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COGNITIVE ABILITY AND ECONOMIC PREFERENCES IN LOW AND MIDDLE–INCOME COUNTRIES

This paper studies the relationship between cognitive ability and economic preferences in low– and middle–income countries. For this purpose, we use data from the Skills Towards Employment and Productivity Survey (STEP) collected by the World Bank. Data come from survey questions and include nine developing countries with more than 23,000 observations in total. Results show that cognitive ability as measured by the results of reading literacy test has no association with individual's risk and time preferences. The study also finds, that in low– and middle–income countries, older individuals and those with more education and are less patient and household size may explain risk averseness.

Key words: behavioral economics, economic preferences, time preference, risk aversion, cognitive ability

Introduction

Economic literature has already shown that cognitive ability drives important economic and social outcomes. Cognitive skills affect schooling, employment, choice of occupation and work experience (Heckman, Stixrud and Urzua, 2006). Controlling for education it also has an impact on wages (Cawley, Heckman and Vytlacil, 2001) as well as explains social outcomes (Herrnstein and Murray 1994). However, (Heckman, Stixrud and Urzua, 2006) pointed out the possibility that cognitive ability may affect market wages for example through risk and time preferences of individuals without necessarily being determinants of wages. The

assumption that risk attitudes and time preference may be a channel through which individual characteristics may influence economic outcomes is reasonable, considering evidence from various studies from behavioral economists showing that risk and time preferences explain the same set of outcomes. Economic studies found that risk attitudes have considerable predictive power for a number of key decisions such as choice of occupation, portfolio selection, selecting into insurance, migration decisions, etc. (Guiso and Paiella, 2005), (Bonin *et al.*, 2007), (Barsky and Juster, 1997)). There is also evidence of impatience, playing crucial role in decision making in saving and educational investments (Eckel, Johnson and Montmarquette, 2005), (Tanaka and Yamano, 2015). Another indication of the relationship of cognition and risk and time preferences is given by the theory of choice bracketing. (Tversky and Kahneman, 2007) showed that the same problem may be framed in different ways and preferences between options reverse with changes of frame. So if people's decisions are largely dependent on their perception of the problem, it may indicate that cognition can have a role in choosing one option over the other.

Cognitive and non-cognitive abilities as well as individual preferences are being scrutinized now to better understand human behavior and how to model economic interventions to best address problems of poverty and inequality as well as efficiency in labor market. In order to do that, economists now suggest to widen the scope of economics and incorporate both methods and findings from personality psychology into conventional economics (Borghans *et al.*, 2008). It is already well documented that carefully designed interventions may have tangible impact on cognitive and non-cognitive skills which in turn have effect on other important economic outcomes (Heckman and Kautz, 2013). Less is known about malleability of preferences and how much these parameters are stable to changes (Borghans *et al.*, 2008). So obtaining deeper understanding of the relationship of intelligence and willingness to take risks and patience may help policy makers to manipulate with preferences by manipulating with skills. Other aspects of the importance of gaining deeper knowledge of the link of cognitive ability and time and risk preferences is emphasized in (Dohmen *et al.*, 2010). They point out for important implications for theoretical and empirical research. The findings of this strand of research may be useful for the models of screening and contract design. Since risk and time preferences are more difficult to observe, knowing about how cognitive ability relates to those parameters may help to design contracts on the basis of observable proxies for cognitive ability. Findings are also relevant for studies of return to human capital that are assuming that cognitive ability is independent of risk and time preferences (e.g. (Cawley, Heckman and Vytlacil, 2001). If indeed preferences and cognitive ability affect the same outcome (wages for example) and they have strong relationship, it may be the case that part of the estimated impact of cognitive ability on economic outcomes may be due to these omitted variables. Thus, the question whether or not cognitive ability is related to risk attitudes and patience of individuals is important in order to address the

omitted variable bias in models of returns to human capital.

