	Male	Female	Male	Female	Male	Female	Male
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Health shock								
Internal LoC	-0.009	0.234**	1.624	0.363	0.029	0.000	-0.003	-0.201*
	(0.051)	(0.085)	(1.835)	(1.644)	(0.045)	(0.058)	(0.110)	(0.095)
External LoC	-0.023	0.023	0.698	-1.302	0.081	0.051	0.056	-0.049
	(0.038)	(0.055)	(1.529)	(1.571)	(0.049)	(0.063)	(0.090)	(0.089)
Robbery or fraud								
Internal LoC	0.056	0.022	1.098	1.408	0.014	0.049	0.225**	0.063
	(0.041)	(0.027)	(1.179)	(0.894)	(0.026)	(0.035)	(0.070)	(0.050)
External LoC	0.005	-0.028	0.963	0.708	0.004	-0.009	0.035	0.054
	(0.030)	(0.028)	(1.055)	(0.974)	(0.021)	(0.033)	(0.059)	(0.052)
Natural disaster								
Internal LoC	-0.011	-0.025	-1.351	-0.613	-0.025	0.001	0.050	-0.044
	(0.038)	(0.031)	(1.368)	(1.227)	(0.021)	(0.043)	(0.076)	(0.069)
External LoC	0.040	0.056	1.040	1.455	-0.018	0.019	0.150*	0.020
	(0.042)	(0.046)	(1.258)	(1.197)	(0.021)	(0.044)	(0.071)	(0.063)
Physical attack								
Internal LoC	-0.028	0.018	2.336	-0.781	-0.005	0.007	0.062	0.029
	(0.036)	(0.034)	(1.415)	(1.105)	(0.028)	(0.040)	(0.084)	(0.062)
External LoC	-0.009	-0.070**	-2.087	0.111	0.013	-0.027	-0.056	0.035
	(0.034)	(0.026)	(1.258)	(1.182)	(0.028)	(0.037)	(0.071)	(0.061)

Note. See note to Table 4.

The most pronounced result for the investment game concerns internally oriented males. For this group, experiencing a health shock is associated with a 23.4 percentage point increase in the probability of choosing the highest risky investment. The corresponding effect among externally oriented males is small and statistically insignificant. Conversely, among externally oriented males, exposure to a physical attack is associated with a 7 percentage point reduction in the probability of selecting the highest investment category, whereas no significant effect is observed among internally oriented males. Taken together, these results suggest that internal control beliefs may be associated with a more risk tolerant response to a serious health event, while external control beliefs may be associated with withdrawal following interpersonal violence.

For risky holding, the effects differ both by gender and by type of trauma. Among internally oriented females, robbery or fraud is associated with a 22.5 percentage point increase in the probability of holding risky financial assets. The corresponding estimate for externally oriented females is substantially smaller and statistically insignificant. Exposure to a natural disaster is instead associated with a 15 percentage point increase in risky asset participation among externally oriented females, despite the absence of individually significant coefficients in the nonlinear regression reported in Table 4. This illustrates why marginal effects are particularly important for interpreting interacted nonlinear models.

Among internally oriented males, a health shock is associated with a 20.1 percentage point reduction in the probability of holding risky assets. This result contrasts with the positive effect of the same event on the investment game measure. The divergence is substantively relevant: the investment game captures an incentivized choice under controlled conditions, whereas

risky holding reflects actual household portfolio participation and may also depend on wealth, market access, experience, background risk, and post-shock liquidity needs.

Overall, the marginal effects do not support a simple claim that traumatic events are uniformly associated with either higher or lower willingness to take financial risks. Their associations are outcome-, event-, gender-, and LoC-specific. Nevertheless, several results are consistent with the view that control beliefs shape individuals' behavioral responses to adverse experiences. Internal LoC is associated with more risk-tolerant responses in some settings, notably the investment game response of males to health shocks and the risky holding response of females to robbery or fraud. External LoC is associated with more cautious responses in other settings, particularly following physical attacks among males. The exception involving natural disasters and risky holding among females, together with the contrasting health shock results across outcome measures, indicate that this moderating pattern is not universal.

4.2. Robustness checks

Appendix Tables A.3–A.5 assess the robustness of the gender-specific estimates reported in Table 4. Appendix Table A.3 augments the baseline specification by controlling for the Big Five personality traits. The inclusion of these additional psychological characteristics leaves the main qualitative findings largely unchanged. In particular, the positive association between health shocks and the investment game outcome among internally oriented males remains statistically significant, as does the negative interaction between health shocks and External LoC. The negative interaction between physical attacks and External LoC also remains significant for the female DOSPERT measure. Similarly, the positive association between robbery or fraud and risky holding among internally oriented females remains robust. Overall, these results suggest that the moderating role attributed to LoC is not simply capturing correlations with broader personality dimensions.

Appendix Table A.4 replaces the binary indicator of External LoC with a continuous, demeaned measure. The interaction between health shocks and External LoC remains negative and significant for the investment game among males. In general, the results are broadly consistent with those obtained in Table 4 using the dummy variable, although their statistical precision is sometimes reduced. The weaker significance obtained with the continuous measure may indicate that the relevant heterogeneity is captured more effectively by the broad distinction between internal and external orientations than by marginal variation within these groups. In other words, the moderating role of LoC may be characterized by a threshold effect rather than by a linear gradient across the full scale.

Finally, Appendix Table A.5 restricts the analysis to respondents aged 50 or above. Despite the substantial reduction in sample size, several results remain qualitatively consistent with the baseline estimates, while others become less precisely estimated. Results for robbery or fraud become particularly pronounced in the older subsample: the event is positively associated with several outcomes among internally oriented respondents, whereas the corresponding interactions with External LoC are generally negative.

Overall, the robustness checks preserve the main qualitative message of the analysis, although the statistical significance of individual coefficients varies across specifications.

5. Concluding remarks

This paper examined whether LoC helps explain heterogeneity in the association between traumatic life events and financial risk attitudes. The full-sample estimates provide limited evidence of uniform effects. More distinctive patterns emerge when the analysis is run separately by gender and when the interaction terms are interpreted through average marginal effects. Among internally oriented males, health shocks are associated with a substantially higher probability of choosing the riskiest option in the investment game. By contrast, physical attacks are associated with a lower probability of choosing that option among externally oriented males. Among females, robbery or fraud is positively associated with risky-asset holding for those with an internal LoC, while natural-disaster exposure is positively associated with risky holding among those with an external LoC. We also show that the same event may have different associations across risk attitude measures: for example, health shocks increase incentivized risk taking but reduce risky holding among internally oriented males.

