

Curriculum Vita

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Umeå, Sweden

Personal

Born: February 27, 1950, Detroit, Michigan

Education

2000, Honorary Doctorate: Gothenburg University, Sweden
1977, Ph.D. and M.S.: Syracuse University
1972, B.A.: Kalamazoo College

Employment:

current: Professor Emerita, Oregon State University
and Adjunct Professor, CERE, Umeå, Sweden
Fall 1998-2011: Professor of Economics, Oregon State University.
1987-1998: Professor of Economics, Southern Illinois University.
1983-1987: Associate Professor of Economics, Southern Illinois University.
1978-1983: Assistant Professor of Economics, Southern Illinois University.
1977: Instructor of Economics, Southern Illinois University.

Visiting Appointments:

summer 2011-present: Visiting Scholar, Umeå University, Umeå, Sweden
August 2011: Visiting Scholar, Aas University, Norway
February-March 2013, 2012, 2011, Visiting Scholar, University Of Auckland, Auckland, New Zealand

February-March 2010, January - February 2009,2006, January-March 2005, Visiting Scholar, AUT, Auckland, New Zealand
 June 2001-2005: Research Associate, R.R. Institute of Applied Economics, Malmö, Sweden
 Feb 15-25, 2005, Visiting Scholar, Center for Efficiency and Productivity, Univ. of Queensland, Brisbane, Australia
 June 1988-2000: Research Associate, The Swedish Institute for Health Economics, Lund, Sweden.
 July-August 2000: Visiting Scholar, Economics, UNSW, Sydney, Australia.
 Visiting Scholar, Institutet för Arbetsmarknads Politisk Utvärdering, Uppsala, Sweden
 August-December 1996: Kerstin Hesselgren Professor, Sweden.
 August-December 1996: Guest Professor, Department of Economics, Göteborg University, Göteborg, Sweden.
 July-August 1995: Visitor, Center for Economic Studies, University of Munich, Germany.
 January-February 1993: Visiting Fellow, Waikato University, Hamilton, New Zealand.
 February-March 1993: Visiting Fellow, The Australian National University, Canberra, Australia.
 June 1992: Research Associate, The Industrial Institute for Economic and Social Research, Stockholm, Sweden.
 July-August 1992: Visiting Scholar, Resources and Technology Division, Economic Research Service, U.S.D.A., Washington, D.C.
 May-June 1991: Research Associate, Center for Operations Research and Econometrics (CORE), Louvain-la Neuve, Belgium.
 June-July 1990: Visiting Professor, Bilkent University, Ankara, Turkey.
 December 1989: Visiting Fellow, Adelaide University, Adelaide, SA, Australia
 Sept.-Nov. 1989: Visiting Fellow, The Australian National University, Canberra, ACT, Australia.
 August 1989: Visiting Fellow, LaTrobe University, Bundoora, Vic, Australia.
 1984-1985: Visiting Associate Professor of Economics, Vanderbilt University.

Professional Activities:

2000-present:

(with R. Färe, R. R. Russell), coeditors for *Studies in Productivity and Efficiency*, Kluwer Academic Publishers.

1997-present:

Editorial Board, *Health Care Management Science*

2013-present:

Associate Editor, *Journal of Data Envelopment Analysis*

1986-present:

Associate Editor, *Journal of Productivity Analysis*.

1981-1982:

Illinois Tax Reform Commission: Consultant for Excise and Consumption Tax Task Force (with K. Hayes).

Areas of Specialization:

Public (State and Local) Finance

Performance Measurement

Labor/Public Employment

Honors and Awards

1977:

Mattersdorf Award (NTA-TIA) for best student in public finance

1996:

Kerstin Hesselgren Chair: awarded by the Swedish parliament in honor of the first woman in the Swedish parliament.

2000:

Honorary Doctorate, University of Gothenburg, Sweden.

2002:

Researcher of the Year Award, College of Liberal Arts

Who's Who in Economics

2005-present

ISI Web of Knowledge: one of the 250 most highly cited scholars in Economics and Finance

2007

Emerald Literati Network Highly commended award for Färe, Grosskopf, Førsund, Hayes and Heshmati, 'Measurement of productivity and quality in non-marketable services: with application to schools,' *Quality Assurance in Education* (2007) 14.

