

CURRICULUM VITAE for GEORGE EDWARD BATTESE

ADDRESS

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DATE OF BIRTH:

3rd August, 1942

ACADEMIC QUALIFICATIONS

1964	Bachelor of Agricultural Economics, University of New England.
1968	Master of Agricultural Economics, University of New England.
1973	Doctor of Philosophy (Major: Statistics; Minor: Economics), Iowa State University.
2005	Doctor of Economics University of New England.

HONOURS

1960–1963	Australian Commonwealth Scholarship.
1960–1963	Australian Agricultural Council Scholarship.
1960	UNE Union Scholarship for Agricultural Economics.
1970	Mu Sigma Rho (Statistical Honour Fraternity).
1974	Sigma Xi (Scientific Research Society of North America).
1977	Australian Journal of Agricultural Economics Prize for Best Paper (Battese and Francisco, 1977).
1994–present	Justice of the Peace in the State of New South Wales

POSITIONS HELD

University of New England (UNE), Armidale, NSW, Australia

Adjunct Professor, 15/11/15–to present
Adjunct Associate Professor, 3/8/02–15/11/15
Associate Professor (Econometrics), 1/1/93–2/8/02 (*retired* 2/8/02)
Senior Lecturer, 1/1/78–31/12/92
Lecturer, 1/6/74–31/12/77

(Study and Work at Iowa State University, 1/9/67–30/5/74)

Temporary Lecturer, 13/9/65–25/8/67
Tutor (Economic Statistics), 20/1/64–12/9/65

Department of Statistics, Iowa State University, Ames, Iowa, USA

Graduate Assistant, 1/9/67–31/8/70
Instructor/Associate, 1/9/70–30/6/71
Research Associate, 1/7/71–30/6/73
Visiting Assistant Professor, 1/7/73–1/6/74
Visiting Associate Professor, 1/7/80–30/6/81 (*Study Leave from UNE*)
Visiting Professor, 12/1/87–30/11/87 (*Study Leave from UNE*)

Department of Economics, Göteborg University, Gothenburg, Sweden

Visiting Professor, 2/12/96–27/6/97 (*Study Leave from UNE*)

Graduate School of Management, St Petersburg State University, Russia

Visiting Professor, 1/10/2010–20/12/2010

CONSULTANCIES AND OTHER WORK

1. *The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)*, Hyderabad, India (one week, October 1988)
2. *The International Food Policy Research Institute (IFPRI)*, Washington, D.C. (6 weeks, June–July 1993)
3. *University of Agriculture, Faisalabad (UAF)*, Pakistan (15/11/97–15/2/98) (*On Assignment as part of the UNE-UAF Collaborative Agreement*)
4. *OnLine English* (<https://www.oleng.com.au>)
Casual Economics/Econometrics Editor (March 1999–Present)
5. *Hong Kong Baptist University*, Hong Kong (1 week, September 1999)
6. *Faculty of Economics, Chiang Mai University*, Chiang Mai, Thailand (20/08/04–10/09/04; 7–15/01/05; and 14–25/05/07)
7. *Innovative Development Strategies (IDS)*, Islamabad, Pakistan (8 weeks, November 2006–January 2007, two trips)
8. *National University of Malaysia (UKM)* Visiting Professor (16–19/11/09)
9. *HarvestPlus, International Food Policy Research Institute*, Washington, DC 1/04/13–31/01/14.
10. *Asian Development Bank Institute (ADB)*, Tokyo 26/07/15–28/02/17 (Refereeing and editing papers online)
11. *Innovative Development Strategies LLC USA*
National Institute of Statistics of Rwanda (NISR), Kigali, 18–30 August 2016
19 November–6 December 2017

SERVICE IN THE FACULTY OF ECONOMICS, BUSINESS AND LAW (UNE)

Sub-Dean for Postgraduate Studies, November 1981 to April 1986

Sub-Dean for Undergraduate Studies, December 1990 to December 1994

Member of Standing Committee, February–August 1999

Faculty Representative on the UNE Promotion Committee in 2000 (for Level D).

TEACHING AREAS

Introductory Statistics for Economics and Business;
Statistical Theory for Econometrics;
Econometric Theory;
Applied Econometrics
Survey Sampling;
Demography
Quantitative Techniques for Management;

PUBLICATIONS (Google Scholar Citations on 16Jan20; Total = 37,700)

Commented [GEB1]: The number of Google citations for individual publications are given in bold (in brackets) at the end of the publications.

Theses

- Battese, G.E. (1967), *A Theoretical Study of Spatial Equilibrium Models*, Unpublished MAgEc thesis, University of New England, Armidale, July 1967, 133 pp.
- Battese, G.E. (1973), *Parametric Models for Response Errors in Survey Sampling*, Unpublished PhD dissertation, Department of Statistics, Iowa State University, Ames, August 1973, 127 pp. (1)
- Battese, G.E. (2004), *25 Years of Research on Modelling and Estimation of Stochastic Frontier Models*, Unpublished DEc dissertation, University of New England, April 2004, 625 pp.

Books

- Battese, G.E. (1986), *Introductory Statistics for Economic Studies*, Teaching Monograph Series 4, University of New England, Armidale, xiii + 539 pp.
- Coelli, T., D.S.P. Rao and G.E. Battese (1998), *An Introduction to Efficiency and Productivity Analysis*, Kluwer Academic Publishers, Boston, xvi + 275 pp. (Citations included in 2nd Ed)
- Coelli, T.J., D.S.P. Rao, C.J. O'Donnell and G.E. Battese (2005), *An Introduction to Efficiency and Productivity Analysis*, 2nd Edition, Springer, New York, 349 pp. **(11,383)**
- Coelli, T.J., D.S.P. Rao, C.J. O'Donnell and G.E. Battese (2009), *An Introduction to Efficiency and Productivity Analysis*, 2nd Edition, (Chinese translation) Tsinghua University Press, 267 pp.

Edited Journal Issue

- Battese, G.E. and T.J. Coelli, (1997), Guest Editors of Special Issue: Papers Presented at the New England Conference on Efficiency and Productivity, *Journal of Productivity Analysis*, 8 (4), November, 1997. **(6)**

Chapters in Books

- Fuller, W.A., and G.E. Battese (1981), "Regression Estimation for Small Areas", in Gilford, D.M., G.L. Nelson and L. Ingram (eds.), *Rural America in Passage: Statistics for Policy*, National Academy Press, Washington, D.C., 572–586.
- Fuller, W.A., and G.E. Battese (1993), "Estimation of Linear Models with Crossed-Error Structure", in Maddala, G.S. (Ed.), *The Econometrics of Panel Data, Volume I*, Edward Elgar Publishing Limited, Aldershot, England, 81–92.
- Ajibefun, I.A., R. Kada, and G.E. Battese (2002), "Technical Efficiency and Technological Change in Japanese Rice Industry: A Stochastic Frontier Analysis", in Acharya, S.S., S. Singh and V. Sagar (Eds.), *Sustainable Agriculture, Poverty and Food Security: Agenda for Asian Economies*, Rawat Publications, Jaipur and New Delhi, 214–225.
- Chaovanapoonphol, Y., G.E. Battese, and C. Chang (2008), "The Impact of Agricultural Loans on the Technical Efficiency of Rice Farmers in the Upper North of Thailand", in Lee, J-D. and A. Heshmati (Eds.), *Productivity, Efficiency, and Economic Growth in the Asia-Pacific Region*, Physica-Verlag, Heidelberg, 279–295. **(13)**
- Wiboonpongse, A., Y. Chaovanapoonphol, and G.E. Battese (2013), "A Quantile Regression Analysis of Price Transmission in Thai Rice Markets", in Huynh, V.-N., V. Kreinovich, S. Sriboonchitta, and K. Suriya (Eds.), *Uncertainty Analysis in Econometrics with Applications*, Springer-Verlag, Berlin Heidelberg 2013, 295–305. **(1)**

Published Articles (in reverse chronological order)