These findings are consistent with the broader idea that exposure alone is insufficient to predict behavioral responses to trauma. Individuals' generalized beliefs about control appear to condition some of these responses, so that our results may help reconcile seemingly contradictory findings in existing literature, i.e. trauma-induced shifts occurring in opposite directions. For internal LoC individuals, a positive association between trauma and risk attitude may be viewed as an attempt to reassert personal agency and regain a sense of control after events that are in themselves largely uncontrollable ("agency restoration"). This may contribute to explaining why part of prior work documented an increase in risk taking after major life events. In contrast, for external LoC individuals, a negative association between trauma and risk attitude may be due to exposure to highly adverse events reinforcing perceptions that outcomes are largely determined by external forces rather than personal actions ("learned helplessness"). As highlighted by Malmendier (2026), "Uncontrollable shocks produce learned helplessness and withdrawal". This may help explain why several studies have documented a decline in risk taking following exposure to major life events. However, it is important to point out that our findings also clearly indicate that the direction and magnitude of the detected associations between traumatic events and risk attitudes vary across events and genders. The overall evidence is therefore more nuanced than a simple contrast between agency restoration among internally oriented individuals and learned helplessness among externally oriented individuals.

A further contribution of our study is methodological. We rely on a battery of measures of financial risk attitudes spanning two largely distinct measurement traditions (Frey et al., 2017). Specifically, our analysis combines an incentive-compatible behavioral measure with three self-reported measures of financial risk attitudes, including stock market participation and domain-specific survey indicators. Although this paper is not primarily concerned with the "risk elicitation puzzle" recalled in Section 2, relying on multiple measures allows us to assess whether the observed patterns are robust across different approaches to measuring risk attitudes in an economically relevant domain.

While traumatic life events are objectively observable occurrences, their psychological meaning is filtered through individual resources. LoC may help explain why the same life event is experienced differently and therefore leads to different responses. From a policy perspective, our findings highlight the importance of accounting for psychological traits, such as LoC, when

designing interventions for individuals exposed to traumatic events. Because the impact of trauma depends, at least in part, on individuals' perceived control over life outcomes, uniform interventions may fail to address the substantial heterogeneity in behavioral responses. In contrast, our findings point to the value of more tailored educational and support interventions aimed at helping individuals and communities cope with the aftermath of traumatic experiences.

While the cross-sectional nature of the data and the possibility of non-random exposure to the traumatic events we considered preclude strong causal conclusions, our results also suggest that empirical research on the consequences of traumatic life events should move beyond a *one-size-fits-all* perspective (Bühler et al., 2024; Dugan et al., 2024), supporting a person-environment perspective in which objective experiences interact with individual characteristics. Future research using longitudinal or quasi-experimental designs could investigate the causal mechanisms underlying these patterns and determine whether interventions that strengthen perceived agency improve financial decision-making after the occurrence of traumatic experiences.

References

American Psychiatric Association, 2010, DSM-5: The Future of Psychiatric Diagnosis. Proposed draft revisions to DSM disorders and criteria.

Aragon, F.M., Bernal, N., Bosch, M., Molina, O., 2024, COVID-19 and economic preferences: Evidence from a panel of cab drivers, *Journal of Behavioral and Experimental Economics*, 112, 102257.

Ayton, P., Bernile, G., Bucciol, A., Zarri, L., 2020, The impact of life experiences on risk taking, *Journal of Economic Psychology*, 79, 102274.

Banks, J., Bassoli, E., Mammi, I., 2020, Changing attitudes to risk at older ages: The role of health and other life events, *Journal of Economic Psychology*, 79, 102208.

Blais, A.-R., & Weber, E. U., 2006, A Domain-Specific Risk-Taking (DOSPERT) scale for adult populations. *Judgment and Decision Making*, 1, 33-47.

Bleidorn, W., Hopwood, C.J., Back, M.D., Denissen, J.J.A., Hennecke, M., Jokela, M., Kandler, C., Lucas, R.E., Luhmann, M., Orth, U., Roberts, B.W., Wagner, J., Wrzus, C., Zimmermann, J., 2020, Longitudinal experience-wide association studies: A framework for studying personality change, *European Journal of Personality*, 34(3), 285-300.

Bucciol, A., Trucchi, S., 2021, Locus of control and saving: The role of saving motives, *Journal of Economic Psychology*, 86, 102413.

Bucciol, A., Zarri, L., 2015, The shadow of the past: Financial risk taking and negative life events. *Journal of Economic Psychology*, 48, 1-16.

Bucciol, A., Zarri, L., 2017, Do personality traits influence investors' portfolios?. *Journal of Behavioral and Experimental Economics*, 68, 1-12.

Bucciol, A., Zarri, L., Wagner, J., 2026, Traumatic life events as sources of Big Five personality trait change: The moderating role of control beliefs, *European Journal of Personality*, 40(1), 60-86.

Buddelmeyer, H., Powdthavee, N., 2016, Can having internal locus of control insure against negative shocks?, Psychological evidence from panel data, *Journal of Economic Behavior*

and Organization, 122, 88-109.

Bühler, J.L., Orth, U., Bleidorn, W., Weber, E., Kretzschmar, A., Scheling, L., Hopwood, C.J., 2024, Life events and personality change: A systematic review and meta-analysis, *European Journal of Personality*, 38(3), 544-568.

Callen, M., Isaqzadeh, M., Long, J.D., Sprenger, C., 2014, Violence and risk preference: Experimental evidence from Afghanistan, *American Economic Review*, 104, 123-148.

Cameron, L., Shah, M., 2015, Risk-taking behavior in the wake of natural disasters, *Journal of Human Resources*, 50(2), 484-515.

Chapman, J., Ortoleva, P., Snowberg, E., Yariv, L., Camerer, C., 2025, Reassessing qualitative self-assessments and experimental validation, CEPR Press, DP 19953.

Charness, G., Gneezy, U. (2010). Portfolio choice and risk attitudes: An experiment. *Economic Inquiry*, 48(1), 133-146.

Charness, G., Gneezy, U., Imas, A., 2013, Experimental methods: Eliciting risk preferences, *Journal of Economic Behavior and Organization*, 87, 43-51.

