



## Professor Erwin Diewert

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Position	Associate
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### Qualifications

BA Uni of British Columbia

MA Uni of British Columbia

PhD (Economics) Uni of California at Berkeley

### Key Skills and Experience

Erwin Diewert is an Associate of Economic Insights and Professor of Economics at the University of British Columbia, Vancouver, Canada. He has a distinguished career as one of the foremost academic micro-economists in the world. Erwin is recognised as one of the world's foremost academic experts on productivity and performance measurement where his contributions over the last 30 years have laid the foundations for modern index number and duality theory, the underpinnings of total factor productivity measurement. Erwin introduced the now standard concepts of 'flexible functional forms' in econometrics and 'superlative index numbers' in productivity measurement – both of which have greatly improved the accuracy of quantitative analysis.

Erwin has made major contributions in his many areas of interest which include efficiency and productivity analysis, index number theory, price level measurement, trade theory, taxation reform, applications of duality theory, general equilibrium modelling, the measurement of waste and welfare, and functional form problems in producer and consumer theory. He has over 80 separate papers in the world's leading economics journals, has authored 10 books and made major contributions to another 100 books.

Erwin is also a leading analyst of regulatory issues. His interests in the economics of regulation include:

- the design of incentive schemes for regulated firms including price cap plans;
- measurement issues associated with incentive plans; and
- the measurement of productivity for regulated industries.

Erwin has provided expert testimony for the Association of American Railways, the British Columbia Telephone Company, the New York Public Service Commission and the Bell Telephone Company of Canada.

Erwin's professional associations and key publications are summarised below.

### Professional Associations

Chairman, Statistics Canada Advisory Committee on Prices

Fellow, Royal Society of Canada

Fellow, World Academy of Productivity Science

Research Associate of the National Bureau of Economic Research

Member of the U.S. National Academy of Sciences Panel on Conceptual, Measurement and Other Statistical Issues in Developing Cost of Living Indexes

### Published Journal Articles

- 1 "An Application of the Shephard Duality Theorem: A Generalized Leontief Production Function," *The Journal of Political Economy* 79:3 (May–June 1971), pp. 481-507.
- 2 "A Note on the Elasticity of Derived Demand in the N Factor Case," *Economics* 38 (May 1971), pp. 192-198.
- 3 "Afriat and Revealed Preference Theory," *Review of Economic Studies* 40:3 (July 1973), pp. 419-425.
- 4 "On a Theorem of Negishi," *Metroeconomica* 25:2 (May–August 1973), pp. 119-135.
- 5 "Functional Forms for Profit and Transformation Functions," *Journal of Economic Theory* 6:3 (June 1973), pp. 284-316.
- 6 "Functional Forms for Revenue and Factor Requirements Functions," *International Economic Review* 15:1 (February 1974), pp. 119-130.
- 7 "A Note on Aggregation and Elasticities of Substitution," *Canadian Journal of Economics* 7:1 (February 1974), pp. 12-20.
- 8 "Intertemporal Consumer Theory and the Demand for Durables," *Econometrica* 42:3 (May 1974), pp. 497-516.
- 9 "The Effects of Unionization on Wages and Employment: A General Equilibrium Analysis," *Economic Inquiry* 12:3 (September 1974), pp. 319-339.
- 10 "Unions in a General Equilibrium Model," *Canadian Journal of Economics* 7:3 (August 1974), pp. 475-495.
- 11 "The Samuelson Nonsubstitution Theorem and the Computation of Equilibrium Prices," *Econometrica* 43:1 (January 1975), pp. 57-64.
- 12 "Harberger's Welfare Indicator and Revealed Preference Theory," *The American Economic Review* 66:1 (March 1976), pp. 143-152.
- 13 "Exact and Superlative Index Numbers," *Journal of Econometrics* 4:2 (June 1976), pp. 115-145.
- 14 "Frank Knight's Theorem in Linear Programming Revisited," *Econometrica* 45:2 (March 1977), pp. 375-398, (with A.D. Woodland).
- 15 "Generalized Slutsky Conditions for Aggregate Consumer Demand Functions," *Journal of Economic Theory* 15:2 (August 1977), pp. 353-362.
- 16 "Flexible Functional Forms and Expenditure Distributions: An Application to Canadian Consumer Demand Functions," *International Economic Review* 18:3 (October 1977), pp. 551-576, (with E.R. Berndt and M.N. Darrough).
- 17 "Optimal Tax Perturbations," *Journal of Public Economics* 10 (1978), pp. 138-177.
- 18 "Superlative Index Numbers and Consistency in Aggregation," *Econometrica* 46:4 (July 1978), pp. 883-900.
- 19 "Expenditure Functions, Local Duality, and Second Order Approximations," *Econometrica* 47 (May 1979), pp. 579-601, (with C. Blackorby).
- \*20 "Symmetry Conditions for Market Demand Functions," *The Review of Economic Studies* 47 (1980), pp. 595-601.
- 21 "Capital and the Theory of Productivity Measurement," *American Economic Review* 70 (1980), pp. 260-267.

