



UvA-DARE (Digital Academic Repository)

Essays on the measurement sensitivity of risk aversion and causal effects in education

Booij, A.S.

Publication date

2009

Document Version

Final published version

[Link to publication](#)

Citation for published version (APA):

Booij, A. S. (2009). *Essays on the measurement sensitivity of risk aversion and causal effects in education*. [Thesis, fully internal, Universiteit van Amsterdam]. Thela Thesis.

General rights

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <https://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

- Abdellaoui, M. 2000. Parameter-Free Elicitation of Utilities and Probability Weighting Functions. *Management Science* 46: 1497–1512.
- Abdellaoui, M., Barrios, C., and Wakker, P.P. 2007a. Reconciling Introspective Utility With Revealed Preference: Experimental Arguments Based on Prospect Theory. *Journal of Econometrics* 138: 356–378.
- Abdellaoui, M., Bleichrodt, H., and L'Haridon, O. 2008. A tractable method to measure utility and loss aversion under prospect theory. *Journal of Risk and Uncertainty* 36: 245–266.
- Abdellaoui, M., Bleichrodt, H., and Paraschiv, C. 2007b. Loss Aversion under Prospect Theory: A Parameter-Free Measurement. *Management Science* 50(10): 1659–1674.
- Abdellaoui, M., Vossman, F., and Weber, M. 2005. Choice-Based Elicitation and Decomposition of Decision Weights for Gains and Losses under Uncertainty. *Management Science* 51: 1384–1399.
- Allais, M. 1953. Le Comportement de l'Homme Rationnel devant le Risque, Critique des Postulats et Axiomes de l'École Américaine. *Econometrica* 21: 503–546.
- Anderhub, V., Güth, W., Gneezy, U., and Sonsino, D. 2001. On the interaction of risk and time preferences – An experimental study. *German Economic Review* 2(3): 239–253.
- Andersen, S., Harrison, G.W., and Rutström, E.E. 2006. Dynamic Choice Behavior: Asset Integration and Natural Reference Points. *Working Paper 06-07*, Department of Economics, College of Business Administration, University of Central Florida. Available at <http://www.bus.ucf.edu/wp/content/archives/06-07Glenn.pdf>.
- Andersen, S., Harrison, G.W., Lau, M.I., and Rutström, E. 2008. Eliciting Risk and Time Preferences. *Econometrica* 76(3): 583-618.
- Arkes, H.R., Dawes, R.M., and Christensen, C. 1986. Factors Influencing the Use of a Decision Rule in a Probabilistic Task. *Organizational Behavior and Human Decision Processes* 37: 93-110.

- Arrow, K.J. 1965. *Aspects of the Theory of Risk Bearing*. Helsinki: Yrjö Jahnssonin Säätiö.
- Barsky, R.B., and Juster, F.T., Kimball, M.S. and Shapiro, M.D. 1997. Preference Parameters and Behavioral Heterogeneity: An Experimental Approach in the Health and Retirement Study. *Quarterly Journal of Economics* 112: 537–579.
- Becker, G.S., and Mulligan, C.B. 1997. The endogenous determination of time preference. *Quarterly Journal of Economics* 112(3): 729–758.
- Beetsma, R.M.W.J., and Schotman, P.C. 2001. Measuring risk Attitudes in a Natural Experiment: Data from the Television Game Show Lingo. *Economic Journal* 111: 821–848.
- Belot, M., Canton, E., and Webbink, D. 2004. Does Reducing Student Support Affect Educational Choices and Performance?: Evidence from a Dutch Reform. *Empirical Economics*, forthcoming.
- Benartzi, S., and Thaler, R.H. 1995. Myopic loss aversion and the equity premium puzzle. *Quarterly Journal of Economics* 110: 73–92.
- Benzion, U., Rapoport, A. and Yagil, J. 1989. Discount Rates Inferred from decisions: An Experimental Study. *Management Science* 35: 270–284.
- Biermans, M., de Graaf, D., de Jong, U., van Leeuwen, M., and der Veen, I.V. 2003. *Leengedrag van studenten in het hoger onderwijs*. Amsterdam: SEO/SCO-Kohnstamm Instituut.
- Binswanger, H.P., 1980. Attitudes toward risk: Experimental measurement in rural India. *American Journal of Agricultural Economics* 62(3): 395–407.
- Black, S.E., Devereux, P.J., and Salvanes, K.G. 2005. Why the apple doesn't fall far: Understanding intergenerational transmission of human capital. *American Economic Review* 95: 437–449.
- Blake, D. 1996. Efficiency, Risk Aversion and Portfolio Insurance: An Analysis of Financial Asset Portfolios Held by Investors in the United Kingdom. *Economic Journal* 106: 1175–1192.
- Blavatskyy, P. 2006. Error propagation in the elicitation of utility and probability weighting functions. *Theory and Decision* 60, 315–334.
- Blavatskyy, P.R. 2007. Stochastic expected utility theory. *Journal of Risk Uncertainty* 34, 259–286.

