

UNIVERSITY OF OXFORD
Department of Politics and International Relations
Honours School of Politics, Philosophy and International Relations

Honour School of Philosophy, Politics and Economics
Honour School of Modern History and Politics

Statistical Methods in Social Science (226) *Part C*

Academic Year 2000

Course Provider: Dr. Robert Andersen, Department of Sociology

Please contact Dr. Andersen with suggested additions to, or corrections of, items on the list or with any enquiries about teaching for the paper.
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Teaching Arrangements

Part C lectures are given in Hilary Term. These classes are a mixture of exposition and hands-on data analysis. Lectures will normally be accompanied by a series of 4 tutorials.

Lecturer for Part C: Mr. Kenneth Macdonald, Nuffield

Tutors for Part C:

Dr. R. Andersen (Department of Sociology)
Dr. T.W. Chang (Department of Sociology)
Dr. S. Fisher (Nuffield)
Mr. K. Macdonald (Nuffield)
Dr. D. Robertson (St Hugh's)

Subject to approval, certain graduate students and others may teach the course. The names and colleges of such tutors are printed in the *Tutorial Register*, a copy of which is available from the Politics Secretary at the Department of Politics and in electronic form at the politics website.

Content and Structure

The formal rubric for the Statistical Methods in Social Science paper is set out in the current edition of the *Examination Decrees and Regulations*:

Syllabus

Candidates will be required to answer four questions. Each candidate at least one question from Part A and at least one question from either Part B (if offering it as an Economics option) or Part C (if offering it as a Politics option). Candidates will be expected to show knowledge of the following topics:

Part A (Statistical Theory) Probability (concepts of probability, probability laws, Bayes' theorem); random variables (moments, sums and differences of random variables, frequency and cumulative distributions, joint random variables, conditional and marginal distributions); distribution theory (standard distributions including the binomial, Poisson, and normal distributions); measures of association (correlation, rank correlation, and multiple correlation); hypothesis testing (concepts of hypothesis testing, size and power, use of normal, t, chi square and F distributions); sampling theory (including properties of estimators); linear models (including regression, analysis of variance, logistic and loglinear models).

Part B (Economic Statistics) (questions may be asked which involve simple calculations). Applications of the theory defined by Part A to economic topics which may be drawn from areas related to the scope of the Microeconomics and Macroeconomics papers; the preparation and presentation of economic statistics (histograms, seasonal adjustment, issues relating to data quality); index numbers (including Paasche, Laspeyres and Divisia indices); size distributions (including measures of concentration, inequality and poverty).

Part C (Politics and Sociology). Application of the theory defined in Part A to social and political research, with reference to the problem of collection, analysis, and interpretation of data arising in the fields of electoral behaviour, social stratification, and comparative social policy.

Objectives

The paper provides an opportunity for undergraduates, whether in History and Economics, PPE, Economics and Management of Engineering (or Materials) Economics and Management to acquire the standard tools of the practising statistician. Every candidate taking the paper is expected to study the theory section, examined by a choice of quantitative problems. In addition candidates must choose at least one question from the two sections of applied essays, one based on Economics (Part B) and the other based on Politics and Sociology (Part C).

The major topics which students cover in Part C include:

- Advantages and disadvantages of different types of sampling
- Pros and cons of ecological inference
- Comparative social and political research
- Path analysis and causal inference

- Methods for studying the impact of political events on public opinion
- Methods of studying class voting
- Methods for studying class inequalities

Course Assessment

The course is assessed by means of a three-hour unseen examination according to the provisions established in the *Examination Decrees and Regulations 2000*, a copy of which has been issued to each undergraduate student in the Politics Department. Further details are available in the *PPE Handbook*, and *Essential Information for Students*, copies of which have been issued to each undergraduate and are also available on the politics website.

READING LIST

Tutorial topics

Background readings provide the necessary foundations for the topic readings, and thus should be read first. If you have only limited time, you should at least read the starred readings, but ideally all readings should be attempted.