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- 22 "The Elasticity of Derived Net Supply and a Generalized Le Chatelier Principle," *The Review of Economic Studies* 48 (1981), pp. 63-80.
- 23 "The Comparative Static's of Industry Long-Run Equilibrium," *Canadian Journal of Economics* 14 (1981), pp. 78-92.
- 24 "Direct Versus Implicit Superlative Index Number Formulae," *The Review of Economics and Statistics* VOL. LXIII, No. 3 (August 1981), pp. 430-435, (with R.C. Allen).
- 25 "The Measurement of Deadweight Loss Revisited," *Econometrica* 49:5 (September 1981), pp. 1225-1244.
- 26 "Nine Kinds of Quasiconcavity and Concavity," *Journal of Economic Theory* 25:3 (December 1981), pp. 397-420, (with M. Avriel and I. Zang).
- 27 "Multilateral Comparisons of Output, Input and Productivity using Superlative Index Numbers," *The Economic Journal* 92 (March 1982), pp. 73-86, (with D.W. Caves and L.R. Christensen).
- 28 "The Economic Theory of Index Numbers and the Measurement of Input, Output, and Productivity," *Econometrica* 50 (November 1982), pp. 1392-1414, (with D.W. Caves and L.R. Christensen).
- 29 "The Decomposition of Frontier Cost Function Deviations into Measures of Technical and Allocative Efficiency," *Journal of Econometrics* 19 (1982), pp. 319-331, (with R.J. Kopp).
- 30 "The Duality Implications of a Concave Aggregator Function," *Economic Letters* 11 (1983), pp. 197-201.
- 31 "The Measurement of Waste Within the Production Sector of an Open Economy," *Scandinavian Journal of Economics* 85:2 (1983), pp. 159-179.
- 32 "Cost-Benefit Analysis and Project Evaluation: A Comparison of Alternative Approaches," *Journal of Public Economics* 22:3 (December 1983), pp. 265-302.
- 33 "Sensitivity Analysis in Economics," *Computers and Operations Research* 11:2 (1984), pp. 141-156.
- 34 "The Measurement of Deadweight Loss in an Open Economy," *Economica* 51:1 (1984), pp. 23-42.
- 35 "Consumption Theorems in Terms of Over and Under Compensation Revisited," *International Economic Review* 25 (June 1984), pp. 379-384, (with L.E. Edlefsen).
- 36 "A Dynamic Approach to the Measurement of Waste in an Open Economy," *Journal of International Economics* 19 (1985), pp. 213-240.
- 37 "Tests for the Consistency of Consumer Data," *Journal of Econometrics* 30 (1985), pp. 127-147, (with C. Parkan).
- 38 "Adjusting Output and Productivity Indexes for Changes in the Terms of Trade," *The Economic Journal* 96 (September 1986), pp. 659-679, (with C.J. Morrison).
- 39 "Flexible Functional Forms and Global Curvature Conditions," *Econometrica* 55 (January 1987), pp. 43-68, (with T.J. Wales).
- 40 "The Effects of an Innovation: A Trade Theory Approach," *The Canadian Journal of Economics* 20 (November 1987), pp. 694-714.
- 41 "A Normalized Quadratic Semiflexible Functional Form," *Journal of Econometrics* 37 (March 1988), pp. 327-342, (with T.J. Wales).
- 42 "On Tax Reform," *The Canadian Journal of Economics* 21 (February 1988), pp. 1-40.
- 43 "Normalized Quadratic Systems of Consumer Demand Functions," *Journal of Business and Economic Statistics* 6 (July 1988), pp. 303-312, (with T.J. Wales).
- 44 "Productivity and Pareto Improving Changes in Taxes and Tariffs," *Review of Economic Studies* 56 (April 1989), pp. 199-216, (with A.H. Turunen-Red and A.D. Woodland).
- 45 "New Techniques in the Measurement of Multifactor Productivity," *The Journal of Productivity Analysis* 1 (1990), pp. 265-285, (with C.J. Morrison).
- 46 "Tariff Reform in a Small Open Multi-Household Economy with Domestic Distortions and Nontraded Goods," *International Economic Review* 32 (November 1991), pp. 937-957, (with A.H. Turenen-Red and A.D. Woodland).
- 47 "The Measurement of Productivity," *Bulletin of Economic Research* 44:3 (1992), pp. 163-198.
- 48 "Fisher Ideal Output, Input, and Productivity Indexes Revisited," *Journal of Productivity Analysis* 3 (1992), pp. 211-248.
- 49 "Exact and Superlative Welfare Change Indicators," *Economic Inquiry* Vol. XXX, (October 1992), pp. 565-582.
- 50 "Quadratic Spline Models For Producer's Supply and Demand Functions," *International*
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- Economic Review* 33:3 (August 1992), pp. 705-722, (with T.J. Wales).
- 51 "Linear and Quadratic Spline Models For Consumer Demand Functions," *Canadian Journal of Economics* 26 (1993), pp. 77-106, (with T.J. Wales).
- 52 "Productivity Measurement for a Distribution Firm," *The Journal of Productivity Analysis* 5 (1994), pp. 335-347, (with A.M. Smith).
- 53 "Flexible Functional Forms and Tests of Homogeneous Separability," *Journal of Econometrics* 67 (1995), pp. 259-302, (with T.J. Wales).
- 54 "Functional Form Problems in Modeling Insurance and Gambling," *The Geneva Papers on Risk and Insurance Theory* 20 (1995), pp.135-150.
- 55 "New Zealand's Excess Burden of Tax," *Agenda A Journal of Policy Analysis and Reform* Vol. 2:1 (1995), pp. 27-34, (with D.A. Lawrence).
- 56 "The Deadweight Costs of Taxation in New Zealand", *Canadian Journal of Economics* 29 (April 1996), pp. S658-S673, (with D.A. Lawrence).
- 57 "Comment on CPI Biases", *Business Economics*, Vol. 31:2 (April 1996), pp. 30-35.
- 58 "Can Canada Afford to Spend Less on National Statistics?", *Canadian Business of Economics* Vol. 4:3 (1996), pp. 33-34, (with A. Nakamura).
- 59 "The CPI Commission: Discussion", *American Economic Review* Vol. 87:2 (May 1997), pp. 95-98.
- 60 "Commentary on Mathew D. Shapiro and David W. Wilcox, "Alternative Strategies for Aggregating Price in the CPI", *The Federal Reserve Bank of St. Louis Review* Vol. 79:3 (May/June1997), pp. 127-137.
- 61 "Index Number Issues in the Consumer Price Index", *The Journal of Economic Perspectives* Vol. 12:1 (1998), pp. 47-58.
- 62 "High Inflation, Seasonal Commodities and Annual Index Numbers", *Macroeconomic Dynamics* Vol. 2 (1998), pp. 456-471.
- 63 "The Measurement of Inflation after Tax Reform", *Economics Letters* 61 (1998), pp. 279-284, (with K.J. Fox).
- 64 "Roll Back the EI Payroll Tax", *Policy Options* Vol. 19:10 (December 1998), pp. 37-39, (with A.O. Nakamura).
- 65 "The High Costs of Capital Taxation in Australia", *Agenda: A Journal of Policy Analysis and Reform* 5:1 (1998), pp. 355-361, (with D.A. Lawrence).
- 66 "Introduction and Overview", *Canadian Journal of Economics* 33:2 (April 1999), pp. 3-15, (with A.O. Nakamura and A. Sharpe).
- 67 "Can Measurement Error Explain the Productivity Paradox?", *Canadian Journal of Economics* 32:2 (April 1999), pp. 251-280, (with K.J. Fox).
- 68 "Benchmarking and the Measurement of Best Practice Efficiency: An Electricity Generation Application", *Canadian Journal of Economics* 32:2 (April 1999), pp. 570-588, (with A.O. Nakamura).
- 69 "Index Number Approaches to Seasonal Adjustment", *Macroeconomic Dynamics* 3 (1999), pp. 48-68.
- 70 "Incentive Indexes for Regulated Industries", *Journal of Regulatory Economics* 17:1 (2000), pp. 5-24, (with K.J. Fox).
- 71 "Price Index Research in the Coming Decades: Conference Report", *Monthly Labour Review*, Bureau of Labor Statistics, U.S. Department of Labour, (September 2000), pp. 31-36, (with K. Abraham, E. Berndt, Z. Griliches, B. Moulton, C. Schultze, and J. Triplett).
- 72 "A Characterization of the Törnqvist Price Index", *Economic Letters* 72 (2001), pp. 279-281, (with B.M. Balk).
- 73 Commentary on "Research on Price Index Measurement: Agendas for the Next Twenty Years" Ernst R. Berndt (ed.), *Journal of Economic and Social Measurement* 27, (2001), pp. 105-116.
- 74 "The Consumer Price Index and Index Number Purpose", *Journal of Economic and Social Measurement* 27, (2001), pp. 167-248.
- 75 "Additive Decompositions for Fisher, Törnqvist and Geometric Mean Indexes", *Journal of Economic and Social Measurement* 28 (2002) pp. 51-61, (with M.B. Reinsdorf and C. Ehemann).
- 76 "The Quadratic Approximation Lemma and Decompositions of Superlative Indexes", *Journal of Economic and Social Measurement* 28 (2002), pp. 63-88.
- 77 "Harmonized Indexes of Consumer Prices: Their Conceptual Foundations", *Swiss Journal of Economics and Statistics*, Vol. 138:4, (2002), pp. 547-637.