- Bleichrodt, H., and Pinto, J.L. 2000. A Parameter-Free Elicitation of the Probability Weighting Function in Medical Decision Analysis. *Management Science* 46: 1485–1496.
- Bleichrodt, H., and Pinto, J.L. 2002. Loss Aversion and Scale Compatibility in Two-Attribute Trade-Offs. *Journal of Mathematical Psychology* 46: 315–337.
- Bleichrodt, H., Pinto, J.L., and Wakker, P.P. 2001. Making Descriptive Use of Prospect Theory to Improve the Prescriptive Use of Expected Utility. *Management Science* 47, 1498–1514.
- Bliss, R.R., and Panigirtzoblou, N. 2004. Option-Implied Risk Aversion Estimates. *Journal of Finance* 59, 407–446.
- Booij, A.S., and van de Kuilen, G. 2007. A Parameter-Free Analysis of the Utility of Money for the General Population under Prospect Theory. *Working Paper*, Amsterdam School of Economics. Available at: <http://www1.fee.uva.nl/pp/bin/754fulltext.pdf>.
- Booij, A.S., Oosterbeek, H., and Leuven, E. 2008. The Role of Information in the Take-Up of Student Loans. *SSRN Working Paper Series*. Available at SSRN: <http://ssrn.com/abstract=1118253>
- Booij, A.S., and van Praag, B.M.S. 2008. A simultaneous approach to the estimation of Risk Aversion and the Subjective Time Discount Rate. *Journal of Economic Behavior and Organization*, forthcoming. Available at: <http://www1.fee.uva.nl/pp/bin/755fulltext.pdf>.
- Booij, A.S., van Praag, B.M.S., and van de Kuilen, G., 2007. A Parametric Analysis of Risk Attitudes for the General Population under Prospect Theory. *Working Paper*, Amsterdam School of Economics. Available at: <http://www1.fee.uva.nl/pp/bin/757fulltext.pdf>.
- Borghans, L. and Golsteyn, B.H.H. 2006. Time discounting and the body mass index: Evidence from the Netherlands. *Economics and Human Biology* 4(1): 39–61.
- Bostic, R., Herrnstein, R.J., and Luce, R.D. 1990. The Effect on the Preference-Reversal Phenomenon of Using Choice Indifferences. *Journal of Economic Behavior and Organization* 13: 193–212.
- Braga, J. and Starmer, C. 2005. Preference Anomalies, Preference Elicitation, and the Discovered Preference Hypothesis. *Environmental and Resource Economics* 32: 55–89.
- Bretteville-Jensen, A.L. 1999. Addiction and discounting. *Journal of Health Economics* 18(4): 393–407.

- Bruhin, A., Fehr-Duda, H., and Epper, T.F. 2007. Risk and Rationality: Uncovering Heterogeneity in Probability Distortion, SOI Working Paper 0705. Available at: <http://www.soi.uzh.ch/research/wp/2007/wp0705.pdf>
- Byrnes, J.P., and Miller, D.C. 1999. Gender differences in risk taking: A meta-analysis. *Psychological Bulletin* 125(3): 367–383.
- Callender, C. 2003. *Attitudes to debt*. Technical report, London: Universities UK. Available at: www.UniversitiesUK.ac.uk/studentdebt.
- Camerer, C.F. 2000. Prospect theory in the wild: Evidence from the field. In: Kahneman, D. and Tversky, A. (Eds.), *Choices, values and frames* (pp. 288–300). New York: Cambridge University Press.
- Camerer, C.F., and Hogarth, R.M. 1999. The Effects of Financial Incentives in Experiments: A Review and Capital–Labor–Production Framework. *Journal of Risk and Uncertainty* 19:7–42.
- Camerer, C.F., Babcock, L., Loewenstein, G.F., and Thaler, R.H. 1997. Labor supply of New York city cabdrivers: One day at a time, *Quarterly Journal of Economics* 112: 407–442.
- Camerer, C.F., and Ho, T. 1994. Nonlinear weighting of probabilities and violations of the betweenness axiom. *Journal of Risk and Uncertainty* 8: 167–196.
- Camerer, C.F., and Hogarth, R.M., 1999. The effects of financial incentives in experiments: A review and capital–labor–production framework. *Journal of Risk and Uncertainty* 19 (1–3): 7–42.
- Carbone, E., and Hey, J.D. 1995. A comparison of the estimates of expected utility and non-expected–utility preference functionals. *Geneva Papers on Risk and Insurance Theory* 20(1): 111–133.
- Carbone, E., and Hey, J.D. 2000. Which error story is best? *Journal of Risk and Uncertainty* 20(2): 161–176.
- Charness, G., and Gneezy, U. 2007. Strong Evidence for Gender Differences in Investment. Working Paper, SSRN. Available at SSRN: <http://ssrn.com/abstract=648735>.
- Choi, S., Fisman, R., Gale, D., and Kariv, S. 2005. Substantive and procedural rationality in decisions under uncertainty. Working Paper, UCLA Department of Economics.
- Cohen, A. and Einav, L. 2007. Estimating Risk Preferences from Deductible Choice. *American Economic Review* 97: 745–788.

