

# Curriculum Vita

SHAWNA P. GROSSKOPF

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## Address

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## 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:

Fall 1998–: 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:

January-March 2009: Visiting Scholar, Auckland University of Technology, Auckland, New Zealand.  
January-March 2005: Visiting Scholar, Auckland University of Technology, 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  
summer 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 Professor, Waikato University, Hamilton, New Zealand.

February-March 1993: Visiting Professor, The Australian National University, Canberra, Australia.

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:**

2003:

Advisory Committee, European Workshop on Efficiency and Productivity

2002, 2004:

Advisory Committee, North American Workshop on Efficiency and Productivity

2001:

Scientific Committee, European Workshop on Efficiency and Productivity

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*

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, Gothenburg University, 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, Grsskoppf, 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), 'Directional Distance Functions and Slack-Based Measures of Efficiency,' *European Journal of Operational Research*, (in press).
2. (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*, forthcoming.
3. (R. Färe, C. Pasurka) 'Toxic Releases: An Environmental Performance Index for Coal-Fired Power Plants,' *Energy*, (in press).
4. (P. Bogetoft, R. Färe, ), 'Rational (In)efficiency and Price Coordination,' *Zeitschrift für Betriebswirtschaft* (2009), 1-6.
5. (R. Färe, D. Margaritis), 'Sectoral Productivity Trends Across OECD Manufacturing Industries,' *Journal of Productivity Analysis*, forthcoming.
6. (R. Färe), 'A Comment on dynamic DEA,' *Applied Mathematics and Computation*, 2009, 275-276.
7. (P. Bogetoft, R. Färe, K. Hayes and L. Taylor) 'Dynamic Network DEA: An Illustration,' *Journal of the Operations Research Society of Japan* 2009, 147-162.
8. (R. Färe, B.E. Roland and W.L. Weber), 'License Fees: Norwegian Salmon Farming,' *Agricultural Economics and Management*, 13:1, 2009, 1-21.
9. (R. Färe), 'A Comment on Weak Disposability in Nonparametric Production Analysis,' *American Journal of Agricultural Economics*, 2009, 1-21.
10. (K. Hayes and L. Taylor), 'The Relative Efficiency of Charter Schools,' *Annals of Public and Cooperative Economics*, Vol. 80, No. 1, 2009, 67-88.

11. (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.
12. (R. Färe, K. Hayes, D. Margaritis), 'Estimating Demand with Distance Functions: Parameterizations in the Primal and Dual,' *Journal of Econometrics*, 147, 2008, 266-274.
13. (R. Färe and V. Zelenyuk), 'Aggregation of Nervolian Profit Indicator', *Applied Economics*, 15, 2008, 845-847.
14. (R. Färe, D. Margaritis), 'U.S. Productivity in Agriculture and R & D,' *Journal of Productivity Analysis* 30, 2008, 7-12.
15. (R. Färe, D. Margaritis), 'Rejoinder' *Journal of Productivity Analysis* 30, 2008, 77-79.
16. (B. Balk, R. Färe, and D. Margaritis), 'Exact Relations Between Luenberger Productivity Indicators and Malmquist Productivity Indexes,' *Economic Theory* 35, 2008, 187-190.
17. (R. Färe, R. Sickles), 'Productivity of U.S. Airlines After Deregulation,' *Journal of Transport Economics and Policy*, 41:1, 2007, 93-112.
18. (R. Färe and C. Pasurka), 'Pollution Abatement Activities and Traditional Productivity,' *Ecological Economics*, 62, 2007, 673-682.
19. (R. Färe and C. Pasurka), 'Environmental Production Functions and Environmental Directional Distance Functions,' *Energy*, 2007, 1055-1066.
20. (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.
21. (R. Färe), 'Resolving a Strange Case of Efficiency,' *Journal of the Operational Research Society*, 57, 2006, 1366-1368.
22. (Färe, R. and C. Pasurka), 'Social Responsibility: U.S. Power Plants 1985-1998,' *Journal of Productivity Analysis*, 26, 2006, 259-267.
23. (R. Färe, F. Forsund, 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.
24. (R. Färe, D. Margaritis), 'Productivity Growth and Convergence in the European Union,' *Journal of Productivity Analysis*, 25:1, 2006, 111-141.
25. (S. Self), 'Factor Accumulation or TFP? A Reassessment of Growth in Southeast Asia,' *Pacific Economic Review*, 11:1, 2006, 39-58.
26. (Färe, R., W. Weber), 'Shadow Prices and Pollution Costs in U.S. Agriculture,' *Ecological Economics* 56, 2006, 89-103.
27. (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.
28. (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.

