

[Home](#) > [Marketing Letters](#) > Article

Statistical Analysis of Choice Experiments and Surveys

Published: December 2005

Volume 16, pages 183–196, (2005) [Cite this article](#)[Save article](#) [View saved research](#) >

Marketing Letters

[Aims and scope](#) →[Submit manuscript](#) →

[Daniel L. McFadden](#)¹, [Albert C. Bemmaor](#)², [Francis G. Caro](#)³, [Jeff Dominitz](#)⁴, [Byung-Hill Jun](#)⁵, [Arthur Lewbel](#)⁶, [Rosa L. Matzkin](#)⁷, [Francesca Molinari](#)⁸, [Norbert Schwarz](#)⁹, [Robert J. Willis](#)¹⁰ & [Joachim K. Winter](#)





1370 Accesses 64 Citations 9 Altmetric [Explore all metrics](#) →

Abstract

Measures of households' past behavior, their expectations with respect to future events and contingencies, and their intentions with respect to future behavior are frequently collected using household surveys. These questions are conceptually difficult. Answering them requires elaborate cognitive and social processes, and often respondents report only their “best” guesses and/or estimates, using more or less sophisticated heuristics. A large body of literature in psychology and survey research shows that as a result, responses to such questions may be severely biased. In this paper, (1) we describe some of the problems that are typically encountered, (2) provide some empirical illustrations of these biases, and (3)

develop a framework for conceptualizing survey response behavior and for integrating structural models of response behavior into the statistical analysis of the underlying economic behavior.

 This is a preview of subscription content, [log in via an institution](#)  to check access.

Access this article

[Log in via an institution](#) →

Subscribe and save

Springer+

from €37.37 /Month

- Starting from 10 chapters or articles per month
- Access and download chapters and articles from more than 300k books and 2,500 journals
- Cancel anytime

[View plans](#) →

Buy Now

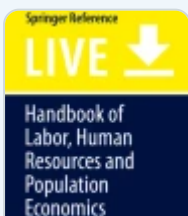
[Buy article PDF 39,95 €](#)

Price includes VAT (Poland)

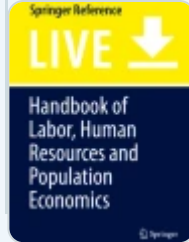
Instant access to the full article PDF.

[Institutional subscriptions](#) →

Similar content being viewed by others



[Better Information From Survey Data: Filtering Out](#)



Household Decision-Making

Explore related subjects

Discover the latest articles, books and news in related subjects, suggested using machine learning.

[Behavioral Economics](#)

[Economic Psychology](#)

[Experimental Economics](#)

[Quantitative Economics](#)

[Quantitative Psychology](#)

[Survey Methodology](#)

[Survey Methodologies and Data Quality Assessment](#)

References

Adams, P., M. D. Hurd, D. McFadden, A. Merrill, and T. Ribeiro. (2003). "Healthy, Wealthy, and Wise? Tests for Direct Causal Paths Between Health and Socioeconomic Status," *Journal of Econometrics* 112(1), 3-56.

[Google Scholar](#)

Alexander, C. S. and H. J. Becker. (1978). "The Use of Vignettes in Survey Research," *Public Opinion Quarterly* 42(1), 93-104.

[Article](#) [Google Scholar](#)

Allais, M. (1953). "Le Comportement De L'homme Rationnel Devant Le Risque: Critique Des Postulats Et Axiomes De L'école Américaine," *Econometrica* 21(4), 503-546.

[Google Scholar](#)

Banks, J., A. Kapteyn, J. P. Smith, and A. van Soest. (2004). "International

Comparisons of Work Disability,” Working Paper No. 155, Labor and Population Group, RAND, Santa Monica, CA.

Bemmaor, A. C. (1995). “Predicting Behavior from Intention-to-buy Measures: The Parametric Case,” *Journal of Marketing Research* 32(May), 176-191.

[Google Scholar](#)

Ben-Akiva, M., D. McFadden, M. Abe, U. Böckenholt, D. Bolduc, D. Gopinath, T. Morikawa, V. Ramaswamy, V. Rao, D. Revelt, and D. Steinberg. (1997). “Modeling Methods for Discrete Choice Analysis,” *Marketing Letters* 8(3), 273-286.