Cheng, L., Lu, Y., 2024, Does retirement make people more risk averse?, *Journal of Economic Behavior and Organization*, 224, 135-155.

Clark, A.E., Zhu, R., 2024, Taking back control? Quasi-experimental evidence on the impact of retirement on locus of control, *Economic Journal*, 134(660), 1465-1493.

Cobb-Clark, D.A., 2015, Locus of control and the labor market, *IZA Journal of Labor Economics*, 4(1), 3, 1-19.

Cobb-Clark, D.A., Kassenboehmer, S.C., Sinning, M.G., 2016, Locus of control and savings, *Journal of*

Banking and Finance, 73, 113-130.

Cobb-Clark, D.A., Schurer, S., 2013, Two economists' musings on the stability of locus of control, *Economic Journal*, 123(570), F358-F400.

Cohn, A., Engelmann, J., Fehr, E., Maréchal, M.A., 2015, Evidence for countercyclical risk aversion: An experiment with financial professionals, *American Economic Review*, 105(2), 860-885.

Crosetto, P., Filippin, A., 2013, The "bomb" risk elicitation task, *Journal of Risk and Uncertainty*, 47, 31-65.

Dohmen, T., Falk, A., Huffman, D., & Sunde, U., 2010, Are risk aversion and impatience related to cognitive ability?. *American Economic Review*, 100(3), 1238-1260.

Dohmen, T., Quercia, S., Willrodt, J., 2023, On the psychology of the relation between optimism and risk taking, *Journal of Risk and Uncertainty*, 67, 193-214.

Dugan, K.A., Vogt, R.L., Zheng, A., Gillath, O., Deboeck, P.R., Fraley, R.C., Briley, D.A., 2024, Life events sometimes alter the trajectory of personality development: Effect sizes for 25 life events estimated using a large, frequently assessed sample, *Journal of Personality*, 92(1), 130-146.

Eckel, C.C., El-Gamal., M.A., Wilson, R.K., 2009, Risk loving after the storm: A Bayesian-network study of hurricane Katrina evacuees, *Journal of Economic Behavior and Organization*, 69, 110-124.

Eckel, C. C., Grossman, P.J., 2002, Sex differences and statistical stereotyping in attitudes toward financial risk, *Evolution and Human Behavior*, 23(4), 281-295.

Etilé, F., Frijters, P., Johnston, D.W., Shields, M.A., 2021, Measuring resilience to major life

events, *Journal of Economic Behavior and Organization*, 191, 598-619.
Fitzenberger, B., Mena, G., Nimczik, J.S., Sunde, U., 2022, Personality traits across the life cycle: Disentangling age, period and cohort effects, *Economic Journal*, 132(646), 1894-1924.
Freiberger, M., Kuhn, M., Wrzaczek, S., 2026, Integrating large health shocks into life-cycle models: Modelling impacts of a cancer diagnosis, *Journal of Economic Dynamics and Control*, 189, 105367. Frey, R., Pedroni, A., Mata, R., Rieskamp, J., Hertwig, R., 2017, Risk preference shares the psychometric structure of major psychological traits, *Science Advances*, 3(10), e1701381.
Gassmann, X., Malézieux, A., Spiegelman, E., Tisserand, J.-C., 2022, Preferences after pan(dem)ics: Time and risk in the shadow of COVID-19, *Judgment and Decision Making*, 17(4), 745-767.
Gneezy, U., Potters, J., 1997, An experiment on risk taking and evaluation periods, *Quarterly Journal of Economics*, 112(2), 631-645.
Giuliano, P., Spilimbergo, A., 2025, Aggregate shocks and the formation of preferences and beliefs, *Journal of Economic Literature*, 63(2), 542-597.
Gosling S.D, Rentfrow P.J, Swann B.W., 2003, A very brief measure of the Big-Five personality domains, *Journal of Research in Personality*, 37, 504-528.
Hanaoka, C., Shigeoka, H., Watanabe, Y., 2018, Do risk preferences change? Evidence from the great east Japan earthquake, *American Economic Journal: Applied Economics*, 10(2), 298-330.
Ingwersen, N., Frankenberg, E., Thomas, D., 2023, Evolution of risk aversion over five years after a major natural disaster, *Journal of Development Economics*, 163, 103095.
Kettlewell, N., 2019, Risk preference dynamics around life events, *Journal of Economic Behavior and Organization*, 162, 66-84.
Kim, Y., Lee, J., 2014, The long-run impact of a traumatic experience on risk aversion, *Journal of Economic Behavior and Organization*, 108, 174-186.
Kosfeld, M., Sharafi, Z., Gonzalez, M.S., Zou, N., 2026, Measuring economic preferences with behavioral experiments and surveys around the globe, CESifo working paper, N. 11631.
Lachman, M.E., 2006, Perceived control over aging-related declines: Adaptive beliefs and behaviors, *Current Directions in Psychological Science*, 15(6), 282-286.
Lusardi, A., Mitchell, O.S., 2008, Planning and financial literacy: How do women fare?, *American Economic Review*, 98(2), 413-417.
Magnusson, L.M., Roth, S., 2024, Trust, risk, and gender: Evidence from the Black Saturday Fires in Victoria, Australia, *Journal of Economic Behavior and Organization*, 223, 21-39.
Malmendier, U., 2026, *Homo Experiens*: Why Behavioral Economics Needs the Life Sciences, Introduction to the Behavioral Economics Guide 2026, Samson, A. (Ed.).
Malmendier, U., Nagel, S., 2011, Depression Babies: Do macroeconomic experiences affect risk-taking? *Quarterly Journal of Economics*, 126, 373-416.
Mata, R., Frey, R., Richter, D., Schupp, J., Hertwig, R., 2018, Risk preference: A view from psychology, *Journal of Economic Perspectives*, 32(2), 155-172.
Meier, A.N., 2022, Emotions and risk attitudes, *American Economic Journal: Applied Economics*, 14(3), 527-558.
OECD/INFE (2020). International survey of adult financial literacy.

Page, L., Savage, D.A., Torgler, B., 2014, Variation in risk seeking behaviour following large losses: A natural experiment, *European Economic Review*, 71, 121-131.

Pedroni, A., Frey, R., Bruhin, A., Dutilh, G., Hertwig, R., Rieskamp, J., 2017, The risk elicitation puzzle, *Nature Human Behaviour*, 1(11), 803-809.

