Gender Differences in Risk Preferences of Children and Adults

Kamila Sharifullina
Alexis Belianin
Vadim Petrovsky
Higher School of Economics, Moscow, Russia

JEL classification: C91, D8, J16

In this paper we explore the sources of gender differences in risk aversion, which is known to be higher among women than among men. Many reasons may exist for this difference, including biological explanation, according to which gender differences in attitudes towards risk are genetically predetermined; or socio-cultural explanation, which derives them from differences in breeding and educational strategies of girls, who are told to be quite and obedient, and boys, who are taught to be brave and fearless. While we cannot disentangle these hypotheses at the present stage of our research, we set up and conduct a novel experiment which tests the null hypothesis that differences in risk aversion of women and men are innate, vs. the alternative hypothesis that these are being formed gradually. We compare risk attitudes of young children aged 3-7 to those of adults aged 18-23. Our results show that boys and girls are indistinguishable in their risk behaviour, while adult group illustrates that men are significantly more risky than women when properly (financially) motivated. Thus, the hypothesis of innate differences may be rejected.
In this paper we study the changes with age of gender differences in the levels and dynamics of risk preferences. Numerous studies (Eckel and Grossman, 2008, Holt and Laury, 2002, Powell and Ansic, 2002, Booth and Nolen, 2009, Schubert et al, 1999 etc) investigate the differences in risk attitudes between men and women, and typical finding is that risk aversion is higher for women than for men. Recent experimental research has also shown that the degree of gender differences in risk preferences may be influenced by the context in which the decisions are made (Schubert et al, Powell and Ansic, Eckel and Grossman), such as competition (Gneezy et al, 2009, Niederle and Vesterling, 2008, Booth and Nolen, 2009), confidence in estimating self-abilities (Barber and Odean, 2001) and behaviour in ambiguity context (Gysler et al, 2002).

A more fundamental question, however, is why such gender differences in risk preferences exist at all, and - to rephrase it - when they are formed. There exists at least two competing explanations. Social (or socio-cultural) theory of risk preferences formation argues that when boys are raised up, they are told that they should be brave, strong and fearless, while girls are taught to be quiet, obedient and accurate. Such stereotypes are likely to start working at the early preschool age (around 3-5 years). Alternative, biological theory would claim that such differences are ultimately predetermined by differences in genetic code of men and women, which may be manifested in hormonal changes at puberty. In this paper we do not test whether biological and socio-cultural explanations are more important, focusing at first on a simpler hypothesis: is it the case that gender differences in risk attitudes are innate, or are these formed with age? To test this hypothesis, it is necessary to design an experimental measure of risk that would be understandable to small children (of kindergarden age, 3-6 years old), as well as to adults, and test these two cohorts for the presence of gender effect.

We conduct a novel experiment which solves exactly this task. In a sheet of A4 paper, starting from one of its angles, we draw 9 diagonal parallel lines, which split the corner area of the sheet into 8 diagonal sectors of different width, the largest one being in the corner. Subjects have to put a pen mark in one of these sectors, then close her/his eyes, lift her/his hand with a pen from the sheet for 30
centimeters, and try to hit the mark, but necessarily the chosen sector without opening eyes. The narrower the sector, the more difficult is the task, and thus the higher is risk tolerance of the subject. As incentives, we used balloons for small children (18 girls and 23 boys aged 3-7, recruited in Moscow kindergardens), and experimented with incentives (none, stationery prizes and real money) for 63 women and 43 men students aged 18 to 23. To separate risk preferences from aspiration level, we gave each subject five attempts, and use several measures of risk stemming from this design. For the adult audience, our risk measure has been compared with standard ones, such as Holt and Laury, 2002 and self-assessed risk tolerance, which yield qualitatively similar results.

Preliminary results (data are still being collected) confirm our null hypothesis: average risk attitudes of kindergarden boys and girls are statistically indistinguishable, while men are significantly (at 1% confidence by the Wilcoxon-Mann-Whitney test) more risky than women under conditions of financial motivation. This evidence is in line with standard evidence (including recent all-Russian representative survey of risk preferences, which is also being worked out by the authors), and confirms the null hypothesis that differences in risk preferences in the mean are being formed at school age, but not before. Further analysis of our data in a simple regression framework shows that successes at the previous hit lead to smaller increase in risk-taking among all considered groups (of different age and gender dimensions), while failures at the previous hit have significant effect on risk taking only for young boys. To summarize, our experiment provides evidence against the hypothesis of innate gender differences in risk aversion. At the same time, it points out at the significant role of incentives, sample composition (one of our adult groups consisted of highly motivated female participants who have revealed unusually high risk preferences), as well as difference with gender and age in strategies in response to successful or unsuccessful previous risky choices, which calls for further research.
References


PricewaterhouseCoopers и Ассоциация менеджеров России (2011) "Карьерные возможности женщин в бизнес-среде".