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Individual Risk Attitudes with evidence from experimentally-validated Survey (The Egypt LaborMarket Panel Survey (ELMPS)

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Abstract. *In this investigation, we introduce new evidence on the distribution of risk attitudes in the population, using a representative sample of almost 10,000 individuals living in Egypt and a new set of survey questions. By using some questions about willingness to take risks, we discover evidence of heterogeneity among individuals, and clear that willingness to take risks is positively related to the level of parental education and negatively linked to age progress and being female. We check the behavioral of this survey measure by conducting a complementary experiment, based on a representative sample of 410 subjects, and find that the measure is a good predictor of true risk-taking behavior. Using many questions about willingness to take risks in fixed domains such as financial matters, educational levels, purchase of equipment and career. To find similar results regarding to heterogeneity and determinants of risk preferences, we use a more standard lottery question to measure risk preference.*

keywords: *Distribution of Risk Attitudes; Experimental Validation; Field Experiment; Gender Differences; educational levels; Age; Egypt.*

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I. Introduction

A personal feature that affects human attitudes and economic decision making in many domains of life is called Risk attitudes. They have been observed to be persistently different across educational levels, gender and ethnicities (Rivers et al. 2010)[9]. Individuals who are more prone to make risks also earn significantly higher wages (Bonin et al. 2007, 2008)[11-12].Individual attitudes towards risk, whether being risk reluctant or risk loving gravely impinge on portfolio choices, human capital formation, contracting and family formation. Risk proclivity is relevant concerning selection into occupations, and the readiness to become self-employed (Ekelund et al. 2005)10. As the willingness to make risks affects and amplifies economic outcomes , systematic diversity in risk attitudes across different socio-economic groups have wide implications for understanding economic distinction across these groups. Despite of major economic importance of risk proclivity, so far very little is known about the determinant s of individual risk attitudes[1]. This investigation utilizes new data and new methodology in an attempt to address some of the challenging questions enclosure the meaning of individual risk attitudes.Our evidence is established on a sample larger than 10,000 individuals. The data are from the 2012 wave of the Egypt Labor Market Panel Survey 2006 (ELMPS06) is the first full-fledged panel study of its tabulate in Egypt. This table follows a nationally representative sample of 4,816 households presented in 1998, households that divide from that sample, plus a refresher sample of 2,500 households. The total number of households reached in 2006 is 8,349. The ELMPS06 supplies of underemployment, unemployment and employment. The surveys also assemble information on job characteristics, earnings and mobility. Collected data covers issues of household socio-economic characteristics, family enterprises demographic characteristics and women is status and work. We test the behavioral relevance of the general risk question, and find that it is a good predictor of risky choices with real money at stake[2].The investigation started by introduces new evidence on the distribution of risk attitudes in the population, and the determinants of individual differences. Firstly, we concentrate on our most general measure, the general risk question, and build a population wide distribution of willingness to take risks. This distribution reveals substantial individual heterogeneity. Turning to possible determinants of these differences, we investigate the relationship between willingness to take risks and selected personal characteristics: age, height, gender, educational levels and parental background.The organization of the investigation is as follows. Section 2 describes Data Description of our measures. Section 3 elucidates individual heterogeneity andexogenous determinants of risk attitudes using the general risk question. Section presents results on the behavioral relevance of the general risk question, based onthe complementary field experiment. Section 5 presents our results and conclusion.

II. Data Description

This report ordered to introduce a full documentation of the Egypt Labor Market Panel Survey 2006 (ELM PS06).

The report covers issues of data fountain and methodology as well as a narrative description of the major activities undertaken as part of this investigation. These activities implicate the conclusion of conservations between the Egyptian Central Agency for Public Mobilization, the Economic Research Forum (ERF) and Statistics (CAPMAS); the preliminary activities for data collection including sampling and training, ages, data collection and office review.

