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## CURRICULUM VITAE

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### DEGREES

B.A. (Hons) - Carleton University, 1966  
Ph.D. - Johns Hopkins University, 1969

### Ph.D. THESIS

Regional Analysis by Means of Interregional Input-Output Models with applications to Eastern Canada. Supervised by Professors E.S. Mills and Peter K. Newman.

### PUBLICATIONS

"Notes on the Isard and Chenery-Moses Interregional Input-Output Models", Journal of Regional Science, April, 1971, pp. 73-86, reprinted in H.D. Kurz and C. Lager, Input-Output Analysis, Edward Elgar, 1997.

with P.G. Hartwick, "Duopoly in Space", Canadian Journal of Economics, November, 1971.

"The Location of Firms and General Spatial Price Equilibrium", Weltwirtschaftliches Archiv, September 1972.

"The Pricing of Goods and Agricultural Land in Multiregional General Equilibrium", Southern Economic Journal, July, 1972.

- with P.G. Hartwick, "An Analysis of an Urban Thoroughfare", Environment and Planning, Vol. 4, 1972.
- "Spatially Organizing Human Environments", Papers, European Regional Science Association, 1972.
- "The Economics of Firm and Household Location in Cities", in J.F.Chant, ed., Canadian Perspectives in Economics, 1972.
- with R.W. Crowley, "The Economics of Urban Growth", in J.F. Chant, ed., Canadian Perspectives in Economics, 1972.
- "The Gravity Hypothesis and Transportation Cost Minimization", Journal of Urban and Regional Economics, Vol. 3, No. 2, 1972.
- "Lösch's Theorem on Hexagonal Market Areas", Journal of Regional Science, Vol. 13, No. 3, 1973. Reprinted in M.L. Greenhut and E. Norman, eds., The Economics of Location, Cheltenham, Edward Elgar (forthcoming).
- with P.G. Hartwick, "Efficient Resource Allocation in a Multinucleated City with Intermediate Goods", Quarterly Journal of Economics, May, 1974.
- "Price Sustainability of Location Assignments", Journal of Urban Economics, May, 1974.
- with P.G. Hartwick, "Activity Analysis Approach to Urban Model Building", Papers Regional Science Association, 1974.
- with U. Schweizer and P.Varaiya, "Comparative Statics of a Residential Economy with Several Classes", Journal of Economic Theory, Dec., 1976, translated and published in a Japanese Journal, alternate version in G. Papageorgiou, ed., Mathematical Land Use Theory, Lexington, 1976.
- "Intermediate Goods and the Spatial Integration of Land Uses", Journal of Regional Science and Urban Economics, 6, 1976.
- with P. Varaiya and U. Schweizer, "A Class of Markovian Problems Related to the Districting Problem for Urban Emergency Services", Ricerche de Automatica, Vol. 8, No. 1, April, 1977, pp. 1-19.
- "Shared Inputs and Peakloading in a Neoclassical Framework", in Proceedings of the Lawrence Symposium on Systems and Decision Sciences, Western Press, 1977.
- "Investment of Rents from Exhaustible Resources and Intergenerational Equity", American Economic Review, Dec., 1977, reprinted in John C.V. Pezzey and Michael Toman, eds. The Economics of Sustainability, Aldershot: Ashgate, Ashgate, 2001, reprinted in Richard Brooks, Nathaniel Keohane, Douglas Kysar editors, Economics of Environmental Law, Cheltenham: Elgar, 2008.

with U. Schweizer and P. Varaiya, "General Equilibrium and Location Theory", Journal of Urban Economics, 3, 1976.

"Substitution Among Exhaustible Resources and Intergenerational Equity", Review of Economic Studies, June, 1978.

"Optimal Price Discrimination", Journal of Public Economics, 9, 1978.

"Optimal Scale in a Large Homogeneous Area", Journal of Urban Economics, 6, 1979.

"Investment of Returns from Depleting Stocks of Renewable Resources and Intergenerational Equity", Economics Letters, 1, 1978.

"Increasing Returns, Exhaustible Resources and Optimal Growth", Economics Letters, 1978.

"Distribution of World Income in the Richardo-Mill Model of International Trade", Journal of International Economics, 9, 1979, pp. 117-126.