The importance of investigating of the question of how cognitive ability is related to risk and time preferences is now recognized by different researchers. Studies on this topic in psychology focus more on the relationship between intelligence and delay–discounting. Although the evidence for these relationships are mixed, review of the literature in psychology by (Shamosh *et al.*, 2008) suggest that individuals with higher intelligence prefer larger, later rewards to smaller, sooner ones. Studies in economics may be divided into two types: those that examine the relationship between cognition and risk and time preferences directly and those that also add some contribution to this field albeit indirectly exploring the relationship. (Frederick, 2005) finds that those who score higher on the test are generally more patient for choices that include short time horizon. However, for choices involving longer horizons discount rates were weakly or unrelated to the scores. Correlation also exists between test scores and risk taking. (Benjamin, Brown and Shapiro, 2013) conducts several laboratory studies of a small sample of Chilean high school students and finds that cognitive skills as measured by standardized test score are associated with less short–run discounting and less small–stakes risk aversion. (Burks *et al.*, 2009) use a sample of trainee truckers of a US trucking company and found that individuals in higher quartiles of the IQ score are more patient in both long–run and short–run as opposed to what finds (Frederick, 2005) with regard to time horizons. Subjects with better cognitive skills are also more willing to take risks. (Dohmen *et al.*, 2010) contribute to previous studies by confirming that that there is a negative correlation between cognitive ability as measured by an IQ test and impatience and risk aversion in a representative sample of adults using incentivized experiments to elicit time and risk preferences.

Other papers focused on the link between risk and cognition. (Booth, Cardona–Sosa and Nolen, 2014) use the same method of risk elicitation as in (Dohmen *et al.*, 2010) and the score from Raven's test on student subjects to find that while there is a small association between cognitive ability, the magnitude is very small. (Beauchamp, Cesarini and Johannesson, 2015) corrected for measurement error in survey measure of risk attitude and find that IQ measured four decades ago before the survey is a strong predictor of risk at the time of the survey (Campos–Vazquez, Medina–Cortina , & Velez–Grajales , 2018) employed survey data and experimental data, and applied different elicitation procedures for risk and time preferences in a developing country, Mexico. Interestingly, their findings showed no statistically significant relationship between cognitive ability and economic preferences. Another recent study by (Falk, et al., 2018) examined 80,000 people in 76 countries and found that cognitive ability and preferences are partly country specific. On the other hand, (Drouvelis & Lohse, 2020) shows that cognitive abilities remain strongly correlated with risk preferences after errors are controlled for. As can be seen from what is said above the findings are mixed and context specific.

This study contributes to the literature on links between cognition and

willingness to take risks and between cognition and patience by bringing the question into the context of low and middle–income countries. The purpose of this research is to increase generalizability of earlier findings by looking at the link between cognitive ability and economic preferences using representative sample of adults surveyed in low– and middle–income countries.

Methodology

Data: This study uses Skills Toward Employment and Productivity (STEP) data from World Bank's Skills Measurement Program, which are unique in providing information about field assessed cognitive skills, preferences, and rich set of personal characteristics from low and middle–income countries. To the best of the knowledge of the author, no previous study has used this dataset for this purpose.

First wave of the survey has been completed in 2012 and covers Lao PDR, Sri Lanka, Ukraine, Vietnam, Bolivia, Colombia, and Yunnan Province of China. The second wave of household survey implementation started in 2013 and included Armenia, Georgia, Macedonia, Ghana, Kenya, and Azerbaijan. Surveys are carried out following the same technical standards in all countries, which allows using all country datasets in a single analysis. For this research only Armenia, Bolivia, Colombia, Georgia, Ghana, Kenya, Sri Lanka, Laos, and Vietnam are selected.[1] Data is a cross–section, and the unit of observation is an individual. The sample is formed to be representative of the adult population of the age of 15 to 64. Total number of interviews from nine countries is 27,158.[2]

