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## CURRICULUM VITAE

### MARSHALL LEE FISHER

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### Education

- 1970            Massachusetts Institute of Technology, Ph.D.,  
Interdepartmental Program in Operations Research.
- 1969            M.I.T., S.M., Sloan School of Management.
- 1965            M.I.T., S.B., Electrical Engineering

### Employment

- 2001 - present    UPS Professor, Operations and Information Management Department,  
The Wharton School, University of Pennsylvania
- 1995 - 2001        Stephen J. Heyman Professor, Operations and Information Management  
Department, The Wharton School, University of Pennsylvania
- 1986 - 1995        Stephen J. Heyman Professor, Decision Sciences Department, The  
Wharton School, University of Pennsylvania
- 1979 - 1986        Professor, Decision Sciences Department, The Wharton School,  
University of Pennsylvania
- 1975 - 1979        Associate Professor, Decision Sciences Department, The Wharton  
School, University of Pennsylvania
- 1970 - 1975        Assistant Professor of Management Science, Graduate School of  
Business, University of Chicago
- 1969 - 1970        Research Assistant, Operations Research Center, Massachusetts  
Institute of Technology
- 1965 - 1966        Computer Systems Engineer, IBM Corporation, Waltham,  
Massachusetts

## Visiting Positions

January – August 2000	Interim CEO, 4R Systems, Inc.
January – August 1996	Thomas Henry Carroll-Ford Foundation Visiting Professor of Business Administration, Harvard University
January-February 1982	Visiting Faculty Member, Jiao Tong University, Shanghai, Peoples Republic of China
August 1976	Visiting Faculty Member, Graduate School of Management, Delft, The Netherlands
1974 – 1975	Visiting Assistant Professor, Department of Operations Research, Cornell University
Jan -March & Sept 1973	Research Associate, National Bureau for Economic Research, Computer Research Center for Economics and Management Science, Cambridge, MA,

## Awards

- Lanchester Prize awarded to the outstanding publication in the field of operations research in that year, for the paper "Location of Bank Accounts to Optimize Float: An Analytic study of Exact and Approximate Algorithms," Management Science 23, 1977 (coauthored with G. Cornuejols and G. L. Nemhauser). **(1977)**
- Institute of Management Science Edelman Prize, awarded to the best implementation of management science in that year, for developing and implementing a very large optimization system to control deliveries of liquid oxygen and nitrogen. (with others) **(1983)**
- National Council of Physical Distribution Management E. Grosvenor Plowman award for the paper "Computers in Transportation: From Integration to Intelligence" (co-authored with R. Jaikumar). **(1984)**
- Elected to National Academy of Engineering **(1994)**
- Wharton School MBA Core Curriculum Cluster Awards for Teaching Excellence **(1995, 1996, 1997, 1998 and 1999)**
- Listed in Who's Who in the World **(2000)**
- Institute for Operations Research and Management Science Fellow Award **(2002)**

- Manufacturing and Service Operations Management Society Fellow Award **(2002)**
- Listed by ISI Web of Science Highly Cited as one of the 250 most cited researchers in economics and management **(2003)**
- The paper M. L. Fisher "The Lagrangian Relaxation Method for Solving Integer Programming Problems" published in *Management Science* in 1981 was voted by the membership of the Institute for Operations Research and Management Science as one of the ten most influential papers published in *Management Science* during its 50-year history **(2004)**
- The paper G. Cornuejols, M. Fisher and G.L. Nemhauser, "Location of Bank Accounts to Optimize Float: An Analytic Study of Exact and Approximate Algorithms," published in *Management Science* in 1977, was voted by the membership of the Institute for Operations Research and Management Science as one of the fifty most influential papers published in *Management Science* during its 50-year history **(2004)**
- 13th Annual E. Leonard Arnoff Memorial Lecture on the Practice of Management Science, University of Cincinnati **(2004)**
- Production and Operations Management Society Fellow Award **(2005)**
- Institute for Operations Research and Management Science Philip McCord Morse Lectureship Award, given in honor of Philip McCord Morse, MIT Professor and one of the founders of the field of Operations Research **(2005)**
- Institute for Operations Research and Management Science Kimball Medal for Distinguished Service to the Institute and to the profession of Operations Research and Management Science **(2007)**
- Institute for Operations Research and Management Science Revenue Management and Pricing Practice Award, presented to a team representing or working with Yihaodian, a Chinese online grocery business, for "Competition-Based Dynamic Pricing in Online Retailing." The recipients included Yihaodian co-founder and Chairman Gang Yu, along with Marshall Fisher of the Wharton School, Jun Li of the Ross School of Business, and Santiago Gallino of the Tuck School of Business. **(2015)**
- Finalist, 2017 MSOM Practice-Based Research Competition, with Chloe Kim and Xuanming Su. **(2017)**
- 2018 GOLD METAL WITH JURORS' DISTINCTION, 46<sup>TH</sup> INTERNATIONAL EXHIBITION OF INVENTIONS GENEVA, AWARDED TO THE HONG KONG RESEARCH INSTITUTE OF TEXTILES AND APPAREL , for the paper "The

Value of Social Media Data in Color Trends Forecasting,” by Youran Fu and Marshall L. Fisher (2018)

- 2018 PRIZE OF THE NATIONAL COUNCIL FOR RESEARCH OF THAILAND, AWARDED TO THE HONG KONG RESEARCH INSTITUTE OF TEXTILES AND APPAREL , for the paper “The Value of Social Media Data in Color Trends Forecasting,” by Youran Fu and Marshall L. Fisher (2018)

### **Advisory Positions**

- INSEAD Technology Management Area Five Year Strategic Review, 1998
- MIT Operations Research Center Five Year Review, 2000
- Harvard Business School Accreditation Review, 2002
- Northwestern University Management Science and Industrial Engineering Department Five Year Review, 2004
- University of Southern California Marshall School of Business Department of Information and Operations Management (IOM) Five Year Review, May, 2009
- MIT Sloan School PhD program review, October 2009
- Northwestern Kellogg Business School Accreditation Review, April, 2010
- Member, MIT Sloan School Visiting Committee, 2006 - 2009
- Member, Harvard Business School Visiting Committee, 2006 – 2012
- Chairman, Distribution Analysis, Research and Technology, Inc., 1981-1990.
- Chairman, 4R Systems, Inc., 1999 – present.