"Efficient Land Use in an Equilibrium Residential Annulus", Journal of Urban Economics, 7, 1980, pp. 348-357.

"The Intertemporal Externality in the Dynamic Common Property Renewable Resources Problem", Economics Letters, 5, 1980, pp. 275-280.

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"The Dynamics of the Fishery", Chapter 8 in L. Mirman and D. Spulber, eds., Essays in the Economics of Renewable Resources, North Holland, 1981.

"Optimal and Monopoly Towns: Degenerate Cases", in V. Henderson, ed., Research in Urban Economics, Vol. 2, JAI Press, 1982, pp. 329-337.

"Differential Resource Rents and the Two Theories of Non-Renewable Resource Valuation", Resources and Energy, 4, 1982, pp. 281-289.

"Efficient Prizes in Prototype Development Contests", Economics Letters, 10, 1982, pp. 375-79.

"Learning About and Exploiting Exhaustible Resource Deposits of Uncertain Size", Canadian Journal of Economics, 16, No. 3, August, 1983, pp. 391-410.

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- with M.C.Kemp and N. van Long, "Set-up Costs in the Theory of Exhaustible Resources", Journal of Environmental Economics and Management, 13, 3, September, 1986, pp. 212-224.
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- "Five Types of Externalities in Bioeconomic Models: Notes on Solow's Optimal Harvesting with a Natural Predator", (in French) in G. Gaudet and P. Lasserre, eds., Resources Naturelles at Theorie Economique, Quebec: Les Presses de L'Université Laval, 1986.
- "Monopoly Price Discrimination", New Palgrave: A Dictionary of Economic Theory and Doctrine, London, Macmillan, Vol. 1, 1987, pp. 254-56.
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- with David Yeung, "Interest Rate and Output Price Uncertainty and Industry Equilibrium for Non-renewable Resource Extracting Firms", Resources and Energy, 1988, pp. 1-14.
- with David Yeung, "Production Cost Uncertainty and Industry Equilibrium for Non-renewable Resource Extraction", Natural Resource Modelling, #4, Fall, 1989, pp. 577-588.
- with P. Buckholtz, "Zero Time Preference with Discounting", Economics Letters, 29, 1989, pp. 1-6.
- "Early Developments in the Theory of Land Rent", Land Economics, 65, 4, November 1989, pp. 410-412.
- with Michael Spencer, "An Oil Exporting versus an Industrialized Region" in Ake E. Andersson, ed. Advances in Spatial Theory and Dynamics, Studies in Regional Science and Urban Economics, Vol. 20, Amsterdam: North Holland, 1989, pp. 67-79.
- with P. Sadorsky, "Duopoly in Exhaustible Resource Exploration and Extraction", Canadian Journal of Economics, August, 1990, pp. 276-293.
- "Natural Resources, National Accounting and Economic Depreciation", Journal of Public Economics, 43, 1990, pp. 291-304.