- Asante, B.O., R.A. Villano, and G.E. Battese (2019), "Evaluating Complementary Synergies in Integrated Crop-Livestock Systems in Ghana", *International Journal of Social Economics*, 47(1), 72–85.
- Gong, T.C., G.E. Battese, and R.A. Villano (2019), "Family Farms Plus Cooperatives in China: Technical Efficiency in Crop Production", *Journal of Asian Economics*, 64 (2019) 101129. **(1)**
- Soriano, F.A., R.A. Villano, E.M. Fleming, and G.E. Battese (2018), "What's Driving Innovation in Small Businesses in Australia? The Case of the Food Industry", *Australian Journal of Agricultural and Resource Economics*, 63(1), 39–71. **(2)**
- Gong, T.C., G.E. Battese, and R.A. Villano (2018), "Should Smallholder Farming in China be Discouraged? Panel Evidence from Anhui Province", *The Journal of Developing Areas*, 53(1), 33–49. **(3)**
- Asante, B.O., R.A. Villano, I.W. Patrick, and G.E. Battese (2018), "Determinants of Farm Diversification in Integrated Crop-Livestock Farming Systems in Ghana", *Renewable Agriculture and Food Systems*, 33(2), 131–149. **(17)**
- Asante, B.O., R.A. Villano, and G.E. Battese (2017), "Integrated Crop-livestock Management Practices, Technical Efficiency and Technology Ratios in Extensive Small-ruminant Systems in Ghana", *Livestock Science*, 201, 58–69. **(9)**
- Asante, B.O., R.A. Villano, I.W. Patrick, and G.E. Battese (2017), "Impacts of Exposure and Access to Seed on the Adoption of Dual-purpose Cowpea and Groundnut Varieties in Ghana", *The Journal of Developing Areas*, 51(3), 173–194.
- Battese, G.E., H. Nazli, and M. Smale (2017), "Factors Influencing the Productivity and Efficiency of Wheat Farmers in Punjab, Pakistan", *Journal of Agribusiness in Developing and Emerging Economies*, 7(2), 82–98. **(5)**
- Battese, G.E., H. Nazli, and M. Smale (2014), "Productivity and Efficiency of Farmers Growing Four Popular Wheat Varieties in Punjab, Pakistan", *HarvestPlus Working Paper No. 15*, 1–19, December 2014. **(6)**
- Asante, B.O., R.A. Villano, and G.E. Battese (2014), "Impact of Adoption of Yam Miniset Technology on the Technical Efficiency of Yam Farmers in the Forest-Savanna Transition Zone of Ghana", *African Journal of Agricultural and Resource Economics*, 9 (2), 75–90. **(33)**
- van der Westhuizen, G., and G.E. Battese (2013), "Technical Efficiency of South African Banks in Generating Interest and Noninterest Income: A Stochastic Frontier Analysis", *Studia Universitatis Babeş-Bolyai, Oeconomica*, 58(3), 20–42.
- O'Donnell, C.J., D.S.P. Rao, and G.E. Battese (2008), "Metafrontier Frameworks for the Study of Firm-Level Efficiencies and Technology Ratios", *Empirical Economics*, 34(2), 231–255. **(924)**
- Tveterås, R., and G.E. Battese (2006), "Agglomeration Externalities, Productivity and Technical Inefficiency", *Journal of Regional Science*, 46(4), 605–625. **(132)**
- Wiboonpongse, A., S. Sriboonchitta, and G.E. Battese (2005), "The Effects of Production Inputs, Technical Inefficiency and Biological Risk on Jasmine and Non-Jasmine Rice Yields in Thailand", *Empirical Economics Letters*, 4(3), 207–216. **(2)**
- Khairo, S.A., G.E. Battese, and J.D. Mullen (2005), "Agriculture, Food Security and Agricultural Policy in Ethiopia", *Outlook in Agriculture*, 34(2), 77–82. **(4)**
- Khairo, S.A., and G.E. Battese (2005), "A Study of Technical Inefficiencies of Maize Farmers within and outside the New Agricultural Extension Program in the Harari Region of Ethiopia", *South African Journal of Agricultural Extension*, 34(1), 136–150. **(28)**
- Battese, G.E., D.S.P. Rao, and C.J. O'Donnell (2004), "A Metafrontier Production Function for Estimation of Technical Efficiencies and Technology Gaps for Firms Operating Under Different Technologies", *Journal of Productivity Analysis*, 21, 91–103. **(955)**
- Ajibefun, I.A., G.E. Battese, and A.G. Daramola (2002), "Determinants of Technical Efficiency in Smallholder Food Crop Farming: Application of Stochastic Frontier Production Function", *Quarterly Journal of International Agriculture*, 41(3), 225–240. **(116)**

- Ajibefun, I.A., G.E. Battese, and R. Kada (2002), "Technical Efficiency, Technological Change and Productivity of Hired and Family Labour in the Japanese Rice Industry", *Empirical Economics Letters*, 1(1), 21–31. **(21)**
- Battese, G.E., and D.S.P. Rao (2002), "Technology Gap, Efficiency and a Stochastic Metafrontier Function", *International Journal of Business and Economics*, 1(2), 1–7. **(551)**
- Tveterås, R., and G.E. Battese (2001), "Technical Change and Productive Inefficiency Change in Norwegian Salmon Farming: The Influence of Regional Agglomeration Externalities", *International Institute for Fisheries Economics and Trade (IIFET) 2000 Proceedings*, 1–9. **(7)**
- Daryanto, H., G.E. Battese, and E.M. Fleming (2001), "Technical Efficiencies of Rice Farmers under Different Irrigation Systems and Cropping Seasons in West Java" (Efisiensi Teknis Petani Padi menurut Perbedaan Sistem Irigasi dan Musim Penanamdi Jawa Barat), *Mimba Sosek: Journal of Agricultural and Resource Socio-Economics*, 14(2), 59–90 (Bogor: Sosek Department, Faperta IPB). **(5)**
- Battese, G.E., A. Heshmati, and L. Hjalmarsson (2000), "Efficiency of Labour Use in the Swedish Banking Industry: A Stochastic Frontier Approach", *Empirical Economics*, 25, 623–640. **(148)**
- Lundvall, K., and G.E. Battese (2000), "Firm Size, Age and Efficiency: Evidence from Kenyan Manufacturing Firms", *Journal of Development Studies*, 36(3), 146–163. **(312)**
- Battese, G.E., and S. Hassan, (1999), "Technical Efficiency of Cotton Farmers in Vehari District of Punjab, Pakistan", *Pakistan Journal of Applied Economics*, 15(1&2), 41–53. **(59)**
- Battese, G.E. (1998), "A Methodological Note on a Stochastic Frontier Model for the Analysis of the Effects of Quality of Irrigation Water on Crop Yields", *Pakistan Development Review*, 37, 293–298. **(1)**
- Seyoum, E.T., G.E. Battese, and E.M. Fleming (1998), "Technical Efficiency and Productivity of Maize Producers in Eastern Ethiopia: A Study of Farmers within and outside the Sasakawa-Global 2000 Agricultural Project", *Agricultural Economics*, 19, 341–348. **(354)**
- Battese, G.E. (1998), "Comment on 'Efficiency Analysis with Panel Data: A Study of Portuguese Dairy Farms'", *European Review of Agricultural Economics*, 25(2), 259–262. **(4)**
- Battese, G.E., and T.J. Coelli (1997), "Guest Editors' Introduction for the Special Issue: Papers Presented at the New England Conference on Efficiency and Productivity", *Journal of Productivity Analysis*, 8(4), 323–324. **(10)**
- Ahmad, M., and G.E. Battese (1997), "A Probit Analysis of the Incidence of the Cotton Leaf Curl Virus in Punjab, Pakistan", *Pakistan Development Review*, 36(2), 155–169. **(12)**
- Ngwenya, S.A., G.E. Battese, and E.M. Fleming (1997), "The Relationship between Farm Size and the Technical Inefficiency of Production of Wheat Farmers in Eastern Free State, Province of South Africa", *Agrekon*, 36, 283–301. **(34)**
- Battese, G.E., and S.S. Broca (1997), "Functional Forms of Stochastic Frontier Production Functions and Models for Technical Inefficiency Effects: A Comparative Study for Wheat Farmers in Pakistan", *Journal of Productivity Analysis*, 8, 395–414. **(454)**
- Battese, G.E., A.N. Rambaldi, and G.H. Wan (1997), "A Stochastic Frontier Production Function with Flexible Risk Properties", *Journal of Productivity Analysis*, 8, 269–280. **(92)**
- Battese, G.E. (1997), "A Note on the Estimation of Cobb-Douglas Production Functions When Some Explanatory Variables Have Zero Values", *Journal of Agricultural Economics*, 48, 250–252. **(397)**
- Coelli, T.J., and G.E. Battese (1996), "Identification of Factors Which Influence the Technical Inefficiency of Indian Farmers", *Australian Journal of Agricultural Economics*, 40, 103–128. **(706)**
- Battese, G.E., S.J. Malik, and M.A. Gill (1996), "An Investigation of Technical Inefficiencies of Production of Wheat Farmers in Four Districts of Pakistan", *Journal of Agricultural Economics*, 47, 37–49. **(282)**
- Gimbol, K.C., G.E. Battese, and E.M. Fleming (1995), "Technical Efficiencies of Smallholder Cocoa Producers in Papua New Guinea: A Stochastic Frontier Analysis", *Quarterly Journal of International Agriculture*, 34, 337–357. **(18)**