- Cohn, R.A., Lewellen, W.G., Lease, R.C., and Schlarbaum, G.G. 1975. Individual Investor Risk Aversion and Investment Portfolio Composition. *Journal of Finance* 30: 605-620.
- Coller, M., and Williams, M.B. 1999. Eliciting individual discount rates. *Experimental Economics* 2(2): 107-127.
- Cox, J.C., and Sadiraj, V. 2006. Small- and large-stakes risk aversion: Implications of concavity calibration for decision theory. *Games and Economic Behavior* 56(1): 45-60.
- Cramer, J.S., Hartog, J., Jonker, N., and van Praag, C. 2002. Low risk aversion encourages the choice for entrepreneurship: An empirical test of a truism. *Journal of Economic Behavior and Organization* 48(1): 29-36.
- Cubitt R.P., Starmer, C., and Sugden, R. 2001. Discovered preferences and the experimental evidence of violations of expected utility theory. *Journal of Economic Methodology* 8: 385-414.
- Currin, I.S., and Sarin, R.K. 1989. Prospect versus Utility, *Management Science* 35: 22-41.
- Davidson, D., Suppes, P., and Siegel, S. 1957. *Decision Making: An Experimental Approach*. Stanford, CA: Stanford University Press.
- Davies, G.B., and Satchell, S.E. 2003. Continuous Cumulative Prospect Theory and Individual Asset Allocation. *Working Paper*, Cambridge Working Papers in Economics 0467. Available at: <http://www.dectech.org/Links/DaviesandSatchell-CPT.pdf>.
- Delquié, P. 1993. Inconsistent Trade-Offs between Attributes: New Evidence in Preference Assessment Biases., *Management Science* 39:1382-1395.
- Dohmen, T.J., Falk, A., Huffman, D., Schupp, J., Sunde, U., and Wagner, G.G. 2006. Individual risk attitudes: New evidence from a large, representative, experimentally-validated survey. *Working Paper*, C.E.P.R. Discussion Papers 5517, Available at: <http://www.cepr.org/pubs/dps/DP5517.asp>.
- Donkers, B., Melenberg B., and van Soest, A. 2001. Estimating Risk Attitudes using Lotteries: A Large Sample Approach. *Journal of Risk and Uncertainty* 22: 165-195.
- Donkers, B., and van Soest, A. 1999. Subjective measures of household preferences and financial decisions. *Journal of Economic Psychology* 20: 613-642.
- Duflo, E., and Saez, E. 2003. The role of information and social interactions in retirement plan decisions: Evidence from a randomized experiment. *Quarterly Journal of Economics* 119:815-842.