29. (R. Färe, D. W. Noh, W. Weber), ‘ Characteristics of a Polluting Technology: Theory and Practice,’ *Journal of Econometrics*, 126, 2005, 469-492.
30. (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.
31. (R. Färe, F. Hernandez-Sancho), ‘Environmental Performance: An Index Number Approach,’ *Resource and Energy Economics*, 26, 2004, 343-352.
32. (R. Färe, W. Weber), ‘The Effect of Risk-based Capital Requirements on Profit Efficiency in Banking,’ *Applied Economics* 36, 2004, 1-13.
33. (R. Färe, V. Zelenyuk), ‘Aggregation of Cost Efficiency: Indicators and Indexes Across Firms,’ *Academic Economic Papers*, 32:3, 2004, 397-409.
34. (R. Färe, V. Zelenyuk), ‘Aggregation Bias and Its Bounds in Measuring Technical Efficiency,’ *Applied Economics Letters*, 2004, 343-352.
35. (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.
36. (R. Färe), “Modeling Undesirable Factors in Efficiency Evaluation: Comment,” *European Journal of Operational Research*, 157, 2004, 242-245.
37. (B. Balk, R. Färe), The Theory of Economic Price and Quantity Indicators,’ *Economic Theory*, 23, 2004, 149-164.
38. (D. Margaritis, V. Valdmanis), ‘Competitive Effects on Teaching Hospitals,’ *European Journal of Operational Research*, 154, 2004, 515-525.
39. (R. Färe, D. Margaritis), ”Productivity Growth in New Zealand: 1978-1998” *New Zealand Economic Papers*, vol 37 (1), June, 2003, pp 93-118.
40. (N. H. Chau and R. Färe ), “Trade Restrictiveness and Efficiency,” *International Economic Review*, vol. 44, No. 3, August 2003, 1079-1095.
41. (R. Färe), “Nonparametric Productivity Analysis with Undesirable Outputs: Comment,” *American Journal of Agricultural Economics*, 2003, 1070-1074.
42. (J.C. Bureau, N. Chau, R. Färe), ‘Economic Performance, Trade Restrictiveness and Efficiency,’ *Review of Development Economics*, vol. 7, No. 4, 527-542, 2003.
43. “Some Remarks on the Malmquist Productivity Index and Its Decomposition,” *Journal of Productivity Analysis*, 20, 2003, 459-474.
44. (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.
45. (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.
46. (R. Färe, Zaim, O.), ‘Hyperbolic Efficiency and Return to the Dollar,’ *European Journal of Operational Research*, 136, 671-679, 2002.
47. (R. Färe), ‘Two Perspectives on DEA: Unveiling the Link between CCR and Shephard,’ *Journal of Productivity Analysis*, 17:1/2, January 2002, 41-48.

48. (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.
49. (O. Zaim, R. Färe ), 'An Economic Approach to Achievement and Improvement Indexes,' *Social Indicators Research*, 56, 2001, 91-118.
50. (R. Färe, D. Margaritis), 'APEC and the Asian Economic Crisis: Early Signals from Productivity Trends,' *Asian Economic Journal* 15:3, September 2001, 325-341.
51. (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.
52. (R. Färe, W. Weber), 'Shadow Pricing of Missouri Public Conservation Land,' *Public Finance Review*, 29:6, November 2001, 444-460.
53. (R. Färe, C. Pasurka), 'Accounting for Air Pollution Emissions in Measuring State Manufacturing Productivity Growth,' *Journal of Regional Science*, 381-409, 2001.
54. ((R. Färe and P. Roos), 'The Use of Indicators for the Measurement of Price and Quantity Changes,' *Statistics and Democracy*, Statistics Sweden, 2001.
55. (R. Färe, W. F. Lee), 'Productivity and Technical Change: The Case of Taiwan,' *Applied Economics*, 33, 1911-1925, 2001.
56. (D. Margaritis, V. Valdmanis) "The Effects of Teaching on Hospital Productivity", *Socio-Economic Planning Sciences*, 35, 189-204, 2001.
57. (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.
58. (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.
59. (R. Färe, D. Margaritis), 'Productivity Trends in Australian and New Zealand Manufacturing,' *Australian Economic Review* 34:2, 125-34, 2001.
60. (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.
61. (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.
62. (C. Moutray), "Evaluation of School Reform in Chicago Public Schools," *Economics of Education Review*, vol. 20, no. 1, 2001, 1-14.
63. (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.
64. (R. Färe). 'Outfoxing a Paradox,' *Economics Letters*, 69, 2000, 159-163.
65. (R. Färe), "On Separability of the Profit Function," *Journal of Optimization Theory and Applications*, 2000, 609-620.
66. (R. Färe), "Theory and Application of Directional Distance Functions," *Journal of Productivity Analysis*, 13, 2000, 93-103.

