K.R. Pearson
Publications (December 2013)

Books

1. *Abstract Algebra and Famous Impossibilities*, Springer, New York, 1991 (with Arthur Jones and Sidney A. Morris). [Reprinted 1994.]

2. *Notes and Problems in Applied General Equilibrium Economics*, North-Holland, Amsterdam, 1992. The authors are P.B. Dixon, B.R. Parmenter, A.A. Powell and P.J. Wilcoxen, "with a contribution by K.R. Pearson".

Chapters of Books

1. Aggregation and Computation of Equilibrium Elasticities, Chapter 5 in: Thomas W. Hertel (ed.), *Global Trade Analysis: Modeling and Applications*, Cambridge University Press, New York and Cambridge, 1997 (with T.W. Hertel, D.K. Lanclos and P.V. Swaminathan), pp. 149-163.

2. Implementing GTAP Using the GEMPACK Software, Chapter 6 in: Thomas W. Hertel (ed.), *Global Trade Analysis: Modeling and Applications*, Cambridge University Press, New York and Cambridge, 1997, pp. 164-188.

3. Liberalizing Tariff-Rate Quotas: Quantifying the Effects of Enhancing Market Access, Chapter 10 in: Merlinda D. Ingco and L. Alan Winters (eds), *Agriculture and the New Trade Agenda: Creating a Global Trading Environment for Development*, Cambridge University Press, Cambridge, 2004, pp. 194-220 (with Aziz Elbehri, Merlinda D. Ingco and Thomas W. Hertel).

4. Solution Software for CGE Modeling, Chapter 20 in Volume 1B of: P.B.Dixon and D. Jorgensen (eds), *Handbook of CGE modeling*, Elsevier, 2012, ISBN: 978-0-444-59556-0, pp. 1331-1381 (with Mark Horridge, Alex Meeraus and Tom Rutherford).

Published Software

Simulation Software for Use with 'Notes and Problems in Applied Equilibrium Economics', North-Holland, Amsterdam, 1992. [This software is published and sold separately from the textbook.]

Papers

1. Interval semirings on R_1 with ordinary multiplication, *J. Australian Math. Soc.*, Vol. 6 (1966), pp. 273-288.

2. Certain topological semirings in R_1, *J. Australian Math. Soc.*, Vol. 8 (1968), pp. 171-182.

3. Embedding semirings in semirings with multiplicative unit, *J. Australian Math. Soc.*, Vol. 8 (1968), pp. 183-191.

4. Compact semirings which are multiplicatively groups or groups with zero, *Math. Zeit.*, Vol. 106 (1968), pp. 388-394.

5. The three kernels of a compact semiring, *J. Australian Math. Soc.*, Vol. 10 (1969), pp. 299-319.

6. Compact semirings which are multiplicatively 0-simple, *J. Australian Math. Soc.*, Vol. 10 (1969), pp. 320-329.

7. Rings with a cyclic group of units, *J. of Algebra*, Vol. 16 (1970), pp. 243-251 (with J.E. Schneider).

8. The group of units of the integral group ring ZS_3, *Canadian Math. Bull.* Vol. 15 (1972), pp. 529-534 (with I. Hughes).

9. On the family relation for Artinian rings, *Compositio Math.*, Vol. 24 (1972), pp. 273-275.

10. On the units of a modular group ring, *Bull. Australian Math. Soc.*, Vol. 7 (1972), pp. 169-182.

11. On the units of a modular group ring II, *Bull. Australian Math. Soc.*, Vol. 8 (1973), pp. 435-442.

12. Groups subnormal in the units of their modular group rings, *Proc. London Math. Soc.*, (3), Vol. 33 (1976), pp. 313-328 (with D.E. Taylor).

13. A skew polynomial ring over a Jacobson ring need not be a Jacobson ring, *Comm. Alg.*, Vol. 5 (1977), pp. 783-794 (with W. Stephenson).

14. A lower bound for the degree of polynomials satisfied by matrices, *J. Australian Math. Soc. (Series A)*, Vol. 27 (1979), pp. 430-436.

15. Decomposability of finite rings, *J. Australian Math. Soc. (Series A)*, Vol. 28 (1979), pp. 136-138 (with Diane Mainwaring).