- Eckel, C., Johnson, C., and Montmarquette, C. 2005. Saving Decisions of the Working Poor: Short- and Long-Term Horizons. In: Carpenter, J., Harrison, G.W., List, J.A. (Eds.). *Field Experiments in Economics*, Research in Experimental Economics, Vol. 10. Greenwich, CT: JAI Press: 219–260.
- Epstein, L.G., and Zin, S.E. 1989. Substitution, Risk Aversion and the Temporal Behavior of Consumption and Asset Returns: A Theoretical Framework. *Econometrica* 57: 937–969.
- Etchart-Vincent, N., 2004. Is Probability Weighting Sensitive to the Magnitude of Consequences? An Experimental Investigation on Losses. *Journal of Risk and Uncertainty* 28: 217–235.
- EUBusiness, 2007. French statistics agency to switch to EU norms for unemployment data. Available at : http://www.eubusiness.com/news_live/1190647922.03/.
- Fehr–Duda, H., de Gennaro, M., and Schubert, R. 2006. Gender, Financial Risk, and Probability Weights. *Theory and Decision* 60: 283–313.
- Fellner, G. and Maciejovsky, B. 2007. Risk Attitude and Market Behavior: Evidence from Experimental Asset Markets. *Journal of Economic Psychology* 28: 338–350.
- Fennema, H. and van Assen, M.A.L.M. 1998. Measuring the Utility of Losses by Means of the Tradeoff Method. *Journal of Risk and Uncertainty* 17: 277–295.
- Field, E. 2006. Educational debt burden and career choice: Evidence from a financial aid experiment at NYU law school. *Working Paper*, NBER No. W12282.
- Fishburn, P.C., and Kochenberger, G.A. 1979. Two-Piece von Neumann-Morgenstern Utility Functions. *Decision Sciences* 10: 503–518.
- Frederick, S., Loewenstein, G., and O'Donoghue, T. 2002. Time discounting and time preference: A critical review. *Journal of Economic Literature* 40(2): 351–401.
- Friend, I., and Blume, M.E. 1975. The Demand for Risky Assets. *American Economic Review* 65: 900–922.
- Fuchs, V.R. 1991. Time preference and health: An exploratory study. *The economics of health* 1: 123–150.
- Gächter, S.E., Johnson, J., and Herrmann, A. 2007. Individual-Level Loss Aversion in Riskless and Risky Choices. *Working Paper*, CeDEx Discussion Paper 2007-02, The University of Nottingham. Available at: <http://www.nottingham.ac.uk/economics/cedex/papers/2007-02.pdf>

- Gneezy, U., and Rustichini, A. 2000. Pay Enough or Don't Pay at All. *Quarterly Journal of Economics* 115, 791–810.
- Goeree, J.K., Holt, C.A., and Palfrey, T.R. 2002. Quantal Response Equilibrium and Overbidding in Private-Value Auctions. *Journal of Economic Theory* 104: 247-272.
- Goette, L., Huffman, D., and Fehr, E. 2004. Loss aversion and labor supply. *Journal of the European Economic Association* 2: 216–228.
- Goldstein, W.M., and Einhorn, H.J. 1987. Expression theory and the preference reversal phenomena. *Psychological Review* 94: 236–254.
- Gollier, C. 2001. *The economics of risk and time*. Cambridge: MIT Press.
- Gonzalez, R., and Wu, G. 1999. On the form of the probability weighting function. *Cognitive Psychology* 38: 129–166.
- Green, P.E. 1963. Risk Attitudes and Chemical Investment Decisions. *Chemical Engineering Process* 59: 35–40.
- Guiso, L., and Paiella, M. 2003. Risk Aversion, Wealth and Background Risk. *Working Paper, Bank of Italy Economic Working Paper No.483*. Available at: http://www.bancaditalia.it/pubblicazioni/cono/temidi/td03/td483_03/td483en/en_tema_483_03.pdf.
- Guiso, L., and Paiella, M. 2006. The role of risk aversion in predicting individual behavior. In: Chiappori, P., and Gollier, C. (Eds.). *Insurance: Theoretical Analysis and Policy Implications*. Cambridge, MA: MIT Press.
- Halek M., and Eisenhauer, J.G. 2001. Demography of risk Aversion. *Journal of Risk and Insurance* 68: 1–34.
- Hall, R.E. 1988. Intertemporal Substitution in Consumption. *Journal of Political Economy* 96(2): 339–357.
- Harrison, G.W. 2006. Hypothetical Bias Over Uncertain Outcomes. In: John A. List (Ed.). *Using Experimental Methods in Environmental and Resource Economics* (pp. 41-69), Northampton, MA: Elgar.
- Harrison, G.W., Johnson, E., McInnes, M.M., and Rutström, E.E. 2005a. Risk Aversion and Incentive Effects: Comment. *American Economic Review* 95: 897-901.
- Harrison, G.W., Lau, M.I., and Rutström, E.E. 2007. Risk attitudes, Randomization to Treatment, and Self-Selection Into Experiments. *Journal of Economic Behavior and*