- Battese, G.E., and T.J. Coelli (1995), "A Model for Technical Inefficiency Effects in a Stochastic Frontier Production Function for Panel Data", *Empirical Economics*, 20, 325–332. **(7,450)**
- Battese, G.E., S.J. Malik, and S. Broca (1993), "Production Functions for Wheat in Selected Districts in Pakistan: An Application of a Stochastic Frontier Production Function with Time-varying Inefficiency Effects", *Pakistan Development Review*, 32, 233–268. **(77)**
- Battese, G.E., S.J. Malik, N. Sultana, and R. Siddiqui (1993), "Capital Labour Substitution in the Large-Scale Food-Processing Industry in Pakistan: Some Recent Evidence", *Pakistan Development Review*, 32(4), 847–858. **(10)**
- Battese, G.E., and G.A. Tessema (1993), "Estimation of Stochastic Frontier Production Functions with Time-varying Parameters and Technical Efficiencies Using Panel Data from Indian Villages", *Agricultural Economics*, 9, 313–333. **(102)**
- Battese, G.E., and T.J. Coelli (1992), "Frontier Production Functions, Technical Efficiency and Panel Data: With Application to Paddy Farmers in India", *Journal of Productivity Analysis*, 3, 153–169. **(3,941)**
- Battese, G.E. (1992), "Frontier Production Functions and Technical Efficiency: A Survey of Empirical Applications in Agricultural Economics", *Agricultural Economics*, 7, 185–208. **(1,040)**
- Battese, G.E., T.J. Coelli, and T.C. Colby (1989), "Estimation of Frontier Production Functions and the Efficiencies of Indian Farms Using Panel Data from ICRISAT's Village Level Studies", *Journal of Quantitative Economics*, 5, 327–348. **(263)**
- Battese, G.E., N.A. Hasabelnaby, and W.A. Fuller (1989), "Estimation of Livestock Inventories Using Several Area- and Multiple-Frame Estimators", *Survey Methodology*, 15, 13–27. **(5)**
- Battese, G.E., and T.J. Coelli (1988), "Prediction of Firm-Level Technical Efficiencies with a Generalised Frontier Production Function and Panel Data", *Journal of Econometrics*, 38, 387–399. **(2,333)**
- Battese, G.E., R.M. Harter, and W.A. Fuller (1988), "An Error Components Model for Prediction of County Crop Areas Using Survey and Satellite Data", *Journal of the American Statistical Association*, 83, 28–36. **(849)**
- Battese, G.E., and S.J. Malik (1988), "Estimation of Elasticities of Substitution for CES and VES Production Functions Using Firm-Level Data for Food-Processing Industries in Pakistan", *Pakistan Development Review*, XXVI(3), 59–71. **(22)**
- Battese, G.E. (1987), "Book Review of Harrison, S.R. and H.V. Tamaschke, *Applied Statistical Analysis*, Prentice-Hall, Sydney, 1984", *Australian Journal of Agricultural Economics*, 31, 91–94.
- Battese, G.E., and S.J. Malik (1987), "Estimation of Elasticities of Substitution for CES Production Functions Using Data on Selected Manufacturing Industries in Pakistan", *Pakistan Development Review*, XXVI(2), 161–177. **(30)**
- Garcia, P.A., G.E. Battese, K.B. Morrison, and W.D. Brewer (1982), "Analysis of Cohort and Aging Effects on Anthropometric Measurements of Women in a Longitudinal Study", *Nutrition Research*, 2(4), 371–384. **(2)**
- Battese, G.E., and W.A. Fuller (1981), "Prediction of County Crop Areas Using Survey and Satellite Data", *Proceedings of the Section on Survey Research Methods of the American Statistical Association 1981*, 500–505. **(41)**
- Battese, G.E., and B.P. Bonyhady (1981), "Estimation of Household Expenditure Functions: An Application of a Class of Heteroscedastic Regression Models", *Economic Record*, 57, 80–85. **(19)**
- Battese, G.E., and W.E. Griffiths (1980), "On R-Squared Statistics for the General Linear Model with Nonscalar Covariance Matrix", *Australian Economic Papers*, 19, 343–348. **(5)**
- Battese, G.E. (1978), "On the Modelling of Fertiliser Response", *Journal of the Australian Institute of Agricultural Science*, 44(2), 89–90. **(4)**
- Battese, G.E., and E.M. Francisco (1979), "Distribuciones De Indemnizaciones Para Programas De Seguro Agrícola Con Referencia A Los Cereales En New South Wales", *Revista Ciencia E. Investigacion Agraria*, 6(3), 219–229. **(8)**

- Battese, G.E., and E.M. Francisco (1977), "Distributions of Indemnities for Crop-Insurance Plans: With Application to Grain Crops in N.S.W.", *Australian Journal of Agricultural Economics*, 21(2), 67–79. **(9)**
- Battese, G.E., and G.S. Corra (1977), "Estimation of a Production Frontier Model: With Application to the Pastoral Zone of Eastern Australia", *Australian Journal of Agricultural Economics*, 21(3), 169–179. **(2,103)**
- Battese, G.E. (1977), "Agricultural Economists, Response Functions and Lack-of -Fit Tests", *Review of Marketing and Agricultural Economics*, 45(3), 85–94. **(5)**
- Farrell, D.J., J.B. Hardaker, G.E. Battese, and R.B. Cumming (1977), "Effects of Variation in Dietary Energy Concentration of Starter and Finisher Diets on Broiler Production", *Australian Journal of Experimental Agriculture and Animal Husbandry*, 17(88), 755–760. **(3)**
- Battese, G.E., W.A. Fuller, and R.D. Hickman (1976), "Estimation of Response Variances from Interview-Re-interview Surveys", *Journal of the Indian Society of Agricultural Statistics*, 28(2), 1–14. **(13)**
- Garcia, P.A., G.E. Battese, and W.D. Brewer (1975), "Longitudinal Study of Age and Cohort Influences on Dietary Patterns", *Journal of Gerontology*, 30, 349–356. **(28)**
- Fuller, W.A., and G.E. Battese (1974), "Estimation of the Linear Model with Crossed-Error Structure", *Journal of Econometrics*, 2, 67–78. (Also Erratum in *Journal of Econometrics*, 3, 203.) **(568)**
- Battese, G.E., and W.A. Fuller (1973), "An Unbiased Response Model for Analysis of Categorical Data", *Proceedings of the Social Statistics Section of the American Statistical Association 1973*, 202–207. **(3)**
- Fuller, W.A., and G.E. Battese (1973), "Transformations for Estimation of Linear Models with Nested-Error Structure", *Journal of the American Statistical Association*, 68, 626–632. **(406)**
- Battese, G.E., and W.A. Fuller (1972), "Determination of Economic Optima from Crop-Rotation Experiments", *Biometrics*, 28, 781–792. **(18)**
- Battese, G.E., W.A. Fuller, and W.D. Shrader (1972), "Analysis of Crop Rotation Experiments, With Application to the Iowa Carrington-Clyde Rotation-Fertility Experiments", *Iowa Agricultural and Home Economics Experiment Station, Research Bulletin*, 574, 20 pp. **(7)**
- Battese, G.E. (1969), "Optimal Rations for Pigs Fed Separated Milk and Grain: A Rejoinder", *Journal of Agricultural Economics*, 20, 359. **(2)**
- Battese, G.E., J.H. Duloy, J.M. Holder, and B.R. Wilson (1968), "The Determination of Optimal Rations for Pigs Fed Separated Milk and Grain", *Journal of Agricultural Economics*, 19(3), 355–364. **(19)**
- Duloy, J.H., and G.E. Battese (1967), "Time and Recursiveness in Livestock Feeding Trials", *Australian Journal of Agricultural Economics*, 11, 184–191. **(9)**

Other Manuscripts (in reverse chronological order)

- Tran, C-D.T.T., G.E. Battese, and R.A. Villano (2019), "Administrative capacity assessment in higher education: The case of universities in Vietnam", Unpublished paper, International College of Management Sydney, 27 pp. (submitted for publication).
- Steen, J.T., S. Ahmad, M-L. Verreynne, G.E. Battese and A. Burki, with collaborators M.A. Khan, A. Hussain, A. Jabbar and N. Akmal (2016), Final Report for ADP/2015/004: "Farmers' Capabilities, Productivity and Profitability: A Case Study of Smallholders in Selected Agro Zones in Pakistan", Australian Centre for International Agricultural Research (ACIAR), GPO Box 1571, Canberra, ACT 2601, Australia, <http://aciarc.gov.au/publication/fr2016-32>, ISBN: 978-1-925436-83-9.
- Battese, G.E. (2016), "A Sampling Plan for the NISR Seasonal Agricultural Survey 2017", *Report to the National Institute of Statistics of Rwanda (NISR)*, Kigali, Rwanda, 13 pp.
- Battese, G.E. (2017), "A Sampling Plan for the 2017/18 Seasonal Agricultural Survey at the NISR", *Report to the National Institute of Statistics of Rwanda*, 17 pp.