The first full-fledged panel survey of its scale in Egypt is the Egypt Labor Market Panel Survey (ELMPS 06) which is a nationally representative household panel survey. The first round of this panel survey took place in 1998 perfusion a nationally representative sample of 4,816 households.This is the first full-scale round perfusion: households visited in 1998; households that split from the original sample as sons and daughters, among others, move out of the original household to form their own households; and a refresher sample of 2500 households. Similar to the 1998 and 2004 rounds, survey activities are executed by the CAPMAS in close collaboration with a consultant team hired by the Economic Research Forum (ERF). This survey use two research instruments: a community-level questionnaire and a household-level questionnaire. The house-hold questionnaire includes three complementary questionnaires: the first includes modules on the different education and work characteristics of individuals aged six years and more (the individual questionnaire); the second inquires about migrants from the household, household enterprises and non-work related sources of income; and The third inquires about the demographic characteristics of all household members, household assets and housing conditions (therefore dubbed as the household questionnaire). The community questionnaire contains modules on access to education, health services, utilities, and work opportunities in a locality. This questionnaire is applied on the district level for all sampled urban localities and on the village level for all rural localities. Both questionnaires were administered by CAPMAS field staff. Data is reviewed in the field as each team had two or three reviewers depending on its size. Questionnaires are brought to the CAPMAS Cairo office for an office review stage, a data coding stage, and finally a data entry and verification stage.

III. Willingness To Make Risks In General

This section presents the research questions, research limitations and research variables. The distribution of willingness to make risks in the population, as measured by the general risk question and then turns to the attempt of imaginable determinants of individual differences in risk attitudes[3].

3.1 Research Questions

The results of the scoping study, and the results of previous researches relatedto the search topic, helped to draft of a number of questions that needed tobe answered through the investigation and analysis to provide clear and precise answers and these questions are.

1- **Do risk attitudes change upon individuals? If so**
2- **What are the determinants of individual differences**?
3- **Are hypothetical measures of risk attitudes trustworthy predictors of actual risky behaviour**?
4- **Do you agree that the level of education leads to exposure to risk**?
5- **Do you agree that the type of person varies withon willingness to take risks**?
6- **Do you agree that the age of man differs with on willingness to take risks**?
7- **What is the influence of situation on willingness to take risks**?
8- **Is there a single implicit preference that defines risk-taking in all situations**?
9- **Do you agree that human thinking differs with on willingness to take risks**?
10- **How does the effect of personal characteristics change with context**?
11- **How important are individual differences in risk perception for explaining behaviour, as opposed to risk preference**?

Given that risk attitudes are heterogeneous, it is substantial to sense the determinants of this individual difference. We delineate the impact of four personal characteristics on risk attitudes: height, gender, age and parental background. We focus on these characteristics because they are plausibly exogenous to individual risk attitudes and behavior and thus permit us to give a causative interpretation to regression and correlations results[5].

3.2 Research limitations

Samples: had been selected according to total assets:

1- **Citizens Sample**. The researcher depended in determining the sample sizeof the citizens, On the statistical equation in determining the size of the sample, which was the outcome of a 384 items, Has been to increase the samplesize to 410 item order to meet the lists that are not answered completely orlose, In order to

provide a high degree of confidence in the Results, And thedistribution of the items of the sample citizens statistical manner (equal) Oninformation centers which were withdrawn through random sampling cluster.

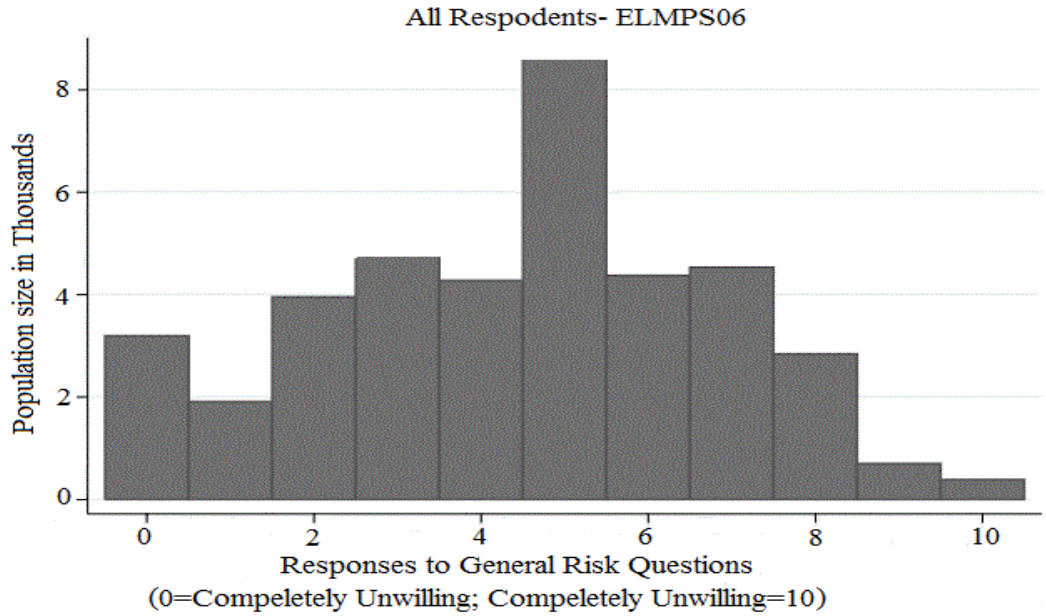
2- **Employees sample**. Due to the with drawl of random sample clusterbombs are centers of information in the governorates of Cairo, Monofiya,Aswan, Asuit, etc. according to geographical distribution to many provinces,and the use of the technique of limited to Target of Employees in theseneighborhoods.

