

CURRICULUM VITAE

NAME: Stephen John HASLETT

ACADEMIC

QUALIFICATIONS: 1971 B.Sc. in Biochemistry [Otago University]
1976 B.A. in Mathematics [Otago University]
Certificates of Proficiency
1980 B.A. (Hons) 1st Class in Mathematics
[Victoria University]
1986 Ph.D. Mathematical Statistics. Thesis:
"Time series methods and repeated sample surveys"
[Victoria University]
Supervisors: Prof David Vere-Jones
Associate Prof Peter Thomson

DATE & PLACE OF BIRTH:

24 January 1951, Wellington, New Zealand

NATIONALITY:

New Zealand

ADDRESS:

Emeritus Professor
School of Fundamental Sciences & Centre for Public
Health Research
Massey University
Palmerston North & Wellington, New Zealand
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Visiting Research Fellow
Research School of Finance, Actuarial Studies and
Statistics
The Australian National University
Canberra ACT 2601 Australia
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NIASRA Professorial Fellow
National Institute for Applied Statistics Research
Australia
Faculty of Engineering and Information Sciences
University of Wollongong
NSW 2522, Australia

Director
Systemetrics Research Associates Ltd
PO Box 1507
Palmerston North, New Zealand.

IMMEDIATE PREVIOUS POSITION (to October 2018):

Professor / Director, Statistical Consulting Unit
The Australian National University

PROFESSIONAL QUALIFICATIONS:

Chartered Statistician (UK)
Fellow of the Royal Statistical Society

HONOURS AND AWARDS

New Zealand Statistical Association: Life Membership 2014

New Zealand Statistical Association: Campbell Award 2010

National Science Foundation / American Statistical Association (USA NSF/ASA)
Senior Fellowship, 2001-2002

New Zealand *Marsden* Grant for 1999-2002 as joint Principal Investigator with
Professor Miles Fairburn, Department of History,
University of Canterbury

PROFESSIONAL RESPONSIBILITIES

Member, New Zealand Ministry of Health Coronavirus Statistical Advisory Group,
2020

Editor-in-Chief / Managing Editor, Australian and New Zealand Journal of
Statistics, 2009-2012

Theory & Methods Editor, Australian and New Zealand Journal of Statistics, 2004-
2008

Associate Editor, Australian and New Zealand Journal of Statistics, 1998-2004

President, New Zealand Statistical Association, 2002 – 2004

Member of Committee on Publication Ethics (COPE) UK, 2009-2012

Member, Royal Society of New Zealand Mathematical and Information Sciences
Marsden Panel 2010-2012, 2015.

Joint Principal Reviewer, New Zealand AID KOHA/PICD (Partners in
International Development) funding scheme 2008-2010

Approved contractor, ASC scheme NZAID/MFAT 2004 – 2009, 2010-2013

Convenor, Survey Appraisals and Public Questions Committee, New Zealand
Statistical Association, 1990-1999.

VISITING APPOINTMENTS

May 2008 – July 2008

Visiting Professor

Department of Mathematics and Statistics, Tampere University, Finland.

October 2001 – June 2002

National Science Foundation / American Statistical Association Senior Fellow
at Bureau of Labor Statistics, Washington DC, USA

February 1999 – May 1999

Visiting Professor

Department of Statistics, Trinity College, Dublin, Ireland.

November 1987 – July 1990

Assistant Professor / Associate Professor

Survey Section, Statistics Laboratory and Department of Statistics, Iowa State
University, Ames, Iowa, USA.

INVITED ADDRESSES, 2010 -

Maastricht University, Netherlands, November 2019 – Invited seminar:
EBLUP: Empirical Best Linear Unbiased Predictors (with applications to
small area estimation).

Centraal Bureau voor de Statistiek (CBS), Heerlen, Netherlands,
November 2019 – Invited Seminar: Measuring nutrition, health and poverty
in small areas –how low can you go? A comparison of alternative methods
for poverty estimation in developing countries.

International Conference on Matrix Analysis and its Applications, MAT-
TRIAD 2019, Liblice, Czech Republic, September 2019: Invited paper:
EBLUP: Empirical Best Linear Prediction

Invited seminar, Canberra, Australia, RSFAS ANU February 2019: Small
Area Estimation Methods for Poverty in Developing Countries.

Invited Speaker, Economic and Social Research Council (ESRC) Research
Methods Festival, Bath UK, July 2018.

Invited Speaker, Linstat 2018, Bedlewo, Poland, August 2018.

Invited Speaker, Statistical Society of Australia: SSA – Canberra, May
2018

Invited Speaker and Panel Member, Statistical Society of Australia
Conference (SSA), Canberra December 2017.

Invited Speaker, International Conference on Linear Algebra and Its Applications (ICLAA2017) Manipal, India, December 2017.

Keynote Speaker, International Conference on Advances in Mathematical Sciences (ICAMS2017), Vellore, India, December 2017.

Invited Speaker / Member Scientific Committee, Small Area Estimation Conference SAE2017, Paris, France, July 2017.

Invited Speaker, Australasian Aid Conference, December 2016, Canberra, Australia.

Invited Speaker, Small Area Estimation Conference SAE2015, Santiago, Chile, August 2015.

Invited Speaker, World Statistics Congress, Rio de Janeiro, Brazil, July 2015.

Invited Speaker, InGRID Expert workshop 'Local statistics for decision-making on well-being and vulnerability', Livorno, Italy, June 2015.

Keynote Speaker, Second Shanghai Forum of Trade and Financial Statistics (SFTFS 2015), Shanghai, China, June 2015.

Invited paper, International Workshop on Matrices in Statistics, IWMS2015, Haikou, Hainan, China, May 2015.

Invited paper, International Conference on Linear Algebra and Its Applications, Manipal, India, December 2014.

Dissemination Workshop for Small Area Estimation of Undernutrition in Bangladesh, Bangladesh Ministry of Planning / Bangladesh Bureau of Statistics, / UN World Food Programme / World Bank / IFAD, Dhaka, Bangladesh, November 2014, Principal Plenary Speaker.

Dissemination Workshop for Small Area Estimation of Undernutrition and Food Insecurity in Nepal, Nepal Ministry of Planning / Central Bureau of Statistics, UN World Food Programme / UNICEF / World Bank, Kathmandu, Nepal, December 2014, Principal Plenary Speaker.

Invited Workshop Presenter, Survey Sampling and Linear Models, LinStat2014, Linköping, Sweden, August 2014.

Invited Session Organiser, Small Area Estimation, LinStat2014, Linköping, Sweden, August 2014.

Invited Session Organiser, Integration of Survey and Administrative Data, ASC-ISI 2014, Sydney, Australia, July 2014.

Invited Speaker, ASC-ISI 2014, Sydney, Australia, July 2014.

Invited Plenary Presentation: UN World Food Programme Workshop - Cooperation with National Statistical System (NSS) , Bangkok, February 2014.

Invited Plenary Speaker, Symposium in Honour of Professor John Haslett, Established Chair of Statistics, Trinity College Dublin, October 2013.

Member, Scientific Advisory Panel, Small Area Estimation (SAE 2013) Conference, Bangkok, September 2013.

59th World Statistics Congress, Hong Kong, China, Invited Speaker, *STS039 Measuring progress a small area level*, August 2013.

Dissemination Workshop for Small Area Estimation of Poverty in Cambodia, Cambodia Ministry of Planning / National Institute of Statistics, UN World Food Programme, Phnom Penh, Cambodia, April 2013, Principal Plenary Speaker.

International Workshop on Matrices in Statistics (IWMS 21), Posnan, Poland, July 2012, Invited Speaker.

Institute of Mathematical Statistics – Asia Pacific Rim Conference, Invited Speaker, July 2012

Invited Plenary Speaker: Statistics New Zealand Statistical Methods Professional Development Meeting, 8 May 2012, Wellington, NZ.

- (a) What's the best way to integrate data from different sources?
- (b) Data Cloning.

International Workshop on Matrices in Statistics (IWMS 19), Shanghai, June 2010, Plenary Speaker.

PUBLICATIONS

Table 1

<i>Total Peer-Reviewed Research Publications</i>	<i>Number:</i>	
Monographs	13	
Book Chapters	9	
Journal Articles (refereed)	106	
Conference Publications (refereed)	20	
Articles / Monographs (refereed: in press)	2	

For summary of Conference Papers (Unrefereed), Technical Research Reports, Consulting Research Reports, and Formal Statistical Committee Publications see Table 2.

Monographs

Medical / Health / International Development

Haslett, S., Jones, G., Isidro, M., and Sefton, A. *Small Area Estimation of Food Insecurity and Undernutrition in Nepal*, Central Bureau of Statistics, National Planning Commissions Secretariat, UN World Food Programme, UNICEF, and World Bank, Kathmandu, Nepal, December 2014, 154 pages, ISBN: 978-9937-3000-976.

<https://www.wfp.org/content/nepal-small-area-estimation-food-insecurity-and-undernutrition-december-2014>

Haslett, S. Jones, G. and Isidro, M. *Small-Area Estimation of Child Undernutrition in Bangladesh*, Bangladesh Bureau of Statistics, United Nations World Food Programme and International Fund for Agricultural Development, November 2014, 76 pages, ISBN 978-984-33-9085-1.

<https://www.wfp.org/sites/default/files/Undernutrition%20Maps%20of%20Bangladesh%202012%20Technical%20Report%20Massey%20WFP%20BBS%20IFAD.pdf>

Haslett, S. (with Jones, G. and Sefton, A). *Small-area Estimation of Poverty and Malnutrition in Cambodia*, National Institute of Statistics, Ministry of Planning, Royal Government of Cambodia, and the United Nations World Food Programme, June 2013, 88 pages, ISBN 9789996375507.

<http://www.wfp.org/content/cambodia-small-area-estimation-poverty-and-malnutrition-april-2013>

Haslett, S. (with Jones, G.) *Small area estimation of poverty, caloric intake and malnutrition in Nepal*, September 2006, Published by the World Food Programme, the World Bank and the Nepal Central Bureau of Statistics, 218 pages, ISBN 999337018-5. <http://www.un.org.np/node/10501>

Haslett, S. (with Jones, G.) *Local estimation of poverty and malnutrition in Bangladesh*, May 2004, Published by United Nations World Food Programme and Bangladesh Bureau of Statistics, 43 pages.
<http://siteresources.worldbank.org/INTPGI/Resources/342674-1092157888460/BangladeshBureauStatistics.LocalEstimation.pdf>

Haslett, S. (with Jones, G.) *Estimation of local poverty in the Philippines*, November 2004, Published by the World Bank and Philippines National Statistics Co-ordination Board, 70 pages.
http://siteresources.worldbank.org/INTPGI/Resources/342674-1092157888460/Local_Estimation_of_Poverty_Philippines.pdf

Haslett, S. (with K. Scott, D. Sarfati) *Taking the pulse: The 1996/97 New Zealand Health Survey*, 1999, New Zealand Ministry of Health, ISBN: 0-478-23511-9, 301 pages.

Official Statistics

Haslett, S., Jones, G. Noble, A. and Ballas, D. More for less? Using statistical modelling to combine existing data sources to produce sounder, more detailed, and less expensive Official Statistics, *Official Statistics Report Series*, 2010
http://archive.stats.govt.nz/about_us/who-we-are/home-statisphere/research-series/2010.aspx#gsc.tab=0, ISSN 1177-5017, 2010, 75 pages.

Haslett, S., Jones, G and Enright, J. Small-Domain Estimation of Māori Expenditure Patterns, *Official Statistics Report Series*, Vol 3,
http://archive.stats.govt.nz/about_us/who-we-are/home-statisphere/research-series/2008-v3.aspx#gsc.tab=0, ISSN 1177-5017, 2008, 87 pages.