- Asante, B.O., R.A. Villano, I.W. Patrick, and G.E. Battese (2016), "Adoption of Dual-purpose Cowpea and Groundnut Varieties in Integrated Crop-livestock Systems in Ghana", Unpublished paper, UNE School of Business, University of New England, Armidale, NSW.
- Asante, B.O., R.A. Villano, and G.E. Battese (2015), "Economies of Scope and Technical Efficiency of Crop-livestock Systems in Ghana", Unpublished paper, UNE School of Business, University of New England, Armidale, NSW.
- Wiboonpongse, A., Y. Chaovanapoonphol, and G.E. Battese (2009), "Inefficiency in Agricultural Markets: Asymmetric Rice Price Transmission in Thailand", Unpublished paper, Department of Agricultural Economics, Chiang Mai University, Chiang Mai, Thailand, 20 pp.
- Villano, R.A., C.J. O'Donnell, and G.E. Battese (2005), "An Investigation of Production Risk, Risk Preferences and Technical Efficiency: Evidence from Rainfed Lowland Rice Farms in the Philippines", *Working Paper Series in Agricultural and Resource Economics* No. 2005-1, School of Economics, University of New England, Armidale, NSW, Australia. **(30)**
- Chaovanapoonphol, Y., G.E. Battese, and H-S. Chang (2005), "The Impact of Rural Financial Services on the Technical Efficiency of Rice Farmers in the Upper North of Thailand", Unpublished paper, School of Economics, University of New England, Armidale, NSW, 16 pp. **(16)**.
- Rao, D.S.P., C.J. O'Donnell and G.E. Battese (2003), "Metafrontier Functions for the Study of Inter-regional Productivity Differences", Working Papers in the School of Economics, The University of Queensland **(131)**
- Ajebefun, I.A., and G.E. Battese (2002), "Analysis of Technical Efficiency and Policy Options in Small-scale Food Crop Production in South-western Nigeria", unpublished paper, Department of Agricultural Economics and Extension, Federal University of Technology, Akure, Nigeria, 17 pp.
- Battese, G.E., D.S.P. Rao, and C.J. O'Donnell (2002), "A Metafrontier Production Function for Estimation of Technical Efficiencies and Technology Gaps for Firms Operating Under Different Technologies", *CEPA Working Papers*, No. 2/2002, School of Economics, University of New England, Armidale, NSW, 20 pp.
- Daryanto, H.K.S., G.E. Battese, and E.M. Fleming (2002), "Technical Efficiencies of Rice Farmers Using Different Irrigation Systems in Different Cropping Seasons in West Java, Indonesia", *CEPA Working Papers*, No. 1/2002, School of Economics, University of New England, Armidale, NSW, 27 pp. **(5)**
- Battese, G.E., D.S.P. Rao, and D. Walujadi (2001), "Technical Efficiency and Productivity Potential of Firms Using a Stochastic Metaproduction Frontier", *Efficiency Series Paper* 8/2001, Permanent Seminar on Efficiency and Productivity, Departamento de Economia, Universidad de Oviedo, Oviedo, Spain, 20 pp. **(3)**
- Battese, G.E., D.S.P. Rao, and D. Walujadi (2001), "Technical Efficiency and Productivity of Garment Firms in Different Regions in Indonesia: A Stochastic Frontier Analysis Using a Time-varying Inefficiency Model and a Metaproduction Function", *CEPA Working Papers*, No. 7/2001, Centre for Efficiency and Productivity Analysis, School of Economics, University of New England, Armidale, 26 pp.
- Battese, G.E., and D.S.P. Rao (2001), "Productivity Potential and Technical Efficiency Levels of Firms in Different Regions Using a Stochastic Frontier Metaproduction Function Model", *CEPA Working Papers*, No. 6/2001, Centre for Efficiency and Productivity Analysis, School of Economics, University of New England, Armidale, 10 pp. **(6)**
- Tveterås, R., and G.E. Battese (2001), "The Influence of Regional Agglomeration Externalities on Efficiency in Norwegian Salmon Aquaculture", SNF-Report No. 08/01, *Centre for Fisheries Economics*, Report No. 70, Foundation for Research in Economics and Business Administration, Bergen, 27 pp. **(5)**
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CONFERENCE PAPERS

- “Family Farms Plus Cooperatives in China: Technical Efficiencies of Farms in Crop Production under Different Technologies” (with T. Gong and R.A. Villano), Paper Presented at the *Billfest Conference to Honour Bill Griffiths*, Monash Conference Centre, Melbourne, 19-20 July 2018.
- “Factors Influencing the Productivity and Efficiency of Wheat Farmers in Punjab, Pakistan” (with H. Nazli, and M. Smale), *Invited Speaker at the Iranian Agricultural Economics Society Biennial Conference*, Kerman, Iran, 11–12 May 2016.
- “Economies of Scope and Technical Efficiency of Crop-livestock Systems in Ghana” (with B.O. Asante and R.A. Villano), *60th Annual Conference of the Australian Agricultural and Resource Economics Society*, Canberra, 2–5/2/16.
- “Diversification and Productivity in Crop-livestock Farming Systems in the Forest Savannah Agro-ecological Zone of Ghana” (with B.O. Asante, R.A. Villano, and I.W. Patrick), *60th Annual Conference of the Australian Agricultural and Resource Economics Society*, Canberra, 2–5/2/16.
- “Determinants of Crop-livestock Diversification among Rural Farm Households in Ghana: Implications for Policy” (with B.O. Asante, R.A. Villano and I.W. Patrick), *59th Annual Conference of the Australian Agricultural and Resource Economics Society*, Rotorua, New Zealand, 10–13/2/15.
- “Improved Crop-livestock Management Practices, Technical Efficiency and Technology Ratios in an Extensive Small-ruminant Production System in Ghana” (with B.O. Asante and R.A. Villano), *14th European Workshop on Efficiency and Productivity Analysis*, Helsinki, Finland, 15–18 June 2015.
- “Efficiency of Vietnamese Higher Education Institutions: A Nonparametric Production Frontier Approach” (with Carolyn Tran and Renato Villano), *12th International Conference on Data Envelopment Analysis*, University of Malaya, Kuala Lumpur, Malaysia, 14–18/4/14.
- “Determinants of Mix Inefficiency in Integrated Crop-livestock Farming Systems in Ghana” (with B.O. Asante, R.A. Villano, and I.W. Patrick), *2014 Asia-Pacific Productivity Conference*, Brisbane, Queensland, 8–14/7/14.
- “Technical Efficiency of South African Banks in Generating Interest and Noninterest Incomes: A Stochastic Frontier Analysis” (with G. van der Westhuizen), *Conference in Memory of Lennart Hjalmarsson*, Department of Economics, University of Gothenburg, 7–8/12/12, 21 pp.
- “Introductory Workshop on Efficiency and Productivity”, *International Conference on Quality, Productivity and Performance Measurement (ICQPPM’09)*, Palm Garden Hotel, Putrajaya, Malaysia, 16–18/11/09.
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- “The Impact of Agricultural Loans on the Technical Efficiency of Rice Farmers in the Upper North of Thailand” (with Y. Chaovanapoonphol and C. Chang), *Asia-Pacific Productivity Conference*, at Seoul National University, Seoul, Korea, August 17–19/08/06.
- “Metafrontier Functions for the Study of Inter-regional Productivity Differences” (with D.S.P. Rao and C.J. O'Donnell), *Asia-Pacific Productivity Conference*, University of Queensland, Brisbane, 14–16/07/04.
- “An Investigation of Production Risk, Risk Preferences and Technical Efficiency: Evidence from Rainfed Lowland Rice Farms in the Philippines”, (with R. Villano and C.J. O'Donnell), *Asia-Pacific Productivity Conference*, University of Queensland, Brisbane, 14–16/07/04.
- “Metafrontier Functions for the Study of Inter-regional Productivity Differences”, *Eighth European Workshop on Efficiency and Productivity Analysis*, University of Oviedo, Spain, 24–27/09/03.
- “Technology Gap, Efficiency and a Stochastic Metafrontier Function”, *Economic Measurement Group*, University of New South Wales, 6/09/02.