### **Doctoral Students Supervised, First Employer, Dissertation Title and Completion Date**

- Dorit Hochbaum, Carnegie-Mellon University, Median Problems of Specific Structure, 1979
- Marius Solomon, Northeastern University, Vehicle Routing and Scheduling with Time Window Constraints: Models and Algorithms, 1984
- Ramchandran Jaikumar, Harvard University, Essays on Coordination of Indivisible Resources and Leontief Technologies, 1985
- Pradeep Kedia, Purdue University, Dual-Ascent and Lagrangean Multiplier Adjustment Methods for Solving Certain Combinatorial Problems, 1985
- Kavindra Malik, Cornell University, Analysis of Some Combinatorial Optimization Problems in Telecommunication and Transportation, 1988
- Pankaj Chandra, McGill University, On Coordination of Production and Distribution Decisions, 1989

- Baoxing Tang, United Airlines, Efficient Algorithms for Some Combinatorial Problems, 1990
- Gang Yu, University of Texas at Austin, Algorithms for Optimizing Piecewise Linear Functions and for Degree Constrained Minimum Spanning Tree Problems, 1990
- Kannan Sethuraman, University of Michigan, Product Variety and Manufacturing Performance, 1992
- Ananth Raman, Harvard University, Quick Response in the Apparel Industry: Analysis and Application, 1993
- Gérard P. Cachon, Duke University, On the Operational Implication of Continuous Product Replenishment in the Grocery Industry, 1995
- Kamalini Ramdas, University of Texas at Austin, Using Parts Sharing to Manage Product Variety: A Study in the Automobile Industry, 1995
- Kumar Rajaram, UCLA Andersen School, Merchandise Planning in Fashion Retailing: Models, Analysis and Applications, 1998
- Vishal Gaur, Leonard N. Stern School of Business, New York University, Essays in Retailing, 2001
- Gurhan Kok, Fuqua School of Business, Duke University, Management of Product Variety in Retail Operations, 2003
- Jayanth Krishnan, Bank of America, Retail Store Execution, 2007
- Ramnath Vaidyanathan, McGill, Assortment Optimization, 2012
- Santiago Gallino, Dartmouth Tuck School, 2013

### **Published and Forthcoming Papers in Refereed Journals**

1. Marshall Fisher, "Optimal Solution of Scheduling Problems Using Lagrange Multipliers: Part I," *Operations Research*, Vol. 21, No. 5, 1973, p. 1114-1127.
2. Marshall Fisher and J.F. Shapiro, "Constructive Duality in Integer Programming," *SIAM Applied Math.*, Vol. 27, No. 1, 1974, p.31-52.
3. Marshall Fisher and F.J. Gould, "A Simplicial Algorithm for the Nonlinear Complementarity Problem," *Mathematical Programming*, Vol. 6, No. 3, 1974, p. 281-300.

4. Marshall Fisher, W.D. Northup and J.F. Shapiro, "Using Duality to Solve Discrete Optimization Problems: Theory and Computational Experience," *Mathematical Programming*, Study 3, 1975, p. 56-94.
5. David E. Bell and Marshall Fisher, "Improved Integer Programming Bounds Using Intersections of Corner Polyhedra," *Mathematical Programming*, Vol. 8, No. 3, 1975, p. 345-368.
6. F.J. Gould, Marshall Fisher, J.W. Tolle, "A Simplicial Approximation Algorithm for Solving Systems of Nonlinear Equations," *Mathematical Programming and Its Applications, Mathematical Symposia*, Vol. 19, 1976, p. 73-90.
7. Marshall Fisher, "A Dual Algorithm for the One-Machine Scheduling Problem," *Mathematical Programming*, Vol. 11, No. 3, 1976, p. 229-251.
8. Marshall Fisher and J.W. Tolle, "The Nonlinear Complementarity Problem: Existence and Determination of Solutions," *SIAM Control*, Vol. 15, No. 4, 1977, p. 612-624.
9. G. Cornuejols, Marshall Fisher and G.L. Nemhauser, "Location of Bank Accounts to Optimize Float: An Analytic Study of Exact and Approximate Algorithms," Exceptional Paper, *Management Science*, Vol. 23, No. 8, 1977, p. 789-810.
10. G. Cornuejols, Marshall Fisher and G.L. Nemhauser, "On the Uncapacitated Location Problem," *Annals of Discrete Math*, Vol. 1, 1977, p. 163-177.
11. Marshall Fisher and R. Jaikumar, "An Algorithm for the Space Shuttle Scheduling Problem," *Operations Research*, Vol. 26, 1978, p. 166-182.
12. Marshall Fisher, G.L. Nemhauser and L.A. Wolsey, "An Analysis of Approximations for Maximizing Submodular Set Functions: I," *Mathematical Programming*, Vol. 14, 1978.
13. G.L. Nemhauser, L.A. Wolsey and Marshall Fisher, "An Analysis of Approximations for Maximizing Submodular Set Functions: II," *Mathematical Programming*, Study 8, 1978.
14. Marshall Fisher, G.L. Nemhauser and L.A. Wolsey, "An Analysis of Approximations for Finding a Maximum Weight Hamiltonian Circuit," *Operations Research*, Vol. 27, No. 4, 1979, p. 799-809.
15. G. Cornuejols, Marshall Fisher and G. Nemhauser, "Note on Location of Bank Accounts to Optimize Float: An Analytic Study of Exact and Approximate Algorithms," *Management Science*, Vol. 25, No. 8, 1979, p. 808-809.

