

## ***RICHARD S. MACK***

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### **AREAS OF SPECIALIZATION IN ECONOMICS**

Public Decision Making, Regional Economics, Urban/Rural Development, Regulatory Policy, Microeconomics, Industrial Organization, Energy Economics, Resource Allocation, Environmental Policy

### **EDUCATION**

Ph.D., Economics, Colorado State University (1972)

B.A., Economics, Dartmouth College (1964)

### **TEACHING EXPERIENCE**

- 1972 - 2009      Professor of Economics, Central Washington University, Ellensburg, WA. Teaching courses in Macro/Micro Theory, Regional Methods, Government and Business, Environmental/Energy Economics, Economic History, Resource Economics. Member, Graduate Faculty.
- 2007              Northwest International Council on Study Abroad. Program Professor in the London Site. Taught courses on The Modern British Economy and on British Economic History; administered academic program; conducted research on British industrial archeology.
- 1999              Spring term visiting Professor, Janus Pannonius University, Pecs, Hungary. Taught courses in International Business for the MBA and the English language programs.
- 1991-92          Visiting Professor of Management, Dublin City University, Dublin, Ireland. Taught courses in Managerial Economics and Micro Theory.
- 1988              Northwest International Council on Study Abroad. Program Professor in the London Site. Taught courses on The Modern British Economy and on British Economic History; administered academic program; conducted research on privatization of the British economy.
- 1984 - 1985      Center for Energy Research/Education/Service, College of Architecture and Planning, Ball State University, Muncie, IN. Visiting Research Professor. Taught courses in Planning, Energy and Environmental Management. Conducted research on: Service Sector and Economic Development; Assessment of Solar Tax Credits; Development of a supply function of alternative technologies.
- 1970 - 1972      Graduate Teaching & Research Assistant. Colorado State University, Ft. Collins, CO. Taught Principles of Economics. Conducted research on Water Use Valuation and Industrial Water Use under contract to the National Water Commission. Conducted research in Social Economic Theory under a grant from the Ford Foundation.

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### ADMINISTRATIVE EXPERIENCE

- 2004-Present Founding Director, Chairman of the Asset-Liability Management Committee, and Member of the Audit Committee, First Standard Bank, Los Angeles, CA. The bank, formed de nouveau, serves the Korean-American community of Southern California.
- 1999-2003 Interim Dean/AVP of Graduate Studies, Research and Continuing Education, Central Washington University, Ellensburg, WA. Responsible for: strategic planning, evaluation of programs, budgeting and personnel, developing and carrying out policies and procedures governing graduate programs, making graduate faculty appointments, recruiting and appointing graduate students, supporting faculty, undergraduate and graduate research and creative activities, overseeing grants and contracts, and overseeing programs of the Office of Continuing Education.
- 1991-1998 Founding Director and Member of Executive Committee, Kittitas Valley Bank, Ellensburg, WA. Formed de nouveau as a result of a study in regulation of the financial sector, the \$50 million dollar, forty employee bank was Federally chartered and FDIC approved. It was named by the American Bankers Association as the twentieth most profitable small bank in the nation.
- 1997-1998 Principal Investigator, Washington State Horsepark Feasibility and Impact Study, contracted by the Office of the Washington State Attorney General. Directed the work of two faculty members, one graduate student, three undergraduates, and six volunteers.
- 1997-1999 Founding Director, Center for Economic Development and Public Policy, Central Washington University, Ellensburg, WA. Established the Center and solicited funding. Coordinated the work of graduate and undergraduate students and faculty in completion of externally funded contracts.
- 1996-1998 Principal Investigator, Washington State Department of Transportation Graintrain Financial Study. Directed the work of five professionals across three academic institutions and two State government offices.
- 1988-1994 Director, Economic Impact Assessment for Fish Hatchery Project, under contract by the Bonneville Power Administration, U.S. Department of the Interior. Directed the work of seven analysts to gather data and develop input-output and econometric models of salmon mitigation policies upon areas of the Pacific Northwest.
- 1987 Program Director, London Center, Northwest International Council on Study Abroad. Developed curriculum for a nine faculty, eighty-eight student program taught in London. Coordinated teaching, assessment, travel and budgets.
- 1979 - 1981 Director, Industrial Energy Program, Oak Ridge Associated Universities, Oak Ridge, TN. Under contract to the U.S. Department of Energy, directed the work of six analysts and coordinated the contracted work of twelve economists, physicists and engineers in the development of the *Energy Data Book*. Administered the Industrial Energy Use Program and the Industrial Energy Conservation Project. Served on Industrial Energy Use Project, Natural Gas Requirements Review, and Total Costs of Electric Service Outage Project.