- “Technical Efficiencies of Rice Farmers Using Different Irrigation Systems in Different Cropping Seasons in West Java, Indonesia”, *Asia Conference on Efficiency and Productivity Growth*, Taipei, 19–20/07/02.
- “Stochastic Frontier Analysis and Metaproduction Functions” (*Invited Paper*), *Seventh European Workshop on Efficiency and Productivity Analysis*, University of Oviedo, Spain, 25–29/09/01.
- “Firm Size, Age and Efficiency: Evidence from Kenyan Manufacturing Firms” (with K. Lundvall), *Sixth European Workshop on Efficiency and Productivity Analysis*, The Royal Agricultural University, Copenhagen, 29–31/10/99.
- “Efficiency of Labour Use in the Swedish Banking Industry: A Stochastic Frontier Approach”, *Georgia Productivity Workshop III*, University of Georgia, Athens, 29–30/10/98.
- “Productivity of Mongolian Grain Farming, 1975-1989” (with T. Bayarsaihan and T.J. Coelli), *41st Annual Conference of the Australian Agricultural & Resource Economics Society*, Gold Coast, 20–25/1/97 (11).
- “Stochastic Frontier Production Functions and Models for Technical Inefficiency Effects” (*Invited Paper*), *The Taipei International Conference on Efficiency and Productivity Growth*, Academia Sinica, Taipei, 20–21/06/97.
- “Functional Forms of Stochastic Frontier Production Functions and Models for Technical Inefficiency Effects: A Comparative Study for Wheat Farmers in Pakistan”, *Georgia Productivity Workshop II*, University of Georgia, Athens, 1–3/11/96.
- “The Technical Efficiency of Small Agricultural Producers in Central Ethiopia” (with M.D. Nsanzugwanko and E.M. Fleming), *40th Annual Conference of the Australian Agricultural & Resource Economics Society*, University of Melbourne, 13–15/02/96.
- “Functional Forms of Stochastic Frontier Production Functions and Models for Technical Inefficiency Effects: A Comparative Study for Wheat Farmers in Pakistan” (with S.S. Broca), *New England Conference on Efficiency and Productivity*, University of New England, Armidale, 23–24/11/95.
- “A Model for Technical Inefficiency Effects in a Stochastic Frontier Production Function for Panel Data” (with T.J. Coelli), *Fourth European Workshop on Efficiency and Productivity Analysis*, Center for Operations Research and Econometrics, Universite Catholique de Louvain, Louvain-La-Neuve, Belgium, 26–28/10/95.
- “A Stochastic Frontier Production Function with Flexible Risk Properties” (with A.N. Rambaldi and G.H. Wan). *39th Annual Conference of the Australian Agricultural Economics Society*, University of Western Australia, Perth, 13–15/2/95.
- “A Stochastic Frontier Production Function with Flexible Risk Properties” (with A.N. Rambaldi and G.H. Wan). *Georgia Productivity Workshop*, University of Georgia, Athens, 21–23/10/94.
- “Identification of Factors which Influence the Technical Inefficiency of Indian Farmers” (with T.J. Coelli), *38th Annual Conference of the Australian Agricultural Economics Society*, Victoria University, Wellington, 8–10/2/94.
- “Technical Efficiencies of Smallholder Cocoa Producers in Papua New Guinea” (with K.C. Gimbol and E.M. Fleming), *38th Annual Conference of the Australian Agricultural Economics Society*, Victoria University, Wellington, 8–10/02/94. (15)
- “A Generalised Stochastic Frontier Production Function Incorporating a Model for Inefficiency Effects” (with T.J. Coelli), *Australasian Meeting of the Econometric Society*, University of Sydney, 7–9/07/93.
- “A Stochastic Frontier Production Function Incorporating Flexible Risk Properties” (with G.H. Wan), *Australasian Meeting of the Econometric Society*, Monash University, Melbourne, 6–8/07/92.
- “Estimation of Stochastic Frontier Production Functions with Time-Varying Parameters and Technical Efficiencies Using Panel Data from Indian Villages” (with G.A. Tessema), *36th Annual Conference of the Australian Agricultural Economics Society*, Australian National University, Canberra, 10–12/02/92.

- “Frontier Production Functions, Technical Efficiency and Panel Data: With Application to Paddy Farmers in India” (with T.J. Coelli), *Australasian Meeting of the Econometric Society*, University of New South Wales, Sydney, 10–13/07/91.
- “Frontier Production Functions, Technical Efficiency and Panel Data: With Application to Paddy Farmers in India” (with T.J. Coelli), *Conference on Current Issues in Productivity Analysis*, State University of New Jersey-Rutgers, Newark, 16–18/12/91.
- “Frontier Production Functions and Technical Efficiency: A Survey of Empirical Applications in Agricultural Economics”, *35th Annual Conference of the Australian Agricultural Economics Society*, University of New England, Armidale, 5–7/02/91.
- “Frontier Production Functions, Technical Efficiency and Panel Data” (Invited Paper), Productivity and Efficiency Analysis Sessions, *30th Joint National Meeting of the Operations Research Society of America and the Institute of Management Science*, Philadelphia, 29–31/10/90.
- “Production Frontiers, Technical Efficiency and Time”, *Conference on Modelling Production With Multiple Outputs*, La Trobe University, 7–9/09/89.
- “Estimation of Frontier Production Functions and Technical Efficiencies for Indian Farms Using Panel Data from ICRISAT's Village Level Studies” (with T.J. Coelli and T.C. Colby), *33rd Annual Conference of the Australian Agricultural Economics Society*, Lincoln University, Christchurch, 7–9/02/89.)
- “Estimation of Frontier Production Functions and Technical Efficiencies for Indian Farms Using Panel Data from ICRISAT's Village Level Studies” (with T.J. Coelli and T.C. Colby), *Australasian Meeting of the Econometric Society*, University of New England, Armidale, 13–15/07/89.
- “The Possibilities of Employment Generation in the Large-Scale, Food-Processing Industry in Pakistan” (with S.J. Malik and I. Babar), *Australian Economics Congress*, Australian National University, Canberra, 28/08/88–2/09/88.
- “A Frontier Production Function for Panel Data: With Application to the Australian Dairy Industry” (with T.J. Coelli), *30th Annual Conference of the Australian Agricultural Economics Society*, Australian National University, Canberra, 3–5/2/86.
- “Prediction of Technical Efficiencies, Given a Frontier Production Function and Panel Data”, *Australasian Meeting of the Econometric Society*, University of Melbourne, 28–30/08/86.
- “Identification and Estimation of Elasticities of Substitution for Firm-Level Production Functions Using Aggregative Data” (with S.J. Malik), *Australasian Meeting of the Econometric Society*, University of Melbourne, 28–30/08/86.
- “An Error Components Model for Prediction of County Crop Areas Using Survey and Satellite Data” (with W.A. Fuller), *6th Australian Statistical Conference*, University of Melbourne, 23–27/08/82.
- “Prediction of County Crop Areas Using Survey and Satellite Data” (with W.A. Fuller), *Annual Meetings of the American Statistical Association*, Detroit, 10–13/08/81.
- “Insurance Plans for Crops with Normal or Non-normal Yield: With Application to Grain Crops in N.S.W.” (with E.M. Francisco), *21st Annual Conference of the Australian Agricultural Economics Society*, University of Queensland, Brisbane, 8–10/02/77.
- “Estimation of a Production Frontier Model: With Application to the Pastoral Zone of Eastern Australia” (with G.S. Corra), *21st Annual Conference of the Australian Agricultural Economics Society*, University of Queensland, Brisbane, 8–10/02/77.
- “Linear Models with Error Variances that are Proportional to a Power of the Expectations of the Dependent Variable” (with B.P. Bonyhady), *Third Australian Statistical Conference*, La Trobe University, Melbourne, 18–20/02/76.
- “An Unbiased Response Model for Analysis of Categorical Data” (with W.A. Fuller), *Annual Meetings of the American Statistical Association*, New York, 27–30/12/1973.
- “Transformations for Correlated Error Models” (with W.A. Fuller), *Joint Statistical Meeting of the American Statistical Association and the Biometric Society (E.N.A.R.)*, Iowa State University, 26–28/04/72.

