Melvyn J. Weeks

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DCM: `http://www.econ.cam.ac.uk/faculty/weeks/DCM/DCMWebPage.htm`

Education

Ph.D University of Pennsylvania, November 1994.

"Simulation-Based Inference in the Multinomial Probit Model: Theory and Applications."

Master of Arts in Economics, University of Illinois, June 1985.

B.A. in Economics and Geography, University of Reading, England, June 1983.

Current Positions

Senior University Lecturer in Econometrics, Faculty of Economics, University of Cambridge.

Fellow, Clare College, University of Cambridge

Assistant Editor Journal of Applied Econometrics, January 2000 to present.

Associate, Cambridge Econometrics, July 1999-

Selected Publications

CORRADO, L., R. MARTIN, AND M. WEEKS (2004): "Identifying and Interpreting Regional Convergence Clusters Across Europe," *Cambridge Working Papers in Economics (CWPE)*, (0414).

——— (2005): "Identifying and Interpreting Convergence Clusters Across Europe," *The Economic Journal*, 115(502).

CORRADO, L., AND M. WEEKS (2006): "Bootstrap Tests of Regional Convergence Clusters," *Journal of the American Statistical Association (Papers and Proceedings)*.

DI TOMMASO, M. L., M. RAISER, AND M. WEEKS (2003): "Home Grown or Imported? Initiial Conditions, External Anchors and the Determinants of Institutional Reform in the Transition Economies," *European Bank for Reconstruction and Development Working Paper 81*.

——— (2007): "Home Grown or Imported? Initial Conditions, External Anchors and the Determinants of Institutional Reform in the Transition Economies," *The Economic Journal*, 117, 858–881.

DOPPELHOFER, G., AND M. WEEKS (2005): "Jointness of Determinants of Economic Growth," Cambridge Working Papers in Economics 0542. Faculty of Economics, University of Cambridge.

——— (2009a): "Jointness of Growth Determinants," *Journal of Applied Econometrics*, 24(2), 209–244.

——— (2009b): "Jointness of Growth Determinants: Reply to Comments by Rodney Strachan, Eduardo Ley and Mark F.J. Steel," *Journal of Applied Econometrics*, 24.

DUNCAN, A., AND M. WEEKS (1997a): "Behavioural tax microsimulation with finite hours choices," *European Economic Review*, 41, 619–626.

——— (1997b): "Simulating Transitions using discrete Choice Models," *Journal of the American Statistical Association*.

DUNCAN, A., AND M. WEEKS (1999): "Transition Estimators in Discrete Labour Supply Models," in *Microsimulation: Methods and Applications*, ed. by L. Mitton, H. Sutherland, and M. Weeks. Cambridge University Press.

EKLOF, M., AND M. WEEKS (2004): "Estimation of Discrete Choice Models Using DCM for Ox," Cambridge Working Papers in Economics (CWPE) No. 0427, Department of Applied Economics and Faculty of Economics, University of Cambridge.

FRIES, S., M. RAISER, AND M. WEEKS (1999): "Progress and Patterns in Reform," in *Transition Report 1999: Ten Years of Transition*. European Bank for Reconstruction and Development.

GODSILL, S., M. STONE, AND M. WEEKS (2003): "Assessing the Impact of Private Sector Balance Sheets on Financial Crises: A Comparison of Bayesian and Information-Theoretic Measures of Model Uncertainty," IMF Working Paper.

HOLLY, S., P. TURNER, AND M. WEEKS (2003): "Asymmetric Adjustment and Bias in Estimation of an Equilibrium Relationship from a Cointegrating Regression," *Computational Economics*, 21(3), 195–202.

ISACHENKOVA, N., AND M. WEEKS (2008): "Acquisition, Insolvency and Managers in UK Small Companies," Cambridge Working Papers in Economics (CWPE) No. 0838.

IYER, S., AND M. WEEKS (2004): "Multiple Social Interaction and Reproductive Externalities: An Investigation of Fertility Behaviour in Kenya," Cambridge Working Papers in Economics (CWPE) No. 0461.

——— (2009): "Social Interactions, Ethnicity and Fertility in Kenya," Cambridge Working Paper in Economics, CWPE 0903, Faculty of Economics, University of Cambridge.

MARIANO, B., M. WEEKS, AND T. SCHUERMANN (eds.) (2000): *Simulation Based Inference: Theory and Applications*. Cambridge University Press.