- Organization*, forthcoming. Available at <http://www.bus.ucf.edu/wp/Working%20Papers/2005/05-01Glenn.pdf>
- Harrison, G.W., Lau, M.I., Rutström, E.E., and Sullivan, M.B. 2005b. Eliciting Risk and Time Preferences Using Field Experiments: Some Methodological Issues. In: Carpenter, J., Harrison, G.W., and List, J.A. (Eds.). *Field Experiments in Economics*. Research in Experimental Economics 10: 125-218. Greenwich, CT: JAI Press.
- Harrison, G.W., Lau, M.I., and Williams, M.B. 2002. Estimating Individual Discount Rates for Denmark: A Field Experiment. *American Economic Review* 92(5): 1606–1617.
- Harrison, G.W., List, J.A., and Towe, C. 2007. Naturally occurring preferences and exogenous laboratory experiments: A case study of risk aversion. *Econometrica* 75: 433-458.
- Harrison, G.W., and Rutström, E.E. 2007. Expected Utility Theory and Prospect Theory: One Wedding and A Decent Funeral. *Experimental Economics*, forthcoming. Available at: <http://www.bus.ucf.edu/wp/content/archives/05-18%20Harrison>.
- Harrison, G.W., and Rutström, E.E. 2008. Risk aversion in the laboratory. In: Cox, J.C. and Harrison, G.W. (Eds.), *Risk Aversion in Experiments*, Research in Experimental Economics, Vol. 12. Bingley, UK: Emerald: 42-196.
- Hartog, J., Ferrer-i-Carbonell, A., and Jonker, N. 2002. Linking Measured risk Aversion to Individual characteristics. *Kyklos* 55: 3–26.
- Hartog, J., van Ophem, H., and Bajdechi, S.M. 2004. How risky is investment in human capital? *Working Paper CESifo Working Paper Series 1261*, <http://ideas.repec.org/p/ces/ceswps/1261.html>.
- Heath, C, Huddart, S., Lang, M. 1999. Psychological Factors and Stock Option Exercise. *Quarterly Journal of Economics* 114: 601–627.
- Heinemann, F. 2007. Measuring risk aversion and the wealth effect. In: Cox, J.C., Harrison, G.W. (Eds.). *Risk Aversion in Experiments*, Research in Experimental Economics, Vol. 12. Bingley, UK: Emerald: 293-313.
- Hershey, J.C., and Schoemaker, P.J.H. 1985. Probability versus Certainty Equivalence Methods in Utility Measurement: Are They Equivalent? *Management Science* 31, 1213–1231.
- Hertwig, R., and Ortmann, A. 2001. Experimental Practices in Economics: A Challenge for Psychologists? *Behavioral and Brain Sciences* 24, 383–403.

- Hey, J.D. 1995. Experimental investigations of errors in decision making under risk. *European Economic Review* 39(3–4): 633–40.
- Hey, J.D. 2005. Why we should not be silent about noise. *Experimental Economics* 8(4): 325–45.
- Hey, J.D., and Orme, C. 1994. Investigating Generalizations of Expected Utility Theory Using Experimental Data. *Econometrica* 62, 1291–1326.
- Holt, C.A., and Laury, S.K. 2002. Risk Aversion and Incentive Effects. *American Economic Review* 92, 1644–1655.
- Holt, C.A., and Laury, S.K. 2005. Risk Aversion and Incentive Effects: New Data without Order Effects. *American Economic Review* 95(3): 902–904.
- Johnson, E., Gaechter, S. and Herrmann, A. 2006. Exploring the Nature of Loss Aversion. *Working Paper* 2015, Institute for the Study of Labor, Bonn, Germany.
- Jongbloed, B., Salerno, C., and Kaiser, F. 2003. Kosten per student: Methodologie, schattingen en een internationale vergelijking. Technical report, Enschede: CHEPS.
- Kalenkoski, C.M., and Pabilonia, S.W. 2008. Parental transfers, student achievement, and the labor supply of college students. BLS Working Paper 416.
- Jullien, B., Salanié, B. 2000. Estimating Preferences under risk: The case of Racetrack Bettors. *Journal of Political Economy* 108, 503–529.
- Kachelmeier, S.J., and Shehata, M. 1992. Examining Risk Preferences under High Monetary Incentives: Experimental Evidence from the People's Republic of China. *American Economic Review* 82: 1120–1141.
- Kahneman, D. 2003. Maps of Bounded Rationality: Psychology for Behavioral Economics, *American Economic Review* 93, 1449–1475.
- Kahneman, D., Knetsch, J.L., and Thaler, R.H. 1990. Experimental test of the endowment effect and the Coase theorem. *Journal of Political Economy* 98: 1325–1348.
- Kahneman, D., Knetsch, J.L., and Thaler, R.H. 1991. The Endowment Effect, Loss Aversion, and Status Quo Bias: Anomalies. *Journal of Economic Perspectives* 5: 193–206.
- Kahneman, D., and Tversky, A. 1979. Prospect Theory: An Analysis of Decision under Risk. *Econometrica* 47: 263–292.
- Kapteyn, A., and Teppa, F. 2002. Subjective Measures of risk Aversion and Portfolio Choice. *Working Paper*, CentER Working Paper 2002–11. Available at: <http://greywww.uvt.nl:2080/greyfiles/center/2002/doc/11.pdf>.