- 78 “Index Number Concepts, Measures and Decompositions of Productivity Growth”, *Journal of Productivity Analysis*, (forthcoming), (with A.O. Nakamura).
- 79 “Information Failure as an Alternative Explanation of Under Investment in R & D”, *Journal of Managerial Decision Economics*, (forthcoming), (with A.O. Nakamura and P. Tiessen).
- 80 “The Gains from Trade and Policy Reform Revisited”, *Review of International Economics*, (forthcoming), (with Alan D. Woodland), (2003), 27 pp.
- 81 “Why We Need a Return to Experience Rating in EI”, *Fraser Forum*, (February 2004), pp. 10-12 (with A.O. Nakamura).
- 82 “Identifying Outliers in Multi-Output Models”, *Journal of Productivity Analysis*, 22, (Kevin J. Fox and Robert J. Hill), (2004), pp. 73-94.
- 83 “Progress in Service Sector Productivity Measurement: Review Article on Productivity in the U.S. Services Sector: New Sources of Economic Growth by Jack E. Triplett and Barry P. Bosworth”, *International Productivity Monitor*, Number 11, Center for the Study of Living Standards, (Fall 2005), pp. 57-69.
- 84 “Index Number Theory Using Differences Rather Than Ratios”, *The American Journal of Economics and Sociology*, Blackwell Publishing, Volume 64, Number 1 (January 2005), pp. 311-360.
- 85 “Weighted Country Product Dummy Variable Regressions and Index Number Formulae”, *The Review of Income and Wealth*, Series 51, Number 4, (December 2005), pp. 561-571.
- 86 “Adjacent Period Dummy Variable Hedonic Regressions and Bilateral Index Number Theory, in *Annales D’Économie et de Statistique*, No. 79/80, (2006), 28 pp.
- 87 “The Contributions of Productivity, Price Changes and Firm Size to Profitability”, (with Denis Lawrence and Kevin J. Fox), *Journal of Productivity Analysis*, (2006), 13 pp.
- 88 “Productivity Measures and Sustainable Prosperity”, (with Alice O. Nakamura), *Seoul Journal of Economics*, Vol. 20, Number 1, (2007), pp. 93-128

