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BORN: Eugene, Oregon: March 13, 1942

DEGREES:

A.B. (Statistics) University of California, Berkeley, 1965
Ph.D. (Economics) University of California, Berkeley, 1973

PRINCIPAL APPOINTMENTS:

- Professor, Department of Economics, University of Maryland, 1985-present (Chairman, 1985-1988)
- Research Associate, National Bureau of Economic Research 1985-present
- Senior Fellow, The Conference Board, 2006-present
- Senior Research Associate, The Urban Institute, 1978-1985
- Assistant Professor, Department of Economics, Johns Hopkins University, 1971-1978

CURRENT PROFESSIONAL SERVICE:

- Chairman, Executive Committee, Conference on Research in Income and Wealth, 1985-present.
- Member, Bureau of Economic Analysis Advisory Committee.

PAST PROFESSIONAL SERVICE:

Member of the Committee on Economic Statistics of the American Economic Association, and the Canberra Group advisory committee, established by the Inter-Secretarial Working Group on National Accounts as part of the United Nations Statistical Commission to support the revision of the U.N. System of National Accounts. American Economic Association representative to the Council of Professional Associations on Federal Statistics.

SELECTED PUBLICATIONS:

PROFESSIONAL JOURNALS:

Productivity Theory:

"Divisia Index Numbers," *Econometrica*, Vol. 41, No. 6, November 1973, pp. 1017-25.

"Technical Change and the Reproducibility of Capital," *American Economic Review*, Vol. 65, No. 5, December 1975, 956-965.

"Growth Accounting with Intermediate Inputs," *Review of Economic Studies*, Vol. 45, No. 3, October 1978, 511-518.

"On the 'Importance' of Productivity Change," *American Economic Review*, Vol. 69, No. 1, March 1979, 126-135.

"Productivity Change, Capacity Utilization, and the Sources of Efficiency Growth," *Journal of Econometrics*, Vol. 33, 1986, 31-50.

"Growth Accounting when Technical Change is Embodied in Capital," *American Economic Review*, Vol. 82, No. 4, September 1992, 964-980.

"Productivity Dynamics in Manufacturing Plants," *Brookings Papers on Economic Activity, Microeconomics 1992*, (with Martin N. Baily and David Campbell), 187-249.

"Accounting for the Wealth of Nations: The Net Versus Gross Output Controversy and its Ramifications," *Scandinavian Journal of Economics*, Vol. 94, Supplement, 1992, 9-24.

Corrado, Carol, Charles Hulten, and Daniel Sichel, "Intangible Capital and U.S. Economic Growth," *Review of Income and Wealth*, 55, 3, September 2009, 661-685.

"How Do You Measure a 'Technological Revolution'?" *American Economic Review*, forthcoming, May 2010 (with Carol A. Corrado).

Regional and International Productivity Measurement:

"The Sources of Japanese Economic Growth, 1955-71," *Review of Economics and Statistics*, Vol. 60, No. 3, August 1978, 351-361 (with Mieko Nishimizu).

"Regional Productivity Growth in U.S. Manufacturing: 1951-1978," *American Economic Review*, Vol. 74, No. 1, March 1984, 152-162 (with Robert M. Schwab).

Infrastructure and Public Sector Productivity:

"Productivity Change in State and Local Governments," *Review of Economics and Statistics*, May 1984, Vol. LXVI, No. 2, 256-265.

"The Growth of the Public Capital Stock," *American Economic Review*, Vol. 74, No. 2, May 1984, 166-173 (with George E. Peterson).

"Public Capital Formation and the Growth of Regional Manufacturing Industries," *National Tax Journal*, Vol. XLIV, No. 4, Part 1, December 1991, 121-134 (with Robert M. Schwab).

"Infrastructure Spending: Where Do We Go From Here?" *National Tax Journal*, Vol. 46, No. 3, September 1993, 261-275 (with Robert M. Schwab).

"A Fiscal Federalism Approach to Infrastructure Policy," *Regional Science and Urban Economics*, 27, 1997, 139-159, (with Robert M. Schwab).