Priebe, J., Rink, U., Stemmler, H., 2024, Disability and risk preferences: Experimental and survey evidence from Vietnam, *Economic Journal*, 134(664), 3390-3427.

Rice, N., Robone, S., 2022. The effects of health shocks on risk preferences: Do personality traits matter?, *Journal of Economic Behavior and Organization*, 204, 356-371.

Rotter, J.B., 1966, Generalized expectancies for internal versus external control of reinforcement, *Psychological Monographs: General and Applied*, 80(1), 1-28.

Said, F., Afzal, U., Turner, G., 2015, Risk taking and risk learning after a rare event: Evidence from a field experiment in Pakistan, *Journal of Economic Behavior and Organization*, 118, 167-183.

Salamanca, N., de Grip, A., Fouarge, D., Montizaan, R., 2020, Locus of control and investment in risky assets, *Journal of Economic Behavior and Organization*, 177, 548-568.

Schurer, S., 2017, Bouncing back from health shocks: Locus of control and labor supply, *Journal of Economic Behavior and Organization*, 133, 1-20.

Stigler, G., Becker, G., 1977. De Gustibus Non Est Disputandum, *American Economic Review*, 67(2), 76-90.

Voors, M.J., Nillesen, E.E.M., Bulte, E.H., Lensink, B.W., Verwimp, P., van Soest, D.P., 2012, Violent conflict and behavior: A field experiment in Burundi, *American Economic Review*, 102(2), 941-964.

Weber, E.U., Blais, A.R., Betz, E., 2002, A domain-specific risk-attitude scale: Measuring risk perceptions and risk behaviors, *Journal of Behavioral Decision Making*, 15, 263-290.

APPENDIX

A.1. Financial risk attitudes

In this paper we use four measures of financial risk attitudes. The first measure is the incentivized "Investment game". The investment game is a foundational tool in experimental economics, widely used to elicit individuals' financial risk preferences by simulating a decision between a safe and a risky asset. Participants are typically endowed with a fixed sum and asked to allocate it between a risk-free asset and a risky investment, and their final payoff often depends on probabilistic market outcomes. Since its introduction by Gneezy & Potters (1997), financial risk attitudes have been measured through the investment game in several studies (Eckel & Grossman 2002; Charness & Gneezy 2010; Dohmen et al. 2010). In our study, we adopt the version used by Cohn et al. (2015) and asked the interviewed the following question:

"Suppose you receive an amount of €3.50. You must choose how much of this amount (x €) you would like to invest in a risky financial asset, and how much to keep in cash. The risky financial asset yields 2.5 times the invested amount with a probability of 0.5, but you could lose the entire invested amount with the same probability of 0.5. The money that is not invested in the risky asset is kept in cash, which equals €3.50 − x. What amount (x €) would you choose to invest in the risky financial asset?

0	*0.25*	*0.50*	*0.75*	*1*	*1.25*	*1.50*	*1.75*	*2*	*2.25*	*2.50*	*2.75*	*3*	*3.25*	*3.50*

(One out of every ten participants will receive the amount kept in cash plus the return from the risky financial asset, in the form of a voucher)"

The higher the amount invested by the individuals in the risky financial asset, the higher is their level of risk tolerance. The relevant advantage of the investment game as a measure of risk tolerance (compared to self-reported measures) is that it is incentive-compatible (Gneezy & Potters, 1997; Cohn et al., 2015), that is, respondents have an incentive to reveal their real attitude when they play the game since through their choices they can earn real money.

We also consider two self-reported variables of financial risk attitude: one of them is measured through a Domain-Specific Risk-Taking – in short "DOSPERT" – scale (Weber et al., 2002; Blais et al., 2006), which is a psychometric scale that assesses general and domain-specific dimensions of risk preference. For our purpose, we focus on financial decisions only, looking at "investing" (but not gambling). Respondents rate the likelihood that they would engage in financial-specific risky activities, reported in 3 items. Each activity is rated on a 7-point Likert scale. Specifically, we asked the interviewed the following question:

"For each of the following statements, please indicate the likelihood that you would engage in the described activity or behavior if you were to find yourself in that situation.

1 = Extremely unlikely ... 7 = Extremely likely

- *Investing 10% of your annual income in a moderate growth mutual fund*
- *Investing 5% of your annual income in a very speculative stock*
- *Investing 10% of your annual income in a new business venture"*

A further self-reported measure is the one eliciting respondents' willingness to take financial risks, measured through a four-categorical "risk tolerance" variable ranging from "not at all willing" to "very willing" to take financial risks (Charness et al., 2013).[10] Specifically, we asked the interviewed the following question:

"Which of the following statements comes closest to the amount of financial risk that you are willing to take when you save or make investments?

- *Take substantial financial risks expecting to earn substantial returns.*
- *Take above-average financial risks expecting to earn above-average returns.*
- *Take average financial risks expecting to earn average returns.*
- *Not willing to take any financial risks"*

Finally, we exploit an indirect measure of financial risk attitudes, elicited as "risky holding participation" in the household portfolio allocation (Malmendier & Nagel, 2011; Bucciol & Zarri, 2017; Rice & Robone, 2022). Respondents are first asked whether any household wealth is invested in the financial markets (e.g., bonds, stocks, mutual funds, derivatives, cryptocurrencies). Thus, we create the variable which is equal to 1 for those who answering "yes" and 0 otherwise. Specifically, we asked the interviewed the following question:

"Considering your household's wealth and savings, do you currently hold any investments in financial markets, such as government bonds, corporate bonds, stocks, mutual funds, derivatives, or cryptocurrencies?"

A.2. Traumatic life events

These survey questions give origin to the variables about traumatic life events.

[health shock] "In the past 36 months, have you had a heart attack or stroke, or been diagnosed with cancer? (YES/NO)

We will now ask you some questions about events that may have occurred during your life:
[natural disaster] Have you ever been the victim of a fire or natural disaster, such as a flood or earthquake? (YES/NO)
[physical attack] Have you ever been the victim of a physical attack or physical violence in your lifetime? (YES/NO)

Think about the LAST 5 YEARS and indicate whether each of the following events has occurred.
[robbery or fraud – the two events have been combined in one]
Were you robbed, or was your home burgled? (YES/NO)
Were you the victim of fraud? (YES/NO)

[10] This is the same measure used in the US Survey of Consumer Finance.