- Kapteyn, A., and Teppa, F. 2003. Hypothetical Intertemporal Consumption Choices. *Economic Journal* 113(March), 140–152.
- Köbberling, V., and Wakker, P.P. 2005. An index of loss aversion. *Journal of Economic Theory* 122(1): 119–131.
- Komlos, J., Smith, P.K., and Bogin, B. 2003. Obesity and the rate of time preference: Is there a connection? *Journal of Biosocial Science* 36: 209–219.
- Kreps, D.M., and Porteus, E.L. 1978. Temporal Resolution of Uncertainty and Dynamic Choice Theory. *Econometrica* 46, 185–200.
- Laibson, D. 1997. Golden Eggs and Hyperbolic Discounting. *Quarterly Journal of Economics* 112, 443–477.
- Laury, S.K., and Holt, C.A. 2007. Further Reflections on Prospect Theory. In: Cox, J.C. and Harrison, G.W. (Eds.). *Risk Aversion in Experiments*, Research in Experimental Economics, Volume 12, Greenwich, CT: JAI Press, forthcoming.
- Lazaro, A., Barberan, R., and Rubio, E. 2001. Private and Social Time Preferences for Health and Money: An empirical Estimation. *Health Economics Letters* 10: 351–356.
- List, J.A., and Gallet, C.A. 2001. What experimental protocol influence disparities between actual and hypothetical stated values? *Environmental and Resource Economics* 20: 241–254.
- Loehman, E. 1998. Testing Risk Aversion and Nonexpected Utility Theories. *Journal of Economic Behavior and Organization* 33: 285–302.
- Loewenstein, G.F. 1999. Experimental Economics from the Vantage-Point of Behavioral Economics. *Economic Journal* 109, F25–F34.
- Loewenstein, G., and Prelec, D. 1992. Anomalies in Intertemporal Choice: Evidence and an Interpretation. *Quarterly Journal of Economics* 107: 573–597.
- Loomes, G., and Sugden, R. 1995. Incorporating a stochastic element into decision theories. *European Economic Review* 39(3/4), 641–648.
- Loomes, G. and Sugden, R. 1998. Testing different stochastic specifications of risky choice. *Economica* 65(260), 581–598.
- Loomes, G. 2005. Modelling the stochastic component of behavior in experiments: Some issues for the interpretation of data. *Experimental Economics* 8(4): 301–323.
- Lopes, L.L. 1987. Between Hope and Fear: The Psychology of Risk. *Advances in Experimental Psychology* 20, 255–295.

- Luce, R.D. 2000. *Utility of Gains and Losses: Measurement-Theoretical and Experimental Approaches*. London: Lawrence Erlbaum Publishers.
- McCord, M.R., and de Neufville, R. 1986. Lottery Equivalents: Reduction of the Certainty Effect Problem in Utility Assessment. *Management Science* 32: 56–60.
- McGlothlin, William H. 1956. Stability of Choices among Uncertain Alternatives. *American Journal of Psychology* 69, 604–615.
- Meyer, D.J. and Meyer, J. 2005. Relative Risk Aversion: What Do We Know? *Journal of Risk and Uncertainty* 31 (3), 243–262.
- Mill, J.S. 1848. *Principles of Political Economy*. London: Longmans Green, 1917.
- Ministry of Education 2006. Rutte wil betere voorlichting over studieleningen. Technical report, Press communication Dutch ministry of Education (OCW). Available at: <http://www.minocw.nl/actueel/persberichten/11958>.
- Murphy, K.M., and Topel, R. H. 1985. Estimation and inference in two-step econometric models. *Journal of Business and Economic Statistics* 3(4):370–379.
- Oettinger, G.S. 2005. Parents' financial support, students' employment, and academic performance in college. Technical report.
- Oosterbeek, H., and van den Broek, A. 2008. An empirical analysis of borrowing behavior of higher education students in the Netherlands. *Economics of Education Review*, forthcoming.
- Pålsson, A. 1996. Does the degree of relative risk aversion vary with household characteristics? *Journal of Economic Psychology* 17: 771–787.
- Pender, J.L., 1996. Discount rates and credit markets: Theory and evidence from rural India. *Journal of Development Economics* 50(2): 257–296.
- Pennings, J.M.E. and Smidts, A. 2003. The shape of utility functions and organizational behavior. *Management Science* 49(9): 1251–1263.
- Picone, G., Sloan, F., and Taylor, J. 2004. Effects of Risk and Time Preference and Expected Longevity on Demand for Medical Tests. *Journal of Risk and Uncertainty* 28: 39–53.
- Plott, C.R. 1996. Rational individual behavior in markets and social choice processes: the Discovered Preference Hypothesis. In Arrow, K., Colombatto, E., Perleman, M. and Schmidt, C. (Eds.). *Rational Foundations of Economic Behavior* (pp. 225–250). London: Macmillan and St. Martins.