67. (R. Färe), “Network DEA,” *Socio-economic Planning Sciences*, 34:1, 2000, 35-49.
68. (R. Färe) “Decomposing Technical Efficiency with Care,” *Management Science*, 46:1, 2000, 1667-168.
69. (R. Färe) “Notes on Some Inequalities in Economics,” *Economic Theory*, 15:1, 2000, 227-234.
70. (R. Färe and J. Kirkley), ‘Multi-Output Capacity Measures and Their Relevance for Productivity,’ *Bulletin of Economic Research* 2000, 101-112.
71. (R. Färe) “Slacks and Congestion: A Comment,” *Socio-economic Planning Sciences*, 34:1, 2000, 27-34.
72. (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.
73. (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.
74. (R. Färe) “Congestion: a Note,” *Socio-Economic Planning Sciences* 32:1, 1998, 21-23.
75. (R. Färe) “Shadow Pricing of Good and Bad Commodities,” *American Journal of Agricultural Economics* 80, 1998, 584-590.
76. (R. Färe and M. Norris) “Productivity Growth, Technical Progress, and Efficiency Change in Industrialized Countries: Reply,” *American Economic Review*, 87:5, 1997, 1040-1043.
77. ( Y.H. Chung and R. Färe) “Productivity and Undesirable Outputs: A Directional Distance Function Approach,” *Journal of Environmental Management*, 51, 1997, 229-240.
78. (R. Färe) “Profit Efficiency, Farrell Decompositions and the Mahler Inequality,” *Economics Letters*, 57, 1997, 283-287.
79. (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.
80. (R. Färe, R. Grabowski and S. Kraft), “Efficiency of Fixed but Allocatable Inputs: A Non-Parametric Approach,” *Economics Letters*, 56, 1997, 187-193.
81. (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.
82. (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.
83. “Statistical Inference and Nonparametric Efficiency: A Selective Survey,” *Journal of Productivity Analysis* 7, 1996, 161-176.
84. (R. Chambers, R. Färe), “Productivity Growth in APEC Countries,” *Pacific Economic Review*, 1:3, December 1996, 181-190.
85. (R. Färe, P. Roos) “On Two Definitions of Productivity,” *Economics Letters*, 53, 1996, 269-274.
86. (J. Clement, V. Valdmanis) “A Comparison of Shadow Prices and Reimbursement Rates of Hospital Services,” *Annals of Operations Research*, 67, 1996, 163-182.
87. (R. Färe, R. Althin) “Profitability and Productivity Changes: An Application to Swedish Pharmacies,” *Annals of Operations Reserach*, 66, 1996, 219-230.