**Richard S. Mack**

1964 - 1968 Captain, U.S. Air Force. Air Traffic Controller and Site Director, serving stateside and Taiwan assignments.

**FUNDED RESEARCH AND AWARDS**

2009-2011 National Science Foundation funded a program of Research Experiences for Undergraduates in China

2002-2005 National Science Foundation funded a program of Research Experiences for Undergraduates

2001-2002 Lancy Foundation/National Council for Undergraduate Research funded a program of undergraduate research in China.

1999-2000 U.S. Department of Education funded a program in International Education for Exporting.

1997 Office of the Secretary of State sponsored research on Horse Park Impact and Feasibility

1996 Named CWU Merrick Research Professor.

1996 Received School of Business and Economics Award for Faculty Research.

1996 Washington State Department of Transportation sponsored research on regional grain movements.

1995 Bonneville Power Administration sponsored research on regional impacts of salmon mitigation policies.

1994 Bonneville Power Administration sponsored research on regional impacts of salmon mitigation policies.

1991-92 Study of International Service Exports, Sponsored by the Board of Trade, Republic of Ireland.

1989 Centennial Speaker, Washington State Centennial Commission.  
George Mason University Law and Economics Program.

1988 - 1989 Bonneville Power Administration sponsored research on regional impact analysis.

1988 Named Distinguished Professor of Research, Central Washington University.

1986 - 1987 Washington State Institute for Public Policy sponsored research on structural change in the Washington economy.

1983 - 1986 Tennessee Valley Authority sponsored research on regional service sector development.

1985 Indiana State Department of Commerce sponsored research on policy strategies for economic development.

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**FUNDED RESEARCH AND AWARDS (cont.)**

- 1983                    General Electric Fellow, University of Chicago Graduate School of Business: Recent developments in applied economics.
- National Science Foundation funded short course on alternative energy.
- Electric Power Research Institute sponsored presentation of a series of workshops on electrical reliability.
- 1979 - 1981           U.S. Department of Energy funded research to develop a comprehensive study of industrial energy use.
- 1980                    U.S. Department of Energy supported validation of E.I.A. natural gas data.
- U.S. Congressional Office of Technology Assessment supported research on the potential for conservation in U.S. industry.
- 1978 - 1979           Washington State Energy Extension Service funded the position of technical specialist in energy finance. Advised financial institutions on design of energy conservation funding.
- U.S. E.R.D.A. funded citizens' energy workshops in Alaska using energy simulation models; research was conducted on the social impact of energy development.
- 1974 - 1976           Washington State Economic Educators Commission awarded a grant to conduct a series of summer workshops on economic education for secondary teachers.
- 1970 - 1972           The National Water Commission funded water allocation research to comprehensively survey literature and develop models and case studies of water value in hydroelectric production and water value to industrial use.

**PUBLICATIONS**

**Journal Articles and Monographs**

“Talking Trash: A Multifaceted Examination of Recycling and Solid Waste Management Practices and Policies in Beijing, co-authored with Devona Ensmenger and Josh Goldstein, accepted for publication, East-West Connections: Review of Asian Studies, 2005 Edition.

“The pressures of Industry on the Chinese Environment: A Tale of Two South China Cities,” co-authored with C. Brown, D. Gonzalez, E. Medford, and A. Murray, East-West Connections: Review of Asian Studies, 2003 Edition.