Haslett, S., Noble, A. and Zabala, F. New Approaches to Small Area Estimation of Unemployment, *Official Statistics Report Series*, Vol 3,
http://archive.stats.govt.nz/about_us/who-we-are/home-statisphere/research-series/2008-v3.aspx#gsc.tab=0, ISSN 1177-5017, 2008, 144 pages.

Psychology

Haslett, S. (with J. Kroger) "A retrospective study of Ego Identity Status Change by mid-life adults", *Social and Behavioural Science Documents*, 1987, Vol. 17, No. 1, # 2191, 52 pages.

Criminology

Haslett, S. (with W. Young, A. Morris, N. Cameron) *The New Zealand National Survey of Crime Victims 1996*, 1997, New Zealand Victimisation Survey Committee, ISBN: 0-478-20128-1, 213 pages.

Haslett, S. (with J. Robinson, W. Young) *Surveying crime*, 1989, Institute of Criminology, Victoria University, Study Series 5, 98 pages.

Journal Articles / Book Chapters:

In press:

- Bilton, P., Jones, G., Ganesh, S. Haslett, S. (2020) Regression trees for poverty mapping, *Australian and New Zealand Journal of Statistics* (accepted March 2020).
- Barnes,, L.A., Eng A., Corbin, M., Denison, H.J., 't Mannetje., A, Haslett S., McLean, D., Jackson, R., Douwes, J. (2020) The prevalence of cardiovascular risk factors in different occupational groups in New Zealand, *Annals of Work Exposures and Health* (accepted March 2020).
- Haslett, S.J., Isotalo, J., Kala, R., Markiewicz, A., Puntanen, S. (2020) A review of the linear sufficiency and linear prediction sufficiency in the linear model with new observations. *Proceedings of the International Conference on Trends and Perspectives in Linear Statistical Inference: LinStat 2018*, Springer (accepted February 2020), 51 pages

Theoretical

- Haslett, S.J., Liu, X.Q., Markiewicz, A. & Puntanen, S. (2020) Some properties of linear sufficiency and the BLUPs in the linear mixed model, *Statistical Papers*, 61, 385-401, DOI 10.1007/s00362-017-0943-3.
- Haslett, S. (2019) Best linear unbiased estimation for varying probability with and without replacement sampling, *Special Matrices*, 7, 78–91, <https://doi.org/110.1515/spma-2019-0007>
- Haslett, S.J & Welsh, A.H (2019) EBLUP: Empirical best linear unbiased estimation, *Wiley StatsRef, Statistics Reference Online*. <https://doi.org/10.1002/9781118445112.stat08180>
- Das, S. & Haslett, S.J. (2019) A comparison of methods for poverty estimation in developing countries, *International Statistical Review*, 87, 2, 368–392. doi:10.1111/insr.12314 <https://doi.org/10.1111/insr.12314> or <https://onlinelibrary.wiley.com/doi/full/10.1111/insr.12314>
- Haslett, S. (2019) Discussant on Hui, F.K.C., Muller, S. & Welsh, A.H. Testing random effects in linear mixed models: another look at the F-test, *Aust. N. Z. J. Stat.*, 2019, 61–84 doi: 10.1111/anzs.12256, pages 79-80.
- Haslett, S.J. & Puntanen, S. (2017). Best linear unbiased prediction (BLUP). *Wiley StatsRef: Statistics Reference Online*. <https://doi.org/10.1002/9781118445112.stat08120>

doi: 10.1002/9781118445112.stat08120.

Bilton, P., Jones, G., Ganesh, S., Haslett, S. (2017) Classification trees for poverty mapping, *Computational Statistics and Data Analysis*, 115, 53–66.

Haslett, S. (2016) Positive semidefiniteness of estimated covariance matrices in linear models for sample survey data, *Special. Matrices*; 4: 218–224, DOI 10.1515/spma-2016-0020.

Isidro, M., Haslett, S. & Jones, G. (2016) Extended Structure Preserving Estimation (ESPREE) for updating small area estimates of poverty, *The Annals of Applied Statistics*, 10: 1, 451–476, DOI: 10.1214/15-AOAS900.

Haslett, S. (2016) Small area estimation using both survey and census unit record data: links, alternatives, and the central roles of regression and contextual variables, Chapter 18, p327-348 in *Analysis of Poverty Data by Small Area Estimation*, ed. M. Pratesi, Wiley. ISBN: 978-1-118-81501-4.

Haslett, S.J., Puntanen, S. and Arendacká, B. (2015) The link between the fixed and mixed linear models revisited, *Statistical Papers*, 56, 3, 849-861. DOI 10:1007/s00362-014-0611-9.

Haslett, S. J., Isotalo, J., Liu, Y. & Puntanen, S. (2014). Equalities between OLSE, BLUE and BLUP in the linear model, *Statistical Papers*, 55, 543-561, Springer. DOI: 10.1007/s00362-013-0500-7.

Haslett, S and Puntanen, S. (2013) A review of conditions under which BLUEs and/or BLUPs in one linear mixed model are also BLUEs and/or BLUPs in another, *Proceedings of the Eighth International Triennial Calcutta Symposium of Probability and Statistics, Special Volume of the Bulletin of the Calcutta Statistical Association*, 65, no 257-260, 25-42.

Haslett, S. (2013) Small area estimation of poverty using the ELL/PovMap method, and its alternatives, Chapter 12 in *Poverty and Social Exclusion: New Methods of Analysis*, ed. G. Betti and A Lemmi, Routledge, 2013.

Haslett, S. and Govindaraju, K. (2012) Data cloning: data visualisation, smoothing, confidentiality, and encryption, *Journal of Statistical Planning and Inference*, 142(2), 410-422, DOI: 10.1016/j.jspi.2011.07.020.

Haslett, S (2012) Practical guidelines for design and analysis of sample surveys for small area estimation, Special Issue on Small Area Estimation, *Journal of the Indian Society of Agricultural Statistics*, 66(1), 203-212.
<http://www.isas.org.in/jisas/jsp/onlinejournal.jsp>

Haslett, S and Puntanen, S. (2011) On the equality of BLUPs under two linear mixed models, *Metrika*, 74 (3) 381-395. DOI 10.1007/s00184-010-0308-6.

- Haslett, S and Puntanen, S. (2010) Equality of the BLUEs and/or BLUPs under two linear models using stochastic restrictions, *Statistical Papers*, Springer, 51, 465-475.
- Haslett, S and Puntanen, S. (2010) A note on the equality of BLUPs for new observations under two linear models, *Acta et Commentationes Universitatis Tartuensis de Mathematica*, University of Tartu, 14, 27-33.
- Haslett, S. Isidro, M. and Jones, G. (2010) Comparison of survey regression techniques in the context of small area estimation of poverty, *Survey Methodology*, 36, 2, 157-170.
- Haslett, S. and Jones, G. (2010) Small area estimation of poverty: the aid industry standard and its alternatives, *Australian and New Zealand Journal of Statistics*, 52, 4, 341-362.
- Haslett, S and Puntanen, S. Effect of adding regressors on the equality of the BLUEs under two linear models, *Journal of Statistical Planning and Inference*, 2010, 140, 104-110, Springer.
- Noble, A., Haslett, S., Jones, G. and Ballas, D. More for Less: using statistical modelling to combine survey data and administrative sources, *Proceedings of Statistics Canada Symposium 2010*, 10B-2, <http://www.statcan.gc.ca/conferences/symposium2010/abs-res-eng.htm>
- Isidro, M., Haslett, S. and Jones, G. Comparison of intercensal updating techniques for local level poverty statistics, *Proceedings of Statistics Canada Symposium 2010*, 10B-4, <http://www.statcan.gc.ca/conferences/symposium2010/abs-res-eng.htm>
- Isidro, M, Haslett, S. and Jones, G. Extended Structure-Preserving Estimation Method for Updating Small-Area Estimates of Poverty, *Joint Statistical Meetings, Proceedings of the American Statistical Association 2010*, Vancouver, Canada, <http://www.amstat.org/meetings/jsm/2010/onlineprogram>
- Haslett, S. Jones, G., Noble, A. and Ballas, D. More for Less? Comparing Small-Area Estimation, Spatial Microsimulation, and Mass Imputation, *Joint Statistical Meetings, Proceedings of the American Statistical Association 2010*, Vancouver, Canada, <http://www.amstat.org/meetings/jsm/2010/onlineprogram>
- Healey, B. Gendall, P. and Haslett, S. The nature and extent of postal survey noncontact: implications for survey practice, *Australasian Journal of Market and Social Research*, 2009, Vol 17, No 2, 31-48.
- Haslett, S. and Govindaraju. K. (2009) Cloning data: generating datasets with exactly the same multiple linear regression fit, *Australian and New Zealand Journal of Statistics*, 2009, Vol 51, No 4, 499-503.
- Haslett, S. and Hedderley, D. Comment on “A better estimate of the number of valid signatures on a petition”, Letters to the Editor: *The American Statistician*, Vol 62, No 3, August 2008, p 278.

- Govindaraju, K, and Haslett, S. Illustration of regression toward the means, *International Journal of Mathematical Education in Science and Technology*, Vol 39, No 4, 2008, pp544-550.
- Haslett, S. (with O’Keefe, C. M., Steel, D. and Chambers, R.) Table builder problem – confidentiality for linked tables, *Proceedings of the 2008 Mathematics and Statistics Industry Study Group*, edits: Marchant, T., Edwards, M. and Mercer, G., MISG2008, University of Wollongong, ISBN 978-0-646-50544-2, 2008, pp12-22.
- Haslett, J & Haslett, S. (2007) The three basic types of residuals for a linear model, *International Statistical Review*, 75, 1, 1–24.
- Haslett, S. (with Noble, A.D. and Zabala, F.) “Small area estimation of unemployment using hierarchical Bayes methods”, Session on Labour Force Applications, *SAE2007 Conference Proceedings, IASS Satellite Conference on Small Area Estimation, 3-5 September 2007, Pisa – Italy*, [CD-ROM]: 2006/2007 - Dipartimento di Statistica e Matematica Applicata all'Economia, University of Pisa, pp17-20.
- Haslett, S. (with Jones, G and Enright, J.) “Problems in small-domain estimation of expenditure patterns”, Session on Small Area Estimation for Poverty and Expenditure, *SAE2007 Conference Proceedings, IASS Satellite Conference on Small Area Estimation, 3-5 September 2007, Pisa – Italy*, [CD-ROM]: 2006/2007 - Dipartimento di Statistica e Matematica Applicata all'Economia, University of Pisa, pp1-4.
- Haslett, S. (with Isidro, M. and Jones, G.) “Comparison of Regression Techniques for Small Area Estimation of Poverty”, Session on Small Area Estimation for Poverty and Expenditure, *SAE2007 Conference Proceedings, IASS Satellite Conference on Small Area Estimation, 3-5 September 2007, Pisa – Italy*, [CD-ROM]: 2006/2007 - Dipartimento di Statistica e Matematica Applicata all'Economia, University of Pisa, pp5-8.
- Haslett, S. (with Noble, A. and Arnold, G.) “Erratum to: ‘Small Area Estimation via Generalized Linear Models’”, *Journal of Official Statistics*, Vol 18, No 1, 2002, pp45-60”, *Journal of Official Statistics*, Vol 22, No 1, 2006, pp159-160
- Haslett, S. “Invited discussion of the paper by Domijan, Jorgensen & Reid – ‘Semi-mechanistic modelling in nonlinear regression: a case study’”, *Australian and New Zealand Journal of Statistics*, Vol 48, No 3, 2006, pp 392-394.
- Haslett, S. (with Jones, G.) “Small area estimation using surveys and censuses: some practical and statistical issues”, *Statistics in Transition*, Vol 7, No 3, 2005, pp 541-555.