PROFESSIONAL SEMINARS

- Faculty of Economics and Agricultural Development, University of Tehran, Karaj, Iran, 9/05/16:*
“Some Observations on Research for Higher Degree Students and Academics”
- Jack Makeham Memorial Lecture, UNE Business School, University of New England, Armidale, 7/11/15:* “Factors Influencing the Productivity and Efficiency of Wheat Farmers in Punjab, Pakistan” (joint paper with Hina Nazli and Melinda Smale).
- Probability and Statistics Seminar, Department of Mathematics, University of Texas at Arlington, Texas, 23/05/13:* “A Stochastic Frontier Production Function Analysis of the Technical Efficiency of Farmers Growing Different Wheat Varieties in Punjab, Pakistan”.
- International Food Policy Research Institute, Washington, DC, 8/05/13:* “A Stochastic Frontier Production Function Analysis of the Technical Efficiency of Farmers Growing Different Wheat Varieties in Punjab, Pakistan”.
- International Food Policy Research Institute, Washington, DC, 2/04/13:* “Stochastic Frontier Analysis: Concepts, Models and Applications”.
- Graduate School of Management, St Petersburg State University, St Petersburg, Russia, 9/11/10:*
“Metafrontier Frameworks for the Study of Firm-Level Efficiencies and Technology Ratios”.
- School of Mathematical Sciences, National University of Malaysia (UKM), Selangor, Malaysia, 19/1/09:* “Metafrontier Frameworks for the Study of Firm-Level Efficiencies and Technology Ratios”.
- Faculty of Economics, Chiang Mai University, Chiang Mai, Thailand, 25/05/07:* “Metafrontier Frameworks for the Study of Firm-Level Efficiencies and Technology Ratios”.
- Pakistan Institute of Development Economics, Islamabad, 22/11/06:* “Metafrontier Frameworks for the Study of Firm-Level Efficiencies and Technology Ratios”.
- International Institute of Islamic Economics, International Islamic University, Islamabad, 15/11/06:* “Metafrontier Frameworks for the Study of Firm-Level Efficiencies and Technology Ratios”.
- School of Economics, University of New England, Armidale, 10/08/06:* “The Impact of Agricultural Loans on the Technical Efficiency of Rice Farmers in the Upper North of Thailand”.
- Pakistan Agricultural Research Centre, Islamabad, Pakistan, 15/02/06:* “Metafrontier Frameworks for the Study of Firm-Level Efficiencies and Technology Ratios”.
- Department of Economics, University of Sargodha, Pakistan, 11/02/06:* “Metafrontier Frameworks for the Study of Firm-Level Efficiencies and Technology Ratios”.
- Andhra Pradesh Agricultural University, Hyderabad, India, 4/02/06:* “Metafrontier Frameworks for the Study of Firm-Level Efficiencies and Technology Ratios”.
- Department of Economics, University of Western Australia, Perth, 16/09/05:* “Metafrontier Frameworks for the Study of Firm-Level Efficiencies and Technology Ratios”.
- Department of Economics, Curtin University of Technology, Perth, 15/09/05:* “Metafrontier Frameworks for the Study of Firm-Level Efficiencies and Technology Ratios”.
- Department of Economics, University of Auckland, 26/08/05:* “Metafrontier Frameworks for the Study of Firm-Level Efficiencies and Technology Ratios”.
- Department of Economics, Otago University, Dunedin, 23/08/05:* “Metafrontier Frameworks for the Study of Firm-Level Efficiencies and Technology Ratios”.
- Department of Economics, Canterbury University, Christchurch, 18/08/05:* “Metafrontier Frameworks for the Study of Firm-Level Efficiencies and Technology Ratios”.
- School of Economics, University of New England, 11/08/05:* “Metafrontier Frameworks for the Study of Firm-Level Efficiencies and Technology Ratios”.
- Department of Economics, University of Hawaii at Manoa, 25/02/05:* “Metafrontier Functions for the Study of Inter-regional Productivity Differences”.
- Department of Agricultural and Resource Economics, University of California at Davis, 14/02/05:*
“Metafrontier Functions for the Study of Inter-regional Productivity Differences”.

Department of Economics, University of Melbourne, 19/07/01: “Stochastic Frontier Analysis and Metaproduction Functions”.

The Mansholt Institute, Wageningen University, 26/10/99: “Firm Size, Age and Efficiency: Evidence from Kenyan Manufacturing Firms”.

Department of Economics, Hong Kong Baptist University, 13–17/09/99: *Invited Lectures on “Stochastic Frontiers: Concepts, Models and Applications”*.

The Anderson Graduate School of Management, University of California at Los Angeles, 6/11/98: “Introduction to Frontier Models” and “Efficiency of Labour Use in the Swedish Banking Industry: A Stochastic Frontier Approach”.

Department of Economics, Michigan State University, 4/11/98: “Efficiency of Labour Use in the Swedish Banking Industry: A Stochastic Frontier Approach”.

Department of Econometrics, University of New England, 3/07/98: “A Stochastic Frontier Model for the Analysis of the Effects of Quality of Irrigation Water on Crop Yields”.

Applied Economics Research Centre, University of Karachi, 13/02/98: “Functional Forms of Stochastic Frontier Production Functions and Technical Inefficiency Effects: A Comparative Study of Wheat Farmers in Pakistan”.

Department of Economics, Institute for Advanced Studies, Vienna, 30/06/97: “Stochastic Frontier Production Functions and Models for Technical Inefficiency Effects”.

Department of Economics, University of Oslo, Oslo, 7/05/97: “Stochastic Frontier Production Functions and Models for Technical Inefficiency Effects”.

Department of Management, Odense University, Denmark, 14/03/97: “Stochastic Frontier Production Functions and Models for Technical Inefficiency Effects”.

Department of Economics, Royal Veterinary and Agricultural University, Copenhagen, 11/03/97: “Stochastic Frontier Production Functions and Models for Technical Inefficiency Effects”.

School of Economics and Commercial Law, Göteborg University, Gothenburg, Special Lecture to Economics Students from Tilburg University, 3/04/97: “Econometrics and Production Functions”.

Department of Economic Statistics, Stockholm School of Economics, 13/03/97: “Stochastic Frontier Production Functions and Models for Technical Inefficiency Effects”.

Department of Economics, Göteborg University, Gothenburg, 24/01/97: “The Relationship Between Farm Size and the Technical Inefficiency of Production of Wheat Farmers in Eastern Orange Free State, South Africa”.

School of Economic Studies, University of Manchester, 21/06/96: “Functional Forms of Stochastic Frontier Production Functions and Models for Technical Inefficiency Effects”.

Econometrics Workshop, Department of Applied Economics, University of Cambridge, 19/06/96: “Functional Forms of Stochastic Frontier Production Functions and Models for Technical Inefficiency Effects”.

Economic & Social Research Council, Development Studies Group, London School of Economics, 14/06/96: “Functional Forms of Stochastic Frontier Production Functions and Models for Technical Inefficiency Effects”.

Department of Agricultural Economics and Management, University of Reading, 13/06/96: “Frontier Production Functions: An Application to Indian Paddy Farmers”.

Joint Seminar to the Departments of Agricultural Economics and Policy, Development Economics, and General Economics, Wageningen Agricultural University, 10/06/96: “Functional Forms of Stochastic Frontier Production Functions and Models for Technical Inefficiency Effects”.

Department of Economics, University of Queensland, Brisbane, 15/03/96: “Functional Forms of Stochastic Frontier Production Functions and Models for Technical Inefficiency Effects”.

Department of Agricultural Economics and Food Marketing, University of Newcastle Upon Tyne, 25/10/95: “Frontier Production Functions and Technical Efficiency: Concepts, Models and Applications”.

Econometrics and Statistics Colloquium, University of Chicago, 2/11/94: “A Model for Technical Inefficiency Effects in a Stochastic Frontier Production Function for Panel Data”.

Department of Statistics, Australian National University, Canberra, 15/04/94: "A Generalised Stochastic Frontier Production Function Incorporating a Model for Technical Inefficiency Effects".

Department of Economics, University of Otago, Dunedin, 11/02/94: "A Generalised Stochastic Frontier Production Function Incorporating a Model for Technical Inefficiency Effects".

Department of Agricultural Economics, University of Kentucky, 19/11/93: "A Generalised Stochastic Frontier Production Function Incorporating a Model for Technical Inefficiency Effects".

Department of Economics, Rice University, Houston, 13/11/93: "A Generalised Stochastic Frontier Production Function Incorporating a Model for Technical Inefficiency Effects".

Joint Department of Economics and Department of Statistics Colloquium, Texas A & M University, College Station, 12/11/93: "A Generalised Stochastic Frontier Production Function Incorporating a Model for Technical Inefficiency Effects".

International Food Policy Research Institute, Washington, 2/07/93: "An Investigation of Technical Inefficiencies of Production of Wheat Farmers in Four Districts of Pakistan".