3- The Research population. Search community consists of Employees in theinformation centers to Cairo Governorate, Menoufia, Aswan, Assiut, etc.

3.3 Search variables

1. **Independent variable**. The independent variable in population, have been ad-dressed in terms of population. Application requirements, namely: (age, height, gender and parental background).
2. **Dependent variable:** willingness to take risks.

Figure 1: Willingness to Make Risks in General



3.4 Statistical method

Researcher build on a set of statistical methods in order to extract conclusions from the data field research, As well as with the purpose of answering questions about the search, and use the researcher Mean, Median and slandered deviation in order to measure the consistof the study variables and different dimensions, as well as the researcher used simple and multiple correlation to measure the relationship between the independent and dependent variables, As well as depends on the inequality measure for measuring the extent of the dispersion of data in order to identify the significant relation, as well as the use of multi-tiered slope to measure the impact of the independent variables (age, height, gender and parental background) on the dependent one (willingness to take risks[6-8]).

Through this Research, the Researcher uses the following relation to determine the size of the sample.

$$n = \frac{Z^2 \pi (1-\pi)}{e^2}$$

$$n = \frac{(1.96^2)(0.25)}{0.5^2} = 384.$$

And a researcher depend on the sample size determination on the following table, including that an expectation that the sample results differ from the research community, it is research design on the basis of allowing a maximum of the difference between the sample results and the results of the research community using the sampling error (5%), the acceptable limits and the degree of confidence (95%) and in the community of more than 10,000 vocabulary for the sample size to reach the desired level of precision as the following table shows.

n = Sample size.

Z = Standard error limits, a 1.96 at a confidence level of 95%.

π = The percentage who meet the subject of study in the research community property.

(1- *π*) = The percentage who do not meet the subject of study in the research community property.

e = the amount of allowable error when the estimate of 0.05.

$$\pi(1-\pi) = 50\%(1-50\%) = 0.25$$

IV. Results And Discussion

The purpose of this paper is to progress understanding and measurement of individual risk attitudes. We use a new set of survey measures, collected for a representativesample more than 10,000 individuals. We also utilize representative data from a complementary field experiment destined to test the behavioral relevance of these measures. Based on our analysis we can report four main findings. The firstimportant finding follows from the main methodological contribution of the paper: the survey measures are shown to be behaviorally relevant, in the sense that they predict actual risk-taking behavior in our field experiment. Second estimates of the coefficient of relative risk aversion for the sample provide support for the range of parameter values typically assumed in economic models as show in Tables 1 and 2. The third finding is that the distribution of willingness to take risks exhibits substantial heterogeneity across individuals. Fourth these individual differences are partially explained by differences in four exogenous factors: willingness to take risks is negatively related to age and being female and positively related to and height and parental education.
The dissection reveals several facts.

1- For all ages,women are less willing to take risks than men.
2- Decreasing willingness to take risks is associated with increasing age.
3- Taller individuals are more willing to take risks.
4- Individuals with highly-educated parents are more willing to take risks.
5- These influences are large and very robust, with the exemption of parental education, which befit frivolous in some specifications.

Despite we find that risk preferences are relatively stable across situations, an age profile also elevate questions about the stability of risk preferences over time. A role for parental education in casting the risk attitudes of children highlights a potentially important role of education policy. Willingness to take risks is negatively related to age and being female and positively related to and height and parental education.