“Evaluating Impacts of Infrastructure Investment: A Case Study of Railcar Investments in Washington State,” co-authored with Gary Richardson and Kenneth Casavant, The Northwest Journal of Business and Economics, 1999 Edition.

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**Journal Articles and Monographs (cont.)**

“Purposeful Research: American Association of State Colleges and Universities Research Partners Program,” National Social Science Journal, Vol. 9, No. 2, 1998

“The Conceptual Foundations of the New International Division of Labor,” co-authored with Peter V. Schaeffer, Journal of Planning Literature, Vol. 12, No. 1, August 1997.

“The Use of Job and Income Projections as Backdrops for Input-Output Impact Assessments,” co-authored with Henry Robison, The Journal of Regional Analysis and Policy, Vol. 26, No. 2, 1996.

“Impact of Peripherality Upon Regional Performance in the European Union,” co-authored with David S. Jacobson, abstracted in International Advances in Economic Research, Fall, 1996.

“Core-Periphery Analysis of the European Union: A Location Quotient Approach,” co-authored with David S. Jacobson, Regional Science Perspectives, Vol. 26, No. 1 (1996).

“The Impact of Peripherality Upon Trade Patterns in the European Union,” co-authored with David S. Jacobson, European Urban and Regional Studies, Vol. 3, No. 2, (1996)

“Core-Periphery Analysis: A Tale of Two Nations,” co-authored with David S. Jacobson, Dublin City University, Research Papers, No. 8, (1995-1996).

“Nonmetropolitan Manufacturing and the Product Life Cycle: A Review of Literature,” co-authored with Peter V. Schaeffer, Journal of Planning Literature, Vol. 8, No. 2 (Nov. 1993).

“Nonmetropolitan Manufacturing and the Product Life Cycle Theory,” co-authored with Peter V. Schaeffer. Abstracted in The Atlantic Economic Journal, September, 1992.

“PC in Our Time,” Making Sense, co-authored with V.B. Mack, February 1992.

“The Effects of Universities on Local Retail, Service and F.I.R.E. Employment: Some Cross-Sectional Evidence,” Growth and Change, Vol. 21, No. 3, 1990. Co-authored with S. Henson and D. Hedrick.

“The Economic Base of Central Places: Reinterpreting the Location Quotient,” Federal Reserve Bank of Dallas Working Papers. Co-authored with R. Gilmer and S. Keil, April 1990.

“The Service Sector in a Hierarchy of Rural Places: Potential for Export Activity,” Land Economics, co-authored with R. Gilmer and S. Keil, August, 1989.

“The Service Sector of Washington State's Economy,” Scholarship in Review, co-authored with D. Cocheba, August 1988.

“Export Potential of Services in the Tennessee Valley,” Regional Science Perspectives, Fall 1987, co-authored with R. Gilmer and S. Keil.

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**PUBLICATIONS (cont.)**

**Journal Articles and Monographs (cont.)**

"The Service Economy in the Tennessee Valley Region," Forum for Applied Research and Public Policy, Vol. 16, no. 2, co-authored with R. Gilmer.

The Service Sector of Washington State's Economy: Growth Patterns and Structural Change, Washington State Institute for Public Policy, November 1987, co-authored with D. Cocheba.

Metro/Non-Metro Shares of Service Sector Activity in the Washington State Economy, Washington State Institute for Public Policy, November 1987, co-authored with D. Cocheba.

"Long-run Adjustment to Alternative Levels of Reliability in Electricity Supply," The Energy Journal, Vol. 7, No. 4, 1986, co-authored with R. Gilmer.

"Identifying Export Potential in the Service Sector," Growth and Change, April 1986, co-authored with S. Keil.

"Causes and Consequences of Slow Growth in the Tennessee Valley's Service Sector," Growth and Change, January 1986, co-authored with D. Cocheba and R. Gilmer.

"Development of the Service Sector in the State of Indiana," CERES Research, (April 1986), co-authored with S. Keil.

"Measuring Changes in Service Sector Activity: Data Refinement Recommendations and Their Impact on a Study of the Tennessee Valley," Growth and Change, (October 1985), co-authored with D. Cocheba and R. Gilmer.