- Haslett, S. "Designing and analysing surveys under severe resource constraints," *2005 Proceedings of the American Statistical Association, Section on Survey Research Methods* [CD-ROM], Alexandria, VA: American Statistical Association, pp 3100-3109.
- Haslett, S. (with D. Hedderley) "The accuracy of estimators of number of signatories to a petition based on a sample", *Journal of Official Statistics*, Vol. 21, No. 1, 2005, pp 21-38.
- Haslett, S. (with A. Gray and G. Kuzmicich) "Confidence intervals for proportions estimated from complex samples", *Journal of Official Statistics*, 2004, Vol 20, No 4, pp 705-724.
- Haslett, S. "Contribution to the Discussion on 'An alternative view of the 2001 census and future census taking', R. Redfern," *Journal of the Royal Statistical Society, Series A*, 2004, Vol 167, Part 2, p 240.
- Haslett, S. (with A. Noble and G. Arnold) "Small area estimation via Generalized Linear Models", *Journal of Official Statistics*, 2002, Vol 18, No 1, pp 45-60.
- Haslett, S. (with A. Green and C. Zingel) "Small area estimation given regular updates of census auxiliary variables", *Proceedings of the New Techniques and Technologies for Statistics Conference*, Sorrento, Italy, November 1998, pp 206-211.
- Haslett, S. "Contribution to the Discussion on the papers of Firth and Bennett, and Pfefferman *et al.*, Complex sample surveys", *Journal of the Royal Statistical Society, Series B*, 1998, Vol 60, Part 1, pp 48-49.
- Haslett, S. "Updating Linear Models with dependent errors to include additional data and / or parameters", *Linear Algebra and Its Applications*, 1996, Vol 237 / 238, pp 329-349.
- Haslett, S. "Covariances for fixed interval smoothed Kalman Filter parameter estimates", *The Australian Journal of Statistics*, 1990, Vol. 32, No. 2, pp 205-216.
- Haslett, S. "Degrees of freedom and parameter estimability in hierarchical models for sparse complete contingency tables", *Computational Statistics and Data Analysis*, 1990, Vol. 9, pp 179-195.
- Haslett, S. "Automatic model selection for complete contingency tables", *The New Zealand Statistician*, May 1986, Vol. 21, No. 1, pp 26-34.
- Haslett, S. "Recursive estimation of the General Linear Model with dependent errors and multiple additional observations", *Australian Journal of Statistics*, 1985, Vol. 27, No. 2, pp 183-188.
- Haslett, S. "An algorithm for degree of freedom calculations in sparse complete contingency tables" in *Generalized Linear Models: Lecture Notes in Statistics*,

1985, Vol. 32, edited by R. Gilchrist, B. Francis, J. Whittaker, Springer: Verlag, New York.

Haslett, S. "The linear non-homogeneous estimator in sample surveys", *Sankhya: The Indian Journal of Statistics*, 1985, Vol. 47, Series B, pp 101-117.

History

Fairburn, M. and Haslett, S. (2010) Who voted for Massey 1908-1914? In *A Great New Zealand Prime Minister? Reappraising William Ferguson Massey*, edited by James Watson and Lachy Paterson, Otago University Press, 61-76 & 146-149.

Haslett, S. (with M. Fairburn) The rise of the left and working-class voting behavior in New Zealand: New methods, *Journal of Interdisciplinary History*, Vol. 35, No 4, 2005, pp 523-555.

Haslett, S. (with Fairburn, M.) Voter behaviour and the decline of the liberals in Britain and New Zealand, 1911-29: some comparisons, *Social History*, Vol 30, No 2, 2005, pp 195—217.

Haslett, S. (with M. Fairburn) Cleavage within the working class? Working-class vote for the Labour Party in New Zealand, 1911-1951, *Labour History*, No 88, 2005, pp 183-213.

Haslett, S. (with Fairburn, M.) How far did class determine voting in New Zealand general elections 1911 - 1951?, *New Zealand Journal of History*, Vol 39, No 2, 2005, pp 215—241.

Haslett, S. (with Fairburn, M.) The New Zealand social structure, 1911-1951: Did it become more middle class?, *New Zealand Sociology*, Vol 20, No 1, 2005, pp 20-52.

Haslett, S. (with Fairburn, M.) Stability and egalitarianism: New Zealand, 1911-1951, in *Class, Gender and the Vote: Historical Perspectives from New Zealand*, edited by Miles Fairburn and Erik Olssen, Otago University Press, 2005, pp 15-33, 233-239, 243-247..

Haslett, S. (with M. Fairburn) Interprovincial differences in the rates of minor crimes of violence and related disorders in New Zealand, 1853-1930: Part II, *Historical Social Research: Historische Sozialforschung*, 1991, Vol. 16, No. 3, pp 40-68.

Haslett, S. (with M. Fairburn) Did Wellington Province from the 1850's to 1930 have a distinctive social pattern?, in *The Making of Wellington 1800-1914*, edited by D. Hamer and R. Nichols, Victoria University Press, October 1990, pp 255-283.

Haslett, S. (with M. Fairburn) Interprovincial differences in the rates of minor crimes of violence and related disorders in New Zealand, 1853-1930, *Historical Social Research: Historische Sozialforschung*, 1990, Vol. 15, No. 4, pp 140-183.

Haslett, S. (with M. Fairburn) Violent crime in old and new societies : A case study based on New Zealand 1853-1940, *Journal of Social History*, 1986, Vol. 20, No. 1, pp 89-126.

Medical / Veterinary / Nutrition

Corbin, M., Haslett, S., Pearce, N., Maule, M., and Greenland, S. (2017). A comparison of sensitivity-specificity imputation, direct imputation and fully Bayesian analysis to adjust for exposure misclassification when validation data are unavailable. *International Journal of Epidemiology*, DOI: 10.1093/ije/dyx027

Richardson, A., Neeman, T., Yoon, H-J & Haslett, S. (2017) Statistical response to issues with the determination of the troponin 99th percentile, *Clinical Biochemistry*, in press, DOI: doi: 10.1016/j.clinbiochem.2017.08.007.

Beck, K.L, Jones, B., Ullah, I., McNaughton, S.A., Haslett, S. and Stonehouse, W. (2017). Associations between dietary patterns, socio-demographic factors and anthropometric measurements in adult New Zealanders: an analysis of data from the 2008/09 New Zealand Adult Nutrition Survey. *European Journal of Nutrition*, DOI: 10.1007/s00394-017-1421-3.

Smith P.F., Renner R.M., Haslett S.J. (2016). Compositional data in neuroscience: If you've got it, log it! *J. Neurosci. Methods*, 271,154-159. doi: 10.1016/j.jneumeth.2016.07.008.

Haslett, S. (with P. F. Smith and Y. Zheng) A multivariate statistical and data mining analysis of spatial memory-related behaviour following bilateral vestibular loss in the rat, *Behavioural Brain Research* 246 (2013) 15– 23.

Haslett, S. (with K.M. Scott, D. Sarfati, M.I. Tobias) A challenge to the cross-cultural validity of the SF-36: A comparative factor analysis in Māori, Pacific and New Zealand European ethnic groups, *Social Science and Medicine*, 2000, Vol 51, No 11, pp 1655-1664.

Haslett, S. (with A. Spohr, W.G. Guilford, and G. Vibe-Petersen). Use of breath hydrogen testing to detect experimentally induced disaccharide malabsorption in healthy adult dogs, *American Journal of Veterinary Research.*, 1999, Vol 60, No 7, pp 836-840.

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Table 2

<i>Total Additional Research Publications</i>	<i>Number:</i>	
Conference Publications (unrefereed)	4	
Technical Research Reports	14	
Consulting Research Reports	103	
Formal Statistical Committee Reports	13	

Conference Papers (Unrefereed)

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- Haslett, S. (with J. Bennett) "Pilot study for the Overseas Mail Survey: LC and AO mail", *Institute of Statistics and Operations Research Consulting Report*, Prepared for New Zealand Post, March 1991, 86 pages.
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- Haslett, S. (with A. Vignaux) "Net performance evaluation in New Zealand Post: An overview", *Institute of Statistics and Operations Research Consulting Report*, Prepared for New Zealand Post, December 1989, 7 pages.
- Haslett, S. (with S-X. Chen) "Sample size estimation for monitoring petroleum product specifications", *Institute of Statistics and Operations Research Consulting Report*, Prepared for the Ministry of Energy, November 1989, 6 pages.

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- Haslett, S. (with J. Bennett) "Design of the Outward Overseas Mail Survey: Wellington region", *Institute of Statistics and Operations Research Consulting Report*, Prepared for New Zealand Post, June 1989, 32 pages.
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- Haslett, S. "Sampling in New Zealand Post management systems: An overview", *Institute of Statistics and Operations Research Consulting Report*, Prepared for New Zealand Post, June 1989, 11 pages.
- Haslett, S. " Technical details of the sample design for mail volume monitoring and net performance assessment: Part 1", *Institute of Statistics and Operations Research Consulting Report*, Prepared for New Zealand Post, April 1989, 41 pages.
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Haslett, S. "Discussion paper on the NZSE indices, and new company floats, rights issues, cash issues, dividends", *Institute of Statistics and Operations Research Consulting Report*, Prepared for the New Zealand Stock Exchange, May 1987, 10 pages.

Haslett, S. "The FIBV Return Index and the NZSE Unadjusted Gross Index", *Institute of Statistics and Operations Research Consulting Report*, Prepared for the New Zealand Stock Exchange, April 1987, 7 pages.

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Haslett, S. (with R.G. Wear) "Final report on *Artemia* programme at Lake Grassmere", Report prepared by Victoria University for Dominion Salt Ltd, August 1982, 56 pages.

Technical Reports

Theoretical

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Haslett, S and Puntanen, S. Equality of the BLUPs for new observations under two linear models, *Department of Mathematics and Statistics, Tampere University, Finland*, Finland, Report A 379, ISBN 987-951-44-7394-4, June 2008, 11 pages.

Haslett, S and Puntanen, S. Effect of adding regressors on the equality of the BLUEs under two linear models, *Department of Mathematics and Statistics, Tampere University, Finland*, Finland, Report A 380, ISBN 987-951-44-7424-8, August 2008, 15 pages.

Haslett, S and Puntanen, S. How are BLUEs and BLUPs for linear models and mixed models linked? *Department of Mathematics and Statistics, Tampere University, Finland*, Report A 381, ISBN 987-951-44-7425-5, August 2008, 21 pages.

Haslett, S and Puntanen, S. Equality of the BLUEs and/or BLUPs under two linear models using stochastic restrictions, *Department of Mathematics and Statistics, Tampere University, Finland*, Finland, Report A 382, ISBN 987-951-44-7426-2, August 2008, 14 pages.

Haslett, S and Puntanen, S. When are BLUEs and/or BLUPs in one linear mixed model also BLUEs and/or BLUPs in another? *Department of Mathematics and Statistics, Tampere University, Finland, Finland, Report A 383, ISBN 987-951-44-7457-6, August 2008, 24 pages.*

Haslett, S. "Updating Linear Models with dependent errors to include additional Data and / or regressors", *Institute of Statistics and Operations Research Technical Report No. 32 VUW, October 1993, 22 pages.*

Haslett, S. "Covariances for Fixed Interval Smoothed Kalman Filter parameter estimates", *Iowa State Statistical Laboratory Pre-print Series, September 1988, No. 88-19, 17 pages.*

Haslett, S. "Degrees of freedom and parameter estimability in hierarchical models for sparse complete contingency tables", *Iowa State Statistical Laboratory Pre-print Series, September 1988, No. 88-20, 44 pages.*

Medical

Haslett, S. "The 1996/97 New Zealand Health Survey Methodology", *Research Reports in Mathematics and Statistics, Massey University, No 99/01, ISSN 1174-4596, July 1999, 38 pages.*

Psychology

Haslett, S. "Mathematical and statistical models in human development and Ego Identity Status studies", *Institute of Statistics and Operations Research Technical Report No. 21, VUW, July 1990, 27 pages.*

Other

Haslett, S. (with M. Pickford) "In search of the dominant Firm", *Discussion Paper 96.8, School of Applied and International Economics, Massey University, December 1996, 38 pages.*

Haslett, S. (with M. Fairburn) "Differences in the rates of minor crimes of violence and related disorders in nine New Zealand Provinces, 1853-1930", *Institute of Statistics and Operations Research Technical Report No. 4, VUW, July 1990, 62 pages.*

Haslett, S. "Design of the Wellington Community Survey: Porirua and Lower Hutt 1986", *Institute of Statistics and Operations Research Consulting Report No. 2, VUW, November 1989, 48 pages.*

Haslett, S. "Analysis of the Wellington Community Survey: Porirua and Lower Hutt 1986", *Institute of Statistics and Operations Research Technical Report No. 3, VUW, December 1989, 31 pages.*

Committee Reports

“Mathematics in New Zealand: Past, present and future”, Report prepared for the Ministry of Research, Science and Technology, July 1998, 131 pages.