"Infrastructure, Externalities, and Economic Development: A Study of Indian Manufacturing Industry," *World Bank Economic Review*, Vol. 20, No. 2, 2006, 291-308 (with Esra Bennathan and Sylaja Srinivasan).

Measurement of Economic Depreciation:

"The Estimation of Economic Depreciation Using Vintage Asset Prices: An Application of the Box-Cox Power Transformation," *Journal of Econometrics*, Vol. 15, 1981, 367-396 (with Frank C. Wykoff).

"The Measurement of Economic Depreciation," in *Depreciation, Inflation, and the Taxation of Income from Capital*, Charles Hulten, ed., The Urban Institute, Washington, D.C., 1981, 81-125 (with Frank C. Wykoff).

"Economic Depreciation and Accelerated Depreciation: An Empirical Analysis of the Conable-Jones 10-5-3 Proposal," *National Tax Journal*, Vol. 34, No. 1, March 1981, 45-60 (with Frank C. Wykoff).

"Issues in the Measurement of Economic Depreciation," *Economic Inquiry*, Vol. XXXIV, No. 1, January 1996, 10-23 (with Frank C. Wykoff).

Tax Policy:

"Economic Depreciation and Accelerated Depreciation: An Empirical Analysis of the Conable-Jones 10-5-3 Proposal," *National Tax Journal*, Vol. 34, No. 1, March 1981, 45-60 (with Frank C. Wykoff).

"Tax Policy and the Investment Decision," *American Economic Review*, Vol. 74, No. 2, May 1984, 236-241.

"The Taxation of High Technology Industries," *National Tax Journal*, September 1984, Vol. XXXVII, No. 3, 327-346 (with James W. Robertson).

"A Haig-Simons Comprehensive Income Tax," *National Tax Journal*, Vol. XLIV, No. 1, March 1991, pp. 67-78 (with Robert M. Schwab).

CHAPTERS IN UNIVERSITY PRESS VOLUMES:

"Economic Depreciation and the Taxation of Structures in U.S. Manufacturing Industries: An Empirical Analysis," in *The Measurement of Capital*, Studies in Income and Wealth, Vol. 45, The University of Chicago Press for the National Bureau of Economic Research, Chicago, 1980, 83-109 (with Frank C. Wykoff).

"Income Originating in the State and Local Sector," in *Fiscal Federalism: Quantitative Studies*, in Harvey Rosen, ed., University of Chicago Press for the National Bureau of Economic Research, Chicago, 1988, 215-254 (with Robert M. Schwab).

"Energy, Obsolescence, and the Productivity Slowdown," in *Technology and Capital Formation*, Dale W. Jorgenson and Ralph Landau, eds., M.I.T. Press, Cambridge, Massachusetts, 1989, 225-258.

"The Measurement of Capital," in *Fifty Years of Economic Measurement: The Jubilee of the Conference on Research in Income and Wealth*, Ernst R. Berndt and Jack E. Triplett, eds., Studies in Income and Wealth, Vol. 54, The University of Chicago Press for the National Bureau of Economic Research, Chicago, 1990, 119-152.

"Implications of BEA's Treatment of Computer Prices for Productivity Measurement," in *Price Measurements and Their Uses*, Murray F. Foss, Marilyn E. Manser, and Allan H. Young, eds., The University of Chicago Press for the National Bureau of Economic Research, Chicago, 1993, 359-362.

"Does Infrastructure Investment Increase the Productivity of Manufacturing Industry in the U.S.?" *Econometrics and the Cost of Capital: Essays in Honor of Dale Jorgenson*, Lawrence J. Lau, ed., M.I.T. Press, 2000, 143-164 (with Robert Schwab).

"Total Factor Productivity: A Short Biography," in *New Developments in Productivity Analysis*, Charles R. Hulten, Edwin R. Dean, and Michael J. Harper, eds., Studies in Income and Wealth, vol. 63, The University of Chicago Press for the National Bureau of Economic Research, Chicago, 2001, 1-47.