The influence of height on risk attitudes proposed a mechanism behind the documented relationship between labor market earnings and height. The influence of parental education and gender could reflect different approaches towards child rearing or different norms to which the individual is uncovered. Differences in risk attitudes over the life cycle could also be socially structured, e.g., risky behavior in health, driving and sports could be excused at an early age but frowned upon later in life. Alternatively, the mechanism could be biological or evolutionary. Risk attitudes, like many traits, may be partially determined by genetics. Even changes in risk attitudes with age could have a biological or developmental explanation. Clearly it is essential to disentangle these two explanations because of their different modulation regarding the malleability of individual risk attitudes.

Table 1: Essential Determinants of General Risk Attitudes (ELMPS06 Experiment).

ELMPS06 Experiment			
	Mean	Slandered deviation	Median
Age per year	47.17	17.43	46
Female	0.519	0.50	
Height in (M)	1.71.39	0.0927	1.70
General risk attitude (Survey Response)	4.42	2.38	5
Observations	10,000	10,000	10,000

Table 2: Essential Determinants of General Risk Attitudes (Subjects in experiment).

Subjects in experiment			
	Mean	Standered deviation	Median
Age per year	46.666	17.60	46
Femal	0.526	0.5	
Height in M	1.72	0.08	1.73
General risk attitude (Survey Response)	4.71	2.53	5
Observations	410	410	410
Comparison of ELMPS06 Experiment and Subjects in experiment			
Willingness to take Risk in general	5.416 [1.12]	4.474 [1.08]	3.943 [1.447]
Constants	57.097 [1.12]	−68.309 70.621	−33.005 [127.048]
R-squared	0.06	0.09	0.25
Observations	410	410	315

Tables 1 and 2 summarize our initial regressions. The baseline specificationpresented in Column (1), uses the four exogenous characteristics discussed aboveas explanatory variables. The resulting coefficient estimates show that the un-conditional results remain robust. Women are significantly less willing to takerisks in general. The probability that someone is willing to take risks also decreases significantly with age. Unreported regressions that include age in splineswith knots at 30 and 60 years reveal that the age effect is particularly strong foryoung and old ages, reflecting the patterns displayed in Figure 1. The inclusionof splines leaves the estimates of the other coefficients virtually unchanged. Tallerpeople are more likely to report that they are willing to take risks. Finally, havinga mother or father who is highly educated, in the sense of having completed theArbiter, significantly increases the probability that the individual is willing to takerisks. All of these effects are individually and jointly significant at the 1-percentlevel.

Table 3: Primary Determinants of Investment in the Hypothetical InvestmentScenario:

	Dependent Variable: Amount Invested in the Hypothetical Asset				
	(1)	(2)	(3)	(4)	(5)
Female	−5, 997.97 [811.62]	−6, 620.92 [863.35]	−5, 284.08 [812.56]	−6, 129.53 [844.80]	−5, 934.56 [811.27]
Age (per years)	−352.65 [20.51]	−434.98 [24.36]	−370.28 [20.74]	−382.99 [21.51]	−350.95 [20.52]
Height (in cm)	204.98 [48.85]	145.92 [52.40]	185.50 [49.02]	179.28 [49.97]	203.00 [48.86]
Mother	1, 420.56 [1, 291.08]	1, 877.67 [1, 424.45]	1, 419.86 [1, 292.13]	1, 908.26 [1, 331.49]	1, 291.64 [811.27]
Father	6, 521.58 [986.43]	6, 184.77 [1, 056.29]	6, 151.38 [989.30]	6, 578.94 [1, 009.60]	6, 425.64 [986.86]
log(Individual Wealth in 2002)	No	Yes	No	No	No
log(Individual Income in 2003)	No	No	No	Yes	No
log(Individual Income in 2004)	No	No	No	No	No
Other Controls	No	No	No	No	No
log sigma	10.49 [0.011]	10.49 [0.012]	10.48 [0.011]	10.48 [0.011]	10.49 [0.011]
Observations	9,419	7,295	9,419	8,411	9,419

In order to reconnoiter the determinants of individual differences in willingness to invest, we retract the amount invested in the lottery on exogenous factors and other controls. The resulting coefficient appreciation is offered in Table 3. We do not espouse a binary measure for the dependent variable, as we did in the case of the general risk question, because it is more difficult to choose a rational division of the scale. Also, we want our coefficient estimates to reflect the influence of exogenous factors on the amount of Egyptian Pound invested. We use an appreciation procedure that accounts for the fact that the dependent variable is measured in intervals, and hence is left and right censored. Negative coefficients signalize a lower willingness to exploit and therefore a lower willingness to take risks.

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