A.3. Locus of Control

These survey questions give origin to the variables about Locus of Control (LoC).

"For each of the following statements, please indicate on a scale from 1 to 5 the extent to which you agree or disagree, where 1 means "strongly disagree" and 5 means "strongly agree":

- *I often feel helpless in dealing with the problems of life.*
- *Other people determine most of what I can and cannot do.*
- *What happens in my life is often beyond my control.*
- *I have little control over the things that happen to me.*
- *There is really no way to solve the problems I have.*
- *I can do just about anything I set my mind to.*
- *When I really want to do something, I usually find a way to succeed.*
- *Whether or not I get what I want depends on me.*
- *What happens to me in the future mainly depends on me.*
- *I can do the things I want to do."*

The first five items regard external LoC (perceived constraints), while the latter five items concern internal LoC (perceived mastery).

A.4. Robustness checks

Table A.1. Full sample estimates – full output

	Investment game		DOSPERT scale		Risk tolerance		Risky holding	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
External LoC	0.049	0.095	0.130	0.195	0.004	0.009	-0.092	-0.077
	(0.052)	(0.060)	(0.353)	(0.401)	(0.058)	(0.066)	(0.070)	(0.080)
Health shock	0.174	0.431*	0.389	1.220	0.261	0.115	-0.214	-0.402
	(0.123)	(0.178)	(0.833)	(1.210)	(0.136)	(0.199)	(0.168)	(0.251)
Robbery or fraud	0.056	0.173	1.063*	1.293	0.078	0.154	0.288**	0.437**
	(0.074)	(0.104)	(0.502)	(0.708)	(0.082)	(0.115)	(0.101)	(0.148)
Natural disaster	0.055	-0.100	0.226	-0.856	-0.083	-0.123	0.172	0.031
	(0.093)	(0.136)	(0.625)	(0.907)	(0.103)	(0.150)	(0.121)	(0.180)
Physical attack	-0.135	-0.038	-0.332	0.270	-0.029	-0.012	0.046	0.147
	(0.091)	(0.130)	(0.609)	(0.864)	(0.101)	(0.143)	(0.121)	(0.178)
Health shock * LoC		-0.459*		-1.489		0.263		0.313
		(0.232)		(1.564)		(0.256)		(0.319)
Robbery or fraud * LoC		-0.229		-0.442		-0.156		-0.284
		(0.148)		(0.999)		(0.163)		(0.202)
Natural disaster * LoC		0.302		2.073		0.075		0.256
		(0.185)		(1.242)		(0.205)		(0.243)
Physical attack * LoC		-0.176		-1.145		-0.030		-0.175
		(0.180)		(1.208)		(0.200)		(0.242)
North East	0.011	0.005	-0.516	-0.522	0.006	0.005	-0.139	-0.143
	(0.075)	(0.076)	(0.505)	(0.506)	(0.083)	(0.083)	(0.101)	(0.101)
Centre	0.054	0.049	-0.337	-0.333	-0.072	-0.070	-0.198*	-0.197*
	(0.074)	(0.074)	(0.500)	(0.500)	(0.082)	(0.082)	(0.100)	(0.101)
South	0.153*	0.148*	0.324	0.321	-0.081	-0.083	-0.299***	-0.302***
	(0.067)	(0.067)	(0.451)	(0.452)	(0.074)	(0.074)	(0.090)	(0.090)
Female	-0.027	-0.022	-1.078**	-1.062**	-0.223***	-0.223***	0.012	0.015
	(0.057)	(0.057)	(0.381)	(0.381)	(0.063)	(0.063)	(0.076)	(0.076)
Age	-0.013***	-0.013***	-0.061***	-0.062***	-0.018***	-0.018***	0.007*	0.007*
	(0.002)	(0.002)	(0.016)	(0.016)	(0.003)	(0.003)	(0.003)	(0.003)
High education	-0.025	-0.024	0.706	0.709	0.097	0.095	0.030	0.027
	(0.055)	(0.055)	(0.369)	(0.369)	(0.060)	(0.060)	(0.073)	(0.073)
Not married	0.100	0.099	-0.565	-0.575	-0.178*	-0.177*	0.139	0.143
	(0.065)	(0.065)	(0.437)	(0.437)	(0.072)	(0.072)	(0.087)	(0.087)
High income	0.152*	0.149*	2.040***	2.039***	0.349***	0.349***	0.127	0.130
	(0.060)	(0.060)	(0.403)	(0.404)	(0.066)	(0.066)	(0.080)	(0.081)
Financially frail	0.164	0.170*	1.434*	1.456*	0.243*	0.242*	0.481***	0.480***
	(0.086)	(0.086)	(0.574)	(0.575)	(0.097)	(0.098)	(0.121)	(0.122)
High wealth	-0.007	-0.013	0.958*	0.946*	0.091	0.092	0.613***	0.617***
	(0.061)	(0.061)	(0.408)	(0.408)	(0.066)	(0.066)	(0.081)	(0.081)
Employed	0.056	0.053	0.353	0.343	0.009	0.007	-0.044	-0.049
	(0.066)	(0.066)	(0.445)	(0.445)	(0.073)	(0.073)	(0.089)	(0.089)
No financial experience	0.138*	0.140*	3.867***	3.860***	0.733***	0.728***	1.144***	1.141***
	(0.056)	(0.056)	(0.378)	(0.379)	(0.063)	(0.063)	(0.072)	(0.073)
Low financial literacy	-0.053	-0.054	1.007**	1.006**	0.151*	0.150*	0.252***	0.250***
	(0.055)	(0.055)	(0.367)	(0.367)	(0.060)	(0.061)	(0.072)	(0.072)
Fin. decision maker	-0.006	0.000	1.229**	1.250**	0.186**	0.188**	0.065	0.069
	(0.059)	(0.059)	(0.394)	(0.395)	(0.064)	(0.064)	(0.078)	(0.078)

Table A.1. (Continued)