(The Secretariat for the review consisted of: Dr M. Bebbington, Assoc Prof S. Haslett, Prof J.J. Hunter (Chair), Mrs J. Thompson and Prof D. Vere-Jones.)

Publications of the Survey Appraisals and Public Questions Committee, New Zealand Statistical Association (while Stephen Haslett was Convenor):

See page 65.

Public presentations.

Nepal: *Small area estimation of food insecurity and undernutrition in Nepal*, World Food Programme / UNICEF / World Bank, Kathmandu, Nepal, December 2014.

Bangladesh: *Small-area estimation of undernutrition*, United Nations World Food Programme and Bangladesh Bureau of Statistics, Dhaka, November 2014.

Cambodia: *Small area estimation of poverty in Cambodia*, Cambodia Ministry of Planning / National Institute of Statistics, UN World Food Programme, Phnom Penh, Cambodia, April 2013.

Nepal: *Small area estimation of poverty, caloric intake and malnutrition in Nepal*, World Food Programme / World Bank, Kathmandu, Nepal, 26 September 2006.

Philippines: *The WB ASEM/NSCB poverty mapping project: Methodology and outputs*, For World Bank ASEM/National Statistics Co-Ordination Board Poverty Mapping Project National Dissemination Forum, Manila, October 2005.

Bangladesh: *Small-area estimation of poverty and malnutrition: Local estimation of poverty and malnutrition in Bangladesh*, Seminar on Poverty, Food Insecurity and Nutrition Mapping in Bangladesh - United Nations World Food Programme and Bangladesh Bureau of Statistics, Dhaka, February 2004.

Examples of conference presentations. – 2000 - 2013

2013

“Guidelines and experiences with sample surveys in low teledensity countries: Tonga” S. Haslett, *Pasifika Network Annual Conference - Palmerston North, November 2013.*

2011

“Guidelines for design and analysis of sample surveys for small area estimation”, S. Haslett, *ISI2011 – Dublin, August 2011.*

“Classification trees for small area estimation and poverty mapping”, S. Haslett, G. Jones, S. Ganesh, and T. Mao, *SAE2011 Trier, Germany, August 2011.*

2010

“Data cloning for confidentiality and data encryption”, S. Haslett & K. Govindaraju, *New Zealand Statistical Association (NZSA) Conference 2010*

“More for Less? Comparing small area estimation, spatial microsimulation and mass imputation”, S. Haslett, G. Jones, A. Noble:and D. Ballas, *Joint Statistical meetings (JSM 2010), Vancouver.*

“Data cloning and design matrices”, S. J. Haslett, *19th International Workshop on Matrices and Statistics 2010, June 2010, Shanghai, P. R. China*

“Comparison of intercensal updating techniques for local level poverty statistics”, M. Isidro, S. Haslett, and G. Jones, *Statistics Canada Symposium 2010.*

“More for Less: Using statistical modelling to combine survey data and administrative sources”, A. Noble S. Haslett, G. Jones, and D. Ballas, *Statistics Canada Symposium 2010*

“Monitoring and evaluation: Practical hints for designing, implementing and analysing sample surveys”, S. Haslett, *Massey University Institute of Development Studies Seminar Series, October 2010*

2008

“Residuals for generalized linear models”, Paper presented at the *17th International Workshop on Matrices and Statistics, Tomar, Portugal, 23-26 July 2008.*

2007

See ISI2007 and SAE2007 papers under Publications above.

2006

(with Haslett, J.) IWMS 2006 - the *15th International Workshop in Matrices and Statistics*, Uppsala, Sweden, 13-17 June 2006. "Equality of BLUEs and BLUPs for linear mixed models: the role of stochastic restrictions".

(with G. Jones) ASC, *Australasian Statistical Congress*, Auckland, 3-6 July 2006: "Small-domain estimation of Māori expenditure patterns".

(with Noble, A.) ASC, *Australasian Statistical Congress*, Auckland, 3-6 July 2006: "Approaches to small area estimation of unemployment data".

2005

(with Haslett, J.) 'What are *the* residuals for the Linear Model', at *IWMS 2005 - the 14th International Workshop in Matrices and Statistics*, Auckland, 29 March -1 April 2005;

'Hadamard products, matrix products – links to types of design effect', *Invited paper at IASS 55 'Complex sampling, retrospective sampling and missing data: Conference in Honour of Alastair Scott'*, Auckland, 13-14 April 2005;

'Multiple frames, supplementary sample designs, and small domain estimation', *Invited paper at IAOS Conference, International Association of Official Statisticians Satellite Meeting on Small and Indigenous Populations*, Wellington, 14-15 April 2005;

'Monitoring under severe resource constraints', *Invited paper at Joint Statistical Meetings JSM 2005, Minneapolis, USA, 7-11 August 2005*;

(with Jones, G) 'Small area estimation of poverty and malnutrition: some practical and statistical issues', *SAE2005 Conference, Jyväskylä, Finland, 28-31 August 2005*;

'Small domain estimation for Māori expenditure patterns – preliminary results', *Invited presentation at Key Statistics Conference, Wellington, 25-27 October*;

'Estimability and connectedness in Generalized Linear Models', at *Statistics05 Workshops. University of Wollongong, 28-30 November 2005*.

2004

(with G. Jones) 'Local estimation of poverty and malnutrition in Bangladesh: some practical and statistical issues', *2004 International Conference on Official Poverty Statistics: Methodology and comparability, 4-6 October 2004, Manila, Philippines*;

'Monitoring under strong resource constraints', *4th DevNet Conference: Development on the Edge, Auckland, New Zealand, 2-4 December 2004*;

2003

- ‘Small area estimation for US Labor employment statistics’
- ‘Estimability and connectedness in Generalized Linear Models’
- (with D. I. Hedderley) ‘A modification of Esty’s estimator for the number of classes in a population when each class appears only rarely’ *New Zealand Statistical Association Conference, July 2003*;

‘Disentangling area effects from interviewer effects: when is it possible?’, *Invited paper to ‘Workshop in Sample Surveys and Statistical Methodology’, Wollongong, November 2003*;

2002

(with Haslett, J.) ‘The Pandora Box and the equality of least squares solutions’, *EIWMS-2002 Conference in Honour of Professor George Styan in Copenhagen 29-31 August 2002*;

2001

(with Noble, A.) ‘A Generalized Linear Model approach to small area estimation using census and survey data and conditional autoregressive models’, *Conference to Celebrate the 70th Birthday of Wayne Fuller, Iowa State University, Ames, Iowa, 21-22 June 2001*;

(with A. Noble, and G. Arnold), ‘Extension of small area estimation using Generalized Linear Models with correlated errors’, *Royal Statistical Society Conference, RSS2001, Glasgow, Scotland, 4-6 July 2001*;

Formal Discussant: Sample Design and Estimation: *Federal Committee on Statistical Methodology Research Conference, Washington DC, 14-16 November 2001*;

2000

‘Generalized Linear Models for sample surveys’, *Australian Statistical Conference, Adelaide, July 2000*;

Seminars – Examples from 2000 to present

- @ Central Statistics Office, Ireland: “Small Area Estimation Techniques”.
- @ Statistics New Zealand: “Small domain estimation of expenditure patterns for Māori”.
- @ Trinity College, Dublin, “Social responsibility and the Survey Appraisals and Public Questions Committee of the New Zealand Statistical Association”.
- @ Goldsmith College, University of London, “Aspects of the design and analysis of complex sample surveys”.
- @ University of Southampton, “Properties of the similarity index from DNA fingerprinting data”.
- @ University of Southampton, “Parameter inestimability and degrees of freedom for sparse, complete, contingency tables”.
- @ Iowa State University, “Properties of the similarity index from DNA fingerprinting data”.

- @ Iowa State University, “The role of Mathematical Statistics in History: The ‘Frontier Society’ - NZ 1860-1930”.
- @ Texas A&M University, “Properties of the similarity index from DNA fingerprinting data”.
- @ University College, Dublin, “Properties of the similarity index from DNA fingerprinting data”.
- @ Trinity College, Dublin, “Small area estimation given regular updates of census auxiliary variables”.
- @ Massey University, “Fact versus Ideology: The contribution of empirical research to public debate”, Sociology Seminar Series
- @ Office of National Statistics, Newport Wales, “Small area estimation given regular updates of census auxiliary variables: unemployment statistics”
- @ Office of National Statistics, Newport Wales, “Generalized Linear Model estimators for survey data using joint inclusion probabilities”
- @ University of Southampton, “Generalized Linear Model estimators for survey data which make use of joint inclusion probabilities”
- @ Bureau of Labor Statistics, Washington DC, “Small area estimation given regular updates of census auxiliary variables: unemployment statistics”
- @ Washington Statistical Society, Washington DC, “Generalized linear model estimators for survey data which make use of joint inclusion probabilities”
- @ Bureau of Labor Statistics, Washington DC, “Small area estimation for labor statistics using Generalized Linear Models”
- @ Office of National Statistics, UK, “Estimability in small area estimation models”

Refereeing of journal papers and general refereeing 1998 to present

Papers refereed for:

Mathematical Reviews, Annals of Statistics, Journal of the American Statistical Association, Journal of Multivariate Analysis, Linear Algebra and Its Applications, Journal of Statistical Planning and Inference, Computational Statistics and Data Analysis, Journal of Mathematics Education in Science and Technology, Metron, The American Statistician, Journal of the Royal Statistical Society, Survey Methodology, Australian and New Zealand Journal of Statistics, Journal of Applied Mathematics and Decision Sciences, Food and Nutrition Bulletin, Ergonomics, Australia and New Zealand Journal of Criminology, New Zealand Journal of Marine and Freshwater Research, Bulletin of Marine Science, New Zealand Journal of Crop and Horticultural Science, Population Health Metrics, Journal of Statistical Analysis and Probability, Crop Science.

2019: Assessment of research proposal for *South Africa National Research Foundation / Research and Innovation Support and Advancement (NRA / RISA)*.

2013: Assessment of research proposal for *South Africa National Research Foundation / Research and Innovation Support and Advancement (NRA / RISA)*.

2003-2005: Reviewer for *Household Sample Surveys in Developing and Transition Countries*, published by the United Nations, 2005, 619 pages, ISBN 92-1-161481-3

2001: Refereeing of research proposals for *Enterprise Ireland* (the Irish premier research fund), and for the *Berkeley Fellowship, Trinity College Dublin*.

PhD Examinations

Klaus Peter Schliep, Massey University 2009, “Statistical Phylogenetics”.

Thomas Suesse, Victoria University of Wellington 2008, “Analysis and Diagnostics of Categorical Variables with Multiple Outcomes”.

Freedom Gumedze, University of Cape Town 2008, “Outlier Detection in Linear Mixed Models”.