16. Marshall Fisher and Dorit Hochbaum, "Probabilistic Analysis of the Planar K-Median Problem", *Mathematics of Operations Research*, Vol. 5, No. 1, 1980, p. 27-34.
17. Marshall Fisher and Dorit Hochbaum, "Database Location in Computer Networks," *Journal of the Association for Computing Machinery*, Vol. 27, No. 4, 1980, p. 718-735.
18. Marshall Fisher, "Worst-Case Analysis of Heuristic Algorithms," *Management Science*, Vol. 26, No. 1, 1980, p. 1-17.
19. Marshall Fisher and R. Jaikumar, "A Generalized Assignment Heuristic for Vehicle Routing," *Networks*, Vol. 11, 1981, p. 109-124.
20. Marshall Fisher, "The Lagrangian Relaxation Method for Solving Integer Programming Problems," *Management Science*, Vol. 27, No. 1, 1981, p. 1-18.
21. M.A. Dempster, Marshall Fisher, L. Jansen, B. Lageweg, J.T. Lenstra and A.H.G. Rinnooy Kan, "Analytical Evaluation of Hierarchical Planning Systems," *Operations Research*, Vol. 29, No. 4, 1981, p. 707-716.
22. Marshall Fisher and Laurence Wolsey, "On the Greedy Heuristic for Continuous Covering and Packing Problems," *SIAM J. of Alg. and Disc. Methods*, Vol. 3, No. 4, 1982, p. 584-591.
23. Marshall Fisher, A. Greenfield, R. Jaikumar and J.T. Lester III, "A Computerized Vehicle Routing Application," *Interfaces*, Vol. 12, No. 4, 1982, p. 42-52.
24. Marshall Fisher, B. Lageweg, J.K. Lenstra and A.H.G. Rinnooy Kan, "Surrogate Duality Relaxation for Job Shop Scheduling," *Discrete Applied Math* 5, 1983, p. 65-75.
25. M. Dempster, Marshall Fisher, L. Jansen, B. Lageweg, J.K. Lenstra and A. Rinnooy Kan, "Analysis of Heuristics for Stochastic Programming: Results for Hierarchical Scheduling Problems", *Math. of OR*, Vol. 8, No. 4, 1983, p. 525-537.
26. W.J. Bell, L.M. Dalberto, Marshall Fisher, A.J. Greenfield, R. Jaikumar, P. Kedia, R.G. Mack, P.J. Prutzman, "Improving the Distribution of Industrial Gases with an On-Line Computerized Routing and Scheduling Optimizer", *Interfaces*, Vol. 13, No. 6, 1983, p. 4-23.
27. Marshall Fisher and Abba Kreiger, "Analysis of a Linearization Heuristic for Single-Machine Scheduling to Maximize Profit," *Math. Prog.*, Vol. 28, 1984, p. 218-225.

28. Marshall Fisher, "An Applications Oriented Guide to Lagrangian Relaxation," *Interfaces*, Vol. 15, No. 2, 1985, p. 10-21.
29. Marshall Fisher, "Interactive Optimization," *Annals of Operations Research*, Vol. 5, 1985/6, p. 541-556.
30. Marshall Fisher, R. Jaikumar and L.N. Van Wassenhove, "A Multiplier Adjustment Method for the Generalized Assignment Problem," *Management Science*, Vol. 32, No. 9, 1986, p. 1095-1103.
31. Marshall Fisher, J. Huang and B.X. Tang, "Scheduling Bulk Pickup-Delivery Vehicles in Shanghai," *Interfaces*, Vol. 16, No. 2, 1986, p. 18-23.
32. Marshall Fisher and Alexander Rinnooy Kan, "The Design, Analysis and Implementation of Heuristics," *Management Science*, Vol. 34, 1988.
33. Marshall Fisher and Moshe Rosenwein, "An Interactive Optimization System for Bulk Cargo Ship Scheduling," *Naval Research Logistics*, Vol. 36, 1989.
34. Marshall Fisher and P. Kedia, "Optimal Solution of Set Covering/Partitioning Problems Using Dual Heuristics," *Management Science*, Vol. 36, 1990.
35. Marshall Fisher and K. Malik, "A Dual Ascent Algorithm for the 1-Tree Relaxation of the Symmetric Traveling Salesman Problem," *Operations Research Letters*, Vol. 9, No. 1, 1990.
36. Marshall Fisher, "Optimal Solution of Vehicle Routing Problems using Minimum K-Trees," *Operations Research*, Vol. 42, No. 4, 1994, p. 626-642.
37. Marshall Fisher, "A Polynomial Algorithm for the Degree Constrained K-Tree Problem," *Operations Research*, Vol. 42, No. 4, 1994, p. 775-779.
38. Pankaj Chandra and Marshall Fisher, "Coordination of Production and Distribution Planning," *European Journal of Operational Research* 72, 1994, p. 503-517.
39. Marshall Fisher, Baoxing Tang and Zhang Zhen, "A Network Flow Based Heuristic for Bulk Pickup and Delivery Routing," *Transportation Science*, Vol. 29, No.1, 1995.
40. Marshall Fisher and Ananth Raman, "Reducing the Cost of Demand Uncertainty through Accurate Response to Early Sales," *Operations Research*, Vol. 44, No. 4, 1996, p. 87-99.