Published Papers:

1. (R. Färe, C. Vincent), 'A Translation Invariant Pure DEA Model,' *European Journal of Operational Research*, forthcoming.
2. (R. Färe, H. Fukuyama, V. Zelenyuk), 'Cost Decompositions and the Efficient Subset,' *Omega*, forthcoming.
3. (M. Bostian, R. Färe, G. Whittaker, B. Barnhardt), 'Valuing Water Quality Tradeoffs at Different Spatial Scales: An Integrated Approach Using Bilevel Optimization,' *Water Resources and Economics*, (in press).
4. (R. Färe, G. Karagiannis, D. Margaritis), 'Data Envelopment Analysis and Its Related Linear Programming Models,' *Annals of Operations Research*, (in press).
5. (R. Färe, J. Walden), 'Productivity Change and Fleet Restructuring after Transition to Individual Transferable Quota,' *Marine Policy*, (in press).
6. (R. Färe, C. Pasurka), 'Technical Change and Pollution Abatement Costs,' *European Journal of Operational Research*, 248:2. 2016, 715-724.
7. (R. Färe, D. Margaritis), 'Directional Distance Functions and Their Estimation for Applied Work,' *Data Envelopment Analysis Journal*, 1:2, 2015, 57-79.
8. (R. Färe, J. Maudos, E. Tortosa-Ausina), 'Revisiting the Quiet Life Hypothesis in Banking using Nonparametric Techniques,' *Journal of Business Economics*, 2015, 159-187.

9. (R. Färe, H. Fukuyama, V. Zelenyuk), ‘Decomposing Profit Efficiency using a Slack-Based Directional Distance Function,’ *European Journal of Operational Research*, forthcoming.
10. (E. Ball, R. Färe, D. Margaritis), ‘The Role of Energy Productivity in U.S. Agriculture,’ *Energy Economics* 2015, 460-471.
11. (Whittaker, B.W., Barnhard, B.L., Fare, R.) ‘Application of Index Number Theory to the Construction of a Water Quality Index; Aggregated Nutrient Loadings related to the Areal Extent of Hypoxia in the Northern Gulf of Mexico,’ *Ecological Indicators* 2015, 49, 162-168.
12. (K. Hayes, L.L. Taylor and W.L. Weber), ‘Centralized or Decentralized Control of Resources? A Network Model,’ *Journal of Productivity Analysis*, 2015, 43:2, 139-150.
13. (R. Färe, W.L. Weber), ‘Pricing Nonmarketed Outputs with an Application to Community Colleges,’ *Public Finance Review*, 2014, 1091142114546542.
14. (R. Fare, T. Lundgren, P.O. Marklund, W. Zhou) ‘Pollution Generating Technologies and Environmental Efficiency,’ *Journal of Chinese Economic and Business Studies*, 2014, 12:3, 233-251.
15. (R. Färe, Pasurka, C.) ‘Potential Gains from Trading Bad Outputs: The Case of U.S. Electric Power Plants,’ *Resources and Energy Economics* 2014, 36:1, 99-112.
16. (R. Chambers, R. Färe), ‘The Lerner Index and Economic Efficiency,’ *Theoretical Economics Letters*, 2014, 4, 803-805.
17. (K. Hayes, L. Taylor), ‘Efficiency in Education: Research and Implications,’ *Applied Economic Perspectives and Policy*, 2014, 36:2, 175-210.
18. (K. Hayes, L. Taylor), ‘Applied Efficiency Analysis in Education,’ *Economics and Business Letters* 2014, 3(1), 19-26.
19. (R. Färe, C. Pasurka), ‘Tradable Permits and Unrealized Gains from Trade,’ *Energy Economics*, 2013, 40, 416-424.
20. (R. Färe, C. Pasurka, C. Martins-Filho), ‘On Nonparametric Estimation: with a focus on Agriculture,’ *Annual Reviews*, 5:1, 2013, 93-110.
21. (R. Färe and G. Whittaker), ‘Directional Distance Functions: Endogenous Directions Based on Exogenous Normalization Constraint,’ *Journal of Productivity Analysis*, 2013, 40:3, 267-269.
22. (R. Cross, R. Färe, W.L. Weber), ‘Valuing Vineyards: A Directional Distance Function Approach,’ *Journal of Wine Economics*, 2013, 69-82.
23. (R. Chambers, R. Färe, M. Vardanyan), ‘Generalized Quadratic Revenue Functions,’ *Journal of Econometrics* 173, 2013, 11-21.
24. (R. Färe, H. Fukuyama and W.L. Weber), ‘Measuring Efficiency in Price Space with Application to Japanese Security Firms,’ *International Journal of Operations Research and Information Systems*, 4:1, 2013, 1-26.
25. (R. Färe) DEA, Directional Distance Functions and Positive, Affine Data Transformation, *Omega*, 41, 2013, 28-30.
26. (N. Chau, R. Färe), ‘Trade Restrictiveness and Pollution’, *Journal of Public Economic Theory*, 15(1), 2013, 25-52.