Nuovella Williams, Victoria University of Wellington 2007, “Robust Methods for Analysing Quantitative Trait Loci”.

EXTERNAL RESEARCH AND CONSULTING

(i) Massey University

World Food Programme, United Nations: Small area estimation of poverty in Bhutan

World Food Programme, United Nations: Small area estimation of poverty in Timor-Leste

World Food Programme, United Nations: Small area estimation of poverty in Cambodia

Global Entrepreneurship Monitor, Design of household sample survey in Tonga

Statistics New Zealand / Official Statistics Research, Microsimulation, mass imputation and small area estimation: a methodological comparison.

Statistics New Zealand, Small area estimation of unemployment.

Statistics New Zealand, Small domain estimation of expenditure patterns for Māori.

World Food Programme, United Nations: Small area estimation of poverty in Nepal

Samoa Ministry of Finance / Department of Statistics: Survey Design and Analysis for Samoan Household Surveys

NZ Qualifications Authority: Development of an Integrated Research and Analysis Plan

NZ Office of the Auditor General / Ministry of Social Development: Statistical audit of Pharmac procedures.

World Bank: Developing a toolkit for national sampling of water and sanitation providers, with pilot studies in Vietnam and Azerbaijan.

World Bank: Small area estimation of poverty for the Philippines.

World Food Programme, United Nations: Small area estimation of poverty in Bangladesh, 2003 - 2004

Statistics New Zealand / Clerk of the House: Citizens Initiated Referenda – estimation of number of eligible signatories

NZ Office of the Auditor General / Ministry of Social Development:
statistical audit of procedures for monitoring social welfare benefits

Bureau of Labor Statistics, Washington DC, USA: Small area estimation
for US Employment 2003-2004

Global Entrepreneurship Monitor project, GEM in conjunction with UN
Business Council: Design, fieldwork training, and analysis of a
national sample survey of entrepreneurship in Uganda, August 2003
and August 2004.

Thailand National Statistics Office / World Bank
sole external overseas research consultant on design, estimation and
statistical management for establishment surveys (ie all business
surveys) in Thailand.

Thai Universities Agri-Consortium, Thailand
Design and Analysis of Food sensory data experiments, a series of
three workshops

- Chiang Mai University 20-22 August 2001
- Prince of Songkla University 23-25 August 2001
- Khon Kaen University, 27-29 August 2001.

Each workshop included a book of lecture and study notes
“Multivariate Analysis Workshop”, 143 pages.

Bureau of Labor Statistics, Washington DC, USA
small area estimation for US employment statistics

Office of National Statistics, United Kingdom
interviewer effects in small area estimates: estimability and
confounding

Mid Central health
Sample survey audit

State Insurance
risk models for general insurance

Office of National Statistics, United Kingdom
calibration and generalized regression estimation for ONS sample
surveys

National Climate Laboratory
statistical issues related to time dependent processes

Health Funding Authority
audit of statistical methodology for creating standardised expected
Public Hospital volumes

Consumer Institute
statistical appraisal of survey of supermarket prices

Beca, Carter Hollings, and Ferner / Transfund New Zealand
sample design and statistical modelling for road usage and wear on the
New Zealand roading network, and its relationship to database design

Statistics New Zealand / Department of Labour
New Zealand small area estimates for International Labour
Organisation defined unemployment

Ministry of Education
School roll projections for existing and new schools in the Auckland
region.

Statistics New Zealand / Clerk of House of Parliament
Estimation of the number of eligible non-duplicated signatures on
Citizens' Initiated Referenda

Department of Internal Affairs
statistical assessment of tenders for the National Study on Problem
Gambling;
audit of ongoing survey design, implementation, and analysis

Ministry of Health
nutrition survey
preliminary design of sample survey

Space Imaging, USA
determining pitch and yawl adjustments in images from US civilian
space satellites
fixed interval Kalman Filter covariances

Accident Compensation Corporation
predicting high risk applicants
discriminant analysis, cluster analysis, regression trees

Wanganui Hospital
clinical assessment
analysis of bowel data for clinical tests of blockage

Consumer's Institute
product assessment
statistical differences between international rating scales

Ministry of Justice / NZ Police
crime victimisation study
design and analysis of sample survey

Hort Research
kiwifruit study
analysis of variance

Palmerston North City Council
community survey
design of sample survey

Manawatu / Wanganui Regional Council
water quality
specification of sites for sampling of water

Dairy Research Institute
nutritional trial
analysis (anova) of animal nutrition study

Landcare
forest assessment
analysis of yearly data on seed and leaf fall for beech trees

Ministry of Health
Survey
tender evaluation for New Zealand Health Survey
analysis of survey data

ENZA / Centre for Postharvest Refrigeration Research
controlled atmosphere for apples
porosity of apple skin
“calibration” regression / change points in regression

Ministry of Health
body fat assessment
evaluation of statistical analysis for methods of assessing body fat in
Samoans

Works Consultancy / Palmerston North City Council
bridge sites
statistical appraisal of Palmerston North bridge site report

Ezibuy
stock requirement assessment
statistical evaluation of stock buying and sales information

Moechst / Animal Health Services Centre
clinical trials
analysis of worming medication data

Statistics New Zealand
Census audit
audit of imputation of census data on Māori descent for electoral
purposes

Ministry of Health
smoking survey plus assessment of tenders and audit of survey data

Education Review Office
management effectiveness review of schools
survey design

National Psychological Service
child-parent relationship data
test of difference for proportions

NZ Police
crime trend analysis
summary Statistics

Ministry of the Environment
study of waste management
survey analysis

ISAC
survey of international students
sample survey

Clear Communications
assessment of losses for lack of telecommunications connection
summary statistics / sample surveys

Hort Research
similarity of varieties of apple
cluster analysis

Dairy Research Institute
analysis of ice cream and croissant trials
anova

Landcare
invertebrate numbers in Tongariro National Park
generalised linear model with repeated measures

Chapman, Tripp, Sheffield, Young
assessment of number of eligible signatures on battery hen petition to
Parliament

Ministry of Fisheries
assessment of average weight for cartons of fish
survey design

Consumers Institute
appliance reliability assessment
design / index construction

Department of Social Welfare

appraisal of report on Compass Programme participation by sole parents
survey analysis of proportional hazard models
estimation using biased sampling
sample survey design and analysis

Commerce Commission

product evaluation
statistical assessment of defective computer motherboards
survey design

Waipukurau Hospital

survey of children's (age 0-5) unintentional injuries:
survey design

Department of Social Welfare

provision of design and analysis advice in tenders and vetting of research proposals for the Compass programme for Department of Social Welfare; this programme is intended to consider the social and financial benefits of providing training for employment for sole parents

(ii) Systemetrics Research Associates Ltd

- FAO / Nepal Central Bureau of Statistics: Advice on design of Nepal sample survey of Agriculture (Nepal Agriculture Census / Survey 2022).
- NZ MFAT and Fiji Higher Education Commission: Mid-term review of Fiji Higher Education Improvement Project (FHEIP).
- Australia DFAT / Australian National University: Solomon Islands Election monitoring: Sample survey analysis advise
- UN World Food Programme: Redesign of Food Security and Nutrition Monitoring System (FSNMS) Survey in South Sudan.
- UN World Food Programme: Design of sample surveys for emergency following Nepal earthquakes.
- UNICEF-Pacific: Baseline and Evaluation of Child Friendly Schools (CFS) and Quality Education: Vanuatu, Kiribati and Vanuatu
- UNICEF-Pacific: Studies of basic education statistics in Vanuatu and Kiribati
- NZAID: Reviews of New Zealand NGOs for KOHA funding programme

(iii) Victoria University of Wellington

- preliminary design advice on survey to estimate putative losses to Clear Communications for lack of direct access to the Telecom network
- audit sampling for Coopers and Lybrand of Accident Compensation Corporation claims
- advice on analysis of survey data on parental attitudes to costs of tertiary education for Institute of Economic Research
- leave accrual estimation involving two dependent geometric series for NZ Police
- sample size estimation for monitoring petroleum product specifications for the Ministry of Energy
- advice on portfolio construction and management for Fay Richwhite
- advice on index number construction for Government Life
- design, implementation and analysis of several large scale sample surveys for New Zealand Post including Net Performance, Overseas Mail volumes both inward and outward (Auckland, Wellington, Christchurch, Dunedin), Product Cost modelling, and Mail Volume Monitoring
- Lotto probability calculations for the New Zealand Lotteries Commission, TVNZ and the Dominion newspaper
- provision of advice on time series modelling to Employment Policy Division, Department of Labour
- estimation of daily consumption and losses in reticulation systems for the Wellington Gas Company
- advice on producing reliable statistics on Special Needs Grants at Department of Social Welfare
- preliminary design advice for a survey of the economic impact of the Wellington Arts Festival
- preliminary design advice for Legal Services Board on survey of costs of legal aid for a proposed change in Police detention procedures
- preliminary design advice for a Civil Defence survey of Wellington households
- design and analysis advice for a survey of usage of the Salvation Army's centre in Newtown, Wellington
- quality assurance and sampling of reports for New Zealand Children's and Young Persons Service; comments on sampling from the CYPS computer database system
- discussion on design of a sampling plan for sampling Foodbanks concerning usage
- investigation of statistical validity of AGB McNair and AC Nielsen surveys providing smoking information for the Public Health Commission
- development of a design for NZEI to investigate the work profile of primary school teachers
- design and analysis advice to the Department of Justice and AGB McNair on male attitudes to domestic violence

- comments on the statistical adequacy of a proposed poverty measure for BERL
- advice on a study of the effect of benefit cuts on beneficiaries and low income earners using church emergency relief services, for the New Zealand Council of Christian Social Services
- advice on a survey of centres for adolescent health for the Child and Family Unit, Wellington Hospital
- advice on the analysis of a survey of repetitive strain injury for Physiotherapy Occupational Health Services
- comments on a survey undertaken for Greenpeace, NZ
- advice on survey design for a survey of voluntary social agencies for the Wellington Social Services Council
- advice on reference tests to the Qualifications and Assessment Division, Department
- design of a survey on projected financial situation of students at Victoria University in 1990. Provision of advice on implementation of this survey.
- design of a survey on projected financial situation of students at Wellington Polytechnic in 1990. Provision of advice on implementation of this survey
- design and analysis of two separate sample surveys in Porirua and Lower Hutt on attitudes to crime and the Police - commissioned by the NZ Police and Institute of Criminology, VUW
- provision of statistical advice and development of stock exchange indices for the NZ Stock Exchange
- development of a research outline for analysing length of stay by diagnostic related group for all NZ hospitals, for the National Health Statistics Centre, Department of Health
- experimental and sample survey design and analysis for the Consumer Institute. Studies include flysprays, household cleansers, deodorants, household electrical appliance reliability, comparison of banks and shampoos
- advice on the analysis of data and data processing for the Salvation Army Bridge Programme
- valuation of perpetual leases
- Social Policy Agency / Institute of Criminology - comments on analysis of youth offending data
- survey of people providing CAB advice
- advice on statistical analysis for management surveys in the BNZ
- design and analysis of a survey for improving energy efficiency of Wanganui homes for Electricorp
- the design of an repeated survey of NZ early childhood centres to gauge children's early childhood experiences
- design of a nutrition survey for Food Management New Zealand Ltd
- design of a survey of postprimary teachers for PPTA
- statistical appraisal of the joint Department of Health / Department of Statistics publication on tobacco and smoking for the Department of Health

- statistical analysis of effectiveness of Access, the Job Seeker Register and the Job Opportunities Scheme on NZ unemployment for the Education and Training Support Agency
- analysis of the effect of tax imputation on equity values of stocks for Ord Minnett
- research advice on estimation of expenditure in various categories of educational employment for the State Services Commission
- preliminary work on improved sample survey / time series estimators for the Bureau of Labor Statistics, Washington, DC
- providing statistical and computing expertise to the analysis of sample survey data from the United States Soil Conservation Service's National Resources Inventory of nationwide US land use
- experimental analysis of the effect of salinity and temperature on fecundity, onset of maturity, mortality and generation times of Artemia
- determination of biomass of the brine shrimp Artemia at Lake Grassmere, Marlborough, for Dominion Salt Ltd
- estimating and forecasting cost due to accidents for the NZ Accident Compensation Commission
- the Social Welfare implications for the completion of the Marsden Point oil refinery

GENERATION OF RESEARCH FUNDING

Most of the external consulting projects in which I have been involved since the early 1980s have been fully funded. These have varied considerably in size.