MITTON, L., H. SUTHERLAND, AND M. WEEKS (1999): *Microsimulation: Methods and Applications*. Cambridge University Press, Cambridge.

PARAJE, G., AND M. WEEKS (2006): "Income Underreporting and Inequality Measurement: A Monte Carlo Analysis," Cambridge Working Papers in Economics (CWPE).

PESARAN, H., AND M. WEEKS (2000): "Non-Nested Hypothesis Tests," in *Theoretical Econometrics*, ed. by B. Baltagi. Basil Blackwell, Oxford.

TRAIN, K., AND M. WEEKS (2005): "The Relationship Between Scale Normalisation and Inference in the Mixed Logit Model," in *Applications of Simulation Methods in Environmental and Resource Economics*, ed. by A. Alberini, and R. Scarpa. Kluwer Academic Publisher.

WEEKS, M. (1995): "Circumventing the Curse of Dimensionality in Applied Work Using Computer Intensive Methods," *Economic Journal*, 105, 519–530.

WEEKS, M. (1996): "Testing the Binomial and Multinomial Choice Models Using Cox's Non-Nested Test," *Journal of the American Statistical Association*, 105, 519–530.

——— (1997): "The Multinomial Probit Model Revisited: A Discussion of Parameter Estimability, Identification and Specification Testing," *Journal of Economic Surveys*, 11(3), 297–320.

WEEKS, M. (1999): "Testing Binomial and Multinomial Choice Models Using Cox's Non-Nested Test," in *Simulation-Based Inference: Theory and Applications*, ed. by M. Mariano, M. Weeks, and T. Schuermann. Cambridge University Press, Cambridge, UK.

WEEKS, M. (2009): "Subset Selection for Stochasticity Ordered Distributions: An Application to Efficiency Measurement," Working Paper. Faculty of Economics, University of Cambridge.

WEEKS, M., AND L. CORRADO (2010): "Identification Strategies in Survey Response Using Vignettes," CWPE1031, Faculty of Economics, University of Cambridge.

WEEKS, M., AND G. DOPPELHOFER (2009): "Jointness of Growth Determinants," *Journal of Applied Econometrics*, 24(2), 209–244.

——— (2011): "Bayesian Semiparametric Inference for Model Averaging: An Application to Growth Determinants," Working Paper, Faculty of Economics, University of Cambridge.

WEEKS, M., AND G. DOPPELHOFFER (2011): "Robust Growth Determinants," CWPE1117, Faculty of Economics, University of Cambridge.

WEEKS, M., AND C. ORME (1999): "The Statistical Relationship between Bivariate and Multinomial Choice Models," Department of Applied Economics Working Paper 9912, University of Cambridge.

WEEKS, M., AND M. STONE (2001): "Systemic Financial Crises, Balance Sheets, and Model Uncertainity," *International Monetary Fund Working Paper*, (01/162), Washington DC.

WEEKS, M., AND K. TRAIN (2007): "Demand for Cars and Their Attributes: Methodology, Literature Review and Results," mimeo, Department of Economics, University of Cambridge, England.

YAO, Y., AND M. WEEKS (2003): "Provincial Conditional Income Convergence in China, 1953-1997: A Panel Data Approach," *Econometric Reviews*, 22(1), 59–77.

1 Research Interests and Plans

Microeconometrics, particularly discrete choice models; modelling demand systems in empirical industrial organisations; revealed and stated preference models; model testing and evaluation; computationallly intensive methods including simulation-based inference and the bootstrap; convergence within and across countries

Current research projects/plans include:

- working with Kenneth Train at UCLA, Berkeley, to estimate switching probabilities across a large disaggregate vehicle choice set, focussing on the impact of changing vehicle excise duty, calibrated to CO_2 emissions.

- working with Gernot Dopplehofer at the University of Bergen. We are exploiting our joint interest in model uncertainty and extending measures of posterior importance for individual regressors. The title of the paper we are working on is *Robustness of Growth Determinants*

- Research Grant in preparation: Bayesian Semiparametric Inference for Model Averaging (with Gernot Dopplehofer)

- working with Sriya Iyer at the University of Cambridge on the development of a multiple social interaction model of reproductive externalities.

- working with Natalia Isachenkova on survival models for small firms.

- developing an Object-Oriented set of programs for estimating a wide class of discrete choice models used in economics and marketing Version 2.0 is soon to be released.