41. John Paul MacDuffie, Kannan Sethuraman and Marshall Fisher, "Product Variety and Manufacturing Performance: Evidence from the International Automotive Assembly Plant Study," *Management Science*, Vol. 42, No. 36, 1996, p. 350-369.
42. Stephen Graves and Marshall Fisher, "Introduction to Special Issue on Frontier Research in Manufacturing and Logistics," *Management Science*, Vol. 43, Number 4, April 1997.
43. Marshall Fisher, Kurt Jornsten and Oli Madsen, "Vehicle Routing with Time Windows: Two Optimization Algorithms," *Operations Research*, Vol. 45, No.3, May-June 1997.
44. Marshall Fisher and Chris Ittner, "The Impact of Product Variety on Automobile Assembly Operations: Empirical Evidence and Simulation Analysis," *Management Science*, Vol. 45, No. 6, June 1999, p. 771-786.
45. Marshall Fisher, Kamalini Ramdas and Karl Ulrich, "Component Sharing in the Management of Product Variety," *Management Science*, Vol. 45, No. 3, March 1999, p. 297-315.
46. Gerard Cachon and Marshall Fisher, "Supply Chain Inventory Management and the Value of Shared Information," *Management Science*, Vol. 46, No. 8, Aug. 2000, p. 1032-1048.
47. Marshall Fisher and Kumar Rajaram, "Accurate Testing of Retail Merchandise: Methodology and Application," *Marketing Science*, Vol. 19, No. 8, Summer 2000, p. 266-278.
48. Marshall Fisher, Kamalini Ramdas and Yu-Sheng Zheng, "Ending Inventory Valuation in Multi-period Production Scheduling," *Management Science*, 2001.
49. Marshall Fisher, Kumar Rajaram and Ananth Raman, "Optimizing Inventory Replenishment of Retail Fashion Products," *Manufacturing & Service Operations Management*, Vol. 3, No. 3, 2001, p. 230-241.
50. Kamalini Ramdas, Marshall Fisher and Karl Ulrich, "Managing Variety for Assembled Products: Modeling Component Systems Sharing," *Manufacturing & Service Operations Management*, Vol. 5, No. 2, Spring 2003, p. 142-241-156.
51. Vishal Gaur and Marshall Fisher, "A Periodic Inventory Routing Problem at a Supermarket Chain," *Operations Research*, Vol. 52, No. 6, November-December 2004, p. 813-822.
52. Marshall Fisher, "Comments on 'The Lagrangian Relaxation Method for Solving Integer Programming Problems'," *Management Science*, Vol. 50, No. 12 (supplement), December 2004, p. 1872-1874.

53. Marshall Fisher, "To You It's a Store; To Me It's a Factory," *ECR Journal International Commerce Review*, Vol. 4, No. 2, Winter 2004.
54. Vishal Gaur, Marshall Fisher and Ananth Raman, "An econometric analysis of inventory turnover performance in retail services," *Management Science* Vol. 51, No. 2, February 2005, p. 181-194.
55. Vishal Gaur and Marshall Fisher, "In store experiments to determine the impact of price on sales," *Production and Operations Management* Vol. 14, No. 4, Winter 2006, p. 377-387.
56. Gurhan Kok and Marshall Fisher, "Joint Assortment Selection and Inventory Planning under Consumer Substitution: Methodology and Application," *Operations Research*, Vol. 55, No. 6, pp. 1001-1021, 2007.
57. Vishal Gaur, Saravanan Kesavan, Ananth Raman and Marshall Fisher, "Estimating Demand Uncertainty Using Judgmental Forecasts," *Manufacturing & Service Operations Management*, Vol. 9, No. 4, Fall 2007, pp. 480-491.
58. Marshall Fisher, "Strengthening the Empirical Base of Operations Management" *Manufacturing & Service Operations Management*, Vol. 9, No. 4, Fall 2007, pp. 368-382.
59. Marshall Fisher, "Bob Hayes: Forty Years of Leading Operations Management into Uncharted Waters," *Production and Operations Management*, Vol. 16, No. 2, March-April 2007, pp. 159-160.
60. Marshall Fisher, "Rocket Science Retailing: The 2006 Philip McCord Morse Lecture," *Operations Research* Vol. 57, No. 3, May-June 2009, pp. 527-540.
61. Marshall Fisher, Jayanth Krishnan and Serguei Netessine, "Are Your Staffing Levels Correct?" *International Commerce Review* Volume 8, No. 2, 2010, pp. 110-115.
62. Tom Van Woensel, Marshall L. Fisher, Jan C. Fransoo, "Teaching Retail Operations in Business and Engineering Schools," *INFORMS Transactions on Education* Volume 11, No. 1, September 2010, pp. 29-34.
63. Marshall Fisher and Ramnath Vaidyanathan, "A Demand Estimation Procedure for Retail Assortment Optimization with Results from Implementations," *Management Science* 60(10): 2401-2415 (2014).
64. Marshall Fisher, Santiago Gallino, Jun Li, "Competition-Based Dynamic Pricing in Online Retailing: A Methodology Validated with Field Experiments," *Management Science* 64(6): 2473-2972 (2018)

65. Marshall Fisher, Santiago Gallino, Joseph Xu, , “The Value of Rapid Delivery in Online Retailing,” *Journal of Marketing Research* 56(5): 732-748 (2019)
66. Chloe Kim, Marshall Fisher, Xuanming Su, Optimal Retail Location: Empirical Methodology and Application to Practice, *Manufacturing & Service Operations Management* 21(1): 86-102 (2019)
67. Marshall Fisher, Marcelo Olivares, and Bradley R. Staats, “Why Empirical Research Is Good for Operations Management, and What Is Good Empirical Operations Management?,” *Manufacturing & Service Operations Management* 22(1) 2020, published online 8 November 2019
68. Marshall Fisher Santiago, Gallino Serguei Netessine, Does Online Learning Work in Retail?, Wharton School Operations, Information and Decisions Working Paper, January 2015.
69. Marshall Fisher, Santiago Gallino, Serguei Netessine, Setting Retail Staffing Levels: A Methodology Validated with Implementation, February 2017

## **Books**

70. Marshall Fisher and Ananth Raman. *The New Science of Retailing: How Analytics are Transforming Supply Chains and Improving Performance*. Harvard Business School Press, May, 2010.

## **Papers Submitted to Refereed Journals or In Progress**

71. Andres Catalan and Marshall Fisher, “Assignment of SKUs to DCs to minimize split orders,” Working Paper, September 2012

## **Invited Chapters in Edited Volumes**

72. Marshall Fisher, F. J. Gould and J. W. Tolle "A New Simplicial Approximation Algorithm with Restarts: Relations between Convergence and Labelings," invited paper in *Fixed Points, Algorithms and Applications*, S. Karamardian (editor), Academic Press, 1977.
73. Marshall Fisher, "Teaching Mathematical Programming to the Consumer," invited paper in *Computers and Mathematical Programming*, William W. White (editor), National Bureau of Standards Special Publication 502, Gaithersburg, Maryland, 1978.
74. Marshall Fisher, "Worst-Case Analysis of Heuristics," invited paper in *Interfaces between Computer Science and Operations Research*, J.K. Lenstra, A.H.G.