At Victoria University of Wellington (VUW) - New Zealand Post project, which I headed, managed, and researched, generated approximately NZD400,000.

At Massey University (MU), since the end of 1994 my own external consulting / research raised between NZD50,000 and NZD200,000 per annum. Until September 1997, one strong limitation was the 100 internal projects per year I had been providing research advice for, on the basis of a half time position. This service had been provided at no charge during 1995 and 1996, and continues to form one of Massey University's core statistical functions, albeit informally. Other academic staff in the Statistics Department at MU also gained external funding through the Statistics Research and Consulting Centre (SRCC), of which I was the founding Director. The gross income for the SRCC in 2001 was approximately NZD250,000, and income for 2002 about NZD350,000, but this fell back in 2003 – 2004 with changes in the SRCC structure and number of staff, and in 2005 with my increased involvement in Statistics teaching at undergraduate level.

Back when I arrived at Massey University at the end of 1994, there was no Statistics Centre, no budget, and no external income. While I was Director of the SRCC there was considerable growth in the external income. The Director's position was half time until 2004; the other half of my position at Massey University involved lecturing Statistics in the Institute of Information Sciences and Technology. The teaching component increased from 2005. From 2006, I finished as Director of the SRCC.

For 1999-2003, the award from New Zealand's 'blue skies' *Marsden Fund* of a grant (as joint Principal Investigator with Professor Miles Fairburn, Department of History, Canterbury University) generated approximately NZD100,000 in total over four years of additional revenue for Massey University. The project involved statistical research on the 'ecological fallacy', also known as the Map Area Unit Problem (MAUP) as applied to New Zealand historical data on elections and class structure.

I have been a National Science Foundation / American Statistical Association Senior Fellow at the Bureau of Labor Statistics in Washington DC during 2001-2002. This project was extended for 2003-2004 under a different format.

In the 2003-2019 period, further funding of approximately NZD2,000,000 has been generated from research and consulting, including projects with the US Bureau of Labor Statistics, the UN World Food Programme, the World Bank, Statistics New Zealand, NZ Office of the Auditor General, and NZ Qualifications Authority, and the Global Entrepreneurship Monitor (GEM).

Research Funding 2010-2015

- World Food Programme, United Nations:
Small area estimation of poverty in Nepal
- World Food Programme, United Nations:
Small area estimation of poverty in Bangladesh
- World Food Programme, United Nations:
Small area estimation of poverty preliminary assessment in
Pakistan
- World Food Programme, United Nations:
Small area estimation of poverty in Cambodia
- Total funding 2010-2015:* ~NZD450,000

Research Funding 2015 -

- Australia National Health and Medical Research Council (NHMRC):
Associate Investigator, 2020-2021
Filling in the blanks: a spatial visualisation tool to align
national health outcome data with regional health policy
objectives.
- New Zealand Health Research Council - Associate Investigator, 2018-
2020:
Occupational Risk Factors for Cardiovascular Disease.
~NZD33,000.
- Environmental Health Intelligence New Zealand (EHINZ), Centre for
Public Health, Massey University, 2016-2021. ~NZD150,000.
- World Food Programme, United Nations:
Redesign of the Food Security and Nutrition Monitoring
System (FSNMS) Survey in South Sudan ~NZD 40,000

Note: During this period I was Director of the Statistical consulting Unit
at the Australian National University 2015-2018, where the focus was on
internal university consulting and research rather than external contracts.

TEACHING EXPERIENCE:

- 2009- 2014
- 161.775 / 161.322 Sampling Methods, 30 lecture equivalents, Lecturer and Course Co-ordinator, Massey University (MU).
 - 161.770 Statistical Consulting, 30 Lecture equivalents, Lecturer and Course Co-ordinator, MU.
- 2009
- 161.130 Biometrics, 18 lectures, Lecturer, MU
- 2008
- 161.775 / 161.322 Sampling Methods, 30 lecture equivalents, Lecturer and Course Co-ordinator, Massey University (MU).
 - 161.770 Statistical Consulting, 30 Lecture equivalents, Lecturer and Course Co-ordinator, MU.
- 2007
- 161.775 / 161.322 Sampling Methods, 30 lecture equivalents, Lecturer and Course Co-ordinator, Massey University (MU).
 - 161.770 Statistical Consulting, 30 Lecture equivalents, Lecturer and Course Co-ordinator, MU.
 - 161.130 Biometrics, 12 lectures, Lecturer and Course Co-ordinator, MU
- 2006
- 161.775 / 161.322 Sampling Methods, 30 lecture equivalents, Lecturer and Course Co-ordinator, Massey University (MU).
 - 161.120 Introductory Statistics, 18 lectures, Lecturer, MU
- 2005
- 161.775 / 161.322 Sampling Methods, 30 lecture equivalents, Lecturer and Course Co-ordinator, Massey University (MU).
 - 161.770 Statistical Consulting, 30 Lecture equivalents, Lecturer and Course Co-ordinator, MU.
 - 161.120 Introductory Statistics, 18 lectures, Lecturer, MU
- 2004
- 161.775 / 161.322 Sampling Methods, 30 lecture equivalents, Lecturer and Course Co-ordinator, MU.
 - 161.770 Statistical Consulting, 30 Lecture equivalents, Lecturer and Course Co-ordinator, MU.
- 2003
- 161.775 / 161.322 Sampling Methods, 30 lecture equivalents, Lecturer and Course Co-ordinator, MU.
 - 161.770 Statistical Consulting, 30 Lecture equivalents, Lecturer and Course Co-ordinator, MU.

- 2002 - 161.723 Theory of Multivariate Statistics, 30 lecture equivalents, Lecturer and Course Co-ordinator, MU.
 - 161.775 Sampling Methods, 30 lecture equivalents, Lecturer and Course Co-ordinator, MU.
 - 161.770 Statistical Consulting, 30 Lecture equivalents, Lecturer and Course Co-ordinator, MU.
- 2001 - 161.775 Sampling Methods, 30 lecture equivalents, Course Co-ordinator and Lecturer, MU.
- 2000 - 161.775 Sampling Methods, 30 lecture equivalents, Course Co-ordinator and Lecturer, MU.
- 1999 - STAT/MATH 452 General Linear Models - 36 lectures (Trinity College, Dublin)
 - 61.722 Sampling Methods, 30 lecture equivalents, Lecturer and Course Co-ordinator, MU.
- 1998 - on sabbatical
- 1997 - 61.771 Analysis of Experiments, 30 lecture equivalents, Block Course, Lecturer and Course Co-ordinator, MU.
 - 61.770 Statistical Consulting, Lecturer and Course Co-ordinator, MU.
- 1996 - 61.471 Analysis of Experiments, 30 lectures, Lecturer and Course Co-ordinator, MU.
- 1995 - 67.671 Analysis of Experiments, 10 lectures, Lecturer MU.
 - 61.470 Statistical Consulting, Lecturer and Course Co-ordinator, MU.
 - 61.672 Multivariate Methods, 30 lectures, Lecturer and Course Co-ordinator, MU
- 1992-94
 - STAT 392 Sample Surveys, 17 lectures, Lecturer and Course Co-ordinator, Victoria University of Wellington (VUW).
 - STAT 431 / 831: Applied Statistics, 12 lectures, VUW.
- 1992 - ORST 431 / 831: Applied Statistics, 12 lectures, VUW.
- 1991 - OPRE 359 Special Topic: Sample Surveys, 17 lectures; Course Co-ordinator, VUW.
- 1989 - MATH 413 Mathematical Statistics, 12 lectures, VUW.
- 1988 - STAT 421 Sample Survey Design, 36 lectures, Course Co-ordinator, Iowa State University.

- 1987 - MATH 413 Mathematical Statistics, 10 lectures, VUW.
- 1986 - ORST 801 Operations Research and Statistical Practice, 10 lectures, VUW.
- 1985 - MATH 801 Operations Research and Statistical Practice, 8 lectures, VUW.
- 1984 - MATH 193 Biometrics, 4 lectures, VUW.
 - MATH 231 Statistical Mathematics, 6 lectures, VUW.
 - ORST 401 / MATH 801 Operations Research and Statistical Practice, 8 lectures, VUW.
- 1983 - SOSC 407 Statistical Techniques, 30 lectures, VUW.
- 1979 - Tutor Stage 1 Mathematics and Statistics, Department of Economics, VUW.
- 1972 - Teacher, St Kentigern College, Pakuranga, Auckland.
 Teaching junior science and mathematics.

At MU, the courses 61.471, 61.671 and 61.771 are essentially the same course, and were designed for postgraduate students, many of whom are undertaking research in other disciplines. 61.722 and 161.775 are the same postgraduate course again primarily for students undertaking research in other disciplines. 61.470, or its equivalent 61.770, is a postgraduate course in the practicalities of statistical consulting for Statistics majors

At VUW, OPRE 359 had approximately 28 students in 1991. STAT 392 had 17 to 25 students in 1992 to 1994. OPRE 359 and STAT 392 are essentially the same course. I was Course Co-ordinator for OPRE 359 and Course Co-ordinator for STAT 392. Class contact for both courses was three hours a week for half the year.

I have been solely responsible for development of the statistical consulting course and the sample survey course at MU and for the development of my sections of SOSC 407, OPRE 359 / STAT 392 at VUW, the sample survey course at Iowa State University, and the course on the theory of linear models at Trinity College Dublin.

Within ISOR at VUW, I was research supervisor for 4-5 post-graduate students in Statistics 1993 / 94 under the New Zealand Post contract.

During the period 1996 -2020, I have supervised or am supervising 8 PhD, 8 M. Applied Statistics and 1 M.Sc. theses in Statistics on various aspects of small area estimation, minimizing non-response in postal surveys, the analysis of complex survey data, quality of life indices in medicine, sampling in forestry, determining the number of unique signatures in petitions containing duplicates, use of indices in measuring malnutrition, genomic selection, and multivariate statistics in Neuroscience.

Details for 2012-2020 are below.

Prue Harman (MAppStats)

Sources of bias in mobile phone surveys in developing countries

Alison Sefton (PhD)

Some diagnostic techniques for small area estimation: with applications to poverty mapping

Caroline Fyfe (PhD)

An investigation into the long-term health impact of subsidy programme to retrofit home insulation in New Zealand

Shanti Subedi (PhD)

Domestic biogas production and use in Nepal - a simple, reliable and cost effective solution to provide energy security to rural households.

Paul Smith (MAppStats)

Comparison of univariate and multivariate statistical approaches to the behavioral and biochemical effects of vestibular loss related to the hippocampus.

Chenxi Sun: (MAppStats)

Analysis methods for measures of food insecurity.

Catherine Lloyd-West

Statistical models for genomic selection in perennial ryegrass

Alison Sefton (BSc - Hons)

Novel methods of assessing viability of small area estimation of poverty.

However, up until 2018, my heaviest teaching commitment was the one-to-one instruction necessary for post-graduate students in the statistical foundations of their research designs, the concomitant statistical analyses, and the use of statistical software. For most projects, repeated sessions are necessary. I would estimate that there have been over 1000 such projects over the last thirty five years.

I have listed a sample of these projects below (under the heading of 'Teaching Related Research Supervision').