Research Grants

Business Failure, Business Organisation and Macroeconomic Instability

    Imputation of Missing Values in Survey Data: An Experimental Approach

    ESRC - £40k.

Dynamic Common Factor Models for Regional Time Series (with Andrew Harvey and Ron Martin)

    ESRC - £140k.

The Demand for Cars and Their Attributes (with Kenneth Train and Cambridge Econometrics)

    Department for Transport - £120k.

2   Teaching Experience

Teaching material, including lecture notes, for current courses is available at
http://www.econ.cam.ac.uk/faculty/people/weeks/index.htm

Mathematics for Economists (Statistics module)
The aim of the course is to provide students with a solid grounding in statistical theory,
that will be a necessary prerequisite for advanced econometric and statistical classes.

Classical Inference (Advanced Undergraduate)
This course builds on the foundations laid in the second year Distribution Theory and
Inference course. It deals with estimation and hypothesis testing within the parametric
framework of likelihood theory. Topics include: an introduction to asymptotic theory
including convergence in probability and convergence in distribution; asymptotic distrib-
ution of the score and the maximum likelihood estimator in regular problems; and general
principles pertaining to the construction of classical hypothesis testing procedures.

Microeconometric Methods - (Postgraduate)
This course focuses primarily on the statistical theory underpinning micro-econometric
models. The methods discussed in this course are not the sole property of micro-economists.
Many of the methods have previously been discussed widely in the biology and medical
literature. Topics include: review of consumer demand theory and the link with econo-
metric modelling; binary response models; censored and truncated sampling; multinomial
choice; and introduction to simulation methods.

Simulation-Based Inference (Postgraduate - advanced)
The estimation of limited dependent variable models involving a large number of alterna-
tives represents a significant computational burden unless extreme correlation assumptions
are imposed upon the disturbance terms. Monte Carlo-based methods may be employed
to simulate choice probabilities and thereby avoid multivariate integration. We introduce
simulation-based inference by first examining the crude frequency simulator which pro-
vides a convenient point of departure by virtue of its simplicity. We then move on to an
analysis of more sophisticated methods. The course includes an introduction to Bayesian
inference in discrete choice.

Microeconometrics and Panel Data (Postgraduate - advanced)
Topics include: panel data econometrics, multinomial choice models, duration analysis,
stated and revealed preference models, social interaction modelling and methods to eval-
uate the impact of economic policies. We also introduce a number of computationally
intensive techniques including simulation-based inference and the bootstrap. Model eval-
uation, including non-nested hypothesis testing and measures of model uncertainty, is also
covered.

3 Software Development

3.1 DCM (Discrete Choice Models)

DCM v2 (Discrete Choice Models) is a package, written in Ox, for estimating a class of discrete choice models. DCM represents an important development for both the OxMetric and, more generally, microeconometric computing environment in making available a broad range of discrete choice models, including standard binary response models, with notable extensions including conditional mixed logit, mixed probit, multinomial probit, and random coefficient ordered choice models. New developments in v2 include a contraction mapping that facilitates the estimation of highly disaggregate models over a choice set of thousands of choices. Endogeneity of attributes is handled via an inversion procedure that casts the endogeneity problem within a linear model.

The DCM Website is at
`http://www.econ.cam.ac.uk/DCM/DCMWebPage.htm`

Also see:
Matias Eklof and Melvyn Weeks (2004) *Estimation of Discrete Choice Models Using DCM for Ox.* Cambridge Working Papers in Economics in Economics, 0427.

3.2 BMA (Bayesian Model Averaging)

BMA v1.0 (Bayesian Model Averaging) is a package, written in Ox, for conducting inference over a potentially large space of linear regression models. Operationalising the MC3 algorithm of Madigan and York (1995), BMA represents an important development for both the OxMetrics and, more generally, model averaging computing environment by making available a comprehensive model averaging toolset with a user friendly interface.

Users may access the functions within BMA by writing a short Ox programs which creates an object of the BMA class. We demonstrate the capabilities of BMA by using a number of well known applications from the literature. This document will serve as a manual for BMA

The BMA Website is at
`http://www.econ.cam.ac.uk/bma/index.html`

4 Conferences Organised

Methods for Stated and Revealed Preference Data, May 2003. Joint with the Centre for MicroData Methods and Practice (Cemmap) at UCL.

Panel Data Conference, University of Cambridge 2006.

5   Advisory

Consultant: Office of Gas and Electricity Markets.
   Advising on the use of modelling approaches to estimate efficiency levels for the electricity distribution companies.