"Identifying Export Potential in the Service Sector," Perspectives, No. 8 (September 1985)), co-authored with S. Keil.

"Development of the Service Sector in the State of Indiana," Perspectives, No. 8 (September 1985), co-authored with S. Keil.

"An Alternative Approach to the Service Sector Role in Economic Development," abstracted in Atlantic Economic Journal (September 1985), co-authored with R. Gilmer.

"The Valuation of Electricity Supply Interruptions," CERES Research (June 1985), co-authored with R. Gilmer.

"The Tennessee Valley: Why Have Services Grown Slowly?" TVA Economic Papers, Knoxville, TN (March 1985), co-authored with R. Gilmer.

"Growth of the Service Sector in the Tennessee Valley," TVA Economic Papers, Knoxville, TN (November 1984), co-authored with R. Gilmer.

"The Cost of Electric Power Outages," The Energy Journal, (Winter 1984), co-authored with R. Gilmer.

Review of: The Illusions of Conventional Economics, by William H. Miernyk; The Journal of Energy and Development (August 1983).

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**PUBLICATIONS (cont.)**

Electric Power Interruptions in the Tennessee Valley - The Residential Sector, Institute for Energy Analysis, Oak Ridge Associated Universities, Oak Ridge, TN (October 1980), co-authored with R. Gilmer.

**Books and Chapters in Books**

"The Cost of Electric Power Outages," Institute for Energy Analysis, Oak Ridge Associated Universities, Oak Ridge, TN (1980), co-authored with R. Gilmer.

Business Dominance and Practice: Did the FTC Go Soft on Microsoft?" Current Regional Issues, 1994.

"Currents of Change: Restoring Salmon Runs." Current Regional Issues, 1994.

"Timber Production Versus the Environment: At Loggerheads in the Northwest." Current Regional Issues, 1994.

Current Regional Issues, co-authored with Mark Rieman and James Turner, The Dryden Press: Harcourt, Brace, Jovanovich Publishers, New York. February 1994.

"Hydroelectricity and Ocean Thermal Energy Conversion Systems," Chapter 14 in Global Energy: Assessing the Future, Jae Edmonds and John M. Reilly, Oxford University Press (New York, 1985).

"Solar and Wind," Chapter 13 in Global Energy: Assessing the Future, Jae Edmonds and John M. Reilly, Oxford University Press (New York, 1985).

"Calculating the Cost of Interruptions," in Value of Service Reliability to Consumers, Electric Power Research Institute (Palo Alto, 1985), co-authored with R. Gilmer.

Industrial Energy Use, Garland Press (New York, 1981).

"Accounting Methods and Sources of Industrial Energy Data" (Chapter 2); "Energy Use and Economic Variables" (Chapter 3); "Investment Criteria and Public Policies" (Chapter 5); and "Construction Industry" (Chapter 9) in Bodine, et al., Industrial Energy Use Data Book, U.S. Government Printing Office (Washington, DC, 1980).

"The Value of Water for Hydroelectric Power Generation," (Chapter 8) and "The Value of Water in Industrial Uses," (Chapter 11) in Young et al., Economic Value of Water: Concepts and Empirical Estimates, U.S. Government Printing Office (Washington, DC, 1973).

**Research Reports and Proceedings**

"Kittitas County Economic Impacts from the Proposed Desert Claim Wind Power Project" Co-authored with D. Hedrick, D. Meseck and C. Wassell, February, 2009.

"Financial Feasibility and Economic Impact of the Washington State Horse Park" Co-authored with Timothy Dittmer, November, 2006.

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**PUBLICATIONS (cont.)**

**Research Reports and Proceedings (cont.)**

“Geographic Analysis of the Fife Commercial Bank Delineated Assessment Area.” Co-authored with D. Kaufman, April 2004.

“Geographic Analysis of the North Cascades National Bank Delineated Assessment Area.” Co-authored with D. Kaufman, April 2000.

“Feasibility and Economic Impact of the Washington State Horsepark.” Contractor report to the Washington State Horsepark Authority, 1998.