Sample sizes differ from country to country. The sample size and the response rate vary from country to country, ranging from 43% in Bolivia to 95% in Laos. The average response rate is 67%. So there are some concerns whether high non–response rate will result in high non–response bias in our study. However, (Groves, 2006) finds that non–response rate is a poor predictor of bias magnitudes on more than 300 different estimates and (Rindfuss *et al.*, 2015) did not find substantial evidence of relational bias, that is the extent to which the relationship between various independent variables and a range of dependent varied by non–response. In addition, STEP calculated survey weights for each participant, which compensate for household level and person level non–response.[3] Weights

1 STEP consists of two types of surveys, household survey that is intended to measure supply of labor and employer survey, designed for assessing demand for labor. Only countries for which STEP household survey is publicly available are included in the study. China also has been dropped for two reasons: the sampling has been done differently in this country and the data include only information from Yunnan Province, so are not representative for the whole country.

2 For more detailed data description see (Pierre, Laura and Puerta, 2014)

3 Stratified cluster design that has been used by STEP survey led to differential probabilities of selection and to ensure accuracy STEP constructed survey weights for each participant. The objective of the weights is to compensate for unequal probabilities for selection, compensate for non–response and adjust the weighted sample distribution for key variables such as age, gender, education, etc. so that it conforms to a known population distribution for these variables. Weight calculations have been done according to World Bank Weight Requirements, which includes calculation for weights for each sampling units and calculation of household and individual level non–response adjustment. STEP presents a single final weight for each person that contains all the above–mentioned calculations.

were used to account for differential probabilities of selection and non–response rate. The sampling strategy is designed to ensure that the target population represents at least 95% of the urban working–age population in each of the countries.[4]

The test: As it has been said in the previous subsection, interviewers randomly selected a household to visit. Background information about household members and dwelling characteristics has been collected in the first place. Next the interviewer randomly selected one member of the household aged 15–65 (inclusive) to answer the questionnaire and to take a reading literacy assessment test. The test modules are designed by Educational Testing Service (ETS) that requires the respondents to sit alone and complete. The Reading Literacy Assessment test is organized in three parts. The first part focuses on foundational skills. The second part is intended to assess core literacy and is served to sort the least literate from higher ability people. First and second parts of the test are included in General Booklet that is given to all respondents. The third part which is presented in Exercise booklet is only administered to respondents having passed the second part of the test, i.e., those with higher cognitive skills. We are interested in the first part of the test because it has been administered for the whole population. That will allow us to compare our results with (Dohmen *et al.*, 2010) that also used data on heterogeneous population.

Section A comprises of three parts: Part 1 of section A is called *print vocabulary (word meaning),* which asks individuals to match written words to pictures of everyday objects. There are 6 questions in part 1. Second part of section A is called *sentence processing* and contains 11 questions. This part asks individuals to identify whether a given sentence makes sense. Finally, the third part of section A is a *passage comprehension* test which requires individuals to complete passages with one or two words that best fit the meaning of the passage. Part 3 comprises of 17 questions. So, the maximum number of correct responses is 34. It was expected that section A will take approximately 10 minutes to complete, but there was no explicit time limit on the exercises. However, the interviewer instructs the respondent with these words "Work as quickly as you can, but keep in mind that it is better to get the right answer than to rush through the exercise". So, the participant should prioritize getting right but they also know that timing is also important. It is suggested that researchers can use the results from the test in both ways: in terms of accuracy (how many items were answered correctly) and in terms of speed (how quickly the task were completed) as data gives us information on both number of correct answers and the time spent on completion of section A. Sample items from section A are provided in figures 1–3 of the Appendix.