- Rinnooy Kan and P. van Emde Boas (editors), The Mathematisch Centrum, Amsterdam, 1978.
75. J.J. Elam and Marshall Fisher, "The Use of Mathematical Models in Distributed Database Design," invited paper for *INFOTECH: State of the Art Report on Distributed Databases*, Vol. 2, 1979, p. 115-129.
  76. Marshall Fisher, "An Equivalence between the Subgradient and Ellipsoidal Algorithms," *Large Scale Linear Programming*, G.B. Dantzig, M.A.H. Dempster and M. J. Kallio (editors), International Institute for Applied Systems Analysis, 1981.
  77. Marshall Fisher, "Worst-Case Analysis of Heuristic Algorithms for Scheduling and Packing," *Deterministic and Stochastic Scheduling*, M.A.H. Dempster, J.K. Lenstra and A.H.G. Rinnooy Kan (editors), Reidel, 1982.
  78. Marshall Fisher, "The Local Delivery Problem: Algorithms and Applications," *Transportation Planning Models*, M. Florian (editor), North-Holland, 1984.
  79. M. Cohen, Marshall Fisher and R. Jaikumar, "International Manufacturing and Distribution Networks: A Normative Model Framework," *Managing International Manufacturing*, K. Ferdows (editor), North Holland, 1989.
  80. Marshall Fisher, "Vehicle Routing," Chapter 1 in *Handbook on Operations Research and Management Science: Volume on Networks and Distribution*, 1994.
  81. Marshall Fisher, Anjani Jain and John Paul MacDuffie, "Strategies for Product Variety: Lessons from the Auto Industry," Chapter 6 in *Designing the Firm*, 1995.
  82. Marshall Fisher, Janice Hammond, Walter Obermeyer and Ananth Raman, "Configuring a Supply Chain to Reduce the Cost of Demand Uncertainty," *Global Supply Chain and Technology Management*, Hau Lee (editor), 1998, p. 76-90.
  83. Gerard Cachon and Marshall Fisher, "Campbell Soup's Continuous Replenishment Program: Evaluation and Enhanced Inventory Decision Rules," *Global Supply Chain and Technology Management*, Hau Lee (editor), 1998, p. 130-140.
  84. Taylor Randall, David Reibstein, Karl Ulrich and Marshall Fisher, "Managing Product Variety: A Study of the Bicycle Industry," *Product Variety Management*, Teck Ho and Chris Tang (editors), Kluwer, 1998, p. 177-205.
  85. Marshall Fisher and Ananth Raman, "Managing Short Lifecycle Products," *Achieving Supply Chain Excellence through Technology*, 1999, p. 36-44.

86. Marshall Fisher and Dave Reibstein, "The Digital Era: Implications for the Supply Chain," *The Digital Era*, Jerry Wind (editor), March 1999.
87. Gürhan Kök, Marshall Fisher and Ramnath Vaidyanathan, "Assortment Planning: Review of Literature and Industry Practice," in *Retail Supply Chain Management: Quantitative Models and Empirical Studies*, Eds. N. Agrawal and S. A. Smith, Springer Science + Business Media, LLC, New York, NY, 2008

### **Articles in Refereed Conference Proceedings**

88. Marshall Fisher, "Optimal Solution of Scheduling Problems Using Lagrange Multipliers: Part II," invited paper for *Proceedings of the Symposium on the Theory of Scheduling and Its Applications Springer-Verlag*, 1973.
89. Marshall Fisher, "Lagrangian Relaxation Methods for Combinatorial Optimization," *Proceedings of the Summer School in Combinatorial Optimization*, July 10-21, 1978, Urbino, Italy.
90. Marshall Fisher, R. Jaikumar and W. Bell, "The Impact of Advanced Technologies on Inventory Management," *Proceedings of the Annual Meeting, National Council of Physical Distribution Management*, October, 1981.
91. Marshall Fisher and R. Jaikumar, "Computers in Transportation: From Integration to Intelligence," *Proceedings of the Annual Meeting, National Council of Physical Distribution Management*, 1984.
92. Marshall Fisher, "Lagrangian Optimization Algorithms for Vehicle Routing Problems," *Operational Research '87*, G. Rand (editor), North-Holland, 1988. (Proceedings of the 11<sup>th</sup> International Conference on Operations Research, August 10-14, 1987, Buenos Aires, Argentina.)
93. Marshall Fisher, "Opportunities for Operations Research in the New Manufacturing," *Operational Research 90*, Selected Papers from the Twelfth IFORS International Conference on Operational Research, 1991.

### **Other Publications**

94. Marshall Fisher, Janice Hammond, Walter Obermeyer and Ananth Raman, "Accurate Response: The Key to Profiting from QR," *Bobbin Magazine*, 1994.
95. Marshall Fisher, Janice Hammond, Walter Obermeyer and Ananth Raman, "Making Supply Meet Demand in an Uncertain World," *Harvard Business Review*, May/June 1994.
96. Marshall Fisher, "What is the Right Supply Chain for Your Product?" *Harvard Business Review*, March/April 1997.

97. Marshall Fisher, Ananth Raman and Anna McClelland, "Rocket Science Retailing is Coming: Are You Ready," *Harvard Business Review*, July-August 2000.
98. Marshall Fisher and Ramnath Vaidyanathan, "Which Products Should You Stock?" *Harvard Business Review*, November 2012.
99. Marshall Fisher, Vishal Gaur, Herb Kleinberger, "Curing the Addiction to Growth," *Harvard Business Review*, Jan-Feb 2017.
100. Marshall Fisher, Santiago Gallino Serguei, Netessine, "Retailers Are Squandering Their Most Potent Weapons," *Harvard Business Review*, Jan-Feb 2018.