“Performance of the Washington State Department of Transportation Grain Train Project.” Contractor Report to the Washington State Department of Transportation, 1996.

“An Economic Evaluation of the Performance of the Washington State Department of Transportation Grain Train Project.” Proceedings of the Pacific Northwest Regional Economic Conference, 1996.

“Socio-Economic Impacts” in Yakima Fisheries Project Final Environmental Impact Statement, Bonneville Power Administration, January 1996.

"Socio-Economic Analysis for Yakima Fisheries Project." June 1995. Contractor report.

"The New International Division of Labor." Proceedings of the 36th Meeting of the Regional Science Association International Association, 1994.

"An Economic Impact Analysis of the Yakima Fisheries Project." Contractor Report to the Bonneville Power Administration Fish and Wildlife Division. June 1994.

"A Comparison of Alternative Methodologies for Estimating Economic Impacts in Small Areas," in the Proceedings of the 1990 Pacific Northwest Regional Economics Conference, Bellingham, WA. Co-authored with S. Henson and D. Hedrick.

"The Effects of Universities on Local Employment: Some Cross-Sectional Evidence," in Proceedings of the 1990 Pacific Northwest Regional Economics Conference, Bellingham, WA. CO-authored with S. Henson and D. Hedrick.

"Yakima/Klickitat Production Project, Preliminary Design Report, Appendix D." U.S. Department of Energy, Bonneville Power Administration, Division of Fish and Wildlife. April 1990.

"An Economic Impact Analysis of the Proposed Yakima/Klickitat Fishery Enhancement Project." Contractor Report to the Bonneville Power Administration, January 1990. Co-authored with D. Cocheba, D. Hedrick, and D. Green.

An Economic Impact Analysis of the Proposed Yakima/Klickitat Fishery Enhancement Project, Contractor Report to Bonneville Power Administration, December 1989, co-authored with D. Cocheba, D. Green, and D. Hedrick.

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An Economic Impact Analysis of the Proposed Hatchery Project for the Yakima and Klickitat River Basins, Contractor Report to Bonneville Power Administration, May 1989, co-authored with D. Cocheba, D. Green, and D. Hedrick.

The Service Sector of Washington State's Economy: Growth Patterns and Structural Change, Contractor Report to the Washington State Institute for Public Policy, November 1987, co-authored with D. Cocheba.

Metro/Non-Metro Shares of Service Sector Activity in the Washington State Economy, Contractor Report to the Washington State Institute for Public Policy, November 1987, co-authored with D. Cocheba.

Development of the Service Sector in the State of Indiana, Contractor Report to the Office of Economic Analysis, State of Indiana, Department of Commerce (May 1985), co-authored with S. Keil.

Identifying Export Potential in the Service Sector of Indiana, Contractor Report to the Office of Economic Analysis, State of Indiana, Department of Commerce (May 1985), co-authored with S. Keil.

"Service Sector Development in the Tennessee Valley: Why Have Services Grown Slowly?" Proceedings of the Second Conference on Public Policy and Regional Development, Indiana University (April 1985).

The Case of the Limited Service Sector, report to Chief Economist Staff, TVA (1985).

The Development of Service Industries in the Tennessee Valley, 1959-1981, Contractor Report to TVA (June 1984).

Assessment of the Role of Rural-Urban Shifts in the Development of the TVA Regional Service Sector, Contractor Report to TVA (January 1984).

"Potential for Future Conservation of Energy in Industry," Chapter 8 in Williamson and Cooper, U.S. Residential and Industrial Energy Use in the Year 2000, U.S. Congressional Office of Technology Assessment/Institute for Energy Analysis (April 1980).

Energy Emergency Mitigation Measures: Economic Impact Analysis, submitted to U.S. F.E.M.A. by the Institute for Energy Analysis (August 1981).

Methodologies for the Assessment of Energy Emergency Measures, submitted to the U.S. F.E.M.A. by the Institute for Energy Analysis (May 1981), co-authored with H. S. Leff.

A Review of Requirements for Natural Gas Data, U.S. D.O.E. (E.I.A.) Washington, DC (1980).