In total, we have 27, 158 randomly selected individuals for whom the test was intended. There are some people whose number of correct answers is 0 not because they attempted the booklet but were unable to answer any of those

4 For more detailed information about each stage as well as weight calculation procedure, see "STEP Survey Weighting Procedures Summary" that has been created by the World Bank for each country separately and which are available at http://microdata.worldbank.org/index.php/catalog/step.

questions, but due to either respondent's refusal to participate in the test, trouble with reading the questions or interview termination due to unusual circumstances that hindered the test completion. I also dropped all the observations for which time spent on the test in seconds is 0. So, in total 3,847 invalid cases dropped. There are also some individuals for whom we have the number of correct answers, but information on time spent on the test is missing or vice versa. I also dropped those observations as it is likely will affect by simply reducing the sample size without making it non–random as this is likely to be interviewer's error. So, I have data on 22,458 individuals to analyze.

(Segal, 2008) suggests that in simple tests when no performance–based incentives are provided, high test scores may be due to test taking motivation rather than high cognitive ability. There may be some individuals who are not the least able ones but get lower scores because of not taking the test seriously. In order to address this issue, we did two things. First we restricted our sample to only those participants' attitudes of whom the interviewer labelled as "serious" and "very serious" and dropped those who didn't take the test seriously.[5] We also added personality variables to our regressions, conscientiousness in particular as pointed out by (Segal, 2008). This allows us to see if cognition is related to preferences controlling for conscientiousness and other personality traits.

Measure of Cognitive Ability: It has always been difficult to measure cognitive ability both by psychologists and by economists. Dominating theory nowdays is so called three stratum theory proposed by (Carroll, 1993). According to this theory, cognitive abilities among people exist at three hierarchical levels. At the highest level which Carrol calls third level, there is a general variable which is called g–factor that is correlated with the results of all types of tests. G–factor is the general intelligence that accounts for the majority of the variance in different test batteries. At the second level, there exist abilities in different broad domains[6] and at the third level, there are a large number of narrow first–order factors.

According to this classification reading literacy test in our data is likely to measure ability in the broad domain of language, although it may also be associated with the domain of reasoning and memory as the line between these domains is difficult to draw. (Carroll, 1993) also distinguishes two types of cognitive abilities: fluid and crystalyzed. While fluid intelligence does not depend on acquired education and knowledge, crystalyzed intelligence reflects knowledge accumulated through the lifetime. Reading literacy test is associated with verbal (printed) language comprahension, lexical knowledge reading comprehension, reading spead factors which are likely to reflect crystalized intelligence, but it is also related to general reasoning and speed of reasoning which reflect fluid intelligence.

If we were able to pin down fluid intelligence from our data we would be able to measure intrinsic ability of individuals and we could also attempt to talk about causal relationship between ability and our outcome variables. However,

5 Observations of individuals who had been distracted during the test also dropped

6 (Carroll, 1993) identifies abilities in the domain of languages, reasoning, memory and learning, visual per–ception, auditory reception, idea production, cognitive speed, knowledge and achievement.

distinguishing fluid and crystalized intelligence from our data is difficult if not impossible. In fact, majority of test results contain information on crystalized intelligence at some degree. and tests that have been developed throughout the past century measure different aspects of cognition.[7] So, many psychologists and economists use results from IQ tests, achievement tests, grades and other measures interchangably as a measure of cognitive ability, despite the fact that each type of test measures different facets of cognitive ability. This is due to the fact that whatever narrow ability the test attempts to evaluate, it will reflect the g–factor of an individual which is always positively correlated with second–order factors.

The test is quite easy, so as it usually happens in easy tests respondents with very different ability levels may get high scores known as "ceiling effect" in the literature (Hansen et al, 2003). This makes difficult to identify actual differences in cognitive abilities of respondents. If we take the number of correct responses on the test as a measure of cognitive ability, we will not have enough variation due to the "ceiling effect". Figure 1 shows the distribution of the number of correct responses. As can be seen from the graph, majority of survey participants answered correctly. As it is mentioned above, we also have information on the time each participant spent on the test, so we can also include time dimension in our measure of cognitive ability. Figure 2 shows distribution of time spent on the test.