## **Cases**

101. Marshall Fisher, "National Bicycle Industrial Company," 1993
102. Raman, Ananth, Anna McClelland and Marshall Fisher. 2001. Supply Chain Management at World Co. Ltd. *Harvard Business School Case #*: 601072-PDF-ENG
103. Marshall Fisher and Jayanth Krishnan, "Wawa Store Execution," October 13, 2004
104. Marshall Fisher, "Luen Thai A: Strategy for a Post Quota World," October 2, 2007
105. Marshall Fisher, "Luen Thai B: Coping with Rising Wages," October 27, 2010
106. Marshall Fisher, "Yihaodian," November 2010
107. Marshall Fisher and Edwin Keh, "New Thinking at New Balance," November 8, 2013

## **Working Papers**

108. Marshall L. Fisher, Jayanth Krishnan and Serguei Netessine, "Retail Store Execution: An Empirical Study," Wharton Operations and Information Management Working Paper, January, 2007, under revision.
109. Marshall L. Fisher, Jayanth Krishnan and Serguei Netessine, "Labor Planning, Execution, and Retail Store Performance," Wharton School Operations and Information Management Working Paper, September 2007. Revised and resubmitted, July 2010

110. Marshall Fisher and Manu Goyal, "Making supply meet demand at the size level," OPIM Working Paper, January, 2003
111. Marshall Fisher, Vishal Gaur and Ananth Raman, "What Explains Superior Retail Performance?" OPIM Working Paper, October 1999
112. Marshall Fisher and Ananth Raman, "Estimating Uncertainty Using Judgmental Forecasts," OPIM Working Paper, March 1997
113. Marshall Fisher, A.S. Greenfield, R. Jaikumar and P. Kedia, "Real-Time Scheduling of a Bulk Delivery Fleet: Practical Application of Lagrangian Relaxation," Decision Sciences Working Paper 82-10-11, October, 1982
114. Marshall Fisher and P. Kedia, "Optimal Vehicle Routing Via Lagrangian Relaxation," Decision Sciences Working Paper 82-10-12, October, 1982
115. Marshall Fisher, "On the Equivalence of Greedy Covering and Greedy Location," Decision Sciences Working Paper 79-11-01, November 1979.
116. Marshall Fisher and R. Jaikumar, "A Decomposition Algorithm for Large-Scale Vehicle Routing," Decision Sciences Working Paper 78-11-05, July 1978
117. Marshall Fisher and L. VanWassenhove, "A New Relaxation for the Tardiness Problem," Working Paper, May, 1978
118. Marshall Fisher, F.J. Gould and J.W. Tolle, "A Simplicial Algorithm for the Mixed Nonlinear Complementarity Problem with Application to Convex Programming," CMSBE Report 7424, University of Chicago June 1974, presented at the SIGMAP-University of Wisconsin Nonlinear Programming Symposium, April 16, 1974
119. Marshall Fisher and Linus Schrage, "Using Lagrange Multipliers to Schedule Elective Hospital Admissions," University of Chicago Report, July 1972

### **Recent Invited Talks (since 1 January 2006)**

- "Rocket Science Retailing," Duke Fuqua School, 7 April 2006
- "Assortment Localization," POMS Annual Conference, Boston, 30 April 2006 (with Ramnath Vaidyanathan)
- "Empirical Results on Drivers of Retail Sales and Customer Satisfaction," POMS Annual Conference, Boston, 30 April 2006 (with Jayanth Krishnan and Serguei Netessine)
- "Seven Habits of Highly Effective Operations Research Implementers," Plenary Address, INFORMS Practice Conference, Miami, 1 May 2006
- "Rocket Science Retailing," MIT Operations Research Center, 4 May 2006

- “Sales, Customer Satisfaction and Store Execution,” HBS-MIT Behavioral Operations Conference, 5 May 2006
- “Rocket Science Retailing,” Stanford Business School, 17 May 2006
- “Rocket Science Retailing,” Harvard Business School, 18 May 2006
- “Sales, Customer Satisfaction and Store Execution,” Retail Systems MIX Conference, Chicago, 22 May 2006
- “Strengthening Our Empirical Research Base,” Plenary Address, INFORMS International Meeting, Hong Kong, 27 June 2006
- “Sales, Customer Satisfaction and Store Execution,” INFORMS International Meeting, Hong Kong, 28 June 2006 (with Nicole DeHoratius, Jayanth Krishnan and Serguei Netessine)
- “Rocket Science Retailing,” Plenary Address, INFORMS Annual Meeting, Pittsburgh, 5 November 2006
- “Assortment Localization,” INFORMS Annual Meeting, Pittsburgh, 6 November 2006 (with Ramnath Vaidyanathan)
- “Sales, Customer Satisfaction and Store Execution,” INFORMS Annual Meeting, Pittsburgh, 6 November 2006 (with Jayanth Krishnan and Serguei Netessine)
- “Rocket Science Retailing,” Krannert School, Purdue University, 8 December 2006
- “Rocket Science Retailing,” MIT Sloan School, 26 February 2007
- “Creating the Right Supply Chain for Your Product,” Keynote Address, Supply Chain World 2007, Philadelphia, 20 March 2007
- “Americas Supply Chain Competitiveness,” UPS Longitude Conference, Toronto, 21 June 2007
- “Retail Store Execution,” Supply Chain Thought Leaders Conference, Kobe, Japan, 23 June, 2007.
- “Assortment Planning,” Institute for the Fashion Industries Business School, Tokyo, Japan, 25 June, 2007.
- “Bringing localization to life,” Panel discussion, World Economic Forum, New York City, 1 October 2007.
- (with Kevin Freeland), “Rocket Science Retailing,” Informs Society for Marketing Science Practice Conference, The Wharton School, Philadelphia, 15 October 2007.
- “How Do Events within a Store’s Four Walls Affect Sales and Customer Satisfaction?,” Council of Supply Chain Management Professionals Annual Meeting, Philadelphia, 22 October 2007
- “Retail Assortment Optimization,” Northwestern IEMS Department, Evanston, IL, 12 May 2008.
- “Retail Assortment Optimization,” University of North Carolina, Chapel Hill, NC, 29 February 2008.
- “Supply Chain Flexibility,” keynote address, Supply Chain Conference, Molde University College, Molde, Norway, 15 July 2008
- “Retail Assortment Optimization,” Yale University, New Haven, CT, 11 February 2009.
- “Retail Assortment Optimization,” Columbia University Business School, NY, NY, 3 March 2009.
- “Retail Assortment Optimization,” NYU Stern School, NY, NY, 19 November 2009.



