



CALIFORNIA STATE SCIENCE FAIR 2009 PROJECT SUMMARY

Name(s) Anna T. Thomas	Project Number J0317
Project Title Prospect Theory: Assessing Financial Risk Taking Patterns in Children	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals To establish whether irrationality in financial decision making is innate or develops over time; specifically, to determine whether children follow the four fold pattern(FFP) of risk attitudes described in Prospect Theory(PT). The four risk attitudes are: 1) risk-averse over high-probability gains, 2) risk-averse over low-probability losses 3) risk-seeking over high-probability losses, and 4) risk-seeking over low-probability gains. "Risk-averse" indicates a preference for an assured gain[loss] over a gamble with equal expected value(EV). "Risk-seeking" indicates a preference for the gamble. These attitudes are irrational; a perfectly rational human would be neutral to a choice between a certainty and a gamble when they have equal EV. A second objective was to establish if a gender variation exists for risk taking in the age group tested.</p> <p>Methods/Materials A 14-question survey was administered to 29 boys and 37 girls, aged 11-13, to test for each risk attitude by presenting choices between a gamble and the EV of the gamble. It included three questions for each attitude and two questions that gauged understanding of the material. Each question had two possible answers, A and B. Selection of A indicated risk-averse behavior; B indicated risk-seeking behavior.</p> <p>Results The results were compared with the PT results for adults available online. On average, 79% of adults and 42% of children had selected choices consistent with PT. After conducting a Z-test, it was determined that children did not exhibit any of the four attitudes; analyzing each gender separately yielded the same result. Also, 49% of boys' and 52% of girl' choices were B (risk-seeking). A Z-test confirmed that neither gender was more risk seeking.</p> <p>Conclusions/Discussion This project has established that children do not follow the FFP, a pattern verified in adults. This suggests that a stage in human development exists during which the FFP emerges. Therefore, in order to prevent the dominance of these irrational risk attitudes, it is vital to begin financial education prior to this stage, while risk attitudes remain unbiased. These new findings are especially relevant during the current economic crisis, which has highlighted the need for more financial education. Further research would be aimed at determining the age at which the attitudes described in PT emerge and examining the development of risk taking behavior from childhood to adulthood.</p>	
Summary Statement The purpose of this project was to determine whether the irrational risk attitudes present in adults and described in Prospect Theory are innate or developed over time; if innate, children should exhibit the same irrational behavior.	
Help Received Father proofread board material; mother helped with board display; Mrs. Leni Tomasso facilitated testing in science lab.	