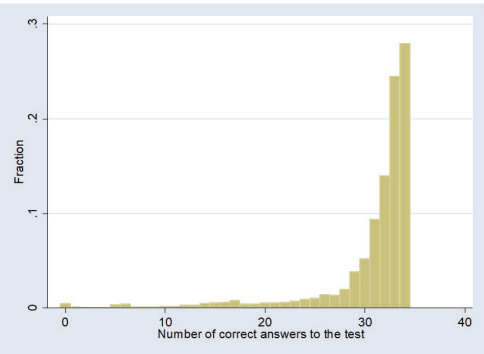

Figure 1: Distribution of the number of correct responses

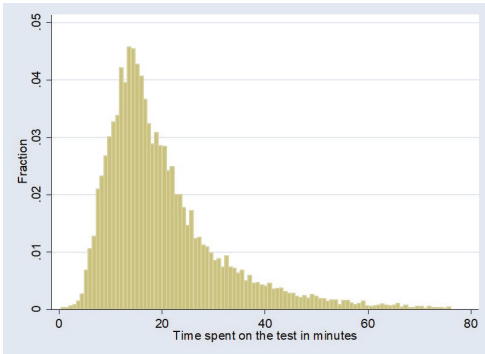

Figure 2 Distribution of the time spent on the test (in minutes)

So, to account for both dimensions, we will rank individuals according to their test results which include both the accuracy and the speed of response. Previous studies found significant correlations between speed of information processing and intelligence (Dearya, Der, & Ford, 2001). The measure of cognitive ability in our analysis thus will be the number of correct responses per minute that we obtain using the following formula:

7 Achievement tests for example measures crystalized intelligence, while Raven's matrices focus on fluid intelligence

Number of correct responses per minute = Number of correct responses/ minutes spent on the test

It was expected that the test will take approximately 10 minutes to complete. However, there are observations for which time recorded is greater than an hour (600 minutes in some cases). Those observations are likely to have measurement errors. So, we dropped all those observations for which time in minutes is 4 standard deviations away from the mean. This is only 0.006% of the total sample, so it is not likely to have an effect on the results. Figure 2 shows the distribution.

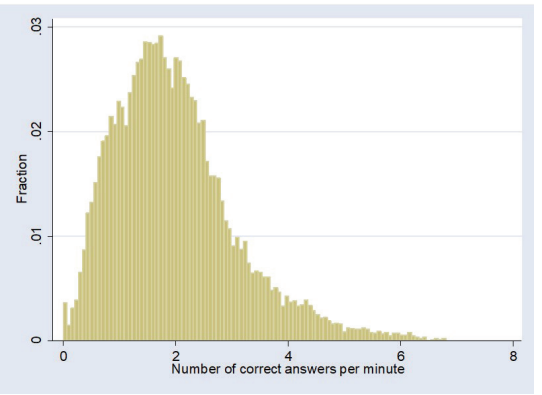

Figure 3: Number of correct answers/time spent

Next, we drop 77 observations (0.003%), for which the test score was recorded unusually high[8]. After cleaning data from suspectable cases, total number of observations for which the score is available becomes 22,193.

Thus, individuals with the highest number of correct answers provided in the least time are ranked higher compared to those who were slow despite of providing the same number of correct answers. Figure 3 shows the density function of the cognitive ability measure (number of correct responses/time spent). As can be seen, the distribution is now closer to the "bell shape curve" which is consistent with the literature on cognitive ability. We then standardize test scores to have mean 0 and standard deviation 1.

Measure of Risk: Risk preference variables come from hypothetical questions that interviewers gave to respondents. They asked whether respondents prefer amount x for sure or flip a coin for 3x.[9] If the respondent prefers sure money, then the interviewer increases the amount of gambling to 4x and asks the question again. If the respondent goes for gambling in the first stage, then the interviewer decreases the amount of gambling to 2x and asks the question again. Thus, participants fall either of the following groups:

- Prefers sure money in both stages
- Gamble only for 4x

8 This is unlikely to have any effect on the results, because it looks like measurement errors as the majority comes from Kenya and Vietnam and the number is very small compared to the total number of observations.