- “Rocket Science Retailing,” keynote address, 2<sup>nd</sup> Global Health Supply Chain Summit, Zaragoza Logistics Centers, Zaragoza, Spain, 4 December 2009
- “Retail Assortment Optimization,” IE Business School, Madrid, Spain, 12 December 2009
- "How to decide what to produce when you don't know what your customers will buy," Women's Wear Daily Supply Chain Summit, NY, NY, 17 March 2010
- "Assortment Optimization," Washington University in St Louis, St Louis, MO, 30 April 2010
- "Assortment optimization," Keynote address at London Business School conference, London, 24 June 2010
- "Rocket Science Retailing," keynote address, Overseas Chinese Scholars Association annual conference, Beijing, China, 11 July 2010
- "Supply chain flexibility," Walmart Global Sourcing headquarters, Shenzhen, China, 16 July 2010
- “Store execution,” NYU Stern School, 14 April 2011
- “The New Science of Retailing,” keynote talk, The Retailer: The Last Mile, University of Cincinnati Conference, 6 May 2011
- “Assortment Optimization,” Northwestern Kellogg School, 2 November 2011
- “Assortment Optimization, Retail Analytics Research Council, Boston, 16 November 2011
- with Edwin Keh, "Chinese supply chains at an inflection point," Keynote talk at Hong Kong POMS chapter annual meeting, Hong Kong, 6 January 2012
- "Chinese supply chains at an inflection point," keynote address, McGill conference on Managing supply chains in emerging markets, Montreal, 24 Feb 2012
- "Teaching supply chains," POMS Conference, Chicago, 21 April 2012
- with Andres Catalan, "Assigning SKUs to DC's to minimize split orders," Wharton COER Conference, Philadelphia, 9 May 2012
- "How do activities within a stores four walls impact sales and customer satisfaction?," Kronos Users conference, pebble beach, CA, 16 May 2012
- "Assortment optimization," MIT Operations Research Center Seminar, Cambridge, MA, 18 Oct 2012
- "Assignment of SKUs to DC's to minimize split orders," COER Greater China Conference, Tsinghua University, Beijing, 11 Dec 2012
- "Invest in Your Workforce to Increase Sales," National Retail Federation annual Meeting, New York City, 14 January 2013
- "Assortment Optimization," HEC, Paris, 26 April 2013
- "Assortment Optimization," INSEAD, Fontainebleau, France, 27 May 2013
- "Chinese Supply Chains at an Inflection Point," INSEAD, Fontainebleau, France, 14 June 2013
- "Chinese Supply Chains at an Inflection Point," London Business School, London, 18 June 2013
- "How will you leave the world a different and better place," INSEAD PhD program Commencement Speech, Fontainebleau, France, 28 June 2013
- "Assortment Optimization, University of Michigan, Ann Arbor, 13 December 2013

- panelist, The future of e-tailing in China, Penn Wharton China Center Opening Seminar, Beijing, 9 March 2015
- with Youran Fu, Assortment Planning for an etailer, June 2014 COER Conference Wharton
- with Santiago Gallino and Jun Li, Dynamic Pricing, June 2014 COER Conference, Wharton
- with Santiago Gallino and Sergeui Netessine, Impact of Training on Retail Sales Associate productivity, June 2014 COER Conference, Wharton
- With Santiago Gallino, Increasing Revenue with Optimized Labor Scheduling, COER Conference, June 17th-18th, 2015, Harvard Business School
- With Youran Fu Using Social Media to Improve Forecasting, , COER Conference, June 17th-18th, 2015, Harvard Business School
- With Xuanming Su, and Chloe Kim The Impact of Service Quality on Future Demand, COER Conference, June 17th-18th, 2015, Harvard Business School
- With Edwin Keh, Herb Kleinberger Let's Talk Omni-Channel, COER Conference, June 17th-18th, 2015, Harvard Business School
- Assortment Optimization, Columbia University, 12 Nov 2015
- An Implemented and validated Algorithm for on line dynamic pricing, COER Greater China Conference, Shanghai Jiao Tong University, 11 Dec 2015
- What should a retailer do when their sales growth rate slows?, Harvard Business School, 21 March, 2016
- What should a retailer do when their sales growth rate slows?, INSEAD, 28 April 2016
- What should a retailer do when their sales growth rate slows? London Business School, 20 May 2016
- Sell what you've made vs. make what's selling. Where is the world headed and what should you do about it ? Keynote address, Conference on What is the Next Supply Chain for Fashion ?, ESCP Europe, Paris, France, 27 May 2016
- Kicking the Growth Addiction (with Vishal Gaur and Herb Kleinberger), CONSORTIUM FOR OPERATIONAL EXCELLENCE IN RETAILING conference, Wharton, June 22-23, 2016
- Research Opportunities in Omni-channel Retailing, Supply Chain thought Leaders Conference, Un. of Cincinnati, June 12, 2016
- Kicking the Addiction to growth. Tlantic Everywhere store conference, New York City, 18 Jan 1017
- Curing the addiction to growth. Wharton Retail East Conference, New York City, 16 May 2017
- Retailers are chasing the wrong kind of growth. HBR Facebook Life, Boston, MA, 24 May 2017
- Curing the addiction to growth. INFORMS Annual Meeting, Houston, 22 Oct 2017
- Curing the addiction to growth. NYU Operations Day, New York City, 2 March 2018
- Make what's selling vs. sell what you've made, Keynote address, McGill Fashion Retailing Conference, Montreal, 27 April 2018

## **Editorships**

- Senior Editor, *Manufacturing & Service Operations Management*, 1996 – 2006.
- Co-editor (with Ananth Raman), *Focused Issue of Manufacturing & Service Operations Management on Retail Operations*, 2001.
- Co-editor (with Steve Graves), *Special Issue of Management Science on Frontier Research in Manufacturing and Logistics*, 1997.
- Associate Editor, Mathematical Programming and Networks, *Management Science*, 1977-79.
- Co-Departmental Editor, Mathematical Programming and Networks, *Management Science*, 1979-83.
- Member of the Editorial Board, *SIAM Journal on Algebraic and Discrete Methods*, 1981-1987.
- Co-editor (with Alexander Rinnooy Kan), *Special Issue of Management Science on Formulation and Analysis of Heuristics*, 1987.