Total Costs of Electric Service Outages, submitted to TVA by the Institute for Energy Analysis (December 1979).

The Outlook for Financing Residential Energy Conservation, Washington State Energy Extension Service, Pullman, WA (Spring 1979), co-authored with W. Fairburn.

Financing Residential Energy Conservation in the State of Washington, Energy Studies Center, Central Washington University (December 1978), co-authored with W. Fairburn.

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Risk-Adjusted Rates of Return Required for Energy Loans, Washington State Energy Extension Service, Pullman, WA (September 1978), co-authored with W. Fairburn.

A Free Market Alternative to Mandatory Water Allocation, School of Business and Economics, Central Washington University (April 1977), co-authored with W. Fairburn.

**Presentations and Papers**

“Regional Analysis in Minutes” Co-authored with Gary Smith. 62<sup>nd</sup> Annual AUBER Fall Conference, Bellingham, WA October 2008.

“Cultivating a Reality Forum to Energize Undergraduate Economic Education” Co-authored with Gary Smith. 60<sup>th</sup> Annual AUBER Fall Conference, Memphis, TN, October 2006.

“Impacts of Developmental Programs and Policy Reforms on Rural Areas of Northwest China” co-authored with Aaron Ezroj, Deborah Mullin, Gregory Pyle, Sean Sylvia. Asian Studies Development Program Conference, Nashville, March, 2006

“Water Resource Allocation and Resulting Industry Mix in the Northwest of China,” Regional Science Association International Conference, Warwickshire, England. August, 2005.

“The pressures of Industry on the Chinese Environment: A Tale of Two South China Cities,” co-authored with C. Brown, D. Gonzalez, E. Medford, and A. Murray, Asian Studies Development Program Conference, Kansas City, April, 2004

“Income Convergence: a Regional Perspective.” Invited lecture, School of Economics and Management, Northwest University, Xi’an, People’s Republic of China, September, 2003.

“From NCUR to NSF; Undergraduate Research in China,” presented at the Ninth Annual Conference of the Asian Studies Development Program, Scottsdale, AZ, March 2003. Co-authored with Cook, James A.

“Economic Outlook for Eastern Washington,” 49<sup>th</sup> Annual International Association of Personnel in Employment Security Conference, April, 2002.

“Talking Trash: A Multifaceted Examination of Recycling and Solid Waste Management Practices in Beijing.” Eighth Annual Conference of the Asian Studies Development Program, Atlanta, GA, March 2002.

“Urban-Rural Income Convergence in the United States: Theory and Application.” International Studies Symposium, Beijing University, June, 2001.

“Railroad Infrastructure Development in Washington State.” Presented to the faculty of Northern Jiaotong University, Beijing, July 2000.

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"Evaluating the Feasibility and Impacts of a State Horsepark." Pacific Northwest Regional Economics Conference, May 1999. coauthored with Gary Richardson.

"The Grain Train in Washington State: Internal and External Benefits." 8<sup>th</sup> World Transportation Summit, Antwerp, Belgium, June 1998. coauthored with Gary Richardson and Ken Casavant.

"They Don't Get Paid for What They Do: the Funding Dilemma of AASCU Schools in Washington State," co-authored with Jean Soliz and Rex Wirth, National Social Science Association Meetings, April 7, 1998

"The Washington State Department of Transportation Grain Train Project: an Economic Appraisal." at the Canadian Transportation Economics Assn meetings, Toronto, May 14, 1997 coauthored with Gary Richardson and Ken Casavant.

"The Conceptual Foundations of the New International Division of Labor." Presented at the Atlantic Society Meetings, London, March 1996.

"A Shift Share Analysis of European Regions." Presented at the European Sector Regional Science International Association, Odense, Denmark, September 1995.

"Core-Periphery Analysis: A Tale of Two Nations." Presented at the British/Irish Sector Regional Science International Association, Dublin, Ireland. September 1994.

"The New International Division of Labor; an Appraisal of the Literature." Region Science Association International meetings, Nigara Falls, Ontario, Nov. 1994.