1. Advantages and disadvantages of different types of sampling

Q. "Should opinion polls use probability samples rather than quota samples?"

Background reading:

*Babbie, Earl. 1995. *The Practice of Social Research*. London: Wadsworth. (Chapter on sampling)

Topic readings:

Crewe, Ivor. (1992) A nation of liars? Opinion polls and the 1992 election.

Parliamentary Affairs 45, 475-95.

Crewe, Ivor (1997) The opinion polls: confidence restored? *Parliamentary Affairs* 50, 569-585.

*Market Research Society (1992) *Report of the MRS Inquiry into the 1992 General Election Opinion Polls*. London: Market Research Society.

*Jowell, Roger et al (1993) The 1992 British election: the failure of the polls. *Public Opinion Quarterly* 57, 238-63.

*Jowell, Roger and Peter Lynn (1996) How might opinion polls be improved? the case for probability sampling. *Journal of the Royal Statistical Society, Series A*, 159, 21-28.

Smith, Fred (1996) Public opinion polls: the UK general election 1992. *Journal of the Royal Statistical Society, Series A*, 159, 535-546.

*Worcester, Robert (1996) Political polling: 95% expertise and 5% luck. *Journal of the Royal Statistical Society, Series A*, 159, 5-20. And comments by Heath and Clifford.

2. Debate over the problem of ecological inference

Q. “Does the ecological fallacy mean that it is always better to use individual-level data rather than aggregate-level data?”

Background reading:

*King, Gary. (1997) *A Solution to the Ecological Inference Problem. Reconstructing Individual Behaviour from Aggregate Data*. Princeton, NJ: Princeton University Press. (Introductory chapter).

*Robinson (1950) Ecological correlation and behaviour of individuals. *American Sociological Review* 15:351-7.

Topic Readings:

*Crewe, Ivor (1973) The politics of affluent and traditional workers in Britain: an aggregate data analysis. *British Journal of Political Science* 3, 29-52.

Hope, Keith (1975) Crewe's test of the embourgeoisement thesis. *British Journal of Political Science* 5, 256-8. And reply by Crewe.

*Kramer, G.H. (1983) The ecological fallacy revisited: aggregate versus individual-level findings on economics and elections and sociotropic voting. *American Political Science Review* 77, 92-111.

3. Comparative Research

Q. “What are some of the problems with doing comparative social and political research? How can we best overcome them?”

Dogan M and Kazancigil A (eds) (1994) *Comparing Nations: Concepts, Strategies, Substance*. Cambridge, Mass: Blackwell.

Kohn, M L (1987) Cross-national research as an analytic strategy, *American Sociological Review* 52:713-31.

Liebersohn, S (1992) Small Ns and big conclusions' in C Ragin and H Becker (eds) *What is a Case? Exploring the Foundations of Social Inquiry*. Cambridge: CUP.

Przeworski A and Teune H (1970) *The Logic of Comparative Social Inquiry*. New York: Wiley.

4. Path analysis and causal inference

Q. “Does path analysis enable us to make causal inferences from survey research?”

Background readings:

*Bollen, Kenneth A. (1989). *Structural Equations with Latent Variables*. New York: John Wiley and Sons. Chapters 1-3.

*Duncan, Otis Dudley. (1966) Path analysis. *American Journal of Sociology* 72, 1-16.

Topic readings:

*Blau P M and Duncan O D (1967) *The American Occupational Structure*. New York: Wiley. Chapter 5

*Alwin D F and Hauser R M (1975) The decomposition of effects in path analysis. *American Sociological Review* 40:17-47.

*Freedman D A (1992) As others see us: a case study in path analysis (with discussion).

In Juliet P Shaffer (ed) *The role of models in non-experimental social science: two debates*. Washington, DC: American Educational Research Association and American Statistical Association.

Hope K (1984) *As Others See Us: Schooling and Social Mobility in Scotland and the United States* (especially chapter 1). New York: Cambridge University Press.

5. Methods for studying the impact of political events on public opinion

Q. “Why do Norpoth and Sanders reach such different conclusions about the magnitude of the 'Falklands effect'?”

Background reading:

*Ostrum, Charles (1978). *Time Series Analysis*. Beverly Hills: Sage.