- "Degradation of Environmental Capital and National Accounting Procedures", European Economic Review, 35, 1991, pp. 642-649.
- "Patent Races Optimal with Respect to Entry", International Journal of Industrial Organization, 9, 1991, pp. 197-207.
- "The Non-renewable Exploring-Extracting Firm and the  $r\%$  Rule", Resources and Energy, 13, 1991, pp. 129-143.
- "Deforestation and National Accounting", Environmental and Resource Economics 2, 1992, pp. 513-521.
- "The Generalized  $r\%$  Rule for Semi-Durable Exhaustible Resources", Resource and Energy Economics, 15, 2, June 1993, pp. 147-152.
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- "National Wealth and NNP", Scandinavian Journal of Economics, 96, 2 January 1994, pp. 253-256.
- "Calcul de la Valeur de différents types d'entreprises extractive", L'Actualite Economique, 70, 2, Juin 1994, pp. 191-198.
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- "Constant Consumption Paths in Open Economies with Exhaustible Resources", Review of International Economics, 3, 3 October, 1995, pp. 275-83.
- "Constant Consumption as Interest on Capital", Scandinavian Journal of Economics 98, 3, 1996, pp. 439-443.
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- "On Imputing for Financial Services in the National Accounts", Economics Letters, 56, 1997, pp. 63-70.
- with David Yeung, "The Tragedy of the Commons Revisited", Pacific Economics Review, 2, 1, 1997, pp. 45-62.
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- “National Accounting with Natural and Other Types of Capital”, Environmental and Resource Economics, 2001.
- with Ngo Van Long and Huilin Tian "Deforestation and Development in a Small Open Economy" Journal of Environmental Economics and Management, 2001, 41, 3, pp. 235-51.
- "Net Investment' and Sustainability" Natural Resource Modeling, 16, 2, Summer, 2003, pp. 145-160.
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- with Alexei Cheviakov, “Beckmann’s Edgeworth-Bertrand Duopoly Example Revisited”, International Game Theory Review, 7, 4, December, 2005, pp.461-472.
- with Kirk Hamilton, “Investing Exhaustible Resource Rents and the Path of Consumption” Canadian Journal of Economics, 38, 2, 2005 pp. 615-621.
- with G.B. Asheim, W. Buchholz, T. Mitra and C. Withagen “Constant Savings Rates and Quasi-arithmetic Population Growth Under Resource Constraints” Journal of Environmental Economics and Management, 53, 2007, pp. 213-229.
- with Michael Brolley, “The Quadratic Oil Extracting Oligopoly” Resource and Energy Economics, 30, 4, 2008, pp. 568-77.
- “What Would Solow Say?” Journal of Natural Resources Policy Research, Vol. 1, No. 1 January, 2009 pp. 91-96.
- With Alexei Cheviakov, “Constant Per Capita Consumption Paths with Exhaustible Resources and Decaying Produced Capital” Ecological Economics, Aug. 2009, pp. 2969 - 2973.
- with Katherine Schubert and Antoine d’Autume, “The Zero Discounting and Maximin Optimal Paths in a Simple Model of Global Warming”, Mathematical Social Sciences 59, 2, March, 2010, pp.193 - 207.
- “Encephalization and Division of Labor by Early Humans” Journal of Bioeconomics, 12, 2010, pp.77-100.
- “Green National Income and Green National Product” Annual Review of Resource Economics, 3, 1, 2011, pp. 21-35.

with Geir B. Asheim “Anomalies in Green National Accounting” Ecological Economics, 2011.

“The Discount Rate and the Value of Remaining Years of Life” Economics Letters, 2011.

## **PAPERS IN EDITED VOLUMES**

“National Wealth, Constant Consumption and Sustainable Development” in T.Tietenberg and H. Folmer, eds. International Yearbook of Environmental and Resource Economics, 1997/98 , Cheltenham, Edward Elgar, 1997, pp. 55-81.

"Decline in Biodiversity and Risk Adjusted NNP" in Timothy Swanson, ed. The Economics and Ecology of Biodiversity Decline, Cambridge: CUP, 1995, pp. 57-68.

"Notes on Economic Depreciation of Natural Resource Stocks and National Accounting" in A. Franz and C. Stahmer, (eds.) Approaches to Environmental Accounting, Heidelberg, Physica-Verlag, 1993, pp. 167-198.

"Forestry Economics, Deforestation and National Accounting", in E. Lutz, ed. Toward Improved Accounting for the Environment, Washington, D.C., The World Bank, 1993, pp. 289-314.

with A.P. Hageman, "Economic Depreciation of Mineral Stocks and the Contribution of El Serafy", in E. Lutz, ed. Toward Improved Accounting for the Environment, Washington, D.C., The World Bank, 1993, pp. 211-235.

"Depletion and the Valuation of Energy Resources", Encyclopaedia of Energy, Volume 2, Elsevier, May 2004.

“Deforestation and Population Increase”, Albert Berry and Shaski Kant, editors, Chapter 8 in Institutions, Sustainability and Natural Resources: Institutions for Sustainable Forest Management, Amsterdam: Springer, 2005, pp. 155-191.

“National Accounting”, in David A. Clark, editor The Elgar Companion to Development Studies Cheltenham, Edward Elgar, 2006 pp. 405-409.

“The Economics of Heinrich’s “Bumblebee Economics”, in Recent Research Developments in Bioenergetics, S.G. Pandala, editor, Chapter 5, Kerala, Transworld Research Network, 2007 pp. 107-129.