27. (R. Färe, D. Margaritis, W.L. Weber) Technological Change and Timing Reductions in Greenhouse Gas Emissions, *Journal of Productivity Analysis*, 37(3), 2012, 205-216.
28. (R. Färe, V. Tremblay) Market Power and Technology, *Review of Industrial Organization*, RIO Series Market Structure and Efficiency, 2012, 1-8.
29. (R. Färe, C. Pasurka, W.L. Weber) 'Substitutability Among Undesirable Outputs,' *Applied Economics*, 44(1), 2012, 39-47.
30. (R. Färe, D. Margaritis) 'Pricing Decision-Making Units,' *Journal of the Operational Research Society*, 2012, 1-3.
31. (R. Färe, D. Margaritis), 'Coalition Formation and Data Envelopment Analysis,' *Journal of CEN-TRUM Catjedra*, 4, 2011, 216-223.
32. (R. Färe, H. Fukuyama and D. Margaritis), 'DEA and Endogenous Technical Change,' *European Journal of Operational Research*, 210:2, 2011, 457-458.
33. (R. Althin, L. Behrenz, R. Färe, E. Mellander) 'Swedish Employment Offices: A New Model for Evaluating Effectiveness,' *European Journal of Operational Research*, 207:3, 2010, 1535-1544.
34. (C.H. Tremblay, K. Yang) 'Brainstorm: Occupational Choice, Bipolar Illness and Creativity,' *Journal of Economics and Human Biology*, 8(10), July 2010, 233-241.
35. (R. Färe, D. Margaritis) 'The Diet Problem and DEA,' *Journal of the Operational Research Society*, 62(7), 2010, 1420-1422.
36. (R. Färe, D. Margaritis), 'Time Substitution with Application to Data Envelopment Analysis,' *European Journal of Operational Research*, 2010, 686-690.
37. (R. Färe), 'Directional Distance Functions and Slack-Based Measures of Efficiency: Some clarifications,' *European Journal of Operational Research*, 206, 2010, 702.
38. (R. Färe), 'Directional Distance Functions and Slack-Based Measures of Efficiency,' *European Journal of Operational Research*, 2010, 320-322.
39. (R. Färe, C. Pasurka) 'Toxic Releases: An Environmental Performance Index for Coal-Fired Power Plants,' *Energy Economics*, 32, 2010, 158-165.
40. (D. Aiken, R. Färe, C. Pasurka), 'Pollution Abatement and Productivity Growth: Evidence from Germany, Japan, the Netherlands and the United States,' *Environmental and Resource Economics*, 44, 2009, 11-28.
41. (P. Bogetoft, R. Färe,), 'Rational (In)efficiency and Price Coordination,' *Zeitschrift für Betriebswirtschaft* 2009, 1-6.
42. (R. Färe), 'A Comment on Dynamic DEA,' *Applied Mathematics and Computation*, 2009, 275-276.
43. (P. Bogetoft, R. Färe, K. Hayes and L. Taylor) 'Dynamic Network DEA: An Illustration,' *Journal of the Operations Research Society of Japan* 52:2, 2009, 147-162.
44. (R. Färe, B.E. Roland and W.L. Weber), 'License Fees: Norwegian Salmon Farming,' *Agricultural Economics and Management*, 13:1, 2009, 1-21.
45. (R. Färe), 'A Comment on Weak Disposability in Nonparametric Production Analysis,' *American Journal of Agricultural Economics*, 2009, 1-21.

46. (K. Hayes and L. Taylor), 'The Relative Efficiency of Charter Schools,' *Annals of Public and Cooperative Economics*, Vol. 80, No. 1, 2009, 67-88.
47. (G. Whittaker, R. Confesor, S. Griffith, R. Färe, J. Steiner, G. Mueller-Warrant, G. Banowetz), 'A Hybrid Genetic Algorithm for Multi-objective Activity Analysis Models,' *European Journal of Operational Research*, 193, 2009, 195-203.
48. (R. Färe, K. Hayes, D. Margaritis), 'Estimating Demand with Distance Functions: Parameterizations in the Primal and Dual,' *Journal of Econometrics*, 147, 2008, 266-274.
49. (R. Färe and V. Zelenyuk), 'Aggregation of Nervolian Profit Indicator', *Applied Economics*, 15, 2008, 845-847.
50. (R. Färe, D. Margaritis), 'U.S. Productivity in Agriculture and R & D,' *Journal of Productivity Analysis* 30, 2008, 7-12.
51. (R. Färe, D. Margaritis), 'Rejoinder' *Journal of Productivity Analysis* 30, 2008, 77-79.
52. (B. Balk, R. Färe, and D. Margaritis), 'Exact Relations Between Luenberger Productivity Indicators and Malmquist Productivity Indexes,' *Economic Theory* 35, 2008, 187-190.
53. (R. Färe, R. Sickles), 'Productivity of U.S. Airlines After Deregulation,' *Journal of Transport Economics and Policy*, 41:1, 2007, 93-112.
54. (R. Färe, D. Margaritis), 'Productivity, Convergence and policy: a study of OECD countries and industries,' *Journal of Productivity Analysis* 28, 2007, 87-106.
55. (R. Färe and C. Pasurka), 'Pollution Abatement Activities and Traditional Productivity,' *Ecological Economics*, 62, 2007, 673-682.
56. (R. Färe and C. Pasurka), 'Environmental Production Functions and Environmental Directional Distance Functions,' *Energy*, 2007, 1055-1066.
57. (S. Self, O. Zaim), 'Estimating the Efficiency of the System of Healthcare Financing in Achieving Better Health,' *Applied Economics*, 38:13, July 2006, 1477-1488.
58. (R. Färe), 'Resolving a Strange Case of Efficiency,' *Journal of the Operational Research Society*, 57, 2006, 1366-1368.
59. (Färe, R. and C. Pasurka), 'Social Responsibility: U.S. Power Plants 1985-1998,' *Journal of Productivity Analysis*, 26, 2006, 259-267.
60. (R. Färe, F. Førsund, K. Hayes, A. Heshmati), 'Measurement of Productivity and Quality in Non-marketable Services: with application to schools,' *Quality Assurance in Education*, 14, no. 1, 2006, 21-36.
61. (R. Färe, D. Margaritis), 'Productivity Growth and Convergence in the European Union,' *Journal of Productivity Analysis*, 25:1, 2006, 111-141.
62. (S. Self), 'Factor Accumulation or TFP? A Reassessment of Growth in Southeast Asia,' *Pacific Economic Review*, 11:1, 2006, 39-58.
63. (Färe, R., W. Weber), 'Shadow Prices and Pollution Costs in U.S. Agriculture,' *Ecological Economics* 56, 2006, 89-103.
64. (E. Ball, R. Färe, O. Zaim), 'Accounting for Externalities in the Measurement of Productivity Growth: The Malmquist Cost Productivity Measure,' *Structural Change and Economic Dynamics*, 16, 2005, 374-394.