16. Nilpotents and units in skew polynomial rings over commutative rings, *J. Australian Math. Soc. (Series A)*, Vol. 28 (1979), pp. 423-426 (with M. Rimmer).

17. Skew polynomials and Jacobson rings, *Proc. Lond. Math. Soc.* (3), Vol. 42 (1981), pp. 554-576 (with W. Stephenson and J.F. Watters).

18. Skew polynomials and Brown-McCoy rings, *Comm. Alg.*, Vol. 10 (1982), pp. 1669-1681 (with W. Stephenson and J.F. Watters).

19. Reducing two person, zero sum games with underlying symmetry, *J. Australian Math. Soc. (Series A)*, Vol. 33 (1982), pp. 152-161.

20. Degree 7 monic polynomials satisfied by a 3 x 3 matrix over a noncommutative ring, *Comm. Alg.*, Vol. 10 (1982), pp. 2043-2073.

21. The Robson cubics generate all polynomials satisfied by a general 2 x 2 matrix, *Comm. Alg.*, Vol. 10 (1982), pp. 2075-2084.

22. Sparse matrix methods for computable general equilibrium models of the Johansen class, *Impact Preliminary Working Paper* No. OP-43, Melbourne, pp. 40, November 1983 (with Russell J. Rimmer).

23. An efficient method for the solution of large computable general equilibrium models, *Journal of the International Association for Mathematics and Computers in Simulation*, Vol. 27 (1985), pp. 223-229 (with Russell J. Rimmer).

24. Sparse matrix methods on the VAX 11/780, in: "Proceedings of the European DECUS Symposium, Amsterdam, September 1984", Digital Equipment Corporation, Marlboro, Massachusetts, 1985, pp. 545-552 (with Russell J. Rimmer).

25. How to compute a Johansen-style solution to the Melbourne version of ORANI using programmes written for the VAX 11/780, *Impact Draft Computing Manual*, Melbourne, pp. 83, November 1984 (with S.M. Bonnell, P.R. Jones and R.J. Rimmer).

26. Bottoms-up, tops-down, and hybrid methods for regionalizing computable general equilibrium models: some comparisons, in: R.E. Glass (ed.), "Papers of the Australian and New Zealand

Regional Science Conference (1984)", Melbourne 1985, pp. 144-187 (with B.R. Parmenter and R. Jagielski).

27. Automating the computation of solutions of large models, *Economic Modelling*, Vol. 5 (1988), pp. 385-395. [A preliminary version was *Impact Preliminary Working Paper* No. IP-27, Melbourne, pp. 28, March 1986.]

28. Influences of the application environment on the development of software for large economic models, in: "Commercial Software Engineering: A Way Ahead", Proceedings of Australian Software Engineering Conference, May, 1987, The Institution of Radio and Electronics Engineers, Australia, pp. 199-207 (with G. Codsi).

29. GEMPACK: General-purpose software for applied general equilibrium and other economic modellers, *Computer Science in Economics and Management*, Vol. 1 (1988), pp. 189-207 (with G. Codsi). [A preliminary version was *Impact Preliminary Working Paper* No. IP-39, Melbourne, July 1988, pp. 31.]

30. An implementation of ORANI using the GEMPACK program TABLO, *Impact Computing Document* No. C8-01, Melbourne, 1988, pp. 76 (with G. Codsi and M. Horridge).

31. A general-purpose software suite for applied general equilibrium and other economic modelling, *Social Science Computer Review*, Vol. 7 (1989), pp. 77-80 (with G. Codsi).

32. General-purpose software for intertemporal economic models, *Computer Science in Economics and Management*, Vol. 5 (1992), pp. 57-79 (with G. Codsi and P.J. Wilcoxen). [A preliminary version was *Impact Preliminary Working Paper* No. IP-51, May, 1991.]

33. Mending the family tree: a reconciliation of the linearized and levels schools of AGE modelling, *Economic Modelling*, Vol. 9 (1992), pp. 385-407 (with T.W. Hertel and J.M. Horridge). [A preliminary version was *Impact Preliminary Working Paper* No. IP-54, June, 1991.]

34. Solving nonlinear economic models accurately via a linear representation, *Impact Preliminary Working Paper* No. IP-55, Melbourne, July 1991, pp. 39.