Consultant: Department of Trade and Industry on a project examining the determinants of the demand for new cars. The principal objectives of the project were to:

 (i) construct a highly disaggregate demand model for the new car market in the UK;

 (ii) provide direct and cross-elasticities of demand with respect to the impact of fuel cost, vehicle excise duty (VED) and price;

(iii) evaluate the impact of policy instruments such as VED on CO_2 emissions.

Consultant, Department of Trade and Industry (Radio Communications Agency) on:

 (i) the determinants and impact of switching between 2G and 3G mobile telephony;

 (ii) the demand for digital television; and

(iii) the demand for private mobile radio services. Models were used to estimate consumer surplus accruing following an introduction of new cellular mobile phone/television technology.

Discrete Choice Models of Demand for Cellular Mobile Telephones and Digital Television. Report to the Department of Trade and Industry (October 2002)

Discrete Choice Models of Demand for Private Radio Mobile Services. Report to the Department of Trade and Industry (January 2002)

Consultant, European Bank for Reconstruction and Development, June 1999 - present
Development of panel data techniques for estimating a Structural Model of Institutional Change.

Consultant, World Bank. April 1999 -April 2000
Construction and estimation of inequality measures for Uruguay.

Consultant, European Commission (Eurostat). March 1998 - May 1999
Imputation of Missing Data for the Regional Economies Database.

Consultant, Institute of Criminology, Cambridge, November 1997 - June 1998.
Provided statistical advice on the Home Office funded project *Criminal Deterrence and Penal Policy.*

6 Editorial

Assistant Editor, the Journal of Applied Econometrics

7 Courses for Academics and Policymakers

Topics In Empirical Industrial Organisation

> University of Rosario, Columbia, September 1-5, 2008
> Bank of Italy, April 2008

On the Specification, Estimation and Identification of Discrete Choice Models

> University of Rosario, Columbia, July 21-24, 2004
> University of Chile, Chile, July 26-27, 2004.
> University of Cambridge, November 1-2, 2004.
> University of Sienna, Italy, April 4-6, 2005.
> University Technica, Lisbon, September 24-27, 2005.
> Melbourne Institute of Applied Economic and Social Research,
> Australia, August 3-5, 2006.

Bayesian Inference from a Classical Perspective
> Reserve Bank of New Zealand, New Zealand, July 21, 2006

Bayesian Model Averaging
> Norges Bank, Norway, June 2008.

8 Other Experience

Visiting Fellow, Reserve Bank of New Zealand, April 2006.

Visiting Professor, International Monetary Fund, September 2000 - November 2000. Provision of advice on development of an early warning system for systemic financial crisis. Work involved both conceptual and econometric input.

Lecturer (Grade B) in Econometrics and Statistics, Dept. of Economics, University of York, Sept. 1992-Jan 1996.

Senior Consultant, Institute for Food Policy Research, Washington, D.C., June 1989 - 2002
Working alongside Prof. M. Nerlove, duties included the development of a modelling framework designed to integrate cross-section and time series data pertaining to a model of a multiple input, multiple output production system; also assist in software and conducting statistical analysis.

Consultant, Nestle Rowntrees, York, Jan 1993 - 1995
Duties included the provision of advice on the specification and estimation a number of brand models for the confectionery market. Presented a number of seminar programmes

designed to provide an overview of key econometric concepts to an audience of market analysts with relatively little experience in statistical analysis.

Consultant, El Colegio de Mexico, Mexico City, June 1992.
In June of 1992 I was asked to visit El Colegio and provide advice on the development of an internally consistent strategy for the expansion of the computer facilities. Specific tasks included the evaluation of computing needs in the social science departments.

Research Assistant, University of Pennsylvania, Philadelphia, PA, October 1991 - May 1992.
Under the supervision of Prof. F. Diebold, research was undertaken examining the properties of time varying parameter models under temporal aggregation. Particular focus was upon ARCH and GARCH time varying variance models.

Senior Computer Consultant, Social Science Data Centre, University of Pennsylvania, Jan. 1987 - Jan. 1988
Duties included basic micro and mainframe consulting, and management of a local area network. Also employed as the centre's principle econometric software consultant.

Selected Papers Presented and Conferences Organised

1. Organiser of an Invited Session on *Simulation Methods in Econometrics* at the 1995 American Statistical Association Meetings.