88. (R. Färe) "Productivity and Intermediate Products: A Frontier Approach," *Economics Letters*, 50, 1996, 65-70.
89. (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.
90. (J. C. Bureau, R. Färe) "Nonparametric Measures of Productivity Growth in European and U.S. Agriculture," *Journal of Agricultural Economics*, 1995, 309-326.
91. (R. Färe), "Nonparametric Tests of Regularity, Farrell Efficiency and Goodness-of-Fit," *Journal of Econometrics*, 69, 1995, 415-425.
92. (K. Hayes, J. Hirschberg), "Fiscal Stress and the Production of Public Safety: A Distance Function Approach," *Journal of Public Economics* 57, 1995, 277-296.
93. (R. Brännlund, R. Färe) "Environmental Regulation and Profitability: An Application to Swedish Pulp and Paper Mills," *Environmental and Resource Economics* 6, 1995, 23-36.
94. (R. Färe, W.-F. Lee) "Productivity in Taiwanese Manufacturing Industries," *Applied Economics*, 27, 1995, 259-265.
95. (D. Margaritis and V. Valdmanis) "Estimating Output Substitutability of Hospital Services: A Distance Function Approach," *European Journal of Operational Research*, 80, 1995, 575-587.
96. (R. Färe, P. Roos) "Productivity and Quality Changes in Swedish Pharmacies," *International Journal of Production Economics*, 39, 1995, 137-144.
97. (R. Färe, P. Roos) "Productivity and Quality Changes in Swedish Pharmacies: Reply," *International Journal of Production Economics*, 39, 1995, 147.
98. (R. Färe) "Measuring Productivity: A Comment," *International Journal of Operations and Production Management*, 14:9, 1994, 83-88.
99. "Discussion: Linear Programming Approaches to the Measurement and Analysis of Productive Efficiency," *TOP* 2:2, 1994, 51-56.
100. (R. Färe) "Estimation of Returns to Scale Using Data Envelopment Analysis: A Comment," *European Journal of Operational Research*, 79, 1994, 379-382.
101. (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.
102. (R. Chambers, R. Färe) "Efficiency, Quantity Indexes and Productivity Indexes: A Synthesis," *Bulletin of Economics Research*, 46:1, January 1994, 1-22.
103. (G. Ferrier, K. Hayes, S. Yaisawarng) "Economics of Diversification in the Banking Industry: A Frontier Approach," *Journal of Monetary Economics*, 31, 1993, 229-249.
104. (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.
105. (V. Valdmanis) "Evaluating Hospital Performance with Case Mix Adjusted Outputs," *Medical Care*, 31:6, 1993, 525-532.
106. (K. Hayes) "Local Public Sector Bureaucrats and Their Input Choices," *Journal of Urban Economics*, 33, 1993, 151-166.

107. (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.
108. (K. Hayes and S. Yaisawarng) "Measuring Economies of Diversification: A Frontier Approach," *Journal of Business Economics and Statistics*, 10:4, 1992, 453-459.
109. (R. Färe, C.A.K. Lovell) "Indirect Productivity Measurement," *Journal of Productivity Analysis* 2, 1992, 283-298.
110. (R. Färe, B. Lindgren, P. Roos) "Productivity Changes in Swedish Pharmacies 1980-1989: A Non-parametric Malmquist Approach," *Journal of Productivity Analysis* 3, 1992, 85-101.
111. (R. Färe) "Malmquist Productivity Index and Fisher Ideal Indexes," *The Economic Journal* 102:410, 1992, 158-160.
112. (R. Färe, S.K. Li) "Linear Programming Models for Firm and Industry Performance," *The Scandinavian Journal of Economics*, 1991, 599-608.
113. (R. Färe) "A Distance Function Approach to Price Efficiency," *Journal of Public Economics* 43, 1990, 123-126.
114. (R. Färe, S. Yaisawarng, S. Li, Z. Wang) "Productivity Growth in Illinois Utilities," *Resources and Energy* 12, 1990, 383-398.
115. (R. Färe) "The Fisher Ideal Index and the Indirect Malmquist Productivity Index: A Comparison," *New Zealand Economic Papers* 24, 1990, 66-72.
116. (D. Margaritis, V. Valdmanis) "Nurse Productivity and Wages," *New Zealand Economic Papers* 24, 1990, 73-86.
117. (S. Yaisawarng) "Economies of Scope in the Provision of Local Public Services," *National Tax Journal* 43, March 1990, 61-74.
118. (R. Färe, J. Nelson) "On Price Efficiency," *International Economic Review*, 1990, 709-720.
119. (R. Färe, H. Lee) "A Nonparametric Approach to Expenditure Constrained Profit Maximization," *The American Journal of Agricultural Economics*, 1990, 574-581.
120. (R. Färe, C.A.K. Lovell, C. Pasurka) "Measuring Efficiency when some Outputs are Undesirable: A Nonparametric Approach," *Review of Economics and Statistics* 71:1, 1989, 90-98.
121. (R. Färe, W. Weber) "Measuring School District Performance," *Public Finance Quarterly* 17:4, 1989, 409-428.
122. (R. Färe, V. Valdmanis) "Capacity, Competition and Efficiency in Hospitals: A Nonparametric Approach," *Journal of Productivity Analysis* 1, 1989, 123-128.
123. (R. Färe, E. Kokkelenberg) "Measuring Plant Capacity Utilization, and Technical Change: A Non-parametric Approach," *International Economic Review*, 1989, 655-666.
124. (R. Färe, C. Pasurka) "The Effect of Environmental Regulations on the Efficiency of Electric Utilities: 1969 vs. 1975," *Applied Economics* 21, 1989, 225-235.
125. (R. Färe, C.A.K. Lovell) "An Indirect Approach to the Evaluation of Producer Performance," *Journal of Public Economics* 37, 1988, 71-89.
126. (R. Färe, C.A.K. Lovell) "Scale Elasticity and Scale Efficiency," *Zeitschrift für die gesamte Staatswissenschaften* 144, No. 4, September 1988, 721-729.

