Survey and Sample Design in Applied Economics
AAE 777
Fall 2017

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Class Meetings: 9:30-10:45 (MW) B30 Taylor Hall; starts

Office Hours: Beardmore: Wednesdays, 11-12 (Oct4-Nov1)
                Provencher: Mondays, 4-5
                Young: TBA

Course Objectives

The primary goal of this course is to provide students with an understanding of the generation and use of survey data. It is a sequence of two modules, though we have strived to integrate the material in such a way as to make the modules "seamless".

The first module discusses what surveys are, what types of decisions must be made to carry one out, and how survey design choices affect total survey error. By the end of this module, students will have the skills to conduct their own survey project, from identifying their target population and selecting a sample to meet their research goals, to designing and administering the survey instrument.

The second module focuses on the use of surveys to generate choice data suitable for econometric modeling and/or welfare analysis (so-called "stated preference surveys"). Such surveys are used to forecast the adoption of new technologies and the market for new products ("What would be the demand for energy efficient appliance X? Who is most likely to adopt this technology?"); forecast the effect of a new policy or program ("If we reduced the incentive for participation in program Y, what would be the effect on enrollment?"); and estimate the demand for changes in the provision of

nonmarket goods and services, usually with a focus on the welfare effects of such changes ("What would be the social net benefit of improvement in the water quality of Lake Mendota?")

We assume familiarity with elementary statistical concepts and formulas at the level covered in AAE 770. Theory and methods to be developed include:

- o Identification of target populations
- o Sample design: random, stratified, & cluster sampling
- o Power analysis
- o Implementing surveys: survey modes and pretesting
- o Issues in survey implementation: "bad" random samples, non-response bias, attrition, etc.
- o Retrospective and prospective surveys of respondent choice
- o Experimental choice in survey design
- o Econometric modeling of respondent choices

Readings:

Copies of all textbooks are available in the REDA library. Other readings will be provided as pdfs.

Champ, Patricia A., Kevin J. Boyle, and Thomas C. Brown. *A Primer on Nonmarket Valuation.* Kluwer Academic Publishers, 2003.

Fowler, F, 2014. *Survey Research Methods*, 5/e. SAGE.

Groves, R; Fowler, F; Couper, M; Lepkowski, J; Singer, E; Tourangeau, R, 2009. *Survey Methodology*, 2/e. Wiley.

Kanninen, Barbara J. *Valuing environmental amenities using stated choice studies*. Dordrecht: Springer, 2007.

Phaneuf, Daniel J. and Till Requate. *A Course in Environmental Economics: Theory, Policy, and Practice.* Cambridge University Press, 2017.

Course Material on the Web

Course material such as the syllabus, lecture slides, homework assignments and solutions, reading materials, and solutions to exams will be available at Learn@UW. We are using the Canvas platform for the course.

Grading

Grading is based on two exams—one for each module—lecture participation, and assignments. Exams will cover material presented in class, assigned readings, and homework assignments. Each exam counts for 25% of your grade, the homework assignments (a project in the first module, 3 assignments in the second module) count for 40%, and participation counts for 10%. Additional information about your grade for participation and homework is provided below. In summary:

25	points for the first exam
25	points for the second exam
20	points for first module project
20	points for the second module problem sets (see below for due dates for problem sets and point values)
10	points for participation in lecture (1/2 point for each lecture, 20 lectures total)

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100 points total

Exam dates (exams are in class): November 6, December 13

Participation grading: Top Hat student engagement platform

We will be using Top Hat during lectures. It will be the basis of your participation grade. This educational platform allows students to use their mobile devices (smartphones, laptops, iPads, etc.) to respond to questions we ask in class. This requires you to create an account. The cost is $16 for a semester, or $20 for the year, and this subscription fee covers all UW courses that use Top Hat. Provencher plans to use Top Hat in his econometrics course in the spring semester, so we recommend that you purchase a 1-year subscription.

For instructions on creating an account, go here. A student guide is here. Once you have an account, enroll in the UW course titled, "Sampling and Survey Design".

Do not procrastinate on creating your Top Hat account and enrolling in this course! If you do not have an account by the first lecture (October 2), your participation grade will suffer because, as described below, responses to Top Hat polls are the basis for receiving participation credit in lecture and discussion.

Maximum participation score for each lecture is ½ point, for a total of 10 points (20 lectures). You earn a lecture's participation points by answering questions posed via Top Hat. If you respond to all questions posed in a lecture, you receive the full ½ point. No penalty for incorrect responses –we are using this technology as a way to increase engagement over a long lecture.

Assignments

Assignments focus on applying concepts developed in lecture. There will be 1 project for the first module and 3 problem sets in the second module, for a total of 40% of your grade. Assignments will be posted on the course website on the date indicated in the table below, and due **at the start of class** on the dates indicated in the table. Late assignments will not be accepted.

Posted	Due (start of class)	Returned (in lecture)	Points
Oct 4	Nov1	Nov 20	20
Nov 13	Nov 20	Nov 29	4
Nov 20	Nov 29	Dec 4	8
Nov 27	Dec 4	Dec 6	4
Dec 4	Dec 11	Dec 12	4

Schedule

Week	Date	Topic	Reading	Assignment
1	Oct 2	Survey Error	F Chapter 1, G Chapter 2	Project: Survey Design (posted Oct 4)
2	Oct 9	Sample design	G Chapter 3	
3	Oct 16	Sample size and power analysis	G Chapter 4, Bloom (2006)	

4	Oct 23	Survey Modes	F Chapter 5	
5	Oct 30	Designing questions and pretesting	Krosnick and Presser (2010)	
6	Nov 8	Welfare theory of price and quality changes	Varian Chapter 14 Phaneuf chapter 14, sections 14.1-14.2 (except sections on interpretation of CS, uniqueness of CS, and section 14.2.3), 14.3-14.4.	Exercise 1: Welfare estimation problem set (posted Nov. 13)
7	Nov 15	Welfare theory of binary decisions; operationalizing the theory	None	Exercise 2: Estimating welfare effects from milfoil control (posted Nov 20)
8	Nov 22	Contingent valuation surveys	Champ Chapter 5 through section 2.8 Kling, Phaneuf, ad Zhao Survey #1: Lake Mendota improvement Survey #2: Milfoil Control	Exercise 3: Discussion questions from readings (posted Nov 27)
9	Nov 29	Welfare measurement with multiple discrete choices	Phaneuf chapter 16, sections 16.1,16.2, and 16.4	Exercise 4: Modeling discrete choice problems (posted Dec 4)
10	Dec 6	Discrete choice surveys	Champ Chapter 6, sections 1-7 Survey #1: Electric vehicles (Hidrue et al) Survey #2: Energy efficient lighting (Min and Azevado)	

Readings

The course will involve readings from required texts, the peer-reviewed academic literature and the "grey literature". Textbooks relevant to the course include:

Champ, Patricia A., Kevin J. Boyle, and Thomas C. Brown. *A Primer on Nonmarket Valuation*. Kluwer Academic Publishers, 2003.

Fowler, F, 2014. *Survey Research Methods*, 5/e. SAGE.

Groves, R; Fowler, F; Couper, M; Lepkowski, J; Singer, E; Tourangeau, R, 2009. *Survey Methodology*, 2/e. Wiley.

Phaneuf, Daniel J. and Till Requate. *A Course in Environmental Economics: Theory, Policy, and Practice*. Cambridge University Press, 2017.

Varian, Hal R. *Intermediate microeconomics: a modern approach*. W.W. Norton & Company, 2014. Chapter 14.