9 Amount x is approximately $60.

- Gamble only for 3x
- Gambles in both stages

So, our scale of risk measure will be from 1 to 4 with 1 being the most risk averse and 4 being the most risk loving. We label those who fall in the first category as people who "almost never take the risk" and those in the fourth category as people who "almost always take the risk".

The drawback of our measure of risk comes from the fact that it is based on hypothetical survey questions as opposed to experimental measure of risk in (Dohmen *et al.*, 2010) and others, who provided real incentives. For such a large sample, however, it would be hardly possible to replicate any experiment due to high cost. Instead, we rely on the hypothetical measure by drawing some confidence of our measure on previous economic literature concerning risk elicitation. For example (Beattie and Loomes, 1997) conducted experiments with real incentives and contrasted the results from hypothetical questions and concluded that in simple pairwise choices incentives appear to make little difference to performance and the results from hypothetical questions and experiments with real incentives are almost identical. (Camerer and Hogarth, 1999) reviewed 74 experiments and concluded that payments increase the effort made by respondents, so simple questions that do not require much effort are no likely to be affected by the lack of incentives. The questions in the STEP survey have been asked one by one providing a pair of choice each time, so we believe that our measure of risk preference is accurate.

Measure of Time Preference: To measure patience of individuals, we refer to three questions asked in the survey. Participants are first asked if they would rather receive some amount y today or 1.5*y in one year time. If the respondent prefers to wait, the interviewer increase the later amount to 2*y and asks the question again. If the respondent prefers money today, the interviewer decreases the amount y to 1.2*y and asks to choose between y and 1.2*y now.[10] So, we have the following 4 categories of participants:

- Prefers money today in both questions
- Willing to wait only for 2*y
- Willing to wait only for 1.5*y
- Prefers to wait in both questions

Thus, we label participants from 1 to 4, 1 as being the most impatient and 4 being as the most patient. As in the case of risk measure, having time preference variable from hypothetical questions may make some economists to be skeptical. However, an experimentally validation exercise of different survey questions on preferences done by (Falk *et al.*, 2015) reveals that the staircase questions as it is done in the STEP survey are the best way to measure time preference in surveys and mirrors the responses from experiments with the real money. This increases our confidence of our measure of patience indicator.

Regressions: The two main outcome variables of interest are risk attitudes and

10 Amount y is approximately equal to $600

time preference. As it has been shown in the previous section risk and patience are categorical variables in our data ranging from 1 to 4. So, we don't have absolute measures of preferences of individuals and have only the ordering from the lowest to the highest. For this reason, we use ordered probit model.

Let y_i^* be the latent index of reported preference. We observe only y_i which takes values from 1 through 4 according to the following rule:

$$y_i = 1 \text{ If } y_i^* \leq u_1$$

$$y_i = 2 \text{ If } u_1 < y_i^* \leq u_2$$

$$y_i = 3 \text{ If } u_2 < y_i^* \leq u_3$$

$$y_i = 4 \text{ If } y_i^* > u_3$$

The threshold values u_1, u_2, u_3, u_4 are unknown, but we assume that y_i^* is a function of individual's characteristics.

$$y_i^* = x_i\beta + e_i \quad (1)$$

We will separately look at both cases when y_i is the risk variable and when y_i is the patience indicator. Characteristics that we assume that y_i^* depends on are cognitive ability (key explanatory variable), gender, age, height, education, log of household income, number of children in the household and personality traits known as big five.[11] We use these variables as explanatory variables as in (Dohmen *et al.*, 2010).