35. ORANI-F: a general equilibrium model of the Australian economy, *Economic and Financial Computing*, Vol. 3 (1993), pp. 71-140 (with J.M. Horridge and B.R. Parmenter).

36. Solving applied general equilibrium models represented as a mixture of linearized and levels equations, *Computational Economics*, Vol. 7 (1994), pp. 203-223 (with W.J. Harrison, A.A. Powell and E.J. Small). [A preliminary version was *Impact Preliminary Working Paper* No. IP-61, Monash University, Clayton, September 1993, pp. 20.]

37. Computing solutions for large general equilibrium models using GEMPACK, *Computational Economics*, Vol. 9 (1996), pp. 83-127 (with W.J. Harrison). [A preliminary version was *Impact Preliminary Working Paper* No. IP-64, Monash University, June 1994, pp. 55.]

38. Features of multiregional and intertemporal AGE modelling with GEMPACK, *Computational Economics*, Vol. 9 (1996), pp. 331-353 (with W.J. Harrison and A.A. Powell). [A preliminary version was "Multiregional and intertemporal AGE modelling via GEMPACK", *Impact Preliminary Working Paper* No. IP-66, September 1994, pp. 21.]

39. Implementing systematic sensitivity analysis using GEMPACK, *GTAP Technical Paper* No. 3, Purdue University, April 1998, pp. 45 (with Channing Arndt). [An earlier version was September 1996, pp.37.]

40. Implementing quotas in GTAP using GEMPACK or How to linearise an inequality, *GTAP Technical Paper* No.4, Purdue University, September 1996, pp. 36 (with Christian Bach).

41. Medium- and long-run consequences for Australia of an APEC free-trade area: CGE analyses using the GTAP and MONASH models, *Asia-Pacific Economic Review*, Vol. 3 (1997), pp. 19-42 (with P.D. Adams, K.M. Huff, R. McDougall and A.A. Powell).

42. Decomposing simulation results with respect to exogenous shocks, *Computational Economics,* Vol. 15 (2000), pp. 227-249 (with W. Jill Harrison and J. Mark Horridge). [A preliminary version was "Decomposing simulation results with respect to exogenous shocks", *Centre of Policy Studies and the Impact Project Preliminary Working Paper* No. IP-73, May 1999, pp.21.]

43. Agriculture and WTO 2000: Quantitative assessment of multilateral liberalization of agricultural policies, Paper presented at the Conference on Agriculture and the New Trade Agenda in the WTO 2000 Negotiations, October 1-2, 1999, Geneva (with Aziz Elbehri, Merlinda Ingco and Thomas Hertel). [See number 3 under "Chapters of Books" for a revised version.]

44. AnalyseGE: Software assisting modellers in the analysis of their results, Paper presented to a plenary session of the Third Annual Conference on Global Economic Analysis held at Monash University, June 2000 (with Thomas W. Hertel and J. Mark Horridge). [Available as *http://www.monash.edu.au/policy/ftp/ange/phh.pdf*]

45. Implementing bilateral tariff rate quotas in GTAP using GEMPACK, *GTAP Technical Paper* No. 18, Purdue University, December 2000, pp. 47 (with Aziz Elbehri).

46. A practical method for explicitly modeling quotas and other complementarities, *Computational Economics*, Vol. 23 (2004), pp. 325-341 (with W.Jill Harrison, Mark Horridge and Glyn Wittwer). [A preliminary version was: *Centre of Policy Studies and the Impact Project Preliminary Working Paper* No. IP-78, April 2002, pp.19.]

47. Introduction to GEMPACK for GAMS users, *Centre of Policy Studies and the Impact Project Preliminary Working Paper* No. IP-79, April 2002, pp.39 (with M.Kohlhaas).

48. Cobb-Douglas Utility - Eventually!, *Centre of Policy Studies and the Impact Project Preliminary Working Paper* No. IP-80, June 2002, pp.23 (with Alan A. Powell, Keith R. McLaren and Maureen T.Rimmer).

49. Adding Accounting-Related Behaviour to a Model Implemented Using GEMPACK, *Centre of Policy Studies and the Impact Project Preliminary Working Paper* No. C12-01, June 2002, pp.34 (with W.J. Harrison).