127. (R. Färe, D. Njinku) "On Piecewise Reference Technologies," *Management Science* 34, No. 12, December 1988, 1507-1511.
128. (P. Byrnes, R. Färe, C.A.K. Lovell) "The Effect of Unions on Productivity: U.S. Surface Mining of Coal," *Management Science* 34, No. 9, September 1988, 1037-1053.
129. (K. Hayes, S. Porter-Hudak) "Pension Funding and Local labor Costs: A Dynamic Analysis of Illinois Police Pension Funds," *Southern Economic Journal* 54, No. 3, January 1988, 572- 82.
130. (P. Byrnes, R. Färe, S. Kraft) "Technical Efficiency and Size: The Case of Illinois Grain Farms," *European Review of Agricultural Economics* 14, No. 4, 1987, 395-412.
131. (V. Valdmanis) "Measuring Hospital Performance: A Nonparametric Approach," *Journal of Health Economics* 6, 1987, 89-107.
132. (R. Färe, C.A.K. Lovell) "Nonparametric Disposability Tests," *Zeitschrift für Nationalökonomie* 47, 1987, 77-85.
133. (R. Färe, J. Logan) "The Comparative Efficiency of Western Coal-Fired Steam-Electric Generating Plants: 1977-1979," *Engineering Cost and Production Economics* 11, 1987, 21-30.
134. (K. Hayes) "The Demand for Local Public Goods: Choosing an Appropriate Functional Form," *Applied Economics* 18, November 1986, 1179-1192.
135. (R. Färe, C.A.K. Lovell) "Scale Economics and Duality," *Zeitschrift fr Nationalökonomie* 46, No. 2, 1986, 175-182.
136. (R. Färe, C. Pasurka) "Effects on Relative Efficiency in Electric Power Generation Due to Environmental Controls," *Resources and Energy* VIII, No. 2, 1986, 167-184.
137. "The Role of the Reference Technology in Measuring Productive Efficiency," *The Economic Journal*, 96, June 1986, 499-513.
138. (P. Byrnes, K. Hayes) "Efficiency and Ownership: Further Evidence," *Review of Economics and Statistics* 68, No. 2, May, 1986, 337-341.
139. (R. Färe) "A Nonparametric Cost Approach to Scale Efficiency," *Scandinavian Economic Journal* 87, No. 4, 1985, 594-604.
140. (P. Byrnes, K. Hayes) "How 'Exact' Are Exact Measures of Welfare Loss?" *Applied Economics* 17, December 1985, 1071-1081.
141. (K. Hayes, T. Kennedy) "The Supply and Demand Effects of Underfunding of Pensions on Public Employee Wages," *Southern Economic Journal* 51, No. 3, January, 1985, 745-753.
142. (K. Hayes) "Measuring the Welfare Loss of Pension Mandates: A Methodology and Example," *Public Finance Quarterly* 13, No. 1, January 1985, 47-62.
143. (R. Färe, R. Grabowski) "Technical Efficiency of Philippine Agriculture," *Applied Economics* 17, 1985, 205-214.
144. (R. Färe, J. Logan) "The Relative Performance of Publicly Owned and Privately Owned Electric Utilities," *Journal of Public Economics* 26, 1985, 89-106.
145. (R. Färe) "Productive Efficiency in U.S. Manufacturing: A Generalized Linear Programming Approach," *Methods of Operations Research* 48, 1984, 497-515.