Teaching Related Research Supervision / Internal University Statistics Consulting

Internal University Consulting (Massey University)

Flavour compounds in apples	Manova
Decentralisation in the Philippines	Survey analysis
Postharvest physiology of kiwifruit	Anova (randomised block design)
	Loglinear modelling
Suicide and work related fatalities	Logistic Regression
Impact of honey bee on native flora and fauna	Anova (nested)
	Loglinear modelling
Blossom endrot in capsicum	Anova (randomised block design with repeated measure)
Food consumption patterns	Discriminant Analysis
Mung beans, peanuts - field trials	Anova confounded effects
Soya bean wheat field trials	Anova confounded effects
International yachting results study	Anova
Barley root growth	Anova- CRD (Completely Randomised design)
Flavour in apples	Anova (Split plot design, Manova)
Chi square tests on count data in ecology	Chi square tests
Tamatera Intermediate School	McNemar's test
Invertebrates in forest canopy	Anova split plot design
Fungus to be genetically purified - fungus of rye grass	Anova with random effects
Comparison of value systems NZ / Western Samoa	Sample survey factors analysis
Plantation of trees	Randomised block design with repeated measures
Dairy industry graduate training	Anova - block design
Survey of NZ anthropomorphic characteristics	Sample survey design
Quality changes in mandarins	Anova
Microbiology	Anova - transformed data
Effect of inflation on stock prices	Regression
Dividends and share price; ex-dividend data	Anova - Repeated measures
Use of educational technologies in FIMS	Sample Survey
Apples - irrigation	Anova - Randomised block design
Religious factors in NZ secondary schools	Sample design - two stage cluster sample
Experimental design for corn	Anova - split plot design
	Response surface modelling

Family support networks across households	Sample design
Post harvest storage of pears	Anova - 1 way with repeated measure
Sports survey in <i>Chaff</i> and the MU library	Survey analysis
Survey of bank loan officers	Survey analysis Anova - RBD with repeated measure
Inter-industry wage differentials in NZ	Non parametric anova
Nutrition survey	Sample survey design
Leaf numbers for maize	Anova - confounded block design Anova - split plot design
Critical care duration of line use for blood sampling	Standard error estimator for proportions
Heat measurement in cans	Anova - factorial experiment
Milk treatment	Anova - Plackett Burman design
Investment Analysts	Sample Survey Anova - Repeated measures
Association of attainment with Social Class / Ethnicity	Loglinear models
Survey of Wellington Central Business District using frame from City Scope	Sample survey
Milk protein concentrate properties	Anova - doubly repeated measures
Use of the partial correlation coefficient in accounting	Distribution of partial correlation coefficients
Twelve Companies - case studies production control	Case study
Comparison of Indonesians to New Zealanders	Sample survey
Fluorescent light-effect on productivity	Experimental design
Analysis of family membership of community in Kiribati	Cluster and correspondence analysis
Incidence of punctures to the skin of apples	Sample size estimation
Cost (acceptable) for a new product market acceptance	Sample size estimation
Membrane processes and separators	Least square solutions
Banking sector in NZ	Regression
Discriminant analysis on household expenditure patterns	Discriminant analysis
Service quality of IRD	Sample survey analysis
Campylobacter	Difference of two proportions
Beans - field trial	Anova - split plot design
Taste panel	Nonparametric anova - Friedman
Job satisfaction survey	Census
Ash samples	Multiple regression

Sister city relationships	Sample survey
Flowering physiology	Anova - repeated measure
Analysis of accountancy exams to assess waiting time for payment of invoices	Sample survey / Chi square tests
Alfalfa - distinction between cultivars	Anova / Discriminant analysis
Sample survey enquiry	Sample survey
Analysis of seed dispersion	Chi square statistics
Cost of migraine	Sample survey / Logistic regression
Exporting and strategy	Anova - Factorial
Analysis of chronic pain data	Anova - nonparametric
Bayesian statistical problem involving prior knowledge	Weighted regression / Bayesian statistics
Kinetics problem	Nonlinear regression
Survey of database users	Case study
Percentage of soil slipping	Anova / nonparametric
	Anova-Friedman
Customer profiles	Factor analysis
Consumer evaluation of maternity service provision - Central RHA region	Sample survey / chi square tests
Study of NZ school teachers	Factor analysis
Questionnaires	Sample survey
Industrial psychology	Multiple regression
Survey of nurses	Sample survey
Insect sampling	Loglinear modelling
Relation of GDP to imports and exports	Multiple regression
Accountancy data analysis	Point biserial correlation
Crop density experiments	Anova
Fertiliser density experiment	Anova - block design
Comparison of 23 centres in Thailand - referencing of soybean seed	Anova - factorial design
Experiment - <u>Pinus radiata</u> seedlings	Anova - split plot design
Survey of postgraduate students	Sample design
Electricity load prediction	Time Series
Simulation of factory	Anova and ancova
Attitudes to pesticide residues	Logistic regression
Culling rates in cattle	Meta-analysis variance estimation
Comparison of students in same course in successive years	Difference of proportions
Survey of Māori health	Sample survey
Computer usage study	Anova - repeated measures
Breath hydrogen in dogs	Anova - repeated measures
Effect of drugs on lactation	Anova
Maternity study	Sample survey and anova
Fluorescent lighting - effect on health	Anova - repeated measures
Field experiment	Anova - split plot
Gene targeting	Loglinear models
Analysis of field trials	Anova

Enzyme activity in endophytes of rye grass	Anova
Fescue genotypes	Anova
Consumer Survey	Sample survey
Peas - field trial	Anova - split plot
Pipegrass control	Chi-square
Effect of semesterisation at Massey	Sample survey design and analysis
Survey of tax consultants	Sample Surveys
Quality changes in mandarin	Anova
Pregnancy testing	Time series
Bruising of apples	Estimation of proportions
Analysis of stock market	Markov chains
Ecology of seals	Multiple regression
Māori elderly health survey	Sample survey
Adrenalin dose response	Experimental Design
Wallaby feeding behaviour	Time series / Anova / Poisson and exponential models
Design of library periodical use survey	Sample survey
Disaccharide absorption in dogs	Anova
Severity of fruit splitting	Index numbers
Analysis of core samples	Discriminant analysis
Greenhouse flowers	Anova
Community study	Sample survey
Second language teaching methods	Anova-repeated measures
Growth of lettuce	Anova
Stock market returns	Time series / cross section
Plant growth curves	Nonlinear regression
Economic / stock market returns	Cointegrated time series
Survey of tree information collected by City and Regional Councils	Sample survey
Survey for product use	Sample survey
Effect of smoking on chromosomes	Chi square statistics / cross tabulations
Outward Bound study	Sample survey
Delphi survey in agriculture	Repeated sample surveys
Survey of NZ business	Sample survey design
Quality of Massey extramural courses	Sample survey
Analysis of serpentine soils	Principal components
Chicory growth	Anova - split plot
Taxation advice	Sample survey / Anova
Geochemistry of ash layers	Discriminant analysis
Effect of TB inoculation	Anova
Computer laboratory usage	Cross tabulations
Team cohesion	Sample survey
Reanalysis of financial data	Nonparametrics / Cluster analysis
GIS User survey	Sample survey
Evaluation of Case Tools	Sample Survey
Chair design	Anova
Attitudes to GST	Sample survey
Pregnancy diagnosis in cows	Anova
Effluent irrigation	Anova

Accountants' official judgements	Survey analysis
Muscle effort in yachting	Anova
Effect of climate on lambs	Response surface
Effect of community houses on real estate prices	Multiple regression
Flow rates through membranes	Multiple regression
Xanthine oxidase concentration as an indicator of illness in dogs	Non-parametric anova / Sign test
Welfare of bobby calves	Anova - unbalanced repeated measures
Cardiac power and muscle volume	Anova - doubly repeated measure
Study of non-steroid inflammatory drugs	Anova - repeated measures
Physiology of three fescue cultivars	Anova - split plot design
Age specific haemoglobin levels	Reference ranges
Perception of work related stress	Sample survey
'Cracking' in maize	Factor analysis
Food preferences for dairy products	Anova - randomised block design with embedded factorial
Effect of 1080 on ground dwelling invertebrates	Conjoint analysis
Firmness of pears	Experimental choice analysis
Asparagus growth experiment	Experimental design
Neogastric placement of stomach tubes in babies	Experimental design
Inhibition of hormone release	Anova - randomised block design with confounding
Weed eradication in native reserves	Rater agreement
Students' perceptions of technology in Sarawak	Anova
Growth and flowering of pohutukawa	Survey design
Growth of tall fescue grasses with and without endophyte	Experimental design
Heat loss in lambs	Experimental design and analysis
Behaviour and physiology of the Tammar Wallaby	Experimental design and analysis
Breath hydrogen and disaccharide malabsorption in dogs	Experimental design and analysis

Internal University Consulting (Victoria University of Wellington)

- time series aspects of ecology of Puriri moths
- analysis of microplankton in tidal inlets
- gut contents of sand sharks
- taxonomy of parakeets
- perceived stress in teachers
- sample survey of Malaysian businesses
- prediction of growth in mussels
- human parasite eggs in school environments
- survey of recreational requirements of locomotive drivers
- regression models in accounting
- survey into the causes of conflict in the Merchant Navy
- parasite infestation of black swans
- development of a quality-of-life index
- study of the criminal insane
- ecology of Kapiti Island wekas
- gut contents of the fish of the Campbell Plateau
- comparison of three species of limpet
- effectiveness of rehabilitation schemes
- survey of political attitudes in the East Coast Bays electorate
- testing distribution of ratios (in Accountancy)
- survey to measure possible bias in newspapers
- least squares fitting in enzyme kinetics
- comparison of industrial, commercial and residential dust levels
- ecology of banded rails
- sampling of flat fish larvae
- survey of Māori landowners
- survey of Chemistry education in schools
- cluster analysis of diatoms
- survey of attitudes to rape
- equivalent tests in language learning
- determining onset of rigour mortis in kahawai
- tourism survey in Papua New Guinea
- effect of propranolol on blood pressure and heart rate
- identification of Streptococcus A and B
- survey of religious beliefs among church attendees
- analysis of foraminifera by size class
- analysis of historical data on assaults and drunkenness in NZ, 1860-1930
- onset of balding in mutant mice
- analysis of the effect of legislation change (February 1982) on drunkenness offences
- development of abstract thinking in adolescents
- cyclic time series patterns in cockroach behaviour
- classification of grouper
- survey of Mangakino, a rural community
- effect of temperature and salinity of feeding patterns and oxygen consumption of the paddle crab, *Ovalipes catharus*

- feeding preferences of Ovalipes catharus and their relationship to predation of shellfish beds
- the lagged effect of the Southern Oscillation on rainfall in Fiji
- determining the interrelationship of the works of Herodotus using dislegomena
- contingency table analysis in education
- survey of potential usage of various library resources in South Auckland
- survey of NZ Police attitudes to domestic violence
- ARMAX models for analysing accounting information
- drivers' perception of road hazards
- survey of library usage in the Wellington business community
- study of occupational class and its comparison with Labour vote by electorate for the 1935 NZ election
- analysis of the transient rate in NZ 1926 to 1936
- bronchiectasis rates in Polynesians
- effect of silt on the survival of the scallop Pecten novaezelandiae
- parasitism of caterpillars by wasps
- the Depression and its effects on the Manawatu region
- historical survey of the suburb of Brooklyn, Wellington 1890-1930
- interrelationships in the works of Herodotus
- effect of fungicides on barley seed
- analysis of otolith data for flounder and sole from Wellington harbour
- survey of attitudes of school children to the Police
- multivariate time series analysis of soil erosion data
- linguistic aspects of NZ English
- short-term memory and memory processing interference in pigeons
- modeling infection by nematodes in trout
- time series analysis of NZ visitor arrivals
- survey on CNG / LPG usage
- study of teaching methods for ESL (English as a Second Language) students
- parasitology of fish
- study of racism in the NZ Police
- species differentiation in stilts
- study of behaviour of black swans
- use of loglinear models in tests of word association and memory in depressed people
- design of a survey of NZ manufacturing exporters
- estimation with deficient data in Econometrics
- survival models for predation of stilts by stoats
- use of discriminant analysis for company bankruptcy prediction
- advice on design and implementation of a survey of injuries in the household
- advice on incomplete block designs in an catalysis experiment
- analysis of cross tabulated data in Sociology
- discriminant analysis applied to size classifications for sediments
- errors in variables techniques applied to the relationship between reflectivity and H / C content in NZ coal