"Core Periphery Analysis; a Tale of Two Nations." Regional Science Association International; British Congress. Dublin, Ireland, September 1994.

"Core Periphery Analysis of the European Community: A Different Methodological Approach." Regional Science Association International meetings, Houston, TX, Nov. 1993.

"The Use of Location Quotients as Indicators of International Trade Flows in Core-Periphery Analysis of the European Community." Pacific Regional Science Conference Organization meetings, Whistler, British Columbia, Canada, July 1993.

"Non-Metropolitan Manufacturing and the Product Cycle Theory," presented at the Atlantic Economic Society meetings, March 1992, Nice, France.

"Service Sector Exports from Non-Metropolitan Counties in the Southeastern United States," presented at the Western Regional Science Association Meetings, February 25, 1991.

"A Comparison of Alternative Methodologies for Estimating Economic Impacts in Small Areas," Pacific Northwest Regional Economics Conference, Bellingham, WA, April 1990, with D. Green, S. Henson, and D. Hedrick.

"The Effects of Universities on Local Employment: Some Cross-Sectional Evidence," Pacific Northwest Regional Economics Conference, Bellingham, WA, April 1990, with S. Henson and D. Hedrick.

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"Export Potential of Services in the Tennessee Valley," Regional Science Association Meetings (November 10, 1989).

"Town vs. Gown: Are Universities Good for Business?" presented at the Western Economics Association Meetings (June 1989).

"The Service Sector in the Rural Hierarchy," presented to the Western Regional Science Association Meetings (February 21, 1989).

"The Service Sector of Washington's Economy: An Analysis of Urban/Rural Differences in Performance," presented to the Conference on the Economies of Washington State sponsored by the Washington State Institute for Public Policy (June 16, 1987).

"Export Potential of Services in the Tennessee Valley," presented to the Western Regional Science Association Meetings (February 18, 1987).

"The Outlook for Services in Washington State," presented to Economics Staff of the Washington State House and Senate for the Washington State Institute for Public Policy (December 16, 1986).

"Service Industries in Washington State," presented to the Trade and Economic Development Committee of the Washington State House and Senate (February 3, 1986).

"Economic Progress in the Tennessee Valley," presented to the TVA Economic Summit at Vanderbilt University (July 9, 1985).

"Services in Non-Metro Indiana Locations," presented to the greater Richmond Area Chamber of Commerce and Council for Economic Development (June 11, 1985).

"Strategies for Recruiting Services," Mid-Continent Regional Meetings (June 7, 1985).

"Service Sector Growth in Indiana," presented to the School of Public and Environmental Affairs at Indiana University in Indianapolis, IN (April 23, 1985).

"An Alternative Approach to the Service Sector Role in Economic Development," presented at the Atlantic Economic Society Meetings in Rome, Italy (March 10, 1985).

"The Service Sector and Regional Economic Growth," a series of seminars presented at Westminster College in Oxford, England (March 4-6, 1985).

"Service Sector Growth in the Tennessee Valley, 1959-81," presented to the Southern Economic Association, 54th Annual Conference (November 14, 1984).

"Service Sector and Regional Economic Growth," Indiana Economic Academy Development Workshop (December 1984).

"Do Service Industries Have a Role in State Economic Development Efforts?" Indiana State Department of Commerce Symposium (December 1984).

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"Service Sector and Economic Development," presented at the I.E.D.A. Residential Economic Development Workshop, Columbus, IN (December 6, 1984).

"Cost of Electrical Outages," Electric Power Research Symposium, St. Louis, MO (October 1983).

"Valuation of Outages," Electric Power Research Institute, Boston, MA (May 1983).

"Household Production Method for the Assessment of Electric Outages," EPRI Symposium, San Diego, CA (November 1982).

**OTHER LIVES**

1961-64 Mechanic, Triangle Auto, White River Junction, Vermont

1964-68 Air Traffic Controller, Captain, U.S. Air Force

1968-69 Mechanic, Bavarian Motors, Denver Colorado

1969-72 Proprietor, Gonniff Brothers Foreign Auto, Ft. Collins, Colorado