	Investment game		DOSPERT scale		Risk tolerance		Risky holding	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bad/fair health	-0.012	-0.014	-0.818	-0.815	0.004	0.005	-0.136	-0.135
	(0.065)	(0.065)	(0.439)	(0.439)	(0.072)	(0.072)	(0.087)	(0.087)
Hospitalization	-0.082	-0.084	0.376	0.344	0.052	0.057	0.406*	0.414**
	(0.116)	(0.116)	(0.779)	(0.780)	(0.127)	(0.128)	(0.159)	(0.160)
BMI	0.004	0.004	-0.005	-0.006	0.001	0.001	-0.014	-0.014
	(0.006)	(0.006)	(0.039)	(0.039)	(0.006)	(0.006)	(0.008)	(0.008)
Smoker in the past	0.158**	0.164**	1.071**	1.104**	0.093	0.094	-0.039	-0.036
	(0.059)	(0.059)	(0.400)	(0.400)	(0.066)	(0.066)	(0.080)	(0.080)
Smoker now	0.088	0.092	0.522	0.551	0.109	0.105	-0.319***	-0.325***
	(0.067)	(0.067)	(0.450)	(0.451)	(0.074)	(0.074)	(0.090)	(0.091)
Constant			11.594***	11.559***				
			(1.518)	(1.521)				
cut1	-0.664**	-0.638**			-0.584*	-0.593*	1.078***	1.075***
	(0.227)	(0.227)			(0.252)	(0.253)	(0.311)	(0.311)
cut2	-0.027	0.001			1.320***	1.313***		
	(0.227)	(0.227)			(0.253)	(0.254)		
cut3	0.415	0.444						
	(0.227)	(0.227)						
cut4	1.052***	1.083***						
	(0.227)	(0.228)						
Observations	1,827	1,827	1,827	1,827	1,827	1,827	1,827	1,827

*Note. Sample size: 1,827 observations. Ordered probit (Columns 1-2, 5-6), OLS (Columns 3-4), probit (Columns 7-8). The specification also includes variables on socio-demographics (age, gender, education, marital status and geographical area), economic condition (occupation, income and wealth), financial habits (fragility, decision making, experience and literacy), health condition (status, hospitalization, BMI and smoking). Standard errors in parentheses. Significance levels: *: 0.05; **: 0.01; ***: 0.001.*

Table A.2. Estimates by gender – full output

	Investment game		DOSPERT scale		Risk tolerance		Risky holding	
	Female	Male	Female	Male	Female	Male	Female	Male
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
External LoC	-0.011	0.202*	0.180	0.116	-0.027	0.028	-0.116	-0.055
	(0.085)	(0.085)	(0.578)	(0.565)	(0.094)	(0.093)	(0.112)	(0.118)
Health shock	-0.049	0.865***	1.624	0.363	0.212	0.002	-0.010	-0.733*
	(0.270)	(0.246)	(1.835)	(1.644)	(0.296)	(0.275)	(0.379)	(0.352)
Robbery or fraud	0.255	0.113	1.098	1.408	0.111	0.219	0.755**	0.236
	(0.171)	(0.134)	(1.179)	(0.894)	(0.189)	(0.147)	(0.243)	(0.190)
Natural disaster	-0.058	-0.145	-1.351	-0.613	-0.234	0.007	0.172	-0.162
	(0.202)	(0.188)	(1.368)	(1.227)	(0.227)	(0.203)	(0.257)	(0.251)
Physical attack	-0.153	0.092	2.336	-0.781	-0.040	0.030	0.212	0.107
	(0.210)	(0.168)	(1.415)	(1.105)	(0.236)	(0.184)	(0.286)	(0.234)
Health shock * LoC	-0.079	-0.762*	-0.926	-1.665	0.301	0.221	0.202	0.553
	(0.335)	(0.334)	(2.273)	(2.218)	(0.366)	(0.368)	(0.465)	(0.469)
Robbery or fraud * LoC	-0.232	-0.254	-0.135	-0.700	-0.076	-0.264	-0.633*	-0.033
	(0.229)	(0.199)	(1.577)	(1.322)	(0.255)	(0.218)	(0.316)	(0.274)
Natural disaster * LoC	0.248	0.383	2.391	2.068	0.073	0.079	0.338	0.238
	(0.272)	(0.259)	(1.853)	(1.710)	(0.309)	(0.282)	(0.349)	(0.345)
Physical attack * LoC	0.104	-0.485*	-4.423*	0.892	0.140	-0.168	-0.413	0.026
	(0.278)	(0.245)	(1.882)	(1.614)	(0.314)	(0.267)	(0.383)	(0.329)
North East	-0.070	0.050	-0.826	-0.309	0.032	-0.016	-0.022	-0.229
	(0.109)	(0.106)	(0.738)	(0.704)	(0.120)	(0.116)	(0.144)	(0.149)
Centre	0.011	0.059	-0.564	0.017	-0.028	-0.139	0.035	-0.404**
	(0.108)	(0.105)	(0.734)	(0.695)	(0.120)	(0.115)	(0.145)	(0.145)
South	0.130	0.162	0.897	-0.092	0.032	-0.196	0.020	-0.561***
	(0.097)	(0.095)	(0.664)	(0.633)	(0.109)	(0.105)	(0.131)	(0.131)
Age	-0.015***	-0.011**	-0.051*	-0.060*	-0.015***	-0.023***	0.008	0.007
	(0.003)	(0.004)	(0.023)	(0.025)	(0.004)	(0.004)	(0.004)	(0.005)
High education	-0.144	0.075	0.895	0.767	0.083	0.130	0.070	-0.007
	(0.080)	(0.077)	(0.546)	(0.514)	(0.089)	(0.085)	(0.106)	(0.105)
Not married	0.162	0.068	-0.328	-0.709	-0.275*	-0.184	0.000	0.235
	(0.101)	(0.090)	(0.693)	(0.602)	(0.113)	(0.100)	(0.134)	(0.125)
High income	0.218*	0.098	1.908**	2.165***	0.390***	0.302***	0.085	0.165
	(0.095)	(0.079)	(0.655)	(0.523)	(0.105)	(0.086)	(0.127)	(0.108)
Financially frail	0.167	0.162	2.446**	-0.149	0.349**	0.116	0.394*	0.576**
	(0.114)	(0.135)	(0.768)	(0.894)	(0.132)	(0.150)	(0.162)	(0.192)
High wealth	0.119	-0.110	1.511*	0.655	0.096	0.106	0.791***	0.500***
	(0.095)	(0.081)	(0.645)	(0.538)	(0.104)	(0.089)	(0.127)	(0.110)
Employed	0.057	0.078	-0.169	0.932	0.067	-0.088	0.036	-0.191
	(0.087)	(0.109)	(0.590)	(0.728)	(0.097)	(0.120)	(0.117)	(0.150)
Financial experience	0.121	0.169*	3.760***	3.913***	0.699***	0.735***	1.107***	1.211***
	(0.081)	(0.080)	(0.553)	(0.527)	(0.091)	(0.089)	(0.104)	(0.105)
Low financial literacy	0.082	-0.208**	0.667	1.419**	0.199*	0.097	0.212*	0.303**
	(0.078)	(0.078)	(0.527)	(0.521)	(0.086)	(0.086)	(0.101)	(0.105)
Fin. decision maker	-0.066	0.059	0.669	1.662**	0.279**	0.137	0.065	0.090
	(0.093)	(0.078)	(0.632)	(0.519)	(0.102)	(0.086)	(0.124)	(0.106)