Results and Discussion

In this section, we report marginal effects from probit regressions, i.e., how much a 1 unit increase in cognitive ability measure will affect the probability of being more risk taking and more patient. We acknowledge, however, that this is not necessarily the causal effect and the error term in the regression is possibly correlated with the outcome variables potentially biasing the estimates. For example, there may be a reverse causality issue. Individuals who are more patient may select the environment throughout their lifetime such as choosing more schooling, that requires more patience which in turn may develop cognitive ability. This is a difficult issue to address in this context and with the data that we have, so our approach is to take a conservative path, that has been taken in previous studies and examine only the association between the variables of interest, rather than solving the problem of causality. We could not find relevant and exogenous variable in the data, so the best we could do is to include a rich set of control variables in our regressions.

For each of outcome variables we estimate ordered probit on cognitive ability with and without control variables and report both. Table 1 shows the results.

11 Big five traits are extraversion, conscientiousness, openness, agreeableness, and stability.

Columns (1) and (3) show the results from the regressions of risk and columns (2) and (4) show the results from the regressions of patience. As can be seen from the (1) and (2) columns, the relationship between the test score and risk is both positive and statistically significant. relationship for both. Next, we add control variables to see if the relationship survives. control variables. We add gender dummy, age, age squared, height, number of children under six in the household, log of household income, the number of years of education and personality traits. These are variables that are used in previous studies (see (Burks *et al.*, 2009; Dohmen *et al.*, 2010)). After adding individual characteristics, we see in column (3) and (4), that coefficients in both regressions become insignificant and very small.

It is interesting to observe, that older people are less patient, which contrasts to the findings of Dohmen et al. 2010, which showed that older individuals are more patient, although their coefficients were not significant. Another observation is that having children makes people more risk averse. This is consistent with earlier studies that also found that as the family size increases in terms of number of children, financial risk tolerance decreases (Alwahaibi, 2019). More educated people are less patient with the statistically significant coefficient of –0.016. This finding again contrasts with earlier conclusion of (Falk, et al., 2018), that patient individuals are more likely to save and have higher educational attainment. Finally, we observe positive and significant relationship between extraversion and risk taking, that is no surprise and goes in line with the theory (Lönnqvist, Verkasalo, Walkowitzc, & Wichardt , 2015).

Table 1: Results from the ordered probit regression of risk and patience measure on cognitive ability (with and without full set of control variables)

Independent variables	Risk	Patience	Risk	Patience
	(1)	(2)	(3)	(4)
Score	0.059***	0.008	0.003	-0.003
	(0.017)	(0.017)	(0.019)	(0.019)
Female	No	No	n.s	n.s
Age	No	No	n.s	-0.030***
				(0.007)
Age squared	No	No	n.s	0.000***
				(‘0.000)
Height	No	No	n.s	n.s

Children	No	No	-0.043*	n.s
			(0.024)	
Log of household income	No	No	n.s	n.s
Years of education	No	No	n.s	-0.016***
				(0.004)
Extraversion	No	No	0.031*	n.s
			(0.018)	
Conscientiousness	No	No	n.s	n.s
Openness	No	No	n.s	0.027
				(0.016)
Stability	No	No	n.s	n.s
Agreeableness	No	No	n.s	n.s
Country dummies	Yes	Yes	Yes	Yes
Observations	22,181	19,639	21,534	18,992

We also perform additional robustness check by using different estimation techniques. The results from OLS regressions shows that while the coefficient for the cognitive ability in risk regression is 0.043 at one percent significance level, it loses its significance after adding other control variables. Coefficients in the patience regression are still insignificant becoming negative after controlling for other variables. We also construct intervals of risk aversion and patience and applied interval regression to the data which returned quantitatively and qualitatively very similar results to the previous two methods. We also tried the same regressions by using standardized version of test scores, which returned the same results[12].