65. (T. Helvoigt) ‘Productivity Growth, Technical Efficiency and Returns to Scale in the Washington State Sawmill Industry.’ *International Journal of Information Technology & Decision Making* 4:3, 2005, 1-14.
66. (R. Färe, D. W. Noh, W. Weber), ‘ Characteristics of a Polluting Technology: Theory and Practice,’ *Journal of Econometrics*, 126, 2005, 469-492.
67. (R. Färe, B. Seldon, V. Tremblay), ‘ Advertising Efficiency and the Choice of Media Mix: A Case of Beer,’ *International Journal of Industrial Organization*, 2004, 503-522.
68. (R. Färe, F. Hernandez-Sancho), ‘Environmental Performance: An Index Number Approach,’ *Resource and Energy Economics*, 26, 2004, 343-352.
69. (R. Färe, W. Weber), ‘The Effect of Risk-based Capital Requirements on Profit Efficiency in Banking,’ *Applied Economics* 36, 2004, 1-13.
70. (R. Färe, V. Zelenyuk), ‘Aggregation of Cost Efficiency: Indicators and Indexes Across Firms,’ *Academic Economic Papers*, 32:3, 2004, 397-409.
71. (R. Färe, V. Zelenyuk), ‘Aggregation Bias and Its Bounds in Measuring Technical Efficiency,’ *Applied Economics Letters*, 2004, 343-352.
72. (R. Färe, G. Whittaker), ‘On Value Efficiency and Data Envelopment Analysis,” Special Issue in Honor of W.W. Cooper, *Indian Economic Review*, 39:1, 2004, 81-88.
73. (R. Färe), “Modeling Undesirable Factors in Efficiency Evaluation: Comment,” *European Journal of Operational Research*, 157, 2004, 242-245.
74. (B. Balk, R. Färe), The Theory of Economic Price and Quantity Indicators,’ *Economic Theory*, 23, 2004, 149-164.
75. (D. Margaritis, V. Valdmanis), ‘Competitive Effects on Teaching Hospitals,’ *European Journal of Operational Research*, 154, 2004, 515-525.
76. (R. Färe, D. Margaritis), ”Productivity Growth in New Zealand: 1978-1998” *New Zealand Economic Papers*, vol 37 (1), June, 2003, pp 93-118.
77. (N. H. Chau and R. Färe), “Trade Restrictiveness and Efficiency,” *International Economic Review*, vol. 44, No. 3, August 2003, 1079-1095.
78. (R. Färe), “Nonparametric Productivity Analysis with Undesirable Outputs: Comment,” *American Journal of Agricultural Economics*, 2003, 1070-1074.
79. (J.C. Bureau, N. Chau, R. Färe), ‘Economic Performance, Trade Restrictiveness and Efficiency,’ *Review of Development Economics*, vol. 7, No. 4, 527-542, 2003.
80. “Some Remarks on the Malmquist Productivity Index and Its Decomposition,” *Journal of Productivity Analysis*, 20, 2003, 459-474.
81. (R. Färe, V. Zelenyuk), ‘Comment on How not to Measure the Efficiency of Public Services,’ *Journal of the Royal Statistical Society*, Series A, Vol 165, part 3, 429-430, 2002.
82. (R. Färe, D. Margaritis), ”Economic Reform and Productivity Growth: The Case of Australia and New Zealand”, *Mathematics and Computers in Simulation*, 59, 143-152, 2002.
83. (R. Färe, Zaim, O.), ‘Hyperbolic Efficiency and Return to the Dollar,’ *European Journal of Operational Research*, 136, 671-679, 2002.