“Sustainable Motion in Classical Mechanics: an Economics Perspective in Lucas Bretschger and Sjak Smulders, eds., Sustainable Resource Use and Economic Dynamics Chapter 10, Dordrecht: Springer, 2007 pp. 217-228.

“Sustainable Consumption Programs” in Thomas Aronsson and Karl-Gustaf Lofgren eds, The Handbook of Environmental Accounting, Cheltenham: Edward Elgar, 2010 pp.207 - 236.

## **BOOKS AND MONOGRAPHS**

Non-renewable Resources: Extraction Programs and Markets, London: Harwood Academic, 1989.

A Brief History of Price, Basingstoke: Macmillan, 1993.

with Nancy Olewiler, The Economics of Natural Resource Use Second Edition, Reading, Massachusetts: Addison Wesley, 1998.

National Accounting and Capital, Cheltenham: Edward Elgar, 2000.

Out of Arvida, Kingston, Ontario: Citoxique Press, 2007.

Urban Economics, Courseware, Queen's University, 2011.

## **BOOK REVIEWS**

Thisse, J.F. Location Theory, Vol. II in Regional Science and Urban Economics, 28, 1998, pp. 237-42.

Journal of Economic Literature, Reviews in 1993 and 1996.

## **PUBLICATIONS (Economic Journalistic)**

"The Future of Redistribution in Canada", Canadian Forum, June, 1969.

"Maritime Transportation Subsidies: Boon or Boondoggle?", The Mysterious East, August, 1970.

"In Search of J.S. Mill's Avignon Home", Johns Hopkins Magazine, April, 1981.

"Tokyo Notebook", Canadian Forum, April, 1984.

Letter to the Editor, The Guardian (London and Manchester), Sept. 23, 1986.

"A Smoother Pebble or a Prettier Shell" (biographical play about Isaac Newton) Boston: Unitarian Universalist Association, 25 Beacon Street, 1986.

## PRESENTATIONS

Center for Economic Studies, University of Munich, 1993; lectures at the Harvard Institute for International Development summer course, 1994, 95, 96;

American Association of Environmental and Resource Economists, Boulder, Colorado, 1994; 100<sup>th</sup> Anniversary of Field Museum of National History, 1994; TDRI lecture on sustainability, Bangkok, 1995; National Science Committee on “Green Accounting” (Nordhaus Committee), 1996; Queen’s Biodiversity Course, Ottawa, 1997;

European Association of Environmental and Resource Economists, Tilberg, Netherlands, 1997; Norwegian Energy Economists, Bergen, 1998.

Sustainable Resource Use and Economic Dynamics Conference, Ascona Switzerland, Plenary Speaker, 2000.

Sustainable Forestry Management Conference, Toronto, Plenary Speaker, 2004.

## OTHER SCHOLARLY ACTIVITIES

1974-75 was a Visiting Scholar in Department in Economics, MIT, Cambridge, Mass; 1978-79 was a Visiting Scholar in Department of Economics, Stanford University, Palo Alto, California; December 1982, Organized France-Canada Roundtable on Industrial Policy, Massey College. Visitor, Institute of Economics and Statistics, Oxford University, 1985-86; Visiting Professor, Department of Economics, University of Toronto, 1986-87; Visitorship in Center for Economic Studies, University of Munich (Jan.-April 1994); Visiting Scholar, Harvard University, Sept.-Dec. 1994.

Member of the Editorial Board, Journal of Regional Science and Urban Economics (1976-82). Member of Urban Activity Systems Committee, Transportation Research Board, National Academy of Sciences, Washington, D.C. (1974-78). Member of the Council, Regional Science Association (1973-75). Member of the Editorial Board, Resource and Energy Economics (1993-), Pacific and Asian Journal of Energy (1994- ). Environment and Development Economics (1996- )

Representative of the Canadian Economics Association to the International Economics Association (1982-86).

Board Member, Institute for Research on Environment and Economy, University of Ottawa, 1989.

Speaker, Systematics and Biodiversity Workshop, Ottawa, July, 1997.

Lecturer at FEEM Summer Institute, Venice, Italy, July 4-10, 2005