## **Professional Activities**

### **National Academy of Engineering**

- Member of the Presidents Advisory Committee, 1998-2000
- Co-chair, Steering Committee for the NAE-IOM (Institute of Medicine) Conference “Engineering and Health Care Delivery Systems,” held in Washington D.C. May 21 and 22, 2001

### **Operations Research Society of America (ORSA)**

- Chairman, 1979 Lanchester Prize Selection Committee
- Chairman, Publications Committee, 1981-1982
- Chairman, Selection Committee for new Editor of *Operations Research*, 1981-1982

### **The Institute of Management Sciences (TIMS)**

- Council Member, 1985-87
- President-Elect, 1987-88
- President, 1988-89
- Past President, 1989-90

### **The Institute for Operations Research and Management Science (formed in 1995 through the merger of ORSA and TIMS)**

- Search committee for the new editor of *Manufacturing & Service Operations Management*, 2001
- Organizing Committee for the Annual Practice Conference, 2003-2005

- Search Committee for the INFORMS Practice Prize, 2006
- Search Committee for the Morse Lecturer, 2007-2009, Chairman
- Search Committee for the Kimball Medal, 2007-2009.

### **Production and Operations Management Society**

- Council Member, 2002-2004
- Co-president, College of Supply Chain Management, 2002-2006
- Past co-president, College of Supply Chain Management, 2006-2008
- President elect, 2009-2010
- President, 2010-2011
- Past President, 2011-2012

### **Major Wharton Administrative Responsibilities**

- Chair, Committee to Assess Global Modular courses, 2012
- Chair, Committee to consider a center in China, 2011
- MBA Advisor, Wharton Operations and Info Management Department, 2009-2012
- Member, Wharton Digital Press Editorial Board, 2008-present
- Member, Wharton Global Initiatives Committee, 2010-present
- Executive Committee of the Faculty Senate, 2006-2008
- Wharton Personnel Committee, 2004-2006
- Provost's Academic Planning and Budget Committee, 1996-1997
- Chairman, MBA Curriculum Committee, 1997-1999
- Member, Wharton Research Policy Committee, 1996-1997
- Chairman, Wharton Research Policy Committee, 1995-1996
- Co-director, Fishman-Davidson Center for Service and Operations Management, 1993-present
- Co-director, Manufacturing and Logistics Research Center, 1990-1993
- Member, Deans Advisory Council, 1987-2000
- Member, Wharton Quality Council, 1991-1994
- MBA Executive Committee, Member 1992-94, 2002-2004 & 2009-2011, Chairman, 2011-12
- Provost's Academic Planning and Budget Committee, 1992-93
- Member, MBA Curriculum Committee, 1989-1992
- Elected Member, Dean's Search Committee, 1989-1990
- Chairman, Committee on Teaching Quality, 1988-1990.
- Chairman, Decision Sciences Department, 1986-1989.
- Associate Director, Wharton Doctoral Program, 1977-1986
- Wharton Personnel Committee, 1987-1989

### **Grants**

- Co-Principal Investigator (with Serguei Netessine), "Retail Store Execution," International Commerce Institute, 2009-2011, \$100,000.

- Principal Investigator, “Retail Store Execution,” Procter & Gamble Gift, 2004 – 2007, \$200,000.
- Principal Investigator, “The Transformation of Retail Merchandising from Art to Science,” Sloan Foundation, 10/15/96 – 12/31/99, \$395,000.
- Co-principal Investigator, "Product and Production Line Planning in an Environment of High Product Variety," NSF Grant, 9/1/91 - 3/1/93, up to \$300,000 depending on industry matching funds.
- Principal Investigator, Optimization Algorithms for Vehicle Routing, National Science Foundation Grant SES-8812006, 8/1/88 - 1/31/92, \$181,000.
- Principal Investigator, Optimal Scheduling of Bulk Transport Fleets, National Science Foundation Grant INT-8408554, 12/1/84 - 8/31/87, \$68,109
- Principal Investigator, Heuristics and Lagrangian Relaxations for Combinatorial Optimization Problems, National Science Foundation Grant ENG76-20274, 9/15/76 - 8/31/79, \$49,000. Renewed for 6/1/79 - 11/30/81, \$58,285. Renewed for 9/1/82 - 2/28/85, \$80,000.
- Principal Investigator, Mathematical Methods for Scheduling and Routing Ships, Office of Naval Research Contract N00014-78-C-0302 P0006, 6/1/83 - 6/1/86, \$145,000. Renewed for 6/1/86 - 6/1/87, \$150,000. Renewed for 6/1/87 - 10/1/88, \$212,000.
- Principal Investigator, Location Problems in Computer Networks, Office of Naval Research Contract N00014-78-C-0302, 2/1/78 - 1/31/79, \$21,061. Renewed for 2/1/79 - 1/31/80, \$21,061. Renewed for 2/1/80 - 1/31/83, \$75,000.
- Principal Investigator, Location Problems in Computer Networks, Office of Naval Research, Contract N00014-77-C-0118, 12/1/76 - 12/1/77, \$21,007.
- Co-principal Investigator, Integer and Nonlinear Programming Methods, National Science Foundation Grant SOC--7402516, 3/1/74-8/1/76, \$42,200.

### **Consulting (partial list)**

- Ahold
- Air Products and Chemicals, Inc.
- American Pacific Enterprises
- Americold
- Avon
- Bausch & Lomb
- Bertelsman Music Group
- Best Buy
- Bulgari
- Campbell Soup
- Charming Shoppes
- David's Bridal
- Digital Equipment Corporation
- Defense Logistics Analysis Office
- E.I. DuPont De Nemours and Company
- Edward Don and Company
- Exxon Corporation
- Frito-Lay Inc.
- General Motors
- IBM
- Integral
- JoAnn Fabric and Linens
- Kenneth Cole
- Linens 'n Things
- Lutron
- Mattel
- Motorola
- National Aeronautics and Space Administration
- Nike
- Nokia
- Provident National Bank
- Scott Paper
- Spiegel
- Spencer Gifts
- Trans World Entertainment
- USM Corporation