Conclusion

In this paper, we have explored the relation between cognitive ability and economic preferences, namely risk aversion and time preference. We used data

12 As the results of different regressions are similar, we do not report them.

from STEP survey, which provides information about low– and middle–income countries. We don't find any evidence, that there is a significant association between cognitive ability and risk and time preferences. We find, however, that there is a negative association between age and education of individuals and patience, and both are statistically significant. We also conclude that extraverts are more risk taking and the higher is the number of children in the households, the more risk averse individuals are.

The findings come to support the previous studies, that identified that the correlation between cognition and economic preferences are context specific. Depending on the level of development of the country, the results can be different. However, this study does not answer to questions on how different the results can be if we scrutinize the question at each country level. One direction for future research can be analyzing the question at each country level. Another interesting area for future research can be studying the link between cognition and economic preferences after Covid–19 and comparing the results with previous findings.

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ՃԱՆԱՉՈՂԱԿԱՆ ԿԱՐՈՂՈՒԹՅՈՒՆՆԵՐԸ ԵՎ ՏՆՏԵՍԱԿԱՆ ՆԱԽԱՊԱՏՎՈՒԹՅՈՒՆՆԵՐԸ ՑԱԾՐ ԵՎ ՄԻՋԻՆ ԵԿԱՄՈՒՏ ՈՒՆԵՑՈՂ ԵՐԿՐՆԵՐՈՒՄ

Սույն հոդվածում ուսումնասիրվում է մարդկանց ճանաչողական կարողությունների և տնտեսական նախասիրությունների միջև հարաբերությունները ցածր և միջին եկամուտ ունեցող երկրներում: Այդ նպատակով մենք օգտագործել ենք Համաշխարհային բանկի կողմից հավաքագրված «Skills Toward Employment and Productivity» (STEP) տվյալները: Տվյալները հավաքագրված են հարցումների միջոցով, որոնք իրականացվել են ինը զարգացող երկրերում և պարունակում են ավելի քան 23,000 դիտարկումներ: Ըստ տվյալ հետազոտության արդյունքների՝ մարդու ճանաչողական կարողությունը, ոչ մի կապ չունի անհատի ռիսկի և ժամանակի նկատմամբ ունեցած նախապատվությունների հետ: Միևնույն ժամանակ վերլուծությունը ցույց է տալիս, որ ցածր և միջին եկամուտ ունեցող երկրներում որքան բարձր է տարիքը և կրթության մակարդակը, այնքան ավելի քիչ համբերատար են մարդը, իսկ ավելի մեծ ընտանիք ունեցող մարդկանց մոտ, ավելի քիչ է արտահայտված հակումը դեպի ռիսկը:

Հիմնաբառեր. վարքագծային տնտեսագիտություն, տնտեսական նախապատվություններ, ժամանակի նախապատվություն, ռիսկի հակում, ճանաչողական կարողություն

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КОГНИТИВНЫЕ СПОСОБНОСТИ И ЭКОНОМИЧЕСКИЕ ПРЕДПОЧТЕНИЯ В СТРАНАХ С НИЗКИМ И СРЕДНИМ УРОВНЕМ ДОХОДОВ

В данной статье исследуется взаимосвязь между когнитивными способностями и экономическими предпочтениями в странах с низким и средним уровнем доходов. Для этой цели мы используем данные, полученные Всемирным банком в рамках программы «Skills Toward Employment and Productivity» (STEP). Данные получены на основе исследования девяти развивающихся стран, в которых было проведено, в общей сложности, более 23 000 наблюдений. Согласно результатам этого исследования, когнитивные способности индивидуума не имеют ничего общего с индивидуальным риском

и предпочтениями в отношении времени.

В то же время исследование показывает, что в странах с низким и средним уровнем доходов, чем старше человек и чем выше уровень его образования, тем менее он терпелив. А люди, у которых большие семьи, менее склонны к риску.

Ключевые слова: поведенческая экономика, экономические предпочтения, предпочтение по времени, риск, когнитивные способности.

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