Table A.2. (Continued)

	Investment game		DOSPERT scale		Risk tolerance		Risky holding	
	Female	Male	Female	Male	Female	Male	Female	Male
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bad/fair health	0.011	-0.049	-0.942	-0.762	-0.015	-0.003	-0.184	-0.145
	(0.092)	(0.096)	(0.622)	(0.639)	(0.102)	(0.106)	(0.124)	(0.130)
Hospitalization	-0.158	0.009	0.109	0.338	0.046	0.044	0.327	0.443
	(0.167)	(0.166)	(1.143)	(1.092)	(0.186)	(0.180)	(0.223)	(0.240)
BMI	-0.002	0.011	-0.016	0.015	0.006	-0.004	-0.016	-0.012
	(0.008)	(0.009)	(0.051)	(0.061)	(0.009)	(0.010)	(0.011)	(0.013)
Smoker in the past	0.115	0.191*	0.962	1.276*	0.116	0.095	0.042	-0.121
	(0.085)	(0.084)	(0.582)	(0.558)	(0.095)	(0.092)	(0.113)	(0.116)
Smoker now	0.065	0.114	0.163	0.987	0.062	0.119	-0.276*	-0.423***
	(0.100)	(0.093)	(0.68)	(0.617)	(0.111)	(0.102)	(0.135)	(0.127)
Constant			9.900***	11.412***				
			(1.959)	(2.303)				
cut1	-0.869**	-0.374			0.120	-1.238**	1.241**	0.955*
	(0.290)	(0.347)			(0.325)	(0.383)	(0.401)	(0.477)
cut2	-0.231	0.277			2.003***	0.704		
	(0.289)	(0.347)			(0.33)	(0.382)		
cut3	0.212	0.731*						
	(0.289)	(0.348)						
cut4	0.825**	1.410***						
	(0.290)	(0.349)						
Observations	902	925	902	925	902	925	902	925

*Note. Sample size: 902 observations (females); 925 observations (males). Ordered probit (Columns 1-2, 5-6), OLS (Columns 3-4), probit (Columns 7-8). The specification also includes variables on socio-demographics (age, education, marital status and geographical area), economic condition (occupation, income and wealth), financial habits (fragility, decision making, experience and literacy), health condition (status, hospitalization, BMI and smoking). Standard errors in parentheses. Significance levels: *: 0.05; **: 0.01; ***: 0.001.*

Table A.3. Estimates including Big Five personality traits

	Investment game		DOSPERT scale		Risk tolerance		Risky holding	
	Female	Male	Female	Male	Female	Male	Female	Male
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
External LoC	-0.036	0.197*	0.166	-0.402	-0.013	0.007	-0.113	-0.151
	(0.091)	(0.092)	(0.604)	(0.603)	(0.103)	(0.102)	(0.121)	(0.128)
Health shock	0.028	0.851***	2.393	0.336	0.352	0.003	0.050	-0.700*
	(0.271)	(0.247)	(1.788)	(1.624)	(0.298)	(0.277)	(0.382)	(0.353)
Robbery or fraud	0.232	0.120	0.802	1.367	0.029	0.229	0.735**	0.223
	(0.172)	(0.134)	(1.156)	(0.882)	(0.193)	(0.148)	(0.247)	(0.192)
Natural disaster	-0.005	-0.133	-0.818	-0.452	-0.140	0.034	0.230	-0.158
	(0.203)	(0.188)	(1.336)	(1.210)	(0.230)	(0.204)	(0.262)	(0.254)
Physical attack	-0.200	0.056	1.713	-0.914	-0.137	0.029	0.172	0.130
	(0.211)	(0.169)	(1.380)	(1.096)	(0.240)	(0.186)	(0.290)	(0.238)
Health shock * LoC	-0.152	-0.755*	-1.807	-1.665	0.130	0.211	0.116	0.505
	(0.336)	(0.335)	(2.214)	(2.188)	(0.371)	(0.369)	(0.471)	(0.470)
Robbery or fraud * LoC	-0.174	-0.270	0.470	-0.948	0.070	-0.298	-0.579	-0.046
	(0.231)	(0.199)	(1.544)	(1.304)	(0.259)	(0.219)	(0.320)	(0.275)
Natural disaster * LoC	0.260	0.388	2.460	1.839	0.085	0.047	0.359	0.233
	(0.273)	(0.260)	(1.805)	(1.687)	(0.314)	(0.283)	(0.354)	(0.347)
Physical attack * LoC	0.157	-0.465	-3.936*	1.113	0.211	-0.143	-0.398	0.013
	(0.279)	(0.245)	(1.834)	(1.592)	(0.319)	(0.268)	(0.387)	(0.330)
Extroversion	0.040	0.030	0.278	0.503	0.129*	0.137*	0.082	0.073
	(0.048)	(0.051)	(0.315)	(0.334)	(0.054)	(0.056)	(0.065)	(0.071)
Agreeableness	-0.035	0.034	-0.468	-0.257	-0.104	-0.065	0.005	0.025
	(0.053)	(0.054)	(0.348)	(0.356)	(0.060)	(0.060)	(0.072)	(0.076)
Conscientiousness	-0.181***	-0.012	-1.968***	-1.456***	-0.285***	-0.084	-0.176**	-0.147*
	(0.048)	(0.053)	(0.316)	(0.346)	(0.054)	(0.058)	(0.065)	(0.073)
Neuroticism	-0.098*	0.094	-0.786*	0.263	-0.181***	-0.028	-0.075	0.076
	(0.049)	(0.051)	(0.319)	(0.332)	(0.055)	(0.056)	(0.065)	(0.071)
Openness to esxperience	0.034	0.072	1.298***	0.917**	0.159**	0.039	0.084	0.002
	(0.051)	(0.051)	(0.339)	(0.332)	(0.058)	(0.056)	(0.069)	(0.070)
Observations	902	925	902	925	902	925	902	925