[Article](#) [Google Scholar](#)

Ben-Akiva, M., D. McFadden, T. Gärling, D. Gopinath, D. Bolduc, A. Börsch-Supan, P. Delquié, O. Larichev, T. Morikawa, A. Polydoropoulou, and V. Rao. (1999). “Extended Framework for Modeling Choice Behavior,” *Marketing Letters* 10(3), 187-203.

[Article](#) [Google Scholar](#)

Ben-Akiva, M., D. McFadden, K. Train, J. Walker, C. Bhat, M. Bierlaire, D. Bolduc, A. Börsch-Supan, D. Brownstone, D. S. Bunch, A. Daly, A. de Palma, D. Gopinath, A. Karlstrom, and M. Munizaga. (2002). “Hybrid Choice Models: Progress and Challenges,” *Marketing Letters* 13(3), 163-175.

[Article](#) [Google Scholar](#)

Bergadaá, M. M. (1990). “The role of Time in the Action of the Consumer,” *Journal of Consumer Research* 17(3), 289-302.

[Google Scholar](#)

Bound, J., C. Brown, and N. Mathiowetz. (2001). “Measurement Error in Survey Data.” In J. J. Heckman and E. Leamer (eds.), *Handbook of Econometrics*, Volume

5, Amsterdam: Elsevier, pp. 3705–3843.

[Google Scholar](#)

Bruine de Bruin, W., P. S. Fischbeck, N. A. Stiber, and B. Fischhoff. (2002). “What Number is Fifty-Fifty? Redistributing Excessive 50% Responses in Elicited Probabilities,” *Risk Analysis* 22(4), 713–723.

[Google Scholar](#)

Buchanan, B. and G. Morrison. (1987). “Sampling Properties of Rate Questions with Implications for Survey Research,” *Marketing Science* 16(3), 286–298.

[Google Scholar](#)

Chandon, P., V. G. Morwitz, and W. J. Reinartz. (2005). “Do intentions Really Predict Behavior? Self-generated Validity Effects in Survey Research,” *Journal of Marketing* 69(2), 1–14.

[Article](#) [Google Scholar](#)

Cowing, T. and D. McFadden. (1984). *Microeconomic Modeling and Policy Analysis: Studies in Residential Energy Demand*. New York: Academic Press.

[Google Scholar](#)

Crossley, T. F. and S. Kennedy. (2002). “The Reliability of Self-assessed Health Status,” *Journal of Health Economics* 21(4), 643–658.

[Article](#) [Google Scholar](#)

Davidson, D., P. Suppes, and S. Siegel. (1956). *Decision Making: An Experimental Approach*. Stanford, CA: Stanford University Press.

[Google Scholar](#)

Dex, S. (1995). "The Reliability of Recall Data: A literature Review," *Bulletin de Méthodologie Sociologique*, 49, December, 58-89.

[Google Scholar](#)

Dominitz, J., and C. F. Manski. (1997). "Using Expectations Data to Study Subjective Income Expectations," *Journal of the American Statistical Association* 92(439), 855-867.

[Google Scholar](#)

Dominitz, J. and C. F. Manski. (2004). "How Should We Measure Consumer Confidence?" *Journal of Economic Perspectives* 18(2), 51-66.

[Article](#) [Google Scholar](#)

Feldman, J. M. and J. G. Lynch Jr. (1988). "Self-generated Validity and Other Effects of Measurement on Belief, Attitude, Intention, and Behavior," *Journal of Applied Psychology* 73(3), 421-435.

[Article](#) [Google Scholar](#)

Gan, L., M. D. Hurd, and D. McFadden. (2003). "Individual Subjective Survival Curves," Working Paper No. 9480, National Bureau of Economic Research (NBER), Cambridge, MA.

[Google Scholar](#)

Gardiner, J. M., and A. Richardson-Klavehn. (2000). "Remembering and Knowing," in E. Tulving and F. I. M. Craik (eds.), *Handbook of Memory*, New York: Oxford University Press, pp. 229-244.

[Google Scholar](#)

Granbois, D. H. and J. O. Summers. (1975). "Primary and Secondary Validity of

Consumer Purchase Probabilities," *Journal of Consumer Research* 1(4), 31-38.

[Article](#) [Google Scholar](#)

Harris, K. M. and M. P. Keane. (1999). "A Model of Health Plan Choice: Inferring Preferences and Perceptions from a Combination of Revealed Preference and Attitudinal Data," *Journal of Econometrics* 89(1-2), 131-157.