Department of Agricultural Economics, University of Kentucky, 20/11/92: "Frontier Production Functions and Technical Efficiency: With Application to Panel Data from Selected Indian Villages".

Department of Economics, Union College, Schenectady, 18/11/92: "Estimation of Stochastic Frontier Production Functions with Time-Varying Parameters and Technical Efficiencies Using Panel Data from Indian Villages".

Department of Economics, University of Connecticut, Storrs, 17/11/92: "Frontier Production Functions and Technical Efficiency: With Application to Panel Data from Selected Indian Villages".

Department of Economics, Vanderbilt University, Nashville, 10/11/92: "Estimation of Stochastic Frontier Production Functions with Time-Varying Parameters and Technical Efficiencies Using Panel Data from Indian Villages".

Joint Seminar of the Department of Economics and the Department of Agricultural Economics, Louisiana State University, Baton Rouge, 9/11/92: "Frontier Production Functions and Technical Efficiency and Panel Data: Concepts, Models and Applications".

Department of Agricultural Economics, University of Sydney, 25/06/92: "Frontier Production Functions and Technical Efficiency and Panel Data: Concepts, Models and Applications".

International Food Policy Research Institute, Washington, 12/12/91: "Frontier Production Functions, Technical Efficiency and Panel Data: With Application to Paddy Farmers in India".

Department of Economics, Southern Methodist University, Dallas, 4/12/91: "Frontier Production Functions, Technical Efficiency and Panel Data: With Application to Paddy Farmers in India".

Department of Economics, University of Texas at Austin, 2/12/91: "Frontier Production Functions, Technical Efficiency and Panel Data: With Application to Paddy Farmers in India".

Department of Economics, University of Michigan, Ann Arbor, 16/11/90: "Frontier Production Functions, Technical Efficiency and Panel Data".

Department of Economics, Iowa State University, Ames, 8/11/90: "Frontier Production Functions, Technical Efficiency and Panel Data".

Department of Economics, Research School of Pacific Studies, Australian National University, Canberra, 29/11/88: "Frontier Production Functions and Technical Efficiencies of Firms: With Application to Panel Data from ICRISAT's Village Level Studies".

International Crops Research Institute for the Semi-Arid Tropics, Patancheru, India, 30/09/88: "Frontier Production Functions and Technical Efficiencies of Farms: With Application to Panel Data from ICRISAT's Village Level Studies".

Human Nutrition Information Service, U.S. Dept. of Agriculture, Washington, 20/04/88: "Estimation of the Distribution of Usual Intakes for Selected Dietary Components Using Data from the 1985/86 Continuing Survey of Food Intakes by Individuals".

Department of Statistics, Iowa State University, Ames, 16/11/87: "On Teaching the Concept of a Density Function of a Continuous Random Variable in an Elementary Statistics Course".

Econometrics Workshop, Department of Economics, Michigan State University, East Lansing, 8/10/87: "Prediction of Firm-Level Technical Efficiencies, Given a Generalised Frontier Production Function and Panel Data".

Statistical Laboratory, Iowa State University, Ames, 18/03/87: "Frontier Production Functions and Technical Efficiency of Firms".

Department of Statistics, Australian National University, 14/10/83: "An Error Components Model for Prediction of County Crop Areas Using Survey and Satellite Data".

Remote Sensing Section, U.S. Dept. of Agriculture, Washington, DC, 20/04/81: "Prediction of County Crop Areas Using Survey and Satellite Data".

Statistical Laboratory, Iowa State University, Ames, 15/10/80: "Heteroscedastic Regression Models and the Estimation of Expenditure Functions".

Department of Econometrics, University of New South Wales, 14/10/77: "Heteroscedasticity and the Estimation of Household Expenditure Functions for Australia".

N.S.W. Department of Agriculture Research Station, Grafton, 19/08/77: "Experimental Data and Lack-of-Fit Tests".

Statistics Colloquium, University of New England, Armidale, 8/08/77: "Heteroscedasticity and the Estimation of Household Expenditure Functions for Australia".

Faculty of Economic Studies, University of New England, Armidale, 27/05/76: "Heteroscedastic Linear Models: With Application in Economics".

Statistical Laboratory, Iowa State University, Ames, 5/01/72: "Transformations for Regression Analyses of Correlated Observations".

SUPERVISION OF RESEARCH STUDENTS (in chronological order)

1. Bruce Bonyhady (1975): *Estimation of Linear Models with Variances a Power of the Expectations: With Application to a Consumer Expenditure Relation*, BEc(Hons.) dissertation.
2. Greg Corra (1976): *Statistical Models for Production Frontiers: With Application to the Pastoral Zone of Eastern Australia*, BAgEc dissertation.
3. Rachel Harter (1981): *Small Area Estimation Using the Nested Error Model*, MS dissertation at Iowa State University.
4. Vo Van Anh (1983): *Statistical Inference for a Class of Heteroscedastic Regression Models*, MEc dissertation.
5. Sohail Malik (1985): *Choice of Techniques, Elasticities of Substitution and Manufacturing Industries in Pakistan*, PhD thesis.
6. Jim Baldwin (1985): (Title mislaid!), Graduate Diploma of Statistics dissertation.
7. Tim Coelli (1985), *A Generalized Frontier Production Function for Cross-Sectional, Time-Series Data*, BAppEc dissertation.
8. Glenn Barry (1986): *Prediction of Individual Firm Technical Efficiency for a Generalized Frontier Model Using Panel Data*, BEc(Hons.) dissertation.
9. Thomas Colby (1988): *Estimation of a Frontier Production Function Model Using Panel Data on Firms with Unequal Numbers of Observations*, BEc(Hons.) dissertation.
10. Charles Umberger (1988): *Trends in Aboriginal Health in Australia*, Graduate Diploma in Statistics dissertation.
11. Stephen Thollar (1989): *Robust Estimation Versus Estimation Under Misspecification in a Heteroscedastic Error Model*, MEc Dissertation (supervised with Bill Griffiths).
12. Paul Segal (1990): *A Production Frontier Incorporating a Flexible Functional Form, Time-Varying Firm Effects and Unbalanced Panel Data*, Graduate Diploma in Economic Statistics dissertation.
13. Getachew Tessema (1991): *Estimation of a Stochastic Frontier Production Function with Time-Varying Technical Efficiency Using Indian Farm-Level Data*, MEc dissertation.
14. Calasewaka (1991): *Supply Response of Pepper in Indonesia*, MEc dissertation (supervised with Kevin Parton).

15. Matt Balogh (1992): *Quantitative Political Analysis in Australia: Introducing the Psephograph*, MA thesis (supervised with John Warhurst).
16. Manolito Bernabe (1993): *Investigation on Some Farmer Characteristics in Stochastic Frontier Production Functions Using Panel Data from Indian Villages*, MEd dissertation.
17. Chris Gimbol (1993): *An Analysis of Technical Efficiency of Smallholder Cocoa Producers in Papua New Guinea*, MEd dissertation (supervised with Euan Fleming).
18. Midlaster Nsanzugwanku (1994): *Analysis of Technical Efficiency of Agricultural Production in Ethiopia*, MEd dissertation (supervised with Euan Fleming).
19. Carl Yeomans (1994): *A Flexible Risk Stochastic Frontier Production Function: With Application to Cross-Sectional Data from Central Ethiopian Farms*, BEc(Hons.) dissertation.
20. Tim Coelli (1996): *Specification and Estimation of Stochastic Frontier Production Functions*, PhD thesis.
21. Emayenesh Seyoum (1996): *Technical Efficiency and Productivity of Maize Producers in Eastern Ethiopia: A Comparison of Traditional Farmers and Those Within the Sasakawa-Global 2000 Agricultural Project*, MEd dissertation (supervised with Euan Fleming).
22. Siphon Ngwenya (1996): *Analysis of Technical Inefficiencies of Production of Wheat Farmers in Eastern Orange Free State, South Africa*, BAgEd dissertation (supervised with Euan Fleming).
23. Santhi Wicks (1996): *Impact of Organic Fertiliser on Rice Production in Matinkis, the Philippines: A Stochastic Frontier Analysis*, BAgEd dissertation (supervised with Euan Fleming).
24. Tumurdavaa Bayarsaihan (1998): *Efficiency and Productivity Analysis of Mongolian Crop Farming: 1976–1989*, PhD thesis (supervised with John Dillon and Tim Coelli).
25. Salahadin Khairo (1998): *A Study of Technical Inefficiency of Production of Maize Farmers Within and Outside the Extension Program in the Harari Region, Ethiopia*, MEd dissertation (supervised with Phil Simmons).
26. Satbir Singh (2000): *Performance of Dairy Cooperatives and Private Dairies at the Milk Plant Level in India*, PhD thesis (supervised with Tim Coelli and Euan Fleming).
27. Alan Aku (2000): *An Analysis of Technical Efficiency of Cocoa Estate Producers in Papua New Guinea*, MEd dissertation (supervised with Euan Fleming).
28. Dedi Walujadi (2000): *The Measurement of Efficiency of Production in the Indonesian Garment Industry: Evidence from Firm-level Data*, PhD thesis, (supervised with Abul Shamsuddin and Prasada Rao)
29. Heny Daryanto (2000): *Analysis of the Technical Efficiency of Rice Production in West Java Province, Indonesia: A Stochastic Frontier Production Function Approach*, PhD thesis, (supervised with Euan Fleming).
30. Lizbeth Gabutin (2001): *Technical Efficiency of Tomato Producers in the CAMATIS Project, Bukidnon, Philippines*, MEd dissertation (supervised with Euan Fleming).
31. Elizabeth Siebert (2002), *Market-Based Incentive Mechanisms and Management of Salinity in the Mallee Region of South Australia*, MEd dissertation (supervised with Jack Sinden).
32. Filadelfo de Mateo (2003): *Incorporation of Adjustment Costs in DEA Models: Selection of Optimal Paths*, PhD thesis (supervised with Chris O'Donnell).
33. Renato Villano (2004), *The Measurement of Technical Efficiency, Production Risk and Risk Preferences: Evidence from Rain-fed Lowland Rice Environment in the Philippines*, PhD thesis (supervised with Chris O'Donnell and Euan Fleming).
34. Yaovarate Chaovanapoonphol (2006): *The Impact of Financial Services on the Performance of Rice Farmers in the Upper North of Thailand*, PhD thesis (supervised with Christy Chiang and Roley Piggott).