84. (R. Färe), ‘Two Perspectives on DEA: Unveiling the Link between CCR and Shephard,’ *Journal of Productivity Analysis*, 17:1/2, January 2002, 41-48.
85. (K. Hayes, L. Taylor and W. Weber), ‘On the Determinants of School District Efficiency: Competition and Monitoring,’ *Journal of Urban Economics*, 49, 2001, 453-478.
86. (O. Zaim, R. Färe), ‘An Economic Approach to Achievement and Improvement Indexes,’ *Social Indicators Research*, 56, 2001, 91-118.
87. (R. Färe, D. Margaritis), ‘APEC and the Asian Economic Crisis: Early Signals from Productivity Trends,’ *Asian Economic Journal* 15:3, September 2001, 325-341.
88. (T. Anderson, R. Färe, L. Inman and X. Song), ‘Further Examination of Moore’s Law with data envelopment analysis,’ *Technological Forecasting and Social Change* 69, 465-477, 2002.
89. (R. Färe, W. Weber), ‘Shadow Pricing of Missouri Public Conservation Land,’ *Public Finance Review*, 29:6, November 2001, 444-460.
90. (R. Färe, C. Pasurka), ‘Accounting for Air Pollution Emissions in Measuring State Manufacturing Productivity Growth,’ *Journal of Regional Science*, 381-409, 2001.
91. ((R. Färe and P. Roos), ‘The Use of Indicators for the Measurement of Price and Quantity Changes,’ *Statistics and Democracy*, Statistics Sweden, 2001.
92. (R. Färe, W. F. Lee), ‘Productivity and Technical Change: The Case of Taiwan,’ *Applied Economics*, 33, 1911-1925, 2001.
93. (D. Margaritis, V. Valdmanis) “The Effects of Teaching on Hospital Productivity”, *Socio-Economic Planning Sciences*, 35, 189-204, 2001.
94. (R. Färe), ‘When Can Slacks be used to Identify Congestion? An Answer to W. W. Cooper, L. Seiford and J. Zhu,’ *Socio-economic Planning Sciences*, 35, 217-221, 2001.
95. (J. E. Kirkley, R. Färe, K. McConnell, D. E. Squires and I. Strand) ‘Assessing Capacity and Capacity Utilization in Fisheries when Data are Limited,’ *North American Journal of Fisheries Management*, 21:3, 482-497, August 2001.
96. (R. Färe, D. Margaritis), ‘Productivity Trends in Australian and New Zealand Manufacturing,’ *Australian Economic Review* 34:2, 125-34, 2001.
97. (R. Färe, F. Førsund, K. Hayes, A. Heshmati), “A Note on Decomposing the Malmquist Productivity Index by Means of Subvector Homotheticity,” *Economic Theory* 17, 239-245, 2001.
98. (D. Margaritis, V. Valdmanis), ‘Comparing Teaching and Non-teaching Hospitals: A Frontier Approach (Teaching vs. Non-Teaching Hospitals),’ *Health Care Management Science* 4, 83-90, 2001.
99. (C. Moutray), “Evaluation of School Reform in Chicago Public Schools,” *Economics of Education Review*, vol. 20, no. 1, 2001, 1-14.
100. (D. Boisso, K. Hayes), “Productivity and Efficiency in the U.S.: Effects of Business Cycles and Public Capital,” *Regional Science and Urban Economics*, vol. 30, 2000, 663-681.
101. (R. Färe). ‘Outfoxing a Paradox,’ *Economics Letters*, 69, 2000, 159-163.
102. (R. Färe), “On Separability of the Profit Function,” *Journal of Optimization Theory and Applications*, 2000, 609-620.