50. Rational expectations for large models: a practical algorithm and a policy application, *Economic Modelling*, Vol. 22 (2005), pp.1001-1019 (with Peter B. Dixon, Mark R. Picton and Maureen T. Rimmer). [A preliminary version was *Centre of Policy Studies and the Impact Project Preliminary Working Paper* No, IP-81, May 2003, pp. 28.]

51. Solving MPSGE Models using GEMPACK, July 2004, pp. 89 (with Laurent Cretegny, Mark Horridge and Thomas Rutherford). [Available from *http://www.monash.edu.au/policy/gpmge2gp.htm*]

52. Using GEMPACK Subroutines in your Fortran Programs, April 2005, pp. 26 (with W. Jill Harrison and J. Mark Horridge). [Available from *http://www.monash.edu.au/policy/gpusesub.htm*]

53. Running Simulations Faster on Multi-Processor or 64-Bit PCs via GEMPACK, *Centre of Policy Studies and the Impact Project Working Paper* No. C15-01, April 2006, pp. 7 (with J. Mark Horridge).

54. Systematic Sensitivity Analysis with Respect to Correlated Variations in Parameters and Shocks, *GTAP Technical Paper* No. 30, Purdue University, March 2011, pp. 18 (with Mark Horridge).

55. Solution Software for CGE Modeling, *Centre of Policy Studies and the Impact Project Working Paper* No. G-214, March 2011, pp. 34 (with Mark Horridge).

Computer Software

GEMPACK (General Equilibrium Modelling PACKage). This has been used outside the Impact Project since 1985. The current version is Release 11.0, (October 2011). The software is currently in use at about 400 sites in over 60 countries. [I am a principal author of this. Substantial input has been made by J.M.Horridge, M. Jerie, W.J. Harrison and G. Codsi.]

This software is distributed via the Centre of Policy Studies and IMPACT Project at Monash University. Annual revenue is about $400,000.

GEMPACK Documentation

The documents for Release 10.0, May 2008, are listed below.

An Introduction to GEMPACK, GEMPACK Document No. 1**,** Monash University, Clayton, Sixth edition, October 2002, pp. 207+9 (with W.J. Harrison).

TABLO Reference, GEMPACK Document No. 2, Monash University, Clayton, Fourth edition, October 2002, pp.191+10 (with W.J. Harrison).

Simulation Reference: GEMSIM, TABLO-generated Programs and SAGEM, GEMPACK Document No. 3, Monash University, Clayton, Second edition, October 2002, pp.262+12 (with W.J. Harrison).

Useful GEMPACK Programs, GEMPACK Document No. 4, Monash University, Clayton, Second edition, October 2002, pp.138+10 (with W.J. Harrison).

Release 9.0 of GEMPACK: New Features and Changes from Release 8.0, GEMPACK Document No. 5, Monash University, Clayton, First edition, April 2005, pp.123+7 (with W.J. Harrison).

Release 10.0 of GEMPACK: New Features and Changes from Release 9.0, GEMPACK Document No. 9, Monash University, Clayton, First edition, May 2008, pp.71 (with J.M.Horridge and M.Jerie).

Installing and Using the Source-Code Version of GEMPACK on Windows PCs with Lahey or Intel Fortran, GEMPACK Document, No. 6, Monash University, Clayton, Thirteenth edition, May 2008, pp.44 (with J.M.Horridge and M.Jerie).

Installing and Using the Executable-Image Version of GEMPACK on Windows PCs, GEMPACK Document No. 7**,** Monash University, Clayton, Tenth edition, May 2008, pp.23 (with J.M.Horridge and M.Jerie).

Getting Started with GEMPACK: Hands-on Examples, GEMPACK Document No. 8**,** Monash University, Clayton, Third edition, October 2002, pp.110+8 (with W.J. Harrison).

The documentation for Release 11.0 (October 2011) is the on-line file GPMANUAL.HTM distributed with the software. The above Release 10.0 documents are now incorporated within that on-line file.

Previous versions of GEMPACK were: Release 9.0 (April 2005), Release 8.0 (October 2002), Release 7.0 (October 2000), Release 6.0 (October 1998), Release 5.2 (September 1996), Release 5.1 (April 1994), Release 5.0 (April 1993), Release 4.2.02 (April 1991) and Release 4.2 (February

1990). The substantial documentation (now over 1000 pages) was completely revised for most of these releases.