"Measuring Capital and Technology: An Expanded Framework," in *Measuring Capital in the New Economy*, Carol Corrado, John Haltiwanger and Daniel Sichel, eds., Studies in Income and Wealth, vol. 65, The University of Chicago Press for the National Bureau of Economic Research, Chicago, 2005, 11-41 (with Carol Corrado, and Daniel Sichel).

"The 'Architecture' of Capital Accounting: Basic Design Principles," in *A New Architecture for the National Accounts*, Conference on Research in Income and Wealth, Dale Jorgenson, Stephen Landefeld, and William Nordhaus, eds., Studies in Income and Wealth, vol. 66, The University of Chicago Press for the National Bureau of Economic Research, Chicago, 2006, 193-214.

"On the Theory and Political Economy of Data: An Essay in Memory of Zvi Griliches," in *Hard-To-Measure Goods and Services: Essays in Memory of Zvi Griliches*, Ernst R. Berndt and Charles R. Hulten, eds., Studies in Income and Wealth, vol. 67, The University of Chicago Press for the National Bureau of Economic Research, Chicago, 2007, 15-27.

ARTICLES IN HANDBOOKS AND DICTIONARIES:

"The Divisia Index," in *The New Palgrave: A Dictionary of Economic Theory and Doctrine*, John Eatwell, Murray Milgate and Peter Newman, eds., The Macmillan Press, London, 1987, 899-900. Revised for the new edition, 2007.

"Amortization," in *The New Palgrave: A Dictionary of Economic Theory and Doctrine*, John Eatwell, Murray Milgate and Peter Newman, eds., The Macmillan Press, London, 1987, 88-89. Revised for the new edition, 2007.

"Depreciation Allowances," in *The McGraw-Hill Encyclopedia of Economics*, Douglas Greenwald, ed., McGraw-Hill, New York, 1994, 267-270.

"Growth Accounting," *Handbook of the Economics of Innovation*, Bronwyn H. Hall and Nathan Rosenberg (eds.), Elsevier-North Holland, forthcoming 2010.

BOOKS EDITED:

The Legacy of Reaganomics, Charles R. Hulten and Isabel V. Sawhill, eds., The Urban Institute Press, Washington, D.C., 1984 (with Isabel V. Sawhill).

Depreciation, Inflation, and the Taxation of Income from Capital, Charles Hulten, ed., The Urban Institute, Washington, D.C., 1981.

A Comparison of Productivity Growth in Japan and the United States, Charles R. Hulten, ed., Studies in Income and Wealth, Vol. 53, The University of Chicago Press for the National Bureau of Economic Research, Chicago, 1991.

New Developments in Productivity Analysis, Charles R. Hulten, Edwin R. Dean, and Michael J. Harper, eds., Studies in Income and Wealth, Studies in Income and Wealth, vol. 63, The University of Chicago Press for the National Bureau of Economic Research, Chicago, 2001.

Hard-To-Measure Goods and Services: Essays in Memory of Zvi Griliches, Ernst R. Berndt and Charles R. Hulten, eds., Studies in Income and Wealth, vol. 67, The University of Chicago Press for the National Bureau of Economic Research, Chicago 2007.

Price Index Concepts and Measurement, W. Erwin Diewert, John Greenlees, and Charles R. Hulten, eds., Studies in Income and Wealth, vol. 70, The University of Chicago Press for the National Bureau of Economic Research, Chicago, 2010.

SELECTED OTHER WORK:

"The Importance of Productivity Change in the Economic Growth of Nine Industrialized Countries," in *Lagging Productivity Growth: Causes and Remedies*, Shlomo Maital and Noah M. Meltz, eds., Ballinger, Cambridge, Mass., 1980, 85-100 (with Mieko Nishimizu).

"Infrastructure and the Economy," in J.M. Pogoziński, ed., *Readings in Public Policy*, Blackwell Publishers, Cambridge, 1995, 213-234 (with Robert M. Schwab).