103. (R. Färe), "Theory and Application of Directional Distance Functions," *Journal of Productivity Analysis*, 13, 2000, 93-103.
104. (R. Färe), "Network DEA," *Socio-economic Planning Sciences*, 34:1, 2000, 35-49.
105. (R. Färe) "Decomposing Technical Efficiency with Care," *Management Science*, 46:1, 2000, 1667-168.
106. (R. Färe) "Notes on Some Inequalities in Economics," *Economic Theory*, 15:1, 2000, 227-234.
107. (R. Färe and J. Kirkley), 'Multi-Output Capacity Measures and Their Relevance for Productivity,' *Bulletin of Economic Research* 2000, 101-112.
108. (R. Färe) "Slacks and Congestion: A Comment," *Socio-economic Planning Sciences*, 34:1, 2000, 27-34.
109. (K. Hayes, L. Taylor, and W. Weber) "Anticipating the Consequences of School Reform: A New Use of DEA," *Management Science*, 45:4, 1999, 608-20.
110. (R. Brännlund, Y. Chung, R. and R. Färe) "Emissions Trading and Profitability: The Swedish Pulp and Paper Industry," *Environmental and Resource Economics*, 1998, 345-356.
111. (R. Färe) "Congestion: a Note," *Socio-Economic Planning Sciences* 32:1, 1998, 21-23.
112. (R. Färe) "Shadow Pricing of Good and Bad Commodities," *American Journal of Agricultural Economics* 80, 1998, 584-590.
113. (R. Färe and M. Norris) "Productivity Growth, Technical Progress, and Efficiency Change in Industrialized Countries: Reply," *American Economic Review*, 87:5, 1997, 1040-1043.
114. (Y.H. Chung and R. Färe) "Productivity and Undesirable Outputs: A Directional Distance Function Approach," *Journal of Environmental Management*, 51, 1997, 229-240.
115. (R. Färe) "Profit Efficiency, Farrell Decompositions and the Mahler Inequality," *Economics Letters*, 57, 1997, 283-287.
116. (R. Färe, B. Lindgren, J. P. Poullier) "Productivity Growth in Health Care Delivery: A Comparison of OECD Countries," *Medical Care*, 35:4, 1997, 354-366.
117. (R. Färe, R. Grabowski and S. Kraft), "Efficiency of Fixed but Allocatable Inputs: A Non-Parametric Approach," *Economics Letters*, 56, 1997, 187-193.
118. (K. Hayes, L. Taylor and W. Weber) "Budget-Constrained Frontier Measures of Fiscal Equality and Efficiency in Schooling," *Review of Economics and Statistics*, 79:1, February 1997, 116-124.
119. (R. Färe, E. Grifell-Tatjé, C.A.K. Lovell), "Biased Technical Change and the Malmquist Productivity Index," *Scandinavian Journal of Economics*, 99:1, 1997, 119-127.
120. "Statistical Inference and Nonparametric Efficiency: A Selective Survey," *Journal of Productivity Analysis* 7, 1996, 161-176.
121. (R. Chambers, R. Färe), "Productivity Growth in APEC Countries," *Pacific Economic Review*, 1:3, December 1996, 181-190.
122. (R. Färe, P. Roos) "On Two Definitions of Productivity," *Economics Letters*, 53, 1996, 269-274.
123. (J. Clement, V. Valdmanis) "A Comparison of Shadow Prices and Reimbursement Rates of Hospital Services," *Annals of Operations Research*, 67, 1996, 163-182.

124. (R. Färe, R. Althin) "Profitability and Productivity Changes: An Application to Swedish Pharmacies," *Annals of Operations Research*, 66, 1996, 219-230.
125. (R. Färe) "Productivity and Intermediate Products: A Frontier Approach," *Economics Letters*, 50, 1996, 65-70.
126. (R. Färe, D. Tyteca) "An Activity Analysis Model of the Environmental Performance of Firms—application to fossil-fuel-fired electric utilities," *Ecological Economics*, 18, 1996, 161-175.
127. (J. C. Bureau, R. Färe) "Nonparametric Measures of Productivity Growth in European and U.S. Agriculture," *Journal of Agricultural Economics*, 1995, 309-326.
128. (R. Färe), "Nonparametric Tests of Regularity, Farrell Efficiency and Goodness-of-Fit," *Journal of Econometrics*, 69, 1995, 415-425.
129. (K. Hayes, J. Hirschberg), "Fiscal Stress and the Production of Public Safety: A Distance Function Approach," *Journal of Public Economics* 57, 1995, 277-296.
130. (R. Brännlund, R. Färe) "Environmental Regulation and Profitability: An Application to Swedish Pulp and Paper Mills," *Environmental and Resource Economics* 6, 1995, 23-36.
131. (R. Färe, W.-F. Lee) "Productivity in Taiwanese Manufacturing Industries," *Applied Economics*, 27, 1995, 259-265.
132. (D. Margaritis and V. Valdmanis) "Estimating Output Substitutability of Hospital Services: A Distance Function Approach," *European Journal of Operational Research*, 80, 1995, 575-587.
133. (R. Färe, P. Roos) "Productivity and Quality Changes in Swedish Pharmacies," *International Journal of Production Economics*, 39, 1995, 137-144.
134. (R. Färe, P. Roos) "Productivity and Quality Changes in Swedish Pharmacies: Reply," *International Journal of Production Economics*, 39, 1995, 147.
135. (R. Färe) "Measuring Productivity: A Comment," *International Journal of Operations and Production Management*, 14:9, 1994, 83-88.
136. "Discussion: Linear Programming Approaches to the Measurement and Analysis of Productive Efficiency," *TOP* 2:2, 1994, 51-56.
137. (R. Färe) "Estimation of Returns to Scale Using Data Envelopment Analysis: A Comment," *European Journal of Operational Research*, 79, 1994, 379-382.
138. (R. Färe, M. Norris, Z. Zhang) "Productivity Growth, Technical Progress and Efficiency Change in Industrialized Countries," *American Economic Review*, 84:1, March 1994, 66-83.
139. (R. Chambers, R. Färe) "Efficiency, Quantity Indexes and Productivity Indexes: A Synthesis," *Bulletin of Economics Research*, 46:1, January 1994, 1-22.
140. (G. Ferrier, K. Hayes, S. Yaisawarng) "Economics of Diversification in the Banking Industry: A Frontier Approach," *Journal of Monetary Economics*, 31, 1993, 229-249.
141. (M. English, K. Hayes, S. Yaisawarng) "Output Allocative and Technical Efficiency of Banks," *Journal of Banking and Finance*, 17:2-3, April 1993, 349-366.
142. (V. Valdmanis) "Evaluating Hospital Performance with Case Mix Adjusted Outputs," *Medical Care*, 31:6, 1993, 525-532.