[Google Scholar](#)

Hill, D., M. Perry, and R. J. Willis. (2004). "Estimating Knightian Uncertainty from Probability Questions on the HRS," unpublished manuscript, University of Michigan.

Hsiao, C. and B.-H. Sun. (1999), "Modeling Response Bias - With an Analysis of the Demand for an Advanced Electronic Device," *Journal of Econometrics* 89(1-2), 15-39.

[Google Scholar](#)

Hurd, M. D., D. McFadden, H. Chand, L. Gan, A. Merrill, and M. Roberts. (1998). "Consumption and Savings Balances of the Elderly: Experimental Evidence on Survey Response Bias." in D. Wise (ed.), *Frontiers in the Economics of Aging*, Chicago, IL: University of Chicago Press, pp. 353-387.

[Google Scholar](#)

Hurd, M. D. and K. McGarry. (1995). "Evaluation of the Subjective Probabilities of Survival in the Health and Retirement Study," *Journal of Human Resources* 30(Supplement), S268-S292.

[Google Scholar](#)

Hurd, M. D. and K. McGarry. (2002). "The Predictive Validity of Subjective Probabilities of Survival," *Economic Journal* 112(482), 966-985.

Infosino, W. J. (1986). "Forecasting New Product Sales from Likelihood of Purchase Ratings," *Marketing Science* 5(4), 372-384.

[Google Scholar](#)

Kalwani, M. U. and A. J. Silk. (1982). "On the Reliability and Predictive Validity of Purchase Intention Measures," *Marketing Science* 1(3), 243-286.

[Google Scholar](#)

King, G., C. Murray, J. A. Salomon, and A. Tandon. (2004). "Enhancing the Validity and Cross-cultural Comparability of Measurement in Survey Research," *American Political Science Review* 98(1), 191-207.

[Article](#) [Google Scholar](#)

Klein, R. and R. Sherman. (1997). "Estimating New Product Demand from Biased Survey Data," *Journal of Econometrics* 76(1-2), 53-76.

[Google Scholar](#)

Lewbel, A. (2004). "Simple Estimators for Hard Problems: Endogeneity in Binary Choice and Other Nonlinear Models," unpublished manuscript, Boston College.

Louviere, J. J., D. A. Hensher, and J. D. Swait (2000). *Stated Choice Methods: Analysis and Application*. Cambridge, UK: Cambridge University Press.

[Google Scholar](#)

Louviere, J. J., D. Street, R. Carson, A. Ainslie, J. R. Deshazo, T. Cameron, D. Hensher, R. Kohn, and T. Marley. (2002). "Dissecting the Random Component of Utility", *Marketing Letters* 13(3), 163-176.

Manski, C. F. (1999). "Analysis of Choice Expectations in Incomplete Scenarios," *Journal of Risk and Uncertainty* 19(1-3), 49-65.

[Google Scholar](#)

Manski, C. F. (2004). "Measuring Expectations," *Econometrica* 72(5), 1329-1376.

[Article](#) [Google Scholar](#)

Matzkin, R. (2004). "Unobservable Instruments," unpublished manuscript, Northwestern University.

McFadden, D. (2004). "Foundations of Economic Survey Research," unpublished manuscript, Berkeley: University of California.

McFadden, D., N. Schwarz, and J. Winter. (2004), "Measuring Perceptions and Behavior in Household Surveys," paper presented at the Annual Meeting of the American Economic Association, San Diego, CA.

McFadden, D. and K. Train (2000), "Mixed MNL Models for Discrete Response," *Journal of Applied Econometrics* 15(5), 447-470.

[Article](#) [Google Scholar](#)

McGarry, K. (2004). "Health and Retirement: Do Changes in Health Affect Retirement Expectations?" *Journal of Human Resources* 39(3), 624-648.

[Google Scholar](#)

Menon, G., O. Raghurir, and N. Schwarz. (1997). "How Much Will I Spend? Factors Affecting Consumers' Estimates of Future Expense," *Journal of Consumer*

Morwitz, V. G. and G. J. Fitzsimons. (2004). "The Mere Measurement Effect: Why Does Measuring Intentions Change Actual Behavior?" *Journal of Consumer Psychology* 14(1-2), 64-74.