   Paper Presented: *Testing Binomial and Multinomial Choice Models Using Cox's Non-Nested Test.*

2. *A Microsimulation Model of Labour Supply with Finite Hours Choices*

   Presented at the meetings of the European Economics Association, Istanbul, August 1996.

3. *Probit Versus Logit: An Application of Cox's Non-Nested Test.* Presented at the meetings of the European Econometrics Association, Istanbul, August 1996.

4. Organiser of a Special Contributed Session on *Discrete Choice Models of Labour Supply* at the 1997 American Statistical Association Meeting (Anaheim).

5. *Simulated Transitions in Discrete Choice Models.* Presented at the meetings of the European Econometric Association, Toulouse, 1997.

6. *The Statistical Relationship between Bivariate and Multinomial Choice Models.* Presented at the meetings of European Economic Association, Berlin, August, 1998.

7. *Decision Structures and Discrete Choice: An Application to Labour Supply and Fertility.* Presented at the meeting of the European Population Society, Turin, June 1999.

8. *Non-Nested Models and the Likelihood Ratio Statistic: A Comparison of Simulation and Bootstrap-Based Tests.* Presented at the meetings of the European Econometric Association, Santiago de Compostela, September 1999.

9. *Decision Structures and Discrete Choice: An Application to Labour Supply and Fertility.* Presented at the Cowles Commission Conference on Structural Decision Making, Yale, April 2000.

10. *A Structural Model of Institutional Change: Evidence from Transition Economies.* Presented at the Annual Panel Data Conference, Geneva, June 2000.

11. *Provincial Income Convergence in China, 1953-1957. A Panel Data Approach.* Presented at the Annual Panel Data Conference, Geneva, June 2000.

12. *The Measurement and Determinants of Institutional Change.* Paper presented at the World Bank, and the University of Maryland, October 2000.

13. *Discrete Choice Models of Demand for Cellular Mobile Telephones and Digital Television*, presented at the Bank of Italy, November 2002.

14. *Latent Variable Models of Institutional Change.* Paper presented at University College, London, and University of Rome, Tor Vergata, November 2002.

15. *Model Uncertainty in Predicting Financial Crisis: A Bayesian Perspective,* Cass Business School, August 2003

16. *Estimation of Discrete Choice Models Using DCM for Ox,* Cass Business School, August 2003

17. *Social interactions and reproductive externalities: An econometric investigation of fertility behaviour in Kenya,* Washington DC. Paper presented at MacArthur Workshop on Social Interaction held at the Brookings Institute. December 2003

18. *Assessing the Impact of Private Sector Balance Sheets on Financial Crises: A Comparison of Bayesian and Information-Theoretic Measures of Model Uncertainty.* New York Federal Reserve Bank, March 2004

19. *Social interactions and reproductive externalities: An econometric investigation of fertility behaviour in Kenya.* Paper presented at The Centre for Fertilility Studies, University of Turin, March 2004

20. *Jointness of Growth Determinants*, Paper presented at the University of Dunedin, New Zealand, August 2006.

21. *The Impact of Managerial Characteristics on Small Firm Insolvency and Acquisition.* Paper presented at the University of Sydney, Australia, August 2006.

22. *Identifying and Interpreting Regional Convergence Clusters across Europe: Asymptotic versus Bootstrapped Inference.* Paper presented at the General Meeting of the American Statistical Association, Seattle August 7-10, 2006.

23. *Jointness of Growth Determinants* Paper presented at CESifo Area Conference on Macro, Money and International Finance, Munich. 24 February 2007.

24. *Topics In Empirical Industrial Organisation.* Paper presented at Bank of Italy, Rome, April 2008.

25. *Price Cap Regulation in the UK Water Industry.* Paper presented at University of Rosario, Bogota, Columbia, September 2008.

26. *Regulation in Oligopolistic Markets with Differentiated Products: The Demand for new Cars.* Paper presented at International Choice Modelling Conference, Harrogate, April 2009.

27. Robust Model Averaging. Paper presented at ESEM, Oslo 2011.

Computing Skills

Extensive use and experience of statistical and econometric software on a number of platforms. Packages include: GAUSS, LIMDEP, PC-Give, S-PLUS, STATA, Rats, TSP and GAMS. Experience with UNIX.
Languages: Proficient in Fortran 77 and Ox.

Refereeing

Journal of Econometrics

Journal of Applied Econometrics

International Economic Review

Econometric Reviews