Topic readings:

*Clarke H, Mishler W and Whiteley P (1990) Recapturing the Falklands, *British Journal of Political Science* 20: 63-81.

Norpoth H (1987) The Falklands war and government popularity in Britain: rally without consequence or surge without decline? *Electoral Studies* 6, 3-16.

- *Norpoth H (1987) Guns and butter and government popularity in Britain. *American Political Science Review* 81: 949-959.
- Sanders, David (1993) Forecasting the 1992 British general election outcome: the performance of an 'economic' model. In D Denver et al (eds) *British Elections and Parties Yearbook 1993*. New York: Harvester Wheatsheaf.
- Sanders, David et al (2000) Macroeconomics, the Falklands war and the Thatcher government. In M Lewis-Beck, H Norpoth and J-D Lafay (eds), (2000) *Economics and Elections*. Ann Arbor: University of Michigan Pres.
- *Sanders, David et al (1987) Government popularity and the Falklands war: a reassessment, *British Journal of Political Science* 17:281-314. Partially reprinted in D Denver and G Hands (eds) *Issues and Controversies in British Electoral Behaviour*. London: Harvester Wheatsheaf, 1992.

6. Methods for studying class voting

Q. "How has the use of odds ratios changed our understanding of class de-alignment?"

Background reading:

*Agresti, Alan (1996) *An Introduction to Categorical Data Analysis*. New York: John Wiley and Sons. Chapters 1 and 2.

Topic readings:

- *Crewe, Ivor (1986) On the death and resurrection of class voting: some comments on How Britain Votes, *Political Studies* 34, 620-38.
- Evans, Geoffrey et al (1999) Class: Labour as a catchall party? In G Evans and P Norris (eds). *Critical Elections: British parties and voters in longterm perspectives*, London: Sage.
- *Evans, Geoffrey (ed) (1999) *The End of Class Politics?* Oxford: Oxford University Press. Especially chapter by Nieubeerta and de Graaf.
- Franklin, Mark, Tom Mackie and Henry Valen (1992) *Electoral Change responses to evolving social and attitudinal structures in Western countries*, Cambridge: Cambridge University Press.
- *Heath, Anthony, Roger Jowell and John Curtice (1985) *How Britain Votes*. Oxford: Pergamon. Chapters 2 and 3.
- *Heath, Anthony, Roger Jowell and John Curtice (1987) Trendless fluctuation: a reply to Crewe. *Political Studies* 35, 256-77

Heath, Anthony, G Evans and C Payne (1995) Modelling the class-party relationship in Britain. *Journal of the Royal Statistical Society, series A*, 158, 563-574.

Hout, Mike, C Brooks and J Manza (1995) The democratic class struggle in the United States. *American Sociological Review*.

7. Methods for studying class inequalities

Q. "Do different methods of measuring class inequalities in education give different results. If so, why"

Background reading:

*Liao, Tim (1994) *Interpreting Probability Models: Logit, Probit, and Other Generalized Linear Models*. Thousand Oaks: Sage (Sage University Paper series: Quantitative Applications in the Social Sciences).

Topic Readings:

Blackburn, R and Marsh, C (1991) Education and social class: revisiting the 1944 education act with fixed marginals. *British Journal of Sociology* 42, 507-36.

*Heath, Anthony and Peter Clifford (1996) Class inequalities and educational reform in twentieth-century Britain. In David J Lee and B S Turner (eds) *Conflicts About Class*. London: Longman.

*Hellevik, O. (1997) Class Inequality and Egalitarian Reform. *Acta Sociologica*, 40: 377-97.

*Mare, R D (1981) Change and stability in educational stratification. *American Sociological Review* 46, 72-87.

*Marshall, Gordon and Adam Swift (1999) On the Meaning and Measurement of Inequality. *Acta Sociologica*, 42: 241-250.

Ringen, Stein (1997) *Citizens, Families and Reform*. Oxford: Clarendon Press.

*Yossi Shavit and H-P Blossfeld (1993) *Persistent Inequality*. Boulder, Col: Westview Press. Chapters 1 and 6.