### Published Books

- 1 *Price Level Measurement: Proceedings from a Conference Sponsored by Statistics Canada*, editor (with C. Montmarquette), Ottawa: Statistics Canada, (December 1983), 1179 pp.
- 2 *The Measurement of the Economic Benefit of Infrastructure Services*, Lecture Notes in Economics and Mathematical Systems, Springer-Verlag, Berlin, 202 pp.
- 3 *Generalized Concavity*, (with M. Avriel, S. Schaible and I. Zang), New York: Plenum Press, (1988), pp. 332.
- 4 *Price Level Measurement* (editor), Contributions to Economic Analysis 196, Amsterdam: North-Holland, (1990), 377 pp. (This is a shrunken version of book 1 listed above).
- 5 *Essays in Index Number Theory Volume 1*, editor (with A.O. Nakamura), Contributions to Economic Analysis 217, Amsterdam: North-Holland, (1993), 551 pp.
- 6 *Mathematical Modelling In Economics*, Essays in Honor of Wolfgang Eichhorn, editor (with K. Spremann and F. Stehling), Springer-Verlag, Berlin, (1993), 713 pp.
- 7 *The Marginal Costs of Taxation in New Zealand*, Canberra: Swan Consultants, (March 1994), 123 pp. (with D.A. Lawrence).
- 8 *International Trade Price Indexes and Seasonal Commodities*, editor (with W. Alterman and R.C. Feenstra), Washington: DC, U.S. Department of Labor, Bureau of Labor Statistics, (1999), pp. 247.
- 9 *On Measuring the Contribution of Entering and Exiting Firms to Aggregate Productivity Growth*, (with Kevin J. Fox), forthcoming in *Price and Productivity Measurement*, W. Erwin Diewert, Bert M. Balk, Dennis Fixler, Kevin J. Fox and Alice O. Nakamura (eds.), Trafford Press, July 13, 2007, pp. 26.