- Plott, C.R., and Zeiler, K. 2005. The Willingness to Pay–Willingness to Accept Gap, the Endowment Effect, Subject Misconceptions, and Experimental Procedures for Eliciting Valuations. *American Economic Review* 95, 530–545.
- Prelec, D. 1998. The Probability Weighting Function. *Econometrica* 66: 497–527.
- Prelec, D., and Loewenstein, G. 1991. Decision making over time and under uncertainty: A common approach. *Management Science* 37: 770–786.
- Rabin, M. 2000a. Risk Aversion and Expected–utility Theory: A Calibration Theorem, *Econometrica* 68: 1281–1292.
- Rabin, M. 2000b. Diminishing Marginal Utility of Wealth Cannot Explain Risk Aversion. In: Kahneman, D. and Tversky, A. (Eds.), *Choices, Values, and Frames* (pp. 202–208), chapter 11. New York: Cambridge University Press.
- Rabin, M., and Thaler, R.H. 2001. Anomalies: Risk aversion. *Journal of Economic Perspectives* 15(1): 219–232.
- Rabin, M., and Thaler, R.H. 2002. Response [Anomalies: Risk aversion]. *Journal of Economic Perspectives* 16(2): 229–230.
- Read, D. 2001. Is Time–Discounting Hyperbolic or Subadditive? *Journal of Risk and Uncertainty* 23: 5–32.
- Read, D., and Read, N.L. 2004. Time discounting over the lifespan, *Organizational Behavior and Human Decision Processes* 94(1): 22–32.
- Rubinstein, A. 2006. Dilemmas of an economic theorist. *Econometrica* 74(4): 865–883.
- Schechter, L. 2007. Risk aversion and expected–utility theory: A calibration exercise. *Journal of Risk and Uncertainty* 35: 67–76.
- Schmidt, U., and Hey, J.D. 2004. Are Preference Reversals Errors? An Experimental Investigation. *Journal of Risk and Uncertainty* 29: 207–218.
- Schmidt, U., and Traub, S. 2002. An Experimental Test of Loss Aversion. *Journal of Risk and Uncertainty* 25: 233–249.
- Schmidt, U., and Zank, H. 2005. What is loss aversion? *Journal of Risk and Uncertainty* 30: 157–167.
- Schunk, D., and Betsch, C. 2006. Explaining Heterogeneity in Utility Functions by Individual Difference in Decision Modes. *Journal of Economic Psychology* 27: 386–401.