143. (K. Hayes) "Local Public Sector Bureaucrats and Their Input Choices," *Journal of Urban Economics*, 33, 1993, 151-166.
144. (R. Färe, C.A.K. Lovell, S. Yaisawarng) "Derivation of Shadow Prices for Undesirable Outputs: A Distance Function Approach," *Review of Economics and Statistics*, 1993, 374- 380.
145. (K. Hayes and S. Yaisawarng) "Measuring Economies of Diversification: A Frontier Approach," *Journal of Business Economics and Statistics*, 10:4, 1992, 453-459.
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5. (D. Arey, J. Crenshaw, O. Ervin, J. Myers, W. Patula) "Prevention of Significant Deterioration of Air Quality: An Analysis of Policy Alternatives in Illinois," Coal Extraction and Utilization Research Center and the Illinois Environmental Protection Agency, 1979.

Grant Activity:

1979:

"Prevention of Significant Deterioration of Air Quality," with D. Arey, et al., for the Ford Foundation.
 "The Economic Impact of Western Coal on the Illinois Economy," for the Attorney General of Illinois (contributor), J. Myers, et al.

1980:

"Prevention of Significant Deterioration: A Study to Determine the Potential Effects of Reclassifying Portions of Madison, Monroe and St. Clair Counties from Class II to Class III (contributor), IEPA, December 1980.

1981:

Controlled Trading in Air Pollution Rights in the Metro-East Area of Illinois," with D. Arey and G. Provenzano, Illinois Institute of Natural Resources.

1987:

SIU Summer Research Award.

1988-91:

"Expenditure Constrained Profit Maximization," ERS-USDA, with R. Färe.

1991-92:

"Accounting for Inefficiency in Agricultural Productivity," ERS-USDA, with R. Färe.
 "Can America Compete? An International Comparison of Productivity, Innovation and Efficiency Change," Center for International Business and Culture, with R. Färe.

1993-95

"Agricultural Productivity When Some Outputs are Undesirable," USDA, ERS, with R. Färe.

1994-96

"Frontier Production and Environmental Issues" USEPA, with R. Färe.

1995-96

"Estimation of Environmental and Economic Effects of Production Using Survey Data," USDA, ERS, with R. Färe.

1997-98

"Application of Frontier Production Models to Environmental Issues," USEPA, with R. Färe.

1999-00: “Effect of Accounting for Undesirable Environmental Effects on Farm Income,” ERS/USDA, with R. Färe.

2002-2009 ‘Modeling Enterprise Efficiency, Innovation and Growth,’ New Zealand Foundation for Research, Science and Technology, with R. Färe and D. Margaritis, \$370,000.

2004-2006: ‘Conservation Effects Assessment,’ ARS Grant, with J. Whittaker and R. Färe, \$230,000.

2006-2009: ‘Assessing Trade-Offs between crop production and ecological services: the Calapooia basin’, USDA CSREES, \$640,000, co-PI.

2008-09: ‘Energy in the U.S. Agricultural Sector,’ USDA, Office of the Chief Economist, Office of Energy Policy and New Uses, with R. Färe, co-PI, \$20,000.

Doctoral Dissertations Under My Direction:

P. Byrnes (1985) “Ownership and Efficiency in U.S. Utilities” (Co-chair).

D. Njinkeu (1988) “A Monte Carlo Comparison of Alternative Measurements of Returns to Scale in Non-stochastic Models” (Co-chair).

W. Weber (1988) “Estimating Demand Prices for Public Goods From Private Aggregate Demand Functions (Co-chair).

S. Yaisawarng (1989) “Measuring Short-Run Price Efficiency: Theory and Application” (Co-chair).

C.S. Kim (1995) “Productivity Change, Efficiency Change and Technical Change in the Newly Industrializing Countries”.

Chad Moutray (1996) “Assessing the Performance of Market-Based Education Reforms.”

Brian Sloboda (1997) “The Economic Impact of Southern Illinois University on the State of Illinois: The Human Capital Approach”.

V. Zelenyuk, (2002) “Essays in Productivity and Efficiency Analysis of Economic Systems,” (Co-chair).

Dong Wong Noh (2002) “Essays on Applied Microeconomics.” (co-chair)

Natasha Konstandina (2007) ‘Measuring Efficiency and Dealing with Failures in Banking: Application to the Russian Banking Sector.’

Moriah Bellenger (2010) ‘Essays in Environmental Economics.’

Kandice Kleiber, (2011), ‘Essays on Ethanol-Driven Corn Demand and Crop Choice.’