35. Bright Asante (2016): *A Microeconometric Assessment of the Integrated Crop-Livestock Production Systems in Ghana*, PhD thesis (supervised with Rene Villano and Ian Patrick).
36. Carolyn Tran (2016): *Performance of Vietnamese Higher Education Institutions: Evidence Using Data Envelopment Analysis*, PhD thesis (supervised with Rene Villano).
37. Franklin Soriano (2019): *Drivers of Innovation, Dynamics of Innovation Persistence and Performance: The Case of Small Food Industry Businesses in Australia*, PhD dissertation (supervised with Rene Villano and Euan Fleming).

PROFESSIONAL SERVICES

Referee

Advances in Agriculture
 Africa Economics Research Consortium (PhD proposal, research papers)
 Agricultural Economics
 American Journal of Agricultural Economics
 American Statistician
 Aquaculture Economics and Management
 Australian Agribusiness Review
 Australian Journal of Agricultural and Resource Economics
 Biometrics
 Bulletin of Economic Research
 Business and Economics Letters
 CAHIERS d'Economie et Sociologie Rurales
 Canadian Journal of Agricultural Economics
 Ecological Economics
 Economics and Management of Financial Intermediation Working Paper Series (EMFI WPS)
 Econometric Reviews
 Economic Systems
 Economics of Education Review
 Environment and Development Economics
 European Journal of Operational Research
 European Review of Agricultural Economics
 Empirical Economics
 Empirical Economics Letters
 Environmental and Development Economics
 Forest Science
 International Journal of Hospitality Management
 International Journal of Business and Economics
 International Journal of Development Issues
 Iran Agricultural Research
 Journal of African Economies
 Journal of Agribusiness in Developing & Emerging Economies
 Journal of Agricultural Economics
 Journal of Agricultural and Applied Economics
 Journal of Agricultural & Resource Economics
 Journal of Agricultural Science and Technology
 Journal of Applied Economics
 Journal of Applied Econometrics
 Journal of Asian Economies
 Journal of Development Economics
 Journal of Development Studies

Journal of Economic Surveys
 Journal of Economics and Finance
 Journal of Environmental Economics and Management
 Journal of Environmental Management
 Journal of the American Statistical Association
 Journal of the Asia Pacific Economy
 Journal of the Australian Chiropractors' Association
 Journal of the Australian Institute of Agricultural Science
 Journal of Economics and Finance
 Journal of Econometrics
 Journal of Environmental Management
 Journal of Media Economics
 Journal of Modelling in Management
 Journal of Population Economics
 Journal of Productivity Analysis
 Journal of Regional Science
 Journal of Retailing
 Land Use Policy
 Managerial and Decision Economics
 Managerial Finance
 Pakistan Development Review
 Political Methodology
 Review of Urban & Regional Development Studies
 Review of Marketing and Agricultural Economics
 Resource & Energy Economics
 Sankya
 Scandinavian Journal of Economics
 Small Business Economics
 Springer Publishers (refereeing proposed book)
 Survey Methodology
 The Journal of International Trade and Economic Development
 The Review of Economic Studies
 The Review of Economics and Statistics
 Utilities Policy
 World Bank Economic Review
 World Development

Australasian Region of the Econometric Society

Chair, Contributed Papers Session, Australasian Meeting of the Econometric Society, University of Sydney, August 1984.

Member of the Standing Committee, 88–91.

Chair, Programme Committee, Australasian Meeting of the Econometric Society, University of New England, Armidale, 13–15/07/89.

Member, Programme Committee, Australasian Meeting of the Econometric Society, University of New England, Armidale, 13–15/07/94.

Chair, Invited Paper Session, Australasian Meeting of the Econometric Society, University of New England, Armidale, 13–15/07/94.

Australian Agricultural Economics Society

Chair, Invited Papers Session on Econometrics, 36th Annual Conference, Australian National University, Canberra 10–12/02/92.

Chair, Contributed Papers Session, 38th Annual Conference, Victoria University, Wellington, 8–10/02/94.

Productivity Conferences

Chair, Contributed Papers Session, Georgia Productivity Workshop, University of Georgia, Athens, 21–23/10/94.

Conference Committee, New England Conference on Efficiency and Productivity, University of New England, Armidale, 22–23/11/95.

Chair, Invited Papers Session, New England Conference on Efficiency and Productivity, University of New England, Armidale, 22–23/11/95.

Chair, Contributed Papers Session, New England Conference on Efficiency and Productivity, University of New England, Armidale, 23–24/11/95.

Chair, Contributed Papers Session, Georgia Productivity Workshop II, University of Georgia, Athens, 1–3/11/96.

Chair, Contributed Papers Session, Taipei International Conference on Efficiency and Productivity Growth, Academia Sinica, Taipei, 20–21/06/97.

Discussant, Contributed Papers Session, Taipei International Conference on Efficiency and Productivity Growth, Academia Sinica, Taipei, 20–21/06/97.

Chair, Contributed Papers Session, Georgia Productivity Workshop III, University of Georgia, Athens, 29–30/10/98.

Chair, Contributed Papers Session, Sixth European Workshop on Efficiency and Productivity Analysis, Royal Agricultural and Veterinary University, Copenhagen, 29–31/10/99.

Keynote Speaker, Seventh European Workshop on Efficiency and Productivity Analysis, University of Oviedo, Spain, 25–27/09/01.

Chair, Contributed Papers Session, Seventh European Workshop on Efficiency and Productivity Analysis, University of Oviedo, Spain, 25–27/09/01.

Chair, Contributed Papers Session, Eighth European Workshop on Efficiency and Productivity Analysis, University of Oviedo, Spain, 24–27/09/03.

Chair, Contributed Papers Session, Asia-Pacific Productivity Conference, University of Queensland, Brisbane, 14–16/07/04

Chair, Plenary Session, Asia-Pacific Productivity Conference, Seoul, Korea, 17–19/08/06.

Discussant on PhD proposals at the International Conference on Quality, Productivity and Performance Measurement (ICQPPM'09), Palm Garden Hotel, Putrajaya, Malaysia, 16–18/11/09.

Other Editorial Work

*Suggested revisions for Chapter 21 on "Sample Surveys" in Snedecor, G.W., and W.G. Cochran, *Statistical Methods*, Iowa State University Press, 8th Edition. (This edition was prepared by the Stat Lab, Iowa State University.)*

*Wrote Section 5.3.3 on "Frontier Functions" in Dillon, J.L. and J.R. Anderson, *The Analysis of Response in Crop and Livestock Production*, Pergamon Press, 3rd Edition, pp. 76–77.*

*Associate Editor, *International Journal of Business and Economics**

*Board of Editors, *Empirical Economics Letters**

MEMBERSHIP OF SCHOLARLY SOCIETIES (not current!)

American Statistical Association
Australian Agricultural and Resource Economics Society
Econometric Society
Productivity Analysis Network