146. (K. Hayes) "The Role of Functional Form in Estimating the Demand for Local Public Goods," *Review of Economics and Statistics* 66, No. 1, February 1984, 169-173.
147. (P. Byrnes, R. Färe) "Measuring Productive Efficiency: An Application to Illinois Strip Mines," *Management Science* 30, No. 6, June 1984, 671-681.
148. (R. Färe, J. Logan) "The Relative Efficiency of Illinois Public Utilities," *Resources and Energy* 5, 1983, 349-367.
149. (R. Färe) "Measuring Congestion in Production," *Zeitschrift für Nationalökonomie* 43, No. 3, 1983, 257-271.
150. (R. Färe, C.A.K. Lovell) "The Structure of Technical Efficiency," *Scandinavian Journal of Economics* 85, No. 2, 1983, 181-190.
151. (K. Hayes, D. Sivan) "Municipal Pensions, Funding, and Wage Capitalization," *National Tax Journal* 36, March 1983.
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2. (D. Arey and G. Provenzano) "The Prospects for Controlled Trading of Air Pollution Rights in the Metro East Area of Illinois," Illinois Institute of Natural Resources, Document No. 81/26, August, 1981.
3. (D. Arey, et al.) "PSD: A Study to Determine the Potential Effects of Reclassifying Portions of Madison, Monroe and St. Clair Counties from Class II to Class III," Illinois Environmental Protection Agency, 1980.
4. (J. Myers, et al.) "The Impact of Western Coal on the Illinois Economy," for the Attorney General of Illinois, 1979.
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, current.

## **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

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3. (L. Taylor and K. Hayes), 'Is a Low Instructional Share an Indicator of School Inefficiency: Exploring the 65 percent solution,' submitted to *Journal of Policy Administration and Management*, Oct. 2007.
4. (R. Färe, C. Pasurka and W. Weber) 'Substitutability among Undesirable Outputs,' submitted to *JEEM* October 2007.
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1. (R. Färe, S. C. Ray, S. M. Miller, K. Mukherjee), 'Difference Measures of Profit Inefficiency: An Application to U.S. Banks,' January 2000.
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## Recent Conferences

2001:

(R. Färe, C. Pasurka), 'Stated vs Production Costs of Regulation: The Case of Electric Utilities,' ASSA meetings, New Orleans, Jan. 2001.

(R. Färe, B. Seldon, V. Tremblay), ' Advertising Efficiency and the Choice of Media Mix: A Case of Beer,' WEA meetings, San Francisco, July 2001

(S. Self), 'Growth, Human Capital and TFP,' WEA meetings, San Francisco, July 2001

'Some Remarks on Productivity and its Decomposition,' Exclusive Workshop on DEA, University of South Denmark, Odense, Denmark, Sept. 2001

(R. Färe, R. Sickles), 'Productivity? Of U.S. Airlines after Deregulation,' 7th Workshop on Efficiency and Productivity, Oviedo, Spain, Sept. 2001

(R. Färe, O. Zaim), 'An Economic Approach to Achievement and Improvement Indexes,' 7th Workshop on Efficiency and Productivity, Oviedo, Spain, Sept. 2001

(R. Färe), 'Optimization Models Applied to Productivity and the Environment,' Brazilian Society of Operations Research, Campos de Jordao, Brazil, Nov. 2001

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(R. Färe), ‘The Practice of Production Theory in Environmental Economics,’ Occasional California Workshop on Environmental and Resource Economics, Santa Barbara Oct. 2001

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(K. Hayes, L. Taylor), ‘Productivity, Innovation and Diffusion in the United States: Can Policy Put the States on the Technology Frontier?’, CSWEP session, ASSA meetings, Atlanta, Jan. 2002.

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‘Modeling a Pollution Technology: Theory and Practice’, University of Patras, Patras, Greece, HEWPEM, keynote address.