- Staiger, D., and Stock, J.H. 1997. Instrumental variables regression with weak instruments. *Econometrica* 65(3): 557–586.
- Starmer, C., 2000. Developments in Non-Expected Utility Theory: The Hunt for a Descriptive Theory of Choice under Risk. *Journal of Economic Literature* 38: 332–382.
- Stinebrickner, T., and Stinebrickner, R. 2003. Working during school and academic performance. *Journal of Labor Economics* 21(2):473–491.
- Trostel, P.A., and Taylor, G.A. 2001. A Theory of Time Preference. *Economic Inquiry* 39: 379–395.
- Tu, Q. 2005. Empirical Analysis of Time Preferences and Risk Aversion. PhD. Dissertation, Thesis 142, Tilburg University.
- Tversky, A. 1967. Utility Theory and Additivity Analysis of Risky Choices. *Journal of Experimental Psychology* 75: 27–36.
- Tversky, A., and Fox, C.R. 1995. Weighing Risk and Uncertainty. *Psychological Review* 102: 269–283.
- Tversky, A., and Kahneman, D. 1992. Advances in Prospect Theory: Cumulative Representations of Uncertainty. *Journal of Risk and Uncertainty* 5: 297–323.
- Usher, A. 2005. Global debt patterns: An international comparison of student loan burdens and repayment conditions. Technical report. Toronto, ON: Educational Policy Institute.
- Usher, A., and Cervenán, A. 2005. Global higher education rankings 2005. Technical report. Toronto, ON: Educational Policy Institute.
- van de Kuilen, G., Wakker, P.P. and Zou, L. 2006. A Midpoint Technique for Easily Measuring Prospect Theory's Probability Weighting. *Working Paper*. Econometric Institute, Erasmus University Rotterdam. Available at: <http://people.few.eur.nl/wakker/pdf/wmidpoint.pdf>
- van den Broek, A. and van de Wiel, E. 2005. Leengedrag van studenten. Technical report, Nijmegen: ITS.
- van den Broek, A., Van de Wiel, E., Pronk, T., and Sijbers, R. 2006. Studentenmonitor 2005. Technical report, Nijmegen: ITS.
- van Praag, B.M.S. 1971. The Welfare Function of Income in Belgium: an Empirical Investigation. *European Economic Review* 2: 337–369.

- van Praag, B.M.S., and Booij, A.S. 2003. Risk aversion and the subjective time discount rate: a joint approach. *Working Paper*, Tinbergen Institute Working Paper Series 03–018.
- van Praag, B.M.S., Frijters, P., and Ferrer-i-Carbonell, A. 2003. The anatomy of subjective well-being. *Journal of Economic Behavior and Organization* 51(1): 29–49.
- Von Gaudecker, H.M., van Soest, A., and Wengström, E. 2008. Selection and Mode Effects in Risk Preference Elicitation. *IZA Discussion Paper* 3321. Available at: <http://ftp.iza.org/dp3321.pdf>.
- Von Neumann, J. and Morgenstern, O. 1947. *Theory of Games and Economic Behavior*. New York: Princeton University Press.
- Vossensteyn, H. 2004. Student financial support: An inventory in 24 european countries. Technical report, Enschede: CHEPS.
- Wakker, P.P. 1994. Separating Marginal Utility and Probabilistic Risk Aversion. *Theory and Decision* 36: 1–44.
- Wakker, P.P. 2005. Formalizing Reference Dependence and Initial Wealth in Rabin's Calibration Theorem. *Working Paper*. Econometric Institute, Erasmus University Rotterdam. Available at: <http://people.few.eur.nl/wakker/pdf/calibcsoc05.pdf>
- Wakker, P.P. 2008. Explaining the Characteristics of the Power (CRRA) Utility Function, *Health Economics* 17: 1329-1344.
- Wakker, P.P., and Deneffe, D. 1996. Eliciting von Neumann–Morgenstern Utilities when Probabilities Are Distorted or Unknown. *Management Science* 42: 1131–1150.
- Wakker, P.P., Köbberling, V., and Schwioren, C. 2007. Prospect–Theory's Diminishing Sensitivity versus Economic's Intrinsic Utility of Money: How the Introduction of the Euro Can Be Used to Disentangle the Two Empirically. *Theory and Decision* 63: 205-231.
- Wakker, P.P., Thaler, R.H. and Tversky, A. 1997. Probabilistic Insurance. *Journal of Risk and Uncertainty* 15: 7–28.
- Wärneryd, K. 1996. Risk Attitudes and Risky Behavior. *Journal of Economic Psychology* 17: 749–770.
- Weber, E., Shafir, S., and Blais, A.R. 2004. Predicting Risk Sensitivity in Humans and Lower Animals: Risk as Variance or Coefficient of Variation. *Psychological Review* 111: 430-445.
- Weil, P. 1990. Nonexpected Utility in Macroeconomics. *Quarterly Journal of Economics* 105(1): 29-42.

- Wilcox, N.T. 2008. Stochastic models for binary discrete choice under risk: A critical primer and econometric comparison. In: Cox, J.C. and Harrison, G.W. (Eds.), *Risk Aversion in Experiments* (pp. 197-292) Greenwich, CT: JAI Press, Research in Experimental Economics, Volume 12.
- Wu, G., and Gonzalez, R. 1996. Curvature of the probability weighting function. *Management Science* 42: 1676–1690.