Molinari, F. (2005). "Cognitive Processes and Self/proxy Response Status: Evidence from HRS 2000," unpublished manuscript, Cornell University.

Poterba, J. and L. Summers (1986). "Reporting Errors and Labor Market Dynamics," *Econometrica* 54(6), 1319-1338.

Schwarz, N. (2003). "Self-Reports in Consumer Research: The Challenge of Comparing Cohorts and Cultures," *Journal of Consumer Research* 29(4), 588-594.

Schwarz, N., R. M. Groves, and H. Schuman. (1998). "Survey Methods." In N. Schwarz, R. Groves, and H. Schuman (eds.), *Handbook of Social Psychology*, 4th Edition, New York: McGraw-Hill, pp. 143-179.

Schwarz, N., H. J. Hippler, B. Deutsch, and F. Strack. (1985). "Response Categories: Effects on Behavioral Reports and Comparative Judgements," *Public Opinion Quarterly* 49(3), 388-395.

Smith, V. K., D. H. Taylor, and F. A. Sloan. (2001). "Longevity Expectations and Death: Can People Predict Their Own Demise?" *American Economic Review* 91(4), 1126-1134.

[Google Scholar](#)

Tourangeau, R., L. J. Rips, and K. Rasinski. (2000). *The Psychology of Survey Response*. New York and Cambridge, UK: Cambridge University Press.

[Google Scholar](#)

Tversky, A. and D. Kahneman (1974). "Judgement Under Uncertainty: Heuristics and Biases," *Science* 185(4157), 1124-1131.

[Google Scholar](#)

Wansbeek, T. and E. Meijer (2000). *Measurement Error and Latent Variables in Econometrics*, Amsterdam: Elsevier.

[Google Scholar](#)

Wason, K., Polonsky, M., and Hyman, M. (2002). "Designing Vignette Studies in Marketing," *Australasian Marketing Journal* 10(3), 41-58.

[Google Scholar](#)

Winter, J. (2002). "Bracketing Effects in Categorized Survey Questions and the Measurement of Economic Quantities," Discussion Paper No. 02-35, Sonderforschungsbereich 504, University of Mannheim.

Author information

Authors and Affiliations

**Econometrics Laboratory, University of California, 549 Evans Hall,
Berkeley, CA, 04720-3880**

Daniel L. McFadden (Workshop chair)

ESSEC, BP 50105, 95021, Cergy-Pontoise Cedex, France

Albert C. Bemmaor

**Gerontology Institute, University of Massachusetts Boston, 100 Morrissey
Blvd., Boston, MA, 02125**

Francis G. Caro

**H. John Heinz III, School of Public Policy and Management, Carnegie
Mellon University, 5000 Forbes Avenue, Pittsburgh, PA, 15213**

Jeff Dominitz

**Econometrics Laboratory, University of California, 549 Evans Hall,
Berkeley, CA, 04720-3880**

Byung-Hill Jun

**Department of Economics, Boston College, 140 Commonwealth Avenue,
Chestnut Hill, MA, 02467**

Arthur Lewbel

**Department of Economics, Northwestern University, 2001 Sheridan Road,
Evanston, IL, 60208**

Rosa L. Matzkin

**Department of Economics, Cornell University, 492 Uris Hall, Ithaca, NY,
14853-7601**

Francesca Molinari

**Institute for Social Research, University of Michigan, 426 Thompson St.,
Ann Arbor, MI, 48106-1248**

Norbert Schwarz

**Department of Economics and Institute for Social Research, University of
Michigan, 426 Thompson St., Ann Arbor, MI, 48104-1248**

Robert J. Willis

Department of Economics, University of Munich, 80539, Munich, Germany

Corresponding author

Correspondence to [Joachim K. Winter](#).

Rights and permissions

[Reprints and permissions](#)

About this article

Cite this article

McFadden, D.L., Bemmaor, A.C., Caro, F.G. *et al.* Statistical Analysis of Choice Experiments and Surveys. *Market Lett* **16**, 183–196 (2005). <https://doi.org/10.1007/s11002-005-5884-2>

Issue date

December 2005

DOI

<https://doi.org/10.1007/s11002-005-5884-2>

Keywords

[consumer surveys](#)

[survey response error](#)

[hypothetical choice](#)

[applied econometrics](#)

Search

Search by keyword or author



Navigation

Find a journal

Publish with us

Track your research