- statistical design for a study on pre-trial diversion
- sample design for a study of farming in Sarawak
- regression applied to time series data on concord with collective nouns
- advice on design and analysis of a survey of resident medical officers in NZ hospitals
- income maintenance spending by the State in NZ, 1912-1928
- experimental design for a variety of psychological studies
- DNA profiling and the law
- analysis of data on youth offending
- study of standing seaweed crops in the Wairarapa
- DNA profiling to measure inbreeding in sheep
- genetic variation in slater population in Wellington
- impact of the common sand dollar on the potential of the surf clam fishery
- feeding behaviour in birds
- water quality in the Wairarapa
- influence of affective states on implicit learning
- children's mapping of words onto experience
- language in bilingual and monolingual children
- adequacy of clinical tests for dementia
- effect of women's suffrage on NZ voting patterns
- study of sex linked genetics in Drosophila
- questionnaire design and analysis for study of English language acquisition in the Wellington-based Lao community
- evaluation of coaching courses
- analysis of data from different sources on effects of Employment Contracts Act
- analysis of contingency table data relating occupation to motivation
- relationship between voluntary disclosure of profit forecast and other NZ company characteristics
- discriminant analysis for rock samples based on chemical composition
- analysis of genotype / phenotype relationship and viability for Drosophila mutants
- relationship between samples, populations, and superpopulations in Geography
- children's acquisition of novel word endings
- analysis of data collected on monolingual and bilingual children
- analysis of Andes monthly rainfall data
- experimental design for testing effect of age on psychological tests from young children
- sample design for analysis of suffixes and prefixes in language corpora
- analysis of elementary Lotto probabilities
- matching results for ancova and multiple regression with dummy variables using accounting data
- design of a survey of early childhood centres
- analysis of questionnaire on attitudes of senior staff at Regional Health Authorities

- gender differences in behavioural problems of children with disabilities
- analysis of Justice Department information on youth offending
- gender differences in academic careers
- diabetes study: effect of educational programme on system control through behavioural change
- use of anova and loglinear models in studies of driver behaviour
- contingency table analysis for lifetime data
- relationship between debt / equity ratios and foreign ownership of companies operating in NZ
- use of Lisrel and structural equation models in study of consumer behaviour
- analysis of a survey of NZ Jews who have emigrated to Australia
- statistical modelling for electoral studies of Chinese voting patterns in Malaysia
- analysis of fur seal mitochondrial DNA data to determine genetic variability for different populations
- analysis of early childhood memory data
- study of occupational aspirations of children
- influence ranking in small groups of adolescents
- analysis of personality scores in Psychology
- analysis of survey for GP's self rating of efficacy of treating mental Health problems
- analysis of financial forecast data using Poisson regression
- analysis of consumer relations using Tobit regression
- analysis of DNA fingerprint data
- analysis of traffic hazard data using loglinear models
- preliminary design of sample of library users
- analysis of seaweed growth data
- use of anova and growth curves in studies of Welcome Swallows
- assessment of the Limited Service Volunteer training programme for the unemployed
- study of the elderly's motivation for physical activity
- design and analysis of study involving mouthguard use in sport for children
- analysis of data from Citizens' Advice Bureau volunteers
- assessing proposal for design of research on decision making processes of probation officers
- discriminant analysis of fossil bird bones
- identity formation in late adolescence
- gender differences in language use
- analysis of alpha-theta brainwaves and relationship to personality inventories
- relationship between size of household and women as head of household in NZ in 1930's
- acoustic study of NZ English vowels
- study of modular science programmes in fifth form
- study of level of hopelessness among Wellington Prison inmates
- use of logistic regression in predicting proportion of people stopping at an intersection

- relationship between brachiation on plants and environmental variables
- preliminary design advice on a competent children study
- use of multiple linear regression in a study of Anglican church attendance
- preliminary design of architectural study of Chinese temple sites in Indonesia
- relationship between facial eczema in sheep and DNA fingerprinting
- preliminary design of survey of ethical concerns in early childhood educators
- preliminary design for a study of negotiation outcomes with Regional Health Authorities for organisations connected to the NZ Council of Christian Social Services
- design and analysis of a study of attitudes to camps for children with cancer

ADMINISTRATIVE EXPERIENCE

(i) Massey University

Director / Professor, Statistical Consulting Unit, Australian National University, 2015-2018

Member, University Academic Board, MU, 2008 - 2015

Member, College of Sciences Academic Board, MU, 2005 - 2015

Director, Applied Statistics Consulting Centre / Statistics Research and Consulting Centre, MU, December 1994 - 2006

- Supervision of the Research Officer - Mr Duncan Hedderley / Dr Alasdair Noble, 1994-2004.

- Management of approximately twenty academic staff involved part-time in providing

 - Internal and External Research and Consulting advice, preparation of annual budget, plus management / supervision of SRCC office and accounts.

- Fund applications, project management, risk assessment, liaison with funding agencies, budgetting

Member of Department of Statistics Management Committee, MU, April 1995 – Dec 1998

Member of Massey University Research Projects and Funding Committee, MU, Dec 1994 - Dec 1998

- Vetting of applications and allocation of internal research funds (eg MU Research Fund, Graduate Research Fund).

- Vetting external research applications (eg Marsden Fund, PGSF, Lotteries Science, Lotteries Health)

Member of Staff Training and Research Sub-committee, MU, May 1997-Jan 1999

(ii) Victoria University of Wellington

Director of Internal Consulting, VUW - December 1991 to December 1994

- Supervision of the Statistical Programmer, ISOR - Mr Sathiyandra Gurusingham.

- Management of five to seven academic staff involved part-time in providing Internal Consulting advice to University academic staff and post-graduate students.

- Supervision of 4-5 students working on external consulting projects.

Management of relevant External Consulting projects and accounts.

Member of Institute of Statistics and Operations Research (ISOR) Management Committee, VUW 1985-1987, 1991-94

SERVICE TO THE WIDER COMMUNITY

2009 - 2012

Managing Editor, *Australian and New Zealand Journal of Statistics*

2004 to 2009

Theory and Methods Editor, *Australian and New Zealand Journal of Statistics*

2002 to 2004

President, *New Zealand Statistical Association*

2002 to 2006

Member, Royal Society of New Zealand Mathematical and Information Sciences Advisory Committee (MISAC)

1998-2000

Member, *Child Nutrition Survey Technical Advisory Committee*, Ministry of Health.

1998-2004

Associate Editor, *Australian and New Zealand Journal of Statistics*.

1997-1998

Member, Secretariat, *Mathematical Sciences Review*, commissioned by the Ministry of Research Science and Technology.

1991 to 2000

Convenor, *Survey Appraisals and Public Questions Committee*, New Zealand Statistical Association

Since 1991 the SAPQC has, for example, produced appraisals on:

- Statistical Adequacy of the current monitoring of Social Welfare benefit levels.
- Safety requirements under the Maritime safety Act for foreign owned yachts
- MRL Research's surveys to establish preferred ownership of Central Power
- Surveys to establish preferred ownership of EnergyDirect
- The Commerce Commission's "Telecommunications Industry Report"
- Statistical aspects of Valuation New Zealand property valuation methodology.
- Statistical appraisal of 'Proposed Code of Social and Family Responsibility'.

(for details see below)

1986 - 1991

Member of the *Index Subcommittee of the New Zealand Stock Exchange*.

1983 - 1984, 1991 to present

Committee member, *New Zealand Statistical Association*

*Survey Appraisals and Public Questions Committee,
New Zealand Statistical Association*

Publications (while Stephen Haslett was Convenor):

* 1999/2000 appraisal on adequacy and correctness of WINZ/DSW fraud statistics appeared as two press releases, rather than as a published appraisal.

‘Appraisal of “Towards a Code of Social and Family Responsibility: Public Discussion Document, February 1998’, May 1998.

‘Appraisal of the second “Evening Post” Survey on voter preference for candidates in the Wellington Mayoral election 1995’, December 1995.

‘Appraisal of two BERL reports on Cost Benefits of Section 21 of the Marine Transport Act, 1994’, June 1995.

‘Submission on Ministry of Health initiative "New Avenues for Crown Funded Social Science Research" especially Proposal 4: 'Establishment of a Social Science Research Clearing House', September 1994.

‘Report on the statistical adequacy of current monitoring of social welfare benefit levels’, September 1994.

‘Appraisal of MRL Research Group's surveys to establish preferred ownership of Central Power’, May 1993.

‘Appraisal of Waitemata Electricity's surveys to establish preferred ownership’, February 1993.

‘Appraisal EnergyDirect’s surveys to establish preferred ownership’, December 1992.

‘Submission to the Review of Fisheries Research”, July 1992.

‘Comments on New Zealand Valuation Procedures’, July 1992.

‘Appraisal of the Commerce Commission’s “Telecommunications Industry Inquiry Report”, October 1992.

‘Comments on “A New Zealand Poverty Measure”: A report prepared by BERL, New Zealand Statistics, and the Institute of Policy Studies’, May 1992.

These SAPQC reports led to a number of radio interviews, news reports, and newspaper articles:

eg Radio interviews with Kim Hill (National Radio) and Jenny Anderson (Radio Pacific) 17/8/98; Radio NZ National News 15/8/98; Dominion 17/8/98.

POSITIONS PREVIOUSLY OR CONCURRENTLY HELD

September 2015 – October 2018

Professor / Director
Statistical Consulting Unit
The Australian National University
Canberra ACT 2601 Australia

December 1994 – September 2015

Professor of Statistics
Institute of Fundamental Sciences, Massey University, New Zealand

October 2001 – June 2002

National Science Foundation / American Statistical Association Senior
Fellow
Bureau of Labor Statistics, Washington DC, USA

Feb 1999-May 1999

Visiting Professor
Department of Statistics, Trinity College, Dublin, Ireland.

Oct 1988 - Jul 1990

Tenured Associate Professor (on leave without pay)
Survey Section, Statistics Laboratory and Department of Statistics, Iowa
State University, Ames, Iowa, USA.

Nov 1987 - Oct 1988

Visiting / Temporary Assistant Professor
Survey Section, Statistics Laboratory and Department of Statistics, Iowa
State University, Ames, Iowa, USA.

Feb 1985 - Dec 1994

Research Statistician / Lecturer / Senior Lecturer / Director
Internal Consulting, Institute of Statistics and Operations Research, Victoria
University of Wellington.

Feb 1981 - Jan 1985

Research Assistant to the University Statistician
Institute of Statistics and Operations Research, Victoria University of
Wellington.

Apr 1977 - Feb 1980, Oct 1980 - Jan 1981

Assistant Research Officer / Research Officer
Sample Design Division, Department of Statistics, Wellington.

Jan - Mar 1977

Temporary position; Researcher
Fisheries Research Division, Ministry of Agriculture and Fisheries,
Wellington. Research on New Zealand fish population dynamics.

Mar - Sep 1973

Quality Control Technician

Plastics Manufacture, B.P. Goodrich Ltd, Auckland.

Aug - Dec 1972

Teacher, St Kentigern College, Pakuranga, Auckland. Teaching junior science and mathematics.