*Note. Sample size: 902 observations (females); 925 observations (males). Ordered probit (Columns 1-2, 5-6), OLS (Columns 3-4), probit (Columns 7-8). The specification also includes variables on socio-demographics (age, gender, education, marital status and geographical area), economic condition (occupation, income and wealth), financial habits (fragility, decision making, experience and literacy), health condition (status, hospitalization, BMI and smoking). Standard errors in parentheses. Significance levels: *: 0.05; **: 0.01; ***: 0.001.*

Table A.4. Estimates with continuous (de-meaned) Locus of Control

	Investment game		DOSPERT scale		Risk tolerance		Risky holding	
	Female	Male	Female	Male	Female	Male	Female	Male
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
External LoC (cont)	0.035	0.076	-0.047	-0.751	-0.084	-0.101	-0.066	-0.059
	(0.064)	(0.065)	(0.434)	(0.428)	(0.071)	(0.071)	(0.085)	(0.090)
Health shock	-0.093	0.515**	1.149	-0.308	0.352	0.114	0.107	-0.445
	(0.183)	(0.176)	(1.240)	(1.170)	(0.200)	(0.195)	(0.255)	(0.248)
Robbery or fraud	0.130	-0.006	1.021	1.084	0.067	0.091	0.390*	0.227
	(0.115)	(0.099)	(0.790)	(0.655)	(0.127)	(0.108)	(0.154)	(0.138)
Natural disaster	0.081	0.032	-0.038	0.464	-0.197	0.040	0.377*	-0.013
	(0.138)	(0.130)	(0.941)	(0.854)	(0.156)	(0.142)	(0.176)	(0.174)
Physical attack	-0.106	-0.147	-0.169	-0.330	0.036	-0.058	-0.024	0.126
	(0.139)	(0.123)	(0.948)	(0.805)	(0.157)	(0.134)	(0.191)	(0.166)
Health shock * LoC (cont)	-0.245	-0.492*	-1.197	-1.554	0.288	0.157	0.047	0.237
	(0.231)	(0.225)	(1.545)	(1.513)	(0.247)	(0.248)	(0.329)	(0.331)
Robbery or fraud * LoC (cont)	-0.129	-0.031	0.448	-0.972	0.070	-0.154	-0.169	-0.175
	(0.160)	(0.155)	(1.085)	(1.032)	(0.176)	(0.171)	(0.214)	(0.218)
Natural disaster * LoC (cont)	-0.025	0.180	1.473	1.832	-0.027	-0.083	0.065	-0.071
	(0.182)	(0.196)	(1.206)	(1.299)	(0.204)	(0.215)	(0.234)	(0.278)
Physical attack * LoC (cont)	-0.104	-0.362	-2.296	2.063	-0.047	0.011	-0.227	0.321
	(0.180)	(0.194)	(1.207)	(1.264)	(0.204)	(0.211)	(0.251)	(0.263)
Observations	902	925	902	925	902	925	902	925

*Note. Sample size: 902 observations (females); 925 observations (males). Ordered probit (Columns 1-2, 5-6), OLS (Columns 3-4), probit (Columns 7-8). The specification also includes variables on socio-demographics (age, gender, education, marital status and geographical area), economic condition (occupation, income and wealth), financial habits (fragility, decision making, experience and literacy), health condition (status, hospitalization, BMI and smoking). Standard errors in parentheses. Significance levels: *: 0.05; **: 0.01; ***: 0.001.*

Table A.5. Estimates conditional on the sample of individuals aged 50+

	Investment game		DOSPERT scale		Risk tolerance		Risky holding	
	Female	Male	Female	Male	Female	Male	Female	Male
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
External LoC (cont)	0.091	0.028	1.113	-0.831	-0.081	-0.085	0.074	0.276
	(0.155)	(0.136)	(0.991)	(0.874)	(0.176)	(0.152)	(0.219)	(0.201)
Health shock	-0.057	0.775**	2.987	0.242	0.470	-0.156	0.148	-0.634
	(0.295)	(0.255)	(1.909)	(1.637)	(0.332)	(0.292)	(0.462)	(0.375)
Robbery or fraud	0.560	0.415*	6.116**	1.574	0.194	0.402	1.106*	0.458
	(0.322)	(0.207)	(2.091)	(1.321)	(0.362)	(0.230)	(0.530)	(0.314)
Natural disaster	-0.189	0.017	-0.215	-2.354	-0.613	-0.065	0.231	-0.034
	(0.336)	(0.266)	(2.234)	(1.703)	(0.413)	(0.300)	(0.461)	(0.368)
Physical attack	-0.132	0.113	1.306	-0.625	-0.482	-0.195	1.055	-0.311
	(0.387)	(0.283)	(2.431)	(1.802)	(0.507)	(0.324)	(0.540)	(0.396)
Health shock * LoC (cont)	-0.055	-0.657	-1.766	-1.158	0.227	0.326	0.099	0.435
	(0.367)	(0.356)	(2.365)	(2.269)	(0.413)	(0.401)	(0.550)	(0.516)
Robbery or fraud * LoC (cont)	-0.625	-0.503	-5.238*	-1.534	0.175	-0.559	-1.134	-0.469
	(0.394)	(0.303)	(2.557)	(1.926)	(0.443)	(0.338)	(0.616)	(0.444)
Natural disaster * LoC (cont)	0.212	0.680	0.253	5.182*	0.307	0.414	0.236	0.006
	(0.413)	(0.373)	(2.724)	(2.390)	(0.505)	(0.418)	(0.571)	(0.514)
Physical attack * LoC (cont)	0.064	-0.585	-3.784	4.076	0.618	0.480	-0.787	0.532
	(0.472)	(0.431)	(2.958)	(2.725)	(0.594)	(0.478)	(0.642)	(0.604)
Observations	333	389	333	389	333	389	333	389

*Note. Sample size: 333 observations (females); 389 observations (males). Ordered probit (Columns 1-2, 5-6), OLS (Columns 3-4), probit (Columns 7-8). Standard errors in parentheses. Significance levels: *: 0.05; **: 0.01; ***: 0.001.*