Doctoral Dissertations: External Examiner

Magnus Tambour (1997) “Essays on Performance in the Health Care Sector” Stockholm University, Stockholm, Sweden .

Staffan Waldo (2003) “Essays on Education Performance,” University of Lund, Sweden.

Chunping Liu, (2007) "Three essays on Health Economics," University of Guelph, Guelph, Ontario, Canada.

Julie A. Harrison (2007) "Results or Processes? Alternative Approaches to the Performance Measurement of New Zealand Secondary Schools," University of Auckland, New Zealand.

OSU Master's Students under my Direction

Natasha Konstandina

Xiuying Jin

Stanislav Khrapov

Kandice Kleiber

Yuko Igarashi

Refereeing

Agricultural Economics

American Economic Review

American Journal of Agricultural Economics

Annals of Operations Research

Annals of Public and Cooperative Economics

Applied Economics

Bulletin of Economic Research

Canadian Journal of Economics

Contemporary Economic Policy

Eastern Economic Journal

Ecological Economics

Economica

Economic Development and Cultural Change

Economic Inquiry

Economics Letters

The Energy Journal

Environment and Development Economics

Environmental and Resource Economics

European Economic Review

European Journal of Operational Research

Global Economic Review

Health Care Management Science

Health Economics

International Economic Review

International Journal of Production Economics

International Journal of Manpower

International Tax and Public Finance

Journal of Agricultural Economics

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Zeitschrift für Nationalökonomie

Recent Conferences

2010: R. Färe, B. Frijns, and D. Margaritis, 'A Dynamic Malmquist Productivity Index,' DEA 2010 symposium, Fo Guang University, Jiaosi, Taiwan, Jan. 19-21.

R. Färe, B. Frijns, and D. Margaritis, 'A Dynamic Malmquist Productivity Index,' Productivity Workshop, Auckland University of Technology, Auckland, New Zealand, Feb. 25-27.

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R. Färe, D. Margaritis, and W. Weber, 'Technical Change and Timing Reductions in Greenhouse Gas Emissions,' North American Productivity Workshop, Rice University, Houston, TX June 2-5.

L. Taylor, K. Hayes, 'Is a Low Instructional Share an Indicator of School Inefficiency: Exploring the 65 percent solution,' North American Productivity Workshop, Rice University, Houston, TX June 2-5.

2011:

R. Färe, B. Frijns, and D. Margaritis, 'A Dynamic Malmquist Productivity Index,' NZESG, Dunedin, NZ.

R. Färe, G. Whittaker, 'Two Short Papers on DEA,' EWEPA, Verona, Italy (keynote address).

R. Färe and D. Margaritis, 'Coalition Formation and Pricing of DMUs,' DEA 2011, Thessaloniki, Greece (keynote address).

2012:

R. Färe, 'DEA and Technical Change,' DEA Symposium, Seikei Gakuen University, Tokyo, Japan

R. Färe, M. Lundstrom, P. Roos, 'Evaluating Health Care Efficiency, NAPW VII, Houston

R. Färe, 'Two Applications of Shephard's Lemma, APPC, Bangkok, Thailand.

R. Färe, C. Pasurka, 'Joint Production of Good and Bad Outputs with a Network Application,' 2012 International Workshop on Chinese Productivity, Tsinghua University, Beijing.

R. Färe, C. Pasurka, and R. Shadbegian, 'Environmental Regulation and Employment Changes in the Electric Power Sector', University of Pennsylvania Law School, Philadelphia, PA.

R. Färe, C. Pasurka, Energy and Environment Conference, Jackson Hole, Wyoming.

R. Färe, C. Pasurka, Joint Production of Good and Bad Outputs with a Network Application,' UNSW.

K. Hayes, L. Taylor, W. Weber, Centralized or Decentralized Allocation of Education Resources: A Network Model, Helsinki Workshop.

R. Färe, T. Lundgren, P-O, Marklund and W. Zhou, 'Which Bad is Worst? An Application of Johansen's Capacity Model,' Göteborg University, Conference in memory of L. Hjalmarsson, Sweden.

K. Hayes, L. Taylor, W. Weber, Centralized or Decentralized Allocation of Education Resources: A Network Model, Hong Kong Economic Society Conference.

2013 :

R. Färe, T. Lundgren, P-O, Marklund and W. Zhou, 'Which Bad is Worst? An Application of Johansen's Capacity Model,' NZESG, Auckland, NZ.

'Efficiency Models for Education: with some applications', with many coauthors, Conference on Efficiency in Higher Education, University of Macedonia, Thessaloniki, Greece, June.

R. Färe, T. Lundgren, P-O, Marklund and W. Zhou, 'Cost-Benefit Analysis and DEA,' DEA 2013, Sam-sun, Turkey.

2014:

R. Färe, Joint Production and Externalities, APPC, University of Queensland, Brisbane.

R. Färe, Management Development with OnFront, Santiago, Chile.

R. Färe, Shadow Pricing Models, Lund University, Sweden.

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