"Capital and Wealth in the Revised SNA," in *The New Standard System of National Accounts*, John W. Kendrick, ed., Kluwer Academic Publishers, Boston, 1995, 149-181.

"Infrastructure, Productivity, Growth and Competitiveness," in *Infrastructure Needs Assessments and Financing Alternatives*, U.S. House of Representatives, Committee on Banking, Finance, and Urban Affairs, Serial No. 101-117, Washington, D.C., May 8, 1990, 64-81.

"How Does Public Infrastructure Affect Regional Economics Performance: Discussion," in Alicia Munnell, ed., *The Third Deficit: The Shortfall in Public Capital Investment*, Federal Reserve Bank of Boston, Series No. 34, Boston, 1990, pp. 104-107.

"Infrastructure and Competitiveness: What the Data Really Show," in Jack M. Mintz and Ross S. Preston, eds., *Infrastructure and Competitiveness*, John Deutsch Institute for the Study of Economic Policy, Kingston, Canada, 1994, 173-203 (with Robert M. Schwab).

"Innovation, Intangibles And Economic Growth: Towards a Comprehensive Accounting of the Knowledge Economy," *Yearbook on Productivity 2007, Papers Presented at the Saltsjobaden Conference, October 2007*, Statistics Sweden, 2008, 127-146 (with Bart van Ark).

"Measuring Intangible Capital and its Contribution to Economic Growth in Europe," *EIB Papers*, European Investment Bank, volume 14, number 1, December 2009, 62-93 (with van Ark, Bart, Janet X. Hao, and Carol A. Corrado).

OTHER IN PROCESS:

"Getting Depreciation (Almost) Right," paper presented at the meeting of the Canberra II Group in Paris, April 23-27, 2007.

"Why Development Levels Differ: The Sources of Differential Economic Growth in a Panel of High and Low Income Countries," NBER Working Paper 13469, October 2007 (with Anders Isaksson).

"Welfare, Productivity, and Holding Gains," with Paul Schreyer, OECD, August 2009

"Toward A National Innovation Account," Comment Prepared for *The Advisory Committee on Measuring Innovation in the 21st Century Economy*, May, 2007.

"Intangible Capital and the 'Market to Book Value' Puzzle," NBER Working Paper 14548 December 2008 (with Janet Hao).

"Decoding Microsoft: Intangible Capital as a Source of Company Growth," paper presented at the National Bureau of Economic Research Summer Institute, July 14, 2009.

"Intangible Capital and the Valuation of Companies: A Comparison of German and U.S. Corporations," paper prepared for the COINVEST project, 2009 (with Janet Hao and Kirsten Jaeger).

GRANTS:

1. National Science Foundation, Division of Applied Research, Grant No. DAR 7909185, "The Sources of Japanese Saving and Growth," 1979-81 (co-principal investigator).
2. National Science Foundation, Division of Social and Economic Science, Grant No. SES-8014967, "The Measurement of Public Sector Productivity," 1981-82.
3. National Science Foundation, Division of Policy Research and Analysis, No. 83-GB-0009, "Differential Effects of the Accelerated Cost Recovery System on Investment," 1983 (principal investigator).
4. National Science Foundation, Division of Policy Research and Analysis, No. PRA-8413134, "Tax Policy, R&D, and Innovation," 1984 (principal investigator).
5. National Science Foundation, Division of Social and Economic Science, Grant No. SES-9009309, "Regional Economic Growth in U.S. Manufacturing Industries," 1990.
6. National Science Foundation, Division of Social and Economic Science, Grant No. SBR-9730608, "New Directions in Productivity Analysis," 1998.
7. National Science Foundation, Division of Social and Economic Science, Grant No. SES-0322213, "The Paths Ahead: Essays in Honor of Zvi Griliches," 2003 (co-principal investigator).
8. National Science Foundation, "Improving Productivity and Innovation Metrics: The Case of Financial Services," SciSIP, Award No. SBE-0830260, September 26, 2008 (co-principal investigator).