2004

(D. Vaughn-Aiken, R. Färe, C. Pasurka), ‘Least Cost Air Pollution Control: A CGE Joint Production Framework,’ ASSA, San Diego, CA.

(P. Bogetoft, R. Färe, K. Hayes, L. Taylor) ‘Dynamic Efficiency: Is the Public Sector Investing too Little?’, special workshop, Copenhagen, DK, June 10. (K. Hayes, L. Taylor), ‘Competition and Efficiency: the Impact of Charter Schools on Public School Performance,’ APPC, Brisbane Australia, July.

(N. Chau, R. Färe), ‘Trade Restrictiveness and Pollution,’ APPC, Brisbane Australia, July. (R. Färe, R. Sickles), ‘Productivity? Of U.S. Airlines,’ NAPW, Toronto.

2005:

(R. Färe, E. Tortosa-Ausina), ‘Efficiency and Market Power in Banking,’ European Workshop on Productivity and Efficiency Analysis, Brussels, summer.

(R. Färe and D. Margaritis), ‘The Role of R and D in U.S. Agricultural Productivity,’ European Workshop

on Productivity and Efficiency Analysis, Brussels, summer, also presented at the New Zealand Econometrics Workshop in Christchurch in February.

(R. Färe, P. Roos), ‘Optimizing Cataract Surgery,’ American Public Health Association Meetings, Philadelphia, December.

(K. Hayes, L. Taylor), ‘Are Charter Schools More Efficient? Comparing the Technical, Allocative and Scale Efficiency of Texas Public Schools,’ Southern Economic Association Meetings, Washington, D.C.

2006:

(R. Färe, D. Margaritis), ‘Sectoral Productivity Trends Across OECD Manufacturing Industries,’ Hellenic Efficiency and Productivity Workshop, Patras, Greece, June.

(R. Färe), ‘Assessing Trade-Offs between farm profits and ecological services,’ Asian Pacific Productivity Conference, Seoul, South Korea.

(R. Färe, P. Roos, M. Lundström), ‘Evaluating Health Care Efficiency,’ Asian Pacific Productivity Conference, Seoul, South Korea.

2007:

(R. Färe), ‘Assessing Trade-Offs between farm profits and ecological services,’ Salinity Workshop, Sydney, Australia, February.

(R. Färe, D. Margaritis), ‘Efficiency and Productivity: Malmquist and More,’ keynote address, European Workshop on Efficiency and Productivity, Lille, France, June.

(L. Taylor, K. Hayes), ‘Is a Low Instructional Share an Indicator of School Inefficiency: Exploring the 65 percent solution,’ European Workshop on Efficiency and Productivity, Lille, France, June.

(R. Färe, P. Roos, M. Lundström), ‘Evaluating Health Care Efficiency,’ preconference workshop, IHEA, Lund, Sweden, July.

2008:

(R. Färe, , C. Pasurka), ‘Modeling Pollution Abatement Technologies and Productivity within a Network Technology,’ NAPW V, New York University, June 24-27.

(P. Bogetoft, R. Färe, K. Hayes, L. Taylor), ‘Network DEA: Some Applications and Illustrations,’ DEA Symposium 2008, Seikei University, Tokyo, Japan, February 18-19.

(P. Bogetoft, R. Färe), ‘Thoughts about Network DEA,’ DEA Symposium 2008, Seikei University, Tokyo, Japan, February 18-19.

(R. Färe, D. Margaritis), ‘R & D in U.S. Agriculture,’ AIEA2-USDA, International conference on the economic impact of public support to agriculture, Bologna, Italy, June 19-21.

(R. Chambers, R. Färe), ‘Generalized Quadratic Revenue Functions,’ Conference on Frontiers of Microeconomic Theory and Policy, 3-4 July, CESifo Munich.

‘Network DEA: some applications,’ Asia Pacific Productivity Conference, Taipei, July 2008.

2009:

(E. Ball, R. Färe, D. Margaritis), ‘Energy in the U.S. Agricultural Sector: 1960-2004,’ European Workshop on Efficiency and Productivity Analysis, Pisa, June 24-27.

(R. Färe, B. Frijns, and D. Margaritis), ‘A Dynamic Malmquist Productivity Index,’ Operations Research society Meetings, Bonn, July 4-7.